Service
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BJ2.4U/BJ2.5U

PA

Service Manual SDI Plasma Panels: 3122 785 14990

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Service Manual

Contents **Page**

Contents **Page**

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

Notes:

- Data below can deviate slightly from the actual situation, due to the different set executions
- Specifications are indicative (subject to change).

1.1 Technical Specifications

1.1.1 Vision

Display type	:	Plasma (SDI)
Screen size	:	42” (107 cm), 16:9
	:	50” (127 cm), 16:9
Resolution (HxV pixels)	:	1024(*3)x768p (42”)
	:	1366(*3)x768p (50”)
Min. contrast ratio	:	10000:1
Min. light output (cd/m^2)	:	1500
Viewing angle (HxV degrees)	:	160x160
Tuning system	:	PLL
TV Color systems	:	ATSC
	:	NTSC
Video playback	:	NTSC
Cable	:	Unscrambled digital cable - QAM
	:	Digital cable ready - CableCard
Tuner bands	:	VHF
	:	UHF
	:	S-band
	:	Hyper-band
Supported video formats	:	640x480i - 1fH
	:	640x480p - 2fH
	:	720x576i - 1fH
	:	720x576p - 2fH
	:	1280x720p - 3fH
	:	1920x1080i - 2fH
Supported computer formats	:	640x480 @ 60Hz
	:	800x600 @ 60Hz
	:	1024x768 @ 60Hz
	:	1366x768 @ 60Hz

1.1.2 Sound

Sound systems	:	AV Stereo
	:	BTSC
Maximum power (W_{RMS})	:	2 x 15

1.1.3 Multimedia

Supported digital media	:	Compact Flash I & II
	:	Memory Stick
	:	Microdrive (upto 2GB)
	:	SD / mini SD Card
	:	Multi Media Card
	:	Smart Media Card
Supported file formats	:	JPEG
	:	MP3
	:	MP3-pro
	:	Slideshow (.alb)
USB input	:	USB1.1 (12 Mbps)
	:	USB2.0 (480 Mbps)

1.1.4 Miscellaneous

Power supply:		
- Mains voltage (V_{AC})	:	110 - 240
- Mains frequency (Hz)	:	50/60
Ambient conditions:		
- Temperature range (°C)	:	+5 to +40
- Maximum humidity	:	90% R.H.
Power consumption (values are indicative)		
- Normal operation (W)	:	≈ 400 (42”)
	:	≈ 467 (50”)
- Standby (W)	:	< 2
Dimensions (WxHxD in cm)	:	124x68x10.4 (42”)
	:	141x78x10.4 (50”)

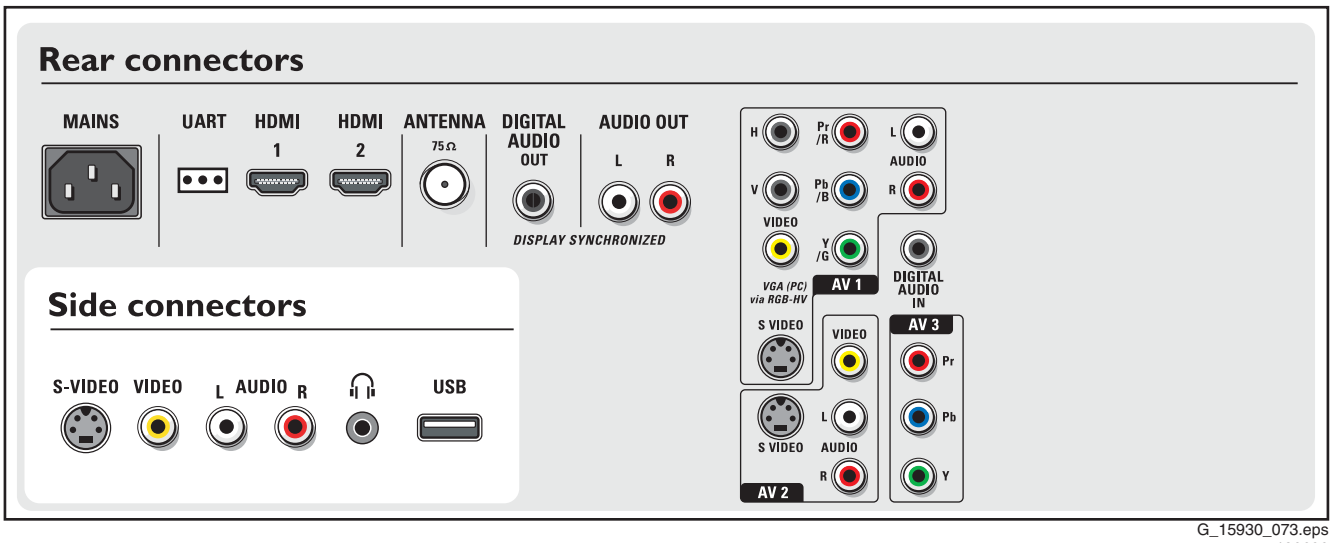

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Figure 1-1 Side and rear I/O connections BJ2.5U

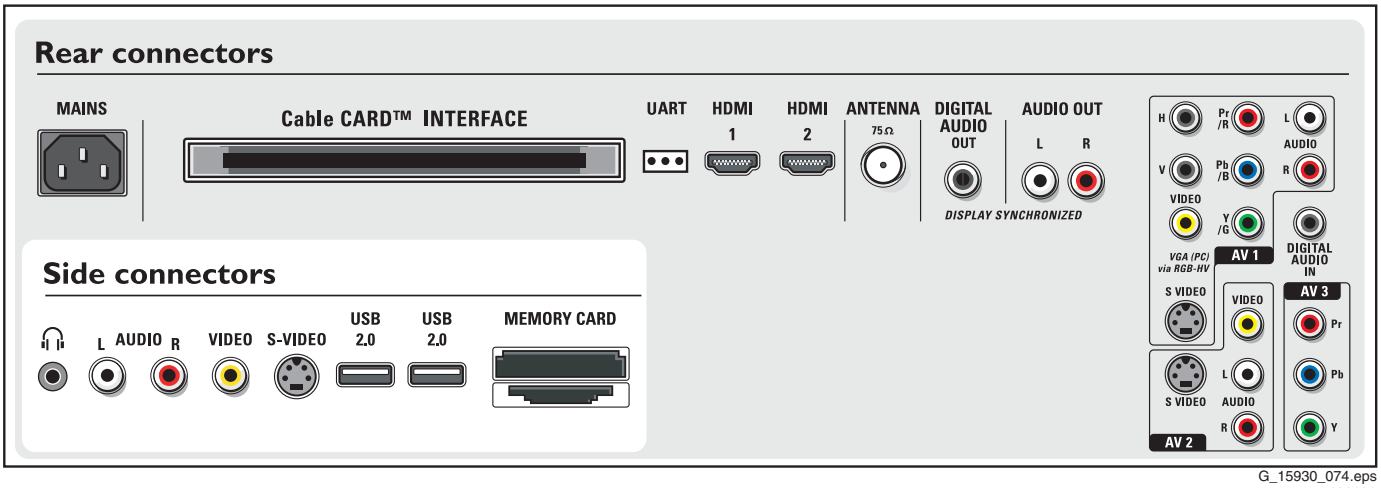

Figure 1-2 Side and rear I/O connections BJ2.4U

Note: The following connector color abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

1.2.1 Side Connections

Headphone (Output)

Bk - Headphone	32 - 600 ohm / 10 mW	

Cinch: Video CVBS - In, Audio - In

Rd - Audio R	0.5 V_{RMS} / 10 kohm	
Wh - Audio L	0.5 V_{RMS} / 10 kohm	
Ye - Video CVBS	1 V_{PP} / 75 ohm	

SVHS (Hosiden): Video Y/C - In

1 - Ground Y	Gnd	
2 - Ground C	Gnd	
3 - Video Y	1 V_{PP} / 75 ohm	
4 - Video C	0.3 V_{PP}P / 75 ohm	

USB2.0

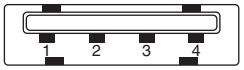

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Figure 1-3 USB (type A)

1 - +5V		
2 - Data (-)		
3 - Data (+)		
4 - Ground	Gnd	

1.2.2 Digital Media Reader with USB2.0 (for BJ2.4 U PA chassis)

In sets with the BJ2.4U PA chassis, a 6-in-1 card reader unit is available, which is connected via USB to the Small Signal Board (see also par. “Technical Specifications” -> “Multimedia”).
This unit also contains two USB2.0 connectors.

1.2.3 Rear Connections

POD: CableCARD Interface

68p - See diagram B10A		

Service Connector (UART)

1 - UART_TX	Transmit	
2 - Ground	Gnd	
3 - UART_RX	Receive	

HDMI 1 & 2: Digital Video, Digital Audio - In

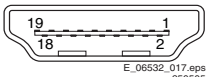

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Figure 1-4 HDMI (type A) connector

1 - D2+	Data channel	
2 - Shield	Gnd	
3 - D2-	Data channel	
4 - D1+	Data channel	
5 - Shield	Gnd	
6 - D1-	Data channel	
7 - D0+	Data channel	
8 - Shield	Gnd	
9 - D0-	Data channel	
10 - CLK+	Data channel	
11 - Shield	Gnd	
12 - CLK-	Data channel	
13 - n.c.		
14 - n.c.		
15 - DDC_SCL	DDC clock	
16 - DDC_SDA	DDC data	
17 - Ground	Gnd	
18 - +5V		
19 - HPD	Hot Plug Detect	
20 - Ground	Gnd	

Aerial - In

- F-type (US)	Coax, 75 ohm	

AV1 Cinch: Video YPbPrHV- In

Gn - Video Y	1 V_{PP} / 75 ohm	
Bu - Video Pb	0.7 V_{PP} / 75 ohm	
Rd - Video Pr	0.7 V_{PP} / 75 ohm	
Bk - H-sync	0 - 5 V	
Bk - V-sync	0 - 5 V	

AV1 Cinch: Video CVBS - In, Audio - In

Ye - Video CVBS	1 V_{PP} / 75 ohm	
Wh - Audio L	0.5 V_{RMS} / 10 kohm	
Rd - Audio R	0.5 V_{RMS} / 10 kohm	

DIGITAL AUDIO Cinch: S/PDIF - In

Bk	- Coaxial	0.2 - 0.6V_{PP} / 75 ohm

AV1 S-Video (Hosiden): Video Y/C - In

1	- Ground Y	Gnd
2	- Ground C	Gnd
3	- Video Y	1 V_{PP} / 75 ohm
4	- Video C	0.3 V_{PP}P / 75 ohm

AV2 S-Video (Hosiden): Video Y/C - In

1	- Ground Y	Gnd
2	- Ground C	Gnd
3	- Video Y	1 V_{PP} / 75 ohm
4	- Video C	0.3 V_{PP}P / 75 ohm

AV2 Cinch: Video CVBS - In, Audio - In

Ye	- Video CVBS	1 V_{PP} / 75 ohm
Wh	- Audio L	0.5 V_{RMS} / 10 kohm
Rd	- Audio R	0.5 V_{RMS} / 10 kohm

AV3 Cinch: Video YPbPr - In

Rd	- Video Pr	0.7 V_{PP} / 75 ohm
Bu	- Video Pb	0.7 V_{PP} / 75 ohm
Gn	- Video Y	1 V_{PP} / 75 ohm

DIGITAL AUDIO Cinch: S/PDIF - Out

Bk	- Coaxial	0.4 - 0.6V_{PP} / 75 ohm

MONITOR OUT Cinch: Video CVBS - Out, Audio - Out

Ye	- Video CVBS	1 V_{PP} / 75 ohm
Wh	- Audio L	0.5 V_{RMS} /10 kohm
Rd	- Audio R	0.5 V_{RMS} / 10 kohm

GEMSTAR Mini Jack: Remote Control - In/Out

1	- Ground	Gnd
2	- RXD	
3	- TXD	
4	- IR-OUT	
5	- RXD	

1.3 Chassis Overview

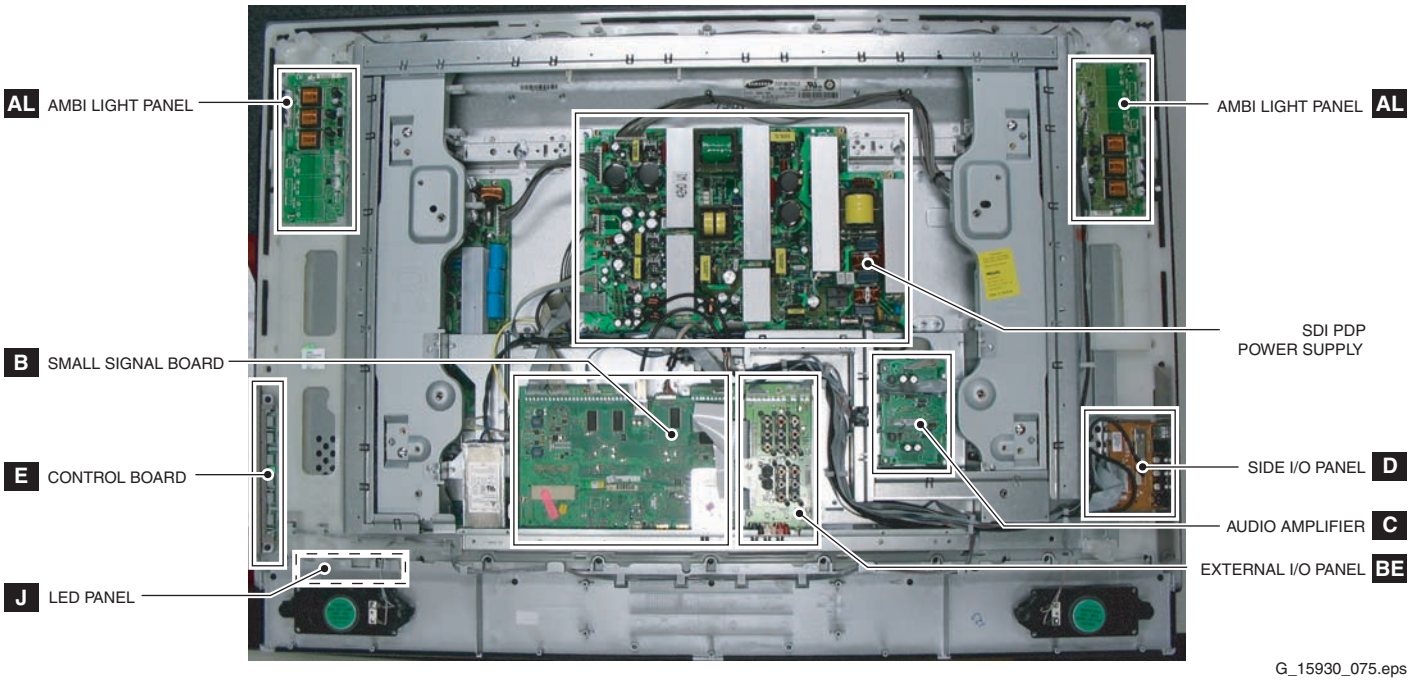

Figure 1-5 PWB/CBA locations

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains/AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
  1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
  2. Set the Mains/AC Power switch to the "on" position (keep the Mains/AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the Mains/AC Power plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
  – Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  – Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⊓) and without (⊼) aerial signal. Measure the voltages in the power supply section both in normal operation (①) and in stand-by (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. “Dolby”, “Pro Logic” and the “double-D symbol”, are trademarks of Dolby Laboratories.

2.3.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads (μ= x10^{-6}), nano-farads (n= x10^{-9}), or pico-farads (p= x10^{-12}).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.3.3 Rework on BGA (Ball Grid Array) ICs

General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal

As is the case with any component that, is being removed, it is essential when removing an (LF)BGA, that the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the risk of warping the PWB. To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has been shown to result in problems during re-soldering.

Device Replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information
For more information on how to handle BGA devices, visit this URL: *www.atyourservice.ce.philips.com* (needs subscription, not available for all regions). After login, select “Magazine”, then go to “Repair downloads”. Here you will find Information on how to deal with BGA-ICs.

2.3.4 Lead-free Solder

Philips CE is producing lead-free sets (PBF) from 1.1.2005 onwards.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 5 and 6 refer to the production year, digits 7 and 8 refer to production week (in example below it is 1991 week 18).

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Figure 2-1 Serial number example

Regardless of the special lead-free logo (which is not always indicated), one must treat all sets from this date onwards according to the rules as described below.

Figure 2-2 Lead-free logo

Due to lead-free technology some rules have to be respected by the workshop during a repair:
- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
  - To reach a solder-tip temperature of at least 400°C.
  - To stabilise the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch “off” unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly **to avoid** mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-) pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).
  Do not re-use BGAs at all!
- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:
- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid mix of two alloys).

Caution: For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website *www.atyourservice.ce.philips.com* (needs subscription, but is not available for all regions)
You will find this and more technical information within the "Magazine", chapter "Repair downloads".
For additional questions please contact your local repair help desk.

2.3.5 Alternative BOM identification

In September 2003, Philips CE introduced a change in the way the serial number (or production number, see Figure 2-1) is composed. From this date on, the **third digit** in the serial number (example: AG**2**B0335000001) indicates the number of the alternative BOM (Bill of Materials used for producing the specific model of TV set). It is possible that the same TV model on the market is produced with e.g. two different types of displays, coming from two different O.E.M.s.
By looking at the third digit of the serial number, the service technician can see if there is more than one type of B.O.M. used in the production of the TV set he is working with. He can then consult the At Your Service Web site, where he can type in the Commercial Type Version Number of the TV set (e.g. 28PW9515/12), after which a screen will appear that gives information about the number of alternative B.O.M.s used.
If the third digit of the serial number contains the number 1 (example: AG**1**B033500001), then there is only one B.O.M. version of the TV set on the market. If the third digit is a 2 (example: AG**2**B0335000001), then there are two different B.O.M.s. ***Information about this is important for ordering the correct spare parts!***
For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26 = 35 different B.O.M.s can be indicated by the third digit of the serial number.

2.3.6 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages**. While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following websites:
http://www.philips.com/support
http://www.p4c.philips.com

4. Mechanical Instructions

Index of this chapter:

Notes:

- Figures below can deviate slightly from the actual situation, due to the different set executions.
- Follow the disassemble instructions in described order.

4.1 Cable Dressing

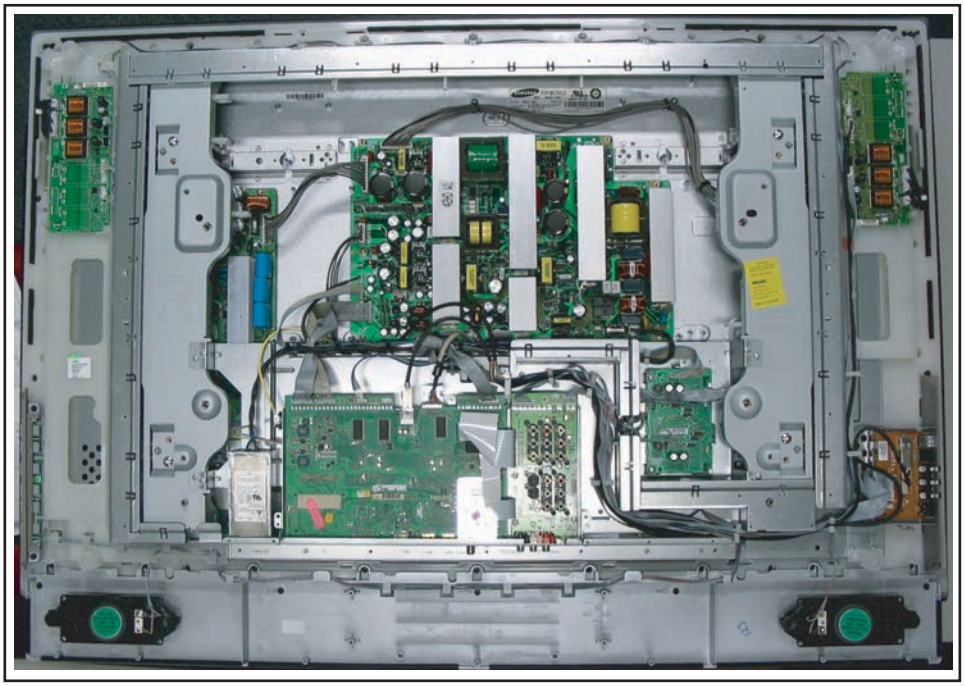

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Figure 4-1 Cable dressing

4.2 Service Positions

For easy servicing of this set, there are a few possibilities created:

- The buffers from the packaging.
- Foam bars (created for service).
- Aluminium service stands (created for Service).

4.2.1 Foam Bars

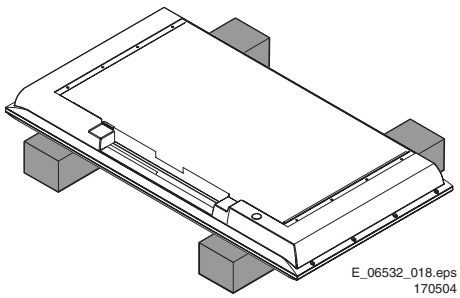

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Figure 4-2 Foam bars

The foam bars (order code 3122 785 90580 for two pieces) can be used for all types and sizes of Flat TVs. By laying the TV face down on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments.
By placing a mirror under the TV, you can monitor the screen.

4.2.2 Aluminium Stands

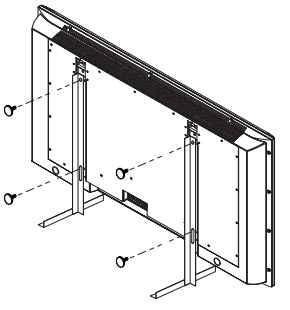

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Figure 4-3 Aluminium stands (drawing of MkI)

The new MkII aluminium stands (not on drawing) with order code 3122 785 90690, can also be used to do measurements, alignments, and duration tests. The stands can be (dis)mounted quick and easy by means of sliding them in/out the "mushrooms". The new stands are backwards compatible with the earlier models.
Important: For (older) FTV sets without these "mushrooms", it is obligatory to use the provided screws, otherwise it is possible to damage the monitor inside!.

4.3 Assy/Panel Removal

4.3.1 Metal Back Plate

Caution: Disconnect the Mains/AC Power cord before you remove the rear cover!

1. Place the TV set upside down on a table top, using the foam bars (see part "Foam Bars").
   Caution: do **not** put pressure on the display, but let the monitor lean on the speakers or the Front cover.
2. Remove the four "mushrooms" [1] from the rear cover. See figure “Metal back plate and rear cover removal” for details.
3. Remove the screws [2].

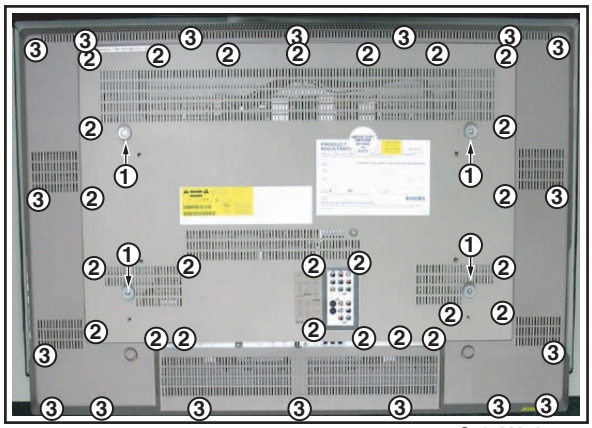

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Figure 4-4 Metal back plate and rear cover removal

4.3.2 Rear Cover

1. Remove screws [3].
2. Lift the plastic rear cover from the set. Make sure that wires and flat foils are not damaged.

4.3.3 Speaker

After removing the rear cover, you gain access to the speakers. Each speaker is fixed with four T10 screws [1]. See Figure “Speaker removal”. After removal of these screws, the speakers can be removed.
Caution: never disconnect the speakers with a playing set, because otherwise the class-D audio amplifiers could be damaged!

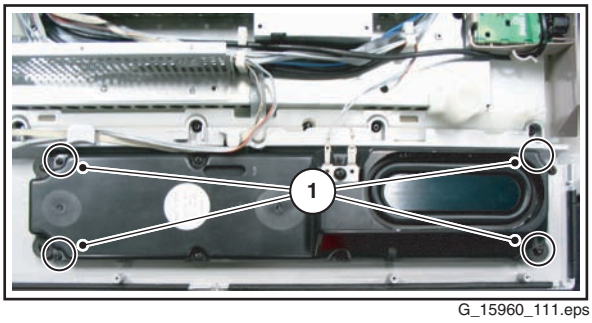

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Figure 4-5 Speaker removal

4.3.4 Speaker Compartment

After the speakers have been removed, the plastic speaker compartment underneath the set can be removed. See Figure “Speaker compartment removal”.

1. Remove the cables that are guided by the speaker frame from its clamps [1].
2. Remove parker T10 screws [2] that hold the frame and pull the frame downwards.

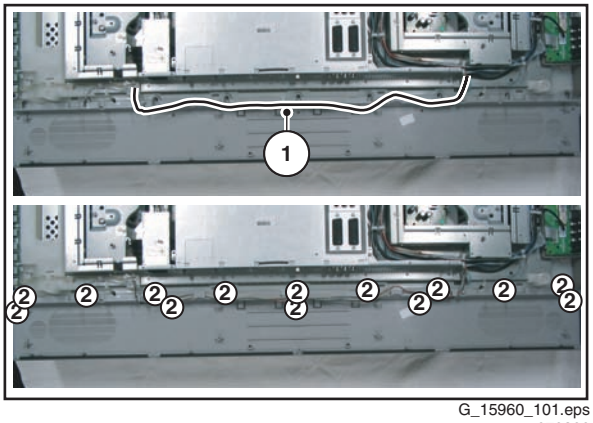

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Figure 4-6 Speaker compartment removal

Note: the speaker compartment cannot be removed without the speakers being removed first, since on each side of the compartment there is a hidden screw underneath the speaker.

4.3.5 AmbiLight Inverter Panel

There are two AmbiLight Inverter Panels used in this set. The instructions to remove the right one (seen from the back side of the set) are as follows:
1. Disconnect the cables [1] from the panel.
2. Push back the clamps [2] on the right side that hold the assy.
3. Take out the panel (it hinges on the left side).

When defective, replace the whole unit.

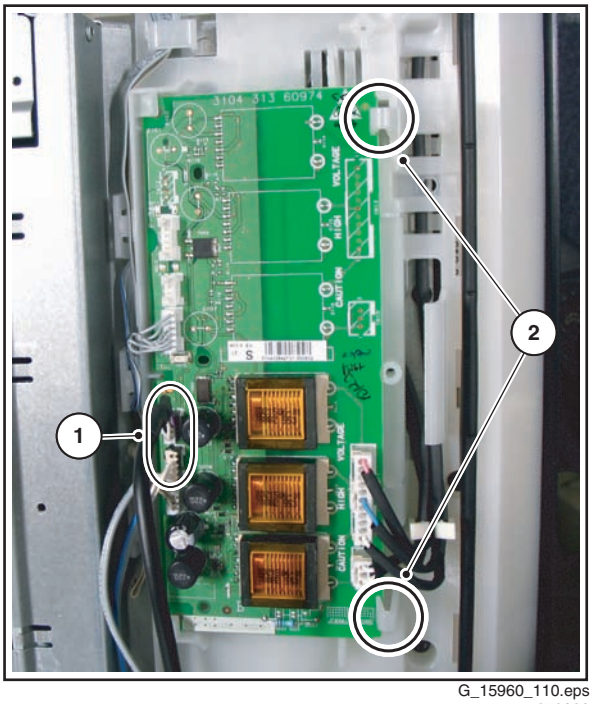

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Figure 4-7 AmbiLight right side inverter panel removal

4.3.6 Control Panel

The Control Panel can be taken out by removing the two T10 screws [1] that hold the plastic frame. See Figure “Control

panel removal". The cable can **not** be disconnected from the assy at this moment.

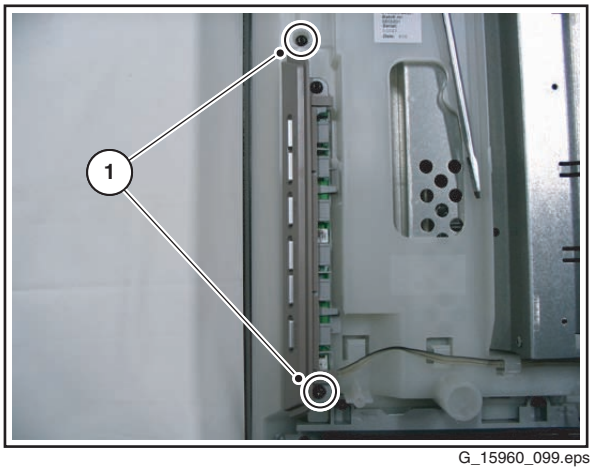

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Figure 4-8 Control panel removal

The assy is packed into **two** plastic frames. To unpack the inner frame, lift the two clamps [1] of the outer frame and take the inner frame out. See Figure "Control panel frame removal".

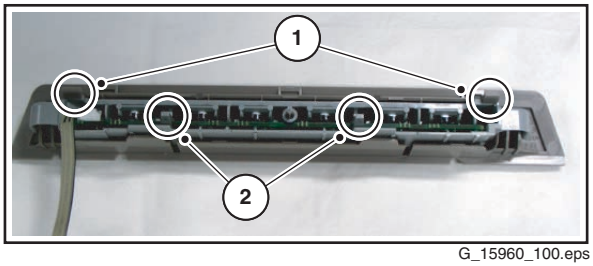

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Figure 4-9 Control panel frame removal

To take the assy out of the inner frame, lift the two clamps of the frame [2] and slightly pull the assy out. Only now the cable can be disconnected.
When defective, replace the whole unit.

4.3.7 Side I/O Panel

The Side I/O Panel can be removed together with its plastic casing. See figure "Side I/O panel removal" for details.

1. Disconnect the USB cable and the flat cable [1] from the panel.
2. Push the plastic frame slightly downwards towards the bottom of the set [2], and take the frame out together with the assy.
3. Push back the clamps [3] on the left side that hold the assy.
4. Take out the assy from the plastic frame, it hinges on the right side.

When defective, replace the whole unit.

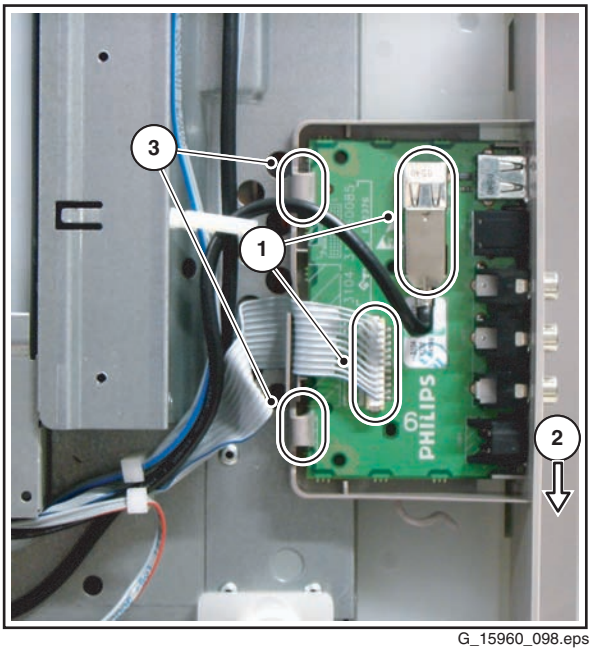

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Figure 4-10 Side I/O panel removal

4.3.8 Audio Panel

1. Disconnect all cables from the Audio Panel.
2. Remove the two T10 mounting screws [1] from the Audio Panel. See Figure "Audio Panel removal".
3. Take out the Audio Panel (it hinges at the right side).

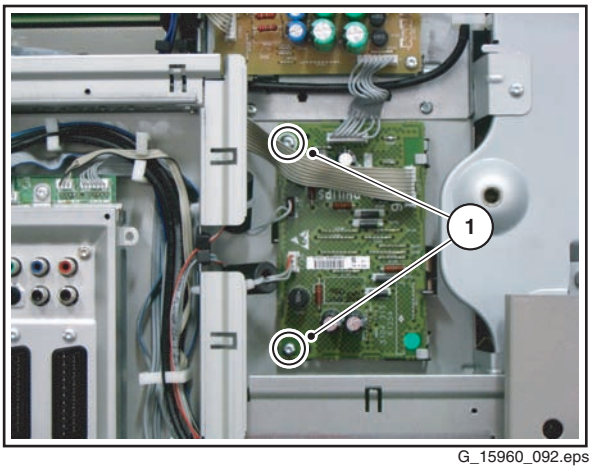

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Figure 4-11 Audio Panel removal

4.3.9 Small Signal Board (SSB) and Main I/O Panel

Caution: is is absolutely mandatory to remount all different screws at their original position during re-assembly. Failure to do so may result in damaging the SSB.

1. Unplug connector [1]. See figure "Rear SSB shield".
2. Unplug USB connector [2].
3. Remove black clip from LVDS connector.
4. Carefully unplug the fragile LVDS connector.
5. Unplug earth tab.
6. Remove screws [5] and [6]. See figure "Bottom SSB shield".
7. Remove rear and bottom shield.
8. Unplug connectors [7].

9. Remove screws [8].
10. Remove SSB from the set.

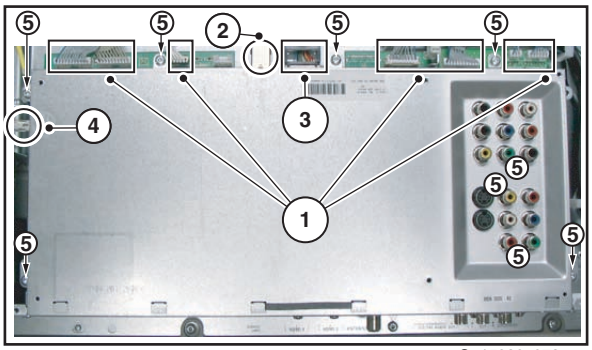

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Figure 4-12 Rear SSB shield

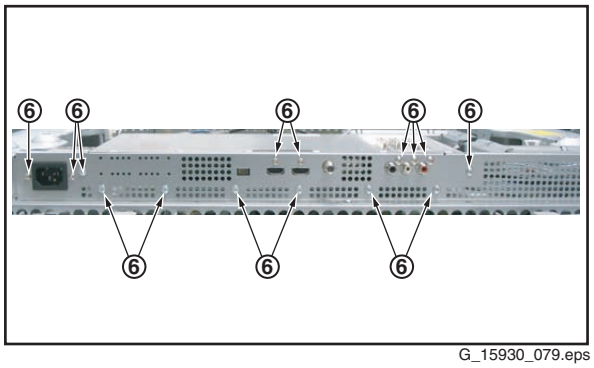

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Figure 4-13 Bottom SSB shield

For removing Rear I/O Panel (see figure “Rear I/O”):
1. Unplug connector [9].
2. Remove screws [10].
3. Remove the panel from the set.

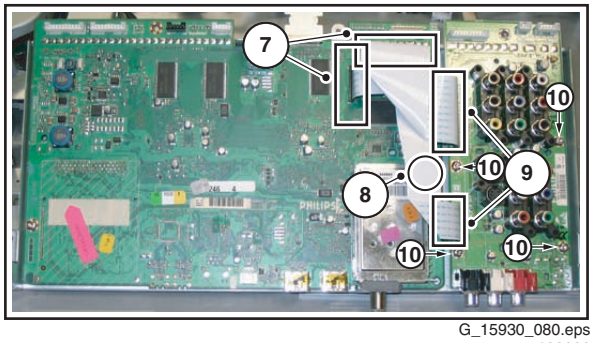

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Figure 4-14 Rear I/O panel

4.3.10 SDI PDP Power Supply Panel

See figure “SDI PDP Power supply panel” for details.

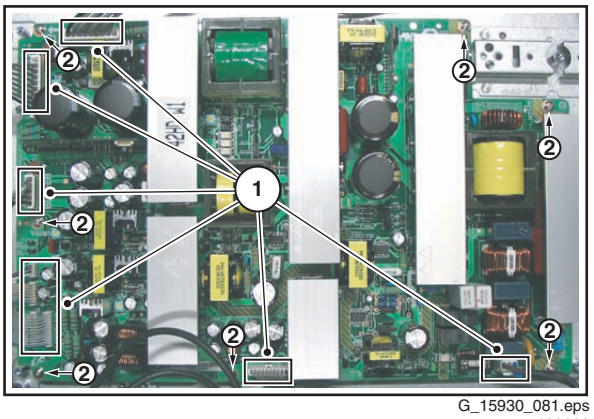

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Figure 4-15 SDI PDP Power supply panel

1. Unplug connectors [1].
2. Remove screws [2].

4.3.11 AmbiLight Diffusor Frame (Step & Top)

Before the AmbiLight lamp units can be removed, the AmbiLight diffusor frame must be lifted. Before this, the speaker frame must be removed, as described earlier in this chapter. See figure “AmbiLight diffusor frame removal” for details.

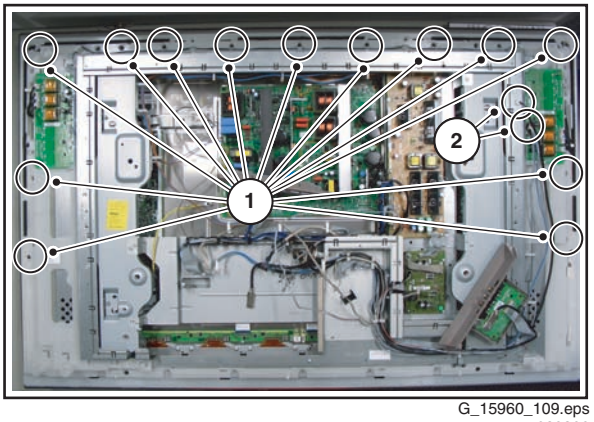

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Figure 4-16 AmbiLight Diffusor frame removal

1. Remove the remaining tapping T10 screws [1].
2. From the right AmbiLight Inverter Panel, unplug **two** cables [2] that lead to the SSB.
3. Remove the side I/O panel and Control Panel as previously described without unplugging the cables. Unclamp the cables in the set and place the units in the centre of the set.
4. Carefully lift the plastic frame from the set. See Figure “AmbiLight diffusor frame lift”.

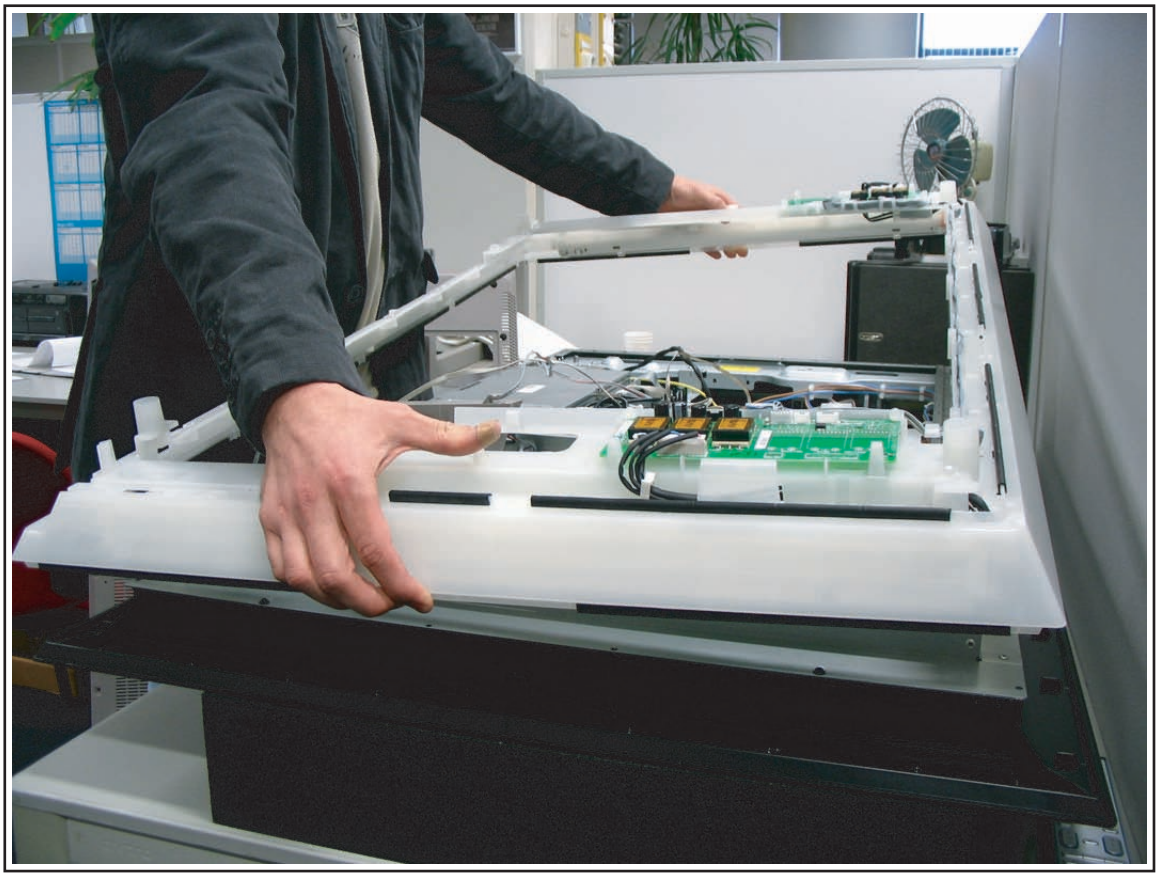

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Figure 4-17 AmbiLight diffusor frame lift

4.3.12 Now the AmbiLight lamp units can be removed from the frame. Each of them is fixed with four T10 parker screws: two on the inside and two on the outside of the frame.

4.3.13 LED Panel

1. After the AmbiLight diffusor frame has been removed, the LED Panel is accessible.
2. Remove the T10 mounting screws that hold the panel.
3. Take out the panel.

When defective, replace the whole unit. Reconnect the earth-cable during re-assembly.

4.3.14 Plasma Display Panel / Glass Plate

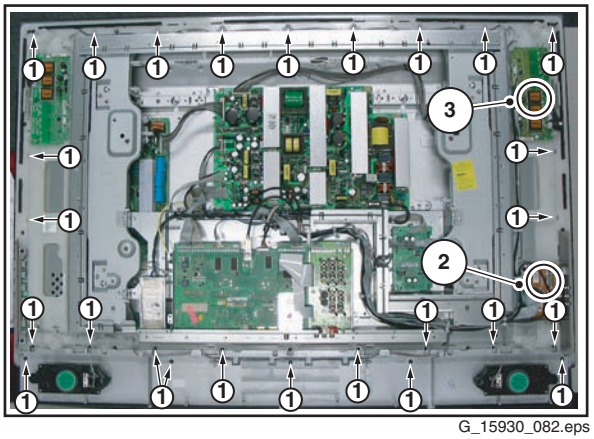

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Figure 4-18 PDP Panel removal -1-

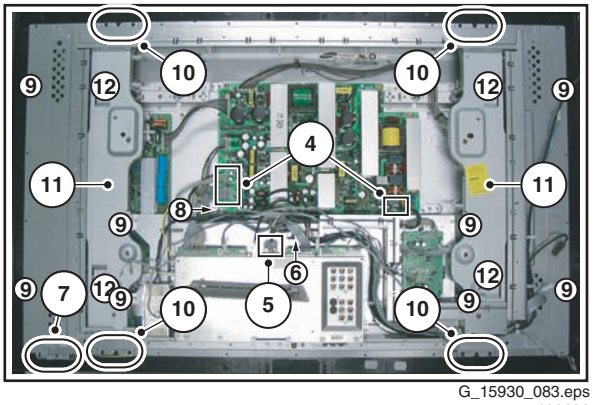

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Figure 4-19 PDP Panel removal -2-

1. Remove the key control unit.
2. Remove the loudspeaker compartment by removing screws [1]; see figure “PDP Panel removal -1-“ for details.
3. Unplug connectors 1M36 and 1H01 from the side I/O panel [2].
4. Unplug connectors 1M09 and 1M59 from the right AmbiLight inverter panel [3].
5. Unplug connectors [4] from the SDI PDP power supply panel. See figure “PDP Panel removal -2-” for details.
6. Carefully unplug LVDS connector [5] from the SSB.
7. Remove screw [6].
8. Remove LED panel [7].
9. Remove screw [8] from the earth tab.
10. Remove screws [9].
11. Gently lift the shielding with the SSB from the frame.

12. Remove screws [10].
13. Use brackets [11] to lift the panel from the set and put it at a safe place.
14. Remove screws [12] and the brackets from the panel, and install the brackets on the new panel.

4.4 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

Notes:

- While re-assembling, make sure that all cables are placed and connected in their original position. See figure "Cable dressing".
- Pay special attention not to damage the EMC foams on the SSB shields. Ensure that EMC foams are mounted correctly.

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points

As most signals are digital, it will be almost impossible to measure waveforms with a standard oscilloscope. Therefore, waveforms are not given in this manual. Several key ICs are capable of generating test patterns, which can be controlled via ComPair. In this way it is possible to determine which part is defective.

Perform measurements under the following conditions:
- Service Default Mode.
- Video: Color bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between a Customer Helpdesk and a customer.

There is also the option of using ComPair, a hardware interface between a computer (see requirements below) and the TV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version readout, and software upgrading.

Minimum requirements for ComPair: a Pentium processor, Windows 95/98, and a CD-ROM drive (see also paragraph “ComPair”).

5.2.1 Service Default Mode (SDM)

Purpose
- To create a pre-defined setting, to get the same measurement results as given in this manual.
- To override SW protections (only applicable for protections detected by stand-by processor) and make the TV start up to the step just before protection (a sort of automatic stepwise start up). See paragraph “Stepwise Start Up”.
- To start the blinking LED procedure (not valid in protection mode).

Specifications

Table 5-1 SDM default settings

Region	Freq. (MHz)	Default system
Europe, AP-PAL/Multi	475.25	PAL B/G
NAFTA, AP-NTSC, LATAM	61.25 (ch. 3)	NTSC M

- Tuning frequency 61.25 MHz for NTSC: The TV shall tune to physical channel 3 only if channel 3 is an analog channel or if there is no channel 3 installed in the channel map. If there is a digital channel installed in channel 3, then the frequency to which the set will tune, would be as specified in the channel map and could be different from the one corresponding to the physical channel 3.
- All picture settings at 50% (brightness, color, contrast).
- All sound settings at 50%, except volume at 25%.
- All service-unfriendly modes (if present) are disabled, like:
  - (Sleep) timer.
  - Child/parental lock.
  - Picture mute (blue mute or black mute).
  - Automatic volume levelling (AVL).
  - Auto switch "off" (when no video signal was received for 10 minutes).
  - Skip/blank of non-favorite pre-sets.
  - Smart modes.
  - Auto store of personal presets.
  - Auto user menu time-out.

How to Activate SDM

Use one of the following methods:
- Use the standard RC-transmitter and key in the code “062596”, directly followed by the “MENU” button.
  Note: It is possible that, together with the SDM, the main menu will appear. To switch it "off", push the “MENU” button again.
- Short for a moment the two solder pads [1] on the SSB, with the indication “SDM”. They are located outside the shielding. Activation can be performed in all modes, except when the set has a problem with the Stand-by Processor. See figure “SDM service pads”.

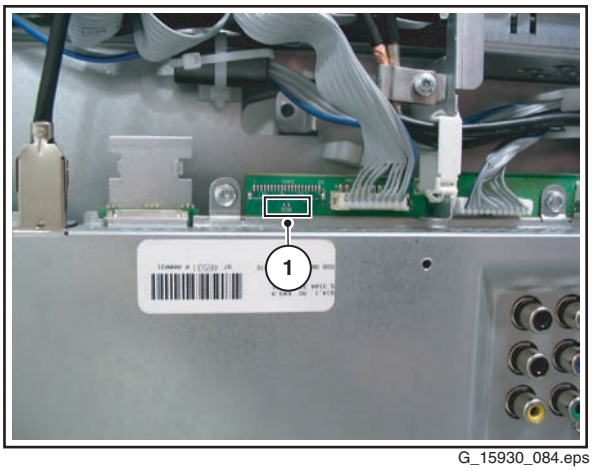

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Figure 5-1 SDM service pads

After activating this mode, “SDM” will appear in the upper right corner of the screen (if you have picture).

How to Navigate

When you press the “MENU” button on the RC transmitter, the set will toggle between the SDM and the normal user menu (with the SDM mode still active in the background).

How to Exit SDM

Use one of the following methods:
- Switch the set to STAND-BY via the RC-transmitter.
- Via a standard customer RC-transmitter: key in “00”-sequence.

5.2.2 Service Alignment Mode (SAM)

Purpose

- To perform (software) alignments.
- To change option settings.
- To easily identify the used software version.
- To view operation hours.
- To display (or clear) the error code buffer.

How to Activate SAM

Via a standard RC transmitter: key in the code “062596” directly followed by the “INFO” button. After activating SAM with this method a service warning will appear on the screen, you can continue by pressing the red button on the RC.

Contents of SAM:

- **Hardware Info.**
  - **A. VIPER SW Version.** Displays the software version of the VIPER software (main software) (**example:** BJ24U-1.2.3.4_12345 = AAAAB_X.Y.W.Z_NNNNN).
    - **AAAA**= the chassis name.
    - **B**= the region: A= AP, E= EU, L= Latam, U = US.
    - **X.Y.W.Z**= the software version, where X is the main version number (different numbers are not compatible with one another) and Y is the sub version number (a higher number is always compatible with a lower number). The last two digits are used for development reasons only, so they will always be zero in official releases.
    - **NNNNN**= last five digits of 12nc code of the software.
  - **B. SBY PROC Version.** Displays the software version of the stand-by processor.
  - **C. Production Code**. Displays the production code of the TV, this is the serial number as printed on the back of the TV set. Note that if an NVM is replaced or is initialized after corruption, this production code has to be re-written to NVM. ComPair will foresee in a possibility to do this.
- **Operation Hours.** Displays the accumulated total of operation hours (not the stand-by hours). Every time the TV is switched "on/off", 0.5 hours is added to this number.
- **Errors.** (Followed by maximal 10 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph “Error Codes”).
- **Defective Module.** Here the module that generates the error is displayed. If there are multiple errors in the buffer, which are not all generated by a single module, there is probably another defect.Take into account that not all errors will create a defective module message.
- **Reset Error Buffer.** When you press “cursor right” and then the “OK” button, the error buffer is reset.
- **Alignments.** This will activate the “ALIGNMENTS” sub-menu.
- **Dealer Options.** Extra features for the dealers.
- **Options.** Extra features for Service.
- **Initialise NVM.** When an NVM was corrupted (or replaced) in the former EMG based chassis, the microprocessor replaces the content with default data (to assure that the set can operate). However, all preferences and alignment values are gone now, and option numbers are not correct. Therefore, this was a very drastic way. In this chassis, the procedure is implemented in another way: The moment the processor recognizes a corrupted NVM, the “initialize NVM” line will be highlighted. Now, you can do two things (dependent of the service instructions at that moment):
  - Save the content of the NVM via ComPair for development analysis, **before** initializing. This will give the Service department an extra possibility for diagnosis (e.g. when Development asks for this).
  - Initialize the NVM (same as in the past, however now it happens conscious).

Note: When you have a corrupted NVM, or you have replaced the NVM, there is a high possibility that you will not have picture any more because your display option is not correct. So, before you can initialize your NVM via the SAM, you need to have a picture and therefore you need the correct display option. To adapt this option, use ComPair. The correct HEX values for the options can be found in the table below.The display option code (decimal) is also available on the option code sticker located inside the TV mentioned by “Screen Diversity” e.g. 044. Remark: use always 3 digits for the display option code, for “7” => “007”.

Displays Div.Displays	Clarification					Resolution		Code nr	Dimming	Nr of bits	Year		
	Display Type	Brand	Size (Inch)	Full HD	Clear LCD	Ver Output Res	Hor Output Res		PWM / analog		2k5	2k6 Full	2k6 Baby
0	PDP	SDI	42			768p	1024	V3_SA42AX-****-Rev,2	NA	8			
1	PDP	SDI v3	50			768p	1366	V3-S50HW-XD03-v0,0	NA	10 (8)			
2	PDP	FHP	42			1024i	1024	A1-FPF42C128128UC-52-v01	NA	10 (8)			
3	LCD	LPL	30			768p	1280	LC300W01-A3P7-v2.1	analog	8			
4	LCD	LPL	37			768p	1366	LC370W01-A6K1-v1.0	analog	8	X		
5	LCD	LPL	42			768p	1366	LC420W02-A6-v1.0	analog	8	X		
6	LCD	Sharp	32			768p	1366	ASV1-LQ315T3LZ13 / ASV2.2	analog	8			
7	PDP	SDI V3	42			480p	852	V3_S42SD-YD05-v0.2	NA	8			
8	PDP	FHP	37			1024i	1024	A1_PFP37C128128UB-71-v0.1	NA	10			
9	LCOS XION					720p	1280	Xion1,05-v0.01	NA	8			
10	LCD	AUO	30			768p	1280	T296XW01-v0.5	analog	8			
11	LCD	LPL	32			768p	1366	LC32CW01-A6K1v1.0	analog	8	X		
12	LCD	AUO	32			768p	1366	T315XW01V0-v0.1	PWM	8			
13	LCD	Sharp	37			768p	1366	ASV2_LQ370T3LZ21 / ASV2.2LQ370T3LZ44	analog	8			
13	LCD	Sharp	37			768p	1366	Asv2.3 (1e samples)	PWM (analog)				X
14	LCD	LPL	42	X		1080p	1920	LC420WU1-SL01-v0.0	PWM	8			
15	PDP	SDI	37			480p	852		NA				
16	PDP	FHP	37			1080i	1024		NA				
17	PDP	FHP	42			1080i	1024	Tbd	NA				X
18	PDP	FHP	55			768p	1366	FPF55C17196UA-51-v04	NA	10			
19	LCOS VENUS					720p	1280		NA				
20	LCOS VENUS			X		1080p	1920		NA				
21	LCD	LPL	26			768p	1366	LC260WX2 - SL01 - v1,0	PWM	8	S *		
22	LCD	LPL	32		X	768p	1366	LC320WX2-SL01	analog	8		X	
23	PDP	LG	42			480p	852	PDP42x2#56# Rev.00	NA	8			
24	PDP	SDI V4	42			480p	852	V4_S42SD-YD07-v0.0	NA	10 (8)	X		
25	PDP	SDI V5	42			768p	1024	V4-S42AX-YD01-Rev0.1	NA	10 (8)	X		X
26	PDP	FHP A2	42			1024i	1024	FPF42C128128UD-51	NA	8			
27	PDP SDI HD V5"	SDI V5	50			768p	1366	V4-S50HW-XD04-v0.2	NA	10(8)	X		X
28	LCD	Sharp	37	X		1080P	1920	LQ370D3LZ1x ASV2.2	analog	10(8)	X		
29	LCD	AUO	32			p / 768p	1366	T315XW01-V3-V0.1	PWM / (analog)	8	X		
30	LCD	Sharp	37	X	X	1080p	1920	LW370D3LZ1xASV3.0 / (1e sample)	PWM	10(8)		X	
31	LCD	Sharp	37	X	X	1080P	1920	LQ370D3LZ1x ASV3.0	PWM	10(8)	X	X	
32	LCD	LPL	20			768p	1366	LC200WX1-SL01	tbd		S		
33	LCD	QDI	23			768p	1366	QD23HL	tbd		S		
34	ECO PTV		51			1080i	1366		NA	n.a. (8)			S
35	ECO PTV		55			1080i	1366		NA	n.a. (8)			S
36	ECO PTV		61			1080i	1366		NA	n.a. (8)			S
37	PDP	FHP A3	42			1024I	1024	FPF42128135UA	NA				
38	DLP		50			720p	1280	?	NA	10			S
39	DLP		60			720p	1280	?	NA	10			S
40	LCD	Sharp 2.3	32			768p	1366	ASV 2.3	PWM (analog)	8			X
41	LCD	LPL	42		X	768p	1366	LC420WX2-SLA1	analog		X	X	
42	PDP	SDI V4	63			768p	1366		NA				X
43	LCD	Sharp 3.0	37		X	768p	1366	ASV 3.0	PWM				
44	LCD	Sharp 2.3	37			768p	1366	ASV 2.3	PWM (analog)		X		X
45	LCD	LPL	26			768p	1366	LC260WX2 - SLB2 - v0,0	PWM	8			X
46	LCD	LPL	32			768 p	1366	LCD320W01-SL06	PWM	8	S		
47	LCD	LPL	42			768p	1366	SLB1	PWM	8			X
48	LCD	QDI	26			768p	1366	QD26HDL02	PWM	8	S		
49	LCD	AUO	26			768p	1366	T260XW02 V4	PWM	8			X
50	LCD	AUO	32			768p	1366	T315XW01 V9	PWM	8	S		
51	LCD	AUO	37			768p	1366	T370XW01 V1	PWM	8	S		
52	LCD	AUO	32			768p	1366	T315XW02V5	PWM	8			X
53	LCD	LPL	37			768p	1366	LC370WX01-SL04	PWM	8	S		
54	PDP	LGE	42			768p	1024	LGE 42" XGA X3	NA	10			X

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Figure 5-2 Display option code overview

Note: Be very careful which display option code you choose, make sure it's the original one ("Screen Diversity" on the option code sticker).In case the wrong display option code is used the TV can start rebooting.

- **Store.** All options and alignments are stored when pressing "cursor right" and then the "OK"-button
- **SW Maintenance.**
  - **SW Events.** Not useful for service purposes. In case of specific software problems, the development department can ask for this info.
  - **HW Events.** Not useful for service purposes. In case of specific software problems, the development department can ask for this info.

How to Navigate

- In SAM, you can select the menu items with the "CURSOR UP/DOWN" key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the "CURSOR UP/DOWN" key to display the next/previous menu items.
- With the "CURSOR LEFT/RIGHT" keys, it is possible to:
  - (De) activate the selected menu item.
  - (De) activate the selected submenu.

How to Exit SAM

Use one of the following methods:

- Press the "MENU" button on the RC-transmitter.
- Switch the set to STAND-BY via the RC-transmitter.

Note: As long as SAM is activated, it is not possible to change a channel. This could hamper the White Point alignments because you cannot choose your channel/frequency any more. Workaround: after you have sent the RC code "062596 INFO" you will see the service-warning screen, and in this stage it is still possible to change the channel (so before pressing the "OK" button).

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer or the Customer Helpdesk. The service technician can then ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.
The CSM is a read only mode; therefore, modifications in this mode are not possible.

How to Activate CSM

Key in the code “123654” via the standard RC transmitter.

Note: Activation of the CSM is only possible if there is no (user) menu on the screen!

How to Navigate

By means of the “CURSOR-DOWN/UP” knob on the RC-transmitter, you can navigate through the menus.

Contents of CSM

- **SW Version (example:** BJ24U-1.2.3.4_12345**).** Displays the built-in main software version. In case of field problems related to software, software can be upgraded. As this software is consumer upgradeable, it will also be published on the Internet.
- **SBY Processor Version.** Displays the built-in stand-by processor software version. Upgrading this software will be possible via a PC and a ComPair interface (see chapter Software upgrade).
- **Set Type.** This information is very helpful for a helpdesk/ workshop as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of the TV.In case you have no picture, the set type and the serial number are also located at the bottom of the front from the TV.There you should find a sticker with the mentioned data on it.Note that if an NVM is replaced or is initialized after corruption, this set type has to be re-written to NVM. ComPair will foresee a possibility to do this.
- **Production Code.** Displays the production code (the serial number) of the TV. Note that if an NVM is replaced or is initialized after corruption, this production code has to be re-written to NVM. ComPair will foresee a possibility to do this.
- **Code 1.** Gives the latest five errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted. The last occurred error is displayed on the leftmost position. Each error code is displayed as a 2-digit number. When less than 10 errors occur, the rest of the buffer is empty (00). See also paragraph Error Codes for a description.
- **Code 2.** Gives the first five errors of the error buffer. See also paragraph Error Codes for a description.
- **Headphone Volume.** Gives the last status of the headphone volume, as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Change via ”MENU”, “TV”, “SOUND”, “HEADPHONE VOLUME”.
- **Dolby.** Indicates whether the received transmitter transmits Dolby sound (“ON”) or not (“OFF”). Attention: The presence of Dolby can only be tested by the software on the Dolby Signaling bit. If a Dolby transmission is received without a Dolby Signaling bit, this indicator will show “OFF” even though a Dolby transmission is received.
- **Sound Mode.** Indicates the by the customer selected sound mode (or automatically chosen mode). Possible values are “STEREO” and “VIRTUAL DOLBY SURROUND”. Change via “MENU”, “TV”, “SOUND”, “SOUND MODE”. It can also have been selected automatically by signaling bits (internal software).
- **Tuner Frequency.** Not applicable for US sets.
- **Digital Processing.** Indicates the selected digital mode. Possible values are “STANDARD” and “PIXEL PLUS”. Change via “MENU”, “TV”, “PICTURE”, “DIGITAL PROCESSING”.
- **TV System.** Gives information about the video system of the selected transmitter.
  - M: NTSC M signal received
  - ATSC: ATSC signal received
- **Center Mode.** Not applicable.
- **DNR.** Gives the selected DNR setting (Dynamic Noise Reduction), “OFF”, “MINIMUM”, “MEDIUM”, or “MAXIMUM”. Change via “MENU”, “TV”, “PICTURE”, “DNR”
- **Noise Figure.** Gives the noise ratio for the selected transmitter. This value can vary from 0 (good signal) to 127 (average signal) and to 255 (bad signal). For some software versions, the noise figure will only be valid when “Active Control” is set to “medium” or “maximum” before activating CSM.
- **Source.** Indicates which source is used and the video/ audio signal quality of the selected source. (Example: Tuner, Video/NICAM) Source: “TUNER”, “AV1”, “AV2”, “AV3”, “HDMI 1”, “SIDE”. Video signal quality: “VIDEO”, “S-VIDEO”, “RGB 1FH”, “YPBPR 1FH 480P”, “YPBPR 1FH 576P”, “YPBPR 1FH 1080I”, “YPBPR 2FH 480P”, “YPBPR 2FH 576P”, “YPBPR 2FH 1080I”, “RGB 2FH 480P”, “RGB 2FH 576P” or “RGB 2FH 1080I”. Audio signal quality: “STEREO”, “SPDIF 1”, “SPDIF 2”, or “SPDIF”.
- **Audio System.** Gives information about the audible audio system. Possible values are “Stereo”, ”Mono”, “Mono selected”, “Analog In: No Dig. Audio”, “Dolby Digital 1+1”, “Dolby Digital 1/0”, “Dolby Digital 2/0”, “Dolby Digital 2/1”, “Dolby Digital 2/2”, “Dolby Digital 3/0”, “Dolby Digital 3/1”, “Dolby Digital 3/2”, “Dolby Digital Dual I”, “Dolby Digital Dual II”, “MPEG 1+1”, “MPEG 1/0”, “MPEG 2/0”. This is the same info as you will see when pressing the “INFO” button in normal user mode (item “signal”). In case of ATSC receiving there will be no info displayed.
- **Tuned Bit.** Not applicable for US sets.
- **Preset Lock.** Indicates if the selected preset has a child lock: “LOCKED” or “UNLOCKED”. Change via “MENU”, “TV”, “CHANNELS”, “CHANNEL LOCK”.
- **Lock After.** Indicates at what time the channel lock is set: “OFF” or e.g. “18:45” (lock time). Change “MENU”, “TV”, “CHANNELS”, “LOCK AFTER”.
- **TV Ratings Lock.** Indicates the “TV ratings lock” as set by the customer. Change via “MENU”, “TV”, “CHANNELS”, “TV RATINGS LOCK”. Possible values are: “ALL”, “NONE”, “TV-Y”, “TV-Y7”, “TV-G”, “TV-PG”, “TV-14” and “TV-MA”.
- **Movie Ratings Lock.** Indicates the “Movie ratings lock” as set by the customer. Change via “MENU”, “TV”, “CHANNELS”, “MOVIE RATINGS LOCK”. Possible values are: “ALL”, “NR”, “G”, “PG”, “PG-13”, “R”, “NC-17” and “X”.
- **V-Chip Tv Status.** Indicates the setting of the V-chip as applied by the selected TV channel. Same values can be shown as for “TV RATINGS LOCK”.
- **V-Chip Movie Status.** Indicates the setting of the V-chip as applied by the selected TV channel. Same values can be shown as for “MOVIE RATINGS LOCK”.
- **Options 1.** Gives the option codes of option group 1 as set in SAM (Service Alignment Mode).
- **Options 2.** Gives the option codes of option group 2 as set in SAM (Service Alignment Mode).
- **AVL.** Indicates the last status of AVL (Automatic Volume Level): “ON” or “OFF”. Change via “MENU”, “TV”, “SOUND”, “AVL”. AVL can not be set in case of digital audio reception (e.g. Dolby Digital or AC3)
- **Delta Volume.** Indicates the last status of the delta volume for the selected preset as set by the customer: from “-12” to “+12”. Change via “MENU”, “TV”, “SOUND”, “DELTA VOLUME”.
- **HDMI key validity.** Indicates the key’s validity.
- **IEEE key validity.** Indicates the key’s validity (n.a.).

- **POD key validity.** Indicates the key's validity, this will only work with an authentic POD card.
- **Digital Signal Quality.** not applicable

How to Exit CSM
Press any key on the RC-transmitter (with exception of the "CHANNEL +/-", "VOLUME", "MUTE" and digit (0-9) keys).

5.2.4 Service Mode of Converter Boards for Ambi Light

Purpose
To switch on the lamps manually in case I²C-bus triggering fails.

The Service Mode can be activated by disconnecting connectors 1M59 and 1M49 and then by shorting for a moment the two solder pads [1] on the Ambi Light Inverter Panel. See figure "Service Mode pads AmbiLight panel".

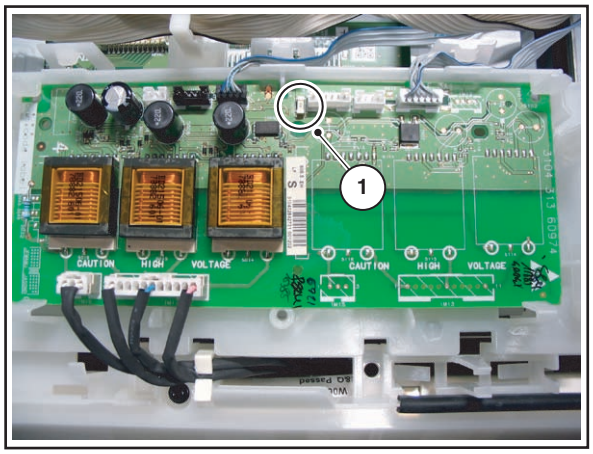

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Figure 5-3 Service Mode pads AmbiLight panel

In this chassis, both single and double fitted boards can be used. The double fitted boards are used in sets with 3 or 4 sided Ambi Light units whereas the single fitted boards are used in sets with 2 sided Ambi Light units. A double fitted board can drive 2 lamp units (6 lamps) and a single fitted board can drive 1 lamp unit (3 lamps).

The double fitted boards are supplied by +12Va and +12Vb.
The microprocessor is supplied by +12Va.
Therefore, if only +12Va is available, lamp unit B will not work.
See figure "Building blocks of Converter Board" for details.

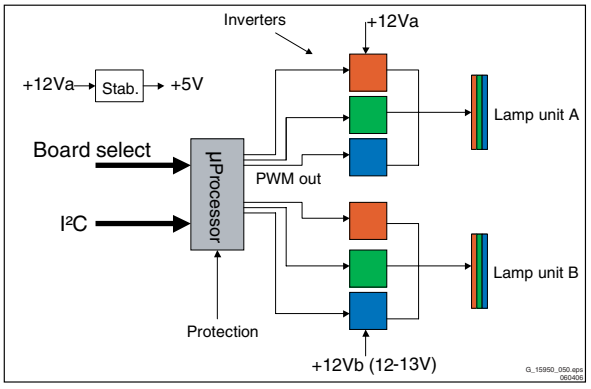


Figure 5-4 Building blocks of Converter Board

The microprocessor performs the following tasks:
- Dimming of Ambi Light by means of PWM.
- Translation of I²C-bus commands to PWM.
- Switches the Ambi Light board to protection if needed (in case of protection only the lamps switch off, no set protection is triggered).

There are two ways of protection: parallel arcing protection and serial arcing protection.
Parallel arcing protection is performed by sensing the switching frequency. In case of short circuit of the transformer output, this frequency > 100 kHz and the board goes into protection.
Serial arcing protection is performed by detection of arc in ground wire of the lamp units. In this case, the protection pulse is transmitted via an opto-coupler.
Protection can be disabled by short-circuiting diode 6112 or capacitor 2173 or by connecting pin 8 of the microprocessor to ground.

Repair Tips
In case only one or no lamp unit at all works, probably the +12Vb (12 - 13 V) is not available or the fuse is broken. Check for broken MOSFETS or check if they are switched off properly by the transistors connected to the PWM outputs of the microprocessor.

In case the Ambi Light switches off after two seconds, serial arcing or parallel arcing protection is active. Serial arcing protection can be excluded by disconnecting the opto-coupler; check for bad solder joints on transformer or lamp units. Parallel arcing protection can be disabled by grounding pin 8 of the microprocessor. Usually the switching frequency (normally 63 kHz) will then be too high. Possible causes are one MOSFET of the converter has no gate drive or is broken, or there is a short-circuit of the output of the transformer.

5.3 Stepwise Start-up

The stepwise start-up method, as known from FTL/FTP sets is not valid any more. The situation for this chassis is as follows:

when the TV is in a protection state detected via the Stand-by Processor (and thus blinking an error) **and** SDM is activated via shortcutting the pins on the SSB, the TV starts up until it reaches the situation just before protection. So, this is a kind of automatic stepwise start-up. In combination with the start-up diagrams below, you can see which supplies are present at a certain moment.
Important to know here is, that if e.g. the 3V3 detection fails (and thus error 11 is blinking) **and** the TV is restarted via SDM, the Stand-by Processor will enable the 3V3, but will not go to protection now. The TV will stay in this situation until it is reset (Mains/AC Power supply interrupted).

The abbreviations “SP” and “MP” in the figures stand for:
- SP: protection or error detected by the **S**tand-by **P**rocessor.
- MP: protection or error detected by the VIPER **M**ain **P**rocessor.

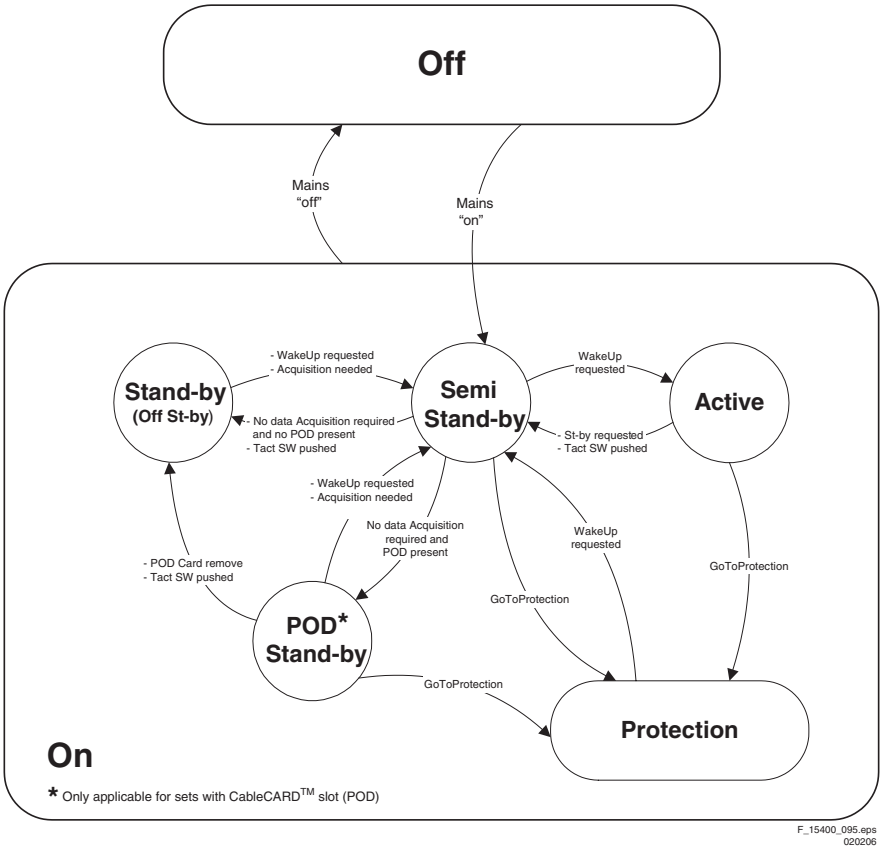
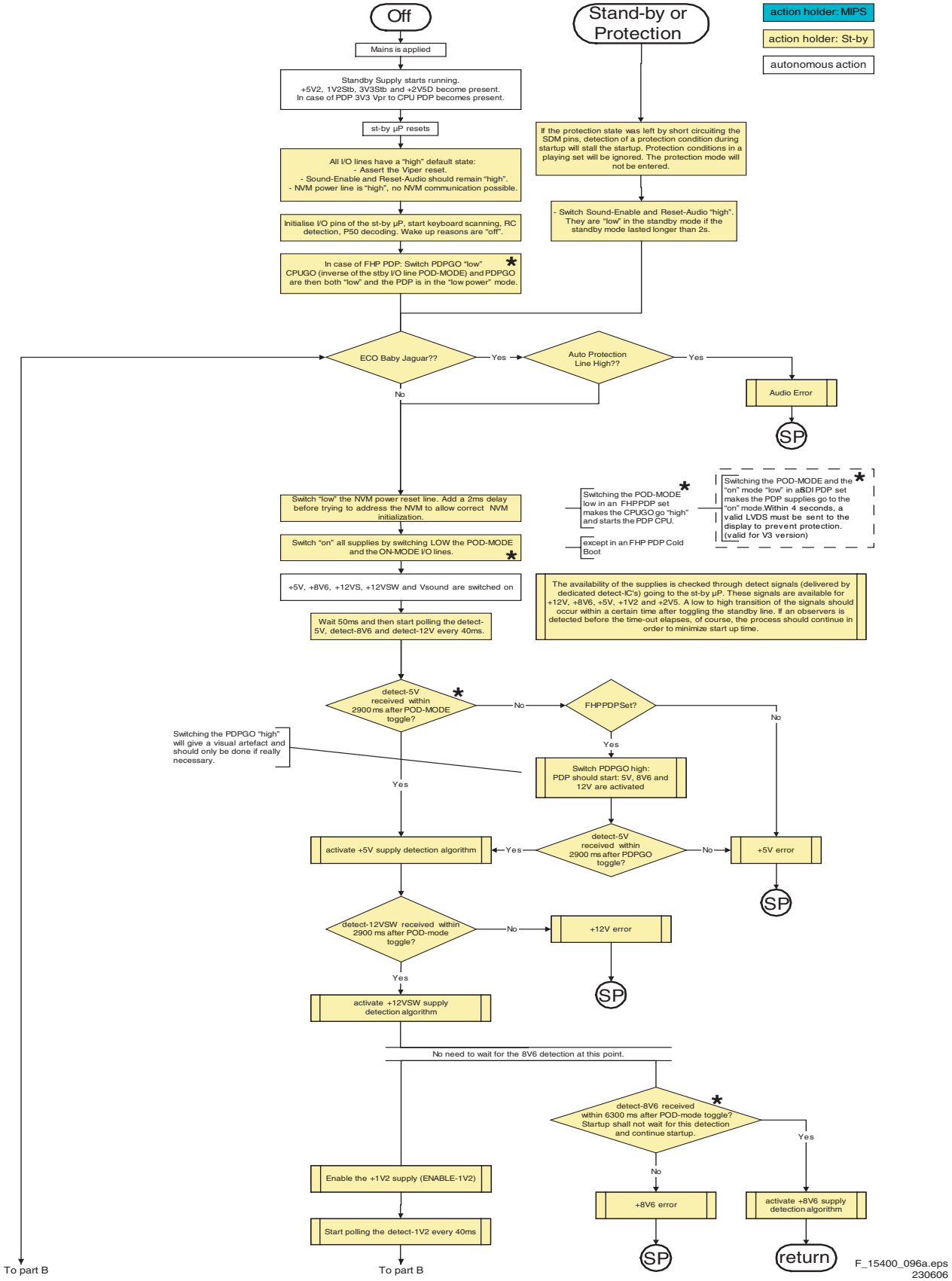


Figure 5-5 Transition diagram



* Only applicable for sets with CableCARD™ slot (POD)

Figure 5-6 "Off" to "Semi Stand-by" flowchart (part 1)

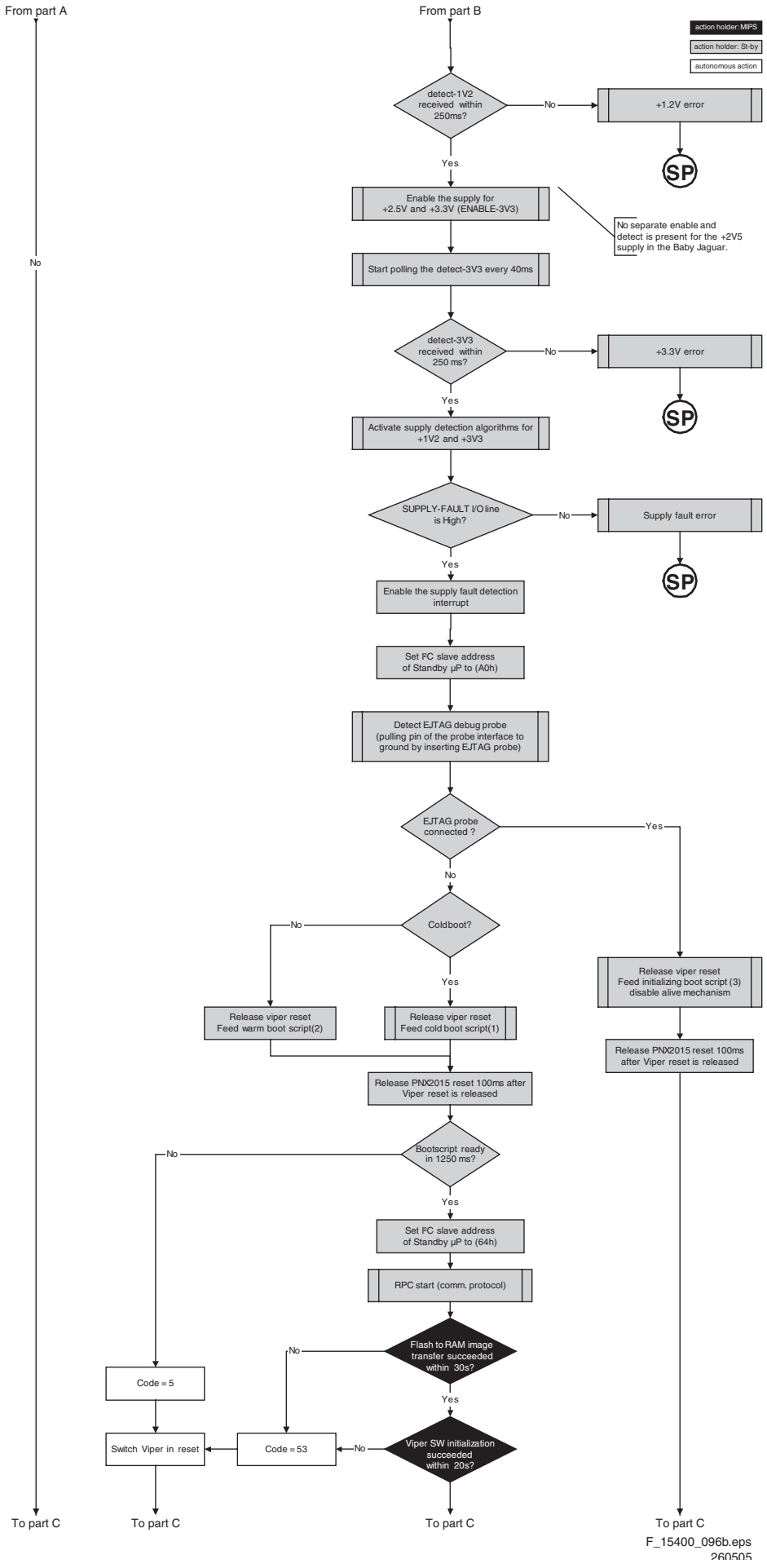
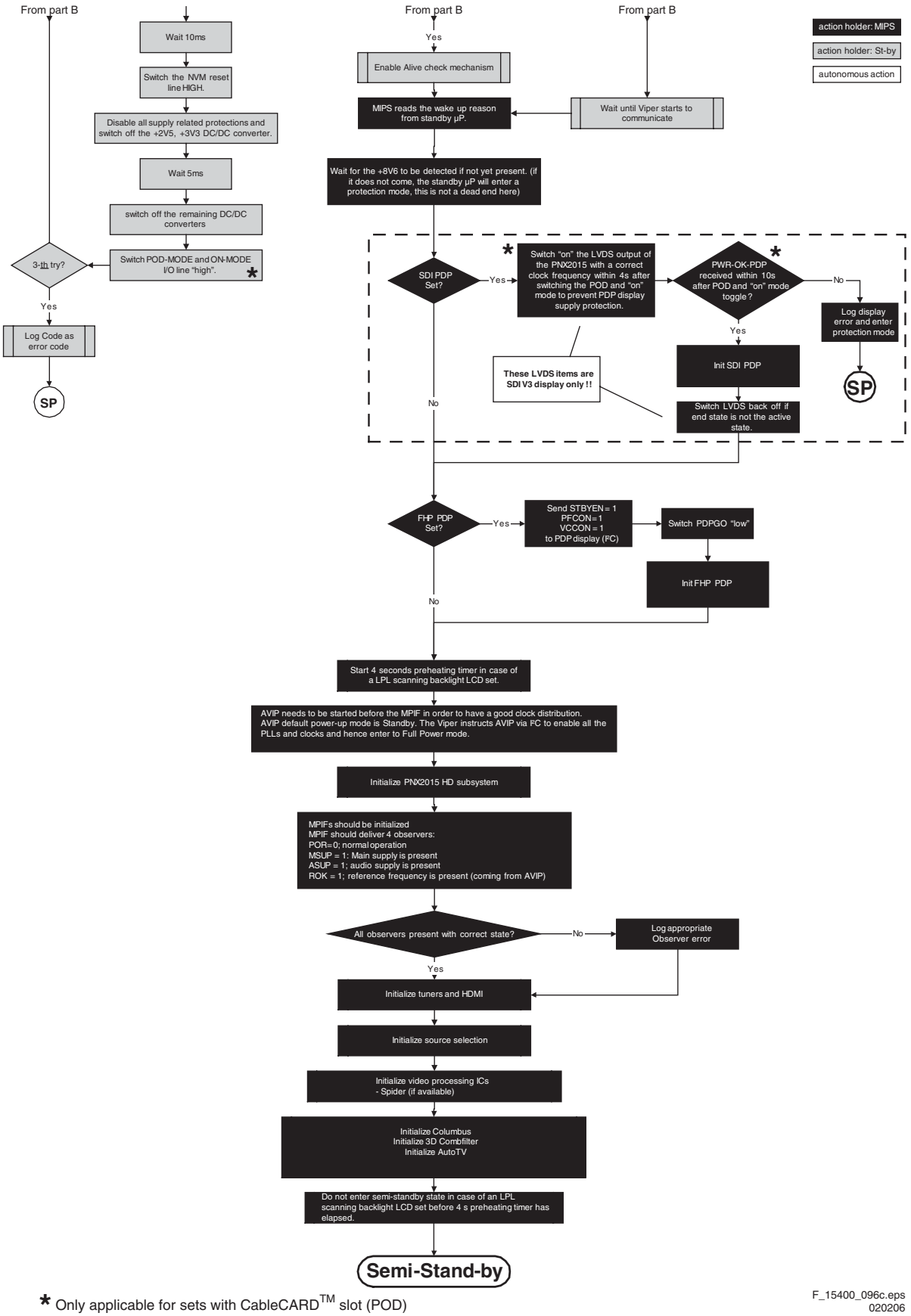


Figure 5-7 “Off” to “Semi Stand-by” flowchart (part 2)



* Only applicable for sets with CableCARD™ slot (POD)

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Figure 5-8 "Off" to "Semi Stand-by" flowchart (part 3)

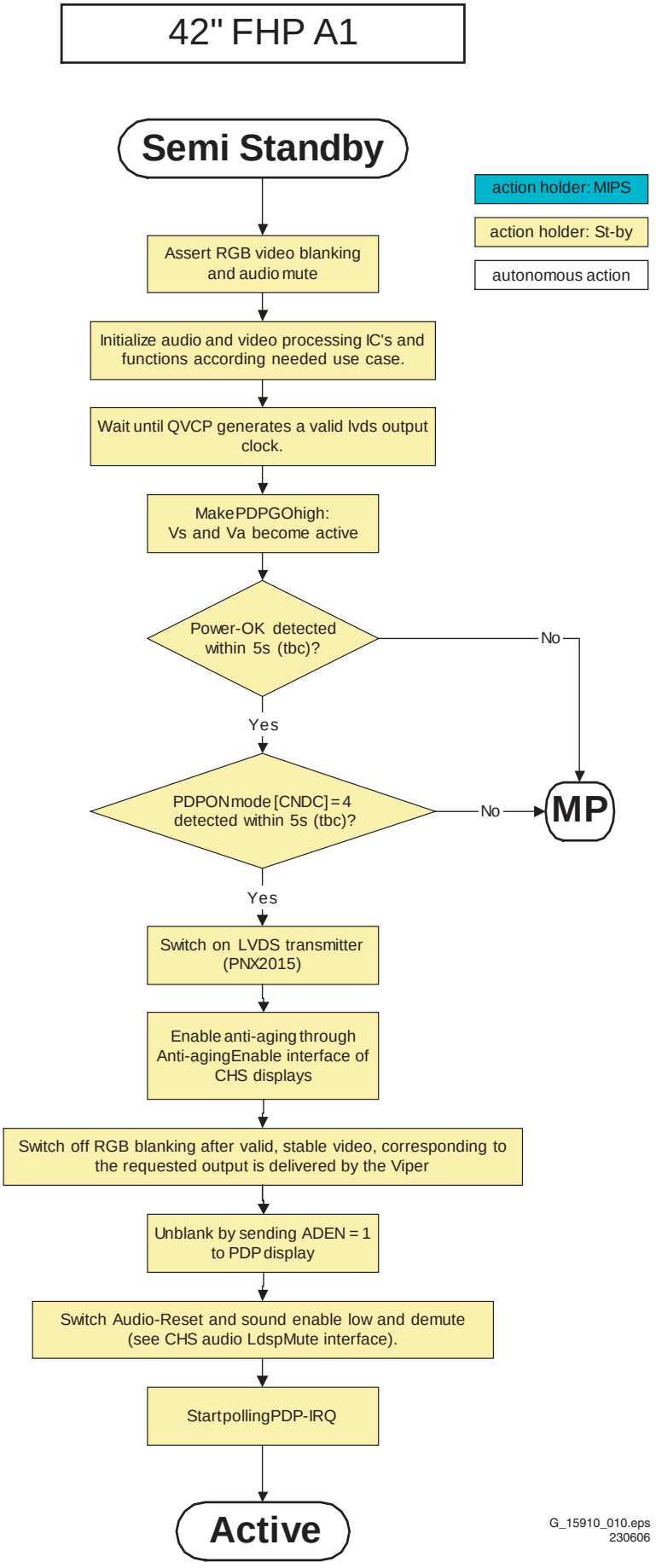

Figure 5-9 “Semi Stand-by” to “Active” flowchart 42” FHP A1

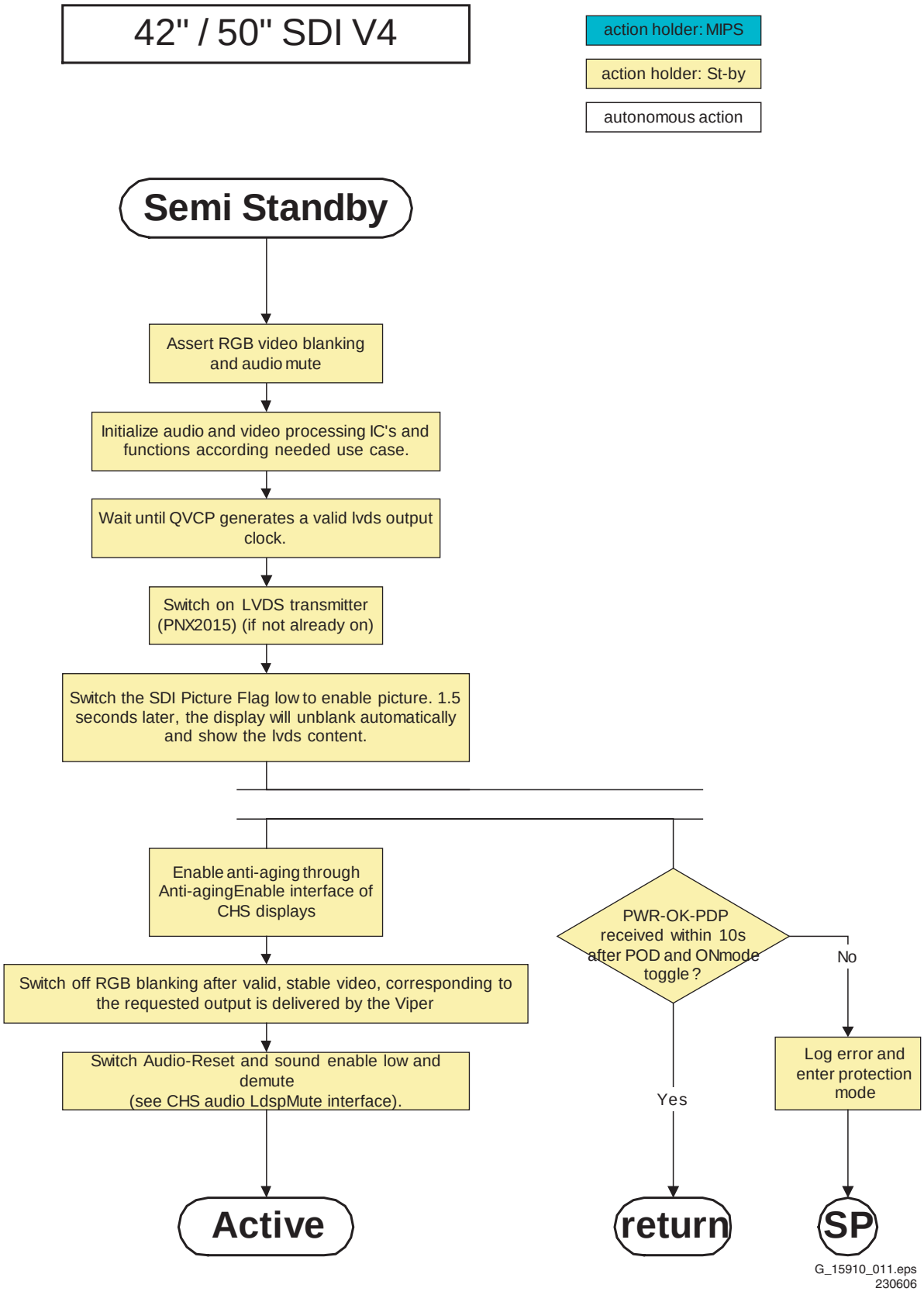

Figure 5-10 “Semi Stand-by” to “Active” flowchart 42” and 50” SDI V4

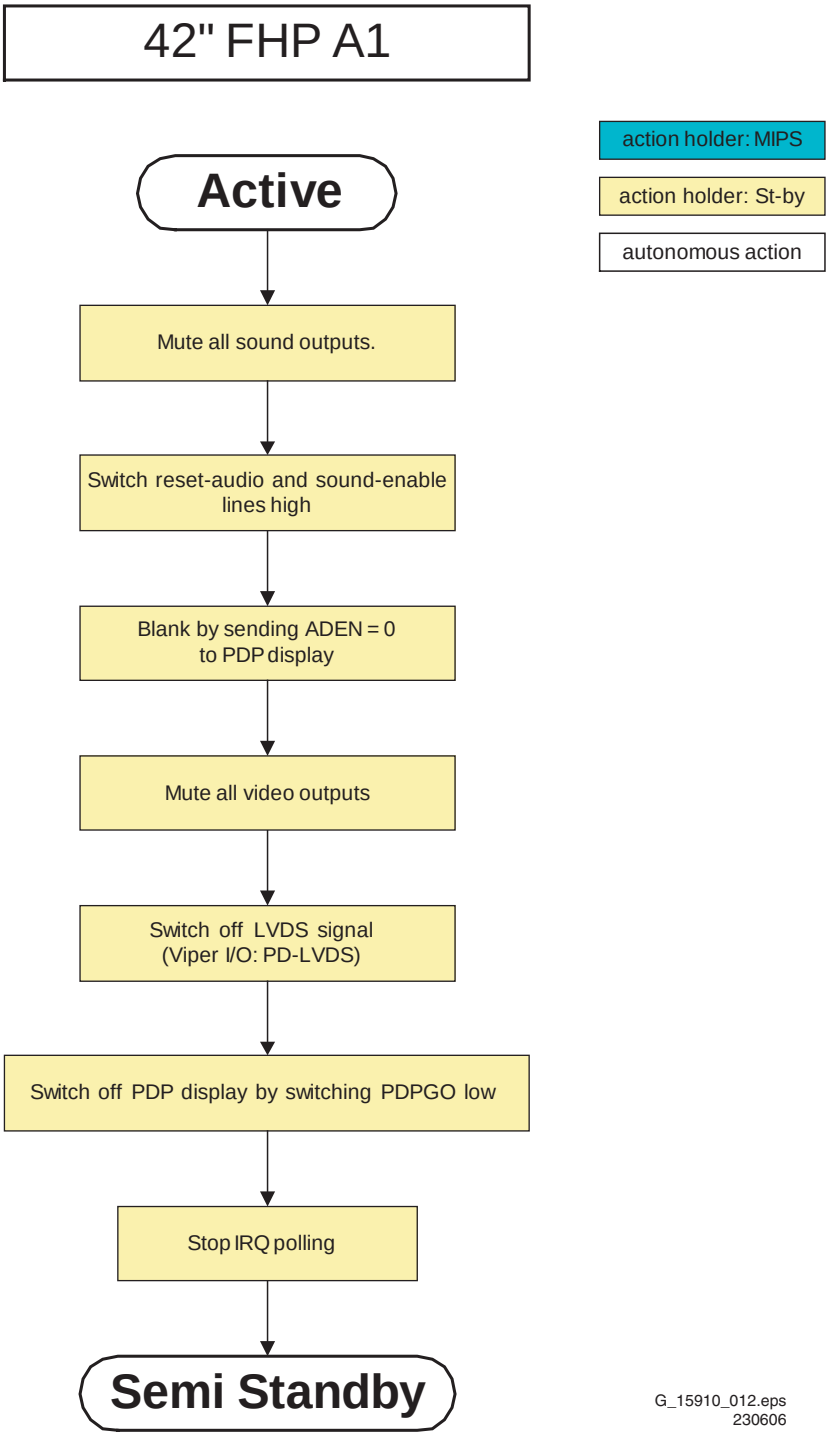

Figure 5-11 “Active” to “Semi Stand-by” flowchart 42” FHP A1

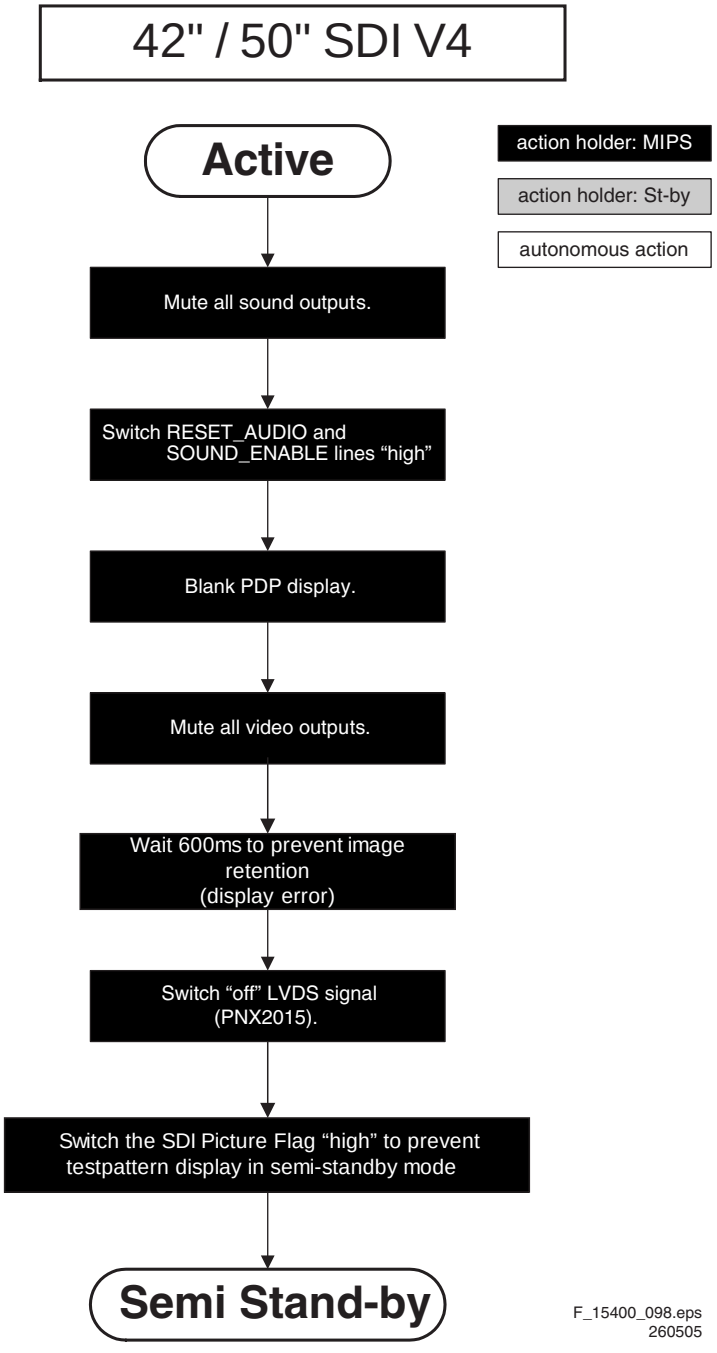

Figure 5-12 “Active” to “Semi Stand-by” flowchart 42” and 50” SDI V4

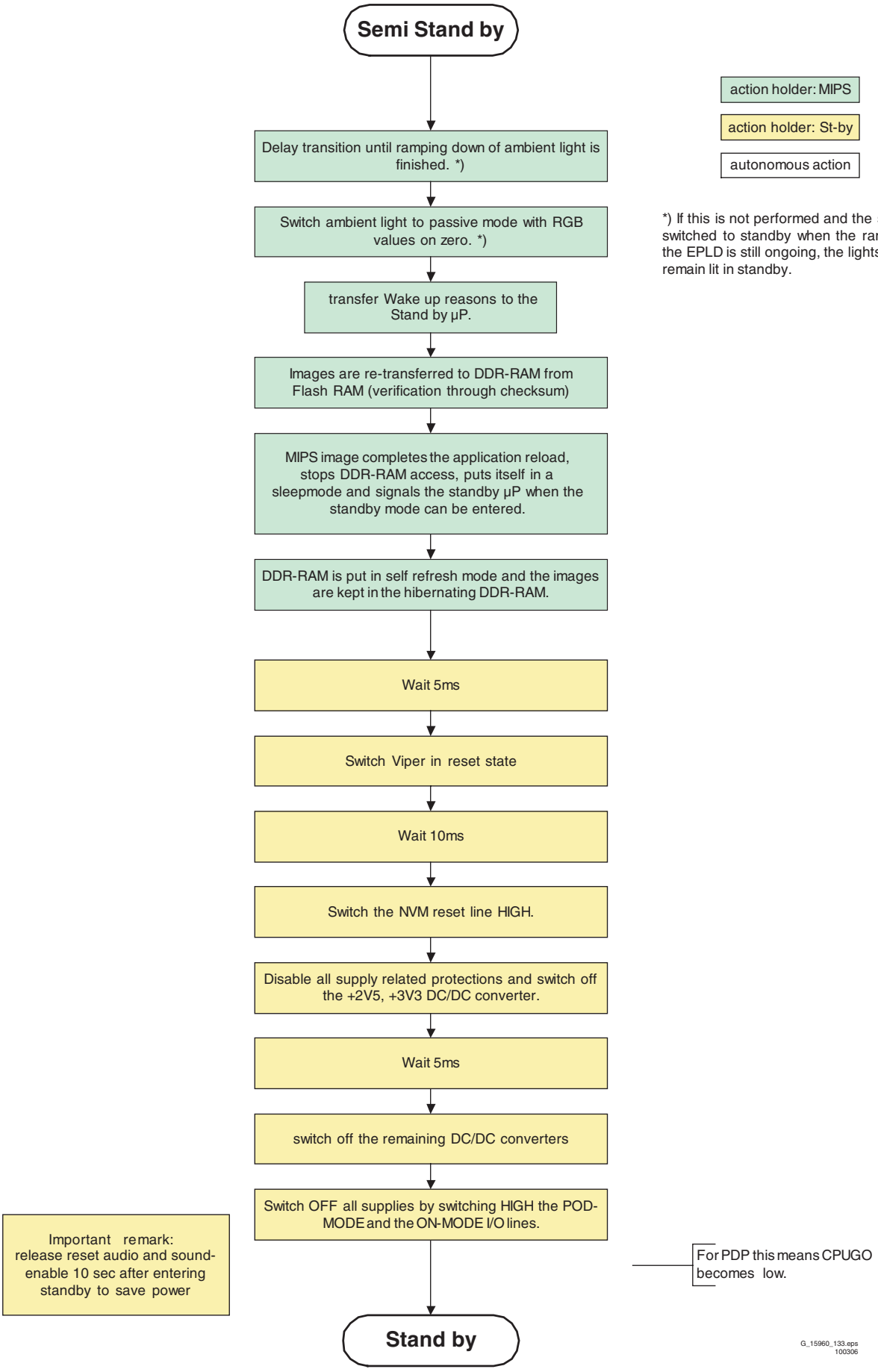

Figure 5-13 “Semi Stand-by” to “Stand-by” flowchart

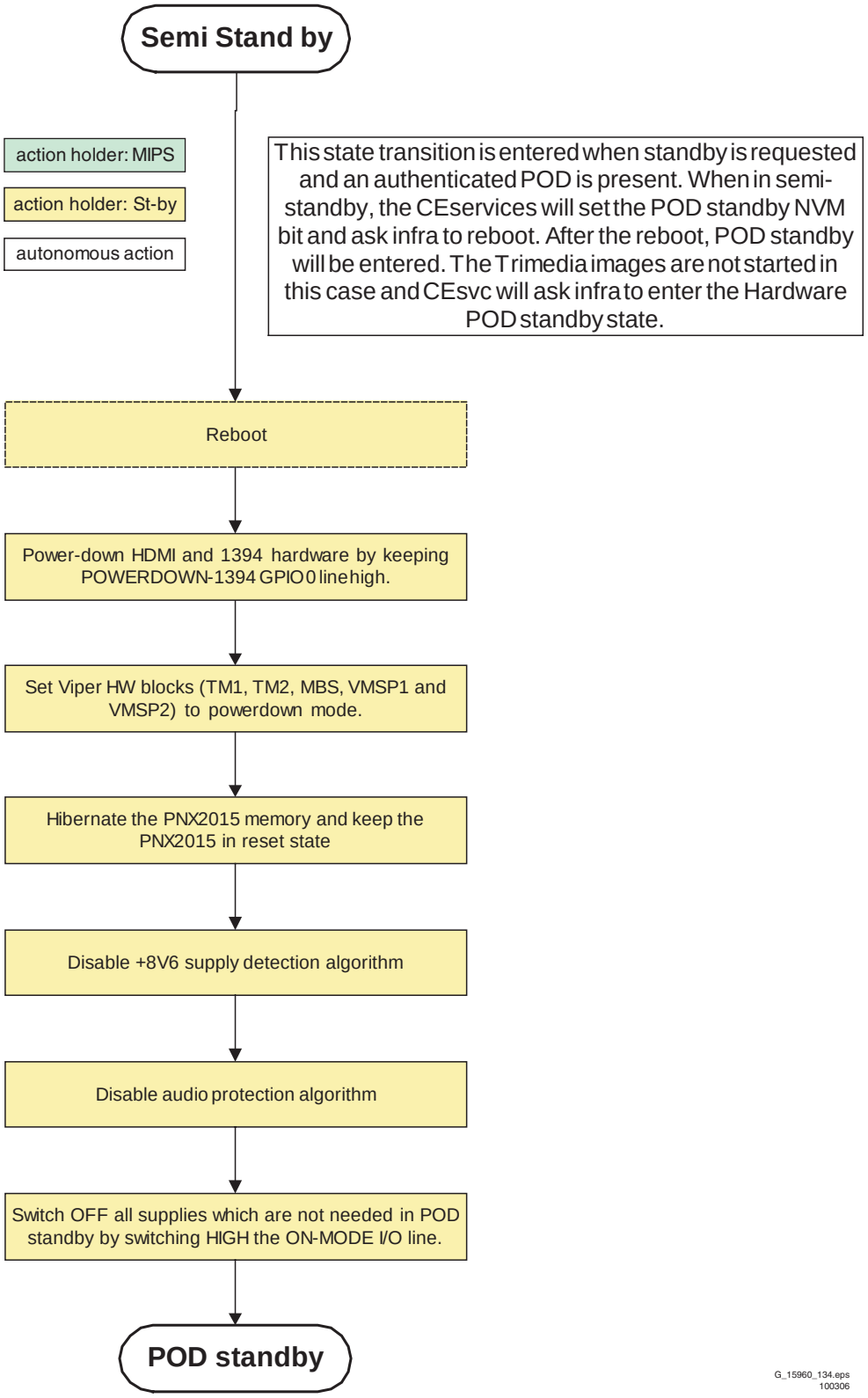

Figure 5-14 “Semi Stand-by” to “POD Stand-by” flowchart

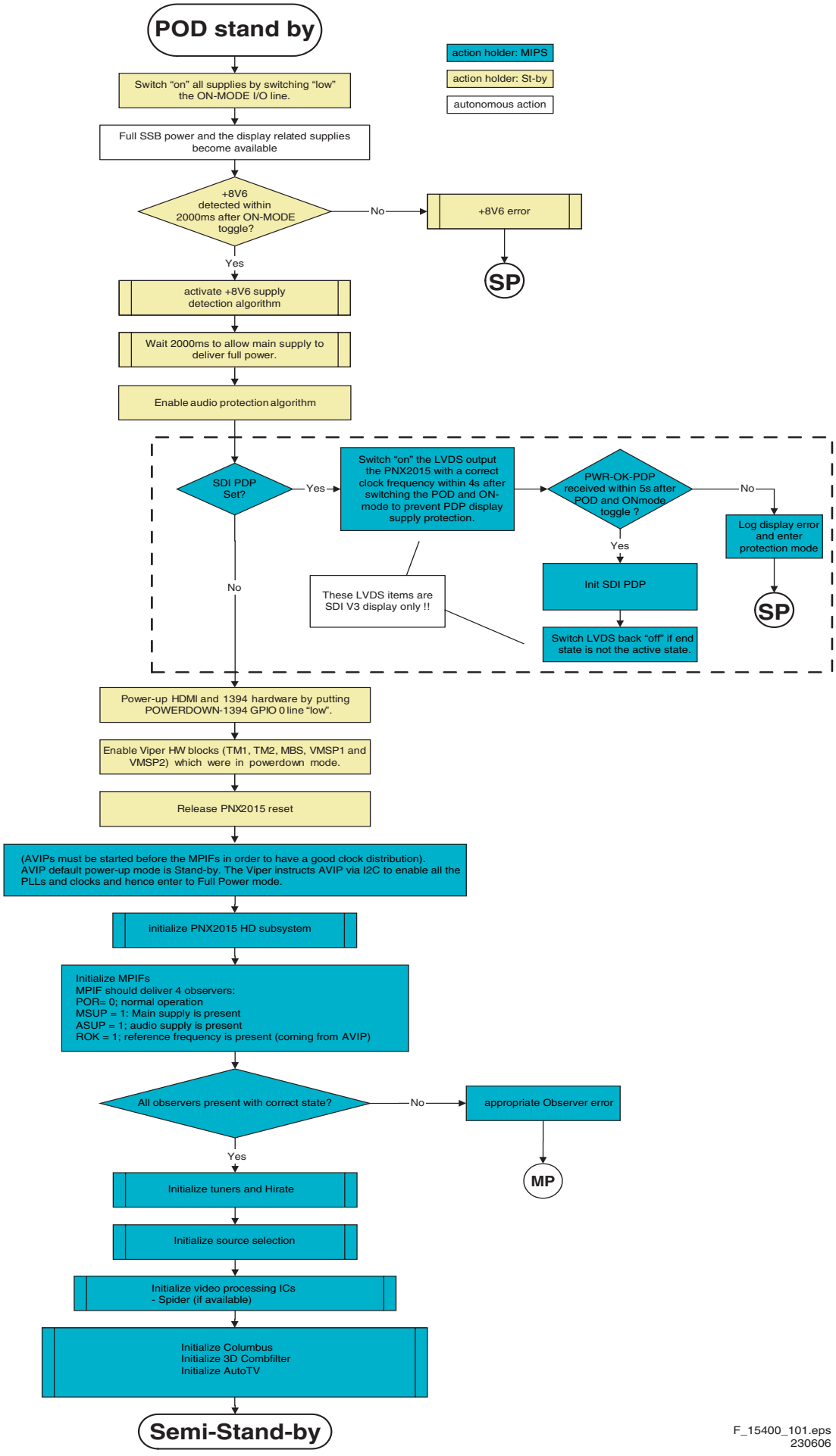

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Figure 5-15 "POD Stand-by" to "Semi Stand-by" flowchart

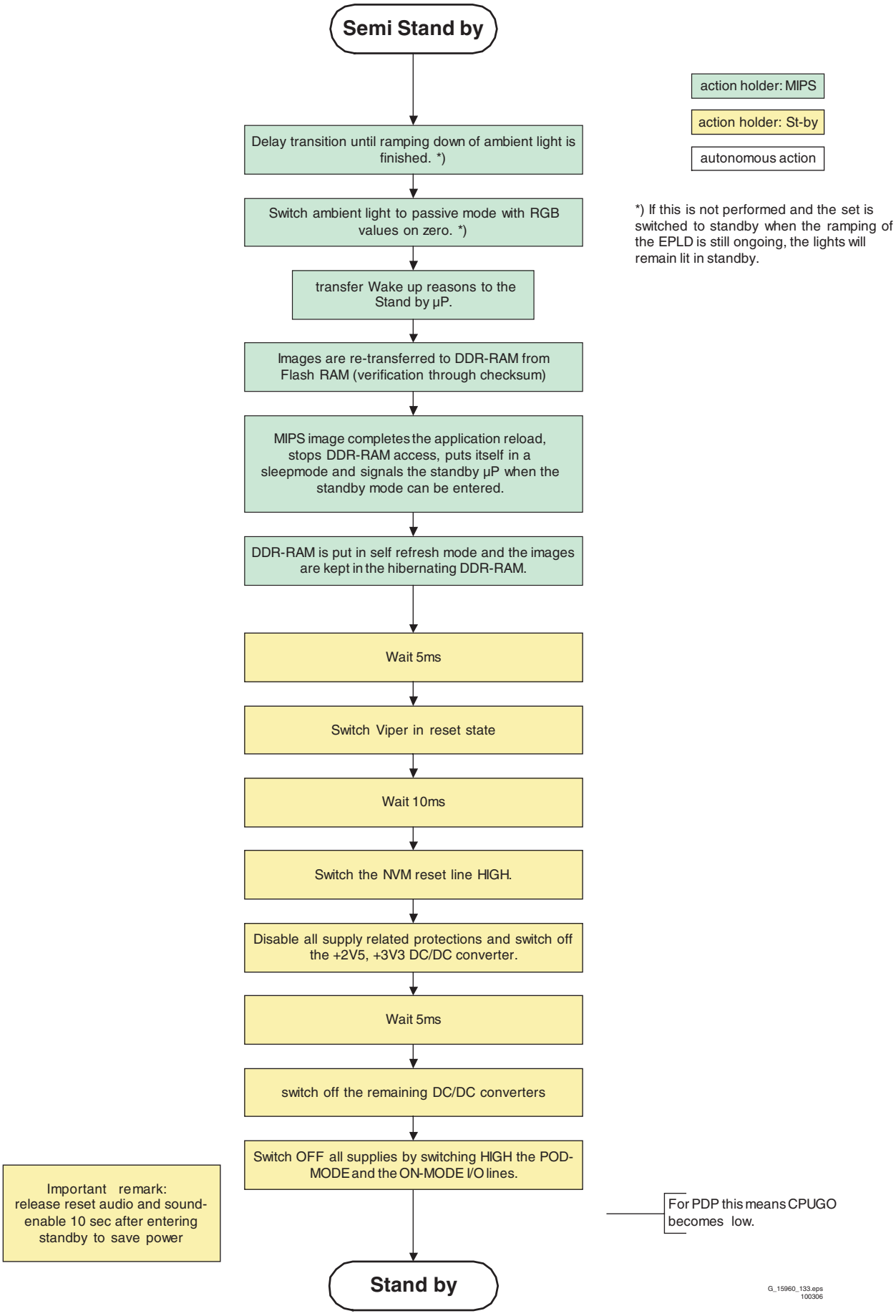


Figure 5-16 “Semi Stand-by” to “Stand-by” flowchart

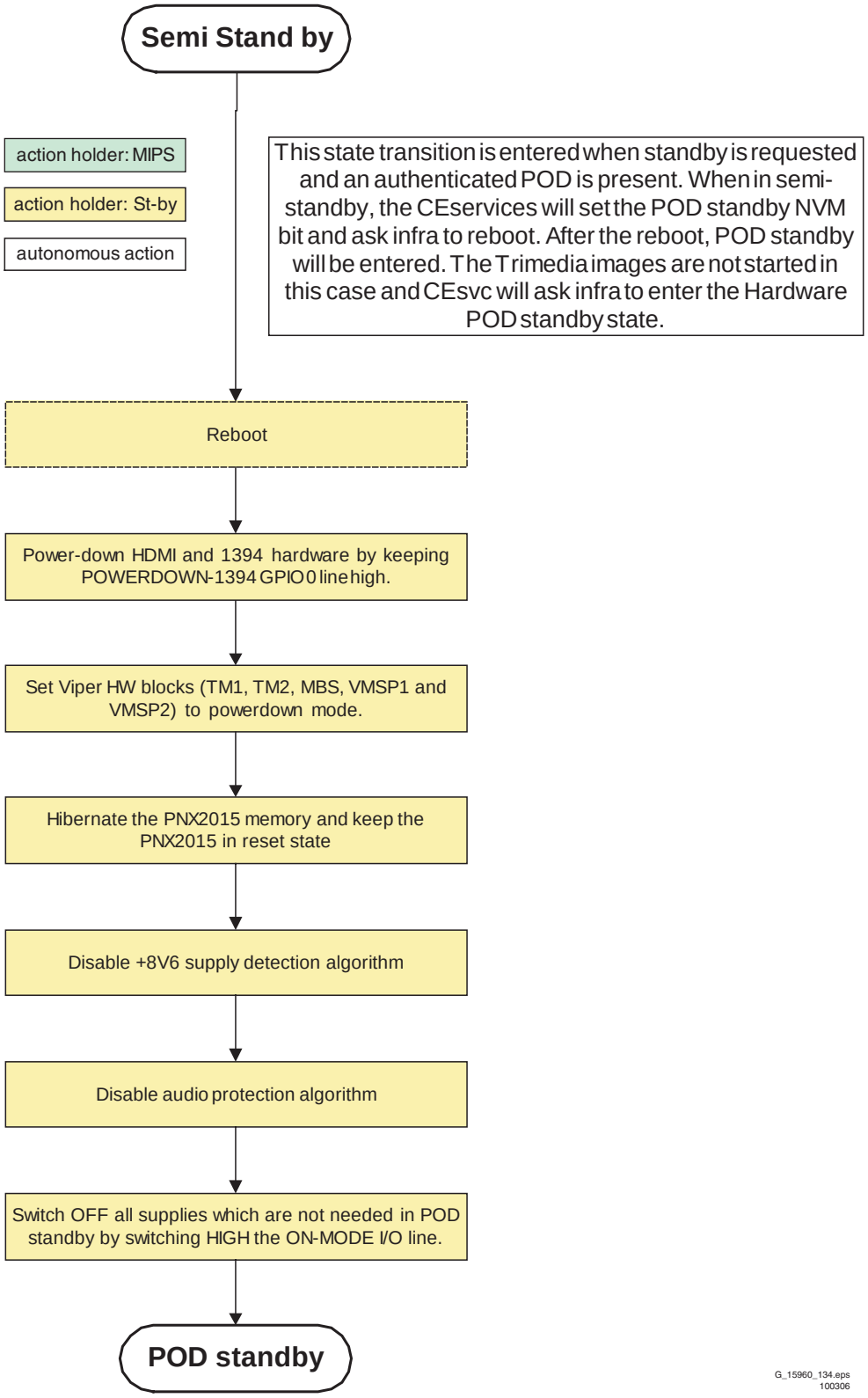


Figure 5-17 “Semi Stand-by” to “POD Stand-by” flowchart

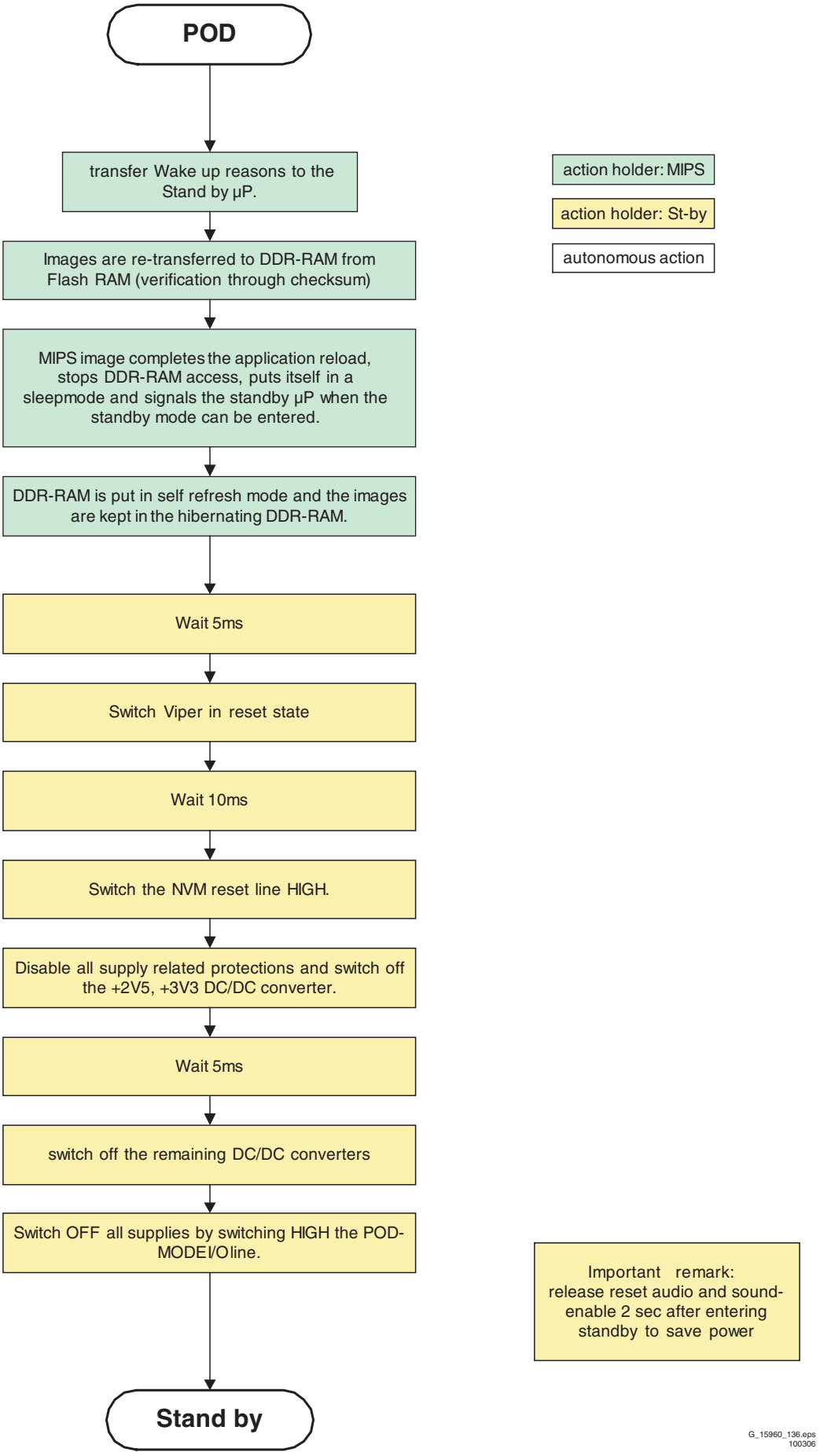


Figure 5-18 "POD" to "Stand-by" flowchart

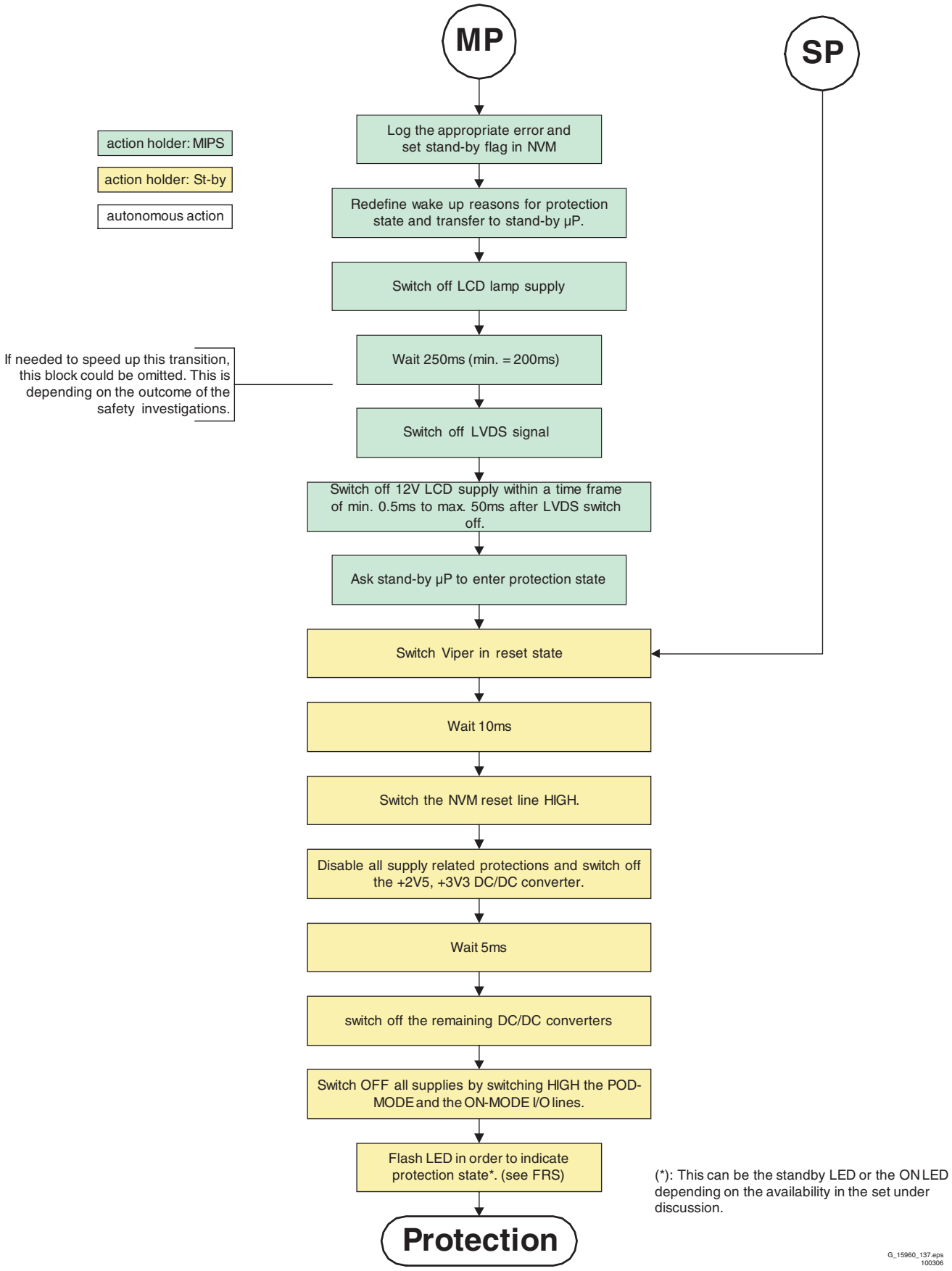


Figure 5-19 "Protection" flowchart

5.4 Service Tools

5.4.1 ComPair

Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

1. ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
2. ComPair allows very detailed diagnostics (on I^2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I^2C commands yourself because ComPair takes care of this.
3. ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the Force/SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial (or RS-232) cable.
For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector(s).

The ComPair fault finding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- Automatically (by communicating with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I^2C/UART level. ComPair can access the I^2C/UART bus of the television. ComPair can send and receive I^2C/UART commands to the microcontroller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I^2C/UART buses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the microcontroller of the television is working correctly and only to a certain extent. When this is not the case, ComPair will guide you through the fault finding tree by asking you questions *(e.g. Does the screen give a picture? Click on the correct answer: YES / NO)* and showing you examples *(e.g. Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope)*. You can answer by clicking on a link *(e.g. text or a waveform picture)* that will bring you to the next step in the fault finding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

How to Connect

This is described in the chassis fault finding database in ComPair.

Caution: It is compulsory to connect the TV to the PC as shown in the picture below (with the ComPair interface in between), as the ComPair interface acts as a level shifter. If one connects the TV directly to the PC (via UART), ICs will be blown!

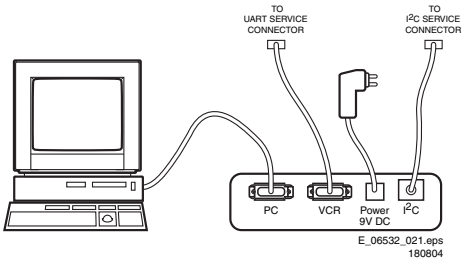


Figure 5-20 ComPair interface connection

How to Order

ComPair order codes (US):

- ComPair Software: ST4191.
- ComPair Interface Box: 4822 727 21631.
- AC Adapter: T405-ND.
- ComPair Quick Start Guide: ST4190.
- ComPair interface extension cable: 3139 131 03791.
- ComPair UART interface cable: 3122 785 90630.

Note: If you encounter any problems, contact your local support desk.

5.4.2 LVDS Tool

Introduction

This service tool (also called “ComPair Assistant 1“) may help you to identify, in case the TV does not show any picture, whether the Small Signal Board (SSB) **or** the display of a Flat TV is defective.

Since 2004, the LVDS output connectors in our Flat TV models are standardized (with some exceptions). With the two delivered LVDS interface cables (31p and 20p) you can cover most chassis (in special cases, an extra cable will be offered).

When operating, the tool will show a small (scaled) picture on a VGA monitor. Due to a limited memory capacity, it is not possible to increase the size when processing high-resolution LVDS signals (> 1280x960). Below this resolution, or when a DVI monitor is used, the displayed picture will be full size.

Generally this tool is intended to determine if the SSB is working or not. Thus to determine if LVDS, RGB, and sync signals are okay.

How to Connect

Connections are explained in the user manual, which is packed with the tool.

Note: To use the LVDS tool, you must have ComPair release 2004-1 (or later) on your PC (engine version >= 2.2.05).
For every TV type number and screen size, one must choose the proper settings via ComPair. The ComPair file will be updated regularly with new introduced chassis information.

How to Order

- LVDS tool (incl. two LVDS cables: 31p and 20p): 3122 785 90671.
- LVDS tool Service Manual: 3122 785 00810.
- LVDS cable 31p/FI -> 31p/FI (for JL2.1 chassis): 3122 785 90861.
- LVDS cable 41p/FI -> 31p/FI (dual -> single LVDS): 3122 785 90831.
- LVDS cable 20p/DF -> 20p/DF (standard with tool): 3122 785 90731.
- LVDS cable 31p/FI -> 31p/FI (standard with tool): 3122 785 90662.

5.5 Error Codes

5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.
When an error has occurred, the error is added to the list of errors, provided the list is not full or the error is a protection error.
When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.
To prevent that an occasional error stays in the list forever, the error is removed from the list after 50+ operation hours.
When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

Basically there are three kinds of errors:
- **Errors detected by the Stand-by Processor.** These errors will always lead to protection and an automatic start of the blinking LED for the concerned error (see paragraph “The Blinking LED Procedure”). In these cases SDM can be used to start up (see chapter “Stepwise Start-up”).
- **Errors detected by VIPER that lead to protection.** In this case the TV will go to protection and the front LED will blink at 3 Hz. Further diagnosis via service modes is not possible here (see also paragraph “Error Codes” -> “Error Buffer” -> “Extra Info”).
- **Errors detected by VIPER that do not lead to protection.** In this case the error can be read out via ComPair, via blinking LED method, or in case you have picture, via SAM.

5.5.2 How to Read the Error Buffer

Use one of the following methods:
- On screen via the SAM (only if you have a picture). E.g.:
  - **00 00 00 00 00**: No errors detected
  - **06 00 00 00 00**: Error code 6 is the last and only detected error
  - **09 06 00 00 00**: Error code 6 was first detected and error code 9 is the last detected error
- Via the blinking LED procedure (when you have no picture). See next paragraph.
- Via ComPair.

5.5.3 How to Clear the Error Buffer

Use one of the following methods:
- By activation of the “RESET ERROR BUFFER” command in the SAM menu.
- With a normal RC, key in sequence “MUTE” followed by “062599” and “OK”.
- If the content of the error buffer has not changed for 50+ hours, it resets automatically.

5.5.4 Error Buffer

In case of non-intermittent faults, clear the error buffer before you begin the repair (**before** clearing the buffer, write down the content, as this history can give you significant information). This to ensure that old error codes are no longer present.
If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).
There are several mechanisms of error detection:
- Via error bits in the status registers of ICs.
- Via polling on I/O pins going to the stand-by processor.
- Via sensing of analogue values on the stand-by processor.
- Via a “not acknowledge” of an I^2C communication

Take notice that some errors need more than 90 seconds before they start blinking. So in case of problems wait 2 minutes from start-up onwards, and then check if the front LED is blinking.

Table 5-2 Error code overview

Error	Description	Error/Prot	Detected by	Device	Defective module	Result
1	I^2C1	P	VIPER	n.a.	I^2C1_blocked	Protection + 3 Hz blinking
2	I^2C2	P	VIPER	n.a.	I^2C2_blocked	Protection + 3 Hz blinking
3	I^2C3	P	Stby µP	n.a.	/	Protection + Error blinking
4	I^2C4	P	VIPER	n.a.	I^2C4_blocked	Protection + 3 Hz blinking
5	VIPER does not boot	P	Stby µP	PNX8550	/	Protection + Error blinking
6	5V supply	P	Stby µP	n.a.	/	Protection + Error blinking
7	8V6 supply	P	Stby µP	n.a.	/	Protection + Error blinking
8	1.2V DC/DC	P	Stby µP	n.a.	/	Protection + Error blinking
11	3.3V DC/DC	P	Stby µP	n.a.	/	Protection + Error blinking
12	12V supply	P	Stby µP	n.a.	/	Protection + Error blinking
14	Audio	P	Stby µP	/	/	Protection + Error blinking
16	MPIF1 main supply	E	VIPER	/	/	see extra info
17	MPIF1 audio supply	E	VIPER	/	/	see extra info
18	MPIF1 ref freq	E	VIPER	PNX3000	IF I/O	Error logged
25	Supply fault	P	Stby µP		/	Protection + Error blinking
27	PNX2015 HD subsystem part	E	VIPER	/	/	see extra info
29	AVIP 1	E	VIPER	/	/	see extra info
31	AVIP 2	E	VIPER	/	/	see extra info
32	MPIF1	E	VIPER	PNX3000	/	Error logged
34	Tuner1	E	VIPER	/	Tuner 1	Error logged
37	Channel decoder	E	VIPER	NXT2003	/	Error logged
39	POD Interface	E	VIPER	STV701	/	Error logged
43	Hi Rate Front End	E	VIPER	TDA9975	HDMI	Error logged
44	Main NVM	E	VIPER	M24C64	/	Error logged
45	Columbus 1	E	VIPER	PNX2015	Comb filter	Error logged
46	Pacific 3	E	VIPER	/	/	TV to stand-by + Error logged
53	VIPER	P	Stby µP	PNX8550	/	Protection + Error blinking
63	PDP Display (n.a.)	P	VIPER	/	Display	Protection + 3 Hz blinking

Extra Info

- **Rebooting.** When a TV is constantly rebooting due to internal problems, most of the time no errors will be logged or blinked. This rebooting can be recognized via a ComPair interface and Hyperterminal (for Hyperterminal settings, see paragraph “Stand-by software upgrade). You will see that the loggings which are generated by the main software keep continuing. In this case (rebooting) diagnose has to be done via ComPair.
- **Error 1 (I²C bus 1 blocked).** When this error occurs, the TV will go to protection and the front LED will blink error 1. Now you can partially restart the TV via the SDM shortcut pins on the SSB. Depending on the software version it is possible that this error will not work correct: in some software versions error 34 was blinking in stead of error 1.
- **Error 2 (I²C bus 2 blocked).** When this error occurs, the TV will go to protection and the front LED will blink error 2. Now you can partially restart the TV via the SDM shortcut pins on the SSB. Due to hardware restriction (I²C bus 2 is the fast I²C bus) it will be impossible to start up the VIPER. When this error occurs, the TV will probably keep rebooting. Further diagnose has to be done via ComPair.
- **Error 3 (I²C bus 3 blocked).** There are only three devices on I²C bus 3: VIPER, Stand-by Processor, and NVM. The Stand-by Processor is the detection device of this error, so this error will only occur if the VIPER or the NVM is blocking the bus. This error will also blink when the NVM gives no acknowledge on the I²C bus (see error 44). Note that if the 12 V supply is missing, the DC/DC supply on the SSB will not work. Therefore the VIPER will not get supplies and could block I²C bus 3. So, a missing 12 V can also lead to an error 3.
- **Error 4 (I²C bus 4 blocked).** When this error occurs, the TV will go to protection and the front LED will blink error 4. Now you can start up the TV via the SDM short-cut pins on the SSB. The TV will start up and ignore the error. Depending on the problem it is even possible that you have picture.
- **Error 5 (Viper does not boot).** This error will point to a severe hardware problem around the VIPER (supplies not OK, VIPER completely dead, I²C link between VIPER and Stand-by Processor broken, etc....).
- **Error 12 (12 V error).** Except a physical problem with the 12 V itself, it is also possible that there is something wrong with the Audio DC Protection: see paragraph "Hardware Protections" for this.
- **Error 14 (Audio protection).** The detection is done on the audio board itself. Several items are monitored: overvoltage, overcurrent, audio supply voltages and the DC level on the speakers. If one of these items fails, the audio protection will switch “off” the main supply. All supplies will drop, the standby processor “thinks” there is a mains dip, and will reboot. At the beginning of the boot process, the audio-protection line is monitored: if this line is “active”, the set will go to protection and will blink error 14.
- **Error 27 (PNX2015 HD subsystem part).** Diagnosing this error will not be possibly via the normal error codes. In case this device can not communicate with the Viper via I²C, it will not be possible to initialize the tunnelbus. Hence the software will not be able to start up, and will re-boot constantly. Diagnosing these problems will only be possible via ComPair. In theory it is possible that the error is logged in the NVM (that’s why this error is still mentioned here).
- **Error 16.** See remark for error 32.
- **Error 17.** See remark for error 32.
- **Error 18(MPIF1).** See also remark for error 32.
- **Error 29 (AVIP 1).** Same remark as for error 27.
- **Error 31 (AVIP 2).** Same remark as for error 27.
- **Error 32 (MPIF1).** Together with error 32, it is possible you will see error 16,17 and 18 along. These errors are no longer valid.
- **Error 34 (Tuner 1).** When this error is logged, it is not sure that there is something wrong with the tuner itself. It is also possible that there is something wrong with the communication between channel decoder and tuner. See schematic B2B.
- **Error 37 (Channel decoder).** This error will always log error 34 (tuner) extra. This is due to the fact that the tuner I²C bus is coming from the channel decoder.
- **Error 44 (NVM).** This error will probably never occur because it is masked by error 3 (I²C bus 3). The detection mechanism for error 3 checks on an I²C acknowledge of the NVM. If NVM gives no acknowledge, the stand-by software assumes that the bus is blocked, the TV goes to protection and error 3 will be blinking.
- **Error 46 (Pacific 3).** When this errors occurs the TV will go to stand-by. The reason for this is, when there is an occasional boot problem of the Pacific, it will look like the TV has started up in stand-by mode, and the customer can switch it "on" again. When there is an actual problem with or around the Pacific the TV will go to stand-by every time you try to start up. So this behavior is an indication of a Pacific problem.
- **Error 53.** This error will indicate that the VIPER has started to function (by reading his boot script, if this would have failed, error 5 would blink) but initialization was never completed because of hardware peripheral problems (NAND flash, ...) or software initialization problems. Possible cause could be that there is no valid software loaded (try to upgrade to the latest main software version). Note that it takes 90 seconds before the TV goes to protection in this case.
- **Error 63 (POWER OK).** When this error occurs, it means that the POWER-OK line did not became “high”. This error is only applicable for TV’s with a SDI display, a FHP display or a Sharp full HD display. Depending on the software version it is possible that the detection mechanism of this error does not function and that the TV keeps rebooting.

5.6 The Blinking LED Procedure

5.6.1 Introduction

The blinking LED procedure can be split up into two situations:

- Blinking LED procedure in case of a protection detected by the stand-by processor. In this case the error is automatically blinked. This will be only one error, namely the one that is causing the protection. Therefore, you do not have to do anything special, just read out the blinks. A long blink indicates the decimal digit, a short blink indicates the units.
- Blinking LED procedure in the “on” state. Via this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful for fault finding, when there is no picture.

When the blinking LED procedure is activated in the “on” state, the front LED will show (blink) the contents of the error-buffer. Error-codes > 10 are shown as follows:

1. “n” long blinks (where “n” = 1 - 9) indicating decimal digit,
2. A pause of 1.5 s,
3. “n” short blinks (where “n”= 1 - 9),
4. A pause of approx. 3 s.
5. When all the error-codes are displayed, the sequence finishes with a LED blink of 3 s,
6. The sequence starts again.

Example: Error 12 9 6 0 0.
After activation of the SDM, the front LED will show:

1. 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1.5 s,
2. 2 short blinks of 250 ms followed by a pause of 3 s,
3. 9 short blinks followed by a pause of 3 s,
4. 6 short blinks followed by a pause of 3 s,
5. 1 long blink of 3 s to finish the sequence,
6. The sequence starts again.

5.6.2 How to Activate

Use one of the following methods:
- **Activate the SDM.** The blinking front LED will show the entire contents of the error buffer (this works in “normal operation” mode).
- **Transmit the commands “MUTE” - “062500” - “OK” with a normal RC.** The complete error buffer is shown. Take notice that it takes some seconds before the blinking LED starts.
- T**ransmit the commands “MUTE” - “06250x” - “OK” with a normal RC** (where “x” is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... Take notice that it takes some seconds before the blinking LED starts.

5.7 Protections

5.7.1 Software Protections

Most of the protections and errors use either the stand-by microprocessor or the VIPER controller as detection device. Since in these cases, checking of observers, polling of ADCs, filtering of input values are all heavily software based, these protections are referred to as software protections.
There are several types of software related protections, solving a variety of fault conditions:
- **Protections related to supplies:** check of the 12V, +5V, +8V6, +1.2V, +2.5V and +3.3V.
- **Protections related to breakdown of the safety check mechanism.** E.g. since a lot of protection detections are done by means of the VIPER, failing of the VIPER communication will have to initiate a protection mode since safety cannot be guaranteed anymore.

Remark on the Supply Errors
The detection of a supply dip or supply loss during the normal playing of the set does not lead to a protection, but to a cold reboot of the set.

Protections during Start-up
During TV start-up, some voltages and IC observers are actively monitored to be able to optimize the start-up speed, and to assure good operation of all components. If these monitors do not respond in a defined way, this indicates a malfunction of the system and leads to a protection. As the observers are only used during start-up, they are described in the start-up flow in detail (see paragraph “Stepwise Start-up").

5.7.2 Hardware Protections

There are no real hardware protections in this chassis. Although, in case of an audio problem, the audio protection circuit will switch “off” the main supply. The stand-by microprocessor will interpret this as a mains dip and will try to start-up again.
In case of a TV with SDI display this will probably lead to protection error 7 (8V6 error) and an internal error 11 (so it looks like an overvoltage protection of the SDI supply itself). In other cases it will lead to error 14 (audio protection).

Repair Tips
- It is also possible that you have an audio DC protection because of an interruption in one or both speakers (the DC voltage that is still on the circuit cannot disappear through the speakers).

5.8 Fault Finding and Repair Tips

Read also paragraph "Error Codes" - "Extra Info".

5.8.1 Exit “Factory Mode”

When an "F" is displayed in the screen's right corner, this means that the set is in "Factory" mode, and it normally happens after a new SSB has been mounted.
To exit this mode, push the "VOLUME minus" button on the TV's keyboard control for 5 seconds and restart the set

5.8.2 MPIF

Important things to make the MPIF work:
- Supply.
- Clock signal from the AVIP.
- I^2C from the VIPER.

5.8.3 AVIP

Important things to make the AVIP work:
- Supplies.
- Clock signal from the VIPER.
- I^2C from the VIPER (error 29 and 31).

5.8.4 PACIFIC 3

In case the Pacific fails, the TV will go to stand-by. The reason for this is, when there is an occasional boot problem of the Pacific, it will look like the TV has started up in stand-by mode, and the customer can switch it "on" again. When there is an actual problem with or around the Pacific the TV will go to stand-by every time you try to start up. So this behavior is an indication of a Pacific problem.

5.8.5 Ambilight

Note: in case of Ambilight protection, the TV itself will not go to protection, only the Ambilight board. When you disconnect the TV from the mains and reconnect again, the Ambilights will work again.

In case of multiple protections, check and replace the inverter transformers and/or the lamp unit(s).

Protections on the ambilight boards:

Parallel arcing protection.In normal operation the inverter frequency is ±63 kHz. In case of short circuit of the transformer output the frequency is >100 kHz. Protection is done via sensing the switching frequency.

Serial arcing protection. The detection of the arcing is done in the ground wire of lamp units. The µProcessor is counting the protection pulses. When 50 pulses are counted within 2 seconds, protection will be triggered.

5.8.6 DC/DC Converter

Introduction
- The best way to find a failure in the DC/DC converters is to check their starting-up sequence at power "on" via the Mains/AC Power cord, presuming that the Stand-by Processor is operational.
- If the input voltage of the DC/DC converters is around 12 V (measured on the decoupling capacitors 2U17/2U25/ 2U45) and the ENABLE signals are "low" (active), then the output voltages should have their normal values.
- First, the Stand-by Processor activates the +1V2 supply (via ENABLE-1V2).

- Then, after this voltage becomes present and is detected OK (about 100 ms), the other two voltages (+2V5 and +3V3) will be activated (via ENABLE-3V3).
- The current consumption of controller IC 7U00 is around 20 mA (that means around 200 mV drop voltage across resistor 3U22).
- The current capability of DC/DC converters is quite high (short-circuit current is 7 to 10 A), therefore if there is a linear integrated stabilizer that, for example delivers 1.8V from +3V3 with its output overloaded, the +3V3 stays usually at its normal value even though the consumption from +3V3 increases significantly.
- The +2V5 supply voltage is obtained via a linear stabilizer made with discrete components that can deliver a lot of current. Therefore, in case +2V5 (or +2V5D) is short-circuited to GND, the +3V3 will not have the normal value but much less. The +2V5D voltage is available in standby mode via a low power linear stabilizer that can deliver up to 30 mA. In normal operation mode, the value of this supply voltage will be close to +2V5 (20 - 30 mV difference).
- The supply voltages +5V and +8V6 are available on connector 1M46; they are not protected by fuses. +12VSW is protected for over-currents by fuse 1U04.

Fault Finding

- **Symptom:** +1V2, +2V5, and +3V3 not present (even for a short while ~10ms).
  1. Check 12V availability (fuse 1U01, resistor 3U22, power MOS-FETs) and enable signal ENABLE-1V2 (active low).
  2. Check the voltage on pin 9 (1.5 V).
  3. Check for +1V2 output voltage short-circuit to GND that can generate pulsed over-currents 7-10 A through coil 5U03.
  4. Check the over-current detection circuit (2U12 or 3U97 interrupted).

- **Symptom:** +1V2 present for about 100 ms. Supplies +2V5 and +3V3 not rising.
  1. Check the ENABLE-3V3 signal (active "low").
  2. Check the voltage on pin 8 (1.5 V).
  3. Check the under-voltage detection circuit (the voltage on collector of transistor 7U10-1 should be less than 0.8 V).
  4. Check for output voltages short-circuits to GND (+3V3, +2V5 and +2V5D) that generate pulsed over-currents of 7-10 A through coil 5U00.
  5. Check the over-current detection circuit (2U18 or 3U83 interrupted).

- **Symptom:** +1V2 OK, but +2V5 and +3V3 present for about 100 ms. **Cause:** The SUPPLY-FAULT line stays "low" even though the +3V3 and +1V2 is available. The Stand-by Processor is detecting that and switches all supply voltages "off".
  1. Check the value of +2V5 and the drop voltage across resistor 3U22 (they could be too high)
  2. Check if the +1V2 or +3V3 are higher than their normal values. This can be due to defective DC feedback of the respective DC/DC converter (3U18 or 3UA7).

- **Symptom:** +1V2, +2V5, and +3V3 look okay, except the ripple voltage is increased (audible noise can come from the filtering coils 5U00 or 5U03).
  Cause: Instability of the frequency and/or duty cycle of one or both DC/DC converters.
  – Check resistor 3U06, the decoupling capacitors, the AC feedback circuits (2U20 + 2U21 + 3U14 + 3U15 for +1V2 or 2U19 + 2U85 + 3U12 + 3U13 for +3V3), the compensation capacitors 2U09, 2U10, 2U23 and 2U73, and IC 7U00.

Note 1: If fuse 1U01 is broken, this usually means a pair of defective power MOSFETs (7U01 or 7U03). Item 7U00 should be replaced as well in this case.

Note 2: The 12V switch and 8V6 switch (see "DC/DC CONNECTIONS" schematic) are not present on board: they are bypassed by jumpers.

5.9 Software Upgrading

5.9.1 Introduction

The set software and security keys are stored in a NAND-Flash (item 7P80), which is connected to the VIPER via the PCI bus.

It is possible **for the user** to upgrade the **main** software via the USB port. This allows replacement of a software image in a standalone set, without the need of an E-JTAG debugger. A description on how to upgrade the main software can be found in chapter 3 "Directions For Use".

Important: When the NAND-Flash must be replaced, a new SSB must be ordered, due to the presence of the security keys!!! See table “SSB service kits” for the order codes. Perform the following actions after SSB replacement:
1. Set the correct option codes (see sticker inside the TV).
2. Update the TV software (see chapter 3 for instructions).
3. Perform the alignments as described in chapter 8.
4. Check in CSM menu 5 if the HDMI and POD keys are valid.

Table 5-3 SSB service kits

Model Number	SSB Assy 12 NC number	New SSB order code
37PF9431D/37	3104 328 48001	3104 328 48041
42PF9431D/37	3104 328 47981	3104 328 48021
42PF9631D/37	3104 328 46531	3104 328 47621
42PF9731D/37	3104 328 46541	3104 328 47631
42PF9831D/37	3104 328 46541	3104 328 47631
50PF9431D/37	3104 328 47981	3104 328 48021
50PF9631D/37	3104 328 46531	3104 328 47621
50PF9731D/37	3104 328 46551	3104 328 47641

5.9.2 Main Software Upgrade

The software image resides in the NAND-Flash, and is formatted in the following way:

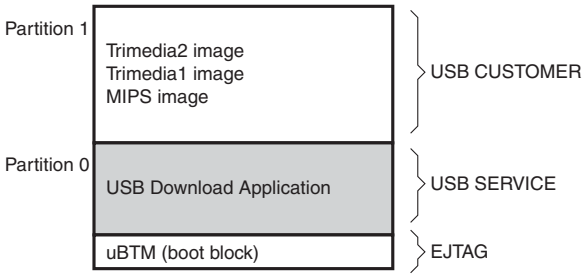


Figure 5-21 NAND-Flash format

Executables are stored as files in a file system. The boot loader (uBTM) will load the USB Download Application in partition 0 (USB drivers, bootscript, etc). This application makes it then possible to upgrade the main software via USB.

Installing "Partition 0" software is possible via an external EJTAG tool, but also in a special way with the USB stick (see description in paragraph “Partition 0“).

Partition 1 (Customer)
To do a main software upgrade (partition 1) via USB, the set must be operational, and the "Partition 0" files for the VIPER **must** be installed in the NAND-Flash!

The new software can be uploaded to the TV by using a portable memory device or USB storage compliant devices (e.g. USB memory stick). You can download the new software from the Philips website to your PC.

Partition 0 (Service)
If the "Partition 0" software is corrupted, the software needs to be re-installed.
To upgrade this “USB download application” (partition 0 except the bootblock), insert an USB stick with the correct software, but press the “red” button on the remote control (in ”TV” mode) when it is asked via the on screen text.

Caution:
- The USB download application will now erase **both** partitions (except the boot block), so you need to reload the main SW after upgrading the USB download application. As long as this is not done, the USB download application will start when the set is switched “on”.
- When something goes wrong during the progress of this method (e.g. voltage dip or corrupted software file), the set will not start up, and can only be recovered via the EJTAG tool!

5.9.3 Manual Start of the Main Software Upgrade Application

Normally, the software upgrading procedure will start automatically, when a memory device with the correct software is inserted, but in case this does not work, it is possible to force the TV into the software upgrade application. To do so:
- Disconnect the TV from the Mains/AC Power.
- Press the “OK” button on a Philips DVD RC-6 remote control (it is also possible to use the TV remote in "DVD" mode).
- Keep the “OK” button pressed while connecting the TV to the Mains/AC Power.
- The software upgrade application will start.
- When a memory device with upgrade software is connected, the upgrade process will start.

5.9.4 Stand-by Software Upgrade

It will be possible to upgrade the Stand-by software via a PC and the ComPair interface. Check paragraph "ComPair" on how to connect the interface. To upgrade the Stand-by software, use the following steps:
1. Disconnect the TV from the Mains/AC Power.
2. Short circuit the SPI pins [2] on the SSB. They are located outside the shielding (see figure “SPI service pads”).
3. Keep the SPI pins shorted while connecting the TV to the Mains/AC Power.
4. Release the short circuit after approx. two seconds.
5. Start up HyperTerminal (can be found in every Windows application via Programs -> Accessories -> Communications -> HyperTerminal. Use the following settings:
   – COM1
   – Bits per second = 19200 (9600*)
   – Data bits = 8
   – Parity = none
   – Stop bits = 1
   – Flow control = Xon / Xoff (none*).
   *__Note__: when having problems with upgrading, use the values between brackets.
6. Press “Shift U” on your PC keyboard. You should now see the following info:
   – PNX2015 Loader V1.0
   – 19-09-2003
   – DEVID=0x05
   – Erasing
   – MCSUM=0x0000
   – =
7. If you do not see the above info, restart the above procedure, and check your HyperTerminal settings and the connections between PC and TV.
8. Via “Transfer” -> “Send text file ...”, you can send the proper upgrade file to the TV (e.g. *.hex). This file will be distributed via the Service Organization.
9. After successful programming, you must see the following info (this can take several minutes!):
   – DCSUM=0xECB3
   – :Ok
   – MCSUM=0xECB3
   – Programming
   – PCSUM=0xECB3
   – Finished
10. If you do not see this info, restart the complete procedure.
11. Close HyperTerminal.
12. Disconnect and connect Mains/AC Power again.

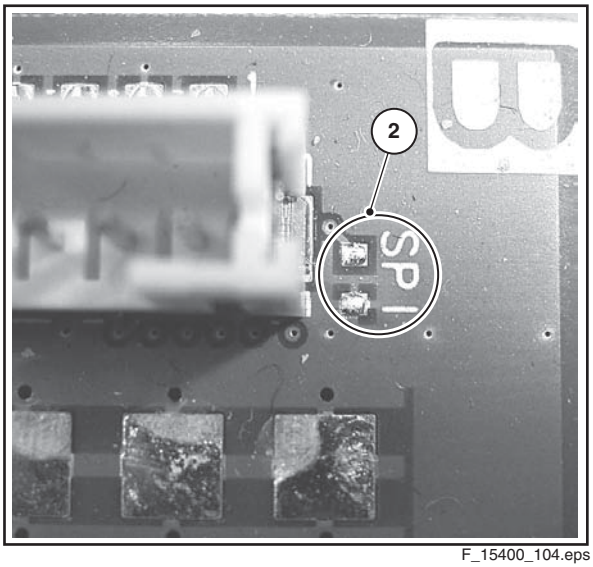


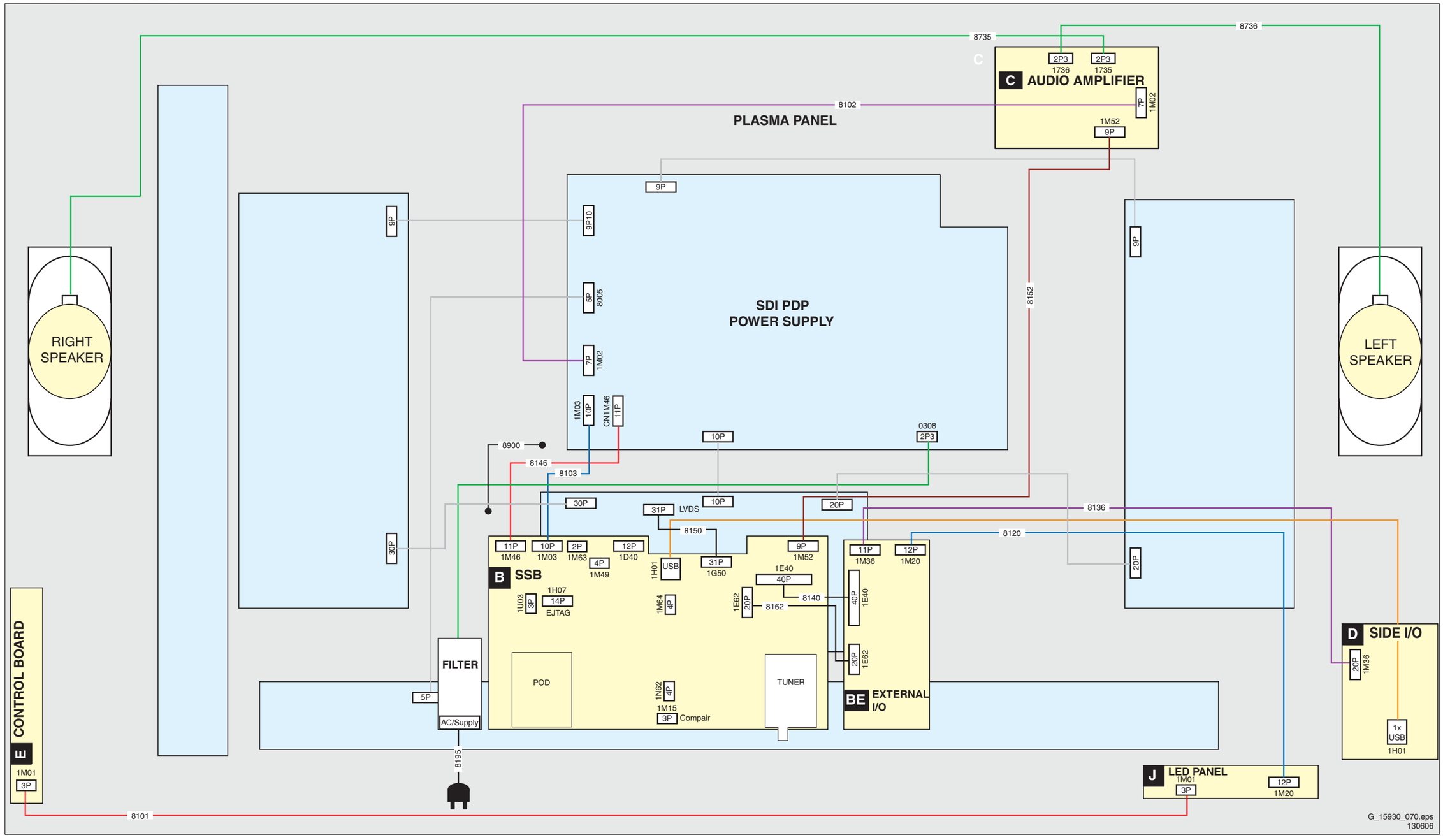
Figure 5-22 SPI service pads

Personal Notes:

6. Block Diagrams, Test Point Overviews, and Waveforms

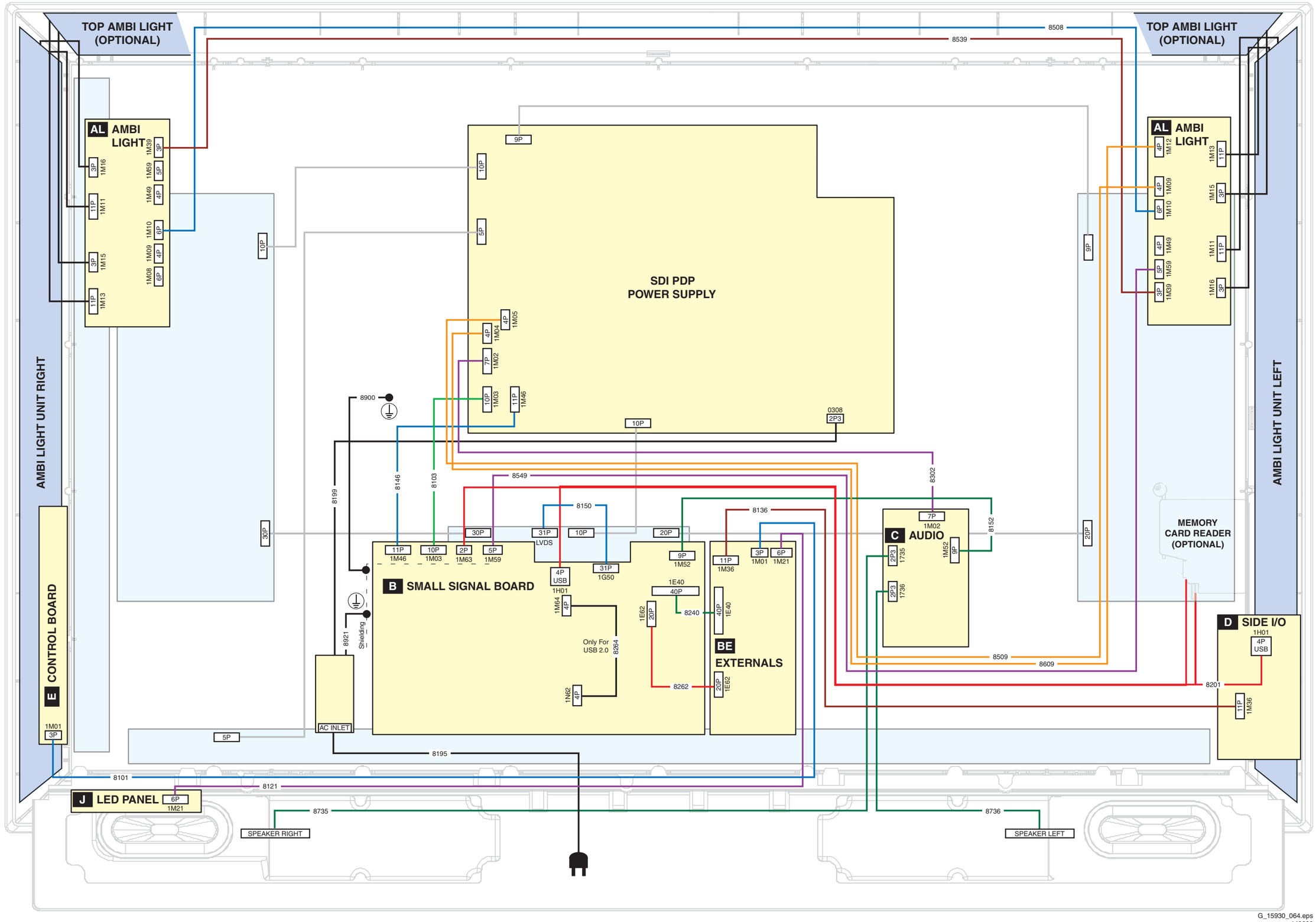
Wiring Diagram 42” & 50” Entry

WIRING 42” & 50” SDI ENTRY



Wiring Diagram 42” & 50” SDI

WIRING 42” / 50” SDI TOP



G_15930_064.eps
140606

Block Diagram Video

VIDEO

B2B MAIN TUNER + OOB TUNER

B2A CHANNEL DECODER

B10B

B10A POD

B10C BUFFERING

B3 MPIF MAIN:

B3C IF

B3A SOURCE SELECTION

MPIF

B4 PNX2015:

B4C TUNNELBUS

PNX2015

B4A AUDIO/VIDEO

B4B DV I/O INTERFACE

B4E STANDBY

B4D DDR INTERFACE

B5 VIPER:

B5C TUNNELBUS

B5E DDR INTERFACE

VIPER

B5C AUDIO/VIDEO

B5B VIPER: MAIN MEMORY

B3B

B6B PACIFIC3: PART2

B6B PACIFIC3: PART2

B4G PNX2015: DISPLAY INTERFACE

B7A HDMI

B7B HDMI: I/O + CONTROL

B3F MPIF MAIN: CONNECTION A

B3G MPIF MAIN: CONNECTIONS B

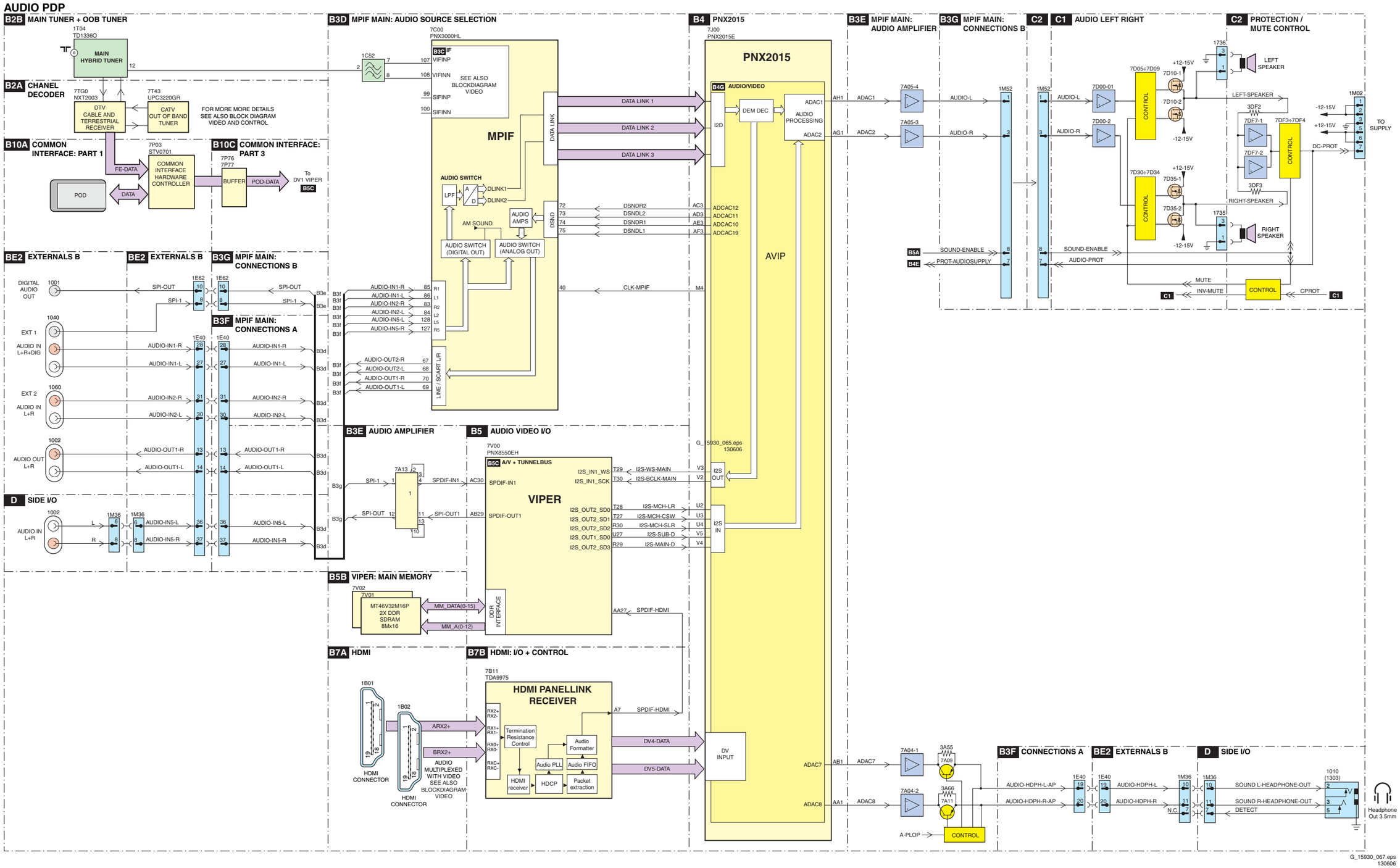
BE2 EXTERNALS B

D SIDE I/O

BE1 EXTERNALS A

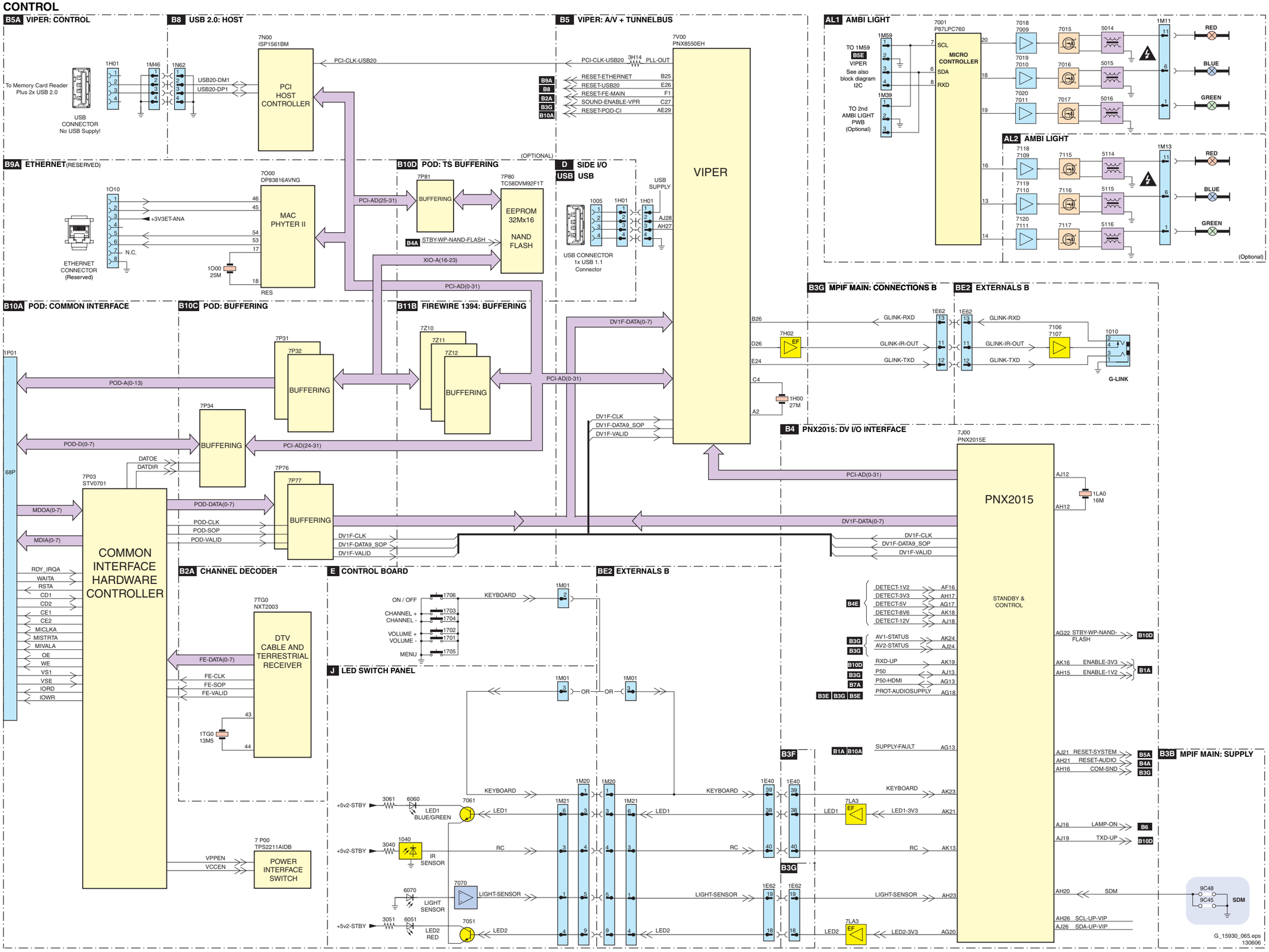
G_15930_066.eps
130606

Block Diagram Audio



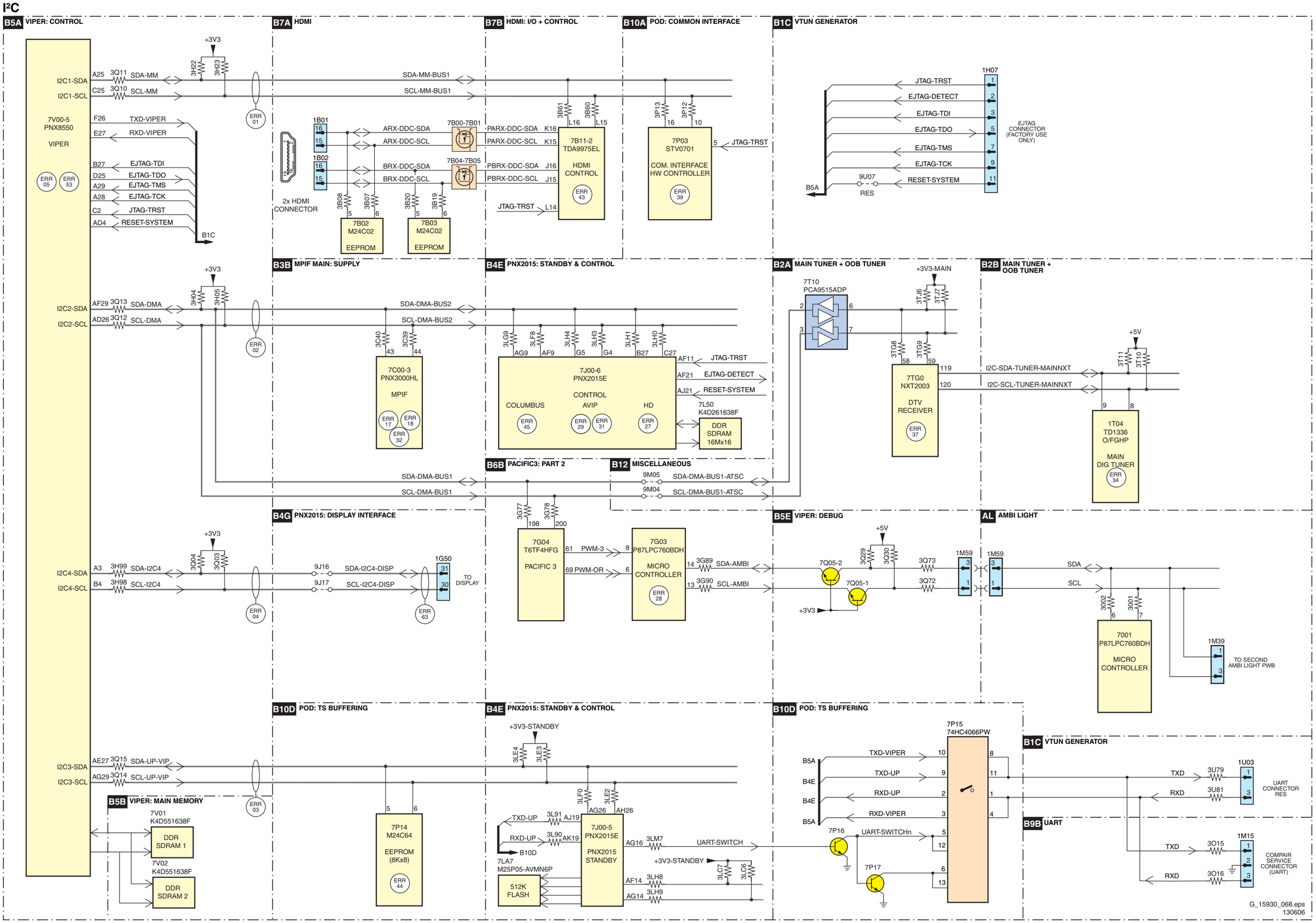
Block Diagram Control

CONTROL



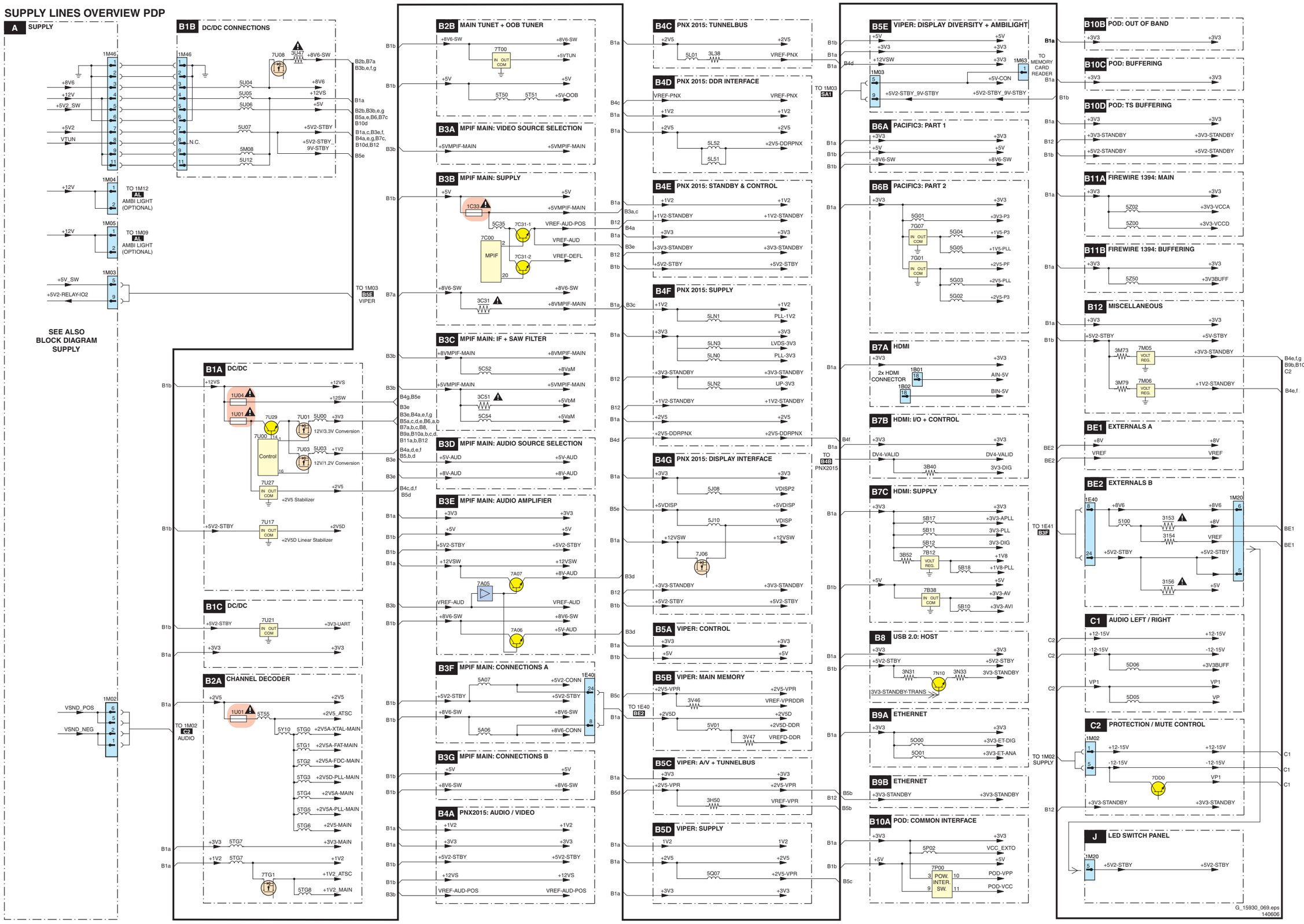
I2C IC's Overview

I²C



Supply Lines Overview

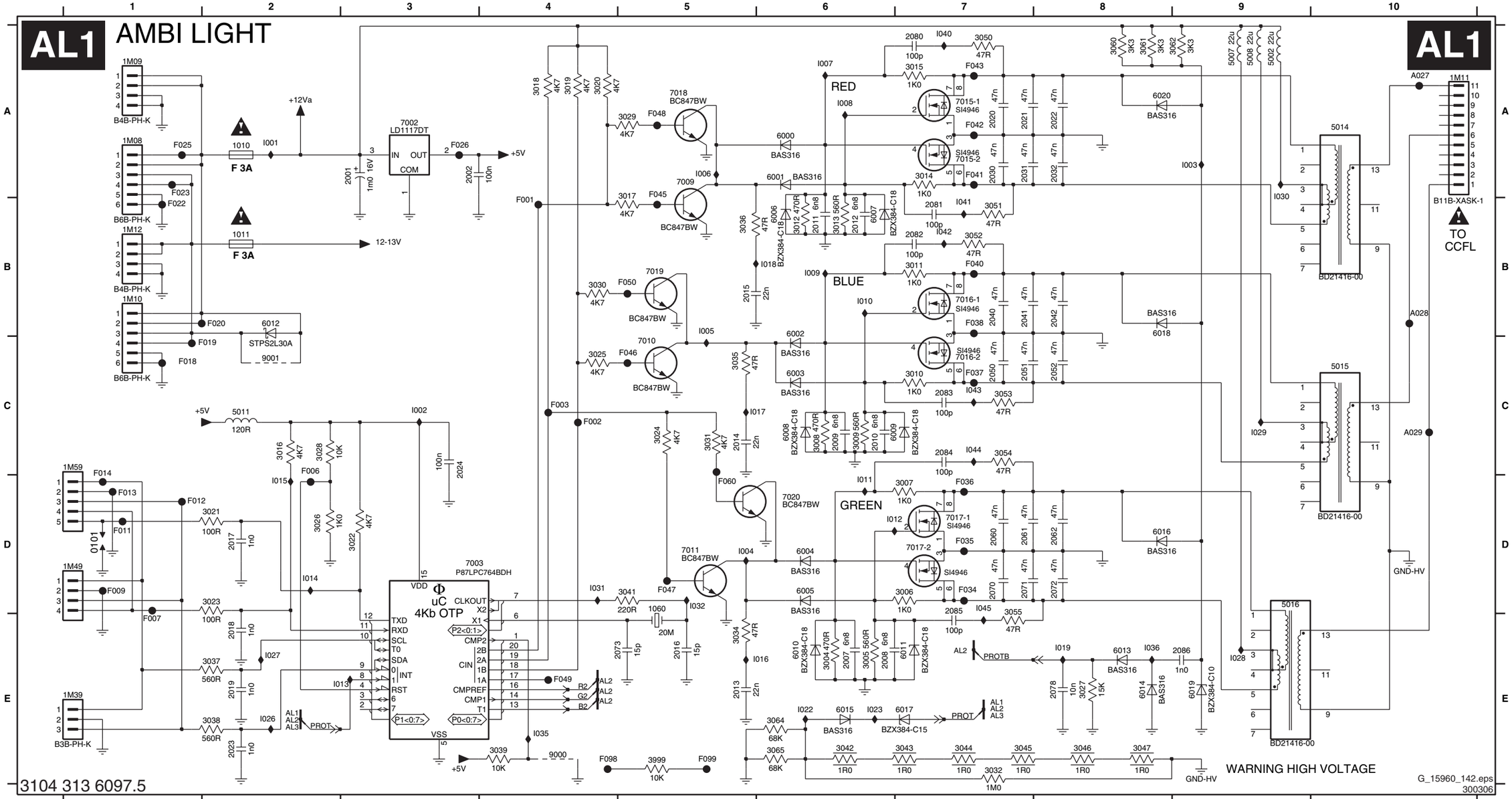
SUPPLY LINES OVERVIEW PDP



7. Circuit Diagrams and PWB Layouts

Ambi Light

0101 D1	2001 A3	2017 D2	2041 B7	2078 E8	3008 C6	3020 A4	3032 E7	3046 E8	3065 E6	6003 C6	6015 E6	7015-2 A7	A029 C10	F019 C2	F041 A7	I001 A2	I013 E3	I029 C9
1010 A2	2002 A3	2018 E2	2042 B8	2080 A7	3009 C6	3021 D2	3034 E5	3047 E8	3999 E5	6004 D6	6016 D8	7016-1 B7	F001 B4	F020 B2	F042 A7	I002 C3	I014 D2	I030 A9
1011 B2	2007 E6	2019 E2	2050 C7	2081 B7	3010 C7	3022 D3	3035 C5	3050 A7	5002 A9	6005 D6	6017 E7	7016-2 C7	F002 C4	F022 B1	F043 A7	I003 A9	I015 D2	I031 D4
1060 D5	2008 E6	2020 A7	2051 C7	2082 B7	3011 B7	3023 D2	3036 B5	3051 B7	5007 A9	6006 B6	6018 B8	7017-1 D7	F003 C4	F023 A1	F045 A5	I004 D5	I016 E6	I032 D5
1M08 A1	2009 C6	2021 A7	2052 C8	2083 C7	3012 B6	3024 C5	3037 E2	3052 B7	5008 A9	6007 B6	6019 E9	7017-2 D7	F006 C2	F025 A1	F046 C5	I005 B5	I017 C6	I035 E4
1M09 A1	2010 C6	2022 A8	2060 D7	2084 C7	3013 B6	3025 C4	3038 E2	3053 C7	5011 C2	6008 C6	6020 A8	7018 A5	F007 E1	F026 A3	F047 D5	I006 A5	I018 B6	I036 E8
1M10 B1	2011 B6	2023 E2	2061 D7	2085 D7	3014 A7	3026 D2	3039 E4	3054 C7	5014 A10	6009 C6	7002 A3	7019 B5	F009 D1	F034 D7	F048 A5	I007 A6	I019 E8	I040 A7
1M11 A10	2012 B6	2024 C3	2062 D8	2086 E9	3015 A7	3027 E8	3041 D5	3055 E7	5015 C10	6010 E6	7003 D3	7020 D6	F011 D1	F035 D7	F049 E4	I008 A6	I022 E6	I041 B7
1M12 B1	2013 E5	2030 A7	2070 D7	3004 E6	3016 E6	3028 E6	3042 E6	3056 A8	5016 D9	6011 E7	7009 A5	9000 E4	F012 D1	F036 D7	F050 B5	I009 B6	I023 E6	I042 B7
1M39 E1	2014 C5	2031 A7	2071 D7	3005 E6	3017 B5	3029 A5	3043 E7	3057 B8	6000 A6	6012 B2	7010 C5	9001 C2	F013 D1	F037 C7	F060 D5	I010 B6	I026 E2	I043 C7
1M49 D1	2015 B5	2032 A8	2072 D8	3006 D7	3018 A4	3030 B4	3044 E7	3058 C8	6001 A6	6013 E8	7011 D5	A027 A10	F014 D1	F038 B7	F098 E4	I011 B6	I027 E2	I044 C7
1M59 C1	2016 E5	2040 B7	2073 E5	3007 D7	3019 A4	3031 C5	3045 E7	3064 E6	6002 B6	6014 E8	7015-1 A7	A028 B10	F018 C1	F040 B7	F099 E5	I012 D6	I028 E9	I045 D7



Ambi Light

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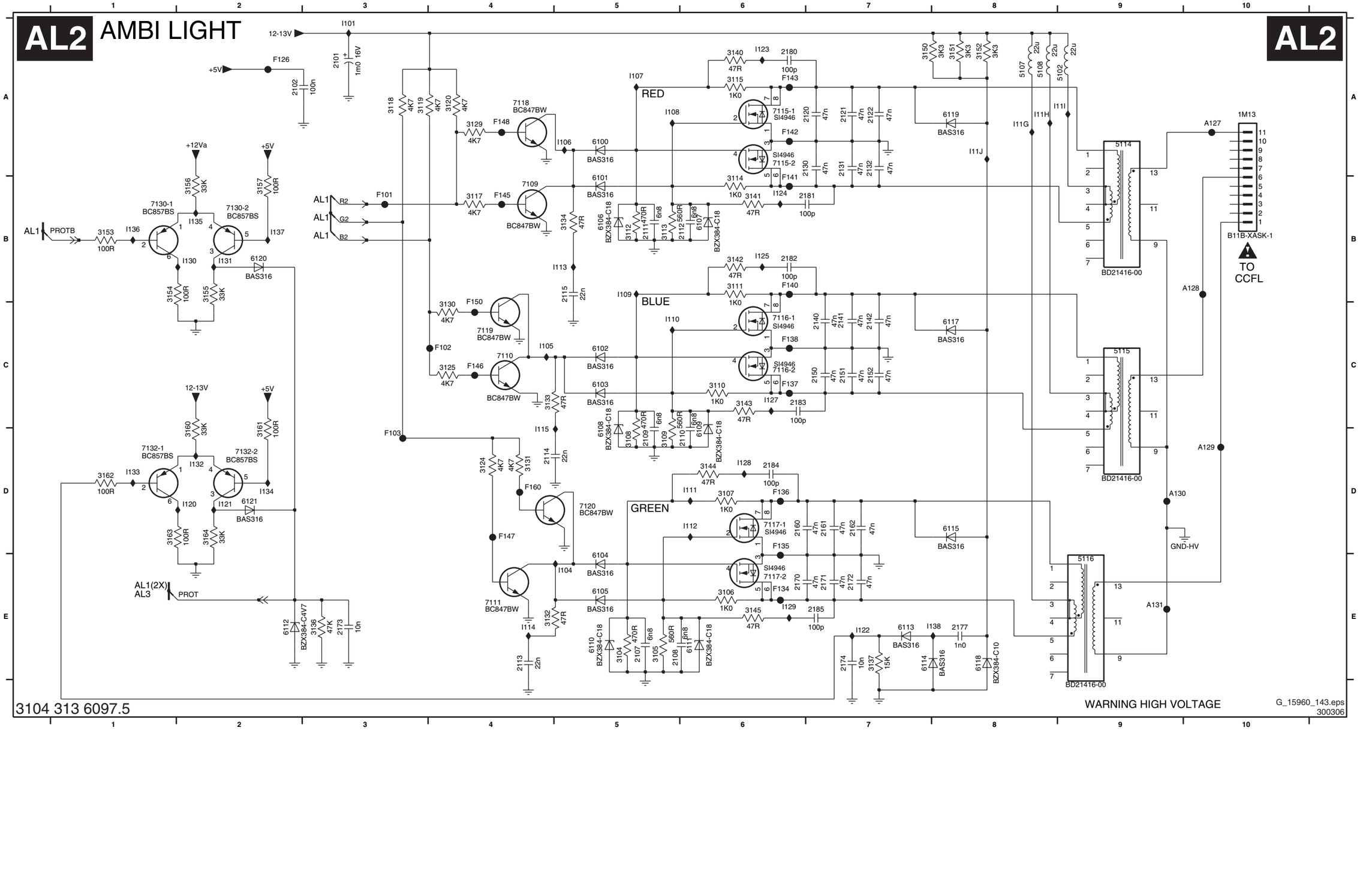
2101 A3	2113 E4	2132 A7	2161 D7	2180 A6	3106 E6	3114 B6	3129 A4	3140 A6	3152 A8	3162 D1	5116 E9	6107 B6	6115 D8	7111 E4	7119 C4	A129 D10	F135 D6	F145 B4	I105 C4	I113 B5	I121 D2	I130 B2	I138 E8
2102 A2	2114 D4	2140 C7	2162 D7	2181 B7	3107 D6	3115 A6	3130 C4	3141 B6	3153 B1	3163 D1	6100 A5	6108 D5	6117 C8	7115-1 A6	7120 D5	A130 D9	F136 D6	F146 C4	I106 A5	I114 E4	I122 E7	I131 B2	
2107 E5	2115 B5	2141 C7	2170 E6	2182 B6	3108 D5	3117 B4	3131 D4	3142 B6	3154 B1	3164 D2	6101 B5	6109 D6	6118 E8	7115-2 A6	7130-1 B1	A131 E9	F137 C6	F147 D4	I107 A5	I115 D4	I123 A6	I132 D2	
2108 E5	2120 A6	2142 C7	2171 E7	2183 C6	3109 D5	3118 A3	3132 E4	3143 C6	3155 B2	5102 A9	6102 C5	6110 E5	6119 A8	7116-1 C6	7130-2 B2	F101 B3	F138 C6	F148 A4	I108 A5	I11G A8	I124 B6	I133 D1	
2109 D5	2121 A7	2150 C7	2172 E7	2184 D6	3110 C6	3119 A3	3133 C4	3144 D6	3156 B2	5107 A8	6103 C5	6111 E6	6120 B2	7116-2 C6	7132-1 D1	F102 C4	F140 B6	F150 C4	I109 B5	I11H A8	I125 B6	I134 D2	
2110 D6	2122 A7	2151 C7	2173 E3	2185 E7	3111 B6	3120 A4	3134 B5	3145 E6	3157 B2	5108 A8	6104 E5	6112 E2	6121 D2	7117-1 D6	7132-2 D2	F103 D3	F141 B6	F160 D4	I110 C5	I11I A9	I127 C6	I135 B2	
2111 B5	2130 A6	2152 C7	2174 E7	3104 E5	3112 B5	3124 D4	3136 E3	3150 A7	3160 D2	5114 A9	6105 E5	6113 E7	7109 B4	7117-2 E6	A127 A10	F126 A2	F142 A6	I101 A3	I111 D6	I11J A8	I128 D6	I136 B1	



Ambi Light

AL3 AMBI LIGHT

AL3

1M15
B03B-XASK-1

1M16
B03B-XASK-1

5200 120R
5201 600R
5202 600R
5203 120R
5204 600R
5205 600R
3200 1K0
3201 1K0
3202 47R
3203 1M0
3204 10K
3205 1K0
3206 220R
3207 22K
3208 1K0
3209 1K0
3210 47R
3211 1M0
3212 220R
2200 470p
2201 470n
2202 470p
6200 BAS316
6201 BAS316
6202 BZX384-C6V8
6203 BAS316
6204 BAS316
6205 BZX384-C6V8
6206 BZX384-C12
7200 SI2302ADS
7201 TCET1102(G)
7202 SI2302ADS

I201 I202 I203 I204 I205 I206 I207 I208 I209 I210 I211 I212 I213 I214 I215

+5V
PROT
AL1(2X)
AL2

GND-HV

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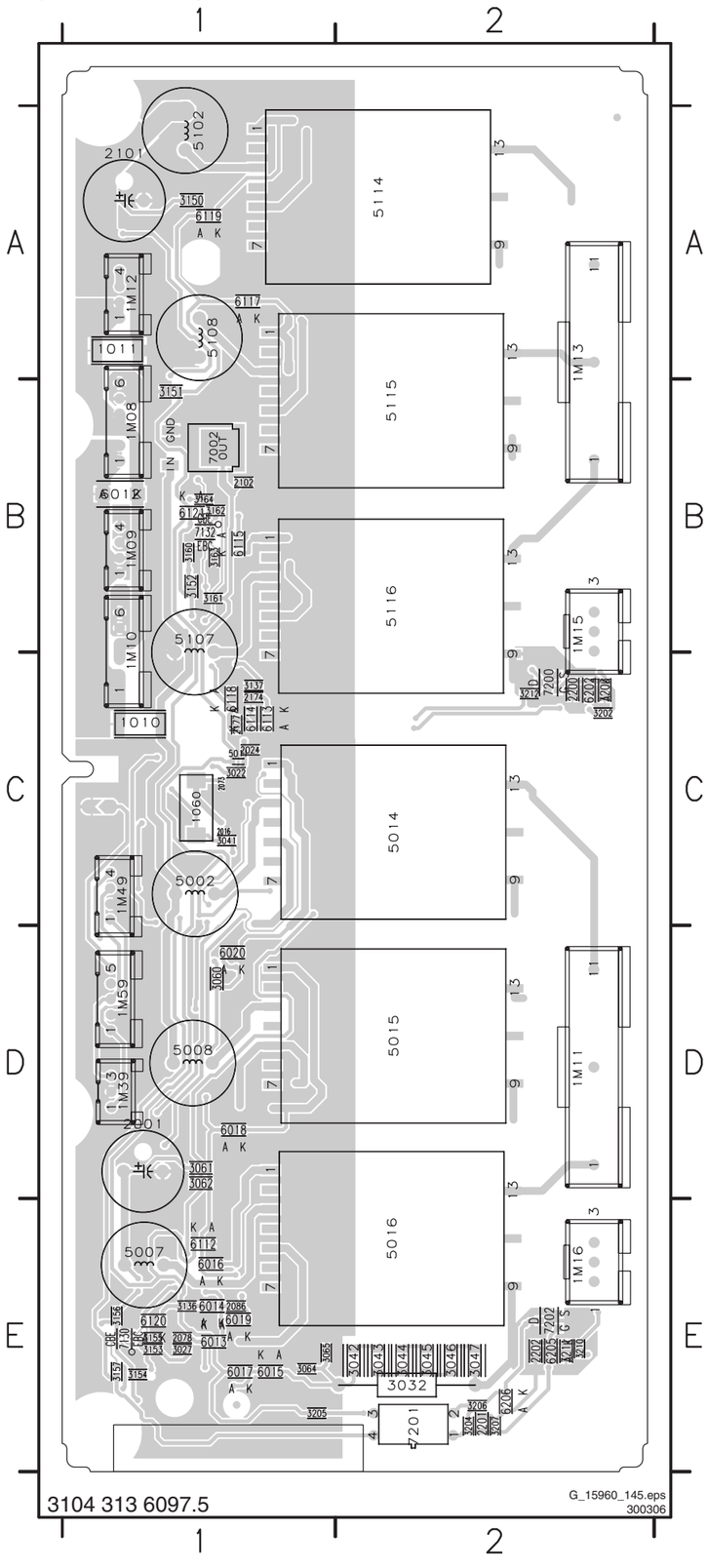
300306

Layout Ambi Light (Top Side)



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1060 C1
1M08 B1
1M09 B1
1M10 B1
1M11 D2
1M12 A1
1M13 A2
1M15 B2
1M16 E2
1M39 D1
1M49 C1
1M59 D1
2001 D1
2016 C1
2024 C1
2073 C1
2078 E1
2086 E1
2101 A1
2102 B1
2174 C1
2177 C1
2200 C2
2201 E2
2202 E2
3022 C1
3027 E1
3032 E2
3041 C1
3042 E2
3043 E2
3044 E2
3045 E2
3046 E2
3047 E2
3060 D1
3061 D1
3062 D1
3064 E1
3065 E1
3136 E1
3137 C1
3150 A1
3151 B1
3152 B1
3153 E1
3154 E1
3155 E1
3156 E1
3157 E1
3160 B1
3161 B1
3162 B1
3163 B1
3164 B1
3202 C2
3203 C2
3204 E2
3205 E1
3206 E2
3207 E2
3210 E2
3211 E2
3212 C2
5002 D1
5007 E1
5008 D1
5011 C1
5014 C2
5015 D2
5016 D2
5102 A1
5107 B1
5108 A1
5114 A2
5115 B2
5116 B2
6012 B1
6013 E1
6014 E1
6015 E1
6016 E1
6017 E1
6018 D1
6019 E1
6020 D1
6112 E1
6113 C1
6114 C1
6115 B1
6117 A1
6118 C1
6119 A1
6120 E1
6121 B1
6202 C2
6205 E2
6206 E2
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7130 E1
7132 B1
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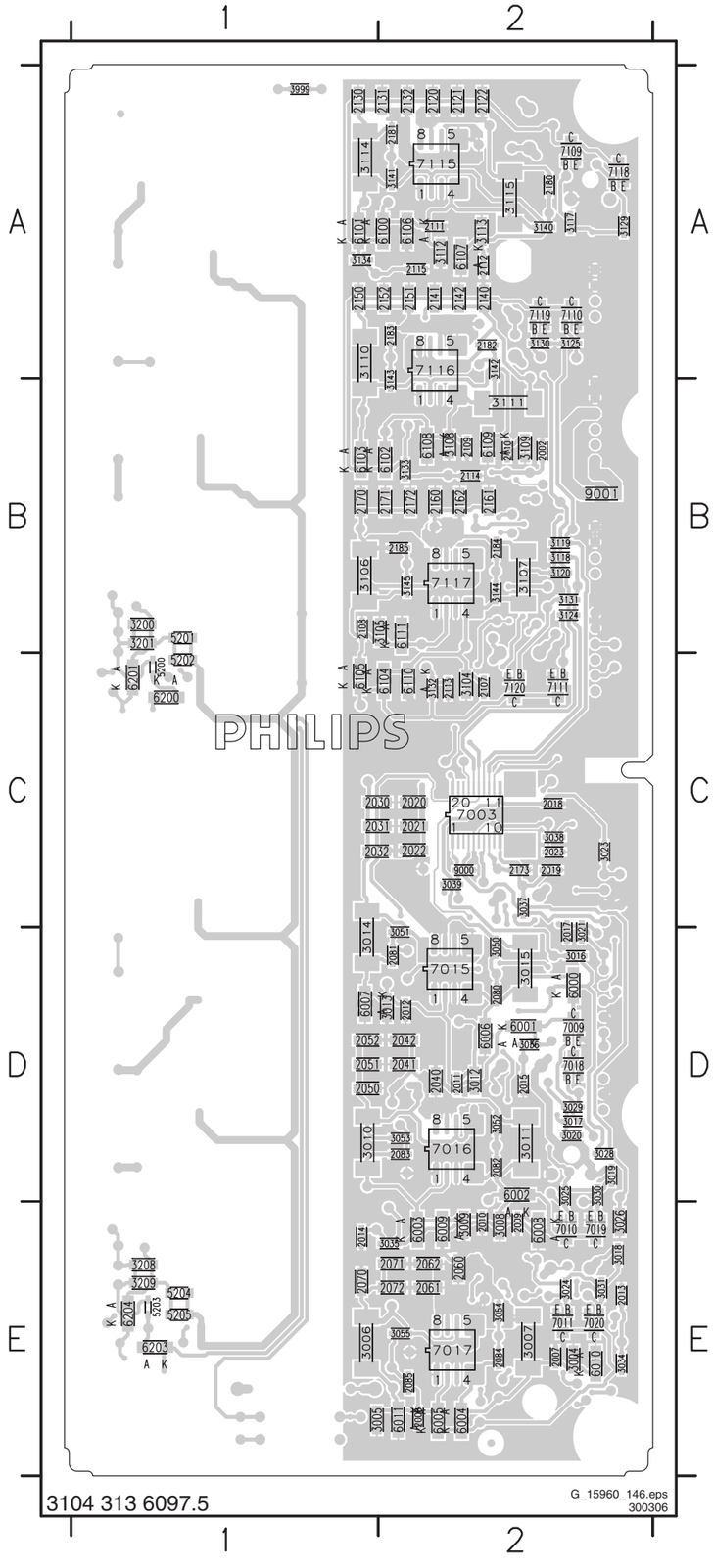
7201 E2
7202 E2

Layout Ambi Light (Bottom Side)



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2008 E2
2009 E2
2010 E2
2011 D2
2012 D2
2013 E2
2014 E1
2015 D2
2017 D2
2018 C2
2019 C2
2020 C2
2021 C2
2022 C2
2023 C2
2030 C1
2031 C1
2032 C1
2040 D2
2041 D2
2042 D2
2050 D1
2051 D1
2052 D1
2060 E2
2061 E2
2062 E2
2070 E1
2071 E2
2072 E2
2080 D2
2081 D2
2082 D2
2083 D2
2084 E2
2085 E2
2107 C2
2108 B1
2109 B2
2110 B2
2111 A2
2112 A2
2113 C2
2114 B2
2115 A2
2120 A2
2121 A2
2122 A2
2130 A1
2131 A2
2132 A2
2140 A2
2141 A2
2142 A2
2150 A1
2151 A2
2152 A2
2160 B2
2161 B2
2162 B2
2170 B1
2171 B2
2172 B2
2173 C2
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2181 A2
2182 A2
2183 A2
2184 B2
2185 B2
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3005 E1
3006 E1
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3012 D2
3013 D2
3014 C2
3015 D2
3016 D2
3017 D2
3018 E2
3019 D2
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3022 C2
3023 C2
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3119 B2
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3124 B2
3125 A2
3129 A2
3130 A1
3131 B2
3132 C2
3133 B2
3134 A1
3140 A2
3141 A2
3142 A2
3143 B2
3144 B2
3145 B2
3200 B1
3201 B1
3208 E1
3209 E1
3999 A1
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5201 B1
5202 C1
5203 E1
5204 E1
5205 E1
6000 D2
6001 D2
6002 D2
6003 E2
6004 E2
6005 E2
6006 D2
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7010 D2
7011 E2
7015 C2
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7117 B2
7118 A2
7119 A2
7120 C2
9000 C2
9001 B2

SSB: DC / DC

1U01 A11	2U17 A5	2U27 B7	2U42 B11	2U85 B8	3U09 D5	3U19 F9	3U29 D4	3U39 G10	3U54 D10	3U69 H9	3U88 A3	3UA4 D13	6U06 E11	7U00 B4	7U11 E5	7U19 H9	FU02 B4	FU19 F12	IU09 C3	IU19 A5	IU29 B6	IU40 D8	IU50 H8	IU60 D7	IU79 B11
1U04 A12	2U18 C6	2U28 B7	2U45 A9	3U00 C2	3U10 C6	3U20 D8	3U30 D5	3U40 B12	3U55 D10	3U70 H8	3U89 B2	3UA5 D13	6U07 G11	7U01-1 A6	7U13-1 B3	7U27 C12	FU03 A7	FU23 A3	IU10 C4	IU20 A2	IU30 B6	IU41 D8	IU51 H8	IU61 G3	IU80 D12
2U09 F2	2U19 B8	2U29 D8	2U46 E13	3U01 C2	3U11 E7	3U21 B7	3U31 D3	3U41 D5	3U56 D10	3U71 H8	3U93 D9	3UA6 F10	6U08 E11	7U01-2 A6	7U13-2 A2	7U28 D11	FU05 F12	IU01 A13	IU11 C2	IU21 B8	IU31 B5	IU42 A10	IU52 H9	IU62 A3	IU81 D12
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2U11 E6	2U21 D8	2U31 A6	2U50 A13	3U03 C3	3U13 B8	3U23 A5	3U33 E3	3U43 B13	3U63 H8	3U82 C7	3U95 E10	3UA8 D7	6U12 A14	7U03-2 B6	7U14-2 B14	7U29-2 B9	FU07 E12	IU03 B2	IU13 D5	IU23 A6	IU33 B15	IU44 C6	IU54 B7	IU65 D4	IU86 A7
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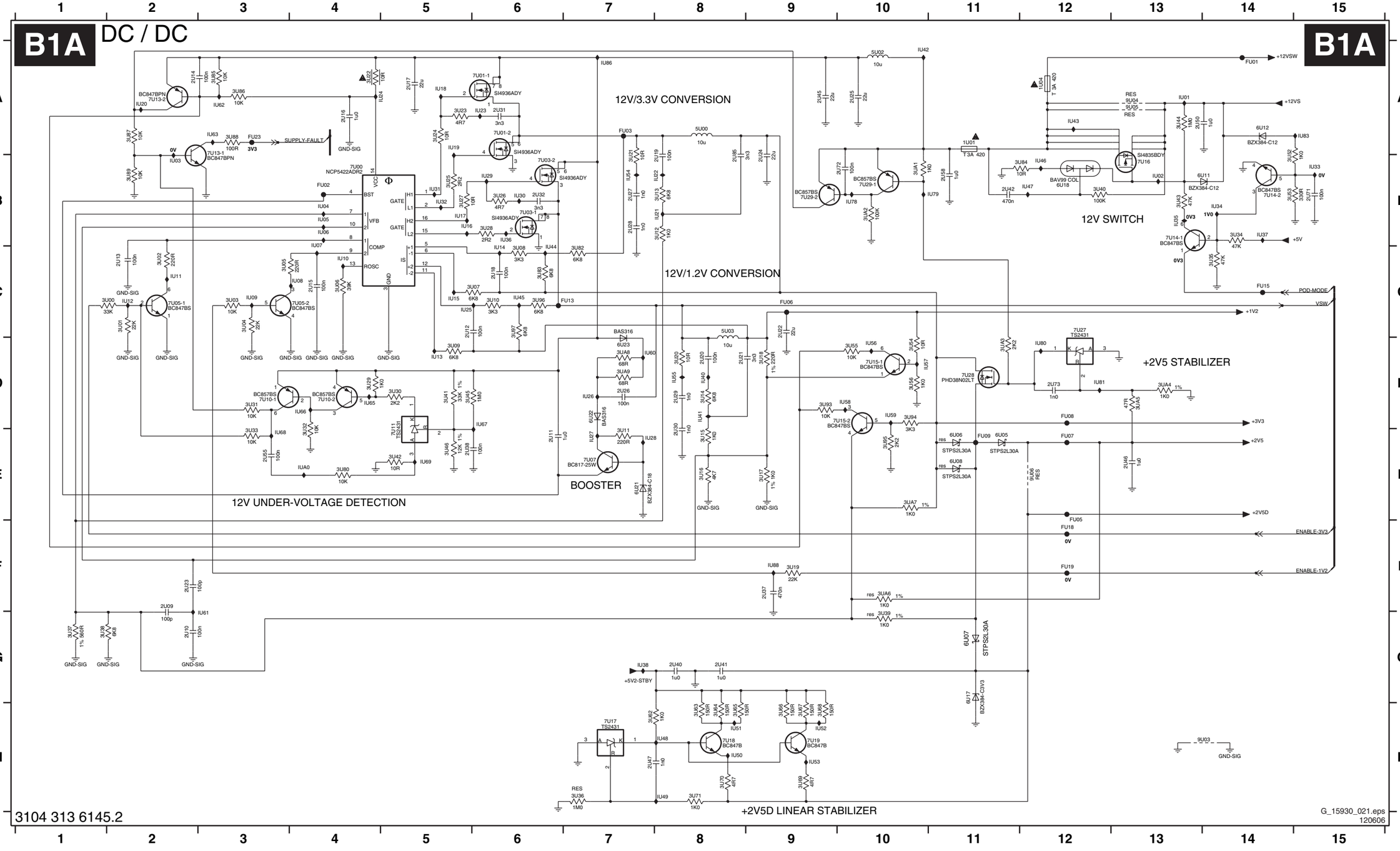
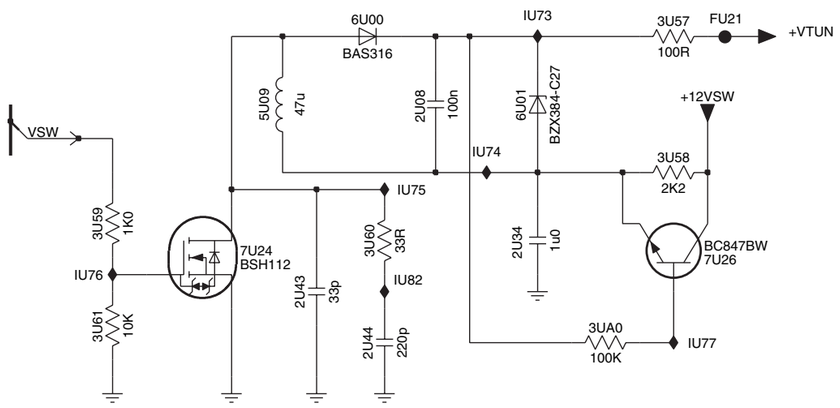


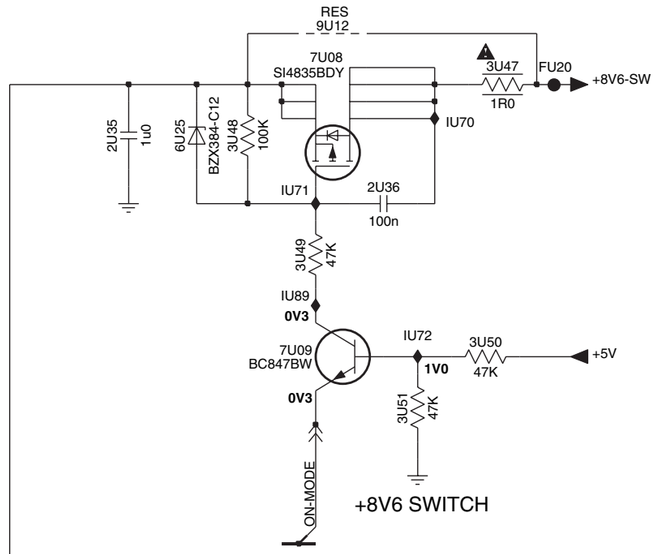
SSB: DC / DC Connections

B1B DC/DC CONNECTIONS

B1B

VTUN GENERATOR



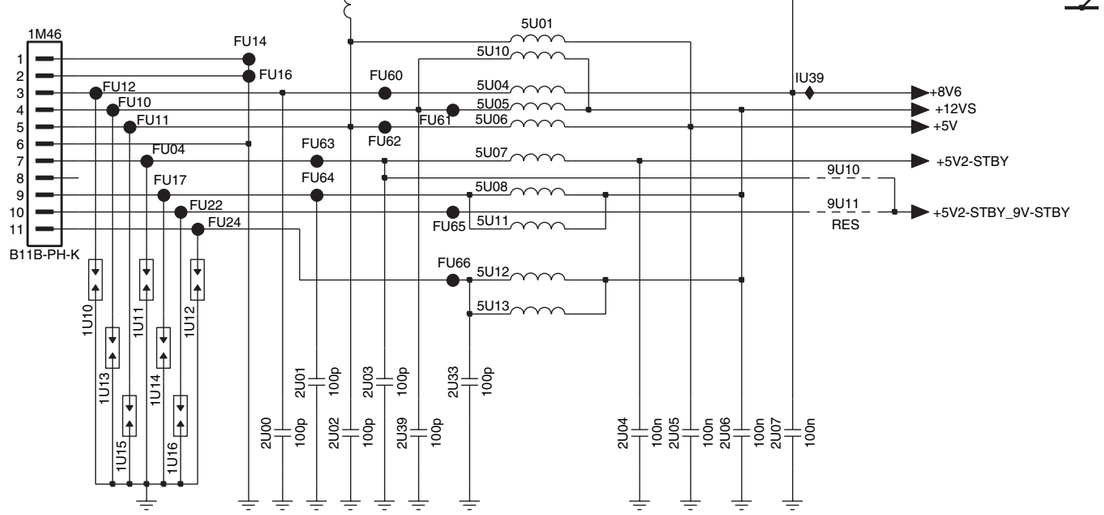


+8V6 SWITCH

TO 1M46

SA1

AUDIO STANDBY



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1U11	E3	7U09	C7
1U12	E3	7U24	B2
1U13	E2	7U26	B4
1U14	E3	9U10	D6
1U15	F2	9U11	E6
1U16	F3	9U12	B7
2U00	F3	FU04	D3
2U01	E3	FU10	D3
2U02	F3	FU11	D3
2U03	E4	FU12	D2
2U04	F5	FU14	D3
2U05	F5	FU16	D3
2U06	F5	FU17	E3
2U07	F5	FU20	B8
2U08	B3	FU21	A5
2U33	E4	FU22	E3
2U34	B4	FU24	E3
2U35	B6	FU60	D4
2U36	B7	FU61	D4
2U39	F4	FU62	D4
2U43	B3	FU63	D3
2U44	C3	FU64	E3
3U47	B7	FU65	E4
3U48	B6	FU66	E4
3U49	C7	IU39	D5
3U50	C7	IU70	B7
3U51	C7	IU71	B6
3U57	A4	IU72	C7
3U58	B4	IU73	A4
3U59	B2	IU74	B4
3U60	B3	IU75	B3
3U61	B2	IU76	B2
3UA0	C4	IU77	C4
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5U06	D4		
5U07	D4		
5U08	E4		
5U09	B3		
5U10	D4		
5U11	E4		
5U12	E4		
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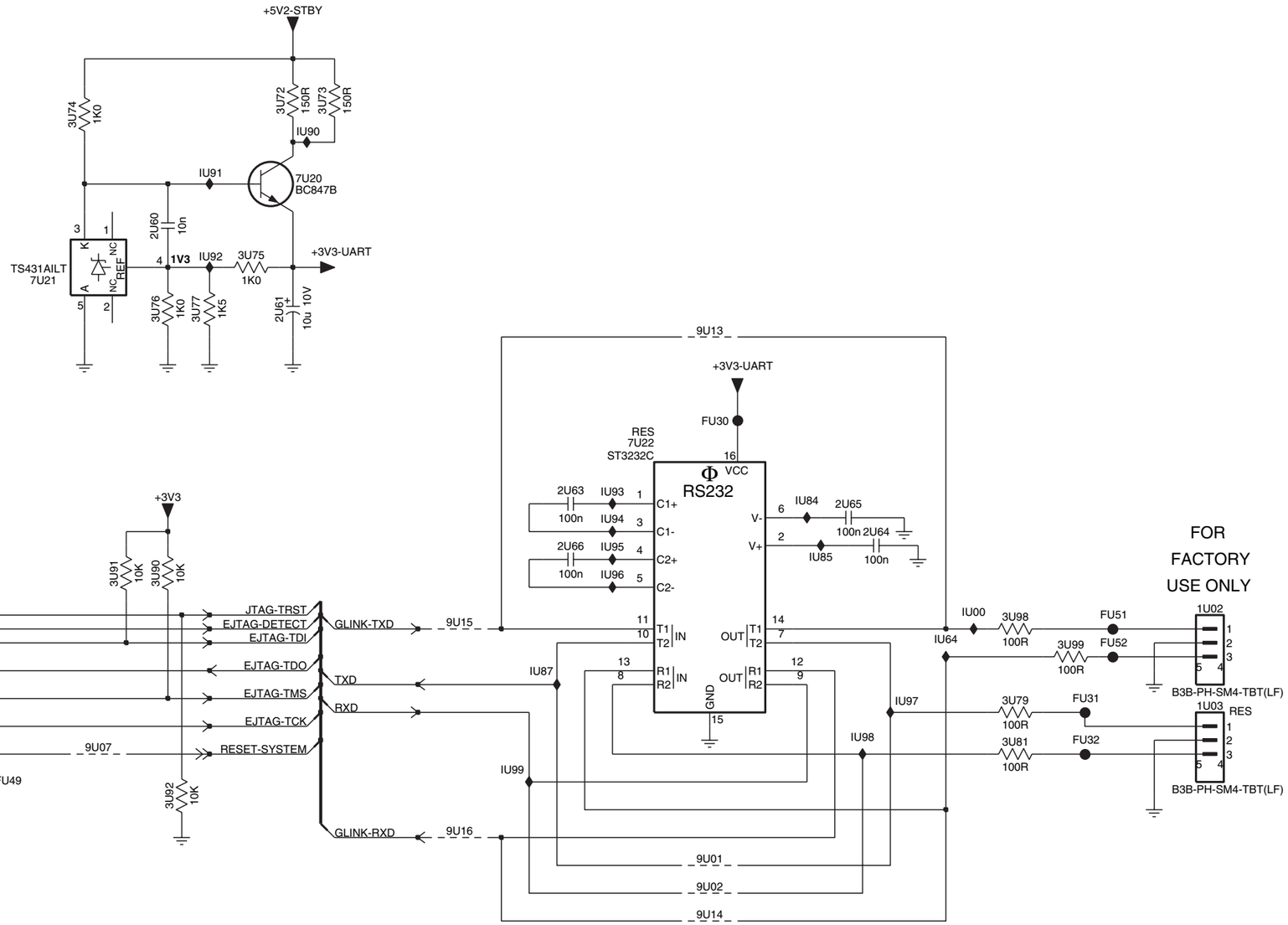
5U14	D3		
6U00	A3		
6U01	B4		

SSB: RS232 Interface

B1C RS232 INTERFACE



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1U03 D8
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2U63 C5
2U64 C6
2U65 C6
2U66 D5
3U72 A3
3U73 A4
3U74 A2
3U75 B3
3U76 B3
3U77 B3
3U79 D7
3U81 E7
3U90 D3
3U91 D2
3U92 E3
3U98 D7
3U99 D7
7U20 B3
7U21 B2
7U22 C5
9U01 E5
9U02 E5
9U07 E2
9U13 B5
9U14 E5
9U15 D4
9U16 E4
FU30 C6
FU31 D7
FU32 E7
FU40 D2
FU41 D2
FU42 D2
FU43 D2
FU44 D2
FU45 D2
FU46 E2
FU47 E2
FU48 E2
FU49 E2
FU50 E2
FU51 D8
FU52 D8
IU00 D7
IU64 D7
IU84 C6
IU85 D6
IU87 D5
IU90 A3
IU91 B3
IU92 B3
IU93 C5
IU94 C5
IU95 C5
IU96 D5
IU97 D7
IU98 D6
IU99 E4

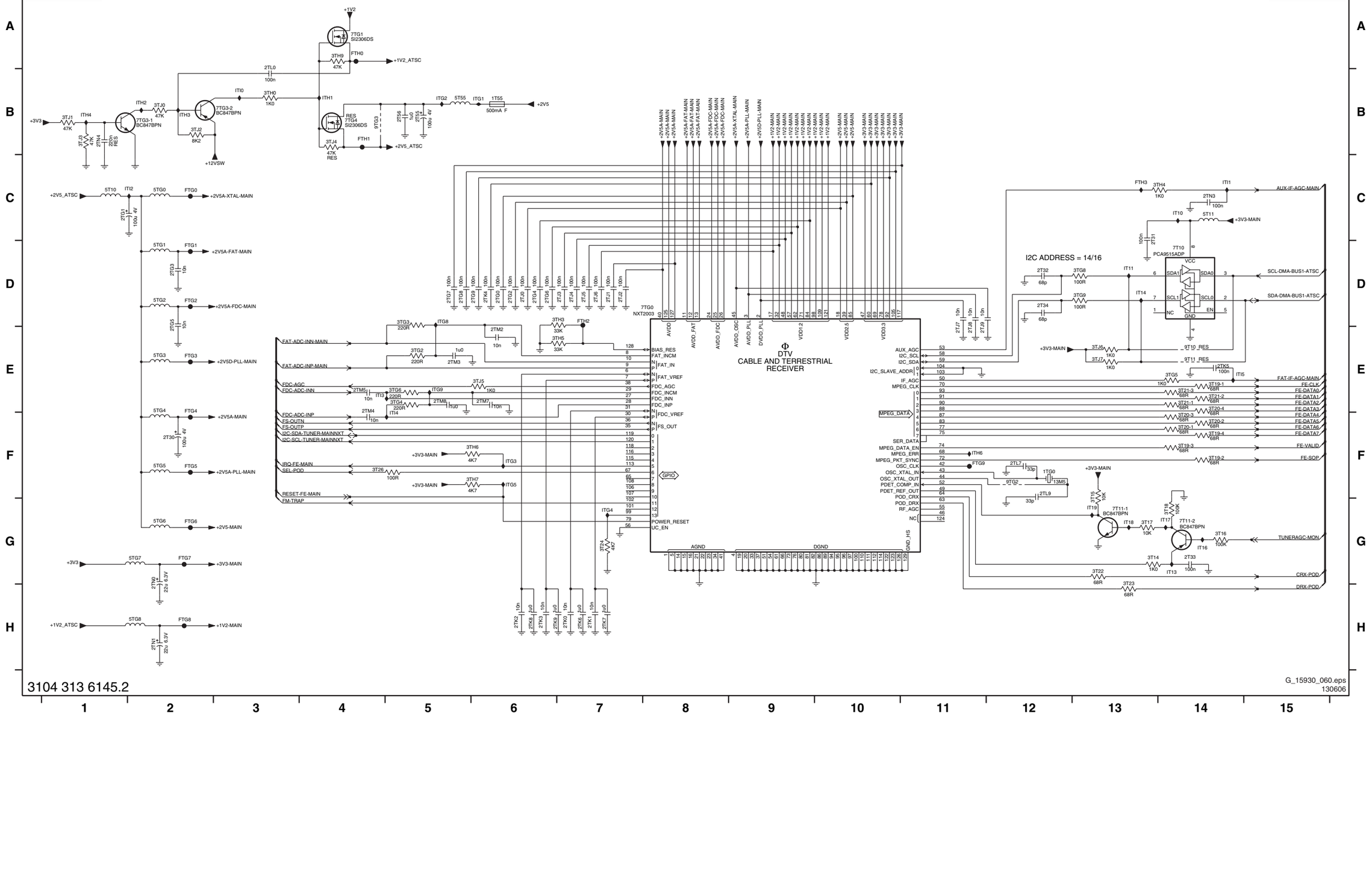
SSB: Channel Decoder

1T55 B6 1TG0 F12 2T30 F2 2T31 C13 2T32 D12 2T33 G14
2T34 D12 2T55 B5 2T56 B5 2TG0 D6 2TG1 C1 2TG2 D6
2TG3 D2 2TG4 D6 2TG5 D2 2TG6 D6 2TG7 D5 2TG8 D5
2TG9 D6 2TJ0 D6 2TJ1 D7 2TJ2 D7 2TJ3 D7 2TJ4 D7
2TJ5 D7 2TJ6 D7 2TJ7 E11 2TJ8 E11 2TK4 D6 2TK5 E14 2TK6 H7
2TK1 H7 2TK2 H6 2TK3 H6 2TK4 D6 2TK5 E14 2TK6 H7 2TK0 H7
2TK7 H7 2TK8 H6 2TK9 H7 2TL0 B3 2TL7 F12 2TL9 F12
2TM2 E6 2TM3 E5 2TM4 F4 2TM5 E4 2TM7 E6 2TM8 E5
2TN0 G2 2TN1 H2 2TN3 C14 2TN4 B1 3T14 G13 3T15 F13
3T16 G14 3T17 G13 3T18 G14 3T19-1 E14 3T19-2 F14 3T19-3 E14 3T19-4 F14
3T20-1 F14 3T20-2 F14 3T20-3 F14 3T20-4 E14 3T21-1 E14 3T21-2 E14 3T21-3 E14
3T22 G13 3T23 G13 3T24 G7 3T26 F4
3TG2 E5 3TG3 D5 3TG4 E5 3TG5 E14 3TG6 E5 3TG8 D13
3TG9 D13 3TH0 B3 3TH3 D7 3TH4 C14 3TH5 E7 3TH6 F6
3TH7 F6 3TH9 A4 3TJ0 B2 3TJ1 B1 3TJ2 B2 3TJ3 B1
3TJ4 B4 3TJ5 E6 3TJ6 E13 3TJ7 E13 5T10 C1 5T11 C14
5T55 B5 5TG0 C2 5TG1 D2 5TG2 D2 5TG3 E2 5TG4 E2
5TG5 F2 5TG6 G2 5TG7 G2 5TG8 H2 7TG0 H2 7TG1 H2
7T11-2 G14 7TG0 D8 7TG1 A4 7TG2 F12 7TG3-1 B2 7TG3-2 B3 7TG4 B4
9T10 E14 9T11 E14 9TG2 F12 9TG3 B4 FTG0 C2 FTG1 D2
FTG2 D2 FTG3 E2 FTG4 F2 FTG5 F2 FTG6 G2 FTG7 G2
FTG8 H2 FTG9 F11 FTH0 A4 FTH1 B4 FTH2 D7 FTH3 C13
IT10 C14 IT11 D13 IT13 G14 IT14 D13 IT16 G14 IT17 G14
IT18 G13 IT19 G13 ITG1 B6 ITG2 B5 ITG3 F6 ITG4 G7
ITG5 F6 ITG8 D5 ITG9 E5 IH1 B4 IH2 B2 IH3 B2
ITH4 B1 ITH6 F11 ITI0 B3 ITI1 C14 ITI2 C2 ITI3 E4
ITI4 F5 ITI5 E14

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

B2A CHANNEL DECODER

B2A



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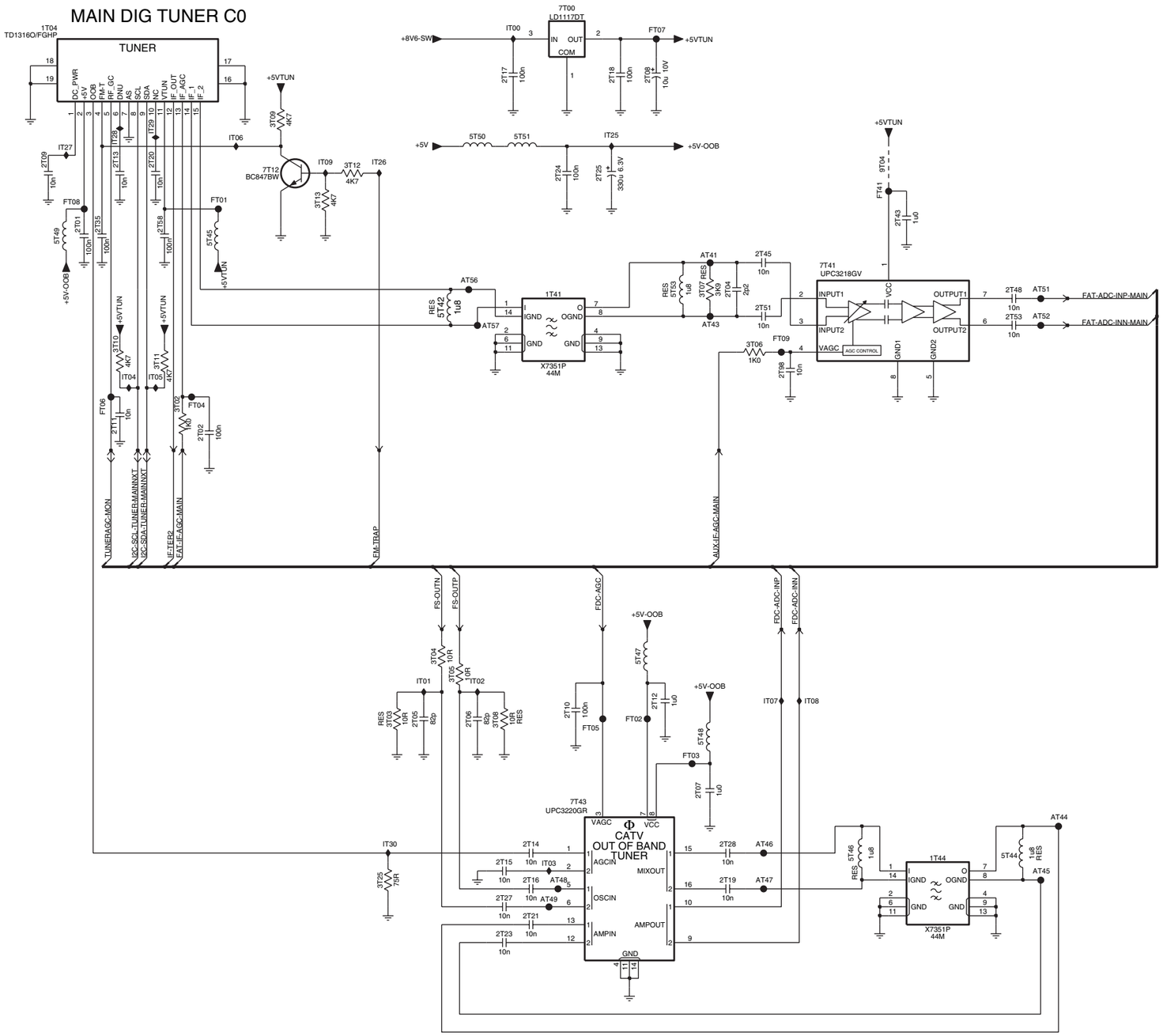
SSB: Main Tuner & OOB Tuner

1T04 A2	2T02 D3	2T07 G7	2T11 D2	2T15 G5	2T19 H7	2T24 B6	2T35 B2	2T51 C8	3T02 D3	3T06 C7	3T10 C2	3T25 H4	5T46 G8	5T50 B5	7T12 B4	AT41 C7	AT46 G8	AT51 C10	FT01 B3	FT05 F6	FT09 C8	IT02 F5	IT06 B3	IT25 B6	IT29 B3
1T41 C6	2T04 C7	2T08 A7	2T12 F7	2T16 H6	2T20 B3	2T25 B6	2T43 B9	2T53 C10	3T03 F5	3T07 C7	3T11 C3	5T42 C5	5T47 F6	5T51 B6	7T41 C8	AT43 C7	AT47 H8	AT52 C10	FT02 F6	FT06 D2	FT41 B8	IT03 G6	IT07 F8	IT26 B4	IT30 G5
1T44 G9	2T05 F5	2T09 B2	2T13 B2	2T17 A5	2T21 H6	2T27 H5	2T45 C8	2T58 B3	3T04 F5	3T08 F5	3T12 B4	5T44 G9	5T48 F7	5T53 C7	7T43 G6	AT44 G10	AT48 H6	AT56 C5	FT03 G7	FT07 A7	IT00 A6	IT04 D2	IT08 F8	IT27 B2		
2T01 B2	2T06 F5	2T10 F6	2T14 G6	2T18 A6	2T23 H5	2T28 G7	2T48 C10	2T98 D8	3T05 F5	3T09 B4	3T13 B4	5T45 B3	5T49 B2	7T00 A6	9T04 B8	AT45 H10	AT49 H6	AT57 C5	FT04 D3	FT08 B2	IT01 F5	IT05 D3	IT09 B4	IT28 B2		

B2B MAIN TUNER + OOB TUNER



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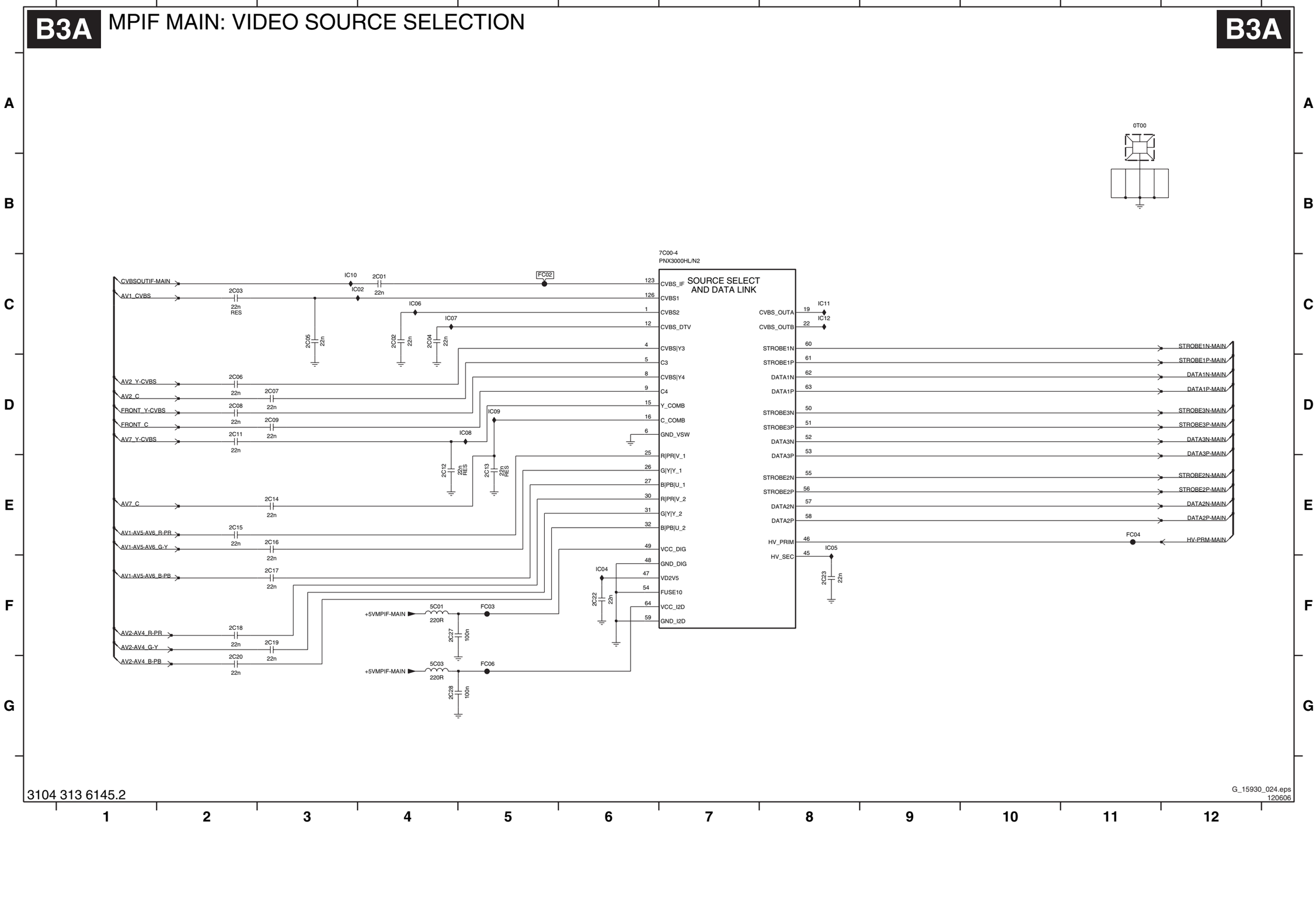
SSB: MPIF Main: Video Source Selection

0T00 A11 2C01 C4 | 2C02 C4 2C03 C2 | 2C04 C4 2C05 C3 | 2C06 D2 2C07 D3 | 2C08 D2 2C09 D3 | 2C11 D2 2C12 E4 | 2C13 E5 2C14 E3 | 2C15 E2 2C16 E3 | 2C17 F3 2C18 F2 | 2C19 F3 2C20 G2 | 2C22 F6 2C23 F8 | 2C27 F4 2C28 G4 | 5C01 F4 5C03 G4 | 7C00-4 C7 FC02 C5 | FC03 F5 FC04 E11 | FC06 G5 IC02 C4 | IC04 F6 IC05 E8 | IC06 C4 IC07 C4 | IC08 D5 IC09 D5 | IC10 C3 IC11 C8 | IC12 C8



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SSB: MPIF Main: Supply

B3B MPIF MAIN: SUPPLY **B3B**

7C00-3
PNX3000HL/N2

MPIF-SUPPLY
E/W & CONTROL

VOUTO 2
VAUDS 3
VDEFLO 20
VDEFLS 21
RREF 13
BGDEC 7
FUSE9 33
FUSE8 10
FUSE7 23
GND_FILT 11
GND_RGB 29
GND_VADC 34
VCC_FILT 14
VCC_RGB 28
VCC_VADC 35
TESTPIN3 18
TESTPIN2 24
EWVIN 36
REW 38
EWIOUT 37
SCL 44
SDA 43
IRQ 42
XREF 40
ADR 39
FUSE6 41

IC36 3V9 — 7C31-1 BC847BS
IC83
IC37
IC38 1V4
IC47
IC32
IC81 3V9 — 7C31-2 BC847BS
IC82 1V4
IC89
IC46
IC44
IC45
IC35
IC41
IC01 — BC847BPN 7C32-2
IC34
IC33
IC39 — 7C32-1 BC847BPN
IC40

FC31 5C35 220R +5VMPIF-MAIN
FC32 3V2 VREF-AUD-POS
VREF-AUD
FC41 3V2 VREF-DEFL
FC36 5C33 220R +5VMPIF-MAIN
FC37 5C34 220R +5VMPIF-MAIN
FC38 5C36 220R +5VMPIF-MAIN
FC40

2AB5 1n0
2C41 22p res
3C30 560R
3C32 1K2
3C34 1K2
3C45 47K
2C35 100n
2C38 1u0
2C46 1u0
2C42 22p
3C43 1K8
3C44 1K2
2C31 100n
9C50
2C43 100u 4V
2C45 10u 10V
2C39 100n
2C40 100n
2C44 100n
3C33 820R
3C39 100R
3C40 100R
9C49
3C41 10K RES
+5VMPIF-MAIN

EW-DRIVE
SCL-DMA-BUS2
SDA-DMA-BUS2
IRQ-MPIF
CLK-MPIF
SPI-PROG — 9C47
SDM — 9C48, 9C46

+8V6-SW — 5C37 120R
2C32 1u 10V
2C33 100n
3C46 33R
3C35 1K0
3C36 82K
2C34 1u0
2C37 1u0
3C37 330R
3C38 10K
3C42 33R
3C47 47K
Y-CVBS-MON-OUT
DAC-CVBS

3C31 10R
+8V6-SW — +8VMPIF-MAIN
1C33 500mA F
+5V — +5VMPIF-MAIN

1C33 I7
2AB5 B5
2C31 A7
2C32 H2
2C33 H2
2C34 H4
2C35 C4
2C36 C5
2C37 H4
2C39 D7
2C40 D6
2C41 B5
2C42 C5
2C43 A7
2C44 E5
2C45 D7
2C46 C5
3C30 A6
3C31 I7
3C32 B6
3C33 E4
3C34 B6
3C35 H3
3C36 H4
3C37 H3
3C38 I3
3C39 E5
3C40 F5
3C41 F6
3C42 I3
3C43 C6
3C44 D6
3C45 C5
3C46 H3
3C47 I4
5C33 D7
5C34 D6
5C35 A7
5C36 D5
5C37 G2
7C00-3 A3
7C31-1 A6
7C31-2 C6
7C32-1 H3
7C32-2 H3
9C46 G10
9C47 G10
9C48 G10
9C49 F6
9C50 A7
FC31 A7
FC32 A7
FC36 D6
FC37 D6
FC38 D4
FC40 F7
FC41 C7
IC01 H3
IC32 C5
IC33 H2
IC34 H3
IC35 F7
IC36 A5
IC37 B6
IC38 B6
IC39 H4
IC40 I3
IC41 G3
IC44 E4
IC45 F4
IC46 E4
IC47 C4
IC81 C6
IC82 C6
IC83 A6
IC89 E4

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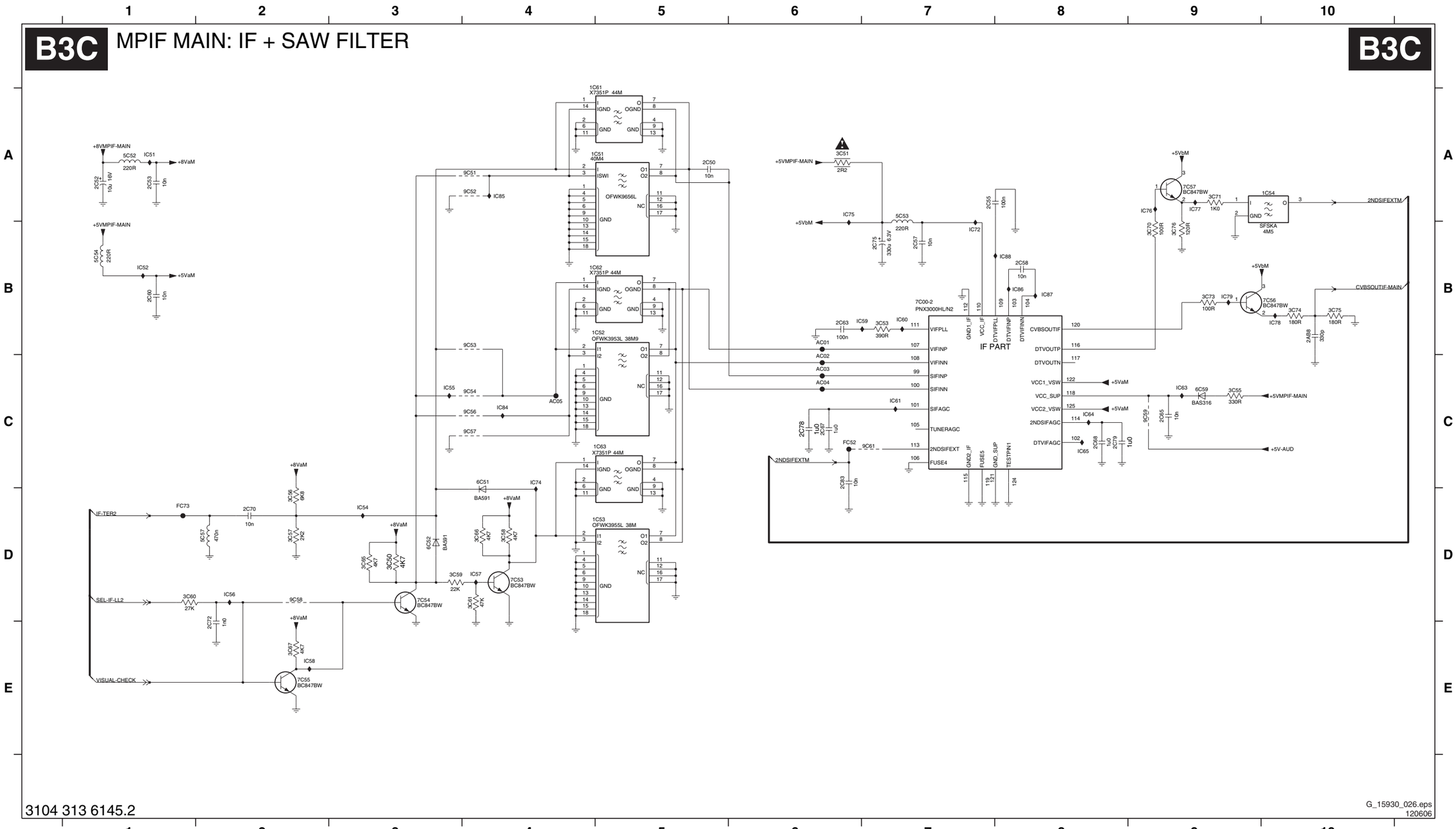
SSB: MPIF Main: IF & SAW Filter

1C51 A4	1C61 A5	2C50 A5	2C57 B7	2C65 C9	2C72 E2	2C83 C6	3C55 C9	3C59 D3	3C66 D4	3C73 B9	5C52 A1	6C51 C4	7C53 D4	7C57 A9	9C54 C4	9C59 C9	AC03 C6	FC73 D1	IC55 C3	IC59 B7	IC64 C8	IC75 A6	IC79 B9	IC87 B8
1C52 B4	1C62 B5	2C52 A1	2C58 B8	2C67 C6	2C75 B7	3C50 D3	3C56 D2	3C60 D1	3C67 E2	3C74 B10	5C53 A7	6C52 D3	7C54 D3	9C51 A4	9C56 C4	9C61 C7	AC04 C6	IC51 A1	IC56 D2	IC60 B7	IC65 C8	IC76 A9	IC84 C4	IC88 B8
1C53 D4	1C63 C5	2C53 A1	2C60 B1	2C68 C8	2C78 C6	3C51 A6	3C57 D2	3C61 D4	3C70 B9	3C75 B10	5C54 B1	6C59 C9	7C55 E2	9C52 A4	9C57 C4	AC01 B6	AC05 C6	IC52 B1	IC57 D4	IC61 C7	IC72 B7	IC77 A9	IC85 A4	
1C54 A10	2AB8 B10	2C55 A7	2C63 B6	2C70 D2	2C79 C8	3C53 B7	3C58 D4	3C65 D3	3C71 A9	3C76 B9	5C57 D2	7C00-2 B7	7C56 B10	9C53 B4	9C58 D2	AC02 C6	FC52 C6	IC54 D3	IC58 E2	IC63 C9	IC74 C4	IC78 B10	IC86 B8	



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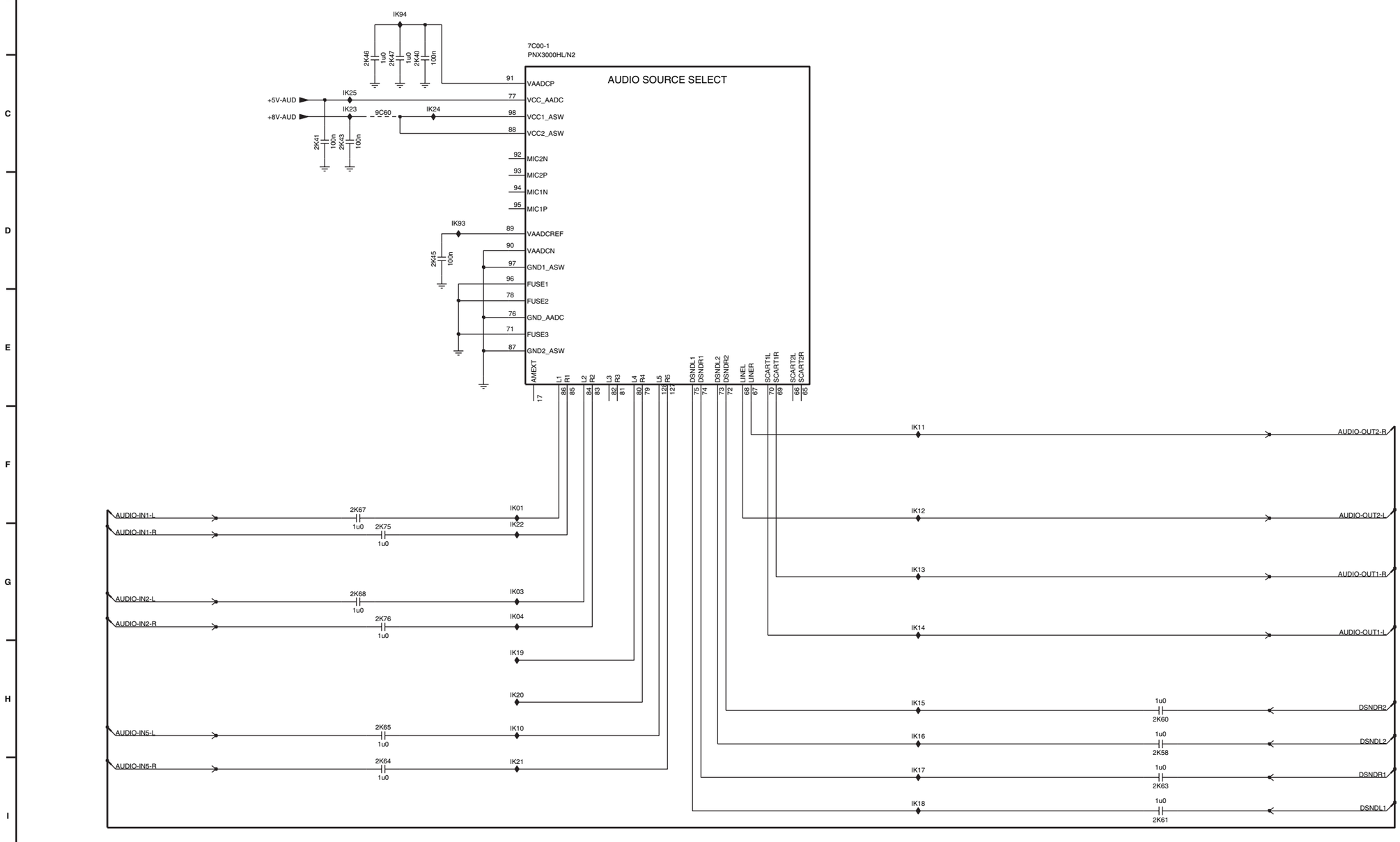
SSB: MPIF Main: Audio Source Selection

B3D MPIF MAIN: AUDIO SOURCE SELECTION

B3D



2K40 C4
2K41 C3
2K43 C3
2K45 D4
2K46 C3
2K47 C3
2K58 H10
2K60 H10
2K61 I10
2K63 I10
2K64 I3
2K65 H3
2K67 F3
2K68 G3
2K75 G3
2K76 G3
7C00-1 B4
9C60 C3
IK01 F4
IK03 G4
IK04 G4
IK10 H4
IK11 F8
IK12 F8
IK13 G8
IK14 G8
IK15 H8
IK16 H8
IK17 I8
IK18 I8
IK19 H4
IK20 H4
IK21 I4
IK22 G4
IK23 C3
IK24 C4
IK25 C3
IK93 D4
IK94 B3

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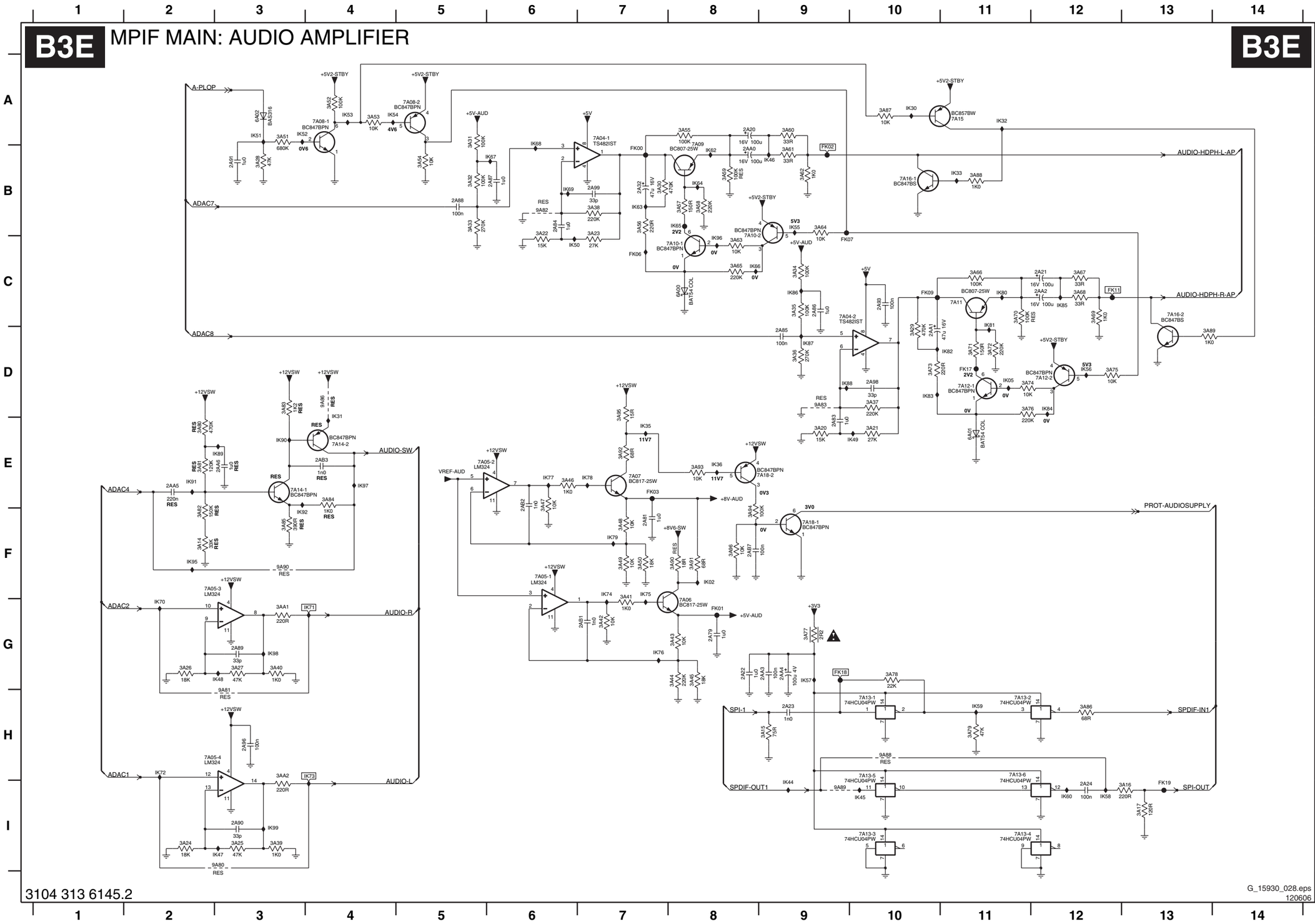
SSB: MPIF Main: Audio

B3E MPIF MAIN: AUDIO AMPLIFIER **B3E**



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2A20 A8	6A00 C8
2A21 C12	6A01 E11
2A22 G8	6A02 A3
2A23 H9	7A04-1 A7
2A24 I12	7A04-2 C9
2A32 B7	7A05-1 F6
2A79 G8	7A05-2 E5
2A81 F7	7A05-3 F2
2A83 E9	7A05-4 H2
2A84 B6	7A06 G8
2A85 D9	7A07 E7
2A86 C9	7A08-1 A4
2A87 B6	7A08-2 A5
2A88 B5	7A09 A8
2A89 G3	7A10-1 C8
2A90 I3	7A10-2 B9
2A91 B3	7A11 C11
2A93 C10	7A12-1 D11
2A96 H3	7A12-2 D12
2A98 D10	7A13-1 H10
2A99 B7	7A13-2 H12
2AA0 B8	7A13-3 I10
2AA1 D10	7A13-4 I12
2AA2 C12	7A13-5 H10
2AA3 G9	7A13-6 H11
2AA4 G9	7A14-1 E3
2AA5 E2	7A14-2 E4
2AA6 E3	7A15 A11
2AB1 G7	7A16-1 B10
2AB2 E6	7A16-2 C13
2AB3 E4	7A18-1 F9
2AB7 F8	7A18-2 E8
3A14 F2	9A80 I3
3A15 H9	9A81 H3
3A16 I13	9A82 B6
3A17 I13	9A83 D9
3A20 E9	9A86 D4
3A21 E10	9A88 H10
3A22 B6	9A89 I9
3A23 B7	9A90 F3
3A24 I2	FK00 B7
3A25 I3	FK01 G8
3A26 G2	FK02 B9
3A27 G3	FK03 E7
3A28 B3	FK06 C7
3A29 D10	FK07 C9
3A30 B7	FK09 C10
3A31 A5	FK11 C12
3A32 B5	FK17 D11
3A33 B5	FK18 G9
3A34 C9	FK19 I13
3A35 C9	IK02 F8
3A36 D9	IK05 D11
3A37 D10	IK30 A10
3A38 B7	IK31 D4
3A39 I3	IK32 A11
3A40 G3	IK33 B11
3A41 F7	IK35 E7
3A42 G7	IK36 E8
3A43 G8	IK44 I9
3A44 G8	IK45 I10
3A45 G8	IK46 B9
3A46 E6	IK47 I3
3A47 E6	IK48 G3
3A48 F7	IK49 E10
3A49 F7	IK50 C6
3A50 F7	IK51 A3
3A51 A3	IK52 A3
3A52 A4	IK53 A4
3A53 A4	IK54 A4
3A54 B5	IK55 B9
3A55 A8	IK56 D12
3A56 B7	IK57 G9
3A57 B8	IK58 I12
3A58 B8	IK59 H11
3A59 B8	IK60 I12
3A60 A9	IK62 B8
3A61 B9	IK63 B7
3A62 B9	IK64 B8
3A63 C8	IK65 B8
3A64 B9	IK66 C8
3A65 C8	IK67 B6
3A66 C11	IK68 A6
3A67 C12	IK69 B6
3A68 C12	IK70 G2
3A69 C12	IK71 G4
3A70 C11	IK72 H2
3A71 D11	IK73 H4
3A72 D11	IK74 F7
3A73 D10	IK75 F7
3A74 D11	IK76 G7
3A75 D12	IK77 E6
3A76 D11	IK78 E7
3A77 G9	IK79 F7
3A78 G10	IK80 C11
3A79 H11	IK81 C11
3A80 E2	IK82 D11
3A81 E2	IK83 D10
3A82 F2	IK84 D12
3A83 D3	IK85 C12
3A84 E4	IK86 C9
3A85 F3	IK87 D9
3A86 H12	IK88 D9
3A87 A10	IK89 E3
3A88 B11	IK90 E3
3A89 D13	IK91 E2
3A90 F8	IK92 F3
3A91 F8	IK95 F2
3A92 E7	IK96 C8
3A93 E8	IK97 E4
3A94 F8	IK98 G3
3A95 D7	IK99 I3
3A96 F8	
3AA1 G3	
3AA2 H3	

SSB: MPIF Main: Connections A

B3F MPIF MAIN: CONNECTIONS A

B3F

FOR 32"

TO 1E40 BE EXTERNALS

FOR 37",42",50"

TO 1E40 BE EXTERNALS OR

1E41 40FMN-BMT-A-TFT

1E40 40FMN-BMT-A-TFT

+8V6-CONN

+5V2-CONN

+8V6-SW

+5V2-STBY

+5V2-CONN

AV2_FBL
AV2_C
AV2_Y-CVBS
Y-CVBS-MON-OUT
C-MON-OUT
AV2-STATUS
REGIMBEAU-AV6-VSYNC
AUDIO-OUT1-L
AUDIO-OUT1-R
AUDIO-OUT2-L
AUDIO-OUT2-R
AUDIO-HDPH-L-AP
AUDIO-HDPH-R-AP
AV1_CVBS-AV7-Y-CVBS
AV1-STATUS-AV7-C
CVBS-TER-OUT
AUDIO-IN1-L
AUDIO-IN1-R
AUDIO-IN2-L
AUDIO-IN2-R
FRONT_Y-CVBS
FRONT_C
AUDIO-IN5-L
AUDIO-IN5-R
LED1
KEYBOARD
RC

AV2-AV4_R-PR
AV2-AV4_G-Y
AV2-AV4_B-PB
AV6_VSYNC
REGIMBEAU
AV1_CVBS
AV7_Y-CVBS
AV7_C

7A20-1 BC847BS
7A21 BC847BW
7A20-2 BC847BS

0A00
0A01
0A02
0A03

G_15930_029.eps
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0A00	E9	9A47	C4
0A01	F9	9A52	D4
0A02	E9	9A54	D4
0A03	F9	9A55	F4
1E40	B9	9A56	F4
1E41	B1	9A57	F4
2A25	A5	9A58	C4
2A29	B8	9A59	D4
2A31	D7	9A60	D4
2A33	C3	9A61	F4
2A40	D3	9A62	D4
2A41	A3	9A63	D4
2A42	A3	9A64	E4
2A43	A3	9A65	E4
2A44	A3	9A66	E4
2A45	A3	9A67	E4
2A46	B3	9A68	F4
2A47	B3	FA00	B8
2A48	B3	FA01	B8
2A49	B3	FA02	B8
2A50	B3	FA03	B8
2A51	C3	FA04	C8
2A52	C3	FA05	C8
2A53	C3	FA06	C8
2A54	C3	FA07	B8
2A55	D3	FA08	C8
2A56	D3	FA09	C8
2A57	D3	FA10	C8
2A58	D3	FA11	C8
2A59	E3	FA12	C8
2A60	E3	FA13	C8
2A61	E3	FA14	C8
2A62	E3	FA15	C8
2A63	E3	FA16	D8
2A64	F3	FA17	D8
2A65	F3	FA18	D8
2A66	F3	FA19	D8
2A67	F3	FA20	D8
2A68	F3	FA21	D8
3A01	B6	FA22	E8
3A02	B6	FA23	D8
3A03	D6	FA24	E8
3A04	E6	FA25	E8
3A05	E6	FA26	E8
3A06	F6	FA27	E8
3A13	A6	FA28	D8
3A18	A6	FA29	E8
3A19	A7	FA30	E8
3A97	A7	FA31	D8
3A98	A7	FA32	D8
3A99	A8	IA01	C6
5A06	B7	IA02	D6
5A07	D7	IA03	D6
5A08	A5	IA04	E6
7A20-1	A6	IA05	E6
7A20-2	A8	IA15	A6
7A21	A7	IA16	A5
9A01	D6	IA17	A6
9A06	D6	IA18	A7
9A11	C6	IA19	A8
9A16	D6	IA20	A6
9A19	E6	IA21	B6
9A29	C6	IA22	E6
9A32	A4	IA23	F6
9A33	A4		
9A34	A4		
9A35	A4		
9A36	A4		
9A37	B4		
9A38	B4		
9A39	B4		
9A40	B4		
9A41	B4		
9A44	C4		
9A45	C4		
9A46	C4		

SSB: MPIF Main: Connections B

B3G MPIF MAIN: CONNECTIONS B **B3G**

TO 1739
5A3
AUDIO STANDBY

1M52 FA33 FA34 FA35 FA36 FA37 FA38 10V8
2A34 2A35 2A36 2A37 2A38 2A39 RES 100p
5A01 5A02 5A03 5A04 5A05 600R
2A75 2A76 2A77 100p
AUDIO-L AUDIO-R AUDIO-SW PROT-AUDIOSUPPLY SOUND-ENABLE
IA00 3V
3AA3 220R +3V3-STANDBY

6A10-1 BAV99S 6A10-2 BAV99S +5V +5V

1E63
FOR 32"
TO 1E62
BE
EXTERNALS

1E62
FOR 37",42",50"
TO 1E62
BE
EXTERNALS

9A02 9A03 9A04 9A05 9A07 9A08 9A09 9A10 9A21 9A22 9A69 9A70 9A71 9A77 9A78 9A75 9A72 9A73 9A74 9A79
2A78 2A82 2A92 2A97 1n0 2AA8 2AA9 2AAA 2AB6 2A69 10p 2A70 2A71 2AAB 2A80 2A72 2A73 2A74 100p
IA10 IA11 IA12 FA54 FA39 FA40 FA41 FA42 FA43 FA47 FA48 FA49 FA50 FA58 FA55 FA56 FA57 FA60 FA61 FA62

COM-SND LIGHT-SENSOR LED2 SDA-MM-BUS1_MPIF SCL-MM-BUS1_MPIF P50 A-PLOP GLINK-RXD GLINK-TXD GLINK-IR-OUT SPI-OUT HSYNC-HIRATE SPI-1 AV1-STATUS AV6_VSYNC AV1-AV6_FBL-HSYNC

IA44 AV1-AV5-AV6_B-PB
IA45 AV1-AV5-AV6_G-Y
IA46 AV1-AV5-AV6_R-PR

7A01-1 BC847BS 7A02 BC847BW 7A01-2 BC847BS
IA26 IA27 IA28
3A07 3A09 3A11 100R
3A08 3A10 3A12 560R
IA25 5A10 600R +8V6-SW
2A01 100n

3104 313 6145.2
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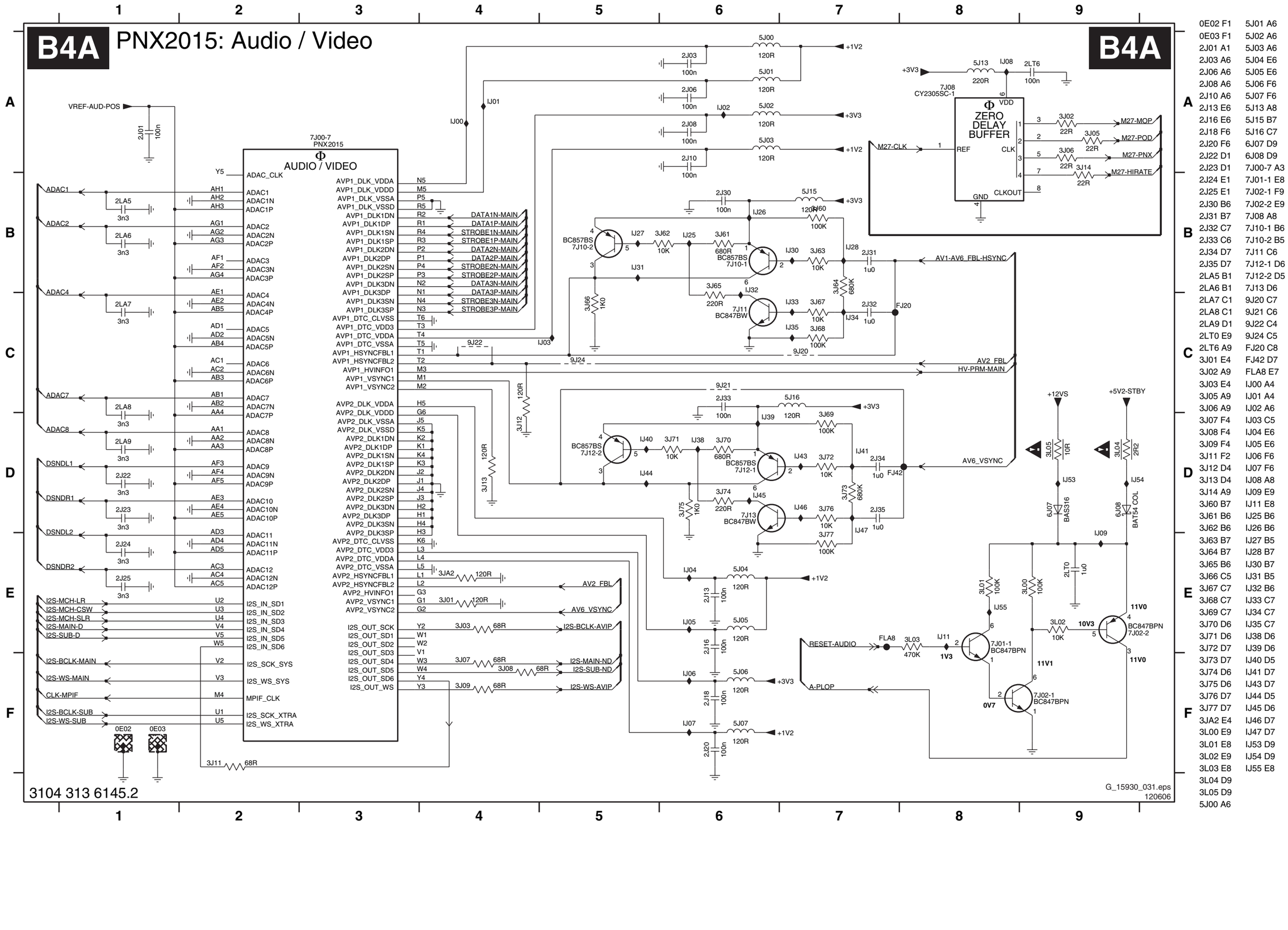
1E62 E1	9A79 D5
1E63 C1	FA33 A5
1M52 A4	FA34 A5
2A01 E8	FA35 A4
2A34 A6	FA36 A5
2A35 A6	FA37 A5
2A36 A6	FA38 A5
2A37 A6	FA39 D3
2A38 A6	FA40 D3
2A39 A6	FA41 D3
2A69 D3	FA42 D3
2A70 D3	FA43 D3
2A71 D3	FA47 D4
2A72 D3	FA48 B6
2A73 E3	FA49 B6
2A74 E3	FA50 B6
2A75 A7	FA54 C3
2A76 A7	FA55 C6
2A77 A7	FA56 C6
2A78 B3	FA57 C6
2A80 D3	FA58 C6
2A82 B3	FA60 F3
2A92 B3	FA61 F2
2A97 C3	FA62 F2
2AA8 C3	IA00 A6
2AA9 C3	IA10 B3
2AAA C3	IA11 C3
2AAB D3	IA12 C3
2AB6 C3	IA25 E8
3A07 F6	IA26 F6
3A08 F6	IA27 F7
3A09 F7	IA28 F8
3A10 F7	IA44 D9
3A11 F8	IA45 E9
3A12 F8	IA46 E9
3AA3 A6	
5A01 A6	
5A02 A6	
5A03 A6	
5A04 A6	
5A05 A6	
5A10 E9	
6A10-1 B3	
6A10-2 B4	
7A01-1 E6	
7A01-2 E8	
7A02 E7	
9A02 B3	
9A03 B3	
9A04 B3	
9A05 C3	
9A07 C3	
9A08 C4	
9A09 C4	
9A10 C3	
9A21 C3	
9A22 C3	
9A69 D3	
9A70 D3	
9A71 D3	
9A72 D4	
9A73 E4	
9A74 E4	
9A75 D4	
9A77 D4	
9A78 D4	

SSB: PNX2015: Audio / Video

B4A PNX2015: Audio / Video



0E02	F1	5J01	A6
0E03	F1	5J02	A6
2J01	A1	5J03	A6
2J03	A6	5J04	E6
2J06	A6	5J05	E6
2J08	A6	5J06	F6
2J10	A6	5J07	F6
2J13	E6	5J13	A8
2J16	E6	5J15	B7
2J18	F6	5J16	C7
2J20	F6	6J07	D9
2J22	D1	6J08	D9
2J23	D1	7J00-7	A3
2J24	E1	7J01-1	E8
2J25	E1	7J02-1	F9
2J30	B6	7J02-2	E9
2J31	B7	7J08	A8
2J32	C7	7J10-1	B6
2J33	C6	7J10-2	B5
2J34	D7	7J11	C6
2J35	D7	7J12-1	D6
2LA5	B1	7J12-2	D5
2LA6	B1	7J13	D6
2LA7	C1	9J20	C7
2LA8	C1	9J21	C6
2LA9	D1	9J22	C4
2LT0	E9	9J24	C5
2LT6	A9	FJ20	C8
3J01	E4	FJ42	D7
3J02	A9	FLA8	E7
3J03	E4	IJ00	A4
3J05	A9	IJ01	A4
3J06	A9	IJ02	A6
3J07	F4	IJ03	C5
3J08	F4	IJ04	E6
3J09	F4	IJ05	E6
3J11	F2	IJ06	F6
3J12	D4	IJ07	F6
3J13	D4	IJ08	A8
3J14	A9	IJ09	E9
3J60	B7	IJ11	E8
3J61	B6	IJ25	B6
3J62	B6	IJ26	B6
3J63	B7	IJ27	B5
3J64	B7	IJ28	B7
3J65	B6	IJ30	B7
3J66	C5	IJ31	B5
3J67	C7	IJ32	B6
3J68	C7	IJ33	C7
3J69	C7	IJ34	C7
3J70	D6	IJ35	C7
3J71	D6	IJ38	D6
3J72	D7	IJ39	D6
3J73	D7	IJ40	D5
3J74	D6	IJ41	D7
3J75	D6	IJ43	D7
3J76	D7	IJ44	D5
3J77	D7	IJ45	D6
3JA2	E4	IJ46	D7
3L00	E9	IJ47	D7
3L01	E8	IJ53	D9
3L02	E9	IJ54	D9
3L03	E8	IJ55	E8
3L04	D9		
3L05	D9		
5J00	A6		

SSB: PNX2015: DV I/O Interface

B4B PNX 2015: DV I/O Interface

B4B

7J00-4
PNX2015
Φ
DV INPUT

DV4-CLK AK8 → DV_CLK
DV4-VALID AH8 → DV_VALID
DV4-DATA0_SOP AG8 → DV4_DATA_0
DV4-DATA1_ERR AK7 → DV4_DATA_1
DV4-DATA2_0 AJ7 → DV4_DATA_2
DV4-DATA3_1 AH7 → DV4_DATA_3
DV4-DATA4_2 AG7 → DV4_DATA_4
DV4-DATA5_3 AF7 → DV4_DATA_5
DV4-DATA6_4 AK6 → DV4_DATA_6
DV4-DATA7_5 AJ6 → DV4_DATA_7
DV4-DATA8_6 AH6 → DV4_DATA_8
DV4-DATA9_7 AG6 → DV4_DATA_9

DV5-DATA0_SOP AF6 → DV5_DATA_0
DV5-DATA1_ERR AK5 → DV5_DATA_1
DV5-DATA2_0 AH5 → DV5_DATA_2
DV5-DATA3_1 AG5 → DV5_DATA_3
DV5-DATA4_2 AK4 → DV5_DATA_4
DV5-DATA5_3 AJ4 → DV5_DATA_5
DV5-DATA6_4 AH4 → DV5_DATA_6
DV5-DATA7_5 AK3 → DV5_DATA_7
DV5-DATA8_6 AJ3 → DV5_DATA_8
DV5-DATA9_7 AK2 → DV5_DATA_9

DV-VREF AJ9 → DV_VREF
DV-FREF AK9 → DV_FREF
DV-HREF AH9 → DV_HREF

DV1_CLK AD28 → 33R 3LR4-1 → DV1F-CLK
DV1_VALID AD29 → 33R 3LR4-1 → DV1F-VALID
DV1_DATA0 AB27 → 33R 3LR3-4 → DV1F-DATA0
DV1_DATA1 AA30 → 33R 3LR3-2 → DV1F-DATA1
DV1_DATA2 AA29 → 33R 3LR3-1 → DV1F-DATA2
DV1_DATA3 AA28 → 33R 3LR3-3 → DV1F-DATA3
DV1_DATA4 AB29 → 33R 3LR4-3 → DV1F-DATA4
DV1_DATA5 AB28 → 33R 3LR4-4 → DV1F-DATA5
DV1_DATA6 AC30 → 33R 3LR4-2 → DV1F-DATA6
DV1_DATA7 AC28 → 33R 3LR5-4 → DV1F-DATA7
DV1_DATA8 AC27 → 33R 3LR5-3 → DV1F-DATA8_ERR
DV1_DATA9 AB30 → 33R 3LR5-2 → DV1F-DATA9_SOP

DV2_CLK AF30 → 33R 3LR1 → DV2A-CLK
DV2_VALID AF27 → 33R 3LR7-1 → DV2A-VALID
DV2_DATA0 AE30 → 33R 3LR8-2 → DV2A-DATA0_SOP
DV2_DATA1 AF28 → 33R 3LR7-3 → DV2A-DATA1_ERR
DV2_DATA2 AD27 → 33R 3LR6-4 → DV2A-DATA2_0
DV2_DATA3 AD26 → 33R 3LR6-3 → DV2A-DATA3_1
DV2_DATA4 AD30 → 33R 3LR6-1 → DV2A-DATA4_2
DV2_DATA5 AE26 → 33R 3LR6-2 → DV2A-DATA5_3
DV2_DATA6 AE27 → 33R 3LR8-1 → DV2A-DATA6_4
DV2_DATA7 AE28 → 33R 3LR8-3 → DV2A-DATA7_5
DV2_DATA8 AE29 → 33R 3LR8-4 → DV2A-DATA8_6
DV2_DATA9 AG27 → 33R 3LR7-2 → DV2A-DATA9_7

DV3_CLK AK28 → 33R 3LR0 → DV3F-CLK
DV3_VALID AK30 → 33R 3LS1-2 → DV3F-VALID
DV3_DATA0 AJ30 → 33R 3LR9-1 → DV3F-DATA0_SOP
DV3_DATA1 AH29 → 33R 3LR9-3 → DV3F-DATA1_ERR
DV3_DATA2 AG29 → 33R 3LS0-3 → DV3F-DATA2_0
DV3_DATA3 AG30 → 33R 3LR9-4 → DV3F-DATA3_1
DV3_DATA4 AH30 → 33R 3LS1-4 → DV3F-DATA4_2
DV3_DATA5 AG28 → 33R 3LS0-4 → DV3F-DATA5_3
DV3_DATA6 AH27 → 33R 3LR9-2 → DV3F-DATA6_4
DV3_DATA7 AJ28 → 33R 3LS1-3 → DV3F-DATA7_5
DV3_DATA8 AK29 → 33R 3LS1-1 → DV3F-DATA8_6
DV3_DATA9 AH28 → 33R 3LS0-2 → DV3F-DATA9_7

7J00-2
PNX2015
Φ
OUTPUT INTERFACE

MP-ROUT-0 A27 → RIN0
MP-ROUT-1 A28 → RIN1
MP-ROUT-2 A29 → RIN2
MP-ROUT-3 A30 → RIN3
MP-ROUT-4 B28 → RIN4
MP-ROUT-5 B30 → RIN5
MP-ROUT-6 C28 → RIN6
MP-ROUT-7 C29 → RIN7
MP-ROUT-8 C30 → RIN8
MP-ROUT-9 D27 → RIN9

MP-GOUT-0 D28 → GIN0
MP-GOUT-1 D29 → GIN1
MP-GOUT-2 D30 → GIN2
MP-GOUT-3 E27 → GIN3
MP-GOUT-4 E28 → GIN4
MP-GOUT-5 E30 → GIN5
MP-GOUT-6 F26 → GIN6
MP-GOUT-7 F27 → GIN7
MP-GOUT-8 F28 → GIN8
MP-GOUT-9 F29 → GIN9

MP-BOUT-0 F30 → BIN0
MP-BOUT-1 G26 → BIN1
MP-BOUT-2 G27 → BIN2
MP-BOUT-3 G28 → BIN3
MP-BOUT-4 G29 → BIN4
MP-BOUT-5 G30 → BIN5
MP-BOUT-6 H27 → BIN6
MP-BOUT-7 H28 → BIN7
MP-BOUT-8 H30 → BIN8
MP-BOUT-9 J26 → BIN9

LVDS_AN B26 → TXPNXA-
LVDS_AP C26 → TXPNXA+
LVDS_BN A25 → TXPNXB-
LVDS_BP B25 → TXPNXB+
LVDS_CN D25 → TXPNXC-
LVDS_CP E25 → TXPNXC+
LVDS_DN B24 → TXPNXD-
LVDS_DP C24 → TXPNXD+
LVDS_EN E24 → TXPNXE-
LVDS_EP F24 → TXPNXE+
LVDS_CLKN C23 → TXPNXCLK-
LVDS_CLKP D23 → TXPNXCLK+

RGB_CLK_IN J30 → MP-CLKOUT
RGB_UD J27 → MP-OUT-FFIELD
RGB_HSYNC J29 → MP-OUT-HS
RGB_VSYNC J28 → MP-OUT-VS
RGB_DE K26 → MP-OUT-DE

AJ10
2LT7 22p

2LT7 D8
3LR0 D4
3LR1 C4
3LR3-1 B4
3LR3-2 B4
3LR3-3 B4
3LR3-4 B4
3LR4-1 B4
3LR4-2 B4
3LR4-3 B4
3LR4-4 B4
3LR5-2 C4
3LR5-3 B4
3LR5-4 B4
3LR6-1 C4
3LR6-2 C4
3LR6-3 C4
3LR6-4 C4
3LR7-1 C4
3LR7-2 D4
3LR7-3 C4
3LR8-1 C4
3LR8-2 C4
3LR8-3 C4
3LR8-4 C4
3LR9-1 D4
3LR9-2 D4
3LR9-3 D4
3LR9-4 D4
3LS0-2 E4
3LS0-3 D4
3LS0-4 D4
3LS1-1 D4
3LS1-2 D4
3LS1-3 D4
3LS1-4 D4
7J00-2 B7
7J00-4 A2
AJ10 C8

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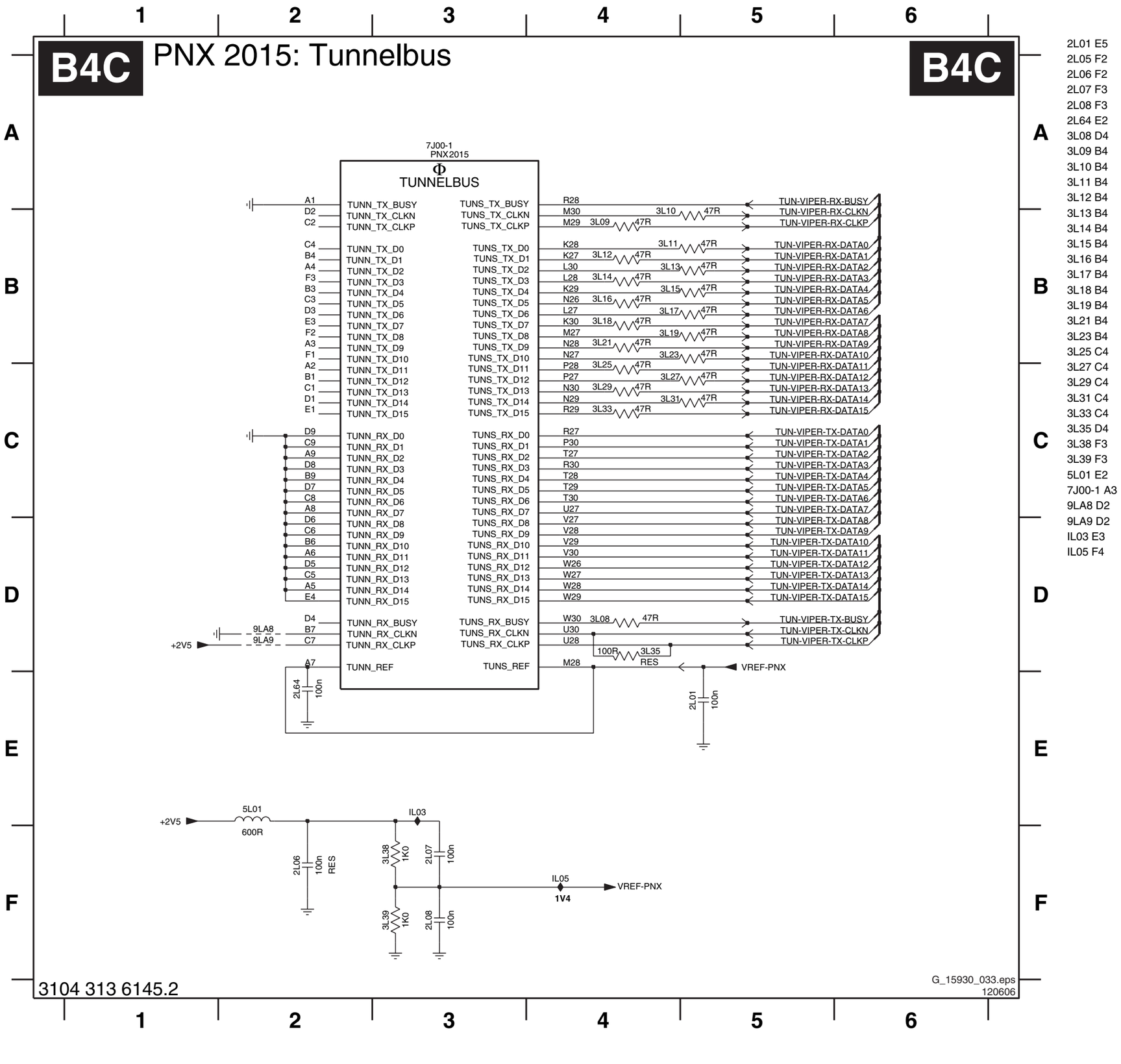
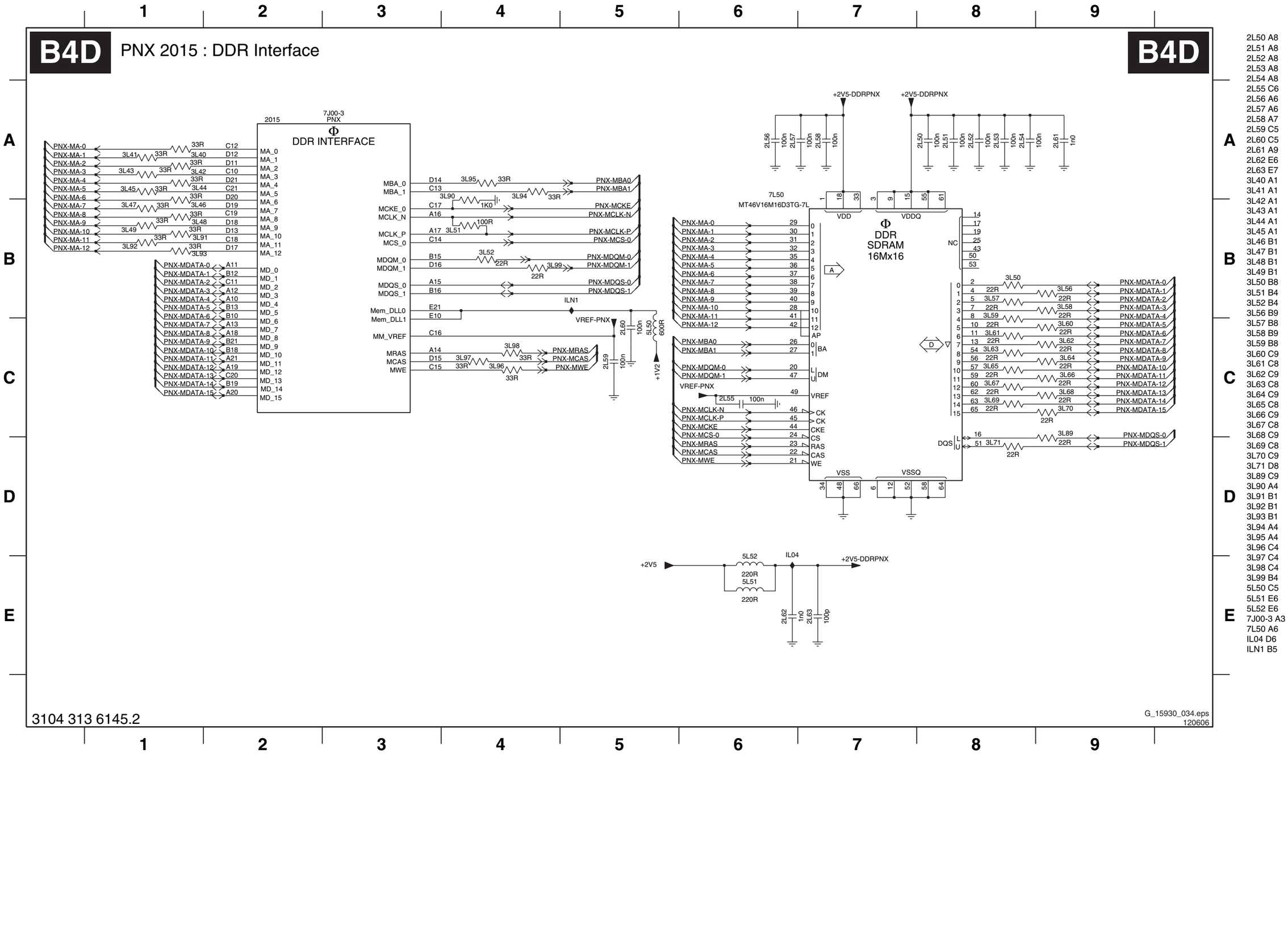
SSB: PNX2015: Tunnel Bus



2L01 E5
2L05 F2
2L06 F2
2L07 F3
2L08 F3
2L64 E2
3L08 D4
3L09 B4
3L10 B4
3L11 B4
3L12 B4
3L13 B4
3L14 B4
3L15 B4
3L16 B4
3L17 B4
3L18 B4
3L19 B4
3L21 B4
3L23 B4
3L25 C4
3L27 C4
3L29 C4
3L31 C4
3L33 C4
3L35 D4
3L38 F3
3L39 F3
5L01 E2
7J00-1 A3
9LA8 D2
9LA9 D2
IL03 E3
IL05 F4

SSB: PNX2015: DDR Interface

B4D PNX 2015 : DDR Interface



3104 313 6145.2

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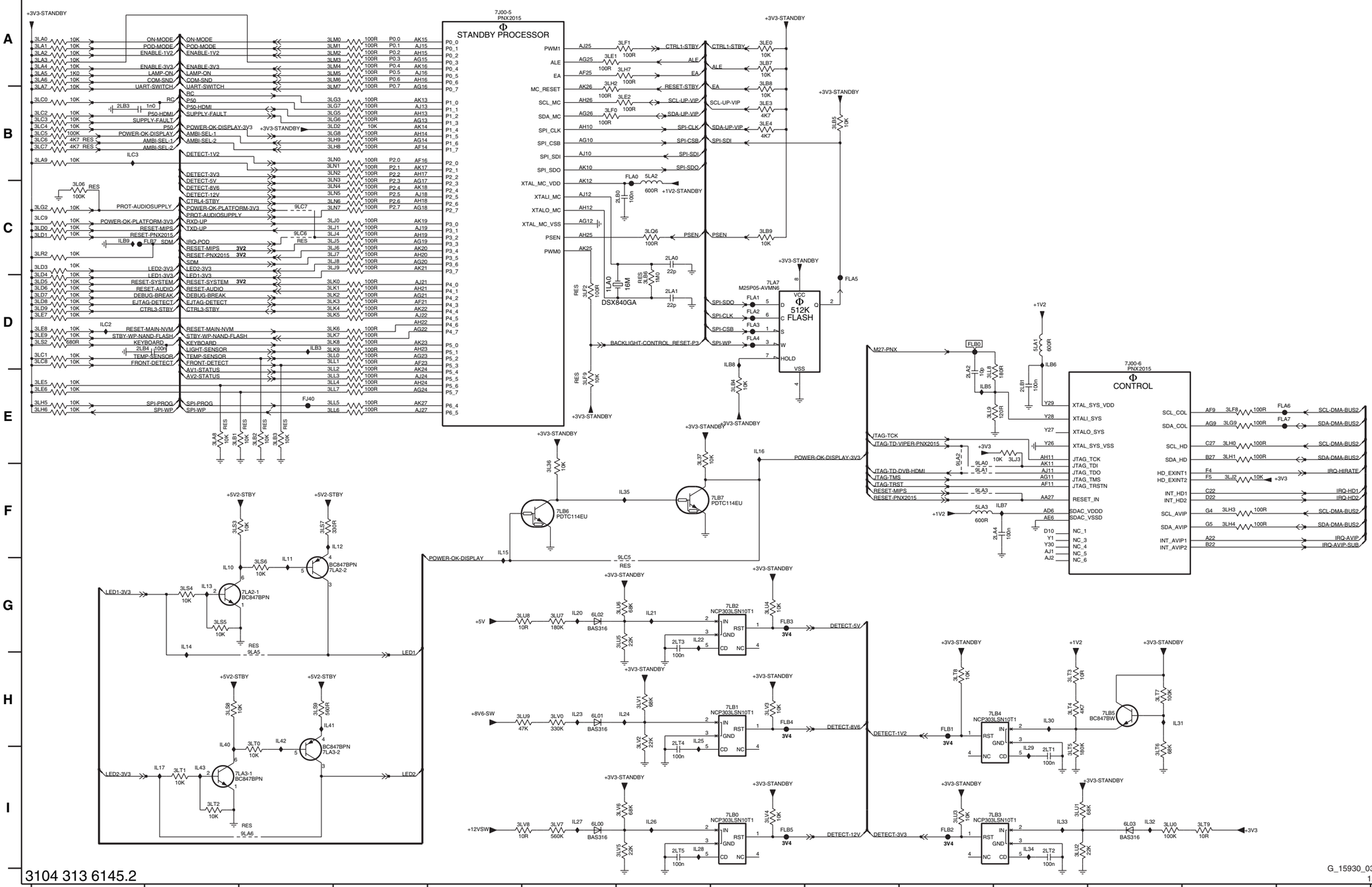
2L50 A8
2L51 A8
2L52 A8
2L53 A8
2L54 A8
2L55 C6
2L56 A6
2L57 A6
2L58 A7
2L59 C5
2L60 C5
2L61 A9
2L62 E6
2L63 E7
3L40 A1
3L41 A1
3L42 A1
3L43 A1
3L44 A1
3L45 A1
3L46 B1
3L47 B1
3L48 B1
3L49 B1
3L50 B8
3L51 B4
3L52 B4
3L56 B9
3L57 B8
3L58 B9
3L59 B8
3L60 C9
3L61 C8
3L62 C9
3L63 C8
3L64 C9
3L65 C8
3L66 C9
3L67 C8
3L68 C9
3L69 C8
3L70 C9
3L71 D8
3L89 C9
3L90 A4
3L91 B1
3L92 B1
3L93 B1
3L94 A4
3L95 A4
3L96 C4
3L97 C4
3L98 C4
3L99 B4
5L50 C5
5L51 E6
5L52 E6
7J00-3 A3
7L50 A6
IL04 D6
ILN1 B5

SSB: PNX2015: Standby & Control

B4E PNX 2015: Standby & Control

B4E



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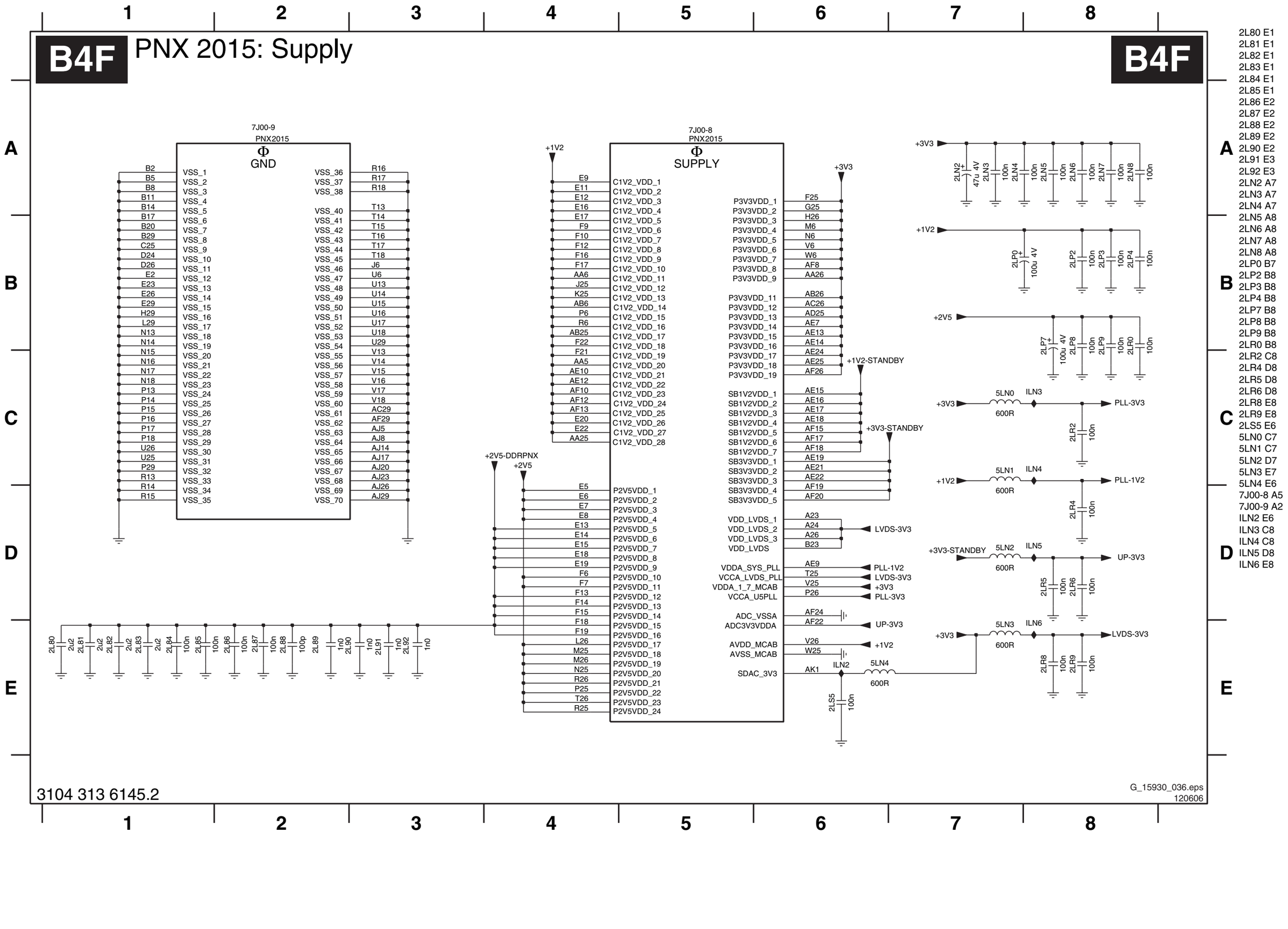
1LA0 D6	3LN4 C4
2LA0 C7	3LN5 C4
2LA1 D7	3LN6 C4
2LA2 E10	3LN7 C4
2LA4 F11	3LQ6 C7
2LB0 C7	3LR2 C1
2LB1 E11	3LS2 D1
2LB3 B1	3LS3 F2
2LB4 D1	3LS4 G2
2LT1 I11	3LS5 G2
2LT2 I11	3LS6 G3
2LT3 G7	3LS7 F3
2LT4 H7	3LS8 H2
2LT5 I7	3LS9 H3
3L06 C1	3LT0 H3
3L36 F6	3LT1 I2
3L37 E7	3LT2 I2
3LA0 A1	3LT3 H11
3LA1 A1	3LT4 H11
3LA2 A1	3LT5 I11
3LA3 A1	3LT6 I12
3LA4 A1	3LT7 H12
3LA5 A1	3LT8 H10
3LA6 A1	3LT9 I13
3LA7 B1	3LU0 I12
3LA8 E2	3LU1 I11
3LA9 B1	3LU2 I11
3LB1 E2	3LU3 I10
3LB2 E3	3LU4 G8
3LB3 E3	3LU5 G7
3LB4 E8	3LU6 G7
3LB5 B9	3LU7 G6
3LB6 D7	3LU8 G6
3LB7 A8	3LU9 H6
3LB8 A8	3LV0 H6
3LB9 C8	3LV1 H7
3LC0 B1	3LV2 H7
3LC1 D1	3LV3 H8
3LC2 B1	3LV4 I8
3LC3 B1	3LV5 I7
3LC4 B1	3LV6 I7
3LC5 B1	3LV7 I6
3LC6 B1	3LV8 I6
3LC7 B1	5LA1 D11
3LC8 D1	5LA2 B7
3LC9 C1	5LA3 F10
3LD0 C1	6L00 I6
3LD1 C1	6L01 H6
3LD2 B4	6L02 G6
3LD3 C1	6L03 I12
3LD4 D1	7J00-5 A5
3LD5 D1	7J00-6 D12
3LD6 D1	7LA2-1 G3
3LD7 D1	7LA2-2 G3
3LD8 D1	7LA3-1 I2
3LD9 D1	7LA3-2 I3
3LE0 A8	7LA7 D8
3LE1 A6	7LB0 I8
3LE2 B7	7LB1 H8
3LE3 B8	7LB2 G8
3LE4 B8	7LB3 I11
3LE5 E1	7LB4 H11
3LE6 E1	7LB5 H12
3LE7 D1	7LB6 F6
3LE8 D1	7LB7 F8
3LE9 D1	9LA0 F10
3LF0 B6	9LA1 F10
3LF1 A7	9LA2 E10
3LF2 D6	9LA3 F10
3LF8 E13	9LA5 H3
3LF9 E6	9LA6 I3
3LG2 C1	9LC5 G7
3LG3 B4	9LC6 C3
3LG5 B4	9LC7 C3
3LG6 B4	FJ40 E3
3LG7 B4	FLA0 B7
3LG8 B4	FLA1 D8
3LG9 E13	FLA2 D8
3LH0 E13	FLA3 D8
3LH1 E13	FLA4 D8
3LH2 A6	FLA5 D9
3LH3 F13	FLA6 E14
3LH4 F13	FLA7 E14
3LH5 E1	FLB0 D10
3LH6 E1	FLB1 H10
3LH7 A7	FLB2 I10
3LH8 B4	FLB3 G8
3LH9 B4	FLB4 H8
3LJ0 C4	FLB5 I8
3LJ1 C4	FLB7 C2
3LJ2 F13	IL10 G2
3LJ3 E11	IL11 G3
3LJ4 C4	IL12 F4
3LJ5 C4	IL13 G2
3LJ6 C4	IL14 G2
3LJ7 C4	IL15 F5
3LJ8 C4	IL16 E8
3LJ9 C4	IL17 I2
3LK0 D4	IL20 G6
3LK1 D4	IL21 G7
3LK2 D4	IL22 G7
3LK3 D4	IL23 H6
3LK4 D4	IL24 H7
3LK5 D4	IL25 H7
3LK6 D4	IL26 I7
3LK7 D4	IL27 I6
3LK8 D4	IL28 I7
3LK9 D4	IL29 I11
3LL0 D4	IL30 H11
3LL1 D4	IL31 H12
3LL2 E4	IL32 I12
3LL3 E4	IL33 I11
3LL4 E4	IL34 I11
3LL5 E4	IL35 F7
3LL6 E4	IL40 H2
3LL7 E4	IL41 H3
3LL8 E10	IL42 H3
3LL9 E10	IL43 I2
3LM0 A4	ILB3 D3
3LM1 A4	ILB5 E10
3LM2 A4	ILB6 D11
3LM3 A4	ILB7 F11
3LM4 A4	ILB8 D8
3LM5 A4	ILB9 C1
3LM6 A4	ILC2 D1
3LM7 B4	ILC3 B1
3LN0 B4	
3LN1 B4	
3LN2 B4	
3LN3 C4	

SSB: PNX2015: Supply

B4F PNX 2015: Supply



SSB: PNX2015: Display Interface

B4G PNX 2015: DISPLAY INTERFACE

B4G

VDISP-SWITCH

I2C-BUFFER *

LVDS CONNECTOR

FI-WE31P-HFE-E1500

FHP: (IRQ), (PDWIN), (CPU-GO), (PDP-GO)

SDI RESET

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1G50 F12
2J37 H4
2J40 F9
2J41 F9
2J42 G9
2J43 G9
2J44 G9
2J45 H9
2J46 H9
2J47 H9
2J48 H9
2J49 I9
2J57 D4
2J60 C10
2J64 H5
2J66 E4
2J67 D12
2J68 E12
2J69 H5
2J70 H5
2J71 B5
2J72 I9
2J73 I9
2J74 A5
2J75 B11
2J76 C2
3J23 G2
3J24 G2
3J25 C3
3J26 D2
3J28-1 E4
3J28-2 E3
3J28-3 C4
3J28-4 C4
3J31 C10
3J32 C11
3J42 F4
3J43 F5
3J44 F5
3J47 H2
3J49 G2
3J50 H2
3J51 H2
3J52 H4
3J53 H2
3J55 I2
3J56 I3
3J86 B4
3J88 F5
3J91 G2
3J92 C2
3J99 C2
3LQ7 C12
3LQ8 D12
5J08 A4
5J09 A4
5J10 B4
5J11 B4
5J12 B4
5J50 F8
5J52 G8
5J54 G8
5J56 H8
5J58 I8
5J60 I8
5J82 B9
5J85 B9
6J01 C2
6J03 C11
6J04 D11
6J06 B5
7J04 C9
7J06 B3
7J07-1 E3
7J07-2 D3
7J09 I3
9J15 C10
9J16 D10
9J17 D10
9J18 B2
FJ09 G5
FJ10 G5
FJ11 F5
FJ12 F5
FJ13 B5
FJ14 A4
FJ15 C12
FJ16 D12
FJ23 G10
FJ24 G10
FJ25 G10
FJ26 H10
FJ27 H10
FJ28 H10
FJ29 H10
FJ30 H10
FJ31 H10
FJ32 H10
FJ33 D4
FJ36 H10
FJ37 H10
IJ10 B10
IJ12 C11
IJ13 D11
IJ14 B4
IJ15 C2
IJ16 C3
IJ18 G2
IJ19 G2
IJ20 G2
IJ21 H2
IJ22 H2
IJ23 H2
IJ24 H2
IJ50 E3
IJ51 E3
IJ61 B12
IJ67 B3
IJ68 C4
IJ69 D4
IJ70 C3
IJ71 I2
IJ72 E4
IJ73 D5
IJ81 H3

SSB: Viper: Control

0H00 B10
0H01 A10
0H02 B11
0H04 B10
0H05 B10
1H00 A2
1H01 G15

1M00 A10
1M64 H13
2H06 H9
2H07 H9
2H08 A2
2H09 A1
2Q67 E13

2Q69 F14
2Q70 F14
3H01 C1
3H03 C3
3H04 A13
3H05 A13
3H06 A9

3H08 C3
3H09 D1
3H10 D1
3H11 D1
3H12 A9
3H13 D1
3H14 B9

3H15 F7
3H16 C3
3H17 C1
3H22 B13
3H23 B13
3H24 F7
3H25 F7

3H26 F7
3H27 D1
3H29 E2
3H31 E2
3H40 H3
3H41 H1
3H70 E8

3H71 C1
3H72 D7
3H73 A7
3H74 A7
3H75 A2
3H79 A7
3H80-1 D7

3H80-2 C7
3H80-3 D8
3H80-4 C8
3H81-1 D8
3H81-2 C8
3H81-3 D8
3H82 A2

3H83 E2
3H84 E8
3H85 E1
3H86 E8
3H87 E2
3H88 E8
3H89 E11

3H90 B1
3H93 E8
3H94 H7
3H95 H7
3H97 G1
3H98 B4
3H99 B4

3Q03 B2
3Q04 B2
3Q10 A4
3Q11 A4
3Q12 B4
3Q13 B4
3Q14 B4

3Q15 B4
3Q16 H10
3Q17 H11
3Q18 H11
3Q19 H11
3Q20 G10
3Q21 H11

3Q22 H11
3Q23 H10
3Q24 E10
3Q27 B1
3Q38-1 F7
3Q38-2 F7
3Q38-3 F7

3Q38-4 F7
3Q40-1 F7
3Q40-2 F7
3Q40-3 F7
3Q40-4 F7
3Q48 A4
3Q50 D4

3Q52 D4
5H01 H11
5H02 G11
5H03 F14
5H04 F14
6H00 H7
6H01 E1

6H03 F1
6H06-1 H14
6H06-2 H12
6H07-1 G13
6H07-2 G12
7H01 G2
7H02 H2

7Q01 E12
7V00-5 A5
9H03 B4
9H04 B1
9H05 F4
9H06 E4
9H07 C1

9H08 C1
9H13 C1
9H14 F4
9H15 F4
9H16 B4
9H30 E1
9H40 H2

9Q13 E10
9Q14 E10
9Q15 F10
9Q16 F10
9Q17 H13
9Q18 H13
9Q65 A14

9Q66 A13
AH10 A7
AH11 A2
FH12 H7
FQ00 G15
FQ01 G15
FQ02 H15

FQ03 E3
FQ04 H15
FQ05 H15
FQ06 H15
FQ10 F1
FQ19 C1
FQ20 C1

FQ21 C1
FQ22 C1
FQ23 C1
FQ32 E12
FQ41 B14
FQ42 B14
FQ43 B14

FQ44 C14
FQ50 C4
FQ52 F4
FQ53 F4
FQ54 C4
IH09 D1
IH16 F7

IH17 F7
IH18 F7
IQ03 G10
IQ04 G10
IQ05 H10
IQ06 H10
IQ14 E10

IQ15 F12
IQ16 F12
IQ17 F13
IQ21 F13
IQ22 F7
IQ23 G7
IQ24 G7

IQ25 G7
IQ27 E7
IQ28 F7
IQ32 F10
IQ50 B2
IQ51 B2

IQS2 G2
IQS3 G2
IQ60 H2
IQ61 H2

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

B5A VIPER: CONTROL

B5A

7V00-5
VIPER REV C

CONTROL

XTALI
XTALO
RESET_IN
I2C1_SDA
I2C1_SCL
I2C2_SDA
I2C2_SCL
I2C3_SDA
I2C3_SCL
I2C4_SDA
I2C4_SCL
JTAG_TDO
JTAG_TDI
JTAG_TCK
JTAG_TMS
JTAG_TRST
DBG_TDO
DBG_TDI
DBG_TCK
DBG_TMS
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO12
GPIO13
GPIO14
GPIO15
SC1_SCCK
SC1_OFFN
SC1_RST
SC1_CMD
SC1_DA
SC2_SCCK
SC2_OFFN
SC2_RST
SC2_CMD
SC2_DA
QVCP2L_DATA_OUT0
QVCP2L_DATA_OUT1
QVCP2L_DATA_OUT2
QVCP2L_DATA_OUT3
QVCP2L_DATA_OUT4
QVCP2L_DATA_OUT5
QVCP2L_DATA_OUT6
QVCP2L_DATA_OUT7
QVCP2L_DATA_OUT8
QVCP2L_DATA_OUT9
QVCP2L_CLK_OUT

PLL_OUT
M135_CLK
M27_CLK
PCI_AD0 … PCI_AD31
PCI_PAR
PCI_PERR
PCI_STOP
PCI_TRDY
PCI_IRDY
PCI_FRAME
PCI_DEVSEL
PCI_IDSEL
PCI_CLK
PCI_CBE3
PCI_CBE2
PCI_CBE1
PCI_CBE0
PCI_SERR
INTA
PCI_REQ
PCI_REQ_A
PCI_REQ_B
PCI_GNT
PCI_GNT_A
PCI_GNT_B
XIO_D8
XIO_D9
XIO_D10
XIO_D11
XIO_D12
XIO_D13
XIO_D14
XIO_D15
XIO_ACK
XIO_A25
XIO_SEL0
XIO_SEL1
XIO_SEL2
XIO_SEL3
XIO_SEL4
UA1_TX
UA1_RX
UA2_TX
UA2_RX
UA2_RTSN
UA2_CTSN
USB1_DM
USB1_DP
USB2_DM
USB2_DP
USB_BUS_PWR
USB_OVRCUR
SYS_RSTN_OUT

RESET-SYSTEM
SDA-MM
SCL-MM
SDA-DMA
SCL-DMA
SDA-UP-VIP
SCL-UP-VIP
SDA-I2C4
SCL-I2C4
JTAG-TD-VIPER-PNX2015
JTAG-TD-CON-VIPER
JTAG-TMS
JTAG-TRST
JTAG-TD-P3-CON
JTAG-TCK
IRQ-IEEE1394
IRQ-MPIF
IRQ-FE-MAIN
IRQ-AVIP
IRQ-MAIN
POWERDOWN-1394
SEL-IF-LL1
SEL-IF-LL2
RESET-ETHERNET
POWER-OK-PLATFORM-3V3
RESET-USB20
CTRL4-VIPER
REGIMBEAU
DEBUG-BREAK
SOUND-ENABLE-VPR
IRQ-ETHERNET
GLINK-IR-OUT-VIP
IRQ-USB20
RESET-FE-MAIN
IRQ-POD
IRQ-HD2
RESET-TM
HSYNC-HIRATE
VSYNC-HIRATE
IRQ-SUB
RESET-POD-CI
IRQ-HIRATE
IRQ-HD1
RESET-1394
HDMI-COAST
IRQ-AVIP-SUB
SOUND-ENABLE
A-PLOP
POWER-OK-PLATFORM
GLINK-IR-OUT
GLINK-TXD
GLINK-RXD
TXD-VIPER
RXD-VIPER
USB-DM
USB-DP
USB-BUS-PW
USB-OVERCUR
RESET-MIPS
PCI-INTA
PCI-REQ
PCI-REQ-A
PCI-REQ-B
PCI-GNT
PCI-CLK-VPR
PCI-CLK-ETHERNET
PCI-CLK-USB20
EJTAG-TDO
EJTAG-TDI
EJTAG-TCK
EJTAG-TMS

1M00 EMC HOLE
0H00 0H01 0H02 0H04 0H05
SCL-DMA-BUS1
SDA-DMA-BUS1
SDA-I2C4
SCL-I2C4
SCL-DMA-BUS2
SDA-DMA-BUS2
SCL-MM-BUS1
SDA-MM-BUS1
USB CONNECTOR
1H01
1-1470168-1
TO 1N62
B8 SSB
1M64
B4B-PH-SM4-TBT(LF)
7Q01 LM3526MX-LNOPB
USB20-OC1
USB-OVERCUR
USB20-PWE1
USB-BUS-PW
BAV99S
DLW21S
6H01 BAS316
6H03 BAS316
6H00 SMC-J10

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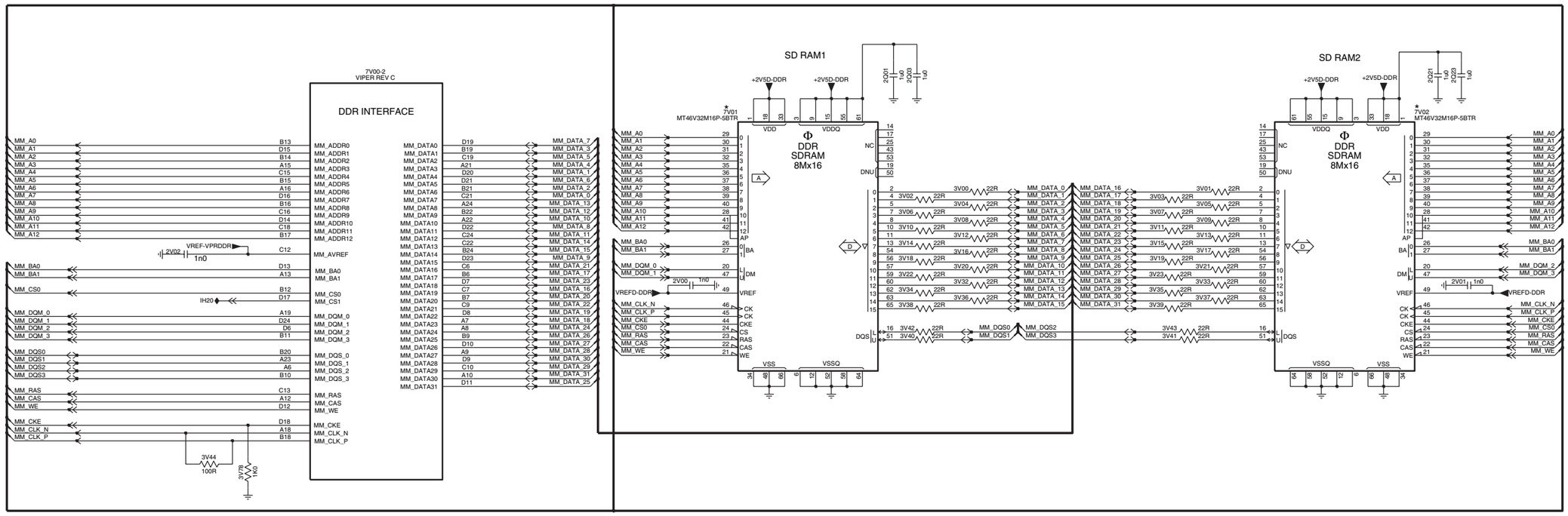
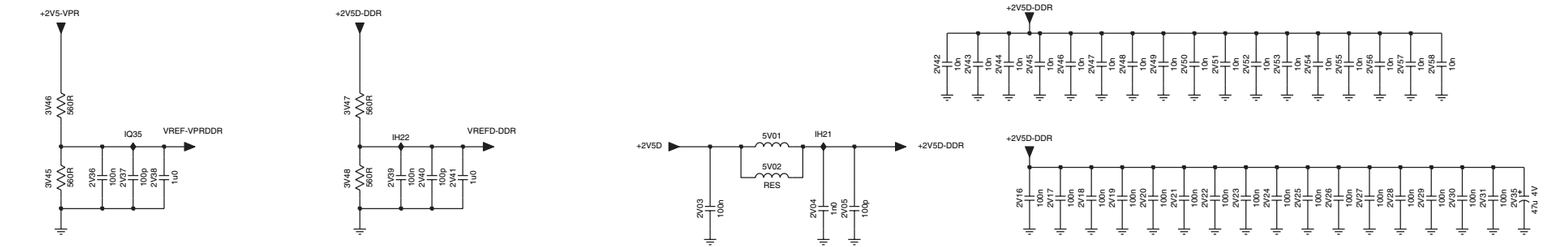
SSB: Viper: Main Memory

B5B VIPER: MAIN MEMORY





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2Q01 A8
2Q03 A9
2Q21 A13
2Q23 A14
2V00 C6
2V01 C14
2V02 C2
2V03 G8
2V04 G9
2V05 G9
2V16 G10
2V17 G10
2V18 G11
2V19 G11
2V20 G11
2V21 G11
2V22 G12
2V23 G12
2V24 G12
2V25 G12
2V26 G12
2V27 G13
2V28 G13
2V29 G13
2V30 G13
2V31 G13
2V35 G14
2V36 G4
2V37 G4
2V38 G4
2V39 G6
2V40 G6
2V41 G6
2V42 F10
2V43 F10
2V44 F10
2V45 F10
2V46 F11
2V47 F11
2V48 F11
2V49 F11
2V50 F11
2V51 F12
2V52 F12
2V53 F12
2V54 F12
2V55 F12
2V56 F13
2V57 F13
3V00 B9
3V01 B11
3V02 C9
3V03 C11
3V04 C9
3V05 C11
3V06 C9
3V07 C11
3V08 C9
3V09 C11
3V10 C9
3V11 C11
3V12 C9
3V13 C11
3V14 C9
3V15 C11
3V16 C9
3V17 C11
3V18 C9
3V19 C11
3V20 C9
3V21 C11
3V22 C9
3V23 C11
3V32 C9
3V33 C11
3V34 C9
3V35 C11
3V36 C9
3V37 C11
3V38 D9
3V39 D11
3V40 D9
3V41 D11
3V42 D9
3V43 D11
3V44 E2
3V45 G3
3V46 F3
3V47 F6
3V48 G6
3V78 E2
5V01 G9
5V02 G9
7V00-2 A4
7V01 B7
7V02 B13
IH20 D2
IH21 G9
IH22 G6
IQ35 G4

SSB: Viper: A/V & Tunnel Bus

B5C VIPER: A/V + TUNNELBUS

B5C

7V00-1
VIPER REV C

AUDIO/VIDEO

DV1F-DATA0 … DV1F-DATA9_SOP, DV1F-VALID, DV1F-CLK → DV1_DATA0 … DV1_DATA9, DV1_VALID, DV1_CLK
DV2A-DATA2_0 … DV2A-DATA0_SOP, DV2A-VALID, DV2A-CLK → DV2_DATA0 … DV2_DATA9, DV2_VALID, DV2_CLK, DV2_ERR, DV2_SOP
DV3F-DATA2_0 … DV3F-DATA0_SOP, DV3F-VALID, DV3F-CLK → DV3_DATA0 … DV3_DATA9, DV3_VALID, DV3_CLK, DV3_ERR, DV3_SOP
IH10, IH11, IH15 → DV_FREF, DV_VREF, DV_HREF
I2S-MAIN-ND, I2S-SUB-ND, I2S-WS-AVIP, I2S-BCLK-AVIP → I2S_IN1_SD, I2S_IN1_WS, I2S_IN1_SCK, I2S_IN1_OSCLK
I2S_IN2_SD, I2S_IN2_WS, I2S_IN2_SCK, I2S_IN2_OSCLK
SPDIF-HDMI, SPDIF-IN1 → SPDIF_IN2, SPDIF_IN1

QVCP5L_DATA_OUT0 … QVCP5L_DATA_OUT29, QVCP5L_CLK_OUT, QVCP5L_VSYNC, QVCP5L_HSYNC, QVCP5L_AUX1, QVCP5L_AUX2
DV-OUT-HS, DV-OUT-DE
→ DV-BOUT-0 … DV-BOUT-9, DV-GOUT-0 … DV-GOUT-9, DV-ROUT-0 … DV-ROUT-9, DV-CLKIN, DV-OUT-VS, DV-OUT-DE_HS, DV-OUT-FFIELD

DAC_IRSET, DAC_RDUMPY, DAC_RDUMPC, DAC_CVBS, DAC_CHROMA
IQ00 47R 3Q00 IQ01 5Q05 1u0 2Q29 100p IQ02 → DAC-CVBS
3Q06 39R, 2Q25 12p, 2Q31 560p
IH08, IH07, IH06, 3H21 39R, 3H19 1K0, 3H20 39R
IH12 120R 3Q01 IH13 5Q06 2u2 2H11 100p RES IH14 → C-MON-OUT
75R 3H92, 2H13 12p RES, 2H12 27p

TS_DATA0 … TS_DATA7, TS_VALID, TS_SOP, TS_CLK
AJ22 … AG22 → TS-DATA0 … TS-DATA7, TS-VALID, TS-SOP, TS-CLK
3Q09 33R

I2S_OUT1_SD0 … I2S_OUT1_SD3, I2S_OUT1_WS, I2S_OUT1_SCK, I2S_OUT1_OSCLK
U27, V30 3H07 22R, V29, V28, V27, W30, W29 IH04
→ I2S-SUB-D, BACKLIGHT-CONTROL_RESET-P3, CTRL1-VIPER, CTRL2-VIPER

I2S_OUT2_SD0 … I2S_OUT2_SD3, I2S_OUT2_WS, I2S_OUT2_SCK, I2S_OUT2_OSCLK
T28, T27, R30, R29, T29, T30, U29 IH05
→ I2S-MCH-LR, I2S-MCH-CSW, I2S-MCH-SLR, I2S-MAIN-D, I2S-WS-MAIN, I2S-BCLK-MAIN

SPDIF_OUT: AB29 → IQ12 2Q68 100n IQ13 3Q64 68R, 3Q62 120R → SPDIF-OUT1

68R 3H49 → I2S-WS-SUB
68R 3H48 → I2S-BCLK-SUB
9H26, 9H27

+3V3
4K7 3H28 DV1F-VALID
4K7 3H32 DV2A-VALID
4K7 3H18 DV3F-VALID
9H18, 9H19, 9H32, 9H33, 9H34, 9H29

7V00-4
VIPER REV C

TUNNELBUS

TUN-VIPER-TX-DATA0 … TUN-VIPER-TX-DATA15, TUN-VIPER-TX-CLKP, TUN-VIPER-TX-CLKN, TUN-VIPER-TX-BUSY
3Q33 … 3Q69 47R
→ TUN_TX_DATA0 … TUN_TX_DATA15, TUN_TX_CLOCKP, TUN_TX_CLOCKN, TUN_TX_BUSY
VREF-VPR → K2 TUN_AVREF, 2H01 100n

TUN_RX_DATA0 … TUN_RX_DATA15, TUN_RX_CLOCKP, TUN_RX_BUSY
→ TUN-VIPER-RX-DATA0 … TUN-VIPER-RX-DATA15, TUN-VIPER-RX-CLKP, TUN-VIPER-RX-CLKN, TUN-VIPER-RX-BUSY
K3 RES 3Q65 100R, N3 3Q68 47R

+2V5-VPR 5H05 IH24
2H03 100n, 10K 3H50 10n 2H00, 10K 3H51 10n 2H02
1V3 FQ15 VREF-VPR

3104 313 6145.2

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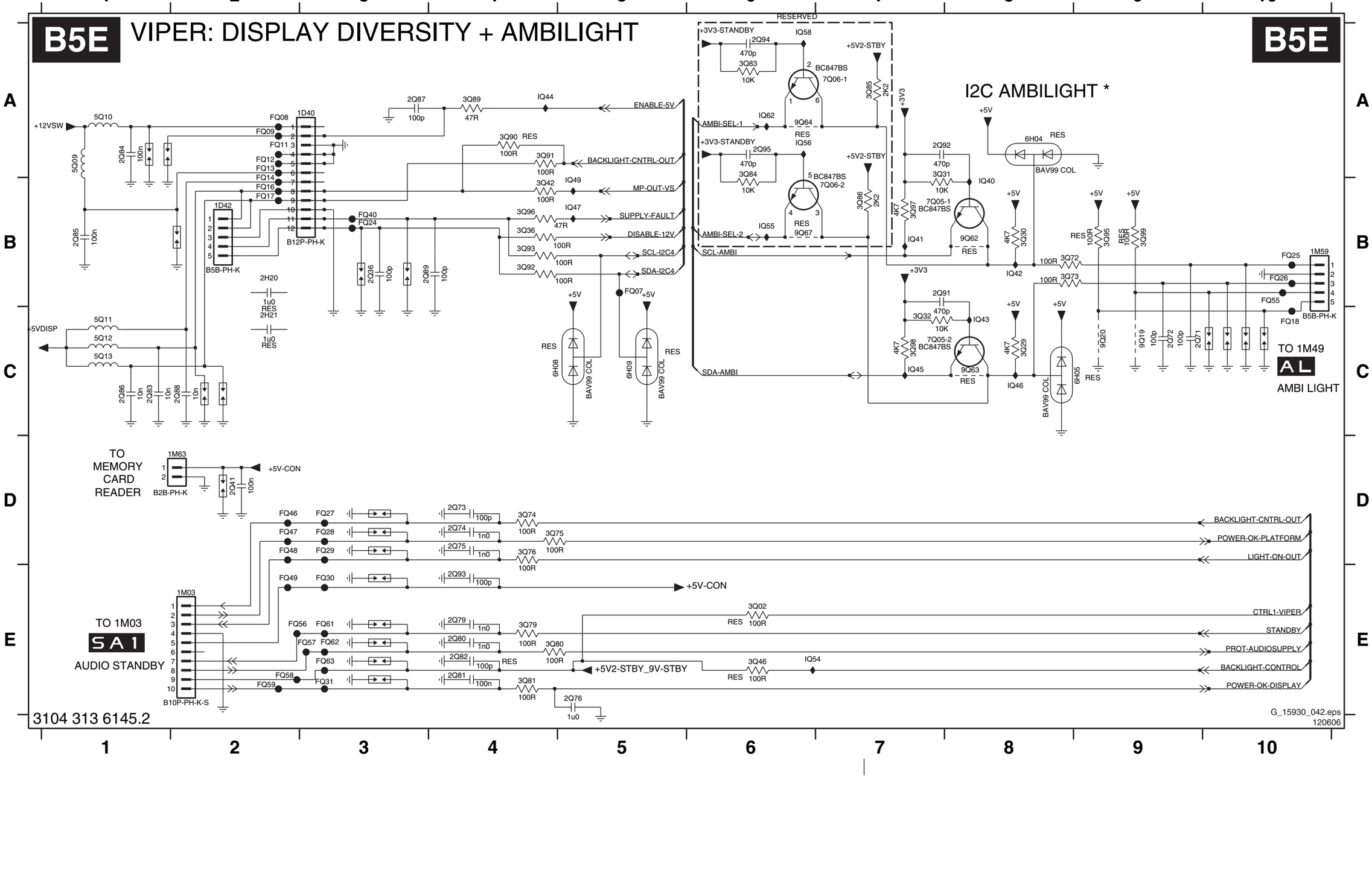
2H00 H3
2H01 I6
2H02 H3
2H03 H2
2H11 D12
2H12 D12
2H13 D11
2Q25 C11
2Q29 B12
2Q31 C12
2Q68 F8
3H02 C9
3H07 E8
3H18 C3
3H19 C9
3H20 D9
3H21 D9
3H28 B3
3H32 B3
3H48 G8
3H49 F9
3H50 H3
3H51 H3
3H92 D11
3Q00 C11
3Q01 D11
3Q05-1 C9
3Q05-2 C8
3Q05-3 C9
3Q05-4 C9
3Q06 C11
3Q07-1 B8
3Q07-2 B9
3Q07-3 B9
3Q07-4 B8
3Q08-1 B9
3Q08-2 B9
3Q08-3 B8
3Q08-4 B9
3Q09 E8
3Q25-1 B8
3Q25-2 B9
3Q25-3 C8
3Q25-4 C9
3Q26-3 A9
3Q26-4 A8
3Q28-1 A9
3Q28-2 A8
3Q28-3 A9
3Q28-4 A9
3Q33 H5
3Q34-1 A9
3Q34-2 A9
3Q34-3 A8
3Q34-4 A9
3Q35 H5
3Q37 H6
3Q39 H5
3Q41 H5
3Q43 H6
3Q44-1 B9
3Q44-2 B8
3Q44-3 B9
3Q44-4 B9
3Q45 H5
3Q47 H5
3Q49 H6
3Q51 H5
3Q53 H5
3Q54 C9
3Q55 H6
3Q56 C8
3Q57 H5
3Q58 C9
3Q59 I5
3Q60 C9
3Q61 I6
3Q62 F9
3Q63 I5
3Q64 F9
3Q65 I9
3Q66 I5
3Q67 I6
3Q68 I8
5H05 H2
5Q05 B12
5Q06 C12
7V00-1 A6
7V00-4 G7
9H18 D3
9H19 D3
9H26 G8
9H27 G8
9H29 G7
9H32 D3
9H33 D3
9H34 G7
FQ15 H3
IH00 E4
IH01 D4
IH03 D4
IH04 E8
IH05 F8
IH06 D9
IH07 D9
IH08 C9
IH10 D4
IH11 D4
IH12 C11
IH13 C12
IH14 C12
IH15 D4
IH24 H3
IQ00 B11
IQ01 B12
IQ02 B12
IQ12 F8
IQ13 F8

SSB: Viper: Supply

SSB: Viper: Display Diversity & Ambi Light

1D40 A3	2Q36 B3	2Q76 E5	2Q85 B1	2Q93 E4	3Q32 C7	3Q75 D4	3Q85 A7	3Q95 B9	5Q11 C1	7Q05-1 B8	9Q63 C8	FQ12 A2	FQ25 B10	FQ40 B3	FQ57 E3	IQ41 B7	IQ49 B5
1D42 B2	2Q41 D2	2Q79 E4	2Q86 C1	2Q94 A6	3Q36 B4	3Q76 D4	3Q86 B7	3Q96 B4	5Q12 C1	7Q05-2 C8	9Q64 A6	FQ13 A2	FQ26 B10	FQ46 D2	FQ58 E2	IQ42 B8	IQ54 E6
1M03 E2	2Q71 C9	2Q80 E4	2Q87 A3	2Q95 A6	3Q42 B4	3Q79 E4	3Q89 A4	3Q97 B7	5Q13 C1	7Q06-1 A7	9Q67 B6	FQ14 B2	FQ27 D3	FQ47 D2	FQ59 E2	IQ43 C8	IQ55 B6
1M59 B10	2Q72 C9	2Q81 E4	2Q88 C2	3Q02 E6	3Q46 E6	3Q80 E4	3Q90 A4	3Q98 C7	6H04 A8	7Q06-2 B7	FQ07 B5	FQ16 B2	FQ28 D3	FQ48 D2	FQ61 E3	IQ44 A4	IQ56 A6
1M63 D2	2Q73 D4	2Q82 E4	2Q89 B3	3Q29 C8	3Q72 B8	3Q81 E4	3Q91 A4	3Q99 B9	6H05 C9	9Q19 C9	FQ08 A2	FQ17 B2	FQ29 D3	FQ49 E2	FQ62 E3	IQ45 C7	IQ58 A6
2H20 B2	2Q74 D4	2Q83 C1	2Q91 B7	3Q30 B8	3Q73 B8	3Q83 A6	3Q92 B4	5Q09 A1	6H08 C4	9Q20 C9	FQ09 A2	FQ18 C10	FQ30 E3	FQ55 B10	FQ63 E3	IQ46 C8	IQ62 A6
2H21 C2	2Q75 D4	2Q84 A1	2Q92 A7	3Q31 A7	3Q74 D4	3Q84 A6	3Q93 B4	5Q10 A1	6H09 C5	9Q62 B8	FQ11 A2	FQ24 B3	FQ31 E3	FQ56 E2	IQ40 B8	IQ47 B5	



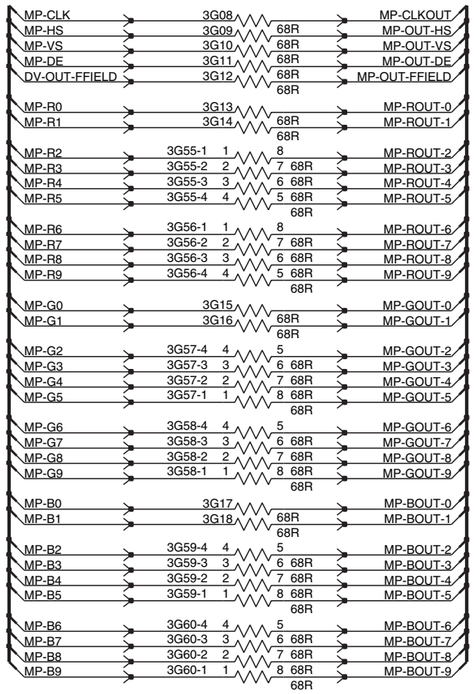
SSB: Pacific 3: Part 1

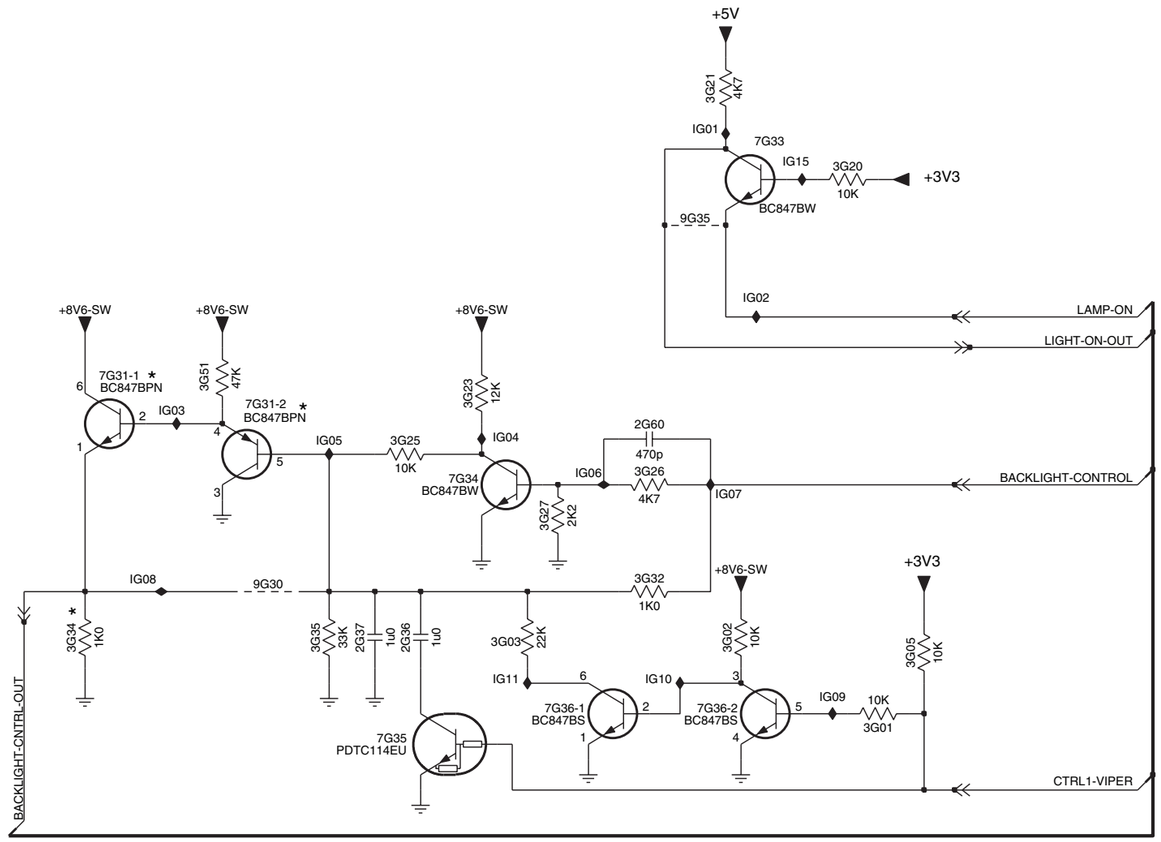
2G36 D7	3G02 D8	3G09 B2	3G13 B2	3G17 D2	3G23 C7	3G32 D8	3G55-1 B2	3G56-1 C2	3G57-1 C2	3G58-1 D2	3G59-1 D2	3G60-1 E2	7G31-1 C5	7G35 D7	9G35 B8	IG04 C7	IG08 D5	IG15 B8
2G37 D6	3G03 D7	3G10 B2	3G14 B2	3G18 D2	3G25 C7	3G34 D5	3G55-2 B2	3G56-2 C2	3G57-2 C2	3G58-2 D2	3G59-2 D2	3G60-2 E2	7G31-2 C6	7G36-1 D7	IG01 B8	IG05 C6	IG09 D9	
2G60 C8	3G05 D9	3G11 B2	3G15 C2	3G20 B9	3G26 C8	3G35 D6	3G55-3 B2	3G56-3 C2	3G57-3 C2	3G58-3 D2	3G59-3 D2	3G60-3 D2	7G33 B8	7G36-2 D8	IG02 B8	IG06 C7	IG10 D8	
3G01 D9	3G08 B2	3G12 B2	3G16 C2	3G21 A8	3G27 C7	3G51 C6	3G55-4 B2	3G56-4 C2	3G57-4 C2	3G58-4 C2	3G59-4 D2	3G60-4 D2	7G34 C7	9G30 D6	IG03 C6	IG07 C8	IG11 D7	

1 2 3 4 5 6 7 8 9 10

B6A PACIFIC3: PART 1

B6A





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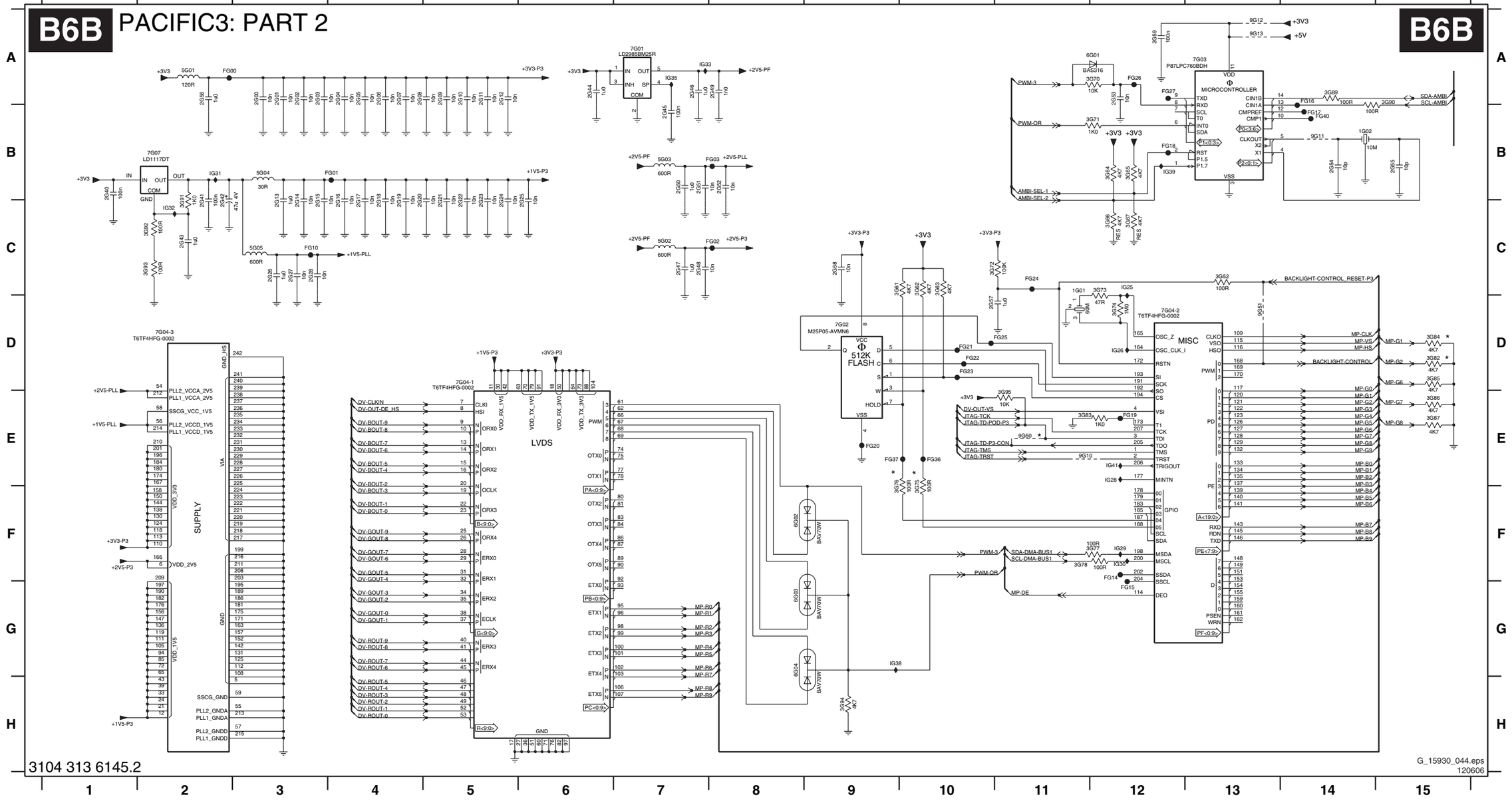
SSB: Pacific 3: Part 2

1G01 C11	2G03 A3	2G08 A4	2G13 C3	2G18 C4	2G23 C5	2G28 C3	2G44 A6	2G49 A8	2G54 B14	2G59 A12	3G64 B12	3G71 B12	3G76 F9	3G84 D15	3G90 A15	3G95 E11	5G05 C3	7G01 A7	7G04-3 D2	9G13 A13	FG02 C8	FG16 A14	FG21 D10	FG26 A12	IG25 C12	IG31 B2	IG39 B12
1G02 B14	2G04 A4	2G09 A5	2G14 C3	2G19 C4	2G24 C5	2G40 B1	2G45 B7	2G50 B7	2G55 B15	3G52 C13	3G65 B12	3G72 C10	3G77 F12	3G85 D15	3G91 C2	5G01 A2	6G01 A12	7G02 D9	7G07 B2	9G50 E11	FG03 B8	FG17 B14	FG22 D10	FG27 A12	IG26 D12	IG32 C2	IG41 E12
2G00 A3	2G05 A4	2G10 A5	2G15 C3	2G20 C4	2G25 C6	2G41 C2	2G46 A7	2G51 B7	2G56 A2	3G61 C9	3G66 C12	3G73 D12	3G78 F11	3G86 E15	3G92 C2	5G02 C7	6G02 F8	7G03 A13	9G10 E11	9G51 D13	FG10 C3	FG18 B12	FG23 D10	FG36 E10	IG28 E12	IG33 A7	
2G01 A3	2G06 A4	2G11 A5	2G16 C4	2G21 C5	2G26 C3	2G42 C2	2G47 C7	2G52 B8	2G57 D10	3G62 C10	3G67 C12	3G74 D12	3G82 D15	3G87 E15	3G93 C2	5G03 B7	6G03 G8	7G04-1 D5	9G11 B14	FG00 A2	FG14 F12	FG19 E12	FG24 C11	FG37 E9	IG29 F12	IG35 A7	
2G02 A3	2G07 A4	2G12 A5	2G17 C4	2G22 C5	2G27 C3	2G43 C2	2G48 C7	2G53 A12	2G58 C9	3G63 C10	3G70 A12	3G75 F10	3G83 E11	3G89 A14	3G94 H9	5G04 B3	6G04 G8	7G04-2 D12	9G12 A13	FG01 B4	FG15 G12	FG20 E9	FG25 D11	FG40 B14	IG30 F12	IG38 G9	



SSB: HDMI

B7A HDMI

B7A

HDMI CONNECTOR 1

DDC NVM HDMI 1

DDC NVM HDMI 2

HDMI CONNECTOR 2

3104 313 6145.2

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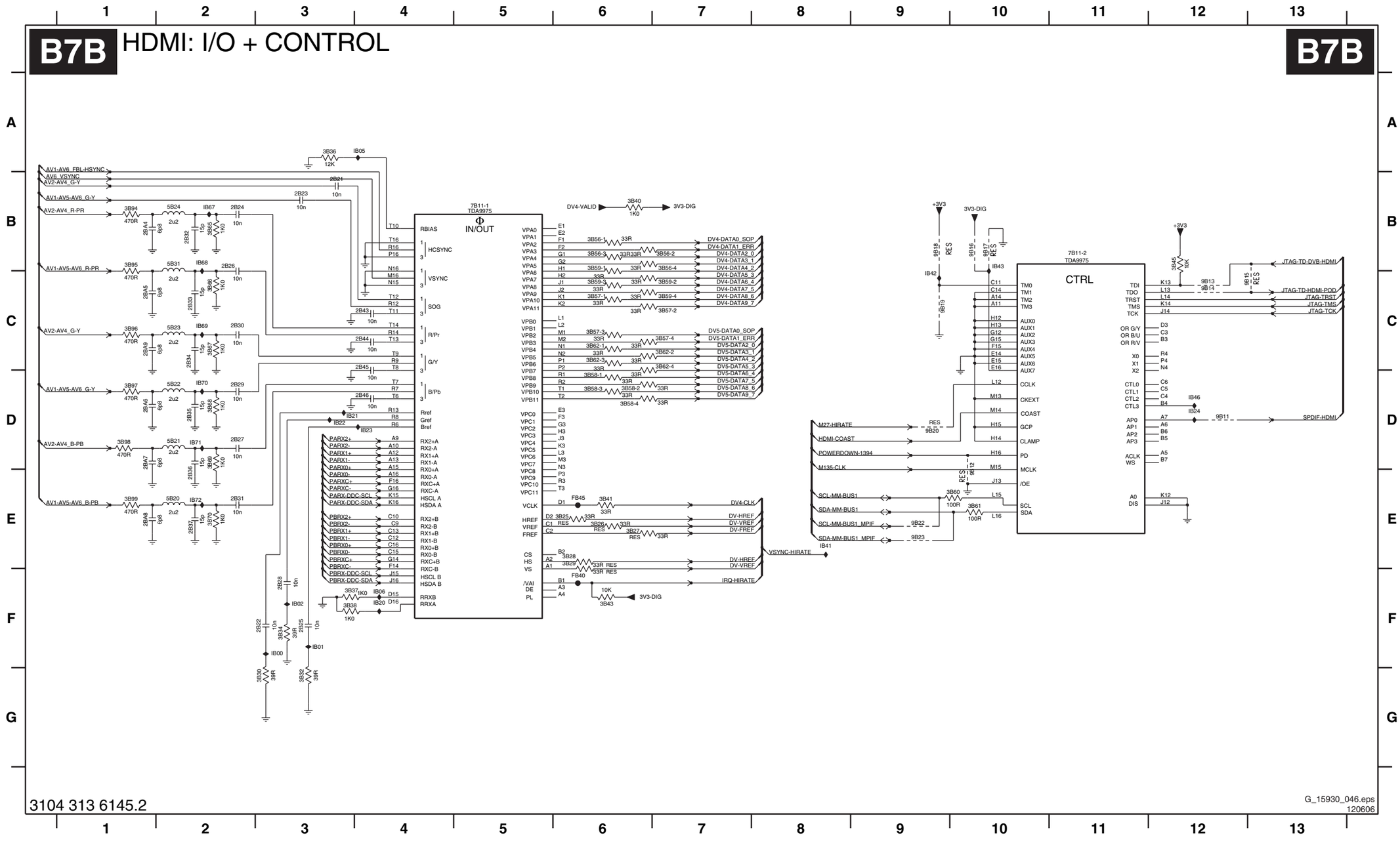
120606

SSB: HDMI: I/O & Control

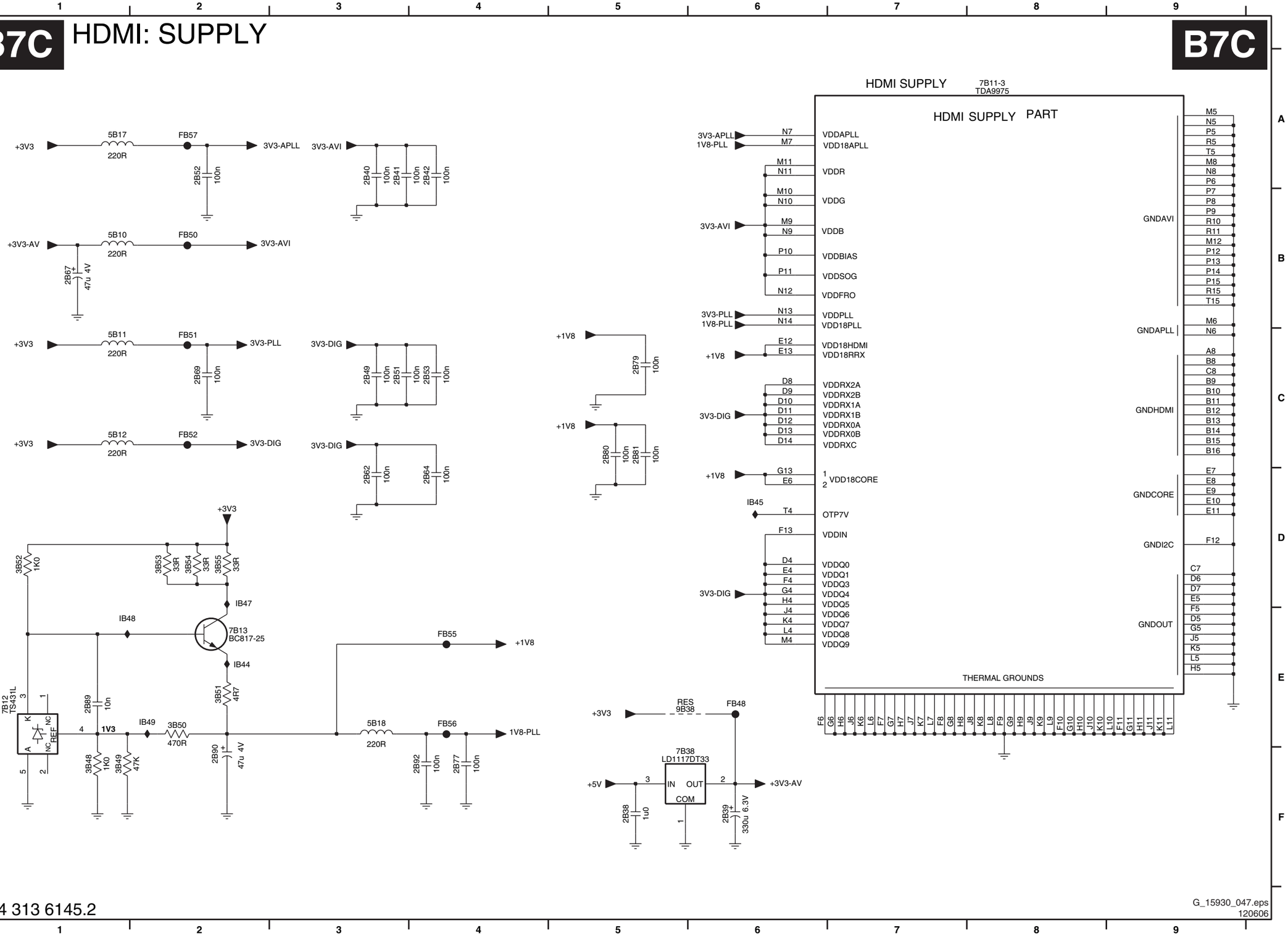
B7B HDMI: I/O + CONTROL



2B21 B3 5B20 E2
2B22 F3 5B21 D2
2B23 B3 5B22 D2
2B24 B2 5B23 C2
2B25 F3 5B24 B2
2B26 B2 5B31 B2
2B27 D2 7B11-1 B5
2B28 F3 7B11-2 B11
2B29 D2 9B11 D12
2B30 C2 9B12 D10
2B31 E2 9B13 C12
2B32 B2 9B14 C12
2B33 C2 9B15 C12
2B34 C2 9B16 B10
2B35 D2 9B17 B10
2B36 E2 9B18 B9
2B37 E2 9B19 C9
2B43 C4 9B20 D9
2B44 C4 9B22 E9
2B45 C4 9B23 E9
2B46 D4 FB40 F6
2BA4 B1 FB45 E6
2BA5 C1 IB00 F3
2BA6 D1 IB01 F3
2BA7 D1 IB02 F3
2BA8 E1 IB05 A4
2BA9 C1 IB06 F4
3B25 E6 IB20 F4
3B26 E6 IB21 D3
3B27 E6 IB22 D3
3B28 E6 IB23 D4
3B29 E6 IB24 D12
3B30 G3 IB41 E8
3B32 G3 IB42 C9
3B34 F3 IB43 B10
3B36 A3 IB46 D12
3B37 F3 IB67 B2
3B38 F3 IB68 B2
3B40 B6 IB69 C2
3B41 E6 IB70 D2
3B43 F6 IB71 D2
3B45 B12 IB72 E2
3B56-1 B6
3B56-2 B7
3B56-3 B6
3B56-4 B7
3B57-1 C6
3B57-2 C7
3B57-3 C6
3B57-4 C7
3B58-1 D6
3B58-2 D6
3B58-3 D6
3B58-4 D6
3B59-1 B6
3B59-2 C7
3B59-3 C6
3B59-4 C7
3B60 E10
3B61 E10
3B62-1 C6
3B62-2 C7
3B62-3 C6
3B62-4 C7
3B65 B2
3B66 C2
3B67 C2
3B68 D2
3B69 D2
3B70 E2
3B94 B1
3B95 B1
3B96 C1
3B97 D1
3B98 D1
3B99 E1

SSB: HDMI: Supply

B7C HDMI: SUPPLY



2B38 F5
2B39 F6
2B40 A3
2B41 A3
2B42 A4
2B49 C3
2B51 C3
2B52 A2
2B53 C4
2B62 D3
2B64 D4
2B67 B1
2B69 C2
2B77 F4
2B79 C5
2B80 C5
2B81 C5
2B89 E1
2B90 F2
2B92 F4
3B48 F1
3B49 F1
3B50 E2
3B51 E2
3B52 D1
3B53 D2
3B54 D2
3B55 D2
5B10 B1
5B11 C1
5B12 C1
5B17 A1
5B18 E3
7B11-3 A8
7B12 E1
7B13 E2
7B38 F5
9B38 E5
FB48 E6
FB50 B2
FB51 C2
FB52 C2
FB55 E4
FB56 E4
FB57 A2
IB44 E2
IB45 D6
IB47 D2
IB48 E1
IB49 E2

3104 313 6145.2

G_15930_047.eps
120606

SSB: USB 2.0: Host

B8 USB 2.0: HOST

B8

+3V3
+5V2-STBY
+3V3-STANDBY-B-TRANS
+3V3-STANDBY
7N10 BC847B
7N00 ISP1561BM
VCC
VAUX
VAUX_T1
VAUX_T2
VAUXA_T3
VAUXA_T4
VAUXA_PLL
Φ PCI HOST CONTROLLER
SEL48M
SCL
SDA
ADP_SEL
KBIRQ1
MUIRQ12
RST
CLK
GNT
IDSEL
FRAME
IRDY
TRDY
DEVSEL
STOP
CLKRUN
PERR
PAR
RREF
OC1
PWE
DM1
DP1
GL1
AMB1
GRN1
OC2
PWE2
DM2
DP2
GL2
AMB2
GRN2
OC3
PWE3
DM3
DP3
GL3
AMB3
GRN3
OC4
PWE4
DM4
DP4
GL4
AMB4
GRN4
PME
IRQ1
IRQ12
A20OUT
SMI
INTA
REQ
C0
BE0
C1
BE1
C2
BE2
C3
BE3
SERR
XI
XO
AD
RESET-USB20
PCI-CLK-USB20
PCI-GNT
PCI-AD22
PCI-FRAME
PCI-IRDY
PCI-TRDY
PCI-DEVSEL
PCI-STOP
PCI-PERR
PCI-PAR
USB20-OC1
USB20-PWE1
USB20-DM1
USB20-DP1
USB20-OC2
IRQ-USB20
PCI-REQ
PCI-CBE0
PCI-CBE1
PCI-CBE2
PCI-CBE3
PCI-AD0
PCI-AD1
PCI-AD2
PCI-AD3
PCI-AD4
PCI-AD5
PCI-AD6
PCI-AD7
PCI-AD8
PCI-AD9
PCI-AD10
PCI-AD11
PCI-AD12
PCI-AD13
PCI-AD14
PCI-AD15
PCI-AD16
PCI-AD17
PCI-AD18
PCI-AD19
PCI-AD20
PCI-AD21
PCI-AD22
PCI-AD23
PCI-AD24
PCI-AD25
PCI-AD26
PCI-AD27
PCI-AD28
PCI-AD29
PCI-AD30
PCI-AD31
PCI-SERR
DGND
AGND_REF
AGND_T1
AGND_T2
AGND_T3
AGND_T4
TO 1M64
B5A
SSB
1N62
B4B-PH-SM4-TBT(LF)
FN10
FN11
USB20-DM1
USB20-DP1

1N00 G8
1N62 F1
2N00 G9
2N01 G9
2N02 B6
2N03 A6
2N04 A6
2N05 A6
2N06 A7
2N07 A7
2N08 A7
2N09 A7
2N10 A8
2N11 A8
2N12 B8
2N13 B8
3N08 G6
3N09 D5
3N12 E5
3N13 E5
3N14 E5
3N15 E5
3N20 D2
3N25 D2
3N30 B4
3N31 B4
3N32 B5
3N33 B5
3N90 E2
3N92 E2
5N00 H7
5N01 B8
5N02 A8
7N00 C6
7N10 B4
FN01 G8
FN10 F2
FN11 G2
IN01 D6
IN02 D9
IN03 E5
IN04 D5
IN05 F6
IN06 G7
IN07 E4
IN08 E4
IN09 E5
IN10 B8
IN11 B8
IN12 E5
IN13 B4
IN14 C4

3104 313 6145.2

G_15930_059.eps
120606

SSB: Ethernet

1O00 C8	2O02 H4	2O06 D12	2O12 G10	2O16 C8	2O20 G11	2O24 G11	2O28 G10	3O03 C7	3O07 D1	3O11 D8	3O21 A8	3O25 C9	5O00 G9	7O00-1 B3	FO01 A10	FO05 C10	FO12 H9	IO04 G10	IO08 A12	IO13 F7
1O10 A10	2O03 H3	2O07 D11	2O13 B9	2O17 H9	2O21 G11	2O25 G10	3O00 C8	3O04 E8	3O08 E1	3O12 D9	3O22 A9	3O26 C9	5O01 H9	7O00-2 H7	FO02 B10	FO06 F9	IO01 E7	IO05 A9	IO10 C8	IO14 F8
2O00 D8	2O04 A11	2O10 E3	2O14 B9	2O18 H10	2O22 G11	2O26 G10	3O01 C7	3O05 F8	3O09 A11	3O13 D9	3O23 A9	3O27 C9	6O00 F8	9O16 C9	FO03 C10	FO07 F9	IO02 C7	IO06 C9	IO11 F7	
2O01 D8	2O05 A12	2O11 G9	2O15 B10	2O19 G12	2O23 G11	2O27 G10	3O02 D3	3O06 F8	3O10 C11	3O14 D9	3O24 A9	3O28 C9	6O01 F8	AO01 C8	FO04 C10	FO08 E3	IO03 H3	IO07 D12	IO12 F7	

B9A ETHERNET

B9A

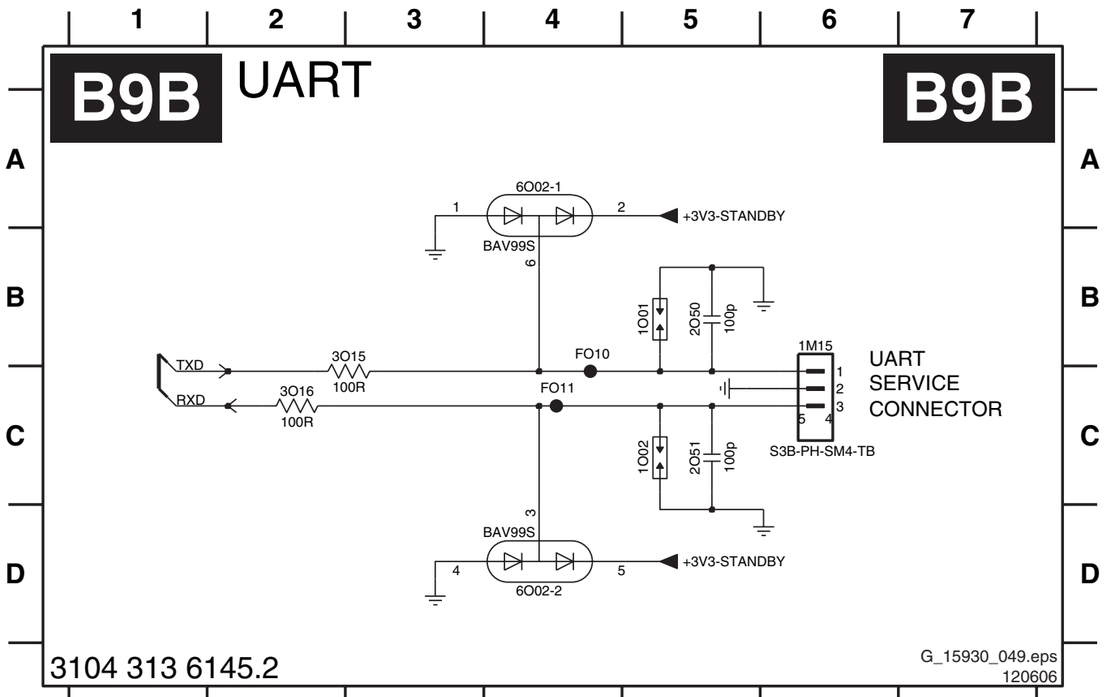
+3V3-ET-DIG
+3V3-ET-ANA
7O00-1 DP83816AVNG
IAUXVDD
PCIVDD
AUXVDD
MacPhyter II 10/100 Mb/s
PMEM
CLKRUN
PWRGOOD
3VAUX
INTA
PCICLK
PAR
IRDY
TRDY
PERR
SERR
FRAME
GNT
STOP
IDSEL
DEVSEL
REQ
RST
REGE
PCI-CBE0
PCI-CBE1
PCI-CBE2
PCI-CBE3
CMD/ BE
PCI-AD0
PCI-AD1
PCI-AD2
PCI-AD3
PCI-AD4
PCI-AD5
PCI-AD6
PCI-AD7
PCI-AD8
PCI-AD9
PCI-AD10
PCI-AD11
PCI-AD12
PCI-AD13
PCI-AD14
PCI-AD15
PCI-AD16
PCI-AD17
PCI-AD18
PCI-AD19
PCI-AD20
PCI-AD21
PCI-AD22
PCI-AD23
PCI-AD24
PCI-AD25
PCI-AD26
PCI-AD27
PCI-AD28
PCI-AD29
PCI-AD30
PCI-AD31
AD<0:31> DATA
IRQ-ETHERNET
PCI-CLK-ETHERNET
PCI-PAR
PCI-IRDY
PCI-TRDY
PCI-PERR
PCI-SERR
PCI-FRAME
PCI-GNT-A
PCI-STOP
PCI-AD23
PCI-DEVSEL
PCI-REQ-A
RESET-ETHERNET
TPTDP
TPTDM
TPRDP
TPRDM
X1
X2
VREF
COL
CRS
MDC
MDIO
RXCLK
TXCLK
RXOE
TXE
MCS
MRD
MWR
EESEL
CFGDIS
EEDO
MD<0:7>
LEDACT
LED10LNK
LED100LNK
EEDI
EECLK
MA5
RXD
RXER
RXDV
TXD
MA<0:15>
RESERVED
VSS
7O00-2 DP83816AVNG
NC1
NC2
NC3
NC4
NC5
NC6
NC7
NC8
NC9
NC10
FO01
FO02
FO03
FO04
FO05
FO06
FO07
FO08
IO01
IO02
IO03
IO04
IO05
IO06
IO07
IO08
IO10
IO11
IO12
IO13
IO14
1O10 5-1605403-8
RDP
RDN
RCT
TCT
TDP
TDN
NC
C1
SH1
SH2
D1
D2
D3
D4
RJ-1
RJ-2
RJ-3
RJ-4
RJ-5
RJ-6
RJ-7
RJ-8
RJ-45 ETHERNET CONNECTOR
+3V3
5O00
5O01
FO12
+3V3-ET-DIG
+3V3-ET-ANA

3104 313 6145.2

G_15930_048.eps
120606

SSB: UART

1M15 B6
1O01 B5
1O02 C5
2O50 B5
2O51 C5
3O15 B3
3O16 C2
6O02-1 A4
6O02-2 D4
FO10 B4
FO11 C4



Personal Notes:

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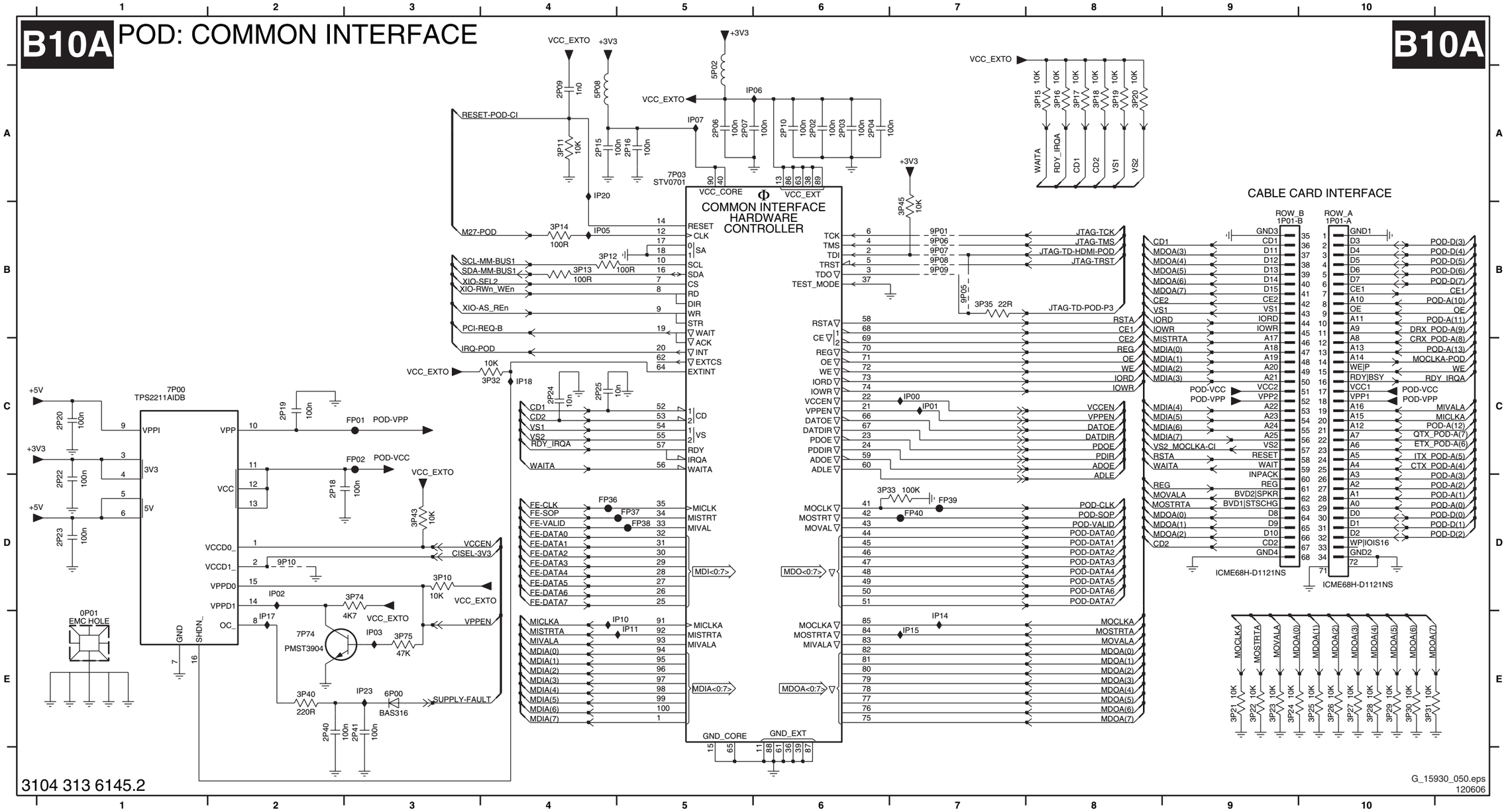
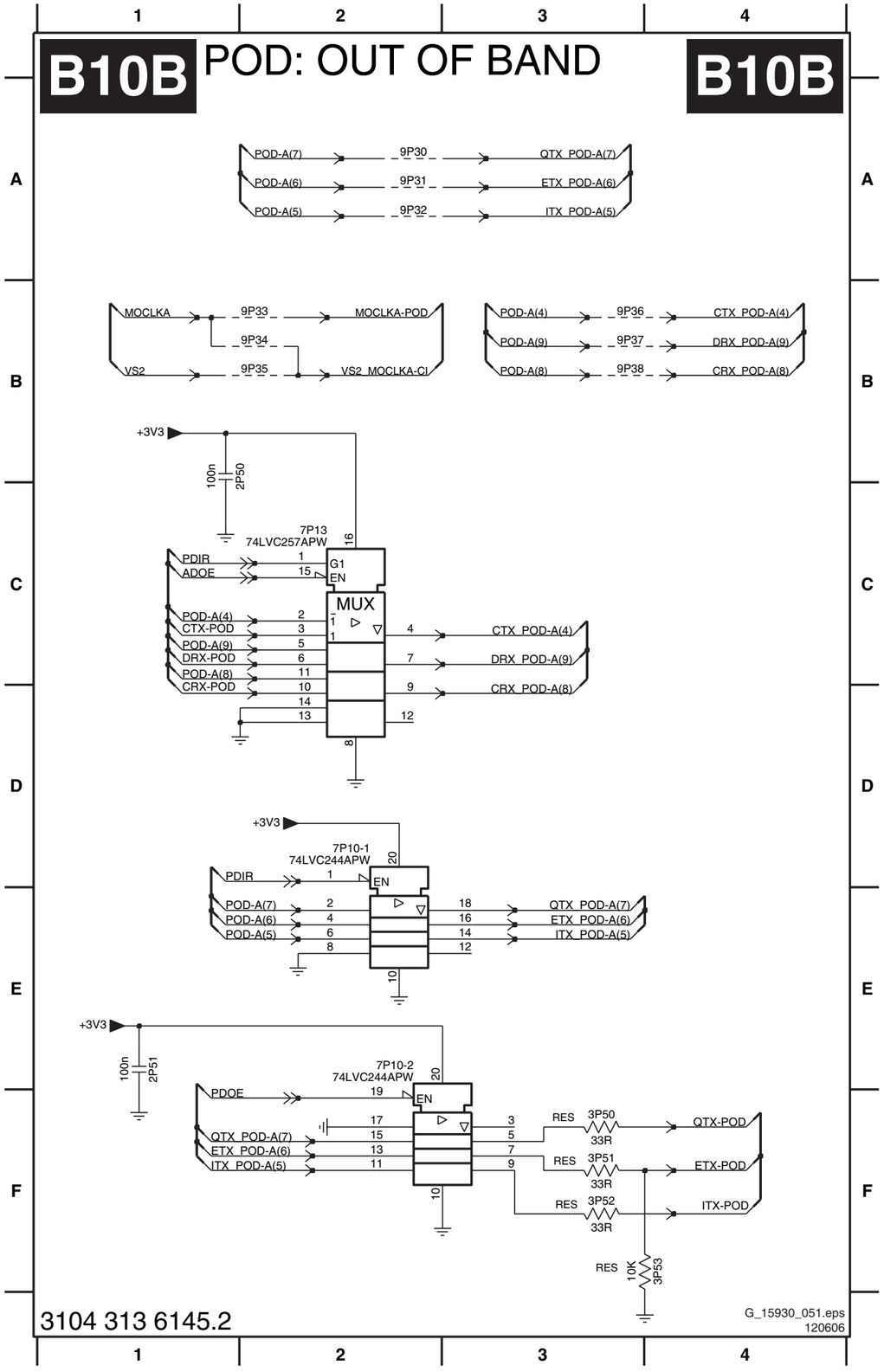
SSB: Common Interface: Part 1

1P01-A B10	2P06 A5	2P16 A5	2P23 D1	3P10 D3	3P15 A8	3P20 A8	3P25 E10	3P30 E10	3P40 E2	5P02 A5	7P74 E2	9P08 B7	FP36 D4	IP00 C7	IP06 A6	IP15 E7
1P01-B B9	2P07 A5	2P18 D2	2P24 C4	3P11 A4	3P16 A8	3P21 E9	3P26 E10	3P31 E10	3P43 D3	5P08 A4	9P01 B7	9P09 B7	FP37 D5	IP01 C7	IP07 A5	IP17 E2
2P02 A6	2P09 A4	2P19 C2	2P25 C4	3P12 B4	3P17 A8	3P22 E9	3P27 E10	3P32 C4	3P45 B7	6P00 E3	9P05 B7	9P10 D2	FP38 D5	IP02 D2	IP10 E5	IP18 C4
2P03 A6	2P10 A6	2P20 C1	2P40 E2	3P13 B4	3P18 A8	3P23 E9	3P28 E10	3P33 D6	3P74 D3	7P00 C1	9P06 B7	FP01 C3	FP39 D7	IP03 E3	IP11 E5	IP20 A4
2P04 A6	2P15 A4	2P22 D1	2P41 E3	3P14 B4	3P19 A8	3P24 E9	3P29 E10	3P35 B7	3P75 E3	7P03 A5	9P07 B7	FP02 C3	FP40 D7	IP05 B4	IP14 E7	IP23 E3



SSB: Common Interface: Part 2



Personal Notes:

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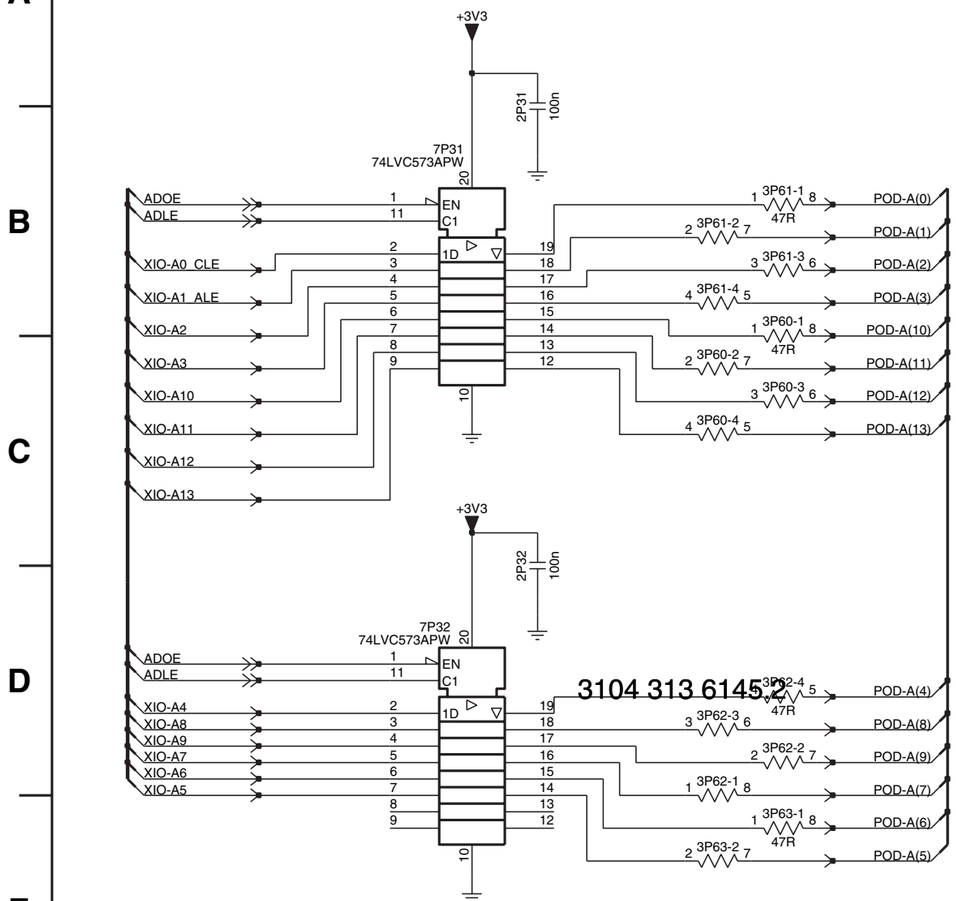
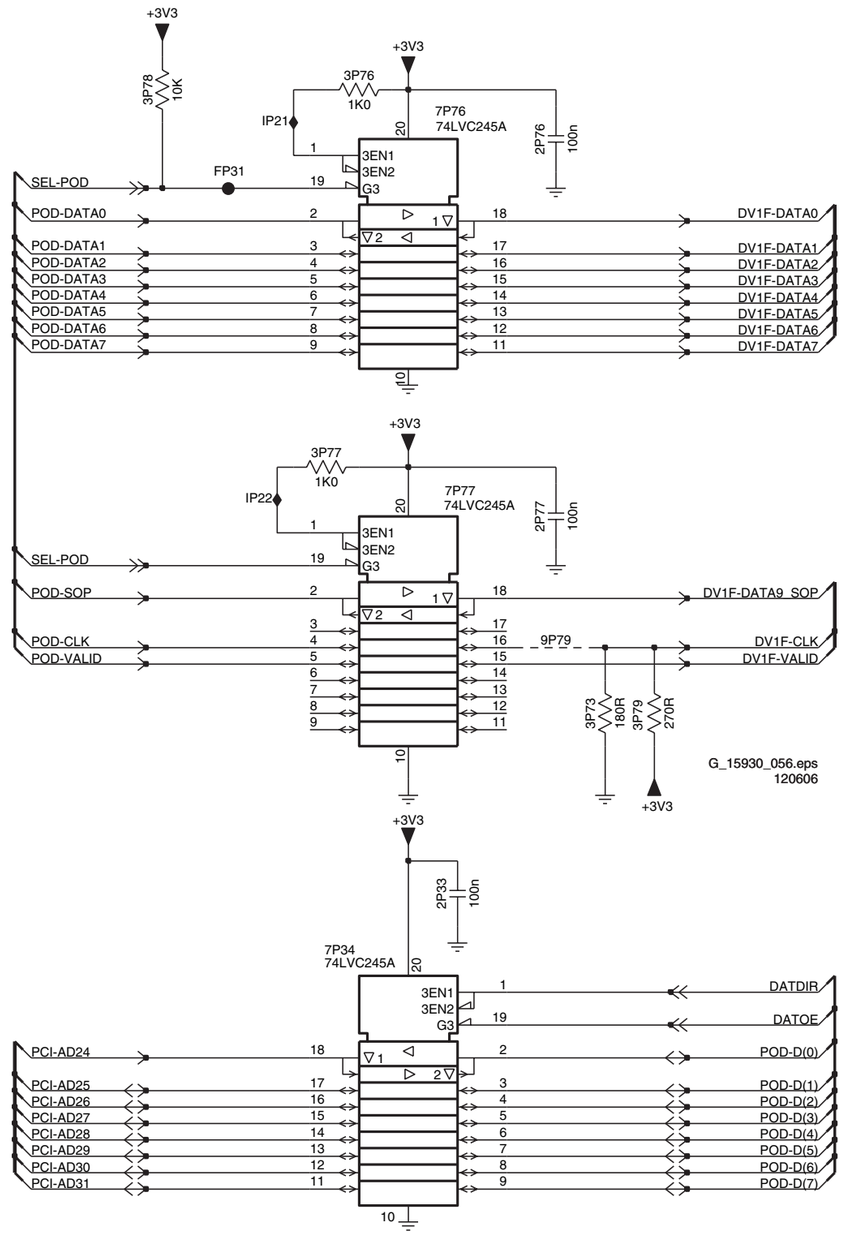
131004

SSB: Common Interface: Part 3

B10C POD: BUFFERING

B10C





2P31 A3
2P32 C3
2P33 E7
2P76 A7
2P77 C7
3P60-1 B4
3P60-2 C3
3P60-3 C4
3P60-4 C3
3P61-1 B4
3P61-2 B3
3P61-3 B4
3P61-4 B3
3P62-1 D3
3P62-2 D4
3P62-3 D3
3P62-4 D4
3P63-1 E4
3P63-2 E3
3P73 D7
3P76 A6
3P77 C6
3P78 A6
3P79 D8
7P31 B2
7P32 D2
7P34 E6
7P76 A7
7P77 C7
9P79 C7
FP31 A6
IP21 A6
IP22 C6

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120606

G_15930_052.eps
120606

3104 313 6145.2

SSB: NVM / NAND / UART Switch

B10D POD: TS BUFFERING

B10D

+3V3-STANDBY
9P41
9P42 RES
3P36 10K
3P37 100K
RESET-MAIN-NVM
3P38 10K
BC857BW 7P18
2P34 100n
+3V3-STANDBY
+3V3-STANDBY
7P14 M24C64
Φ (8Kx8) EEPROM
WC
SCL
SDA
ADR
FP22
FP34
FP35
9P16
9P17
SCL-UP-VIP
SDA-UP-VIP
SCL-UP-VIP
SDA-UP-VIP
9P39 RES
9P40 RES
RES 1P02
B3B-PH-SM4-TBT(LF)
FOR FACTORY USE
MAIN NVM

RXD
9P18 RES
RXD-VIPER
TXD
9P19 RES
TXD-VIPER
+5V2-STBY
2P35 100n
7P15-1 74HC4066PW
RXD
3P83 100R
FP23
3P84 100R
X1
RXD-UP
7P15-2 74HC4066PW
UART-SWITCHn
3P85 100R
RXD-VIPER
TXD
3P86 100R
7P15-3 74HC4066PW
TXD-UP
+5V2-STBY
3P88 10K
FP32
7P15-4 74HC4066PW
UART-SWITCHn
UART-SWITCH
FP33
7P16 PDTC114EU
TXD-VIPER
10K 3P57
7P17 PDTC114EU

+3V3
2P82 100n
7P81 74LVC245A
3EN1
3EN2
G3
XIO-AS_REn
XIO-SEL0
PCI-AD31
PCI-AD30
PCI-AD27
PCI-AD26
PCI-AD24
PCI-AD25
PCI-AD29
PCI-AD28
NAND-AD7
NAND-AD6
NAND-AD3
NAND-AD2
NAND-AD0
NAND-AD1
NAND-AD5
NAND-AD4
NAND-AD0
NAND-AD1
NAND-AD2
NAND-AD3
NAND-AD4
NAND-AD5
NAND-AD6
NAND-AD7
XIO-A16_D8
XIO-A17_D9
XIO-A18_D10
XIO-A19_D11
XIO-A20_D12
XIO-A21_D13
XIO-A22_D14
XIO-A23_D15
★ 16 Bit
9P45
9P46
9P47
9P48
9P49
9P50
9P51
9P52
9P53
9P54
9P55
9P56
★ 8 Bit

+3V3
2P80 100n
2P81 100n
7P80 TC58DVM92F1TGI0
VCC
VCCQ
EEPROM (32Mx16)
I/O
RE
CE
CLE
ALE
WE
WP
RY BY
XIO-AS_REn
XIO-SEL0
XIO-A0_CLE
XIO-A1_ALE
XIO-RWn_WEn
STBY-WP-NAND-FLASH
XIO-ACK
NC
GND
VSS
10K 3P82
+3V3
3P80 10K
XIO-SEL0
3P81 2K2
XIO-ACK

G_15930_053.eps
120606

1P02 B6
2P34 B3
2P35 C3
2P80 C8
2P81 C9
2P82 C5
3P36 A2
3P37 A4
3P38 A2
3P57 F3
3P80 B9
3P81 C9
3P82 F8
3P83 D2
3P84 D2
3P85 D2
3P86 E2
3P88 E2
7P14 B3
7P15-1 D2
7P15-2 D3
7P15-3 E2
7P15-4 E2
7P16 F1
7P17 F2
7P18 A3
7P80 C9
7P81 C5
9P16 B4
9P17 C4
9P18 C1
9P19 C1
9P39 B5
9P40 B5
9P41 A3
9P42 A3
9P45 D7
9P46 D7
9P47 D7
9P48 D7
9P49 D7
9P50 D7
9P51 E7
9P52 E7
9P53 E7
9P54 E7
9P55 E7
9P56 E7
FP22 B4
FP23 D1
FP32 E2
FP33 F1
FP34 B4
FP35 B4
IP16 D9

SSB: Firewire 1394: Main

B11A FIREWIRE 1394: MAIN

B11A

3104 313 6145.2

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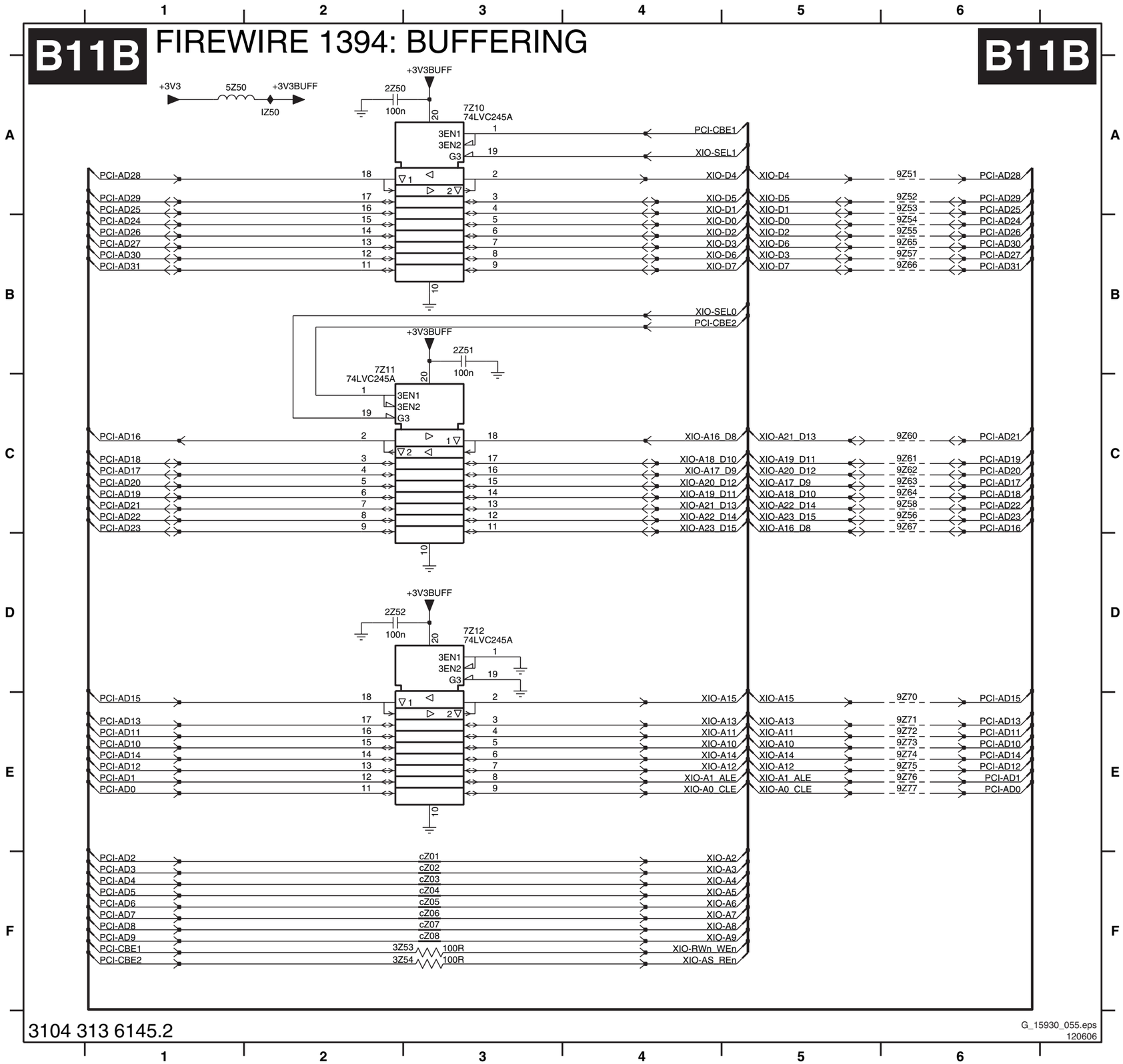
120606

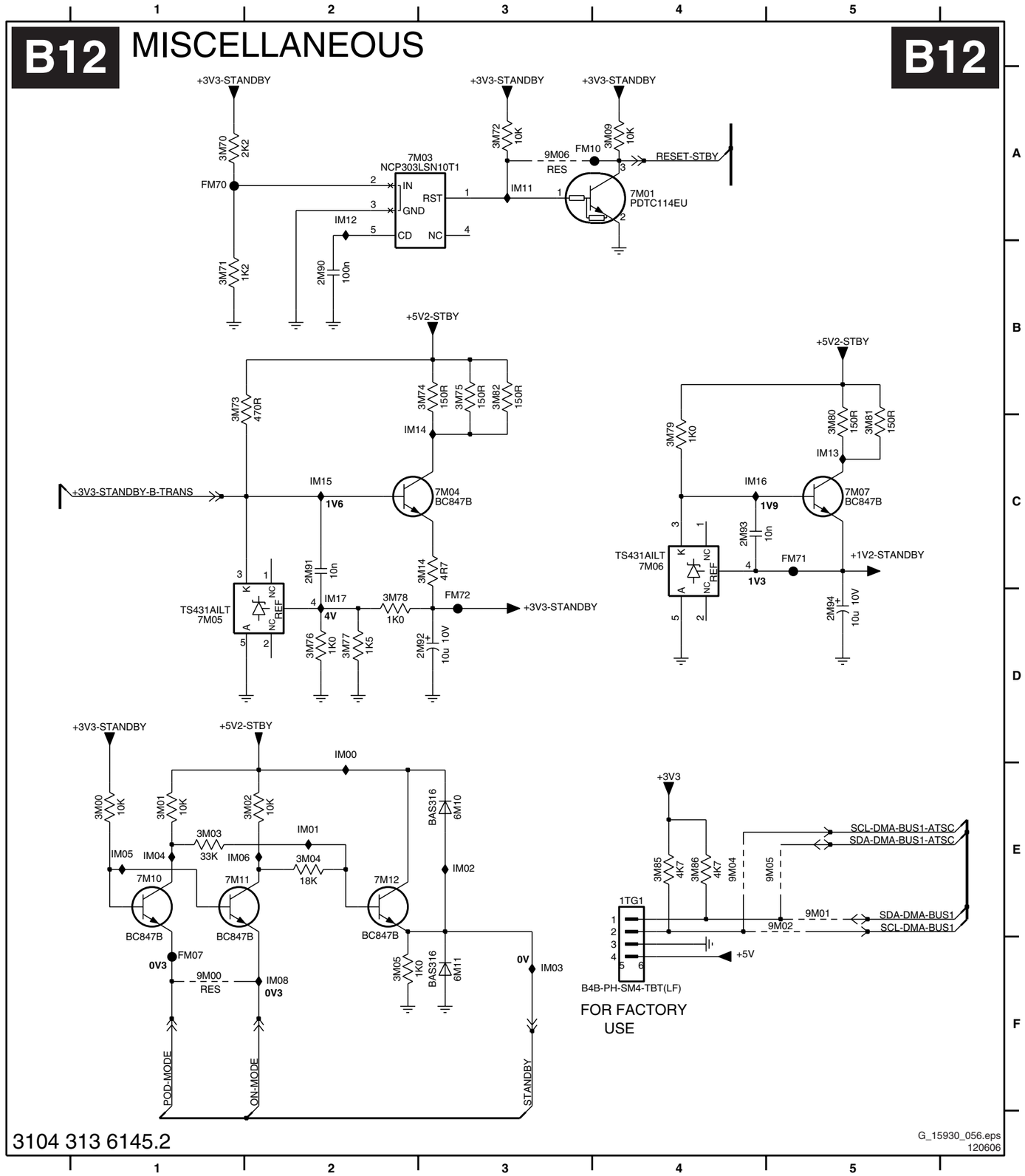
1Z05 F12
1Z10 C14
1Z11 E14
1Z55 I7
2Z04 B9
2Z05 B10
2Z06 B10
2Z07 B10
2Z08 B11
2Z09 B10
2Z16 F12
2Z17 F13
2Z18 G12
2Z19 G12
2Z20 A5
2Z21 A6
2Z22 A6
2Z23 A6
2Z24 A6
2Z25 A7
2Z26 A7
2Z27 A7
2Z28 A7
2Z29 H13
2Z30 H13
2Z38 A10
3Z00 H1
3Z01 H1
3Z07 B6
3Z08 C6
3Z10 B7
3Z11 B7
3Z12 C2
3Z13 C8
3Z18 F8
3Z20 E12
3Z21 E12
3Z22 F12
3Z23 E12
3Z24 E13
3Z25 F13
3Z26 F13
3Z27 F13
3Z28 F13
3Z29 F14
3Z30 F2
3Z33 F8
3Z35 E8
3Z37 E8
3Z38 F8
3Z40 E2
3Z41 E2
3Z44 E1
3Z46 E1
3Z47 B1
3Z48 B1
3Z50 D14
3Z51 D14
3Z55 D14
3Z56 D14
3Z57 D14
3Z58 D14
3Z59 D14
3Z60 D14
5Z00 A10
5Z01 B10
5Z02 A10
5Z05 C13
5Z06 C13
5Z07 E13
5Z08 E14
7Z00 A3
7Z01 C9
7Z02 G1
9Z47 B2
FZ01 C6
FZ02 C6
FZ03 E8
FZ04 B6
FZ05 C13
FZ06 C13
FZ07 C13
FZ08 C13
FZ09 E14
FZ10 E14
FZ11 E14
FZ12 E14
IZ00 A10
IZ01 A10
IZ02 A10
IZ03 F12
IZ04 F13
IZ05 G13
IZ06 G13
IZ07 D8
IZ08 B5
IZ12 F8
IZ13 F8
IZ14 F8
IZ15 F8
IZ16 F8
IZ18 F2
IZ19 C2
IZ20 H1
IZ21 E1
IZ22 F1
IZ25 H1
IZ26 C6
IZ27 C6
IZ28 C7

SSB: Firewire 1394: Buffering



2Z50 A2
2Z51 B3
2Z52 D2
3Z53 F2
3Z54 F2
5Z50 A1
7Z10 A3
7Z11 B2
7Z12 D3
9Z51 A6
9Z52 A6
9Z53 A6
9Z54 B6
9Z55 B6
9Z56 C6
9Z57 B6
9Z58 C6
9Z60 C6
9Z61 C6
9Z62 C6
9Z63 C6
9Z64 C6
9Z65 B6
9Z66 B6
9Z67 C6
9Z70 E6
9Z71 E6
9Z72 E6
9Z73 E6
9Z74 E6
9Z75 E6
9Z76 E6
9Z77 E6
IZ50 A2
cZ01 F3
cZ02 F3
cZ03 F3
cZ04 F3
cZ05 F3
cZ06 F3
cZ07 F3
cZ08 F3

SSB: Firewire 1394: Miscellaneous



SSB: SRP List Part 1

Net Name	Diagram
+2V5D-PLL-MAIN	B02a (2x)
+2V5-MAIN	B02a (4x)
+2V5-P3	B06b (2x)
+2V5-PF	B06b (4x)
+2V5-PLL	B06b (2x)
+2V5-VPR	B05b (1x)
+2V5-VPR	B05c (1x)
+2V5-VPR	B05d (3x)
+3V3	B01a (2x)
+3V3	B01c (4x)
+3V3	B02a (4x)
+3V3	B03e (2x)
+3V3	B04a (2x)
+3V3	B04e (2x)
+3V3	B04g (10x)
+3V3	B05a (40x)
+3V3	B05c (2x)
+3V3	B05d (8x)
+3V3	B05e (4x)
+3V3	B06a (4x)
+3V3	B06b (12x)
+3V3	B07a (2x)
+3V3	B07b (4x)
+3V3	B07c (10x)
+3V3	B08 (10x)
+3V3	B09a (4x)
+3V3	B10a (8x)
+3V3	B10b (6x)
+3V3	B10c (14x)
+3V3	B10d (6x)
+3V3	B11a (4x)
+3V3	B11b (2x)
+3V3	B12 (2x)
+3V3-AV	B07c (2x)
+3V3BUFF	B11b (4x)
+3V3-ET-ANA	B09a (4x)
+3V3-ET-DIG	B09a (6x)
+3V3-MAIN	B02a (3x)
+3V3-P3	B06b (5x)
+3V3-STANDBY	B03g (2x)
+3V3-STANDBY	B04e (24x)
+3V3-STANDBY	B04g (2x)
+3V3-STANDBY	B05e (4x)
+3V3-STANDBY	B08 (2x)
+3V3-STANDBY	B09b (4x)
+3V3-STANDBY	B10d (6x)
+3V3-STANDBY	B12 (10x)
+3V3-STANDBY-B-TRANS	B08 (1x)
+3V3-STANDBY-B-TRANS	B12 (1x)
+3V3-UART	B01c (2x)
+3V3-VCCA	B11a (2x)
+3V3-VCCD	B11a (15x)
+5V	B01a (2x)
+5V	B01b (4x)
+5V	B02b (2x)
+5V	B03b (2x)
+5V	B03e (4x)
+5V	B03g (4x)
+5V	B04e (2x)
+5V	B05a (6x)
+5V	B05e (16x)
+5V	B06a (2x)
+5V	B06b (2x)
+5V	B07c (2x)
+5V	B10a (4x)
+5V	B12 (2x)
+5V2-CONN	B03f (2x)
+5V2-STBY	B01a (2x)
+5V2-STBY	B01b (2x)
+5V2-STBY	B01c (2x)
+5V2-STBY	B03e (10x)
+5V2-STBY	B03f (2x)
+5V2-STBY	B04a (2x)
+5V2-STBY	B04e (8x)
+5V2-STBY	B04g (2x)
+5V2-STBY	B05e (4x)
+5V2-STBY	B08 (2x)
+5V2-STBY	B10d (4x)
+5V2-STBY	B12 (4x)
+5V2-STBY_9V-STBY	B01b (2x)
+5V2-STBY_9V-STBY	B05e (2x)
+5VaM	B03c (2x)
+5V-AUD	B03e (3x)
+5VbM	B03c (3x)
+5V-CON	B01b (2x)
+5V-CON	B05e (4x)
+5VDISP	B04g (2x)
+5VDISP	B05e (2x)
+5VMPIF-MAIN	B03a (2x)
+5VMPIF-MAIN	B03b (7x)
+5VMPIF-MAIN	B03c (3x)
+5V-OOB	B02b (4x)
+5VTUN	B02b (6x)
+8V6	B01b (1x)
+8V6-CONN	B03f (2x)
+8V6-SW	B01b (2x)
+8V6-SW	B02b (2x)
+8V6-SW	B03b (4x)
+8V6-SW	B03e (2x)
+8V6-SW	B03f (4x)
+8V6-SW	B03g (2x)
+8V6-SW	B04e (2x)
+8V6-SW	B06a (8x)
+8VaM	B03c (5x)
+8V-AUD	B03e (1x)
+8VMPIF-MAIN	B03b (1x)
+8VMPIF-MAIN	B03c (1x)
+VTUN	B01b (2x)
1V8-PLL	B07c (3x)
2NDSIFEXTM	B03c (2x)
3V3-APLL	B07c (2x)
3V3-AVI	B07c (3x)
3V3-DIG	B07b (3x)
3V3-DIG	B07c (5x)
3V3-PLL	B07c (2x)
ADAC1	B03e (1x)
ADAC1	B04a (1x)
ADAC2	B03e (1x)
ADAC2	B04a (1x)
ADAC4	B03e (1x)
ADAC4	B04a (1x)
ADAC7	B03e (1x)
ADAC7	B04a (1x)
ADAC8	B03e (1x)
ADAC8	B04a (1x)
ADLE	B10a (1x)
ADLE	B10c (2x)
ADOE	B10a (1x)
ADOE	B10b (1x)
ADOE	B10c (2x)
AIN-5V	B07a (3x)
ALE	B04e (2x)
AMBI-SEL-1	B04e (2x)
AMBI-SEL-1	B05e (1x)
AMBI-SEL-1	B06b (1x)
AMBI-SEL-2	B04e (2x)
AMBI-SEL-2	B05e (1x)
AMBI-SEL-2	B06b (1x)
A-PLOP	B03e (1x)
A-PLOP	B03g (1x)
A-PLOP	B04a (1x)
A-PLOP	B05a (1x)
ARX0-	B07a (2x)
ARX0+	B07a (2x)
ARX1-	B07a (2x)
ARX1+	B07a (2x)
ARX2-	B07a (2x)
ARX2+	B07a (2x)
ARXC-	B07a (2x)
ARXC+	B07a (2x)
ARX-DDC-SCL	B07a (2x)
ARX-DDC-SDA	B07a (2x)
ARX-HOTPLUG	B07a (2x)
AUDIO-HDPH-L-AP	B03e (1x)
AUDIO-HDPH-L-AP	B03f (2x)
AUDIO-HDPH-R-AP	B03e (1x)
AUDIO-HDPH-R-AP	B03f (2x)
AUDIO-IN1-L	B03d (1x)
AUDIO-IN1-L	B03f (2x)
AUDIO-IN1-R	B03d (1x)
AUDIO-IN1-R	B03f (2x)
AUDIO-IN2-L	B03d (1x)
AUDIO-IN2-L	B03f (2x)
AUDIO-IN2-R	B03d (1x)
AUDIO-IN2-R	B03f (2x)
AUDIO-IN5-L	B03d (1x)
AUDIO-IN5-L	B03f (2x)
AUDIO-IN5-R	B03d (1x)
AUDIO-IN5-R	B03f (2x)
AUDIO-L	B03e (1x)
AUDIO-L	B03g (1x)
AUDIO-OUT1-L	B03d (1x)
AUDIO-OUT1-L	B03f (2x)
AUDIO-OUT1-R	B03d (1x)
AUDIO-OUT1-R	B03f (2x)
AUDIO-OUT2-L	B03d (1x)
AUDIO-OUT2-L	B03f (2x)
AUDIO-OUT2-R	B03d (1x)
AUDIO-OUT2-R	B03f (2x)
AUDIO-R	B03e (1x)
AUDIO-R	B03g (1x)
AUDIO-SW	B03e (1x)
AUDIO-SW	B03g (1x)
AUX-IF-AGC-MAIN	B02a (1x)
AUX-IF-AGC-MAIN	B02b (1x)
AV1_CVBS	B03a (1x)
AV1_CVBS	B03f (1x)
AV1_CVBS-AV7-Y-CVBS	B03f (2x)
AV1-AV5-AV6_B-PB	B03a (1x)
AV1-AV5-AV6_B-PB	B03g (1x)
AV1-AV5-AV6_B-PB	B07b (1x)
AV1-AV5-AV6_G-Y	B03a (1x)
AV1-AV5-AV6_G-Y	B03g (1x)
AV1-AV5-AV6_G-Y	B07b (2x)
AV1-AV5-AV6_R-PR	B03a (1x)
AV1-AV5-AV6_R-PR	B03g (1x)
AV1-AV5-AV6_R-PR	B07b (1x)
AV1-AV6_FBL-HSYNC	B03g (1x)
AV1-AV6_FBL-HSYNC	B04a (1x)
AV1-AV6_FBL-HSYNC	B07b (1x)
AV1-STATUS	B03f (1x)
AV1-STATUS	B03g (1x)
AV1-STATUS	B04e (1x)
AV1-STATUS-AV7-C	B03f (2x)
AV2_C	B03a (1x)
AV2_C	B03f (2x)
AV2_FBL	B03f (2x)
AV2_FBL	B04a (2x)
AV2_Y-CVBS	B03a (1x)
AV2_Y-CVBS	B03f (2x)
AV2-AV4_B-PB	B03a (1x)
AV2-AV4_B-PB	B03f (1x)
AV2-AV4_B-PB	B07b (1x)
AV2-AV4_G-Y	B03a (1x)
AV2-AV4_G-Y	B03f (1x)
AV2-AV4_G-Y	B07b (2x)
AV2-AV4_R-PR	B03a (1x)
AV2-AV4_R-PR	B03f (1x)
AV2-AV4_R-PR	B07b (1x)
AV2-STATUS	B03f (2x)
AV2-STATUS	B04e (1x)
AV6_VSYNC	B03f (1x)
AV6_VSYNC	B03g (1x)
AV6_VSYNC	B04a (2x)
AV6_VSYNC	B07b (1x)
AV7_C	B03a (1x)
AV7_C	B03f (1x)
AV7_Y-CVBS	B03a (1x)
AV7_Y-CVBS	B03f (1x)
BACKLIGHT-CNTRL-OUT	B05e (2x)
BACKLIGHT-CNTRL-OUT	B06a (1x)
BACKLIGHT-CONTROL	B05e (1x)
BACKLIGHT-CONTROL	B06a (1x)
BACKLIGHT-CONTROL	B06b (1x)
BACKLIGHT-CONTROL_RESET-P3	B04e (1x)
BACKLIGHT-CONTROL_RESET-P3	B05c (1x)
BACKLIGHT-CONTROL_RESET-P3	B06b (1x)
BIN-5V	B07a (3x)
BRX0-	B07a (2x)
BRX0+	B07a (2x)
BRX1-	B07a (2x)
BRX1+	B07a (2x)
BRX2-	B07a (2x)
BRX2+	B07a (2x)
BRXC-	B07a (2x)
BRXC+	B07a (2x)
BRX-DDC-SCL	B07a (2x)
BRX-DDC-SDA	B07a (2x)
BRX-HOTPLUG	B07a (2x)
CD1	B10a (3x)
CD2	B10a (3x)
CE1	B10a (2x)
CE2	B10a (2x)
CISEL-3V3	B10a (1x)
CLK-MPIF	B03b (1x)
CLK-MPIF	B04a (1x)
C-MON-OUT	B03f (2x)
C-MON-OUT	B05c (1x)
COM-SND	B03g (1x)
COM-SND	B04e (2x)
CRX_POD-A(8)	B10a (1x)
CRX_POD-A(8)	B10b (2x)
CRX-POD	B02a (1x)
CRX-POD	B10b (1x)
CTRL1-STBY	B04e (2x)
CTRL1-STBY	B04g (1x)
CTRL1-VIPER	B04g (1x)
CTRL1-VIPER	B05c (1x)
CTRL1-VIPER	B05e (1x)
CTRL1-VIPER	B06a (1x)
CTRL2-VIPER	B04g (1x)
CTRL2-VIPER	B05c (1x)
CTRL3-STBY	B04e (2x)
CTRL3-STBY	B04g (1x)
CTRL4-STBY	B04e (1x)
CTRL4-STBY	B04g (1x)
CTRL4-VIPER	B04g (1x)
CTRL4-VIPER	B05a (2x)
CTRL-DISP1	B04g (2x)
CTRL-DISP2	B04g (2x)
CTRL-DISP3	B04g (2x)
CTRL-DISP4	B04g (2x)
CTX_POD-A(4)	B10a (1x)
CTX_POD-A(4)	B10b (2x)
CTX-POD	B10b (1x)
CVBSOUTIF-MAIN	B03a (1x)
CVBSOUTIF-MAIN	B03c (1x)
CVBS-TER-OUT	B03f (2x)
DAC-CVBS	B03b (1x)
DAC-CVBS	B05c (1x)
DATA1N-MAIN	B03a (1x)
DATA1N-MAIN	B04a (1x)
DATA1P-MAIN	B03a (1x)
DATA1P-MAIN	B04a (1x)
DATA2N-MAIN	B03a (1x)
DATA2N-MAIN	B04a (1x)
DATA2P-MAIN	B03a (1x)
DATA2P-MAIN	B04a (1x)
DATA3N-MAIN	B03a (1x)
DATA3N-MAIN	B04a (1x)
DATA3P-MAIN	B03a (1x)
DATA3P-MAIN	B04a (1x)
DATDIR	B10a (1x)
DATDIR	B10c (1x)
DATOE	B10a (1x)
DATOE	B10c (1x)
DEBUG-BREAK	B04e (2x)
DEBUG-BREAK	B05a (2x)
DETECT-12V	B04e (2x)
DETECT-1V2	B04e (2x)
DETECT-3V3	B04e (2x)
DETECT-5V	B04e (2x)
DETECT-8V6	B04e (2x)
DISABLE-12V	B04g (1x)
DISABLE-12V	B05e (1x)
DRX_POD-A(9)	B10a (1x)
DRX_POD-A(9)	B10b (2x)
DRX-POD	B02a (1x)
DRX-POD	B10b (1x)
DSNDL1	B03d (1x)
DSNDL1	B04a (1x)
DSNDL2	B03d (1x)
DSNDL2	B04a (1x)
DSNDR1	B03d (1x)
DSNDR1	B04a (1x)
DSNDR2	B03d (1x)
DSNDR2	B04a (1x)
DV1F-CLK	B04b (1x)
DV1F-CLK	B05c (1x)
DV1F-CLK	B10c (1x)
DV1F-DATA0	B04b (1x)
DV1F-DATA0	B05c (1x)
DV1F-DATA0	B10c (1x)
DV1F-DATA1	B04b (1x)
DV1F-DATA1	B05c (1x)
DV1F-DATA1	B10c (1x)
DV1F-DATA2	B04b (1x)
DV1F-DATA2	B05c (1x)
DV1F-DATA2	B10c (1x)
DV1F-DATA3	B04b (1x)
DV1F-DATA3	B05c (1x)
DV1F-DATA3	B10c (1x)
DV1F-DATA4	B04b (1x)
DV1F-DATA4	B05c (1x)
DV1F-DATA4	B10c (1x)
DV1F-DATA5	B04b (1x)
DV1F-DATA5	B05c (1x)
DV1F-DATA5	B10c (1x)
DV1F-DATA6	B04b (1x)
DV1F-DATA6	B05c (1x)
DV1F-DATA6	B10c (1x)
DV1F-DATA7	B04b (1x)
DV1F-DATA7	B05c (1x)
DV1F-DATA7	B10c (1x)
DV1F-DATA8_ERR	B04b (1x)
DV1F-DATA8_ERR	B05c (1x)
DV1F-DATA9_SOP	B04b (1x)
DV1F-DATA9_SOP	B05c (1x)
DV1F-DATA9_SOP	B10c (1x)
DV1F-VALID	B04b (1x)
DV1F-VALID	B05c (1x)
DV1F-VALID	B10c (1x)
DV2A-CLK	B04b (1x)
DV2A-CLK	B05c (1x)
DV2A-CLK	B11a (2x)
DV2A-DATA0_SOP	B04b (1x)
DV2A-DATA0_SOP	B05c (1x)
DV2A-DATA0_SOP	B11a (1x)
DV2A-DATA1_ERR	B04b (1x)
DV2A-DATA1_ERR	B05c (1x)
DV2A-DATA1_ERR	B11a (1x)
DV2A-DATA2_0	B04b (1x)
DV2A-DATA2_0	B05c (1x)
DV2A-DATA2_0	B11a (1x)
DV2A-DATA3_1	B04b (1x)
DV2A-DATA3_1	B05c (1x)
DV2A-DATA3_1	B11a (1x)
DV2A-DATA4_2	B04b (1x)
DV2A-DATA4_2	B05c (1x)
DV2A-DATA4_2	B11a (1x)
DV2A-DATA5_3	B04b (1x)
DV2A-DATA5_3	B05c (1x)
DV2A-DATA5_3	B11a (1x)
DV2A-DATA6_4	B04b (1x)
DV2A-DATA6_4	B05c (1x)
DV2A-DATA6_4	B11a (1x)
DV2A-DATA7_5	B04b (1x)
DV2A-DATA7_5	B05c (1x)
DV2A-DATA7_5	B11a (1x)
DV2A-DATA8_6	B04b (1x)
DV2A-DATA8_6	B05c (1x)
DV2A-DATA8_6	B11a (1x)
DV2A-DATA9_7	B04b (1x)
DV2A-DATA9_7	B05c (1x)
DV2A-DATA9_7	B11a (1x)
DV2A-VALID	B04b (1x)
DV2A-VALID	B05c (1x)
DV2A-VALID	B11a (1x)
DV3F-CLK	B04b (1x)
DV3F-CLK	B05c (1x)
DV3F-DATA0_SOP	B04b (1x)
DV3F-DATA0_SOP	B05c (1x)
DV3F-DATA1_ERR	B04b (1x)
DV3F-DATA1_ERR	B05c (1x)
DV3F-DATA2_0	B04b (1x)
DV3F-DATA2_0	B05c (1x)
DV3F-DATA3_1	B04b (1x)
DV3F-DATA3_1	B05c (1x)
DV3F-DATA4_2	B04b (1x)
DV3F-DATA4_2	B05c (1x)
DV3F-DATA5_3	B04b (1x)
DV3F-DATA5_3	B05c (1x)
DV3F-DATA6_4	B04b (1x)
DV3F-DATA6_4	B05c (1x)
DV3F-DATA7_5	B04b (1x)
DV3F-DATA7_5	B05c (1x)
DV3F-DATA8_6	B04b (1x)
DV3F-DATA8_6	B05c (1x)
DV3F-DATA9_7	B04b (1x)
DV3F-DATA9_7	B05c (1x)
DV3F-VALID	B04b (1x)
DV3F-VALID	B05c (1x)
DV4-CLK	B04b (1x)
DV4-CLK	B07b (1x)
DV4-DATA0_SOP	B04b (1x)
DV4-DATA0_SOP	B07b (1x)
DV4-DATA1_ERR	B04b (1x)
DV4-DATA1_ERR	B07b (1x)
DV4-DATA2_0	B04b (1x)
DV4-DATA2_0	B07b (1x)
DV4-DATA3_1	B04b (1x)
DV4-DATA3_1	B07b (1x)
DV4-DATA4_2	B04b (1x)
DV4-DATA4_2	B07b (1x)
DV4-DATA5_3	B04b (1x)
DV4-DATA5_3	B07b (1x)
DV4-DATA6_4	B04b (1x)
DV4-DATA6_4	B07b (1x)
DV4-DATA7_5	B04b (1x)
DV4-DATA7_5	B07b (1x)
DV4-DATA8_6	B04b (1x)
DV4-DATA8_6	B07b (1x)
DV4-DATA9_7	B04b (1x)
DV4-DATA9_7	B07b (1x)
DV4-VALID	B04b (4x)
DV4-VALID	B07b (4x)
DV5-DATA0_SOP	B04b (1x)
DV5-DATA0_SOP	B07b (1x)
DV5-DATA1_ERR	B04b (1x)
DV5-DATA1_ERR	B07b (1x)
DV5-DATA2_0	B04b (1x)
DV5-DATA2_0	B07b (1x)
DV5-DATA3_1	B04b (1x)
DV5-DATA3_1	B07b (1x)
DV5-DATA4_2	B04b (1x)
DV5-DATA4_2	B07b (1x)
DV5-DATA5_3	B04b (1x)
DV5-DATA5_3	B07b (1x)
DV5-DATA6_4	B04b (1x)
DV5-DATA6_4	B07b (1x)
DV5-DATA7_5	B04b (1x)
DV5-DATA7_5	B07b (1x)
DV5-DATA8_6	B04b (1x)
DV5-DATA8_6	B07b (1x)
DV5-DATA9_7	B04b (1x)
DV5-DATA9_7	B07b (1x)
DV-BOUT-0	B05c (1x)
DV-BOUT-0	B06b (1x)
DV-BOUT-1	B05c (1x)
DV-BOUT-1	B06b (1x)
DV-BOUT-2	B05c (1x)
DV-BOUT-2	B06b (1x)
DV-BOUT-3	B05c (1x)
DV-BOUT-3	B06b (1x)
DV-BOUT-4	B05c (1x)
DV-BOUT-4	B06b (1x)
DV-BOUT-5	B05c (1x)
DV-BOUT-5	B06b (1x)
DV-BOUT-6	B05c (1x)
DV-BOUT-6	B06b (1x)
DV-BOUT-7	B05c (1x)
DV-BOUT-7	B06b (1x)
DV-BOUT-8	B05c (1x)
DV-BOUT-8	B06b (1x)
DV-BOUT-9	B05c (1x)
DV-BOUT-9	B06b (1x)
DV-CLKIN	B05c (1x)
DV-CLKIN	B06b (1x)
DV-FREF	B04b (1x)
DV-FREF	B07b (1x)
DV-GOUT-0	B05c (1x)
DV-GOUT-0	B06b (1x)
DV-GOUT-1	B05c (1x)
DV-GOUT-1	B06b (1x)
DV-GOUT-2	B05c (1x)
DV-GOUT-2	B06b (1x)
DV-GOUT-3	B05c (1x)
DV-GOUT-3	B06b (1x)
DV-GOUT-4	B05c (1x)
DV-GOUT-4	B06b (1x)
DV-GOUT-5	B05c (1x)
DV-GOUT-5	B06b (1x)
DV-GOUT-6	B05c (1x)
DV-GOUT-6	B06b (1x)
DV-GOUT-7	B05c (1x)
DV-GOUT-7	B06b (1x)
DV-GOUT-8	B05c (1x)
DV-GOUT-8	B06b (1x)
DV-GOUT-9	B05c (1x)
DV-GOUT-9	B06b (1x)
DV-HREF	B04b (1x)
DV-HREF	B07b (2x)
DV-OUT-DE_HS	B05c (2x)
DV-OUT-DE_HS	B06b (1x)
DV-OUT-FFIELD	B05c (1x)
DV-OUT-FFIELD	B06a (1x)
DV-OUT-VS	B05c (1x)
DV-OUT-VS	B06b (1x)
DV-ROUT-0	B05c (1x)
DV-ROUT-0	B06b (1x)
DV-ROUT-1	B05c (1x)
DV-ROUT-1	B06b (1x)
DV-ROUT-2	B05c (1x)
DV-ROUT-2	B06b (1x)
DV-ROUT-3	B05c (1x)
DV-ROUT-3	B06b (1x)
DV-ROUT-4	B05c (1x)
DV-ROUT-4	B06b (1x)
DV-ROUT-5	B05c (1x)
DV-ROUT-5	B06b (1x)
DV-ROUT-6	B05c (1x)
DV-ROUT-6	B06b (1x)
DV-ROUT-7	B05c (1x)
DV-ROUT-7	B06b (1x)
DV-ROUT-8	B05c (1x)
DV-ROUT-8	B06b (1x)
DV-ROUT-9	B05c (1x)
DV-ROUT-9	B06b (1x)
DV-VREF	B04b (1x)
DV-VREF	B07b (2x)
EA	B04e (2x)
EJTAG-DETECT	B01c (1x)
EJTAG-DETECT	B04e (2x)
EJTAG-TCK	B01c (1x)
EJTAG-TCK	B05a (1x)
EJTAG-TDI	B01c (1x)
EJTAG-TDI	B05a (1x)
EJTAG-TDO	B01c (1x)
EJTAG-TDO	B05a (1x)
EJTAG-TMS	B01c (1x)
EJTAG-TMS	B05a (1x)
ENABLE-1V2	B01a (1x)
ENABLE-1V2	B04e (2x)
ENABLE-3V3	B01a (1x)
ENABLE-3V3	B04e (2x)
ENABLE-5V	B04g (1x)
ENABLE-5V	B05e (1x)
ETX_POD-A(6)	B10a (1x)
ETX_POD-A(6)	B10b (3x)
ETX-POD	B10b (1x)
EW-DRIVE	B03b (1x)
FAT-ADC-INN-MAIN	B02a (1x)
FAT-ADC-INN-MAIN	B02b (1x)
FAT-ADC-INP-MAIN	B02a (1x)
FAT-ADC-INP-MAIN	B02b (1x)
FAT-IF-AGC-MAIN	B02a (1x)
FAT-IF-AGC-MAIN	B02b (1x)
FDC-ADC-INN	B02a (1x)
FDC-ADC-INN	B02b (1x)
FDC-ADC-INP	B02a (1x)
FDC-ADC-INP	B02b (1x)
FDC-AGC	B02a (1x)
FDC-AGC	B02b (1x)
FE-CLK	B02a (1x)
FE-CLK	B10a (1x)
FE-DATA0	B02a (1x)
FE-DATA0	B10a (1x)
FE-DATA1	B02a (1x)
FE-DATA1	B10a (1x)
FE-DATA2	B02a (1x)
FE-DATA2	B10a (1x)
FE-DATA3	B02a (1x)
FE-DATA3	B10a (1x)
FE-DATA4	B02a (1x)
FE-DATA4	B10a (1x)
FE-DATA5	B02a (1x)
FE-DATA5	B10a (1x)
FE-DATA6	B02a (1x)
FE-DATA6	B10a (1x)
FE-DATA7	B02a (1x)
FE-DATA7	B10a (1x)
FE-SOP	B02a (1x)
FE-SOP	B10a (1x)
FE-VALID	B02a (1x)
FE-VALID	B10a (1x)
FM-TRAP	B02a (1x)
FM-TRAP	B02b (1x)
FRONT_C	B03a (1x)
FRONT_C	B03f (2x)
FRONT_Y-CVBS	B03a (1x)
FRONT_Y-CVBS	B03f (2x)
FRONT-DETECT	B04e (2x)
FS-OUTN	B02a (1x)
FS-OUTN	B02b (1x)
FS-OUTP	B02a (1x)
FS-OUTP	B02b (1x)
GLINK-IR-OUT	B03g (1x)
GLINK-IR-OUT	B05a (1x)
GLINK-IR-OUT-VIP	B05a (3x)
GLINK-RXD	B01c (1x)
GLINK-RXD	B03g (1x)
GLINK-RXD	B05a (1x)
GLINK-TXD	B01c (1x)
GLINK-TXD	B03g (1x)
GLINK-TXD	B05a (1x)
GND-SIG	B01a (15x)
HDMI-COAST	B05a (1x)
HDMI-COAST	B07b (1x)
HSYNC-HIRATE	B03g (1x)
HSYNC-HIRATE	B05a (1x)
HV-PRM-MAIN	B03a (1x)
HV-PRM-MAIN	B04a (1x)
I2C-SCL-TUNER-MAINNXT	B02a (1x)
I2C-SCL-TUNER-MAINNXT	B02b (1x)
I2C-SDA-TUNER-MAINNXT	B02a (1x)
I2C-SDA-TUNER-MAINNXT	B02b (1x)
I2S-BCLK-AVIP	B04a (1x)
I2S-BCLK-AVIP	B05c (1x)
I2S-BCLK-MAIN	B04a (1x)
I2S-BCLK-MAIN	B05c (1x)
I2S-BCLK-SUB	B04a (1x)
I2S-BCLK-SUB	B05c (1x)
I2S-MAIN-D	B04a (1x)
I2S-MAIN-D	B05c (1x)
I2S-MAIN-ND	B04a (1x)
I2S-MAIN-ND	B05c (1x)
I2S-MCH-CSW	B04a (1x)
I2S-MCH-CSW	B05c (1x)
I2S-MCH-LR	B04a (1x)
I2S-MCH-LR	B05c (1x)
I2S-MCH-SLR	B04a (1x)
I2S-MCH-SLR	B05c (1x)
I2S-SUB-D	B04a (1x)
I2S-SUB-D	B05c (1x)
I2S-SUB-ND	B04a (1x)
I2S-SUB-ND	B05c (1x)
I2S-WS-AVIP	B04a (1x)
I2S-WS-AVIP	B05c (1x)
I2S-WS-MAIN	B04a (1x)
I2S-WS-MAIN	B05c (1x)
I2S-WS-SUB	B04a (1x)
I2S-WS-SUB	B05c (1x)
IF-TER2	B02b (1x)
IF-TER2	B03c (1x)
IORD	B10a (2x)
IOWR	B10a (2x)
IRQ-AVIP	B04e (1x)
IRQ-AVIP	B05a (1x)
IRQ-AVIP-SUB	B04e (1x)
IRQ-AVIP-SUB	B05a (1x)
IRQ-ETHERNET	B05a (2x)
IRQ-ETHERNET	B09a (1x)
IRQ-FE-MAIN	B02a (1x)
IRQ-FE-MAIN	B05a (1x)
IRQ-HD1	B04e (1x)
IRQ-HD1	B05a (1x)
IRQ-HD2	B04e (1x)
IRQ-HD2	B05a (1x)
IRQ-HIRATE	B04e (1x)
IRQ-HIRATE	B05a (2x)
IRQ-HIRATE	B07b (1x)
IRQ-IEEE1394	B05a (2x)
IRQ-IEEE1394	B11a (1x)
IRQ-MAIN	B05a (2x)
IRQ-MPIF	B03b (1x)
IRQ-MPIF	B05a (1x)
IRQ-POD	B04e (1x)
IRQ-POD	B05a (2x)
IRQ-POD	B10a (1x)
IRQ-SUB	B05a (2x)
IRQ-USB20	B05a (2x)
IRQ-USB20	B08 (1x)
ITX_POD-A(5)	B10a (1x)
ITX_POD-A(5)	B10b (3x)
ITX-POD	B10b (1x)
JTAG-TCK	B04e (1x)
JTAG-TCK	B05a (2x)
JTAG-TCK	B06b (1x)
JTAG-TCK	B07b (1x)
JTAG-TCK	B10a (1x)
JTAG-TD-CON-VIPER	B05a (3x)
JTAG-TD-DVB-HDMI	B04e (1x)
JTAG-TD-DVB-HDMI	B07b (1x)
JTAG-TD-HDMI-POD	B07b (1x)
JTAG-TD-HDMI-POD	B10a (1x)
JTAG-TD-P3-CON	B05a (1x)
JTAG-TD-P3-CON	B06b (1x)
JTAG-TD-POD-P3	B06b (1x)
JTAG-TD-POD-P3	B10a (1x)
JTAG-TD-VIPER-PNX2015	B04e (1x)
JTAG-TD-VIPER-PNX2015	B05a (2x)
JTAG-TMS	B04e (1x)
JTAG-TMS	B05a (3x)
JTAG-TMS	B06b (1x)
JTAG-TMS	B07b (1x)
JTAG-TMS	B10a (1x)
JTAG-TRST	B01c (1x)
JTAG-TRST	B04e (1x)
JTAG-TRST	B05a (2x)
JTAG-TRST	B06b (1x)
JTAG-TRST	B07b (1x)
JTAG-TRST	B10a (1x)
KEYBOARD	B03f (2x)
KEYBOARD	B04e (2x)
LAMP-ON	B04e (2x)
LAMP-ON	B06a (1x)
LED1	B03f (2x)
LED1	B04e (1x)
LED1-3V3	B04e (3x)
LED2	B03g (1x)
LED2	B04e (1x)
LED2-3V3	B04e (3x)
LIGHT-ON-OUT	B05e (1x)
LIGHT-ON-OUT	B06a (1x)
LIGHT-SENSOR	B03g (1x)
LIGHT-SENSOR	B04e (1x)
LINKON	B11a (2x)
LVDS-3V3	B04f (3x)
M135-CLK	B05a (1x)
M135-CLK	B07b (1x)
M27-CLK	B04a (1x)
M27-CLK	B05a (1x)
M27-HIRATE	B04a (1x)
M27-HIRATE	B07b (1x)
M27-MOP	B04a (1x)
M27-PNX	B04a (1x)
M27-PNX	B04e (1x)
M27-POD	B04a (1x)
M27-POD	B10a (1x)
MDIA(0)	B10a (2x)
MDIA(1)	B10a (2x)
MDIA(2)	B10a (2x)
MDIA(3)	B10a (2x)
MDIA(4)	B10a (2x)
MDIA(5)	B10a (2x)
MDIA(6)	B10a (2x)
MDIA(7)	B10a (2x)
MDOA(0)	B10a (3x)
MDOA(1)	B10a (3x)
MDOA(2)	B10a (3x)
MDOA(3)	B10a (3x)
MDOA(4)	B10a (3x)
MDOA(5)	B10a (3x)
MDOA(6)	B10a (3x)
MDOA(7)	B10a (3x)
MICLKA	B10a (2x)
MISTRTA	B10a (2x)
MIVALA	B10a (2x)
MM_A0	B05b (3x)
MM_A1	B05b (3x)
MM_A10	B05b (3x)
MM_A11	B05b (3x)
MM_A12	B05b (3x)
MM_A2	B05b (3x)
MM_A3	B05b (3x)
MM_A4	B05b (3x)
MM_A5	B05b (3x)
MM_A6	B05b (3x)
MM_A7	B05b (3x)
MM_A8	B05b (3x)
MM_A9	B05b (3x)
MM_BA0	B05b (3x)
MM_BA1	B05b (3x)
MM_CAS	B05b (3x)
MM_CKE	B05b (3x)
MM_CLK_N	B05b (3x)
MM_CLK_P	B05b (3x)
MM_CS0	B05b (3x)
MM_DATA_0	B05b (2x)
MM_DATA_1	B05b (2x)
MM_DATA_10	B05b (2x)
MM_DATA_11	B05b (2x)
MM_DATA_12	B05b (2x)
MM_DATA_13	B05b (2x)
MM_DATA_14	B05b (2x)
MM_DATA_15	B05b (2x)
MM_DATA_16	B05b (2x)
MM_DATA_17	B05b (2x)
MM_DATA_18	B05b (2x)
MM_DATA_19	B05b (2x)
MM_DATA_2	B05b (2x)
MM_DATA_20	B05b (2x)
MM_DATA_21	B05b (2x)
MM_DATA_22	B05b (2x)
MM_DATA_23	B05b (2x)
MM_DATA_24	B05b (2x)
MM_DATA_25	B05b (2x)
MM_DATA_26	B05b (2x)
MM_DATA_27	B05b (2x)
MM_DATA_28	B05b (2x)
MM_DATA_29	B05b (2x)
MM_DATA_3	B05b (2x)
MM_DATA_30	B05b (2x)
MM_DATA_31	B05b (2x)
MM_DATA_4	B05b (2x)
MM_DATA_5	B05b (2x)
MM_DATA_6	B05b (2x)
MM_DATA_7	B05b (2x)
MM_DATA_8	B05b (2x)
MM_DATA_9	B05b (2x)
MM_DQM_0	B05b (2x)
MM_DQM_1	B05b (2x)
MM_DQM_2	B05b (2x)
MM_DQM_3	B05b (2x)
MM_DQS0	B05b (2x)
MM_DQS1	B05b (2x)
MM_DQS2	B05b (2x)
MM_DQS3	B05b (2x)
MM_RAS	B05b (3x)
MM_WE	B05b (3x)
MOCLKA	B10a (2x)
MOCLKA	B10b (1x)
MOCLKA-POD	B10a (1x)
MOCLKA-POD	B10b (1x)
MOSTRTA	B10a (3x)
MOVALA	B10a (3x)
MP-B0	B06a (1x)
MP-B0	B06b (1x)
MP-B1	B06a (1x)
MP-B1	B06b (1x)
MP-B2	B06a (1x)
MP-B2	B06b (1x)
MP-B3	B06a (1x)
MP-B3	B06b (1x)
MP-B4	B06a (1x)
MP-B4	B06b (1x)
MP-B5	B06a (1x)
MP-B5	B06b (1x)
MP-B6	B06a (1x)
MP-B6	B06b (1x)
MP-B7	B06a (1x)
MP-B7	B06b (1x)
MP-B8	B06a (1x)
MP-B8	B06b (1x)
MP-B9	B06a (1x)
MP-B9	B06b (1x)
MP-BOUT-0	B04b (1x)
MP-BOUT-0	B06a (1x)
MP-BOUT-1	B04b (1x)
MP-BOUT-1	B06a (1x)
MP-BOUT-2	B04b (1x)
MP-BOUT-2	B06a (1x)
MP-BOUT-3	B04b (1x)
MP-BOUT-3	B06a (1x)
MP-BOUT-4	B04b (1x)
MP-BOUT-4	B06a (1x)
MP-BOUT-5	B04b (1x)
MP-BOUT-5	B06a (1x)
MP-BOUT-6	B04b (1x)
MP-BOUT-6	B06a (1x)
MP-BOUT-7	B04b (1x)
MP-BOUT-7	B06a (1x)
MP-BOUT-8	B04b (1x)
MP-BOUT-8	B06a (1x)
MP-BOUT-9	B04b (1x)
MP-BOUT-9	B06a (1x)
MP-CLK	B06a (1x)
MP-CLK	B06b (1x)
MP-CLKOUT	B04b (1x)
MP-CLKOUT	B06a (1x)
MP-DE	B06a (1x)
MP-DE	B06b (1x)
MP-G0	B06a (1x)
MP-G0	B06b (1x)
MP-G1	B06a (1x)
MP-G1	B06b (2x)
MP-G2	B06a (1x)
MP-G2	B06b (2x)
MP-G3	B06a (1x)
MP-G3	B06b (1x)
MP-G4	B06a (1x)
MP-G4	B06b (1x)
MP-G5	B06a (1x)
MP-G5	B06b (1x)
MP-G6	B06a (1x)
MP-G6	B06b (2x)
MP-G7	B06a (1x)
MP-G7	B06b (2x)
MP-G8	B06a (1x)
MP-G8	B06b (2x)
MP-G9	B06a (1x)
MP-G9	B06b (1x)

G_15930_062.eps
130606

SSB: SRP List Part 2

Net Name	Diagram
MP-GOUT-0	B04b (1x)
MP-GOUT-0	B06a (1x)
MP-GOUT-1	B04b (1x)
MP-GOUT-1	B06a (1x)
MP-GOUT-2	B04b (1x)
MP-GOUT-2	B06a (1x)
MP-GOUT-3	B04b (1x)
MP-GOUT-3	B06a (1x)
MP-GOUT-4	B04b (1x)
MP-GOUT-4	B06a (1x)
MP-GOUT-5	B04b (1x)
MP-GOUT-5	B06a (1x)
MP-GOUT-6	B04b (1x)
MP-GOUT-6	B06a (1x)
MP-GOUT-7	B04b (1x)
MP-GOUT-7	B06a (1x)
MP-GOUT-8	B04b (1x)
MP-GOUT-8	B06a (1x)
MP-GOUT-9	B04b (1x)
MP-GOUT-9	B06a (1x)
MP-HS	B06a (1x)
MP-HS	B06b (1x)
MP-OUT-DE	B04b (1x)
MP-OUT-DE	B06a (1x)
MP-OUT-FFIELD	B04b (1x)
MP-OUT-FFIELD	B06a (1x)
MP-OUT-HS	B04b (1x)
MP-OUT-HS	B06a (1x)
MP-OUT-VS	B04b (1x)
MP-OUT-VS	B05e (1x)
MP-OUT-VS	B06a (1x)
MP-R0	B06a (1x)
MP-R0	B06b (1x)
MP-R1	B06a (1x)
MP-R1	B06b (1x)
MP-R2	B06a (1x)
MP-R2	B06b (1x)
MP-R3	B06a (1x)
MP-R3	B06b (1x)
MP-R4	B06a (1x)
MP-R4	B06b (1x)
MP-R5	B06a (1x)
MP-R5	B06b (1x)
MP-R6	B06a (1x)
MP-R6	B06b (1x)
MP-R7	B06a (1x)
MP-R7	B06b (1x)
MP-R8	B06a (1x)
MP-R8	B06b (1x)
MP-R9	B06a (1x)
MP-R9	B06b (1x)
MP-ROUT-0	B04b (1x)
MP-ROUT-0	B06a (1x)
MP-ROUT-1	B04b (1x)
MP-ROUT-1	B06a (1x)
MP-ROUT-2	B04b (1x)
MP-ROUT-2	B06a (1x)
MP-ROUT-3	B04b (1x)
MP-ROUT-3	B06a (1x)
MP-ROUT-4	B04b (1x)
MP-ROUT-4	B06a (1x)
MP-ROUT-5	B04b (1x)
MP-ROUT-5	B06a (1x)
MP-ROUT-6	B04b (1x)
MP-ROUT-6	B06a (1x)
MP-ROUT-7	B04b (1x)
MP-ROUT-7	B06a (1x)
MP-ROUT-8	B04b (1x)
MP-ROUT-8	B06a (1x)
MP-ROUT-9	B04b (1x)
MP-ROUT-9	B06a (1x)
MP-VS	B06a (1x)
MP-VS	B06b (1x)
NAND-AD0	B10d (3x)
NAND-AD1	B10d (3x)
NAND-AD2	B10d (3x)
NAND-AD3	B10d (2x)
NAND-AD4	B10d (3x)
NAND-AD5	B10d (2x)
NAND-AD6	B10d (3x)
NAND-AD7	B10d (3x)
OE	B10a (2x)
ON-MODE	B01b (1x)
ON-MODE	B04e (2x)
ON-MODE	B04g (1x)
ON-MODE	B12 (1x)
P50	B03g (1x)
P50	B04e (1x)
P50-HDMI	B04e (2x)
P50-HDMI	B07a (2x)
PARX0-	B07a (1x)
PARX0-	B07b (1x)
PARX0+	B07a (1x)
PARX0+	B07b (1x)
PARX1-	B07a (1x)
PARX1-	B07b (1x)
PARX1+	B07a (1x)
PARX1+	B07b (1x)
PARX2-	B07a (1x)
PARX2-	B07b (1x)
PARX2+	B07a (1x)
PARX2+	B07b (1x)
PARXC-	B07a (1x)
PARXC-	B07b (1x)
PARXC+	B07a (1x)
PARXC+	B07b (1x)
PARX-DDC-SCL	B07a (1x)
PARX-DDC-SCL	B07b (1x)
PARX-DDC-SDA	B07a (1x)
PARX-DDC-SDA	B07b (1x)
PBRX0-	B07a (1x)
PBRX0-	B07b (1x)
PBRX0+	B07a (1x)
PBRX0+	B07b (1x)
PBRX1-	B07a (1x)
PBRX1-	B07b (1x)
PBRX1+	B07a (1x)
PBRX1+	B07b (1x)
PBRX2-	B07a (1x)
PBRX2-	B07b (1x)
PBRX2+	B07a (1x)
PBRX2+	B07b (1x)
PBRXC-	B07a (1x)
PBRXC-	B07b (1x)
PBRXC+	B07a (1x)
PBRXC+	B07b (1x)
PBRX-DDC-SCL	B07a (1x)
PBRX-DDC-SCL	B07b (1x)
PBRX-DDC-SDA	B07a (1x)
PBRX-DDC-SDA	B07b (1x)
PCI-AD0	B05a (1x)
PCI-AD0	B08 (1x)
PCI-AD0	B09a (1x)
PCI-AD0	B11b (2x)
PCI-AD1	B05a (1x)
PCI-AD1	B08 (1x)
PCI-AD1	B09a (1x)
PCI-AD1	B11b (2x)
PCI-AD10	B05a (1x)
PCI-AD10	B08 (1x)
PCI-AD10	B09a (1x)
PCI-AD10	B11b (2x)
PCI-AD11	B05a (1x)
PCI-AD11	B08 (1x)
PCI-AD11	B09a (1x)
PCI-AD11	B11b (2x)
PCI-AD12	B05a (1x)
PCI-AD12	B08 (1x)
PCI-AD12	B09a (1x)
PCI-AD12	B11b (2x)
PCI-AD13	B05a (1x)
PCI-AD13	B08 (1x)
PCI-AD13	B09a (1x)
PCI-AD13	B11b (2x)
PCI-AD14	B05a (1x)
PCI-AD14	B08 (1x)
PCI-AD14	B09a (1x)
PCI-AD14	B11b (2x)
PCI-AD15	B05a (1x)
PCI-AD15	B08 (1x)
PCI-AD15	B09a (1x)
PCI-AD15	B11b (2x)
PCI-AD16	B05a (2x)
PCI-AD16	B08 (1x)
PCI-AD16	B09a (1x)
PCI-AD16	B11b (2x)
PCI-AD17	B05a (1x)
PCI-AD17	B08 (1x)
PCI-AD17	B09a (1x)
PCI-AD17	B11b (2x)
PCI-AD18	B05a (1x)
PCI-AD18	B08 (1x)
PCI-AD18	B09a (1x)
PCI-AD18	B11b (2x)
PCI-AD19	B05a (1x)
PCI-AD19	B08 (1x)
PCI-AD19	B09a (1x)
PCI-AD19	B11b (2x)
PCI-AD2	B05a (1x)
PCI-AD2	B08 (1x)
PCI-AD2	B09a (1x)
PCI-AD2	B11b (1x)
PCI-AD20	B05a (1x)
PCI-AD20	B08 (1x)
PCI-AD20	B09a (1x)
PCI-AD20	B11b (2x)
PCI-AD21	B05a (1x)
PCI-AD21	B08 (1x)
PCI-AD21	B09a (1x)
PCI-AD21	B11b (2x)
PCI-AD22	B05a (1x)
PCI-AD22	B08 (2x)
PCI-AD22	B09a (1x)
PCI-AD22	B11b (2x)
PCI-AD23	B05a (1x)
PCI-AD23	B08 (1x)
PCI-AD23	B09a (2x)
PCI-AD23	B11b (2x)
PCI-AD24	B05a (1x)
PCI-AD24	B08 (1x)
PCI-AD24	B09a (1x)
PCI-AD24	B10c (1x)
PCI-AD24	B10d (1x)
PCI-AD24	B11b (2x)
PCI-AD25	B05a (1x)
PCI-AD25	B08 (1x)
PCI-AD25	B09a (1x)
PCI-AD25	B10c (1x)
PCI-AD25	B10d (1x)
PCI-AD25	B11b (2x)
PCI-AD26	B05a (1x)
PCI-AD26	B08 (1x)
PCI-AD26	B09a (1x)
PCI-AD26	B10c (1x)
PCI-AD26	B10d (1x)
PCI-AD26	B11b (2x)
PCI-AD27	B05a (1x)
PCI-AD27	B08 (1x)
PCI-AD27	B09a (1x)
PCI-AD27	B10c (1x)
PCI-AD27	B10d (1x)
PCI-AD27	B11b (2x)
PCI-AD28	B05a (1x)
PCI-AD28	B08 (1x)
PCI-AD28	B09a (1x)
PCI-AD28	B10c (1x)
PCI-AD28	B10d (1x)
PCI-AD28	B11b (2x)
PCI-AD29	B05a (1x)
PCI-AD29	B08 (1x)
PCI-AD29	B09a (1x)
PCI-AD29	B10c (1x)
PCI-AD29	B10d (1x)
PCI-AD29	B11b (2x)
PCI-AD3	B05a (1x)
PCI-AD3	B08 (1x)
PCI-AD3	B09a (1x)
PCI-AD3	B11b (1x)
PCI-AD30	B05a (1x)
PCI-AD30	B08 (1x)
PCI-AD30	B09a (1x)
PCI-AD30	B10c (1x)
PCI-AD30	B10d (1x)
PCI-AD30	B11b (2x)
PCI-AD31	B05a (1x)
PCI-AD31	B08 (1x)
PCI-AD31	B09a (1x)
PCI-AD31	B10c (1x)
PCI-AD31	B10d (1x)
PCI-AD31	B11b (2x)
PCI-AD4	B05a (1x)
PCI-AD4	B08 (1x)
PCI-AD4	B09a (1x)
PCI-AD4	B11b (1x)
PCI-AD5	B05a (1x)
PCI-AD5	B08 (1x)
PCI-AD5	B09a (1x)
PCI-AD5	B11b (1x)
PCI-AD6	B05a (1x)
PCI-AD6	B08 (1x)
PCI-AD6	B09a (1x)
PCI-AD6	B11b (1x)
PCI-AD7	B05a (1x)
PCI-AD7	B08 (1x)
PCI-AD7	B09a (1x)
PCI-AD7	B11b (1x)
PCI-AD8	B05a (1x)
PCI-AD8	B08 (1x)
PCI-AD8	B09a (1x)
PCI-AD8	B11b (1x)
PCI-AD9	B05a (1x)
PCI-AD9	B08 (1x)
PCI-AD9	B09a (1x)
PCI-AD9	B11b (1x)
PCI-CBE0	B05a (1x)
PCI-CBE0	B08 (1x)
PCI-CBE0	B09a (1x)
PCI-CBE1	B05a (1x)
PCI-CBE1	B08 (1x)
PCI-CBE1	B09a (1x)
PCI-CBE1	B11b (2x)
PCI-CBE2	B05a (1x)
PCI-CBE2	B08 (1x)
PCI-CBE2	B09a (1x)
PCI-CBE2	B11b (2x)
PCI-CBE3	B05a (1x)
PCI-CBE3	B08 (1x)
PCI-CBE3	B09a (1x)
PCI-CLK-ETHERNET	B05a (1x)
PCI-CLK-ETHERNET	B09a (1x)
PCI-CLK-USB20	B05a (1x)
PCI-CLK-USB20	B08 (1x)
PCI-CLK-VPR	B05a (2x)
PCI-DEVSEL	B05a (1x)
PCI-DEVSEL	B08 (1x)
PCI-DEVSEL	B09a (1x)
PCI-FRAME	B05a (1x)
PCI-FRAME	B08 (1x)
PCI-FRAME	B09a (1x)
PCI-GNT	B05a (2x)
PCI-GNT	B08 (2x)
PCI-GNT-A	B05a (1x)
PCI-GNT-A	B09a (2x)
PCI-INTA	B05a (2x)
PCI-IRDY	B05a (1x)
PCI-IRDY	B08 (1x)
PCI-IRDY	B09a (1x)
PCI-PAR	B05a (1x)
PCI-PAR	B08 (1x)
PCI-PAR	B09a (1x)
PCI-PERR	B05a (1x)
PCI-PERR	B08 (1x)
PCI-PERR	B09a (1x)
PCI-REQ	B05a (2x)
PCI-REQ	B08 (1x)
PCI-REQ-A	B05a (2x)
PCI-REQ-A	B09a (1x)
PCI-REQ-B	B05a (2x)
PCI-REQ-B	B10a (1x)
PCI-SERR	B05a (1x)
PCI-SERR	B08 (1x)
PCI-SERR	B09a (1x)
PCI-STOP	B05a (1x)
PCI-STOP	B08 (1x)
PCI-STOP	B09a (1x)
PCI-TRDY	B05a (1x)
PCI-TRDY	B08 (1x)
PCI-TRDY	B09a (1x)
PDIR	B10a (1x)
PDIR	B10b (2x)
PDOE	B10a (1x)
PDOE	B10b (1x)
PHY-D(0)	B11a (2x)
PHY-D(1)	B11a (2x)
PHY-D(2)	B11a (2x)
PHY-D(3)	B11a (2x)
PHY-D(4)	B11a (2x)
PHY-D(5)	B11a (2x)
PHY-D(6)	B11a (2x)
PHY-D(7)	B11a (2x)
PLL-1V2	B04f (2x)
PLL-3V3	B04f (2x)
PLL-OUT	B05a (4x)
PNX-MA-0	B04d (2x)
PNX-MA-1	B04d (2x)
PNX-MA-10	B04d (2x)
PNX-MA-11	B04d (2x)
PNX-MA-12	B04d (2x)
PNX-MA-2	B04d (2x)
PNX-MA-3	B04d (2x)
PNX-MA-4	B04d (2x)
PNX-MA-5	B04d (2x)
PNX-MA-6	B04d (2x)
PNX-MA-7	B04d (2x)
PNX-MA-8	B04d (2x)
PNX-MA-9	B04d (2x)
PNX-MBA0	B04d (2x)
PNX-MBA1	B04d (2x)
PNX-MCAS	B04d (2x)
PNX-MCKE	B04d (2x)
PNX-MCLK-N	B04d (2x)
PNX-MCLK-P	B04d (2x)
PNX-MCS-0	B04d (2x)
PNX-MDATA-0	B04d (2x)
PNX-MDATA-1	B04d (2x)
PNX-MDATA-10	B04d (2x)
PNX-MDATA-11	B04d (2x)
PNX-MDATA-12	B04d (2x)
PNX-MDATA-13	B04d (2x)
PNX-MDATA-14	B04d (2x)
PNX-MDATA-15	B04d (2x)
PNX-MDATA-2	B04d (2x)
PNX-MDATA-3	B04d (2x)
PNX-MDATA-4	B04d (2x)
PNX-MDATA-5	B04d (2x)
PNX-MDATA-6	B04d (2x)
PNX-MDATA-7	B04d (2x)
PNX-MDATA-8	B04d (2x)
PNX-MDATA-9	B04d (2x)
PNX-MDQM-0	B04d (2x)
PNX-MDQM-1	B04d (2x)
PNX-MDQS-0	B04d (2x)
PNX-MDQS-1	B04d (2x)
PNX-MRAS	B04d (2x)
PNX-MWE	B04d (2x)
POD-A(0)	B10a (1x)
POD-A(0)	B10c (1x)
POD-A(1)	B10a (1x)
POD-A(1)	B10c (1x)
POD-A(10)	B10a (1x)
POD-A(10)	B10c (1x)
POD-A(11)	B10a (1x)
POD-A(11)	B10c (1x)
POD-A(12)	B10a (1x)
POD-A(12)	B10c (1x)
POD-A(13)	B10a (1x)
POD-A(13)	B10c (1x)
POD-A(2)	B10a (1x)
POD-A(2)	B10c (1x)
POD-A(3)	B10a (1x)
POD-A(3)	B10c (1x)
POD-A(4)	B10b (2x)
POD-A(4)	B10c (1x)
POD-A(5)	B10b (2x)
POD-A(5)	B10c (1x)
POD-A(6)	B10b (2x)
POD-A(6)	B10c (1x)
POD-A(7)	B10b (2x)
POD-A(7)	B10c (1x)
POD-A(8)	B10b (2x)
POD-A(8)	B10c (1x)
POD-A(9)	B10b (2x)
POD-A(9)	B10c (1x)
POD-CLK	B10a (1x)
POD-CLK	B10c (1x)
POD-D(0)	B10a (1x)
POD-D(0)	B10c (1x)
POD-D(1)	B10a (1x)
POD-D(1)	B10c (1x)
POD-D(2)	B10a (1x)
POD-D(2)	B10c (1x)
POD-D(3)	B10a (1x)
POD-D(3)	B10c (1x)
POD-D(4)	B10a (1x)
POD-D(4)	B10c (1x)
POD-D(5)	B10a (1x)
POD-D(5)	B10c (1x)
POD-D(6)	B10a (1x)
POD-D(6)	B10c (1x)
POD-D(7)	B10a (1x)
POD-D(7)	B10c (1x)
POD-DATA0	B10a (1x)
POD-DATA0	B10c (1x)
POD-DATA1	B10a (1x)
POD-DATA1	B10c (1x)
POD-DATA2	B10a (1x)
POD-DATA2	B10c (1x)
POD-DATA3	B10a (1x)
POD-DATA3	B10c (1x)
POD-DATA4	B10a (1x)
POD-DATA4	B10c (1x)
POD-DATA5	B10a (1x)
POD-DATA5	B10c (1x)
POD-DATA6	B10a (1x)
POD-DATA6	B10c (1x)
POD-DATA7	B10a (1x)
POD-DATA7	B10c (1x)
POD-MODE	B01a (1x)
POD-MODE	B04e (2x)
POD-MODE	B04g (1x)
POD-MODE	B12 (1x)
POD-SOP	B10a (1x)
POD-SOP	B10c (1x)
POD-VALID	B10a (1x)
POD-VALID	B10c (1x)
POD-VCC	B10a (3x)
POD-VPP	B10a (3x)
POWERDOWN-1394	B05a (1x)
POWERDOWN-1394	B07b (1x)
POWERDOWN-1394	B11a (1x)
POWER-OK-DISPLAY	B04e (1x)
POWER-OK-DISPLAY	B05e (1x)
POWER-OK-DISPLAY-3V3	B04e (1x)
POWER-OK-PLATFORM	B05a (1x)
POWER-OK-PLATFORM	B05e (1x)
POWER-OK-PLATFORM-3V3	B04e (2x)
POWER-OK-PLATFORM-3V3	B05a (2x)
PROT-AUDIOSUPPLY	B03e (1x)
PROT-AUDIOSUPPLY	B03g (1x)
PROT-AUDIOSUPPLY	B04e (2x)
PROT-AUDIOSUPPLY	B05e (1x)
PSEN	B04e (2x)
PWM-3	B06b (2x)
PWM-OR	B06b (2x)
QTX_POD-A(7)	B10a (1x)
QTX_POD-A(7)	B10b (3x)
QTX-POD	B10b (1x)
RC	B03f (2x)
RC	B04e (2x)
RDY_IRQA	B10a (3x)
REG	B10a (2x)
REGIMBEAU	B03f (1x)
REGIMBEAU	B05a (2x)
REGIMBEAU-AV6-VSYNC	B03f (2x)
RESET-1394	B05a (1x)
RESET-1394	B11a (2x)
RESET-AUDIO	B04a (1x)
RESET-AUDIO	B04e (2x)
RESET-ETHERNET	B05a (1x)
RESET-ETHERNET	B09a (2x)
RESET-FE-MAIN	B02a (1x)
RESET-FE-MAIN	B05a (2x)
RESET-MAIN-NVM	B04e (2x)
RESET-MAIN-NVM	B10d (1x)
RESET-MIPS	B04e (3x)
RESET-MIPS	B05a (1x)
RESET-PNX2015	B04e (3x)
RESET-POD-CI	B05a (1x)
RESET-POD-CI	B10a (1x)
RESET-STBY	B04e (1x)
RESET-STBY	B12 (1x)
RESET-SYSTEM	B01c (1x)
RESET-SYSTEM	B04e (2x)
RESET-SYSTEM	B05a (1x)
RESET-USB20	B05a (1x)
RESET-USB20	B08 (2x)
RSTA	B10a (2x)
RXD	B01c (1x)
RXD	B09b (1x)
RXD	B10d (2x)
RXD-UP	B04e (1x)
RXD-UP	B10d (1x)
RXD-VIPER	B05a (1x)
RXD-VIPER	B10d (2x)
SCL-AMBI	B05e (1x)
SCL-AMBI	B06b (1x)
SCL-DMA	B05a (3x)
SCL-DMA-BUS1	B05a (1x)
SCL-DMA-BUS1	B06b (1x)
SCL-DMA-BUS1	B11a (1x)
SCL-DMA-BUS1	B12 (1x)
SCL-DMA-BUS1-ATSC	B02a (1x)
SCL-DMA-BUS1-ATSC	B12 (1x)
SCL-DMA-BUS2	B03b (1x)
SCL-DMA-BUS2	B04e (3x)
SCL-DMA-BUS2	B05a (1x)
SCL-I2C4	B04g (1x)
SCL-I2C4	B05a (3x)
SCL-I2C4	B05e (1x)
SCL-I2C4-DISP	B04g (2x)
SCL-MM	B05a (2x)
SCL-MM-BUS1	B05a (1x)
SCL-MM-BUS1	B07b (1x)
SCL-MM-BUS1	B10a (1x)
SCL-MM-BUS1_MPIF	B03g (1x)
SCL-MM-BUS1_MPIF	B07b (1x)
SCL-UP-VIP	B04e (2x)
SCL-UP-VIP	B05a (1x)
SCL-UP-VIP	B10d (2x)
SDA-AMBI	B05e (1x)
SDA-AMBI	B06b (1x)
SDA-DMA	B05a (3x)
SDA-DMA-BUS1	B05a (1x)
SDA-DMA-BUS1	B06b (1x)
SDA-DMA-BUS1	B11a (1x)
SDA-DMA-BUS1	B12 (1x)
SDA-DMA-BUS1-ATSC	B02a (1x)
SDA-DMA-BUS1-ATSC	B12 (1x)
SDA-DMA-BUS2	B03b (1x)
SDA-DMA-BUS2	B04e (3x)
SDA-DMA-BUS2	B05a (1x)
SDA-I2C4	B04g (1x)
SDA-I2C4	B05a (3x)
SDA-I2C4	B05e (1x)
SDA-I2C4-DISP	B04g (2x)
SDA-MM	B05a (2x)
SDA-MM-BUS1	B05a (1x)
SDA-MM-BUS1	B07b (1x)
SDA-MM-BUS1	B10a (1x)
SDA-MM-BUS1_MPIF	B03g (1x)
SDA-MM-BUS1_MPIF	B07b (1x)
SDA-UP-VIP	B04e (2x)
SDA-UP-VIP	B05a (1x)
SDA-UP-VIP	B10d (2x)
SDM	B03b (1x)
SDM	B04e (1x)
SEL-IF-LL1	B05a (1x)
SEL-IF-LL2	B03c (1x)
SEL-IF-LL2	B05a (1x)
SEL-POD	B02a (1x)
SEL-POD	B10c (2x)
SOUND-ENABLE	B03g (1x)
SOUND-ENABLE	B05a (1x)
SOUND-ENABLE-VPR	B05a (2x)
SPDIF-HDMI	B05c (1x)
SPDIF-HDMI	B07b (1x)
SPDIF-IN1	B03e (1x)
SPDIF-IN1	B05c (1x)
SPDIF-OUT1	B03e (1x)
SPDIF-OUT1	B05c (1x)
SPI-1	B03e (1x)
SPI-1	B03g (1x)
SPI-CLK	B04e (2x)
SPI-CSB	B04e (2x)
SPI-OUT	B03e (1x)
SPI-OUT	B03g (1x)
SPI-PROG	B03b (1x)
SPI-PROG	B04e (2x)
SPI-SDI	B04e (2x)
SPI-SDO	B04e (2x)
SPI-WP	B04e (3x)
STANDBY	B05e (1x)
STANDBY	B12 (1x)
STBY-WP-NAND-FLASH	B04e (2x)
STBY-WP-NAND-FLASH	B10d (1x)
STROBE1N-MAIN	B03a (1x)
STROBE1N-MAIN	B04a (1x)
STROBE1P-MAIN	B03a (1x)
STROBE1P-MAIN	B04a (1x)
STROBE2N-MAIN	B03a (1x)
STROBE2N-MAIN	B04a (1x)
STROBE2P-MAIN	B03a (1x)
STROBE2P-MAIN	B04a (1x)
STROBE3N-MAIN	B03a (1x)
STROBE3N-MAIN	B04a (1x)
STROBE3P-MAIN	B03a (1x)
STROBE3P-MAIN	B04a (1x)
SUPPLY-FAULT	B01a (1x)
SUPPLY-FAULT	B04e (2x)
SUPPLY-FAULT	B05e (1x)
SUPPLY-FAULT	B10a (1x)
TEMP-SENSOR	B04e (2x)
TS-CLK	B05c (1x)
TS-CLK	B11a (1x)
TS-DATA0	B05c (1x)
TS-DATA0	B11a (1x)
TS-DATA1	B05c (1x)
TS-DATA1	B11a (1x)
TS-DATA2	B05c (1x)
TS-DATA2	B11a (1x)
TS-DATA3	B05c (1x)
TS-DATA3	B11a (1x)
TS-DATA4	B05c (1x)
TS-DATA4	B11a (1x)
TS-DATA5	B05c (1x)
TS-DATA5	B11a (1x)
TS-DATA6	B05c (1x)
TS-DATA6	B11a (1x)
TS-DATA7	B05c (1x)
TS-DATA7	B11a (1x)
TS-SOP	B05c (1x)
TS-SOP	B11a (1x)
TS-VALID	B05c (1x)
TS-VALID	B11a (1x)
TUNERAGC-MON	B02a (1x)
TUNERAGC-MON	B02b (1x)
TUN-VIPER-RX-BUSY	B04c (1x)
TUN-VIPER-RX-BUSY	B05c (1x)
TUN-VIPER-RX-CLKN	B04c (1x)
TUN-VIPER-RX-CLKN	B05c (1x)
TUN-VIPER-RX-CLKP	B04c (1x)
TUN-VIPER-RX-CLKP	B05c (1x)
TUN-VIPER-RX-DATA0	B04c (1x)
TUN-VIPER-RX-DATA0	B05c (1x)
TUN-VIPER-RX-DATA1	B04c (1x)
TUN-VIPER-RX-DATA1	B05c (1x)
TUN-VIPER-RX-DATA10	B04c (1x)
TUN-VIPER-RX-DATA10	B05c (1x)
TUN-VIPER-RX-DATA11	B04c (1x)
TUN-VIPER-RX-DATA11	B05c (1x)
TUN-VIPER-RX-DATA12	B04c (1x)
TUN-VIPER-RX-DATA12	B05c (1x)
TUN-VIPER-RX-DATA13	B04c (1x)
TUN-VIPER-RX-DATA13	B05c (1x)
TUN-VIPER-RX-DATA14	B04c (1x)
TUN-VIPER-RX-DATA14	B05c (1x)
TUN-VIPER-RX-DATA15	B04c (1x)
TUN-VIPER-RX-DATA15	B05c (1x)
TUN-VIPER-RX-DATA2	B04c (1x)
TUN-VIPER-RX-DATA2	B05c (1x)
TUN-VIPER-RX-DATA3	B04c (1x)
TUN-VIPER-RX-DATA3	B05c (1x)
TUN-VIPER-RX-DATA4	B04c (1x)
TUN-VIPER-RX-DATA4	B05c (1x)
TUN-VIPER-RX-DATA5	B04c (1x)
TUN-VIPER-RX-DATA5	B05c (1x)
TUN-VIPER-RX-DATA6	B04c (1x)
TUN-VIPER-RX-DATA6	B05c (1x)
TUN-VIPER-RX-DATA7	B04c (1x)
TUN-VIPER-RX-DATA7	B05c (1x)
TUN-VIPER-RX-DATA8	B04c (1x)
TUN-VIPER-RX-DATA8	B05c (1x)
TUN-VIPER-RX-DATA9	B04c (1x)
TUN-VIPER-RX-DATA9	B05c (1x)
TUN-VIPER-TX-BUSY	B04c (1x)
TUN-VIPER-TX-BUSY	B05c (1x)
TUN-VIPER-TX-CLKN	B04c (1x)
TUN-VIPER-TX-CLKN	B05c (1x)
TUN-VIPER-TX-CLKP	B04c (1x)
TUN-VIPER-TX-CLKP	B05c (1x)
TUN-VIPER-TX-DATA0	B04c (1x)
TUN-VIPER-TX-DATA0	B05c (1x)
TUN-VIPER-TX-DATA1	B04c (1x)
TUN-VIPER-TX-DATA1	B05c (1x)
TUN-VIPER-TX-DATA10	B04c (1x)
TUN-VIPER-TX-DATA10	B05c (1x)
TUN-VIPER-TX-DATA11	B04c (1x)
TUN-VIPER-TX-DATA11	B05c (1x)
TUN-VIPER-TX-DATA12	B04c (1x)
TUN-VIPER-TX-DATA12	B05c (1x)
TUN-VIPER-TX-DATA13	B04c (1x)
TUN-VIPER-TX-DATA13	B05c (1x)
TUN-VIPER-TX-DATA14	B04c (1x)
TUN-VIPER-TX-DATA14	B05c (1x)
TUN-VIPER-TX-DATA15	B04c (1x)
TUN-VIPER-TX-DATA15	B05c (1x)
TUN-VIPER-TX-DATA2	B04c (1x)
TUN-VIPER-TX-DATA2	B05c (1x)
TUN-VIPER-TX-DATA3	B04c (1x)
TUN-VIPER-TX-DATA3	B05c (1x)
TUN-VIPER-TX-DATA4	B04c (1x)
TUN-VIPER-TX-DATA4	B05c (1x)
TUN-VIPER-TX-DATA5	B04c (1x)
TUN-VIPER-TX-DATA5	B05c (1x)
TUN-VIPER-TX-DATA6	B04c (1x)
TUN-VIPER-TX-DATA6	B05c (1x)
TUN-VIPER-TX-DATA7	B04c (1x)
TUN-VIPER-TX-DATA7	B05c (1x)
TUN-VIPER-TX-DATA8	B04c (1x)
TUN-VIPER-TX-DATA8	B05c (1x)
TUN-VIPER-TX-DATA9	B04c (1x)
TUN-VIPER-TX-DATA9	B05c (1x)
TXD	B01c (1x)
TXD	B09b (1x)
TXD	B10d (2x)
TXD-UP	B04e (1x)
TXD-UP	B10d (1x)
TXD-VIPER	B05a (1x)
TXD-VIPER	B10d (2x)
TXPNXA-	B04b (1x)
TXPNXA-	B04g (1x)
TXPNXA+	B04b (1x)
TXPNXA+	B04g (1x)
TXPNXB-	B04b (1x)
TXPNXB-	B04g (1x)
TXPNXB+	B04b (1x)
TXPNXB+	B04g (1x)
TXPNXC-	B04b (1x)
TXPNXC-	B04g (1x)
TXPNXC+	B04b (1x)
TXPNXC+	B04g (1x)
TXPNXCLK-	B04b (1x)
TXPNXCLK-	B04g (1x)
TXPNXCLK+	B04b (1x)
TXPNXCLK+	B04g (1x)
TXPNXD-	B04b (1x)
TXPNXD-	B04g (1x)
TXPNXD+	B04b (1x)
TXPNXD+	B04g (1x)
TXPNXE-	B04b (1x)
TXPNXE-	B04g (1x)
TXPNXE+	B04b (1x)
TXPNXE+	B04g (1x)
UART-SWITCH	B04e (2x)
UART-SWITCH	B10d (1x)
UART-SWITCHn	B10d (2x)
UP-3V3	B04f (2x)
USB1-DM	B05a (2x)
USB1-DP	B05a (2x)
USB20-DM1	B08 (2x)
USB20-DP1	B08 (2x)
USB20-OC1	B05a (1x)
USB20-OC1	B08 (2x)
USB20-OC2	B08 (2x)
USB20-PWE1	B05a (1x)
USB20-PWE1	B08 (1x)
USB2-DM	B05a (2x)
USB2-DP	B05a (2x)
USB-BUS-PW	B05a (3x)
USB-OVERCUR	B05a (3x)
VCC_EXTO	B10a (7x)
VCCEN	B10a (2x)
VDISP	B04g (2x)
VDISP2	B04g (2x)
VISUAL-CHECK	B03c (1x)
VPPEN	B10a (2x)
VREF-AUD	B03e (1x)
VREF-AUD-POS	B03b (1x)
VREF-AUD-POS	B04a (1x)
VREFD-DDR	B05b (3x)
VREF-DEFL	B03b (1x)
VREF-PNX	B04c (2x)
VREF-PNX	B04d (2x)
VREF-VPR	B05c (2x)
VREF-VPRDDR	B05b (1x)
VS1	B10a (3x)
VS2	B10a (2x)
VS2	B10b (1x)
VS2_MOCLKA-CI	B10a (1x)
VS2_MOCLKA-CI	B10b (1x)
VSW	B01a (1x)
VSW	B01b (1x)
VSYNC-HIRATE	B05a (1x)
VSYNC-HIRATE	B07a (2x)
VSYNC-HIRATE	B07b (1x)
WAITA	B10a (3x)
WE	B10a (2x)
XIO-A0_CLE	B10c (1x)
XIO-A0_CLE	B10d (1x)
XIO-A0_CLE	B11b (2x)
XIO-A1_ALE	B10c (1x)
XIO-A1_ALE	B10d (1x)
XIO-A1_ALE	B11a (2x)
XIO-A1_ALE	B11b (2x)
XIO-A10	B10c (1x)
XIO-A10	B11a (1x)
XIO-A10	B11b (2x)
XIO-A11	B10c (1x)
XIO-A11	B11a (1x)
XIO-A11	B11b (2x)
XIO-A12	B10c (1x)
XIO-A12	B11a (1x)
XIO-A12	B11b (2x)
XIO-A13	B10c (1x)
XIO-A13	B11a (1x)
XIO-A13	B11b (2x)
XIO-A14	B11a (1x)
XIO-A14	B11b (2x)
XIO-A15	B11a (1x)
XIO-A15	B11b (2x)
XIO-A16_D8	B10d (1x)
XIO-A16_D8	B11b (2x)
XIO-A17_D9	B10d (1x)
XIO-A17_D9	B11b (2x)
XIO-A18_D10	B10d (1x)
XIO-A18_D10	B11b (2x)
XIO-A19_D11	B10d (1x)
XIO-A19_D11	B11b (2x)
XIO-A2	B10c (1x)
XIO-A2	B11b (1x)
XIO-A20_D12	B10d (1x)
XIO-A20_D12	B11b (2x)
XIO-A21_D13	B10d (1x)
XIO-A21_D13	B11b (2x)
XIO-A22_D14	B10d (1x)
XIO-A22_D14	B11b (2x)
XIO-A23_D15	B10d (1x)
XIO-A23_D15	B11b (2x)
XIO-A3	B10c (1x)
XIO-A3	B11b (1x)
XIO-A4	B10c (1x)
XIO-A4	B11b (1x)
XIO-A5	B10c (1x)
XIO-A5	B11b (1x)
XIO-A6	B10c (1x)
XIO-A6	B11b (1x)
XIO-A7	B10c (1x)
XIO-A7	B11b (1x)
XIO-A8	B10c (1x)
XIO-A8	B11b (1x)
XIO-A9	B10c (1x)
XIO-A9	B11b (1x)
XIO-ACK	B05a (1x)
XIO-ACK	B10d (2x)
XIO-AS_REn	B10a (1x)
XIO-AS_REn	B10d (2x)
XIO-AS_REn	B11a (1x)
XIO-AS_REn	B11b (1x)
XIO-D0	B11a (1x)
XIO-D0	B11b (2x)
XIO-D1	B11a (1x)
XIO-D1	B11b (2x)
XIO-D10	B05a (1x)
XIO-D10	B11a (1x)
XIO-D11	B05a (1x)
XIO-D11	B11a (1x)
XIO-D12	B05a (1x)
XIO-D12	B11a (1x)
XIO-D13	B05a (1x)
XIO-D13	B11a (1x)
XIO-D14	B05a (1x)
XIO-D14	B11a (1x)
XIO-D15	B05a (1x)
XIO-D15	B11a (1x)
XIO-D2	B11a (1x)
XIO-D2	B11b (2x)
XIO-D3	B11a (1x)
XIO-D3	B11b (2x)
XIO-D4	B11a (1x)
XIO-D4	B11b (2x)
XIO-D5	B11a (1x)
XIO-D5	B11b (2x)
XIO-D6	B11a (1x)
XIO-D6	B11b (2x)
XIO-D7	B11a (1x)
XIO-D7	B11b (2x)
XIO-D8	B05a (1x)
XIO-D8	B11a (1x)
XIO-D9	B05a (1x)
XIO-D9	B11a (1x)
XIO-RWn_WEn	B10a (1x)
XIO-RWn_WEn	B10d (1x)
XIO-RWn_WEn	B11a (2x)
XIO-RWn_WEn	B11b (1x)
XIO-SEL0	B05a (2x)
XIO-SEL0	B10d (3x)
XIO-SEL0	B11b (1x)
XIO-SEL1	B05a (1x)
XIO-SEL1	B11a (1x)
XIO-SEL1	B11b (1x)
XIO-SEL2	B05a (1x)
XIO-SEL2	B10a (1x)
Y-CVBS-MON-OUT	B03b (1x)
Y-CVBS-MON-OUT	B03f (2x)

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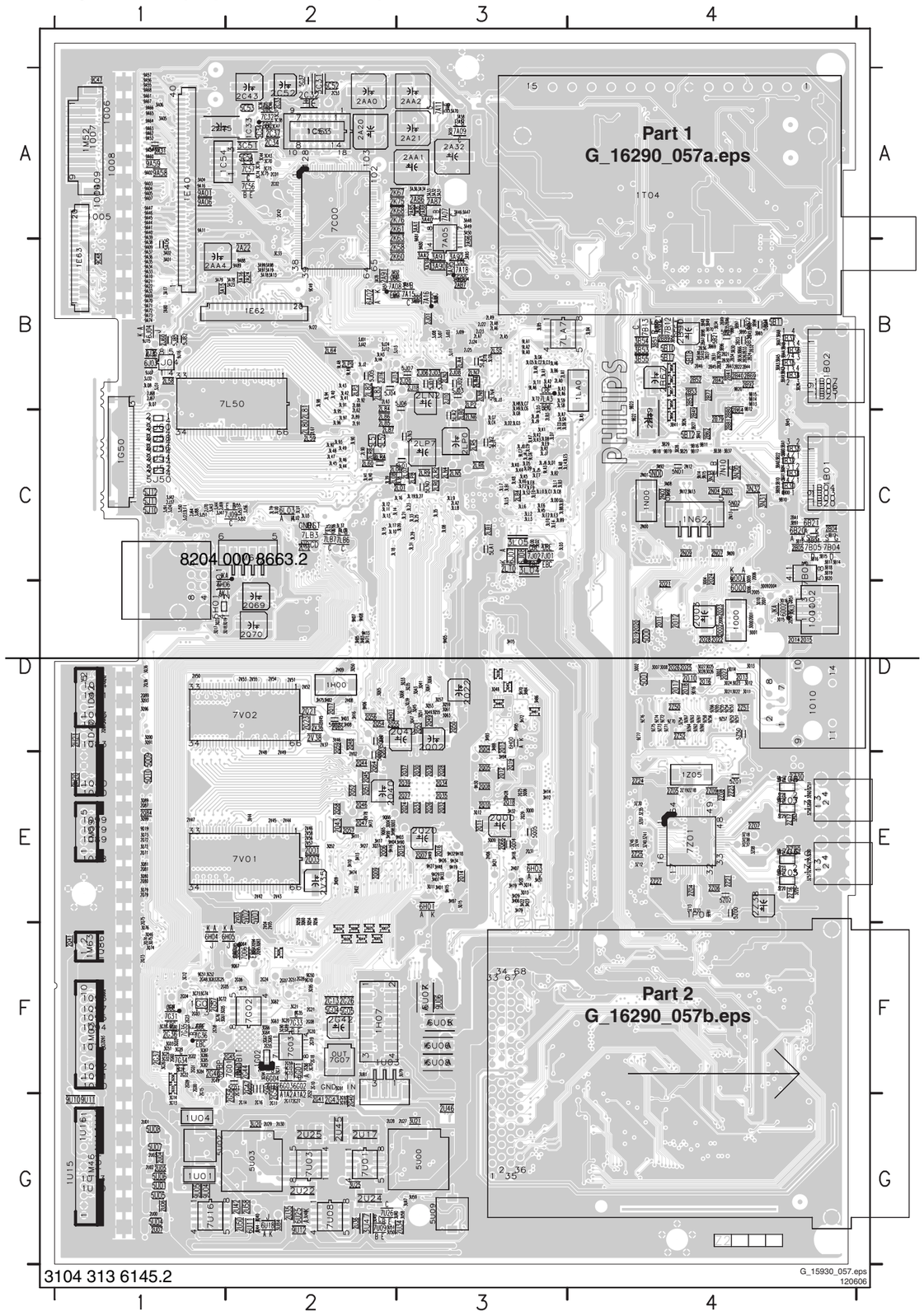
Layout SSB (Top Side Overview)



1B01 C4	2C02 A2	2L83 B2	2Q27 E3	2Z17 E4	3B70 B4	3H72 D3	3LB9 C3	3O08 D4	3Z07 E4	5Z00 E4	9A55 A1	9Z72 D4				
1B02 B4	2C32 A2	2L84 B2	2Q28 E3	2Z18 E4	3B91 C4	3H73 E2	3LC0 C3	3O09 D4	3Z08 E4	5Z01 E4	9A56 A1	9Z73 D4				
1B30 C4	2C33 A2	2L85 C2	2Q29 E3	2Z19 E4	3B94 B4	3H74 E2	3LC1 C3	3O10 D4	3Z12 E4	5Z02 E4	9A57 A1	9Z74 D4				
1B31 C4	2C34 A2	2L86 C2	2Q30 E3	2Z21 E4	3B95 B4	3H75 D2	3LC2 B3	3O11 D4	3Z13 E4	5Z05 E4	9A58 A1	9Z75 D4				
1B32 C4	2C37 A2	2L87 C2	2Q31 E3	2Z23 E4	3B96 B4	3H79 E3	3LC3 B3	3O12 D4	3Z18 E4	5Z06 E4	9A59 A1	9Z76 D4				
1B33 C4	2C42 A2	2L88 B2	2Q32 E3	2Z24 E4	3B97 B4	3H80 D3	3LC4 C3	3O13 D4	3Z20 E4	5Z07 E4	9A60 A1	9Z77 D4				
1B34 B4	2C43 A2	2L89 C2	2Q33 E3	2Z25 E4	3B98 B4	3H81 D3	3LC5 C2	3O14 D4	3Z21 E4	5Z08 E4	9A61 A1					
1B35 B4	2C52 A2	2L90 C2	2Q34 E3	2Z27 E4	3BA0 C4	3H82 D2	3LC6 B3	3O15 D4	3Z22 E4	5Z50 D4	9A62 A1					
1B36 B4	2C53 A2	2L91 C2	2Q35 E3	2Z29 E4	3BA1 C4	3H83 D2	3LC7 B3	3O16 D4	3Z23 E4	6A02 B2	9A63 A1					
1B37 B4	2C75 A1	2L92 B2	2Q36 D1	2Z30 E4	3BA2 B4	3H84 D3	3LC8 C3	3O21 D4	3Z24 E4	6B20 C4	9A64 A1					
1C33 A2	2G00 F1	2LA0 B3	2Q37 E3	2Z38 E4	3BA3 B4	3H85 D2	3LC9 C3	3O22 D4	3Z25 E4	6B21 C4	9A65 A1					
1C53 A2	2G01 F1	2LA1 B3	2Q38 E3	2Z50 D4	3BA4 B4	3H86 D3	3LD0 C3	3O23 D4	3Z26 E4	6G01 F2	9A66 A1					
1C54 A1	2G02 F1	2LA2 C3	2Q39 E3	2Z51 D4	3BA5 B4	3H87 D2	3LD1 C3	3O24 D4	3Z27 E4	6G02 G2	9A67 A1					
1C63 A2	2G03 F1	2LA4 B3	2Q40 E2	2Z52 D4	3BA6 B4	3H88 D3	3LD2 C3	3O25 D4	3Z28 E4	6G03 G2	9A68 A1					
1D40 D1	2G04 F1	2LA5 B3	2Q41 F1	3A01 B1	3BA7 B4	3H90 E3	3LD3 B3	3O26 D4	3Z29 E4	6G04 G2	9A69 B1					
1D42 D1	2G05 F1	2LA6 B3	2Q42 E3	3A02 B1	3BA8 B4	3H93 D3	3LD4 C3	3O27 D4	3Z30 E4	6H00 D3	9A70 B1					
1E40 A1	2G06 F2	2LA7 B3	2Q43 E2	3A04 A1	3BA9 B4	3H94 E3	3LD5 C3	3O28 D4	3Z33 E4	6H01 E3	9A71 B1					
1E62 B2	2G07 F2	2LA8 B3	2Q44 E2	3A05 A1	3BB0 C4	3H95 D3	3LD6 C3	3O00 E3	3Z35 E4	6H03 E3	9A72 B1					
1E63 B1	2G08 F2	2LA9 B3	2Q45 E2	3A06 A1	3C31 A2	3H97 E3	3LD7 C3	3O03 E2	3Z37 E4	6H04 F1	9A73 B1					
1G01 F1	2G09 F1	2LB0 C3	2Q46 E2	3A13 B2	3C33 B2	3H98 E2	3LD8 C3	3O04 E2	3Z38 E4	6H05 F2	9A74 B1					
1G02 F2	2G10 F2	2LB1 C3	2Q47 E2	3A15 B1	3C35 A2	3H99 E2	3LD9 C3	3O05 F2	3Z40 E4	6H06 D1	9A80 B3					
1G50 C1	2G11 G2	2LB3 C3	2Q48 D2	3A16 B2	3C36 A2	3J01 B2	3LE0 C3	3O06 E3	3Z41 E4	6J03 B1	9A81 A3					
1H00 D2	2G12 F2	2LB4 C3	2Q49 D3	3A17 B1	3C37 A2	3J03 B3	3LE2 C3	3O07 F2	3Z44 E4	6J04 B1	9A88 B2					
1H01 D1	2G13 F2	2LN2 B3	2Q50 D3	3A18 B2	3C38 A2	3J07 B3	3LE3 C3	3O08 F2	3Z46 E4	6J07 C3	9A89 B2					
1H07 F3	2G14 G2	2LN3 B3	2Q51 E2	3A19 B2	3C42 A2	3J08 B3	3LE4 C3	3O09 E3	3Z50 E4	6J08 C3	9B00 C4					
1LA0 C4	2G15 F1	2LN4 C3	2Q52 E2	3A28 B2	3C43 A2	3J09 B3	3LE5 C3	3O11 E3	3Z51 E4	6L03 C2	9B10 C4					
1M03 F1	2G16 G2	2LN5 C3	2Q53 D3	3A31 A3	3C44 A2	3J11 B3	3LE6 C3	3O12 E3	3Z54 D4	6O00 D4	9B11 C4					
1M15 D4	2G17 G2	2LN6 C3	2Q54 D2	3A32 A3	3C46 A2	3J12 B2	3LE7 C3	3Q13 E3	3Z55 E4	6O01 C4	9B12 B4					
1M46 G1	2G18 F2	2LN7 B3	2Q55 D2	3A33 A3	3C47 A2	3J13 B2	3LE8 C3	3Q14 E3	3Z56 E4	6O02 D4	9B13 B4					
1M52 A1	2G19 F2	2LN8 B3	2Q56 D2	3A34 A3	3C51 A2	3J23 C1	3LE9 C3	3Q15 E3	3Z57 E4	6U05 F3	9B14 B4					
1M59 E1	2G20 F2	2LP0 C3	2Q57 E2	3A35 A3	3C70 A2	3J24 C1	3LF0 C3	3Q17 D1	3Z58 E4	6U06 F3	9B15 B4					
1M63 F1	2G21 F2	2LP2 B3	2Q58 E2	3A36 A3	3C73 A2	3J31 B1	3LF1 C1	3Q18 D1	3Z59 E4	6U07 F3	9B16 C4					
1M64 C2	2G22 F1	2LP3 B2	2Q59 D2	3A39 B3	3C74 A2	3J32 B1	3LF2 C3	3Q19 D1	3Z60 E4	6U08 F3	9B17 C4					
1N00 C4	2G23 F1	2LP4 C2	2Q63 E2	3A40 A3	3C75 A2	3J42 C1	3LF8 B3	3Q22 D1	5A06 B1	6U11 G2	9B18 C4					
1N62 C4	2G24 F2	2LP7 C3	2Q64 E2	3A46 A3	3C76 A2	3J43 C1	3LF9 C3	3Q25 F2	5A07 A1	6U18 G2	9B19 C4					
1O00 D4	2G25 F1	2LP8 C3	2Q65 D2	3A47 A3	3G01 F1	3J44 C1	3LG3 C3	3Q26 F2	5B01 C4	6U25 G2	9B20 B4					
1O10 D4	2G26 F2	2LP9 B2	2Q66 E3	3A48 A3	3G02 F1	3J47 C1	3LG5 B3	3Q27 E2	5B10 B4	7A05 A3	9B22 C4					
1P01 G4	2G27 G2	2LR0 C3	2Q69 D2	3A49 A3	3G03 F1	3J50 C1	3LG6 B3	3Q28 F2	5B11 B4	7A07 A3	9B23 B4					
1T04 A3	2G28 F2	2LR2 C3	2Q70 D2	3A50 A3	3G05 F1	3J51 C1	3LG7 C3	3Q33 D3	5B12 C4	7A08 B3	9C47 A1					
1U01 G1	2G36 F1	2LR4 B3	2Q71 E1	3A51 B2	3G12 F1	3J52 C2	3LG8 C3	3Q34 F2	5B17 B4	7A09 A3	9C48 B1					
1U03 G2	2G37 F1	2LR5 C3	2Q72 E1	3A52 B2	3G13 G1	3J53 C2	3LG9 B3	3Q35 D3	5B18 B4	7A11 A3	9C49 B2					
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1Z10 E4	2G42 F2	2LR9 C3	2Q75 E1	3A55 A3	3G21 F2	3J88 C1	3LH3 B2	3Q38 D3	5B23 B4	7A18 B3	9G12 F2					
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2BA7 B4	2L80 C2	2Q24 E3	2Z08 E4	3B67 B4	3H49 E3	3LB6 B3	3O05 C4	3V46 D2	5U09 G3	9A47 A1	9Z67 D4					
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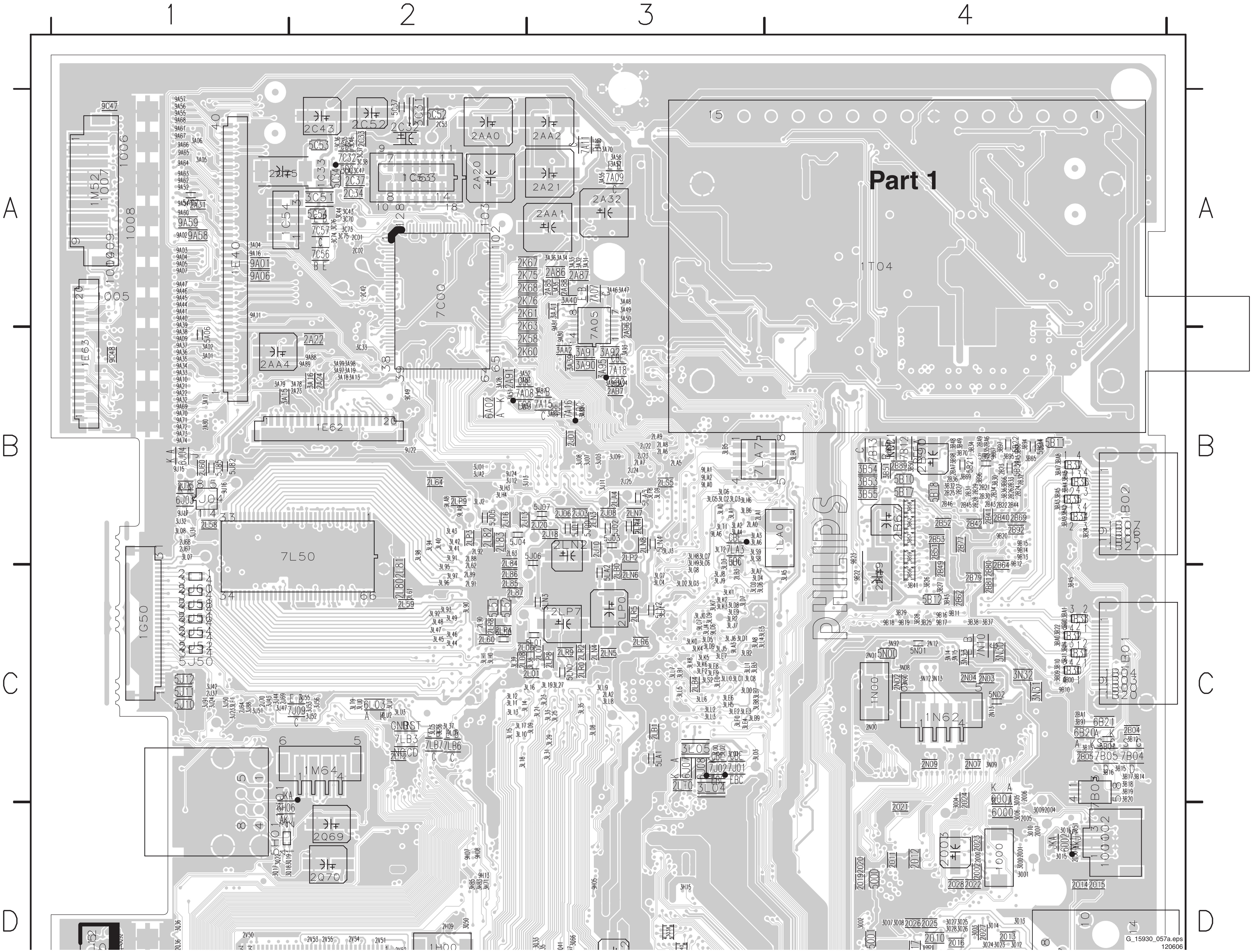
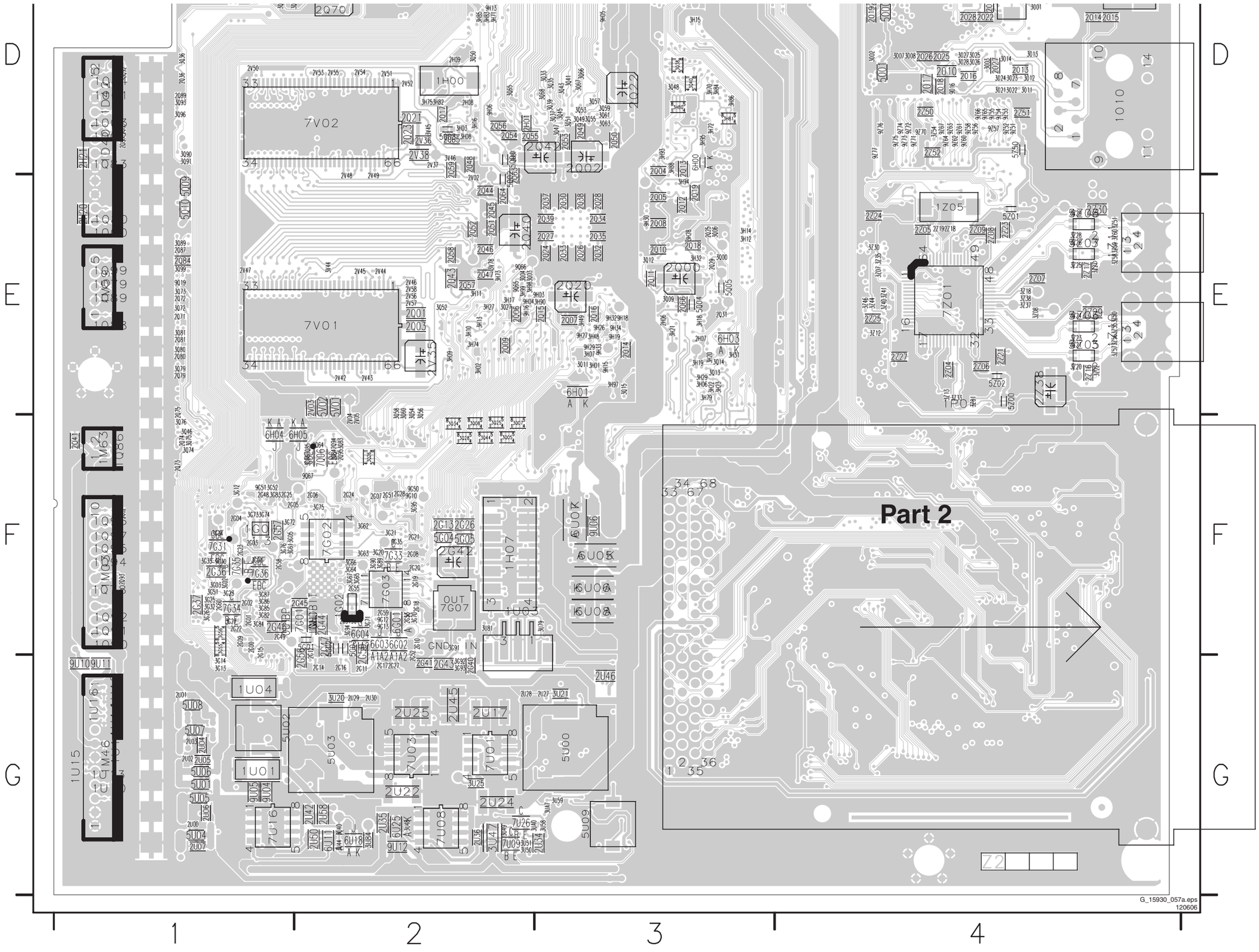
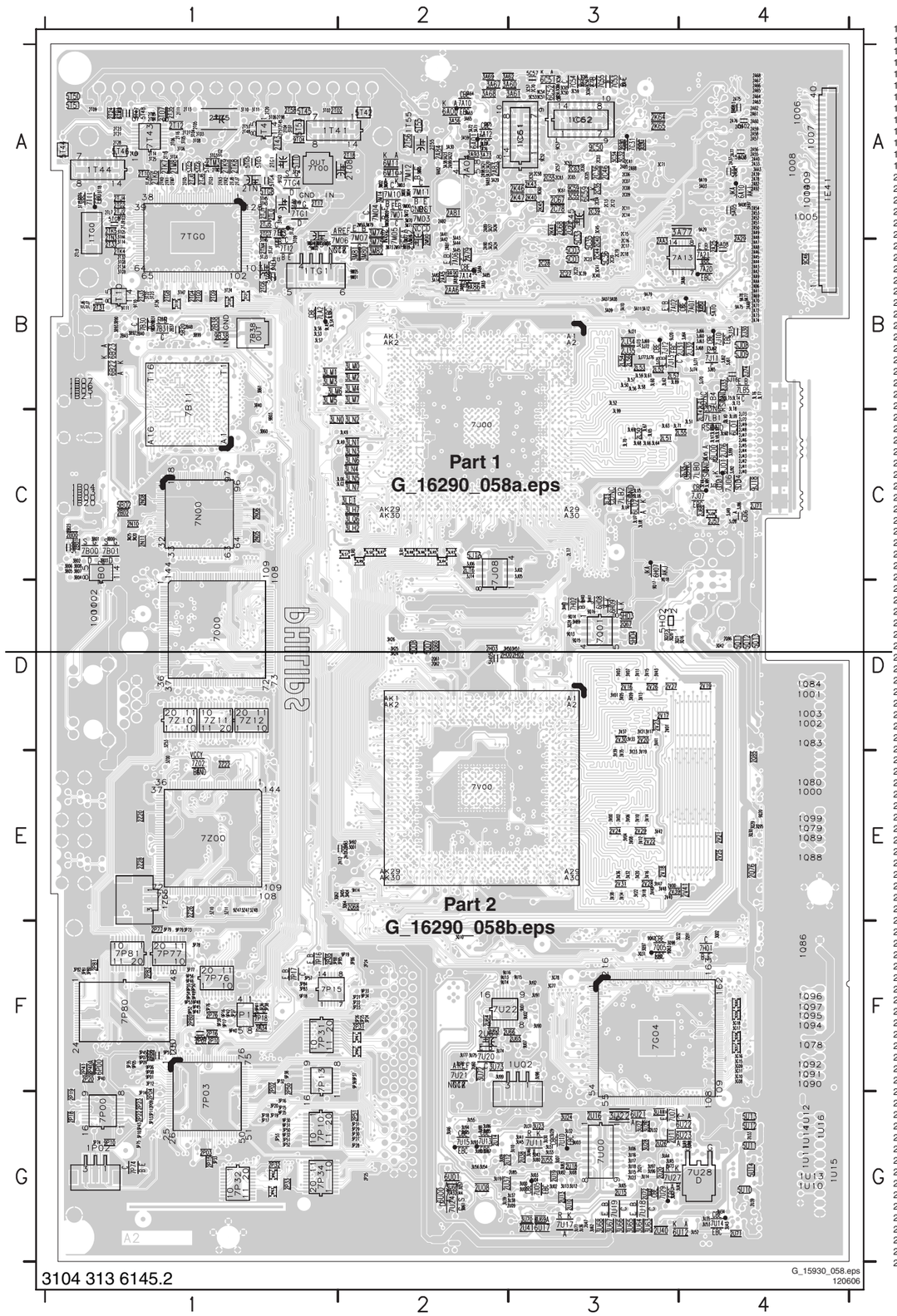
Layout SSB (Top Side Part 1)



Layout SSB (Top Side Part 2)



Layout SSB (Overview Bottom Side)



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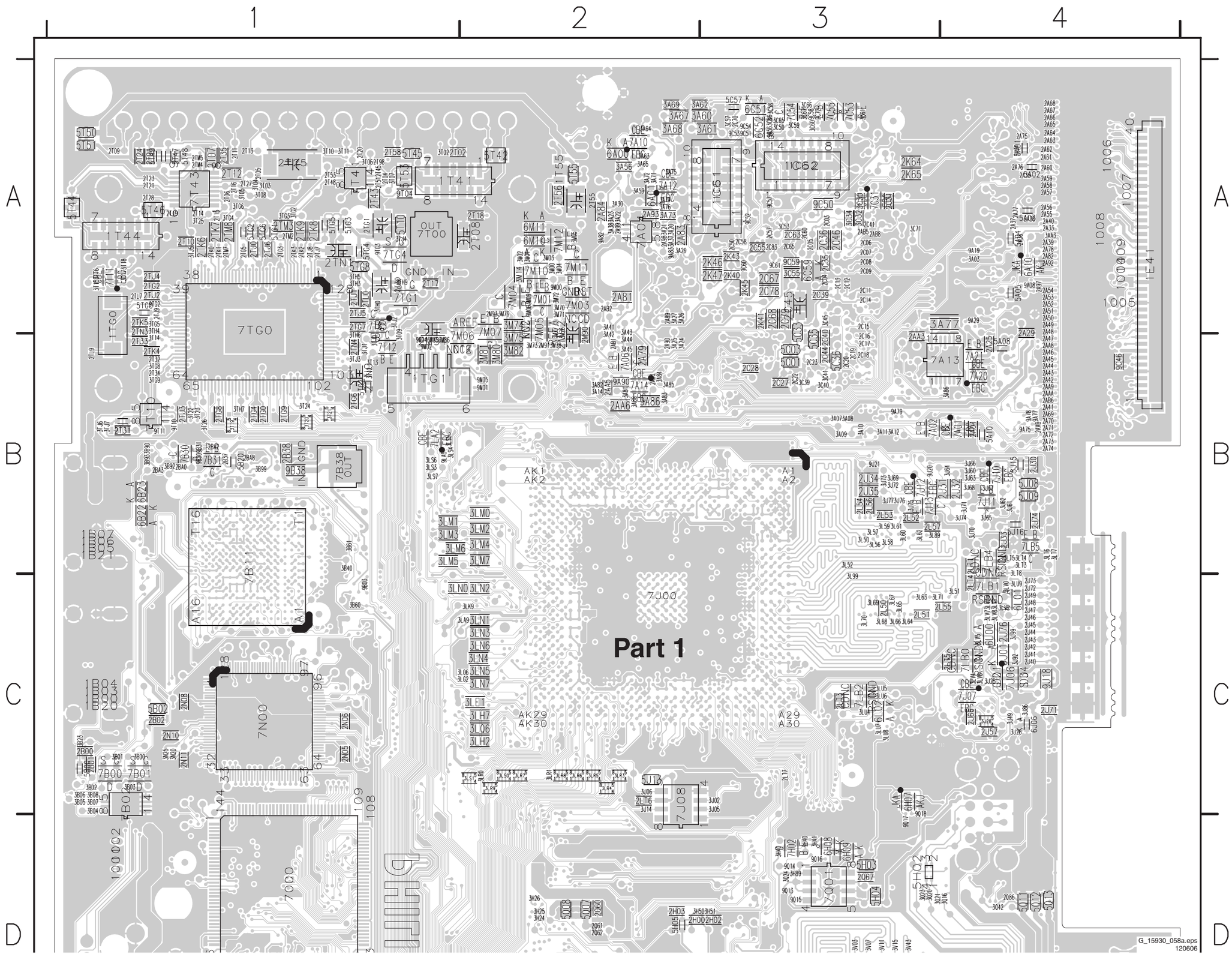

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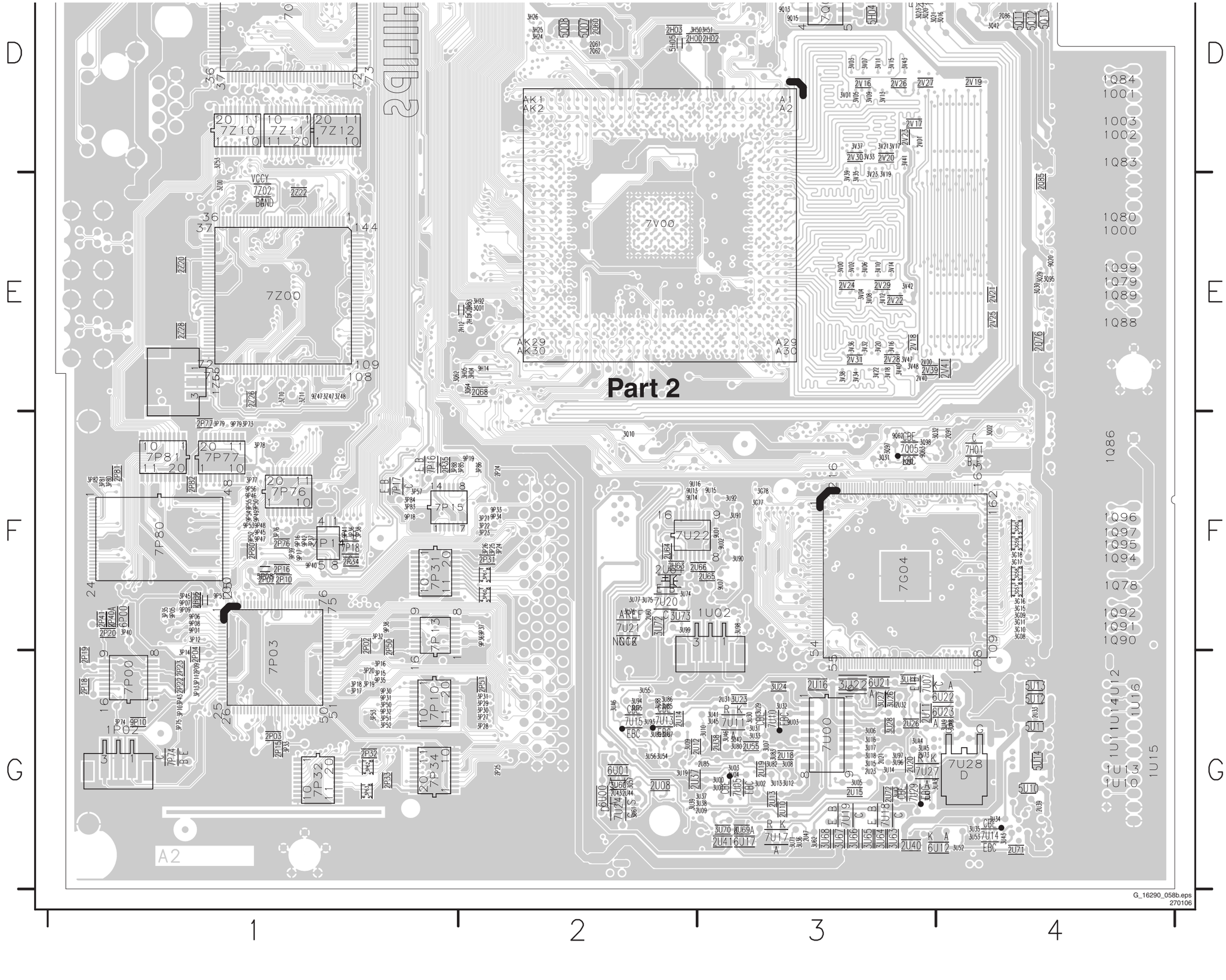
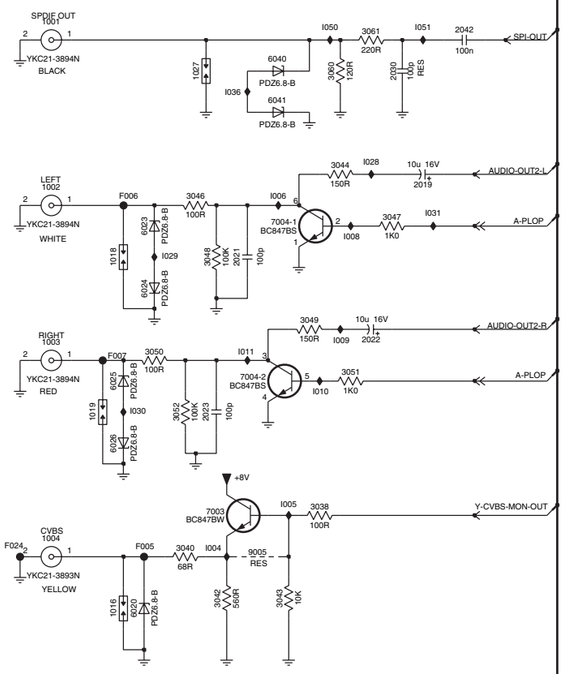


External I/O Panel: Externals A

BE1 EXTERNALS A

BE1

MONITOR - OUT



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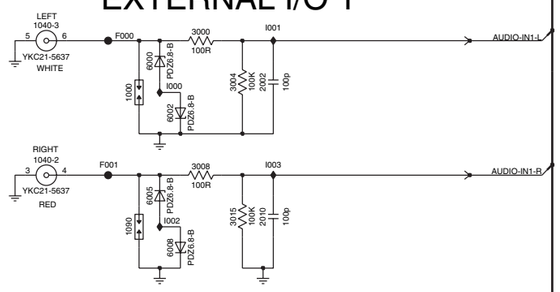

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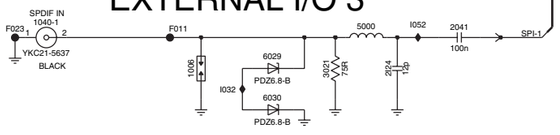

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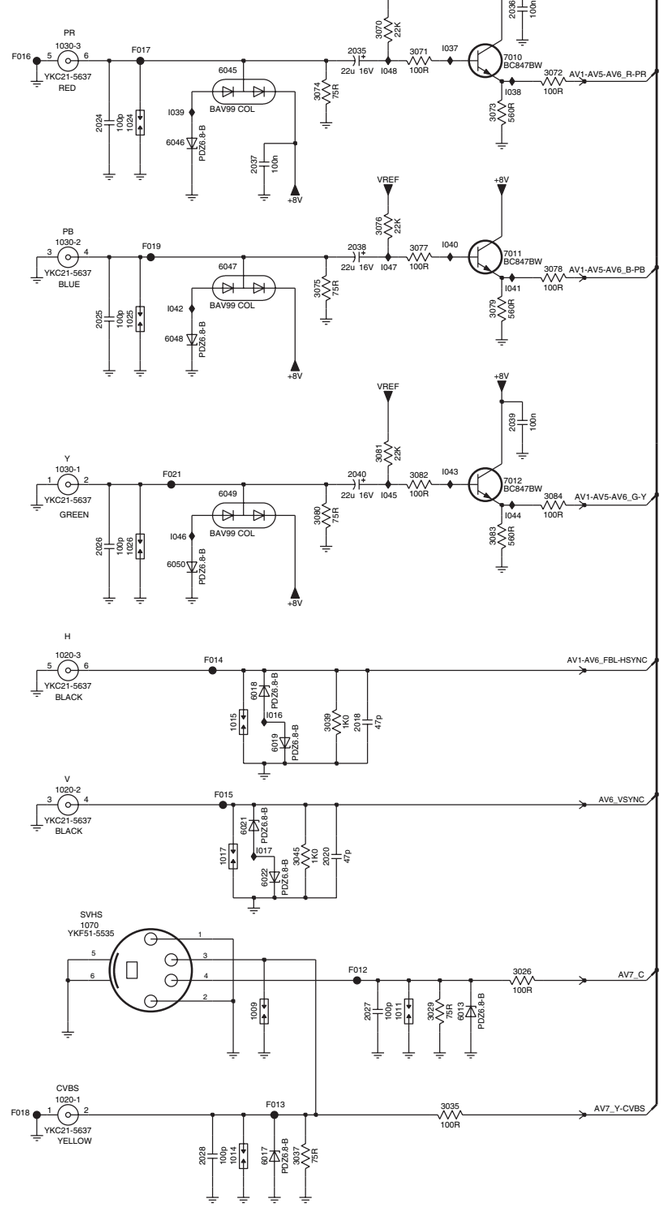

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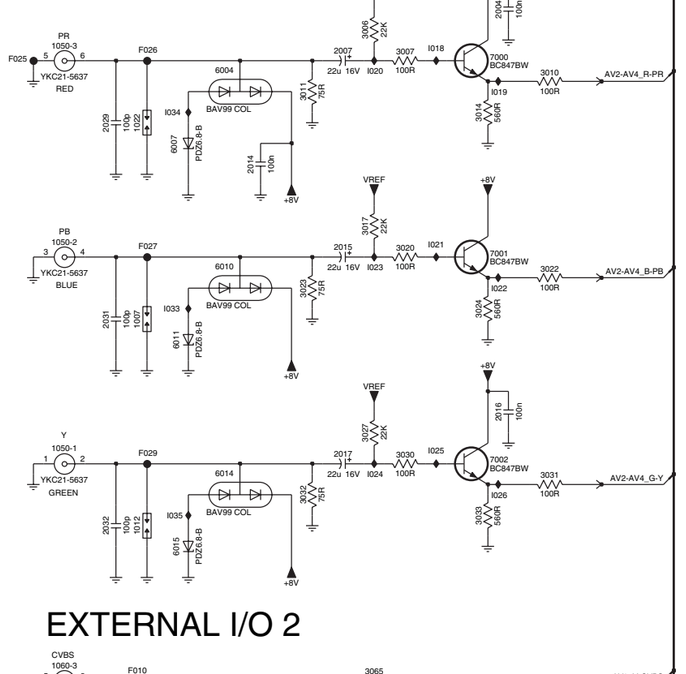

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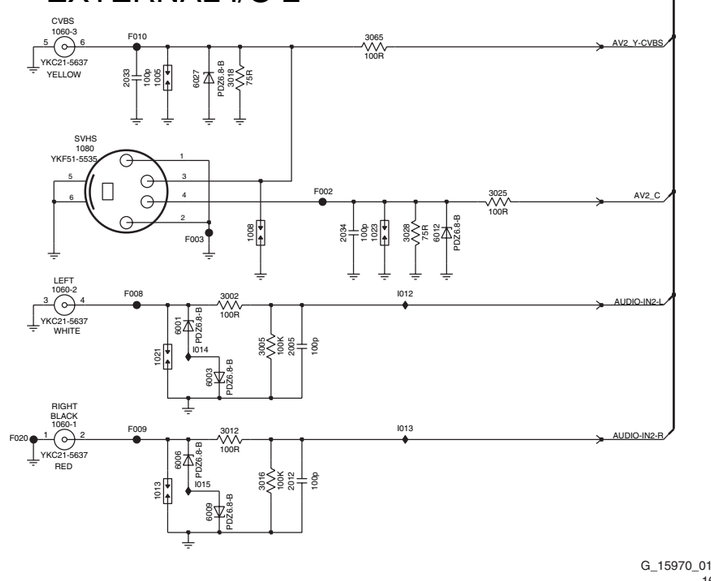

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2005 H11	6015 E10	
2007 B11	6017 I6	
2010 H2	6018 F6	
2012 I11	6019 F6	
2014 B11	6020 E1	
2015 C11	6021 G6	
2016 D12	6022 G6	
2017 D11	6023 C1	
2018 F7	6024 C1	
2019 C3	6025 D1	
2020 G6	6026 D1	
2021 C2	6027 F10	
2022 D3	6029 I2	
2023 D2	6030 I2	
2024 B5	6040 B2	
2025 C5	6041 B2	
2026 E5	6045 B6	
2027 H7	6046 B5	
2028 I6	6047 C6	
2029 B10	6048 D5	
2030 B3	6049 E6	
2031 C10	6050 E5	
2032 E10	7000 B12	
2033 F10	7001 C12	
2034 G11	7002 D12	
2035 B7	7003 E2	
2036 A8	7004-1 C2	
2037 B6	7004-2 D2	
2038 C7	7010 B8	
2039 D8	7011 C8	
2040 E7	7012 E8	
2041 I3	9005 E2	
2042 B3	F000 F1	
2I24 I3	F001 G1	
3000 F2	F002 G11	
3002 H10	F003 G10	
3004 G2	F005 E1	
3005 H11	F006 C1	
3006 A11	F007 D1	
3007 B12	F008 H10	
3008 G2	F009 I10	
3010 B13	F010 F10	
3011 B11	F011 I1	
3012 I10	F012 H7	
3014 B12	F013 I6	
3015 H2	F014 F6	
3016 I11	F015 G6	
3017 C11	F016 B4	
3018 F10	F017 B5	
3020 C12	F018 I4	
3021 I2	F019 C5	
3022 C13	F020 I9	
3023 C11	F021 E5	
3024 C12	F023 I1	
3025 G12	F024 E1	
3026 H8	F025 B9	
3027 D11	F026 B10	
3028 G12	F027 C10	
3029 H7	F029 D10	
3030 D12	I000 G1	
3031 E13	I001 F2	
3032 E11	I002 H1	
3033 E12	I003 G2	
3035 I7	I004 E2	
3037 I6	I005 E2	
3038 E2	I006 C2	
3039 F6	I008 C3	

External I/O Panel: Externals B

BE2 EXTERNALS B

BE2

AV2-AV4_R-PR F100
AV2-AV4_G-Y F101
AV2-AV4_B-PB F102
AV2_C F103
AV2_Y-CVBS F104
+8V6 F105
Y-CVBS-MON-OUT F106
9111
AV6_VSYNC
AUDIO-OUT2-L F109
AUDIO-OUT2-R F110
AUDIO-HDPH-L F111
AUDIO-HDPH-R F112
AV7_Y-CVBS F113
AV7_C F114
+5V2-STBY F115
AUDIO-IN1-L F117
AUDIO-IN1-R F118
AUDIO-IN2-L F119
AUDIO-IN2-R F146
FRONT_Y-CVBS
FRONT_C
AUDIO-IN5-L
AUDIO-IN5-R
LED1 F124
KEYBOARD F125
RC F126
F127
1E40 — 40FMN-BMT-A-TFT
1E45 — 4-1735042-0

TO 1E40 **B** SSB Bx2.x

AV1-AV5-AV6_R-PR F156
AV1-AV5-AV6_G-Y F157
AV1-AV5-AV6_B-PB F158
AV1-AV6_FBL-HSYNC F159
F133
SPI-1 F134
9222
SPI-OUT F136
GLINK-IR-OUT F143
GLINK-TXD F137
GLINK-RXD F138
A-PLOP F151
SCL-MM-BUS2 F152
SDA-MM-BUS2 F153
LED2 F154
LIGHT-SENSOR F155
9112
9113
1E62 — 20FMN-BMT-A-TFT

TO 1E62 **B** SSB Bx2.x

KEYBOARD 9100 2133 100p F139
LED1 9101 2134 100p F140
RC 9106 2135 100p F120
LIGHT-SENSOR 9107 2138 100p F147
+8V6 9105 2136 100p F121
LED2 9108 2139 100p F148
+5V2-STBY 9104 2137 100p F122
SCL-MM-BUS2 9109 2140 100p F149
SDA-MM-BUS2 9110 2141 100p F150
1M20 — B12P-PH-K
1M01 — B3B-PH-K
1M21 — B6B-PH-K

TO 1M20 **J** LED PANEL

3153 1R0 I111 I100 +8V
I109
+8V6 5100 I110
2124 100n
2125 100u 16V
2126 1u0
3154 680R I101 VREF
6102 BZX384-C2V7
2127 22u 10V
2128 100n

+5V2-STBY I120 I121 3156 1R0 I122 I102 +5V
2129 100n
2130 100u 16V

9210 I123 FRONT_C
9211 I124 FRONT_Y-CVBS
9212 I125 AUDIO-IN5-L
9213 I126 AUDIO-IN5-R
2252 100p
2249 100p
2248 100p
2247 100p
F217 F200 F201 F214
1M36 — B11B-PH-K

TO 1M36 **D** SIDE I/O

GNDB F204 9220 AUDIO-HDPH-L
2250 100p
GNDB F203 9221 AUDIO-HDPH-R
2251 100p
GNDB 6101

GEMSTAR

+5V 3157 4K7 I103 3158 4K7 I104
2131 16V 10u
2132 100p
BC857BW 7106
7107 PDTC114EU
GLINK-IR-OUT
3159 10R I105
I108
PLVA2650A
F128
GLINK-TXD RES 3160 220R F144
GLINK-RXD RES 3161 220R F145
6100 PLVA2650A RES
1100 1101 1102
1 1010 2 5 4 3 LGY3319-0111
GEMSTAR CONNECTOR
F141 3999 100R F142
9205 I213 F205 GNDB
1X01 EMC HOLE
1X02 EMC HOLE
1X03 EMC HOLE
1X04 EMC HOLE
1X05 EMC HOLE

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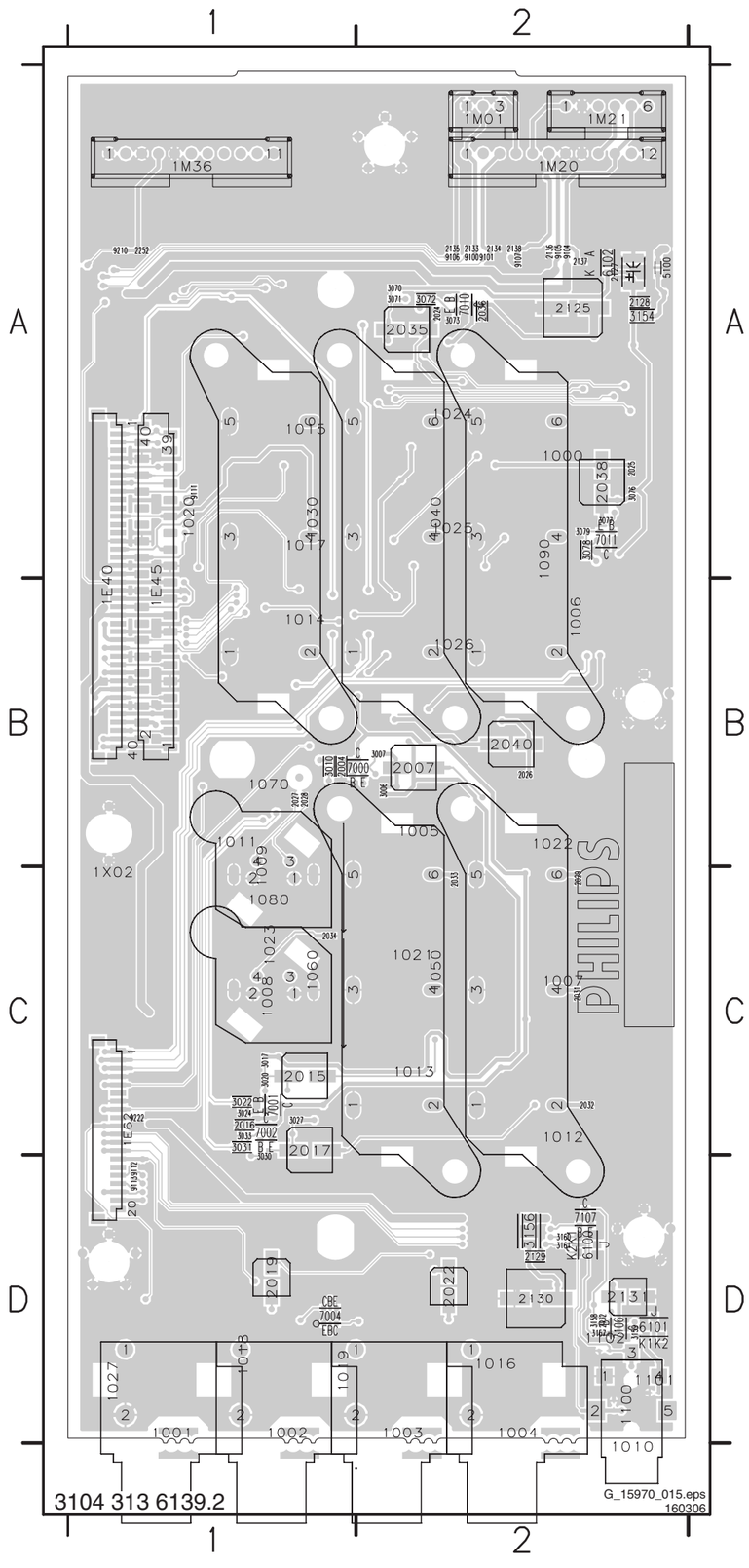
3104 313 6139.2

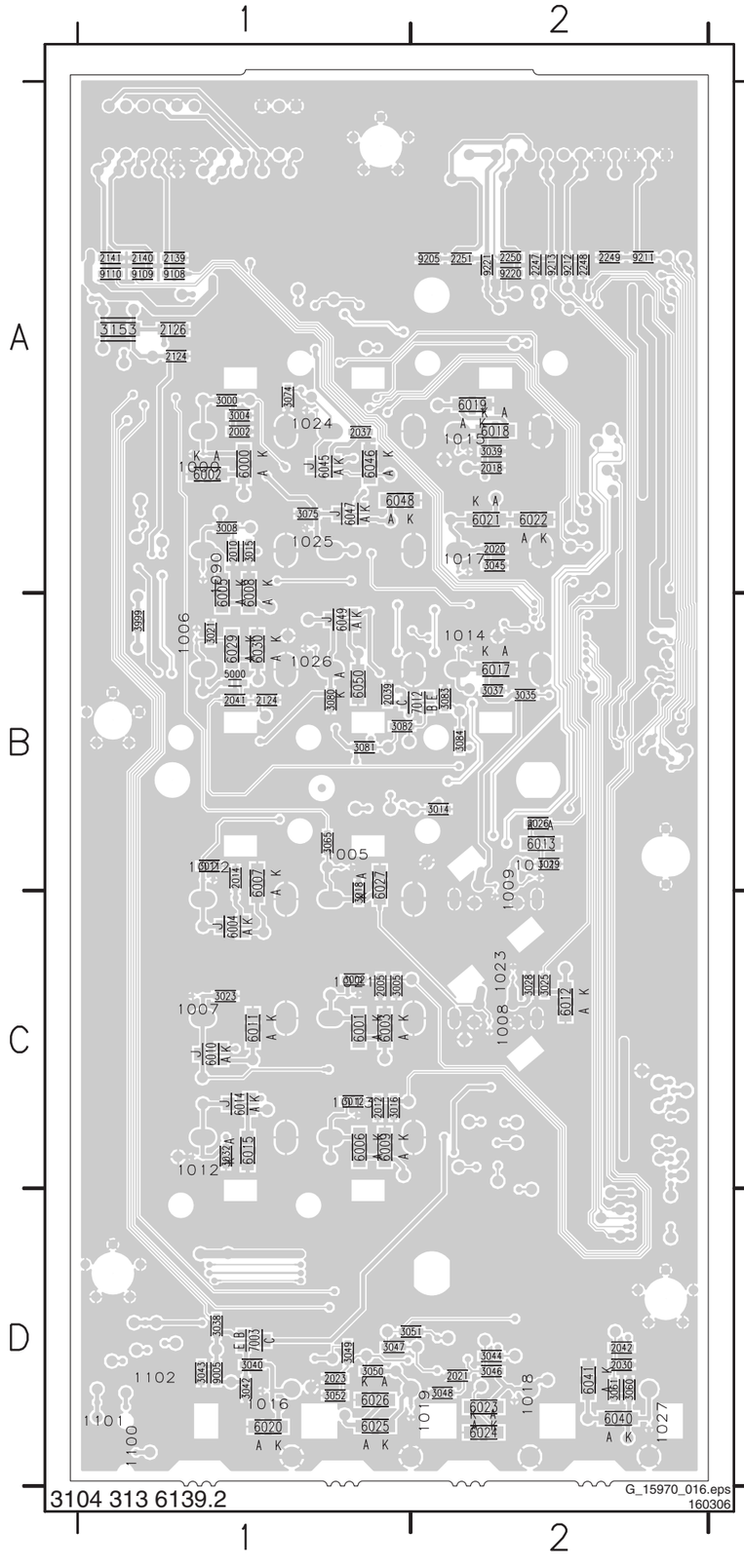
1010 E8
1100 E8
1101 E8
1102 F8
1E40 A3
1E45 A4
1E62 D3
1M01 E4
1M20 E3
1M21 F4
1M36 B9
1X01 F5
1X02 F6
1X03 F7
1X04 F8
1X05 F8
2124 A6
2125 A6
2126 A7
2127 B6
2128 B7
2129 C6
2130 C7
2131 D7
2132 D6
2133 E2
2134 E2
2135 F2
2136 F3
2137 F3
2138 F2
2139 F2
2140 F2
2141 F2
2247 A9
2248 A8
2249 A8
2250 C9
2251 D8
2252 A8
3153 A6
3154 A6
3156 B6
3157 D6
3158 D6
3159 D7
3160 E6
3161 E6
3999 F9
5100 A6
6100 E6
6101 D9
6102 B6
7106 D7
7107 D6
9100 E1
9101 E1
9104 F3
9105 F3
9106 E1
9107 F1
9108 F1
9109 F1
9110 F1
9111 A3
9112 E3
9113 E3
9205 F9
9210 A9
9211 A9
9212 A9
9213 A9
9220 C9
9221 D9
9222 D3
F100 A3
F101 A3
F102 A3
F103 A3
F104 A3
F105 A3
F106 A3
F109 A3
F110 A3
F111 A3
F112 A3
F113 A3
F114 A3
F115 A3
F117 A3
F118 A3
F119 A3
F120 A3
F121 A3
F122 A3
F124 A3
F125 A3
F126 A3
F127 A3
F128 A3
F133 A3
F134 A3
F136 A3
F137 A3
F138 A3
F139 A3
F140 A3
F141 A3
F142 A3
F143 A3
F144 A3
F145 A3
F146 A3
F147 A3
F148 A3
F149 A3
F150 A3
F151 A3
F152 A3
F153 A3
F154 A3
F155 A3
F156 A3
F157 A3
F158 A3
F159 A3
F200 A3
F201 A3
F203 A3
F204 A3
F205 A3
F214 A3
F217 A3
I100 A6
I101 A7
I102 B6
I103 D6
I104 D7
I105 D7
I108 D8
I109 A6
I110 A6
I111 A6
I120 A6
I121 B5
I122 B6
I123 A9
I124 A9
I125 A9
I126 A9
I213 F9

Layout External I/O Panel (Top Side)



1001 D1
1002 D1
1003 D2
1004 D2
1010 D2
1020 A1
1030 A1
1040 A2
1050 D2
1060 D2
1070 B1
1080 C1
1E40 B1
1E45 B1
1E62 C1
1M01 A2
1M20 A2
1M21 A2
1M36 A1
2004 B1
2007 B2
2015 C1
2016 C1
2017 D1
2019 D1
2022 D2
2024 A2
2025 A2
2026 B2
2027 B1
2028 B1
2029 C2
2031 C2
2032 C2
2033 C2
2034 C1
2035 A1
2036 A2
2038 A2
2040 B2
2125 A2
2127 A2
2128 A2
2129 D2
2130 D2
2131 D2
2132 D2
2133 A2
2134 A2
2135 A2
2136 A2
2137 A2
2138 A2
2252 A1
3006 B2
3007 B2
3010 B1
3017 C1
3020 C1
3022 C1
3024 C1
3027 C1
3030 C1
3031 C1
3033 C1
3070 A2
3071 A2
3072 A2
3073 A2
3076 A2
3077 A2
3078 A2
3079 A2
3154 A2
3156 D2
3157 D2
3158 D2
3159 D2
3160 D2
3161 D2
5100 A2
6100 D2
6101 D2
6102 A2
7000 B2
7001 C1
7002 D1
7004 D2
7010 A2
7011 A2
7106 D2
7107 D2
9100 A2
9101 A2
9104 A2
9105 A2
9106 A2
9107 A2
9111 A1
9112 D1
9113 D1
9210 A1
9222 C1

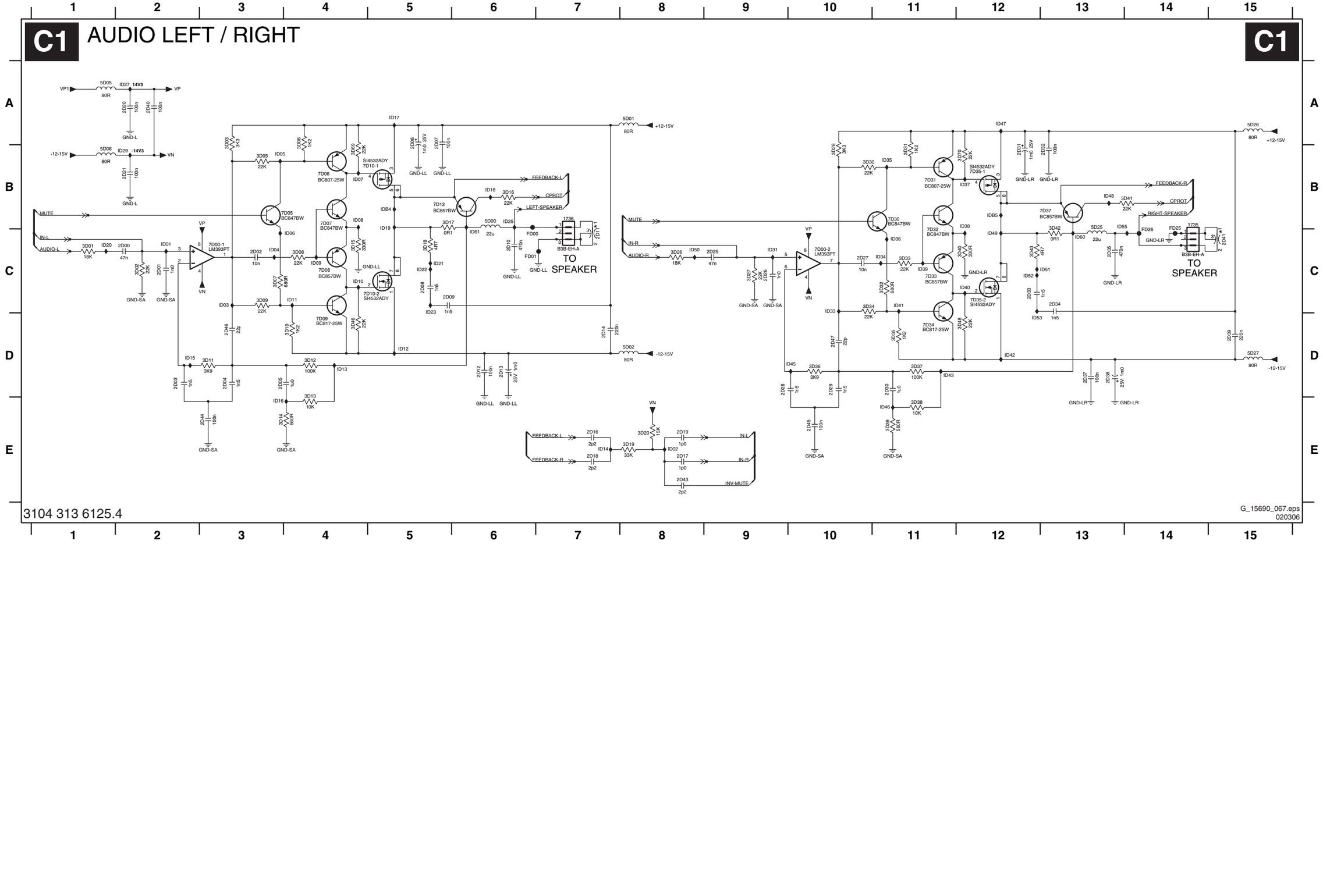
Layout External I/O Panel (Bottom Side)



2002 A1
2005 C1
2010 A1
2012 C1
2014 B1
2018 A2
2020 A2
2021 D2
2023 D1
2030 D2
2037 A1
2039 B1
2041 B1
2042 D2
2124 A1
2126 A1
2139 A1
2140 A1
2141 A1
2247 A2
2248 A2
2249 A2
2250 A2
2251 A2
2124 B1
3000 A1
3002 C1
3004 A1
3005 C1
3008 A1
3011 B1
3012 C1
3014 B2
3015 A1
3016 C1
3018 C1
3021 B1
3023 C1
3025 C2
3026 B2
3028 C2
3029 B2
3032 C1
3035 B2
3037 B2
3038 D1
3039 A2
3040 D1
3042 D1
3043 D1
3044 D2
3045 A2
3046 D2
3047 D1
3048 D2
3049 D1
3050 D1
3051 D2
3052 D1
3060 D2
3061 D2
3065 B1
3074 A1
3075 A1
3080 B1
3081 B1
3082 B1
3083 B2
3084 B2
3153 A1
3999 B1
5000 B1
6000 A1
6001 C1
6002 A1
6003 C1
6004 C1
6005 A1
6006 C1
6007 B1
6008 A1
6009 C1
6010 C1
6011 C1
6012 C2
6013 B2
6014 C1
6015 C1
6017 B2
6018 A2
6019 A2
6020 D1
6021 A2
6022 A2
6023 D2
6024 D2
6025 D1
6026 D1
6027 B1
6029 B1
6030 B1
6040 D2
6041 D2
6045 A1
6046 D2
6047 A1
6048 A1
6049 B1
6050 B1
7003 D1
7012 B2
9005 D1
9108 A1
9109 A1
9110 A1
9205 A2
9211 A2
9212 A2
9213 A2
9220 A2
9221 A2

Audio Panel: Left / Right

1735 B14	2D04 D3	2D10 C6	2D17 E8	2D26 C9	2D32 B13	2D39 D15	2D46 D3	3D06 A4	3D12 D4	3D18 C5	3D30 B10	3D36 D10	3D42 C13	5D00 B6	5D26 A15	7D07 B4	7D30 B11	7D35-2 C12	ID01 C2	ID07 B4	ID13 D4	ID19 B5	ID27 A2	ID36 C11	ID42 D12	ID49 C12	ID60 C13
1736 B7	2D05 D3	2D11 C7	2D18 E7	2D27 C10	2D33 C12	2D40 A2	2D47 D10	3D07 C3	3D13 E4	3D19 E8	3D31 B11	3D37 D11	3D43 C12	5D01 A8	5D27 D15	7D08 C4	7D31 B11	7D37 B12	ID02 E8	ID08 B4	ID14 E7	ID20 C1	ID29 B2	ID37 B12	ID43 D11	ID50 C8	ID61 C6
2D00 C2	2D06 A5	2D12 D6	2D19 E8	2D28 D9	2D34 C13	2D41 C15	3D01 C1	3D08 C4	3D14 E3	3D20 E8	3D32 C11	3D38 E11	3D46 D4	5D02 D8	7D00-1 C3	7D09 D4	7D32 C11	FD00 C6	ID03 C3	ID09 C4	ID15 D2	ID21 C5	ID31 C5	ID38 B12	ID45 D10	ID51 C13	IDB4 B5
2D01 C2	2D07 A5	2D13 D6	2D20 A2	2D29 D10	2D35 C13	2D43 E8	3D02 C2	3D09 C3	3D15 C4	3D26 C8	3D33 C11	3D39 E11	3D48 D12	5D05 A1	7D00-2 C10	7D10-1 B4	7D33 C11	FD01 C6	ID04 C3	ID10 C4	ID16 E3	ID22 C5	ID33 C5	ID39 C11	ID46 D11	ID52 C12	IDB5 B12
2D02 C3	2D08 C5	2D14 D7	2D21 B2	2D30 D11	2D37 D13	2D44 E3	3D03 A3	3D10 D4	3D16 B6	3D27 C9	3D34 C10	3D40 C12	3D69 B4	5D06 B1	7D05 B3	7D10-2 C4	7D34 D11	FD25 C14	ID05 B3	ID11 C4	ID17 A5	ID23 C5	ID35 B11	ID40 C12	ID47 E12	ID53 D12	
2D03 D2	2D09 C5	2D16 E7	2D25 C9	2D31 B12	2D38 D13	2D45 E10	3D05 B3	3D11 D3	3D17 B5	3D28 B10	3D35 D11	3D41 B14	3D70 B12	5D25 B13	7D06 B4	7D12 B5	7D35-1 B12	FD26 C14	ID06 C4	ID12 D5	ID18 B6	ID25 B6	ID41 C11	ID48 B13	ID55 B13		



3104 313 6125.4

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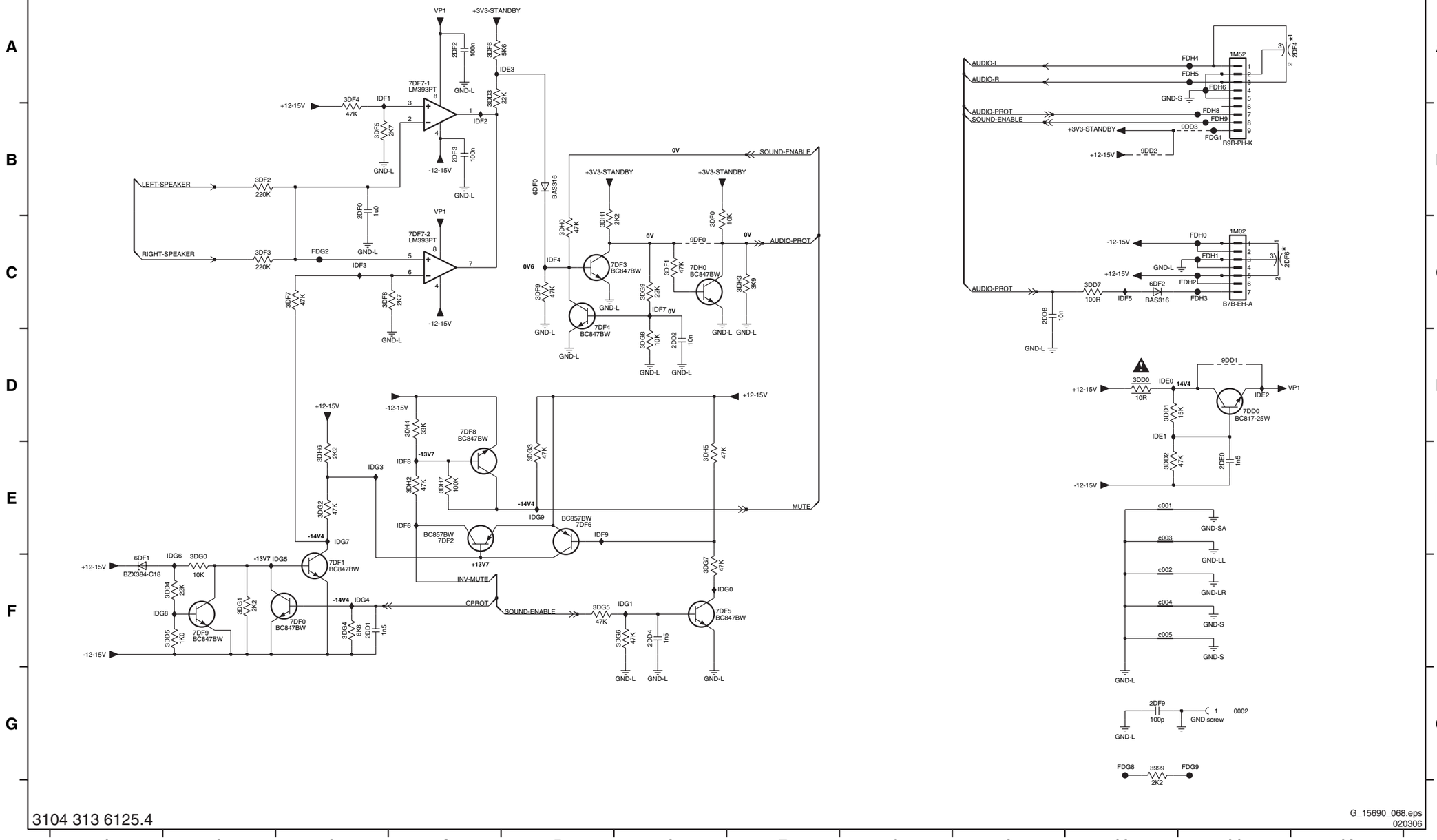
020306

Audio Panel: Protection & Mute Control

C2 PROTECTION / MUTE CONTROL



3104 313 6125.4

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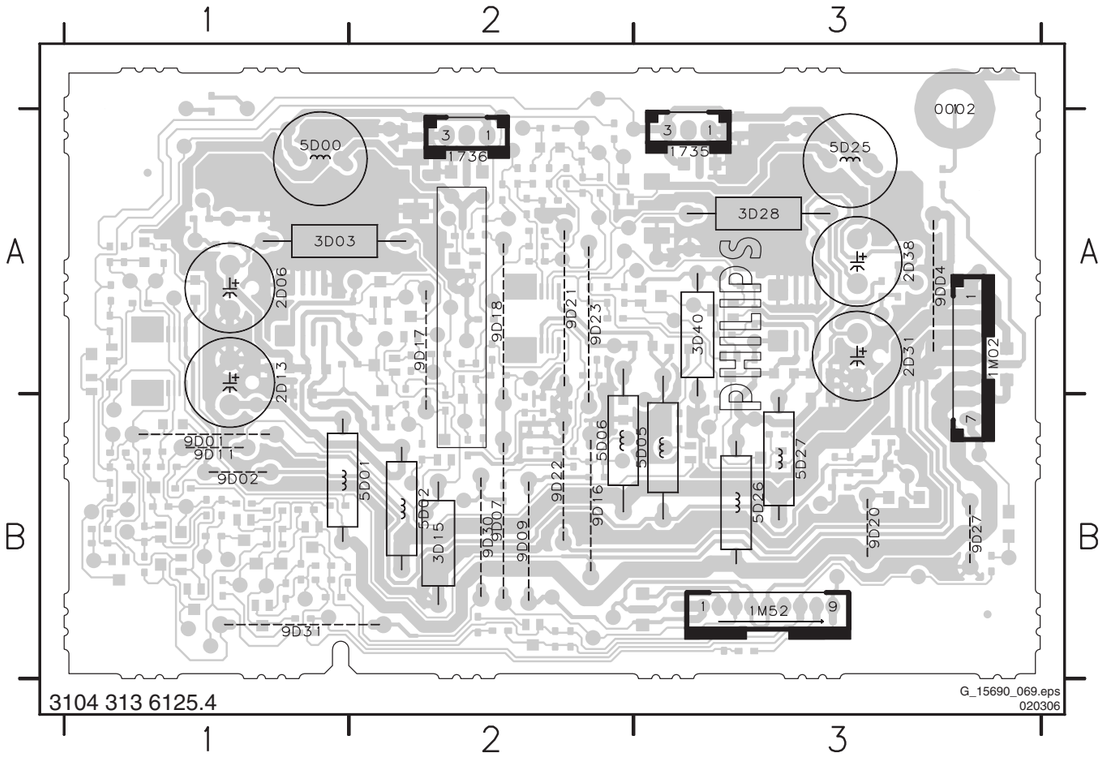
020306

0002 G11
1M02 C11
1M52 A11
2DD1 F3
2DD2 D6
2DD4 F6
2DD8 C9
2DE0 E11
2DF0 B3
2DF2 A4
2DF3 B4
2DF4 A12
2DF6 C11
2DF9 G10
3999 G10
3DD0 D10
3DD1 D10
3DD2 E10
3DD3 A4
3DD4 F2
3DD5 F2
3DD7 C10
3DF0 C6
3DF1 C6
3DF2 B2
3DF3 C2
3DF4 A3
3DF5 B3
3DF6 A4
3DF7 C3
3DF8 C3
3DF9 C5
3DG0 E2
3DG1 F2
3DG2 E3
3DG3 E5
3DG4 F3
3DG5 F5
3DG6 F6
3DG7 F6
3DG8 D6
3DG9 C6
3DH0 C5
3DH1 C5
3DH2 E4
3DH3 C7
3DH4 D4
3DH5 E6
3DH6 E3
3DH7 E4
6DF0 B5
6DF1 F1
6DF2 C10
7DD0 D11
7DF0 F3
7DF1 F3
7DF2 E4
7DF3 C5
7DF4 D5
7DF5 F6
7DF6 E5
7DF7-1 A4
7DF7-2 C4
7DF8 D4
7DF9 F2
7DH0 C6
9DD1 D11
9DD2 B10
9DD3 B11
9DF0 C6
FDG1 B11
FDG2 C3
FDG8 G10
FDG9 G11
FDH0 C11
FDH1 C11
FDH2 C11
FDH3 C11
FDH4 A11
FDH5 A11
FDH6 A11
FDH8 B11
FDH9 B11
IDE0 D10
IDE1 D10
IDE2 D11
IDE3 A5
IDF1 A3
IDF2 B4
IDF3 C3
IDF4 C5
IDF5 C10
IDF6 E4
IDF7 C6
IDF8 E4
IDF9 E5
IDG0 F6
IDG1 F6
IDG3 E3
IDG4 F3
IDG5 F2
IDG6 E2
IDG7 E3
IDG8 F1
IDG9 E5
c001 E10
c002 F10
c003 E10
c004 F10
c005 F10

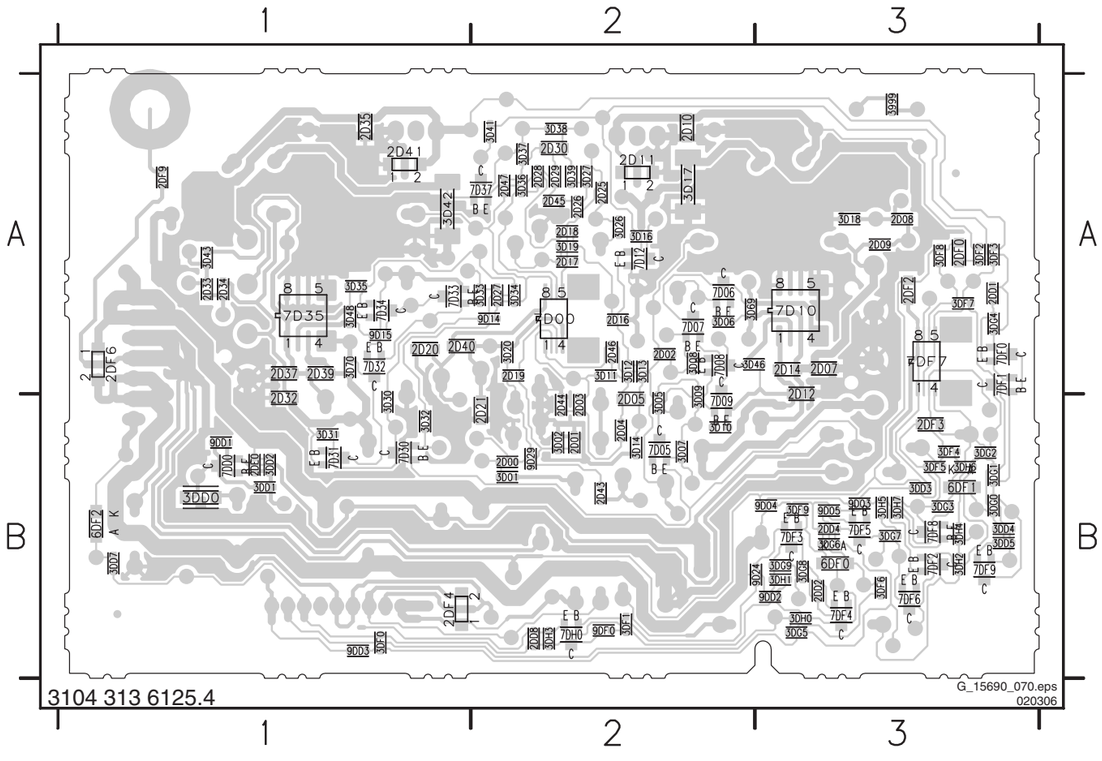
Layout Audio Panel (Top Side)

0002 A3 1735 A3 1736 A2 1M02 A3 1M52 B3 2D06 A1 2D13 A1 2D31 A3 2D38 A3 3D03 A2 3D15 B2 3D28 A3 3D40 A3 5D00 A1 5D01 B1 5D02 B2 5D05 B3 5D06 B2 5D25 A3 5D26 B3 5D27 B3 9D01 B1 9D02 B1 9D07 B2 9D09 B2 9D11 B1 9D16 B2 9D17 A2 9D18 A2 9D20 B3 9D21 A2 9D22 B2 9D23 A2 9D27 B3 9D30 B2 9D31 B1 9DD4 A3

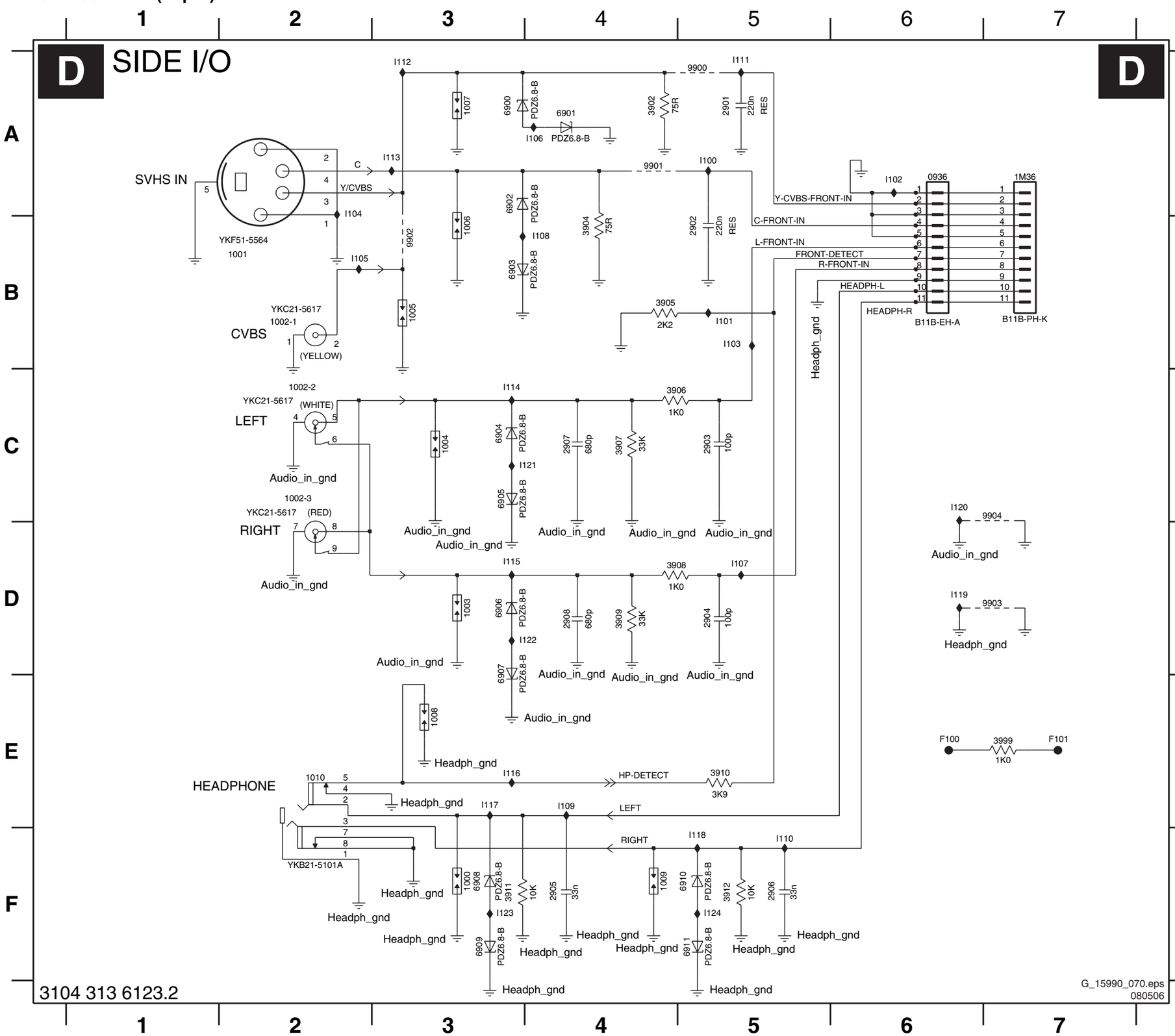


Layout Audio Panel (Bottom Side)

2D00 B2 2D01 B2 2D02 A2 2D03 B2 2D04 B2 2D05 B2 2D07 A3 2D08 A3 2D09 A3 2D10 A2 2D11 A2 2D12 A3 2D14 A3 2D16 A2 2D17 A2 2D18 A2 2D19 A2 2D20 A1 2D21 B2 2D25 A2 2D26 A2 2D27 A2 2D28 A2 2D29 A2 2D30 A2 2D32 B1 2D34 A1 2D35 A1 2D37 A1 2D39 A1 2D40 A1 2D41 A1 2D43 B2 2D44 B2 2D45 A2 2D46 A2 2D47 A2 2DD1 A3 2DD2 B3 2DD4 B3 2DD8 B2 2DE0 B1 2DF0 A3 2DF2 A3 2DF3 B3 2DF4 B1 2DF6 A1 3D01 B2 3D02 B2 3D05 B2 3D06 A2 3D07 B2 3D08 A2 3D09 B2 3D10 B2 3D11 A2 3D12 A2 3D13 A2 3D14 B2 3D16 A2 3D17 A2 3D18 A3 3D19 A2 3D20 A2 3D26 A2 3D27 A2 3D30 B1 3D31 B1 3D32 B1 3D33 A2 3D34 A2 3D35 A1 3D36 A2 3D37 A2 3D38 A2 3D39 A2 3D41 A2 3D42 A1 3D43 A1 3D46 A2 3D48 A1 3D69 A2 3D70 A1 3DD0 B1 3DD1 B1 3DD2 B1 3DD3 B3 3DD4 B3 3DD5 B3 3DD6 B3 3DD7 B1 3DF0 B1 3DF1 B1 3DF2 A3 3DF3 A3 3DF4 B3 3DF5 B3 3DF6 B3 3DF7 A3 3DF8 A3 3DF9 B3 3DG0 B3 3DG1 B3 3DG2 B3 3DG3 B3 3DG4 A3 3DG5 B3 3DG6 B3 3DG7 B3 3DG8 B3 3DG9 B3 3DH0 B3 3DH1 B3 3DH2 B3 3DH3 B2 3DH4 B3 3DH5 B3 3DH6 B3 3DH7 B3 6DF0 B3 6DF1 B3 6DF2 B1 7D00 A2 7D05 B2 7D06 A2 7D07 A2 7D08 A2 7D09 B2 7D10 A3 7D12 A2 7D30 B1 7D31 B1 7D32 A1 7D33 A1 7D34 A1 7D35 A1 7D37 A2 7DD0 B1 7DF0 A3 7DF1 A3 7DF2 B3 7DF3 B3 7DF4 B3 7DF5 B3 7DF6 B3 7DF7 A3 7DH0 B2 9D03 B3 9D04 B3 9DD1 B1 9DD2 B3 9DD3 B1 9DF0 B2

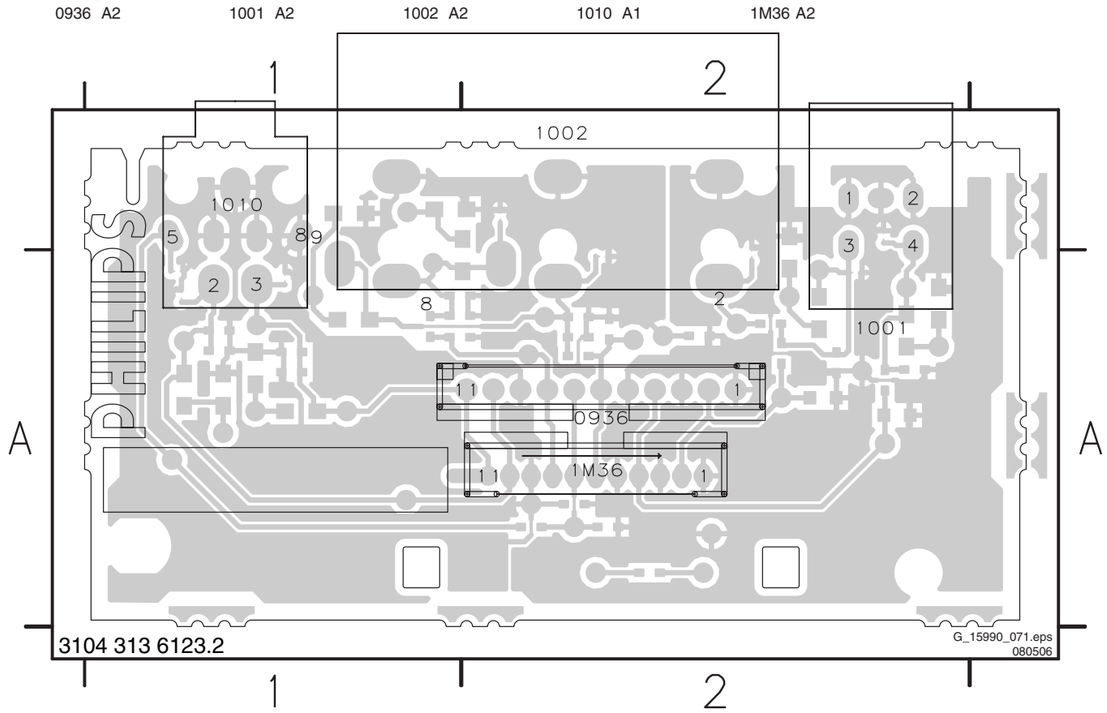


Side I/O Panel (Top B)



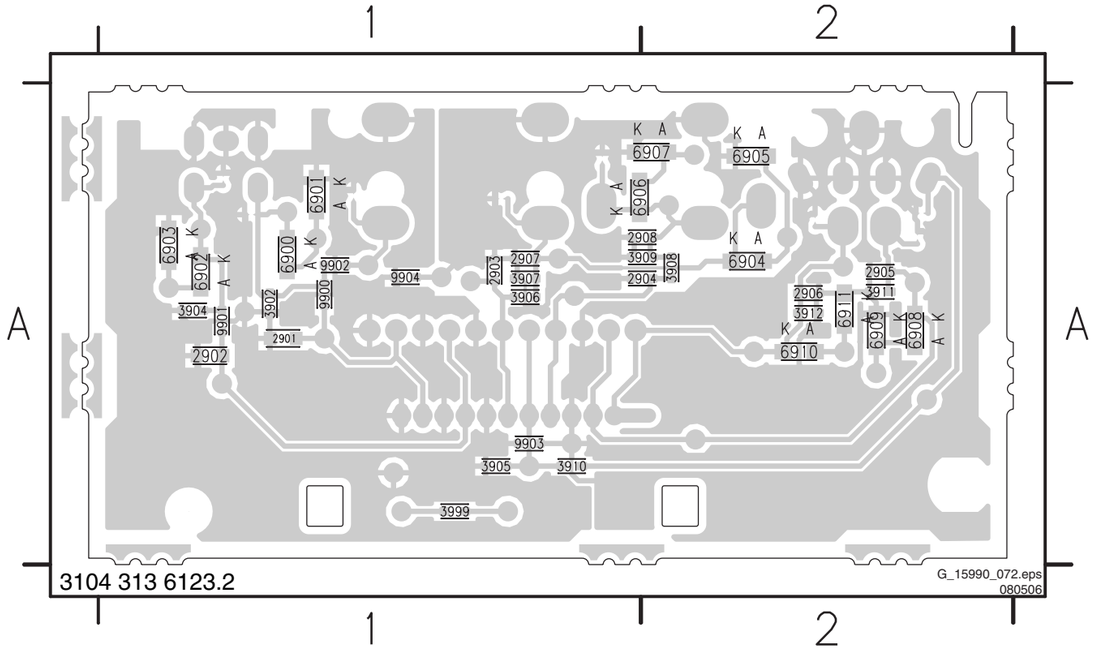
Layout Side I/O Panel (Top B) (Top Side)

0936 A2 1001 A2 1002 A2 1010 A1 1M36 A2



Layout Side I/O Panel (Top B) (Bottom Side)

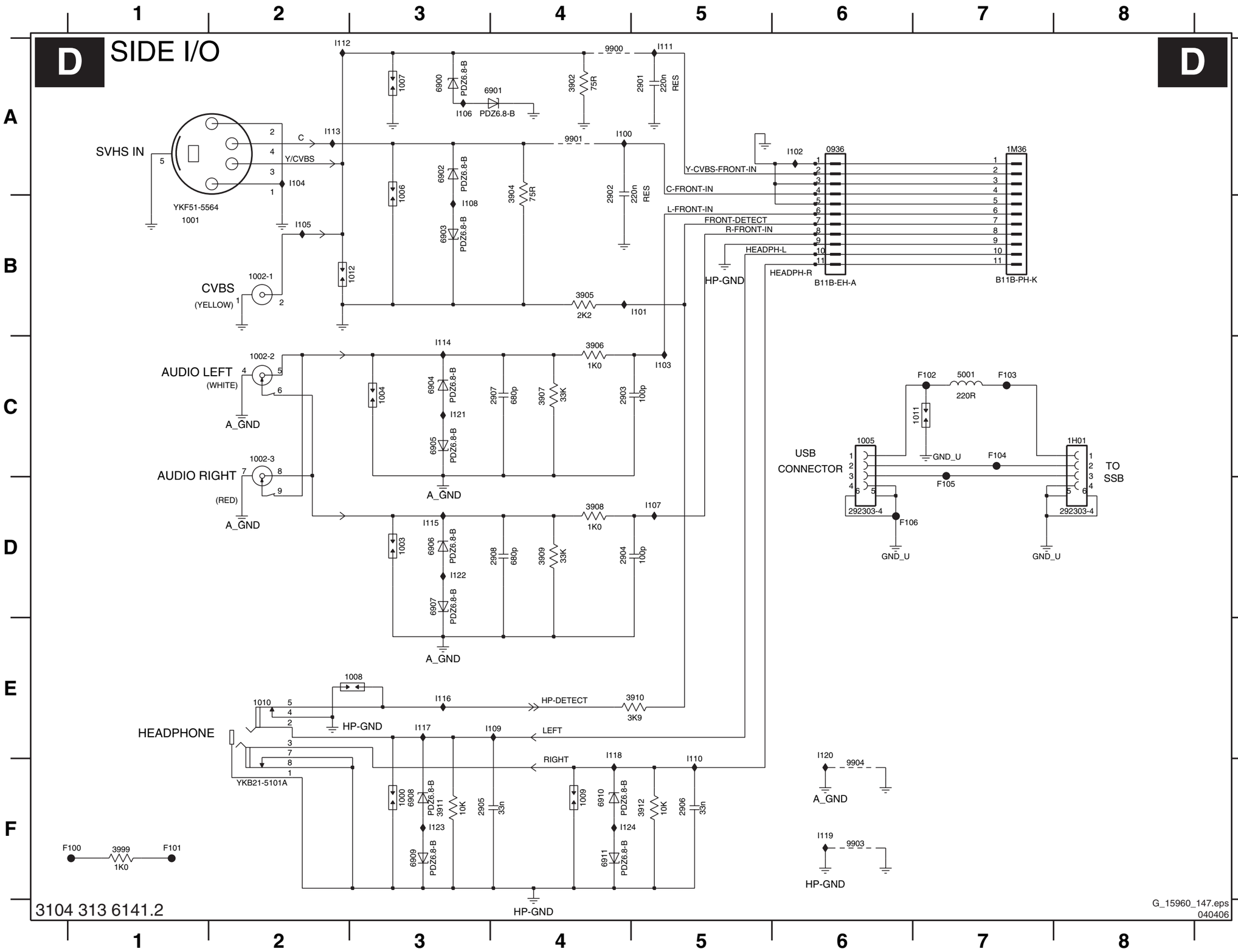
2901 A1 2904 A2 2907 A1 3904 A1 3907 A1 3910 A1 3999 A1 6902 A1 6905 A2 6908 A2 6911 A2 9902 A1
2902 A1 2905 A2 2908 A2 3905 A1 3908 A2 3911 A2 6900 A1 6903 A1 6906 A2 6909 A2 9900 A1 9903 A1
2903 A1 2906 A2 3902 A1 3906 A1 3909 A2 3912 A2 6901 A1 6904 A2 6907 A1 6910 A2 9901 A1 9904 A1



Personal Notes:

E_06532_012.eps
131004

Side I/O Panel (Entry & Step)



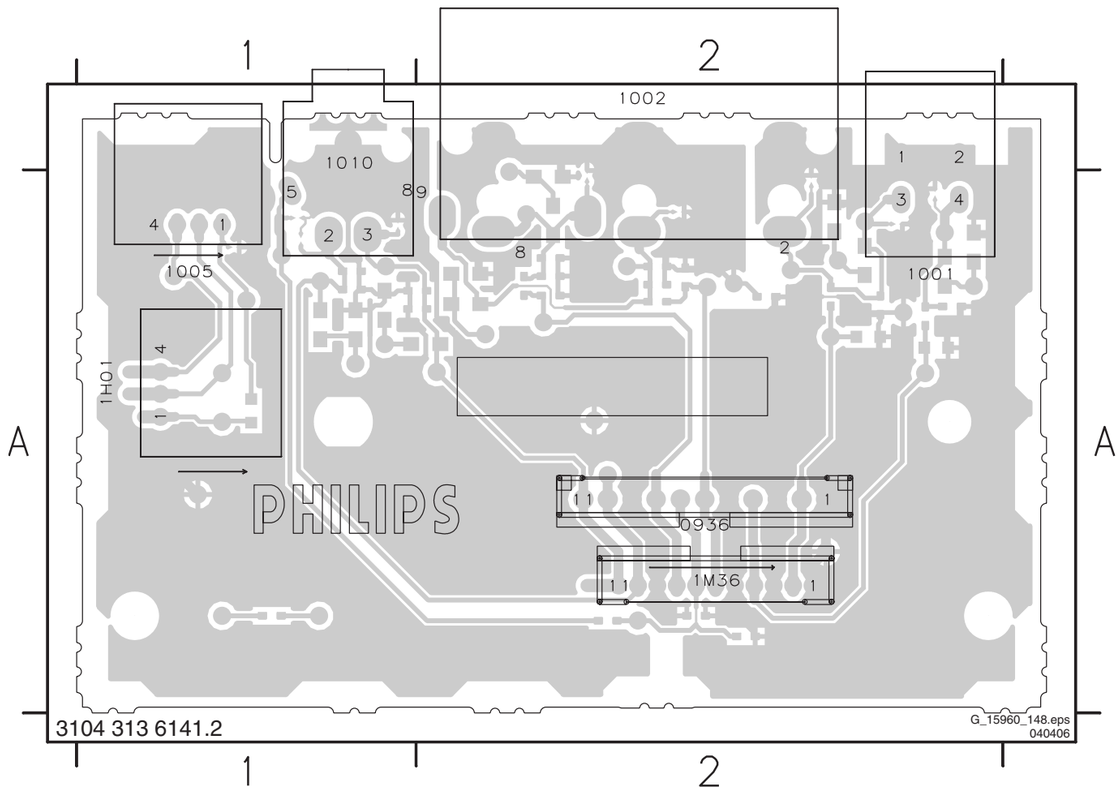
3104 313 6141.2

G_15960_147.eps
040406

0936 A6
1000 F3
1001 B1
1002-1 B2
1002-2 C2
1002-3 C2
1003 D3
1004 C3
1005 C6
1006 A3
1007 A3
1008 E3
1009 F4
1010 E2
1011 C7
1012 B2
1H01 C8
1M36 A7
2901 A5
2902 A4
2903 C4
2904 D4
2905 F3
2906 F5
2907 C4
2908 D4
3902 A4
3904 A4
3905 B4
3906 C4
3907 C4
3908 D4
3909 D4
3910 E5
3911 F3
3912 F5
3999 F1
5001 C7
6900 A3
6901 A4
6902 A3
6903 B3
6904 C3
6905 C3
6906 D3
6907 D3
6908 F3
6909 F3
6910 F4
6911 F4
9900 A4
9901 A4
9903 F6
9904 F6
F100 F1
F101 F1
F102 C7
F103 C7
F104 C7
F105 D7
F106 D6
I100 A4
I101 B5
I102 A6
I103 C5
I104 A2
I105 B2
I106 A3
I107 D5
I108 B3
I109 E4
I110 F5
I111 A5
I112 A2
I113 A2
I114 C3
I115 D3
I116 E3
I117 E3
I118 E4
I119 F6
I120 E6
I121 C3
I122 D3
I123 F3
I124 F4

Layout Side I/O Panel (Entry & Step) (Top Side)

0936 A2 1001 A2 1002 A2 1005 A1 1010 A1 1H01 A1 1M36 A2



Layout Side I/O Panel (Entry & Step) (Bottom Side)

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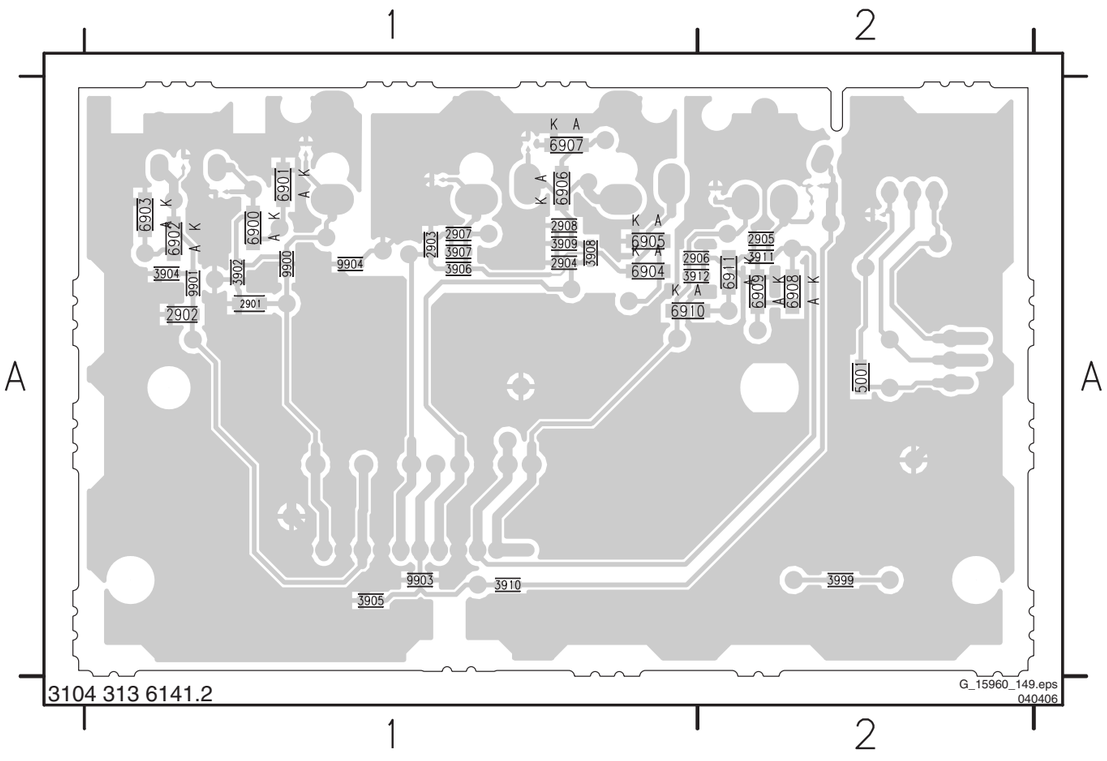
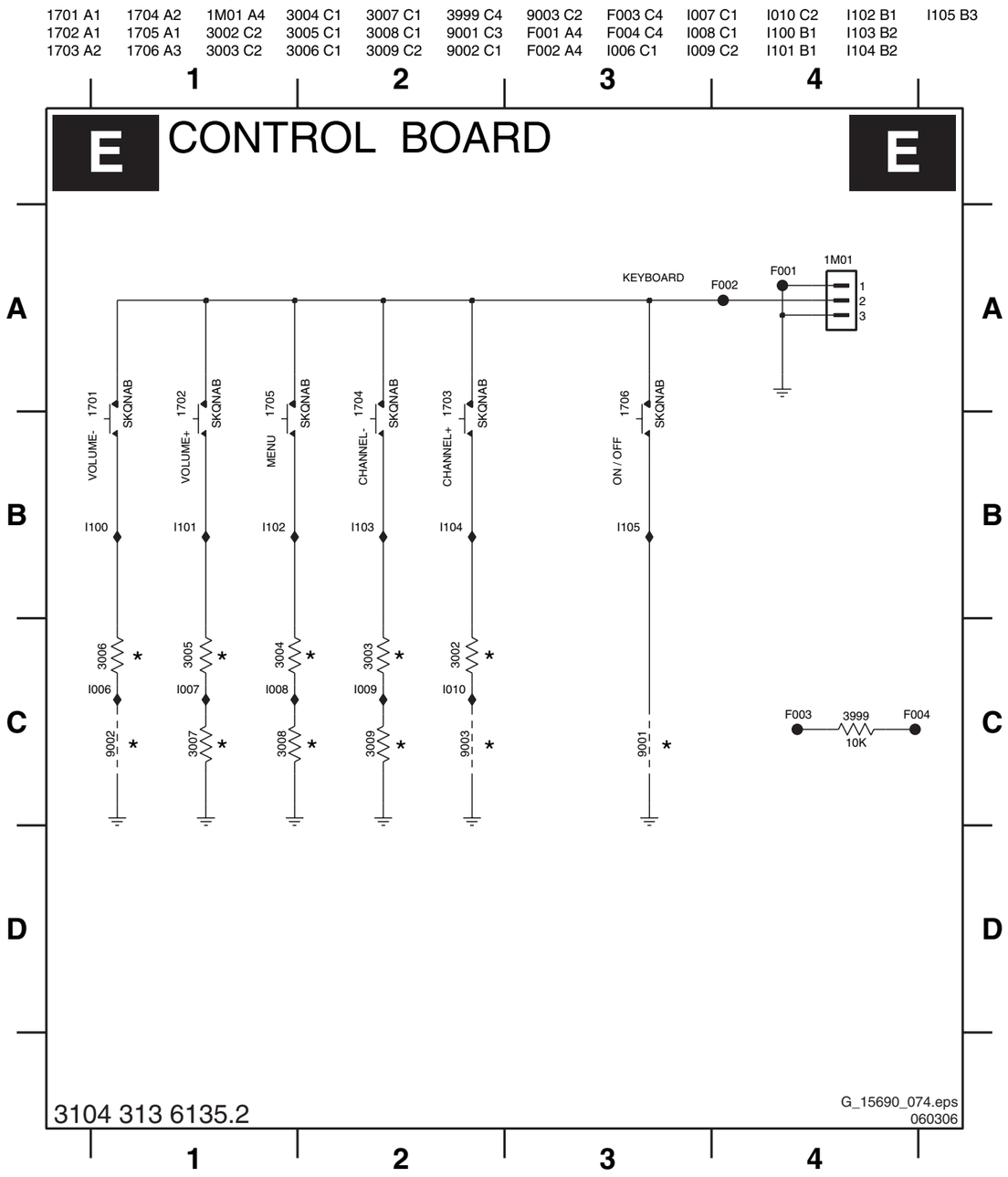
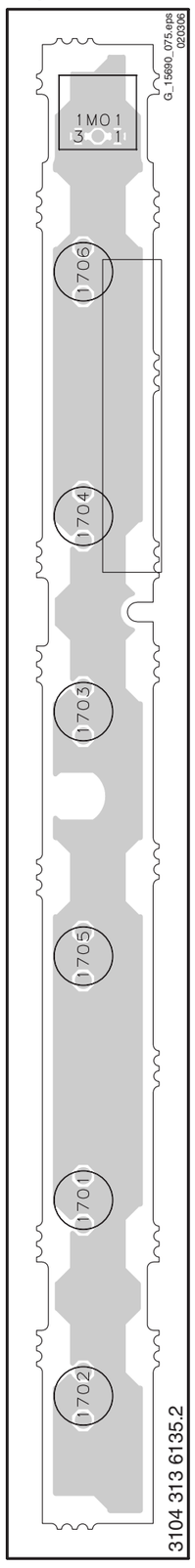


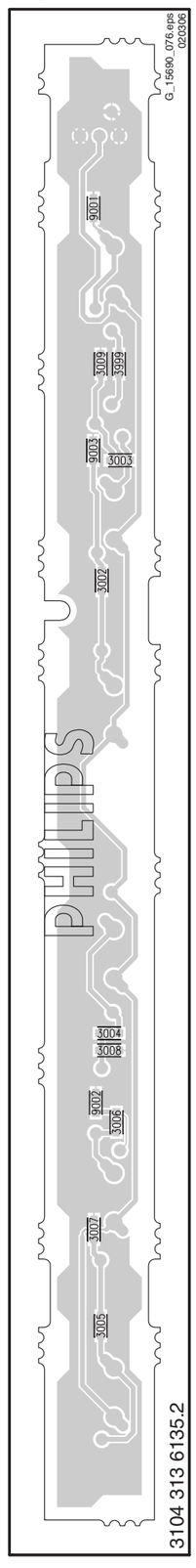
Control Board (Top B & Step)



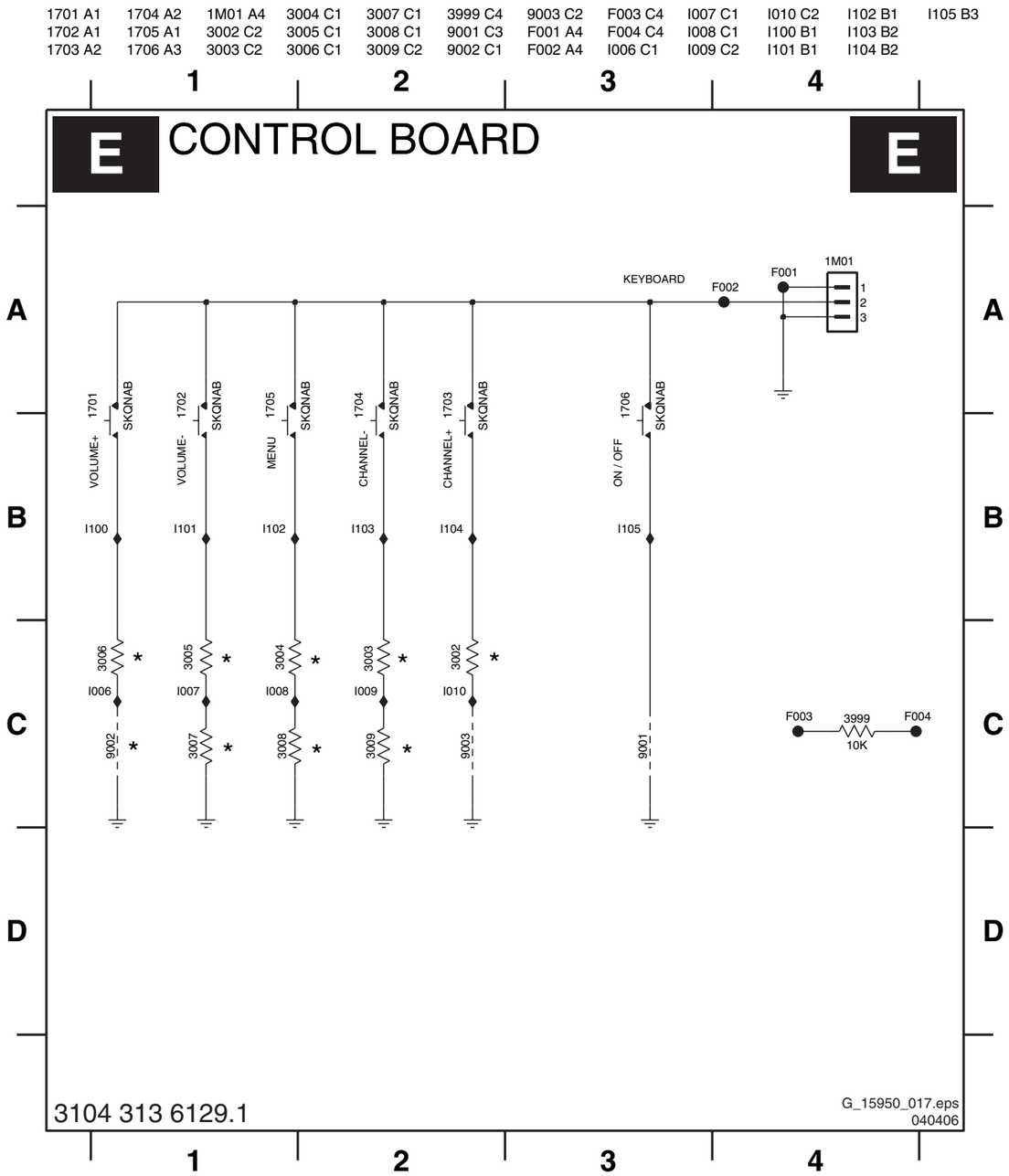
Layout Control Board (Top Side)



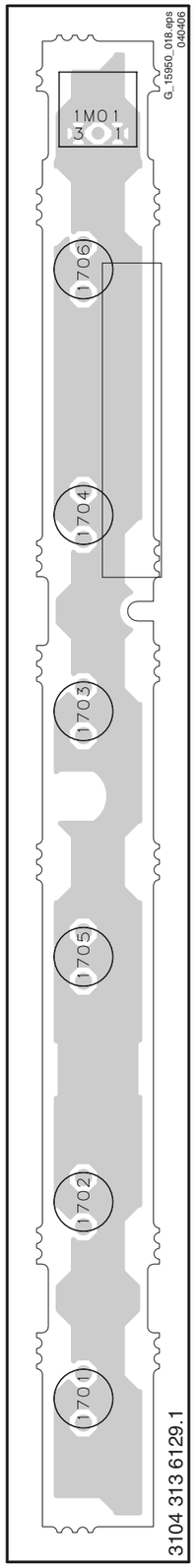
Layout Control Board (Bot Side)



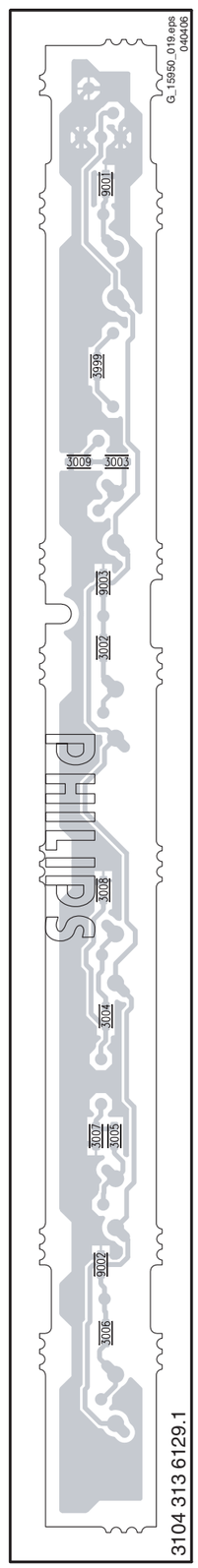
Control Board (Entry)



Layout Control Board (Top Side)



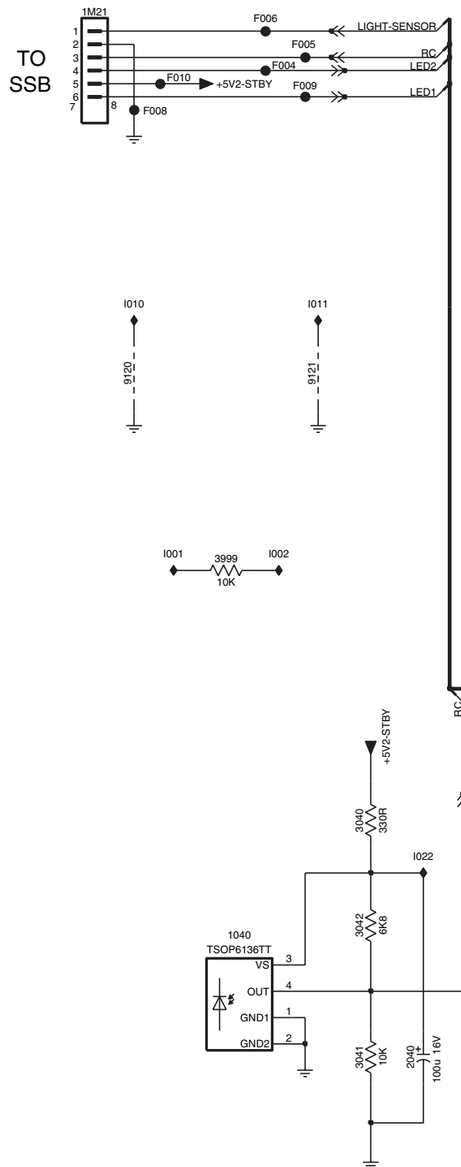
Layout Control Board (Bot Side)

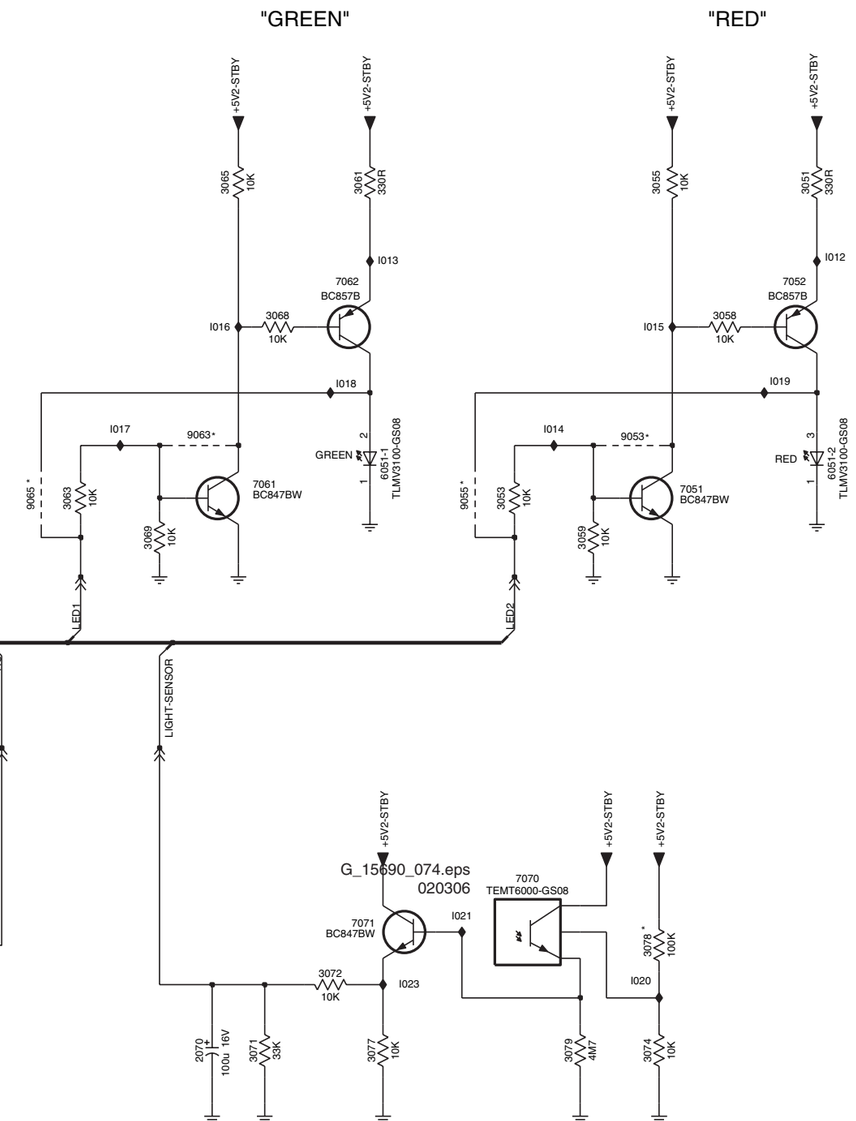


LED Panel (Top B & Step)

LED PANEL

J





"IR RECEIVER"

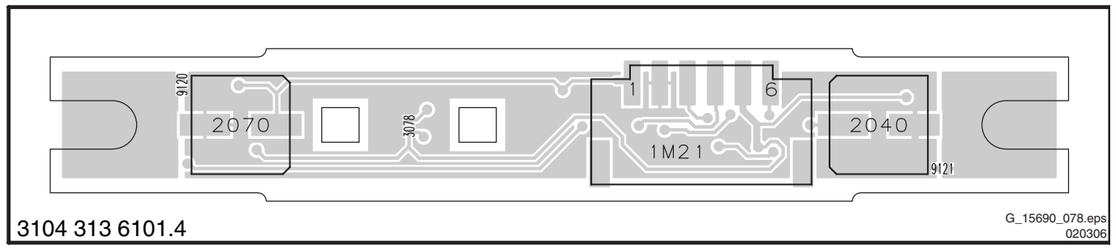
"LIGHT SENSOR"

3104 313 6101.4

G_15690_077.eps
020306

1040 G2
1M20 B1
2040 G3
2070 G4
3040 F3
3041 G3
3042 F3
3051 C7
3053 D6
3055 C7
3058 C7
3059 E6
3061 C5
3063 D3
3065 C4
3068 C5
3069 E4
3071 G4
3072 G5
3074 G7
3077 G5
3078 G7
3079 G6
3999 D2
6051-1 D5
6051-2 D8
7051 D7
7052 C7
7061 D4
7062 C5
7070 G6
7071 G5
9053 D7
9055 D6
9063 D4
9065 D3
9120 C1
9121 C2
F004 B2
F005 B2
F006 B2
F008 B1
F009 B2
F010 B2
I001 D2
I002 D2
I010 C1
I011 C2
I012 C8
I013 C5
I014 D6
I015 C7
I016 C4
I017 D4
I018 D5
I019 D7
I020 G7
I021 G6
I022 F3
I023 G5

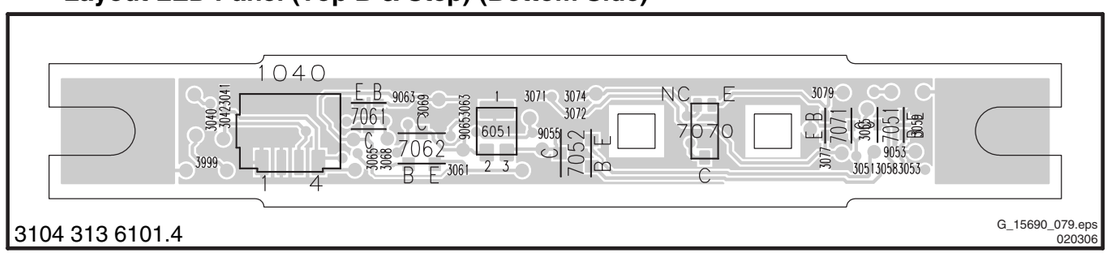
Layout LED Panel (Top B & Step) (Top Side)



3104 313 6101.4

G_15690_078.eps
020306

Layout LED Panel (Top B & Step) (Bottom Side)



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G_15690_079.eps
020306

Personal Notes:

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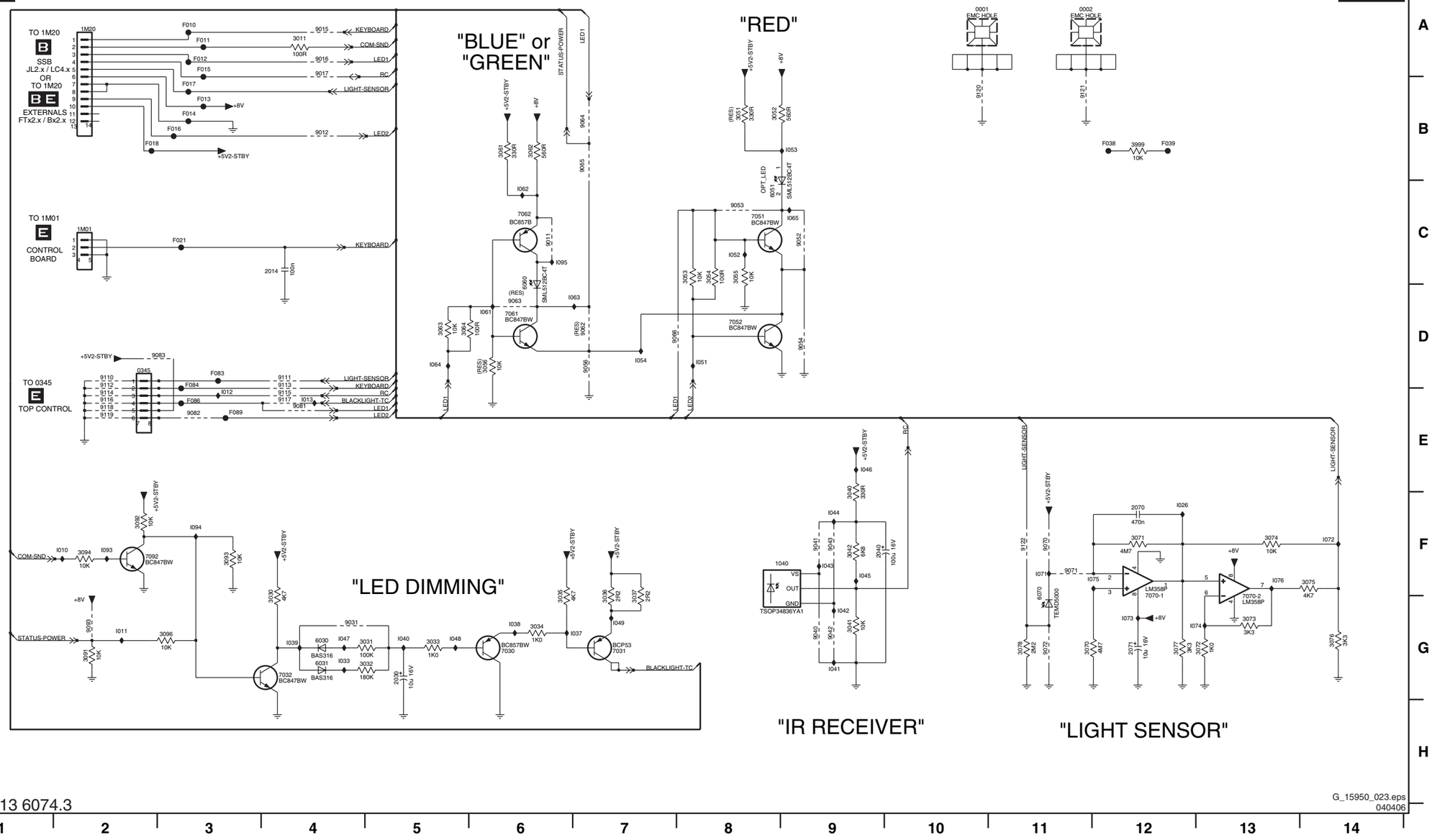
131004

LED Panel (Entry)

J LED PANEL



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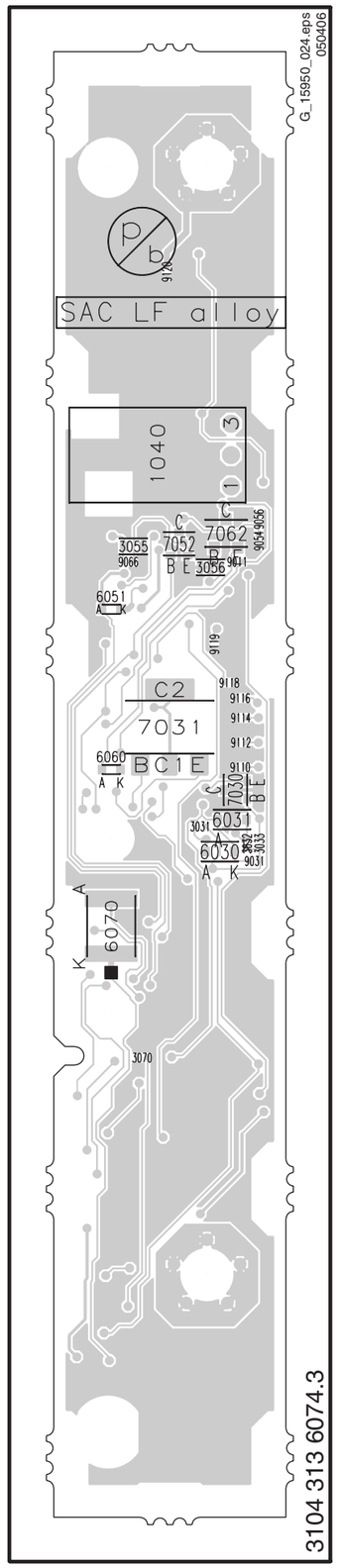
040406

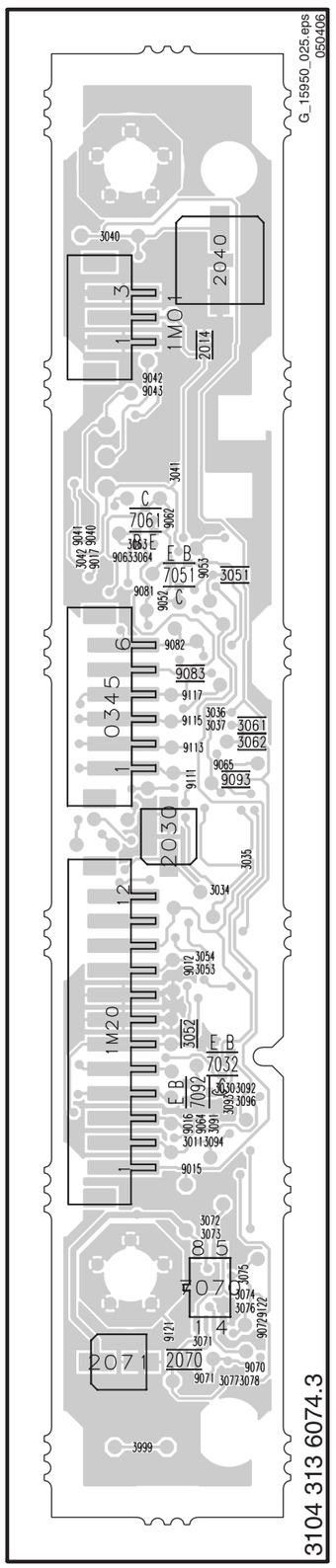
0001 A10
0002 A11
0345 D2
1040 F9
1M01 C2
1M20 A2
2014 C4
2030 G5
2040 F9
2070 F12
2071 G12
3011 A4
3030 G4
3031 G5
3032 G5
3033 G5
3034 G6
3035 G6
3036 G7
3037 G7
3040 F9
3041 G9
3042 F9
3051 B8
3052 B8
3053 C8
3054 C8
3055 C8
3056 D6
3061 B6
3062 B6
3063 D5
3064 D5
3070 G11
3071 F12
3072 G13
3073 G13
3074 F13
3075 F14
3076 G14
3077 G12
3078 G11
3091 G2
3092 F2
3093 F3
3094 F2
3096 G3
3999 B12
6030 G4
6031 G4
6051 C8
6060 C6
6070 G11
7030 G6
7031 G7
7032 G4
7051 C8
7052 D8
7061 D6
7062 C6
7070-1 F12
7070-2 G13
7092 F2
9011 C6
9012 B4
9015 A4
9016 A4
9017 A4
9031 G4
9040 G9
9041 F9
9042 G9
9043 F9
9052 C9
9053 C8
9054 D9
9056 D7
9062 D7
9063 D6
9064 B7
9065 B7
9066 D7
9070 F11
9071 F11
9072 G11
9081 E4
9082 E3
9083 D3
9093 G2
9110 D2
9111 D4
9112 D2
9113 D4
9114 E2
9115 E4
9116 E2
9117 E4
9118 E2
9119 E2
9120 B10
9121 B11
9122 F11
F010 A3
F011 A3
F012 A3
F013 B3
F014 B3
F015 A3
F016 B3
F017 B3
F018 B2
F021 C3
F038 B12
F039 B12
F083 D3
F084 D3
F086 E3
F089 E3
I010 F2
I011 G2
I012 E3
I013 E4
I026 F12
I033 G4
I037 G7
I038 G6
I039 G4
I040 G5
I041 G9
I042 G9
I043 F9
I044 F9
I045 F9
I046 E9
I047 G4
I048 G5
I049 G7
I051 D8
I052 C8
I053 B9
I054 D7
I061 D6
I062 C6
I063 D7
I064 D5
I065 C9
I071 F11
I072 F14
I073 G12
I074 G12
I075 F12
I076 F13
I093 F2
I094 F3
I095 C6

Layout LED Panel (Entry) (Top Side)



1040 --
3031 --
3032 --
3033 --
3055 --
3056 --
3070 --
6030 --
6031 --
6051 --
6060 --
6070 --
7030 --
7031 --
7052 --
7062 --
9011 --
9031 --
9054 --
9056 --
9066 --
9110 --
9112 --
9114 --
9116 --
9118 --
9119 --
9120 --

Layout LED Panel (Entry) (Bottom Side)



0345 --
1M01 --
1M20 --
2014 --
2030 --
2040 --
2070 --
2071 --
3011 --
3030 --
3034 --
3035 --
3036 --
3037 --
3040 --
3041 --
3042 --
3051 --
3052 --
3053 --
3054 --
3061 --
3062 --
3063 --
3064 --
3071 --
3072 --
3073 --
3074 --
3075 --
3076 --
3077 --
3078 --
3091 --
3092 --
3093 --
3094 --
3096 --
3999 --
7032 --
7051 --
7061 --
7070 --
7092 --
9012 --
9015 --
9016 --
9017 --
9040 --
9041 --
9042 --
9043 --
9052 --
9053 --
9062 --
9063 --
9064 --
9065 --
9070 --
9071 --
9072 --
9081 --
9082 --
9083 --
9093 --
9111 --
9113 --
9115 --
9117 --
9121 --
9122 --

8. Alignments

Index of this chapter:

8.1 General Alignment Conditions

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:
- Power supply voltage: 120 V_{AC} / 60 Hz (± 10%).
- Connect the set to the AC Power via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 15 minutes.
- Measure voltages and waveforms in relation to the applicable ground (e.g. measure audio signals in relation to AUDIO_GND etc.).
  Caution: It is not allowed to use heatsinks as ground.
- Test probe: Ri > 10 Mohm, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

8.1.2 Initial Settings

Perform all electrical adjustments with the following initial settings (by pressing the "MENU" button on the RC):
1. Press the “MENU” button on the RC.
2. Select “TV”.
3. Select “Picture”.
4. To avoid the working of the lightsensor, set “Active Control” to OFF.
5. Set “Auto Picture” to NATURAL.

8.1.3 Alignment Sequence

- First, set the correct options:
  – In SAM, select “Options” -> “Option numbers”, “Group 1” and “Group 2”.
  – Fill in the option settings according to the set sticker (see also paragraph "Option Settings"),
  – Press OK on the remote control **before** the cursor is moved to the left.
  – Select STORE OPTIONS and push OK on the remote control.
  – In main menu, select STORE again and press OK on the RC.
  – After storing, the set must be restarted!
- Warming up (>10 minutes).
- White point alignment.

8.2 Hardware Alignments

Not applicable.

8.3 Software Alignments

Put the set in SAM mode (see the "Service Modes, Error Codes and Fault Finding" section). The SAM menu will now appear on the screen. Select “Alignments” and go to one of the sub menus. The alignments are explained below.

Notes:
- All changes must be stored manually.
- If an empty NVM (permanent memory) is detected, all settings are set to pre-programmed default values.

With the software alignments of the Service Alignment Mode (SAM), “Tuner AGC” and the “Whitepoint” settings can be aligned.
To store the data:
- Press OK on the RC **before** the cursor in moved to the left!
- In main menu, select “Store” and press OK on the RC.

8.3.1 General

For the next alignments, supply the following test signals via a video generator to the RF input: NTSC M/N TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).

Tuner AGC
Purpose: To keep the tuner output signal constant as the input signal amplitude varies.

Default value: “32”.

In case the default value gives problems, use the next method:
1. Set the video generator to a color bar test pattern and a RF amplitude of 1 mV.
2. Select the channel with the test picture.
3. Measure the DC voltage on pin 1 of the (main) Tuner.
4. Adjust this voltage via TUNER AGC to just below 3.5 V.

8.3.2 White Point

- Perform initial settings as described in section “Initial Settings”.
- In the user menu “TV” -> “Picture” user menu, set:
  – “Dynamic contrast” to OFF.
  – “Color enhancement” to OFF.
  – “Color” to "0".
  – “Contrast” to "100".
  – “Brightness” to "50".
- Go to the SAM and select “Alignments” -> “Whitepoint”.

Method 1 (with color analyzer):
- Use a 100% white screen as input signal and set the following values:
  – COLOR TEMPERATURE: "Tint to be aligned".
  – All WHITE POINT values to: "127".
  – RED and GREEN BL OFFSET values to: "3".
- Measure with a calibrated (phosphor- independent) color analyzer in the centre of the screen. Consequently, the measurement needs to be done in a dark environment.
- Adjust, by means of decreasing the value of one or two white points, the correct x,y coordinates (see table "White D alignment values"). Tolerance: dx,dy: ± 0.004.
- Repeat this step for the other Color Temperatures that need to be aligned.
- When finished press STORE (in the SAM root menu) to store the aligned values to the NVM.
- Restore the initial picture settings after the alignments.

Table 8-1 White D alignment values

Color Temp.	Cool	Normal	Warm
x	0.276	0.285	0.313
y	0.282	0.293	0.329

When such equipment is not available, use “method 2”.

Method 2 (without color analyzer):
If you do not have a color analyzer, you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).

1. Select a COLOUR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
2. Set the RED, GREEN and BLUE default values according to the values in the "Tint settings" table.
3. When finished press STORE (in the SAM root menu) to store the aligned values to the NVM.
4. Restore the initial picture settings after the alignments.

Table 8-2 Tint settings (42”/50”)

	Default Values (42”/50”)		
	Cool	**Normal**	**Warm**
R	110/127	127/127	122/127
G	123/114	114/94	127/107
B	127/125	83/71	121/108

Note: *These values were not available at the time of writing, therefore they come from an early production sample (for indication only). As soon as the production data become available, a Service Info or Service Manual update will be issued via the appropriate channels.*

8.4 Option Settings

8.4.1 Introduction

The microprocessor communicates with a large number of I^2C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known by the option codes.

Notes:
- After changing the option(s), save them with the STORE command.
- The new option setting is only active after the TV is switched "off" and "on" again with the Mains switch (the NVM is then read again).

8.4.2 Dealer Options

Table 8-3 Dealer options

Menu item	Subjects	Options	Description
Personal Options	Picture Mute	On	Picture mute active in case no picture detected
		Off	Noise in case of no picture detected
	Virgin Mode	On	TV starts up (once) with a language selection menu after the Mains switch is turned "on" for the first time (virgin mode)
		Off	TV does not start up (once) with a language selection menu after the Mains switch is turned "on" for the first time (virgin mode)

8.4.3 (Service) Options

Select the sub menu's to set the initialization codes (options) of the set via text menus.

Table 8-4 Service options

Menu-item	Subjects	Options	Description
PIP/DS	Dual Screen	None / 1 tuner / 2 tuners	no DS / DS with one tuner / DS with two tuners
Data	TV Guide US	On / Off	Feature present / not present
Display	Screen	“Value”	Used screen size, type, and resolution
	Scanning Backlight	On / Off	Feature present / not present
	Dimming Backlight	On / Off	Feature present / not present
Video Repro	Picture Processing	Spider / No Spider	Feature present / not present
	Combfilter	None / 2D / 3D	Only selectable when Columbus is present
	Ambient Light	None / Mono / Stereo	Inverter not present / one inverter / two inverters
	MOP	On / Off	Feature present / not present; in this chassis, no MOP is implemented
Source Selection	HDMI 1	None / Audio / No Audio	No HDMI / HDMI with analog audio / HDMI without analog audio
	HDMI 2	None / Audio / No Audio	No HDMI / HDMI with analog audio / HDMI without analog audio
	USB version	None / 1.1 / 2.0 + CR	No USB / USB 1.1 in side I/O panel / USB 2.0 in cardreader panel
	IEEE1394	Yes / No	Connector present / not present
	Ethernet	Yes / No	Connector present / not present
	S/PDIF inputs	None / 1 conn. / 2 conn.	None / 1 connector present (in)/ 2 connectors present (in/out)
Audio Repro	Subw. Internal Present	Yes / No	Internal sub woofer present / not present
	Acoustic System (Cabinet design, used for setting dynamic audio parameters).	None	n.a.
		Entry ME5 5W	n.a
		Entry ME5 15W	42/50PF7320A
		(Soft) Wrap	n.a.
		Top	n.a.
		Entry+	42/50PF9630A, 50PF9830A
		Others	n.a.
Miscellaneous	Alternative Tuner	Philips / Alps	Tuner brand
	Tuner Type	TD1336S	Tuner type
Opt. no.	Group 1		xxxxx xxxxx xxxxx xxxxx (see set sticker)
	Group 2		xxxxx xxxxx xxxxx xxxxx (see set sticker)

8.4.4 Opt. No. (Option numbers)

Select this sub menu to set all options at once (expressed in two long strings of numbers).
An option number (or "option byte") represents a number of different options. When you change these numbers directly, you can set all options very quickly. All options are controlled via eight option numbers.
When the NVM is replaced, all options will require resetting. To be certain that the factory settings are reproduced exactly, you must set both option number lines. You can find the correct option numbers on a sticker inside the TV set.

Example: The options sticker gives the following option numbers:

- 04368 00005 01066 08707
- 00000 00032 00512 00000

The first line (group 1) indicates hardware options 1 to 4, the second line (group 2) indicates software options 5 to 8.
Every 5-digit number represents 16 bits (so the maximum value will be 65536 if all options are set).
When all the correct options are set, the sum of the decimal values of each Option Byte (OB) will give the option number.
See next table for the option overview.

Table 8-5 Option code overview

Byte	Bit (dec. value)	Subject	Options	Settings (in decimal values)	Remarks
1	0 (1)	Video Repro	Picture Processing	0= No Spider, 1= Spider	Spider availability, influences, digital options.
	1 (2)				
	2 (4)				
	3 (8)		Comb Filter	0= None, 8= 2D Comb (Columbus without DRAM), 16= 3D Comb (Columbus with DRAM)	
	4 (16)				
	5 (32)		Ambient Light	0= None, 32=Ambi-light Stereo, 64= Ambi-light Mono	
	6 (64)				
	7 (128)				
	8 (256)		Dual Screen	0= None, 256= One Tuner DS, 512= Two Tuner DS	
	9 (512)				
	10 (1024)		MOP	0= Off, 1024= On	Matrix Output Processor (or EBILD)
	11 (2048)		JOP	0= Off, 2048= On	Jaguar Output Processor (or EBILD) Reserved for future use
	12 (4096)		POD	0= Off, 4096= On	
	13 (8192)		n.a.		
	14 (16384)		n.a.		
	15 (32768)		n.a.		
2	0 (1)	Sound Repro	Acoustic System (Cabinet)	0= None, 1= Entry_ ME5_5W, 2= Entry_ME5_15W, 3= (Soft)Wrap, 4= Top, 5= Entry+, 15= Others	Cabinet design, used for setting dynamic audio parameters.
	1 (2)				
	2 (4)				
	3 (8)				
	4 (16)		Aux Headphone Sound	0= Off, 16= On	Dual AC3 sound in Aux available.
	5 (32)		n.a.		
	6 (64)		n.a.		
	7 (128)		n.a.		
	8 (256)		n.a.		
	9 (512)		Sub woofer Internal	0= Not Present, 512= Present	
	10 (1024)		Centre Mode Support	0= Not Supported, 1024= Supported	
	11 (2048)		n.a.		
	12 (4096)		n.a.		
	13 (8192)		n.a.		
	14 (16384)		n.a.		
	15 (32768)		n.a.		
3	0 (1)	Source Select	HDMI1	0= None, 1= With analog audio, 2= Without analog audio	
	1 (2)				
	2 (4)		HDMI2	0= None, 4= With analog audio, 8= Without analog audio	
	3 (8)				
	4 (16)		n.a.		
	5 (32)		USB Version	0= None, 32= USB 1.1, 64= USB 2.0 + Card reader	USB support.
	6 (64)				
	7 (128)		IEEE1394	0= Not Present, 128= Present	
	8 (256)		Ethernet	0= LAN not present, 256= LAN present	
	9 (512)		n.a.		
	10 (1024)		S/PDIF Inputs	0= None, 1024= 1 Connector, 2048= 2 Connectors	
	11 (2048)				
	12 (4096)		LCOS I/O	0= Not Present, 4096= Present	
	13 (8192)		n.a.		
	14 (16384)		n.a.		
	15 (32768)		n.a.		
4	0 (1)	Region	Region	0= EU, 1= AP-P, 2= AP-N, 3= US, 4= Latam	
	1 (2)				
	2 (4)				
	3 (8)	Interconnect	China IF	0= Off, 8= On	
	4 (16)		Alternative Tuner	0= Philips, 16= Alps	Tuner make.
	5 (32)		Tuner Type	0= TD1336s (B-Chassis US), 32= TD1331(J-Chassis US), 64= UV1318 (Analogue EU), 96= TD1316 (Hybrid EU)	Tuner type (B-chassis US is e.g "BP2.3U").
	6 (64)				
	7 (128)	Source Select	n.a.		
	8 (256)		AV1	0= CVBS/RGB, 256= CVBS/YC/LR, 512= CVBS/YC/YPbPr/HV/LR	Input type.
	9 (512)				
	10 (1024)		AV2	0= CVBS/YC/RGB/P50, 1024= CVBS/YC/LR	Input type.
	11 (2048)				
	12 (4096)		AV3	0= Not Available, 4096= CVBS, 8192= YPbPr	Input type.
	13 (8192)				
	14 (16384)		AV4	0= Not Available, 16384= YPbPr	Input type.
	15 (32768)				

Byte	Bit (dec. value)	Subject	Options	Settings (in decimal values)	Remarks
5	0 (1)	Display	Screen	000 (0000)= 42-inch PDP (SDI) HD V3, 001 (0256)= 50-inch PDP (SDI) HD V3, 002 (0512)= 42-inch PDP (FHP) ALiS, 003 (0768)= 30-inch LCD (LPL), 004 (1024)= 37-inch LCD (LPL), 005 (1280)= 42-inch LCD (LPL), 006 (1536)= 32-inch LCD (Sharp), 007 (1792)= 42-inch PDP (SDI) SD, 008 (2048)= 37-inch PDP (FHP) ALiS, 009 (2304)= Reserved, 010 (2560)= 30-inch LCD (AUO), 011 (2816)= 32-inch LCD (LPL), 012 (3072)= 32-inch LCD (AUO), 013 (3328)= 37-inch LCD (Sharp), 014 (3584)= 42-inch LCD (LPL) HD, 015 (3840)= 37-inch PDP (SDI) SD, 016 (4096)= 37-inch PDP (FHP) ALiS, 017 (4352)= 42-inch PDP (FHP) ALiS, 018 (4608)= 55-inch PDP (FHP), 019 (4864)= Reserved, 020 (5120)= Reserved, 021 (5376)= 26-inch LCD (LPL), 022 (5632)= 32-inch LCD (LPL) scan. BL, 023 (5888)= 42-inch PDP (LG) SD, 024 (6144)= 42-inch PDP (SDI) SD V4, 025 (6144)= 42-inch PDP (SDI) HD V4, 026 (6400)= 42-inch PDP (FHP) HD A2, 027 (6656)= 50-inch PDP (SDI) HD V4, 028 (6912)= 37-inch LCD (Sharp) HD	Screen size, type, and resolution.
	1 (2)				
	2 (4)				
	3 (8)				
	4 (16)				
	5 (32)				
	6 (64)				
	7 (128)				
	8 (256)		n.a.		
	9 (512)		n.a.		
	10 (1024)		Dimming Backlight	0= Off, 1024= On	
	11 (2048)		Scanning Backlight	0= Off, 2048= On	
	12 (4096)		n.a.		
	13 (8192)		n.a.		
	14 (16384)		n.a.		
	15 (32768)		n.a.		
6	0 (1)	Miscellaneous	Monitor	0= Off, 2= On	Reserved for future use
	1 (2)		n.a.		
	2 (4)		Stand Alone	0= Off, 4= On	Reserved for future use
	3 (8)		n.a.		
	4 (16)		n.a.		
	5 (32)		n.a.		
	6 (64)		Proximity Sensor	0= Off, 64= On	
	7 (128)		n.a.		
	8 (256)		Touch Pad	0= Off, 256= On	Reserved for future use
	9 (512)		n.a.		
	10 (1024)		n.a.		
	11 (2048)		n.a.		
	12 (4096)		n.a.		
	13 (8192)		n.a.		
	14 (16384)		n.a.		
	15 (32768)		n.a.		
7	0 (1)	Personal	Self Learning TV	0= Off, 1= On	Reserved for future use
	1 (2)		Auto Store Mode	0= None, 2= PDC/VPS, 4= TXT Page, 6= PDC/VPS/TXT Page	Fixed to: "None" in the AP-N and US versions.
	2 (4)				
	3 (8)		2CS Korea	0= Off, 8= On, 16= Auto	
	4 (16)				
	5 (32)		Picture Mute	0= Off, 32= On	
	6 (64)		n.a.		
	7 (128)		Virgin Mode	0= Off, 128= On	
	8 (256)		Hotel Mode	0= Off, 256= On	
	9 (512)		Content Browser	0= Not Present, 512= Present	
	10 (1024)		Connected Planet	0= Off, 1024= Full Connected Planet + logo support	
	11 (2048)				
	12 (4096)		n.a.		
	13 (8192)		EPG	0= None, 8192= TXT Guide only, 16384= NextView 2C3, 24576 = NexTView 2	
	14 (16384)				
	15 (32768)		TV Guide USA (Gemstar)	0= Off, 32768= On	
8	0 (1)	n.a.	n.a.		
	1 (2)	n.a.	n.a.		
	2 (4)	n.a.	n.a.		
	3 (8)	n.a.	n.a.		
	4 (16)	n.a.	n.a.		
	5 (32)	n.a.	n.a.		
	6 (64)	n.a.	n.a.		
	7 (128)	n.a.	n.a.		
	8 (256)	n.a.	n.a.		
	9 (512)	n.a.	n.a.		
	10 (1024)	n.a.	n.a.		
	11 (2048)	n.a.	n.a.		
	12 (4096)	n.a.	n.a.		
	13 (8192)	n.a.	n.a.		
	14 (16384)	n.a.	n.a.		
	15 (32768)	n.a.	n.a.		

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:

Notes:

- Only **new** circuits (circuits that are not published recently) are described.
- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the wiring, block (chapter 6) and circuit diagrams (chapter 7). Where necessary, you will find a separate drawing for clarification.

9.1 Introduction

The BJ2.x is derived from the BP2.x TV chassis. Main difference with this chassis is the introduction of the Pacific 3 IC for picture enhancement and AmbiLight processing. The MOP (or EPLD) has been taken out. The key components are:

- POD circuitry.
- MPIF (PNX3000).
- AVIP/COLUMBUS (PNX2015).
- VIPER 2 (PNX8550).

9.1.1 Features

Table 9-1 Main chassis features

Feature	BJ2.4 (Top)	BJ2.5 (Step)	BJ2.5 (Entry)
AmbiLight	Triple	Stereo	None
USB	2 x USB2.0	2 x USB2.0	1 x USB1.1
Card reader	Yes	No	No
MOP (EPLD)	No	No	No
Pacific 3	Yes	Yes	Yes
PixelPlus	Pixel Plus 3	Pixel Plus 3	Pixel Plus

The main features for this chassis are (see also table):

- The move from the analog world to the digital world. W.o.w. from signal processing via "hardware circuits" to signal processing via "software algorithms". This means: no software = no picture and sound!
- Fit for both analog and digital signal processing, this by converting analog signals into digital transport streams and allowing seamless zapping between all possible signal sources. This makes the chassis applicable for e.g. receiving ATSC in an integrated product form.
- AmbiLight (Top, Step): To be able to control lamps at the rear of the TV with respect to the measured ambient light level from the light sensor or the picture content, a control output from AutoTV has been foreseen.
- The internal digital processing allows new "Multi-Media" applications such as Content Browser, Memory Card Slot, Local Area Network support (future) and all kinds of streaming applications (future).
- The chassis can be upgraded in the future with internal functionality such as Personal Video Recording, DVD/RW.

9.1.2 Chassis Block Diagram

Description below refers to the block diagrams in chapter 6 “Block Diagrams, Test Point Overview, and Waveforms”.

Analog Reception

The TV receives multimedia information by tuning to one of many 6 MHz input channels available via a cable connection. When the input channel is an analog channel, the signal is processed via the NTSC decoder and the VBI data decoder.

Digital Reception

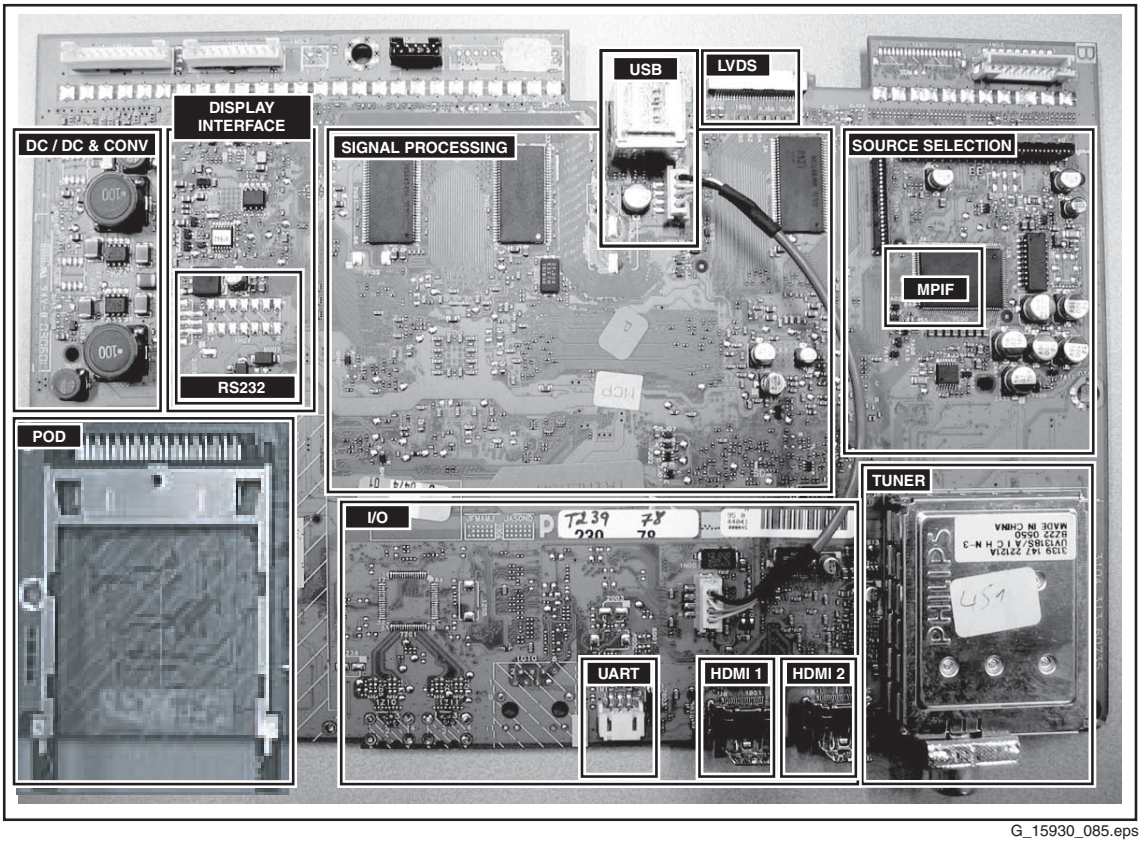
As depicted in the block diagram, the POD module consists of the following functional blocks: POD Common Interface, Out of Band part, and buffering. These blocks are interfacing with the ATSC In Band (IB) channel decoder and Out of Band (OOB) channel decoder. The interface is connected to the VIPER. Also the POD Interface outgoing Transport Stream (TS) is routed to the VIPER.
The TV receives multimedia information by tuning to one of many 6 MHz input channels available via a cable connection. When the input channel is a digital channel, it is processed via the QAM demodulator and then passed to the CableCARD device (POD) where secure and scrambled information is processed. Non-scrambled information is passed through the CableCARD Device to the MPEG-2 Transport Demultiplexer. When the CableCARD Device is not inserted, the output of the QAM demodulator is routed directly to the MPEG-2 Transport Demultiplexer. The multi-media processor (VIPER) handles the synchronization and display of audio-visual material.
The OpenCable Host Device also receives control information and other data by tuning to an Out-Of-Band (OOB) Forward Data Channel (FDC) channel. The terminal will remain tuned to the OOB Forward Data Channel (own tuner) to continuously receive information. This information is passed to the CableCARD Device for processing, and relevant information is passed back to the TV.

Signal Processing

The AVIP together with the MPIF device is used to perform the input decoding of a single stream of analog audio and video broadcast signals. In addition, the AVIP is used for decoding and presentation of audio output streams. The main data connection between MPIF and AVIP is done via an I^2D bus. The AVIP converts the incoming video data to ITU-656 format for communication to the VIPER IC.
The audio data is transferred between the AVIP and VIPER using I^2S. The AVIP IC is controlled by the VIPER via the I^2C bus.

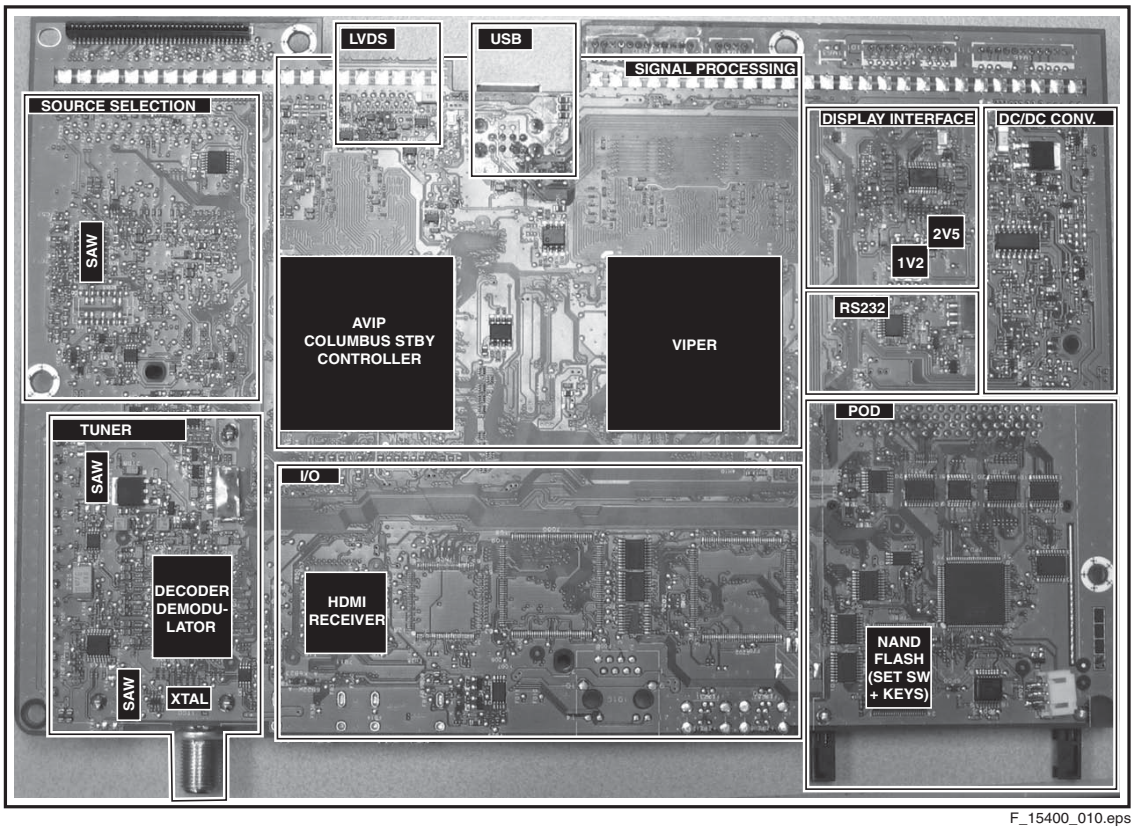
The key part in the system, the VIPER, performs almost all key features, like video quality enhancement, motion compensation, picture-in-picture processing, and others. It is a completely digital IC with a TriMedia DSP (Digital Signal Processor) core and a MIPS microcontroller core. The DSP and some additional cores are used to do the video feature processing and some auxiliary sound feature processing. The MIPS microcontroller core is used for all internal and external controlling tasks including a system wide I^2C bus. The VIPER provides a primary digital (YUV or RGB) output to the LVDS transmitter. For picture enhancements, the Pacific 3 is connected between VIPER output and LVDS Transmitter input. In models with the AmbiLight feature, the Pacific 3 is also used for AmbiLight processing.

SSB Cell Layout



G_15930_085.eps
200606

Figure 9-1 SSB top view



F_15400_010.eps
300505

Figure 9-2 SSB bottom view

9.2 Power Supply

9.2.1 Introduction

The Main Power Supply is a buy-in module (it belongs to the PDP), and therefore is a “black box” for Service. When defective, a new panel must be ordered and after receipt, the defective panel must be sent for repair.
This Power Supply delivers the following supply voltages to the chassis:

- +12VS.
- +8V6.
- +5V2.
- +5V.

As the VIPER and many other ICs on the SSB require low supply voltages at high current (up to 3 A for the main voltages), onboard DC/DC converters are implemented.
The circuit on the SSP provides the 3.3 and 1.2 voltages.
A DC/DC converter has the following advantages:

- The DC/DC converter is directly on the SSB near the circuits that needs to be powered.
- Some circuits on the SSB need high current by low voltage, so there is no risk to have power dips or voltage loss in connections between the PSU and the SSB panel.

9.2.2 Block Diagram

See also diagrams B1A and B1B.

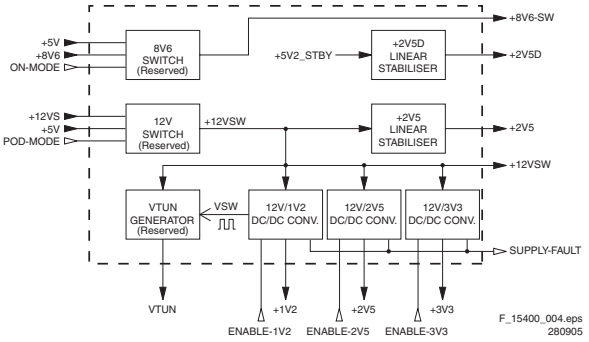


Figure 9-3 DC/DC converter block diagram

9.2.3 PSU Start-up Sequence

1. If the input voltage of the DC/DC converters is around 12 V (measured on the decoupling capacitors 2U17/2U25/ 2U45) and the ENABLE signals are "low" (active), then the output voltages should have their normal values.
2. First, the Stand-by Processor activates the +1V2 supply (via ENABLE-1V2).
3. Then, after this voltage becomes present and is detected OK (about 100 ms), the other two voltages (+2V5 and +3V3) will be activated (via ENABLE-3V3).
4. The current consumption of controller IC 7U00 is around 20 mA (that means around 200 mV drop voltage across resistor 3U22).

9.2.4 +2V5D Linear Stabilizer

- Provides the +2V5D voltage, and is derived from the +5V2-STBY voltage coming from the Main Power Supply.
- The output current is limited to a few tenths of mA.
- Output over-voltage protection is done by zener diode 6U17.

9.2.5 +12V Switch

- The +12V switch is activated when the POD-MODE signal is "low".
- The rise time of the output voltage is set by components 2U42, 3U43, and 3U95 at about 30 ms.
- The switch "off" is fast, because there can be fault currents that must be interrupted.
- When the input voltage (+12VS) is higher than 15 V, the switch is disabled via circuit 6U12, 3U52, 3U53, 2U71, and 7U14-2.

9.2.6 Internal Protection

- Provides a SUPPLY-FAULT signal (active "low"), when the output voltage of any DC/DC converter is out of its limits (± 10% of the normal value). In such cases, the Stand-by Processor will immediately stop the supplies by sending a "high" control signal towards the external and internal supplies: ENABLE-xVx, POD-MODE, ON-MODE, and STAND-BY.
  Note: The SUPPLY-FAULT control signal is "low" when any DC/DC converter is disabled by its control signal (ENABLE-xVx) and +12VSW is present, therefore it is ignored during start-up!
- The internal protection works together with the output over-voltage detector transistors 7U15-1, 7U15-2, 7U29-1, and 7U29-2.

9.2.7 1.2V and 3.3V DC/DC Converters

Introduction
The circuit used is a so-called "synchronous buck converter".
Some characteristics:

- Switching frequency: approx. 250 kHz.
- Efficiency: approx. 90%.
- Built-in output over-voltage and over-current protections
- Soft start.
- Software controlled “on/off” (via ENABLE line).

Block Diagram

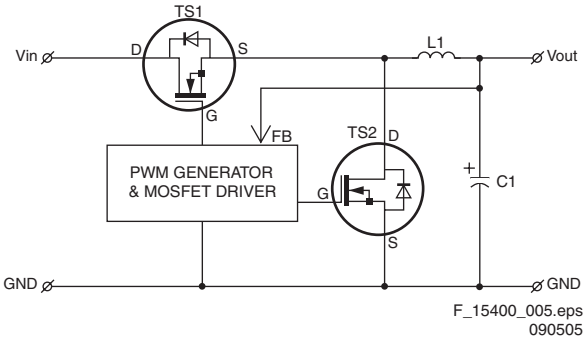


Figure 9-4 Block diagram synchronous buck converter.

The advantage of a "synchronous buck converter" over a "classical buck converter" is its better efficiency (about 90%). The difference between the two is that in a synchronous buck converter the "low -side" diode is replaced by a MOSFET TS2 (item 7U03). This, because the voltage drop across a MOSFET is smaller than the forward voltage drop of a diode.
This second MOSFET TS2 conducts current during the "off" times of the first MOSFET TS1 (item 7U01 at the input side). The upper MOSFET TS1 conducts, to transfer energy from the input to the inductor L_1 and load R_L, while the lower MOSFET TS2 conducts to circulate the inductor current (free wheel). The synchronous PWM control block regulates the output voltage by modulating the conduction intervals of the upper and lower MOSFETs.

PWM Generator and MOSFET Drivers
This circuit is a one-chip solution (item 7U00). It contains all the circuitry for two independent buck regulators (3V3 and 1V2). The MOSFETs T7U01 and T7U03 are the switching transistors, they are conducting alternatively.

- Time sequence 1: T7U01 is conducting; energy is stored in coil 5U00/5U03. The current is flowing from the +12VSW power supply source.
- Time sequence 2: T7U01 is blocked; energy is stored in coil 5U00/5U03.
- Time sequence 3: T7U03 is conducting, and the current circuit is now closed via T7U03, Coil 5U00/5U03, C2U24/ 2U22, and the load. So the energy stored in the coil during time sequence T1 is consumed during sequence T3. The signal on the gate T7U03 is 180 degrees turned compared with the signal on the gate T7U01.

Voltage Booster
This circuit is build around capacitors 2U11 and 2U26, resistor 3U11, diodes 6U22 and 6U23, and transistor 7U07.
It generates the +18 V boost voltage on pin 4 of item 7U00, to drive the "high-side" power MOS-FET 7U01. The voltage is generated only during normal operation of the converter; therefore, any drop in its value means an internal fault condition, which is sensed by the internal protection circuit.
The AC component of the voltage on the source of transistor 7U01 is rectified by the diodes and added to the input voltage, resulting into the boost voltage. The resistor 3U11 limits the peak current through the rectifier diodes.

Over-current Detection
Over-current detection is done via components 3U07, 3U08, 3U82, 3U83, and 2U18 for the 3.3 V converter and 3U09, 3U10, 3U96, 3U97, and 2U12 for the 1.2 V converter.

Under-voltage Detection
There is an additional circuit (7U10 and 7U11) to switch "off" the 3.3 V converter in case the +12VS drops below 9 V.

Service Tips

- When a power MOS-FET is found defective, replace the other power MOS-FET and fuse 1U01 as well.
- For a normal operation of the converter, it is important to check the switching frequency, the value of the boost voltage, and the amplitude of the gate voltage of transistor 7U04 (it should be close to the boost voltage).

9.2.8 V_{TUN} Generator

The +VTUN supply voltage (value 31...35 V at 4 mA) for the analog tuner(s) is generated by a boost converter. It uses the incoming +12 V_{DC} and the pulses have a duty cycle of about 10% from those of the 1.2 V DC/DC converter.

9.2.9 8V6 Switch

- Provides the +8V6-SW supply voltage from the incoming +8V6.
- It is activated by the ON-MODE signal, which is active "low". This is needed to switch "off" the +8V6-SW in POD Stand-by mode, to lower the power consumption.
  Note: It is not active if the +5V voltage is not present.

9.2.10 Useful Data

Voltage Name	Value [V]	Tolerance [%]
+5V2	5.2	5
+5V	5.1	5
+8V6	8.6	5
+12VS	12	5
+VTUN	33	5
+1V2	1.26	3
+2V5	2.6	4
+2V5D	2.6 (2.5) *	4 (5) *
+3V3	3.3	5
+5V2S	5.1	5
+8V6-SW	8.6	5
+12VSW	12	5
*) ON mode (STAND-BY mode)		

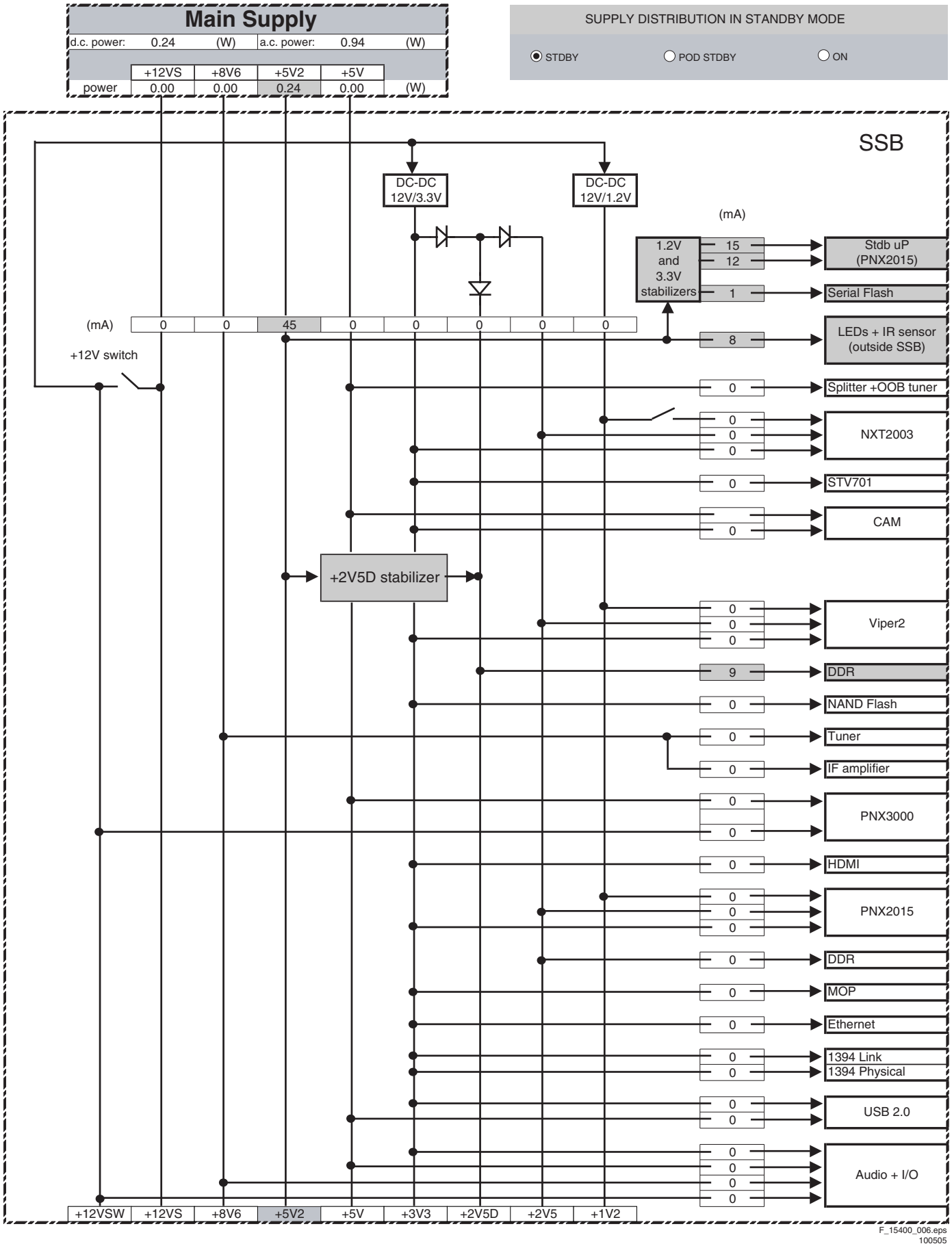


Figure 9-5 Supply distribution: STANDBY Mode (mentioned values are indicative)

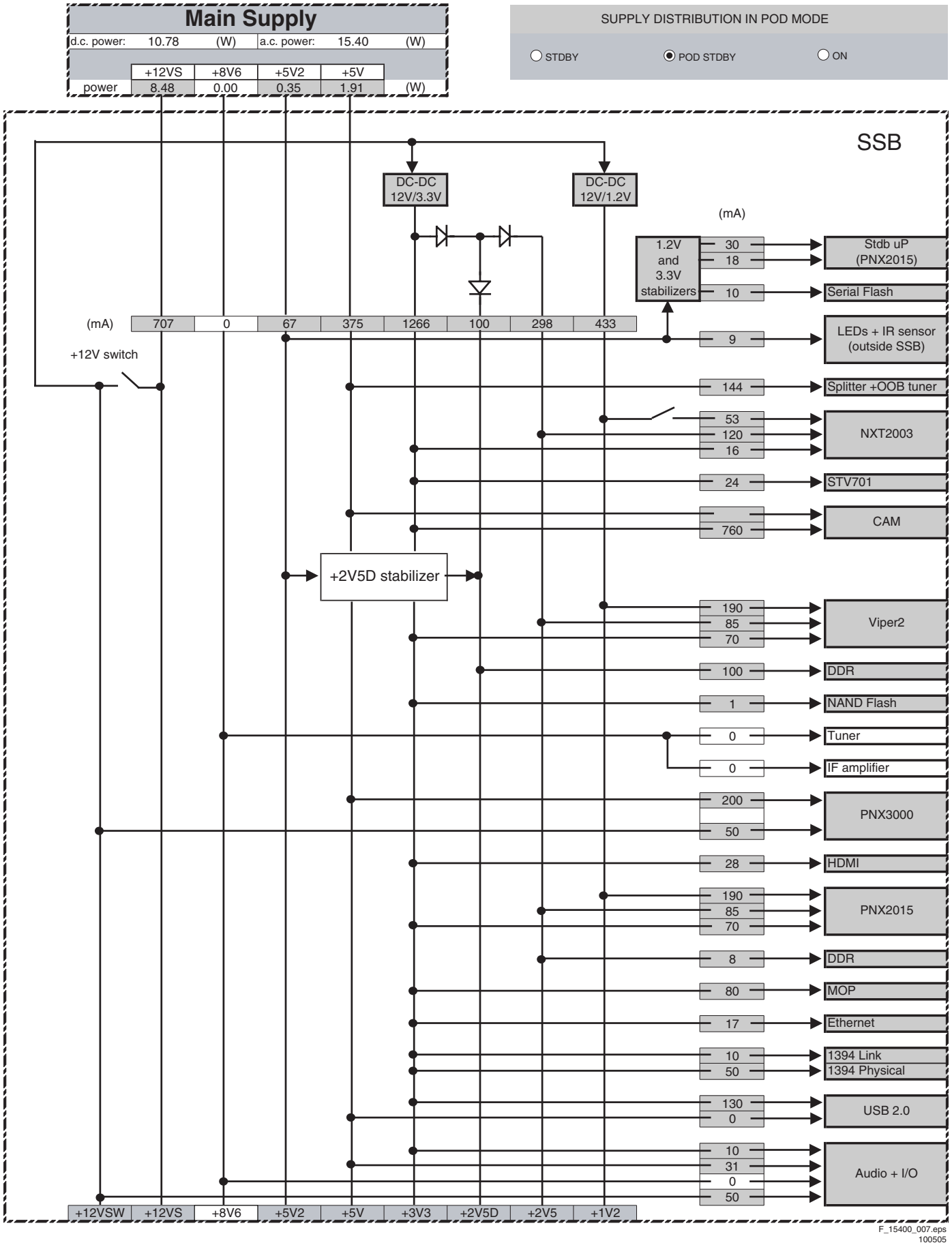


Figure 9-6 Supply distribution: POD STDBY Mode (mentioned values are indicative)

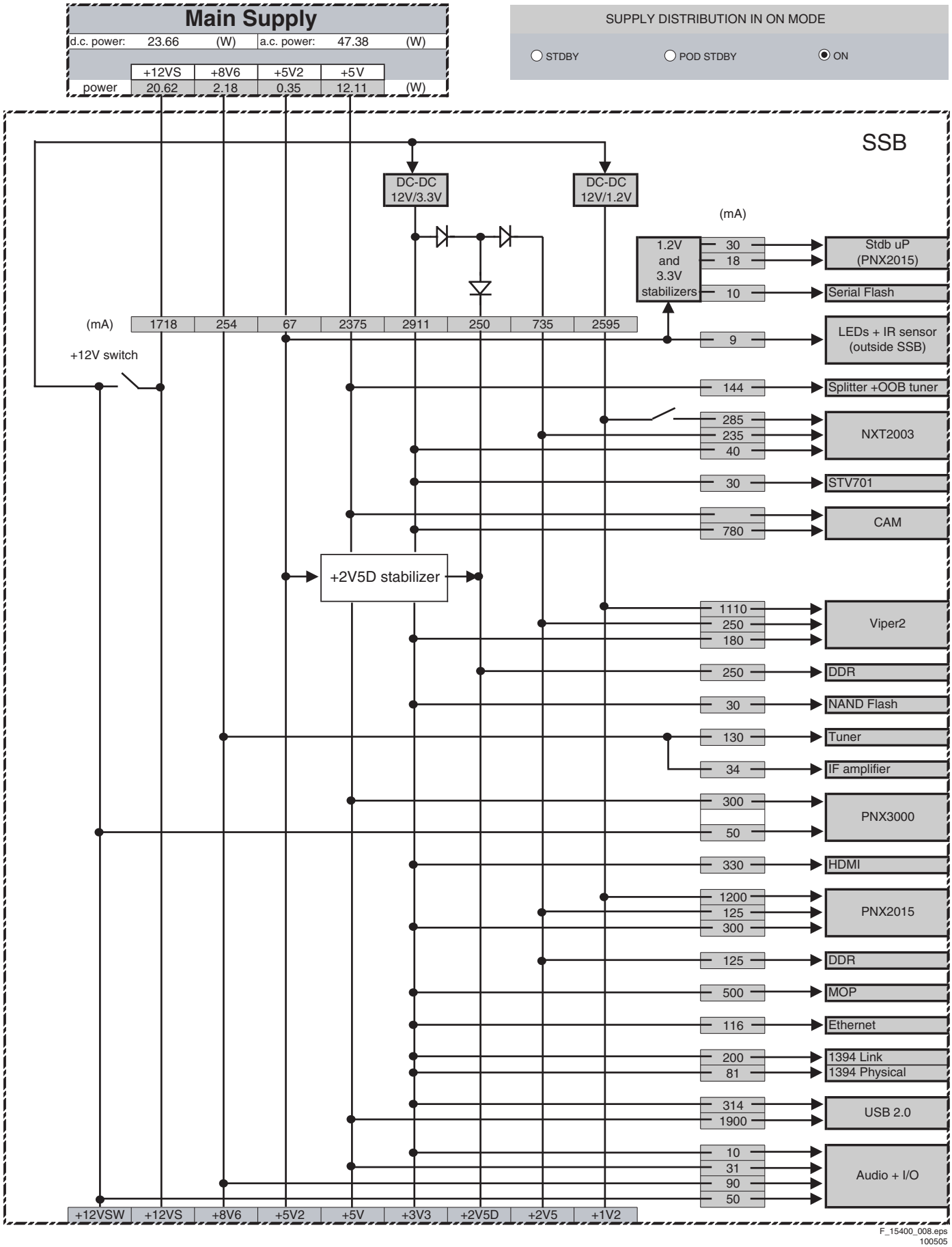


Figure 9-7 Supply distribution: ON Mode (mentioned values are indicative)

9.3 Inputs

9.3.1 USB

These chassis have different USB specifications:
- Top and step styling (chassis BJ2.5 and BJ2.4) features USB2.0. This USB version is hosted by a separate IC (7N00) which communicates with the VIPER via a PCI bus.
- Entry styling (chassis BJ2.5) features USB1.1. This USB version is hosted directly by the VIPER.

Each USB port has four lines:
1. 5V (red).
2. D- (white).
3. D+ (green).
4. GND (black).

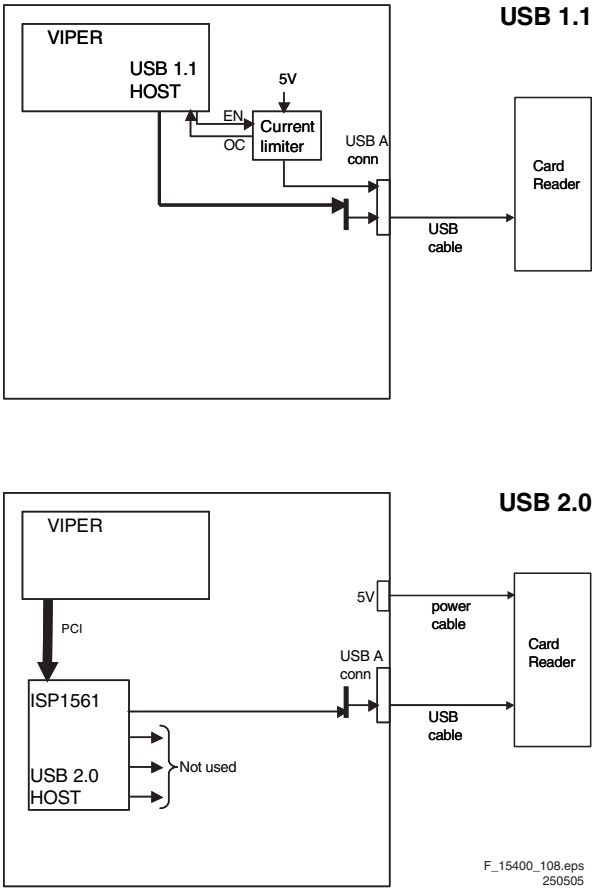


Figure 9-8 USB configurations

USB1.1

The USB1.1 is a hardware block in the VIPER. There are two USB ports. Each port has a D+ and D- line; this is the differential signal path for USB. There is also one over-current detect and power enable line that is used for both ports (these lines are controlled by VIPER).
A tandem USB connector is mounted on the SSB, on which you can connect two USB devices; one device will be the SCM digital media card-reader. Only USB mass storage class device is supported, so other USB devices (card-readers) have to be compliant with this class.
The host (= SSB) needs to provide the power supply to the attached devices (like memory cards or other USB devices). Since it is not known what the customer will attach (e.g. a USB hub with multiple USB devices), and these USB devices draw current from the SSB, these supply lines must be protected against over-current and/or too many connected devices. This is controlled by the VIPER via the USB_OVERCUR line (see diagram B5A): when more then 500 mA per channel is drawn from the USB ports, the protection becomes active (= "high").
During stand-by, when there is no +5V available (and VIPER is not active), the USB port does not work. This is controlled by the VIPER via the USB_BUS_PW line (see diagram B5A), which switches the 5V input to the outputs of IC7Q01.

USB2.0

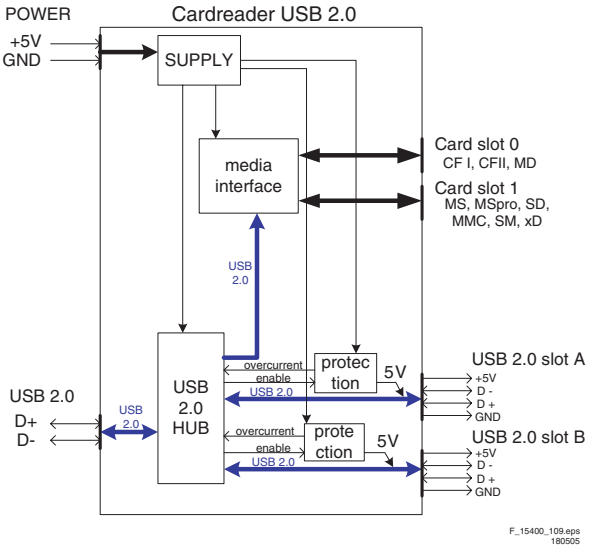


Figure 9-9 Multimedia card reader assy

9.3.2 HDMI

Introduction

Note: Text below is an excerpt from the ”HDMI Specification” that is issued by the HDMI founders (see *http://www.hdmi.org*).

This High-Definition Multimedia Interface is developed for transmitting digital television audiovisual signals from DVD players, set-top boxes and other audiovisual sources to television sets, projectors and other video displays.
HDMI can carry high quality multi-channel audio data and can carry all standard and high-definition consumer electronics video formats. Content protection technology is available. HDMI can also carry control and status information in both directions.

As shown in the HDMI block diagram, the HDMI connector carries four differential pairs that make up the TMDS (Transition Minimized Differential Signalling) data and clock channels. These channels are used to carry video, audio, and auxiliary data. In addition, HDMI carries a VESA DDC channel. The DDC is used for configuration and status exchange between a single source device and a single sink device.

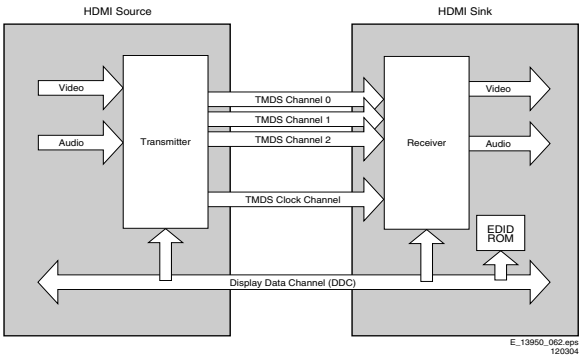


Figure 9-10 HDMI block diagram

Audio, video, and auxiliary data is transmitted across the three TMDS data channels. The video pixel clock is transmitted on the TMDS clock channel and is used by the receiver as a frequency reference for data recovery on the three TMDS data channels.

Video data is carried as a series of 24-bit pixels on the three TMDS data channels. TMDS encoding, converts the 8 bits per channel into the 10 bit DC-balanced transition minimized sequence, which is then transmitted serially across the pair at a rate of 10 bits per pixel clock period.
Video pixel rates can range from 25 MHz to 165 MHz. Video formats with rates below 25 MHz (e.g. 13.5 MHz for 480i/NTSC) can be transmitted using a pixel-repetition scheme. The video pixels can be encoded in either RGB, YC_BC_R 4:4:4, or YC_BC_R 4:2:2 formats. In all three cases, up to 24 bits per pixel can be transferred.

In order to transmit audio and auxiliary data across the TMDS channels, HDMI uses a packet structure. In order to attain the higher reliability required of audio and control data, this data is protected with a BCH error correction code and is encoded using a special error reduction coding to produce the 10-bit word that is transmitted.
Basic audio functionality consists of a single IEC 60958 audio stream at sample rates of 32 kHz, 44.1 kHz, or 48 kHz. This can accommodate any normal stereo stream. Optionally, HDMI can carry a single such stream at sample rates up to 192 kHz or from two to four such streams (3 to 8 audio channels) at sample rates up to 96 kHz. HDMI can also carry IEC 61937 compressed (e.g. surround-sound) stream at sample rates up to 192 kHz.

The DDC is used by the source to read the sink's Enhanced Extended Display Identification Data (E-EDID) in order to discover the sink's configuration and/or capabilities.

HDMI is backward compatible with DVI (1.0). Compared with DVI, HDMI offers extra:
- YUV 4:4:4 (3 x 8-bit) or 4:2:2 (up to 2 x 12-bit), where DVI offers only RGB 4:4:4 (3 x 8 bit).
- Digital audio in CD quality (16-bit, 32/44.1/48 kHz), higher quality available (8 channels, 192 kHz).
- Remote control via CEC bus (Consumer Electronics Control): allows user to control all HDMI devices with the TV's remote control and menus.
- Smaller connector (SCART successor).
- Less cables: e.g. from 10 audio/9 video cables to 3 HDMI cables.

Implementation
The IC used is the TDA9975 (triple 10-bit video converter interface), item 7B11 on the SSB.
- Power supply: 3V3 and 1V8.
- Inputs:
  - HDMI connectors (Video, Audio, HDCP, Control).
  - Analogue (YPbPr, RGB, and H/V).
- Control signals:
  - I^2C coming from TDA9975 (MM-BUS1).
  - 13.5 MHz clock for analog format detection.
  - JTAG.
- Output to PNX2015: Video (DV4 and DV5):
  - YUV 4:2:2 20 bit (10 bit Y, 10 bit UV multiplexed) + clock + sync.
  - ITU-656 (compressed DVD video) encoded in data stream.
- Output to VIPER:
  - Audio: S/PDIF.
  - Interrupt signal.

Data Content

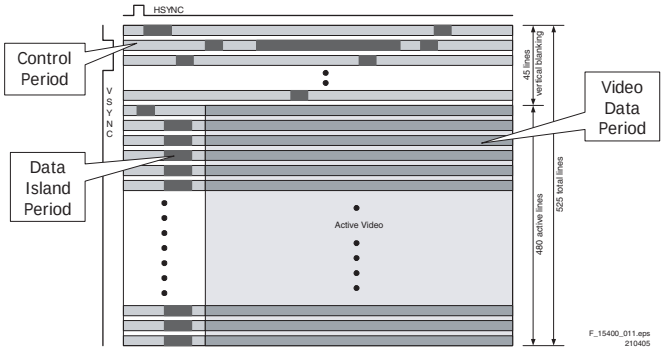


Figure 9-11 Typical video frame

A typical video frame is built up with the following info blocks:
- Control Period.
  - Transmission of the pre-amble.
  - Character synchronization.
- Data Island Period.
  - Audio and auxiliary information are carried in packets within a Data Island.
  - HSYNC, VSYNC are also carried during Data Island Period.
  - Packet Types:
    - Audio Sample.
    - Audio Clock Recovery.
    - InfoFrame: Aux. Video IF, Audio IF, MPEG IF, vendor-defined IF.
- Video Data Period.
  - Carries the pixels of an active video line.
  - TMDS encoding.

Data Islands: Audio Formats
- All current CE audio formats can be transmitted.
- Supports compressed formats like:
  - Dolby Digital.
  - Dolby Digital EX (THX-EX).
  - DTS.
  - Etc.
- Supports uncompressed formats ("discrete" PCM audio):
  - Up to 8 channels, up to 192 kHz, up to 24 bits.
- CD-quality audio is always available, so the user will always hear sound.
  - 2 channel, 16 bit at 32 kHz (STB), 44.1kHz (CD), or 48 kHz (DVD)

Data Islands: InfoFrames (EIA/CEA-861B)
- Auxiliary Video Information (AVI):
  - Specifies active aspect ratio, colorimetric info, pixel encoding, etc.
- Audio InfoFrame:
  - Describes audio stream, speaker/channel allocation, etc.
- Source Product Info:

  - Contains manufacturer name, product name, type, etc. (replaced by CEC).
- MPEG Source:
  - Contains flags that permit optimized display of de-compressed video.
- Vendor unique info.

Content Protection: HDCP

- HDCP (High-bandwidth Digital Content Protection) for HDMI encrypts and protects video, audio, and other auxiliary data.
- If a source device is HDCP coded and is connected to a HDTV display or projector via DVI/HDMI without the proper HDCP decoding mechanism, the picture is relegated to "snow" or in some cases, a very low (480p) resolution. In order to see HDTV with HDCP compliance, both the source and display devices must be equipped with DVI/HDMI connections that can enable HDCP using "software key" decoding.
- HDCP requires that decoding takes place in the display device (no external converters).

CEC Bus (Consumer Electronics Control)

- This is the successor of the P50 protocol.
- It allows the user to control all HDMI devices with the TV's remote control and menus.
- High-level functions such as “One-touch play”.
- Optional for device to implement protocol.
- Mandatory to implement wire pass-through.

9.4 Front-End

See description in paragraph “Introduction” -> “Chassis Block Diagram”.

9.5 POD (Point Of Deployment)

9.5.1 Introduction

This chassis is provided with a special slot called CableCARD™. This means that it is not necessary to have a separate Set Top Box to receive digital cable SDTV and HDTV programs (however this is still possible).
The CableCARD (or POD) is a removable card distributed by cable companies, which is inserted into the slot at the bottom of the television. It allows you to tune digital and high definition scrambled or encrypted cable channels through the cable antenna. The CableCARD is also required to receive premium digital TV channels and services (where available) through the cable. A CableCARD functionality includes conditional access and copy protection.

9.5.2 Implementation

1. The receiver receives the digital data stream.
2. The data flows into the Conditional Access Module, which contains the content provider's unscrambling algorithms.
3. This module verifies the existence of a smart card (POD) that contains the subscriber's authorization code.
4. If the authorization code is accepted, the CAM unscrambles the data and returns the data to the receiver (if the code is not accepted, the data remains scrambled, restricting access).
5. The receiver then decodes the data and outputs it for viewing.

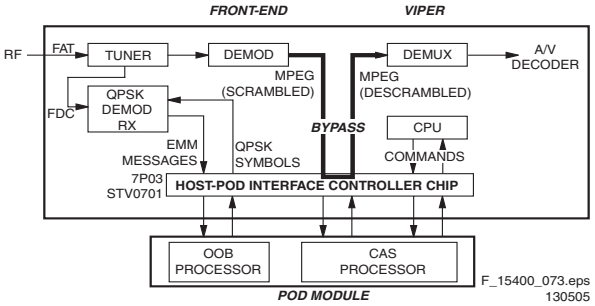


Figure 9-12 In Band channel reception (without POD inserted)

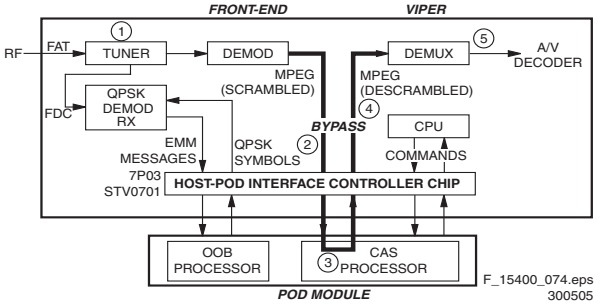


Figure 9-13 In Band channel reception (with POD inserted)

POD Working Principle

The POD is a removable CAM, implementing the CA system for a Host (i.e. the TV set). The POD module is inserted into a standard PCMCIA slot in the Host.
When the POD is inserted into the Host, it goes through an initialization procedure, which is called the "POD personality change". This initialization procedure consists of:

- POD and Host verify each other’s identity by means of certificate and/or key exchange.
- Reporting POD-ID and Host-ID to the Cable Head end, in order to entitle the POD for descrambling services. In case of uni-directional operation (as for this chassis), this reporting requires user-interaction.
- Key generation for secure communication between POD and Host.

After initialization, the POD is used to unscramble any particular scrambled service in the In Band (IB) transport stream. The host must provide the selection choice (which program to descramble). The host can only do so if it gets specific data like PSIP (Program and System Information Protocol) data from the POD.
The POD implements a copy protection system, so the unscrambled Transport Stream signal from POD to Host can be re-scrambled.

Copy Protection (CP)

- Every TV-set has its own unique Host-certificate (with Host-ID). These certificates are stored on a dedicated PC at the TV supplier.
- The CP-key is refreshed at the following times:
  - At the end of the authentication process.
  - Periodically at a rate set by max_key_session_period.
  - At every power cycle.
  - When initiated by the CA System.
  - At every hard reset.
  - At power-up, the POD checks the Auth-key to see if the host is still the same, after this the re-authentication takes place.
  - During CP-refresh is the transport stream in the clear (<1s)

POD Stand-by Mode

- POD stack still alive:
  - Active Front-End.
  - Active VIPER, Stby-uP.
- Allows the POD to request services:
  - Listen to OOB.
  - Firmware upgrade.

Connector

- Mechanical
  - 68 pins PCMCIA connector.
  - Voltage keying (LV type).
  - Type I, II, III.
- Hot plug ability
  - Initial, V_{CC} is applied to the socket.
  - Card detection (CD1 & CD2 = low).
  - Voltage sense pins (VS1 & VS2).
  - Power controller to set V_{CC} and V_{PP}.
- CIS structure
  - All PCMCIA cards have a CIS structure.
    - Information about size, speed, functions, ...
    - Distinguish between PC-card and Cable-card.
  - Before reading the CIS, the PCMCIA driver is in an 8-bit memory card mode with reduced address- and control lines (only purpose is to read the CIS).
  - After reading the CIS, there is a personality change and the driver is ready to communicate with a Cable-card.
  - Once a card's client driver successfully parses the CIS and obtains the system resources required by the card, it assigns the resources to the card via the COR (Configuration Option Register).

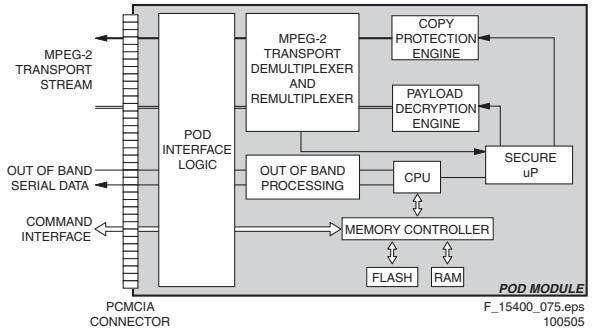


Figure 9-14 Example of POD design

9.5.3 Communication Channels

In Band (IB)

- Forward Application Transport channels (FAT):
  - 256 QAM modulation (8 bits/symbol).
  - 54 - 864 MHz.
  - 6 MHz bandwidth.
  - Carry information via MPEG-2 streams.
    - Scrambled In-Band Channels.
    - TS packet header.
    - In-the-Clear channels.
- NTSC analog channels:
  - 8-VSB modulation (3 bits/symbol).
  - 54 - 806 MHz (UHF and VHF)
  - 6 MHz bandwidth.
  - Not via POD, but via MPIF.
  - With VBI (Vertical Blanking Interval) signals for closed captioning.

Out Of Band (OOB)

- Forward Data Channels (FDC):
  - DQPSK modulation (2 bits/symbol).
  - 70 - 130 MHz.
  - 6 MHz bandwidth.
  - Spaced between 6 MHz FAT and analog channels.
  - Control and Access messages.
  - Application code download.
  - Only from cable operator towards user.
  - Service Information (SI) like:
    - PMT: TS Program Map Table.
    - PAT: Program Association Table.
    - CAT: Conditional Access Table.
    - STT: System Time Table.
  - Emergency Alert Service (EAS)= US federal system for alerting the public to emergencies; works before and after CableCARD insertion

9.6 MPIF (PNX 3000)

9.6.1 Introduction

The MPIF (Multi Platform InterFace, type number PNX3000, item number 7C00) is an analog video and audio pre-processing unit for the AVIP TV processor. It contains the high frequent IF part and all the analog video and audio source switching for external in- and outputs. The MPIF can handle CVBS, Y/C, RGB (1fH/2fH) and YPbPr (1fH/2fH) video signals as well as stereo, I^2S, and second sound IF audio signals. The MPIF converts the selected video and audio streams from the analog to the digital domain. Via three high-speed serial data links (I^2D), the digitized audio and video signals are streamed (594 Mbit/s) to the AVIP IC for further processing.
The MPIF uses a clock coming from the AVIP of 13.5 MHz and is I^2C driven. The supply voltage for the MPIF is 5V.

The MPIF uses the following input signals:

- CVBS, Y/C, YPbPr, or RGB video format.
- 1fH or 2fH video.
- Clock 13.5 MHz from the AVIP.
- I^2C from the VIPER.
- Clamping-pulse from the AVIP.

9.6.2 Block Diagram

Following figure shows the MPIF block diagram:

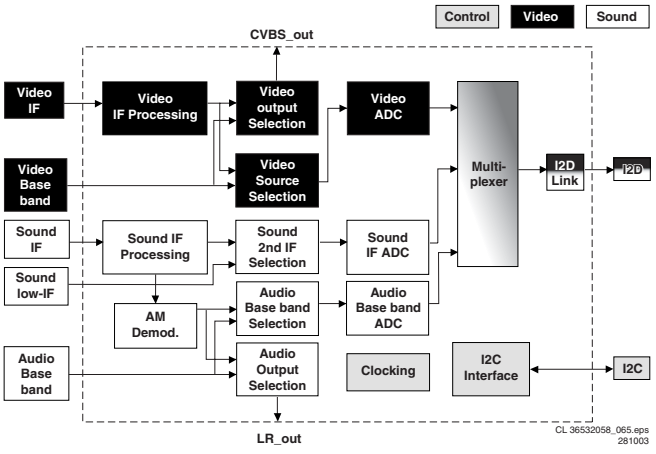


Figure 9-15 MPIF block diagram

9.6.3 IF Processing

The MPIF is capable of demodulation of RF signals.

Analogue Vision IF Processing

Some specifications:

- Synchronous demodulation of the IF vision carrier. Selectable frequency and auto-calibration of the VCO (Voltage controlled oscillator).
- Group delay correction for BG system.

- AGC at vision IF level to give fixed CVBS output level, and AGC at RF level (tuner AGC) to limit output level of the tuner.
- AGC gating for bad reception conditions.
- CVBS amplitude correction and mute.
- Detections for AFC and video presence.

The video signal is demodulated by means of an alignment-free PLL carrier regenerator with an internal VCO. This VCO is calibrated by means of a digital control circuit, which uses an external crystal frequency as reference. The frequency setting for the various standards (33.4, 33.9, 38.0, 38.9, 45.75 and 58.75 MHz) is realized via the I^2C bus.
The AFC output is generated by the digital control circuit of the IF-PLL demodulator and can be read via the I^2C bus.
The AGC-detector operates on "top sync" or "top white" level.
The MPIF IC has an integrated sound trap filter. The trap frequencies can be switched via the I^2C-bus.
Also, a group delay correction filter is integrated. The filter can be switched between the PAL BG curve and a flat group delay response characteristic. This has the advantage that in multi-standard receivers the video SAW filter does not need to be switchable (cost effective).

Analogue Sound IF Processing
Some specifications:
- A switch to select QSS or inter-carrier mode.
- Sound carrier frequency conversion at second IF sound frequency (SSIF)
- A switch to select internal or external SSIF.
- AGC at sound IF level (for QSS (quasi-split-sound) mode) and AGC at SSIF level (for inter-carrier and QSS modes).
- Demodulation of AM modulated carrier (L and L' standards).

The MPIF has a separate sound IF input to enable Quasi Split Sound (QSS) applications. The sound IF amplifier is similar to the vision IF amplifier and has a gain control range of about 55 dB.
The AGC detector measures the SIF carrier levels (average level of AM or FM carriers) and ensures a constant signal amplitude for the AM demodulator and QSS mixer.
For applications without SIF SAW filter, the IC can also be used in intercarrier mode. In this mode, the composite video signal from the VIF amplifier is fed to the QSS mixer and converted to the intercarrier frequency. AM sound demodulation is realized in the analog domain with the QSS mixer.

9.6.4 Source Selection

Below the main functions and features of the main blocks in the MPIF for video and audio are explained.

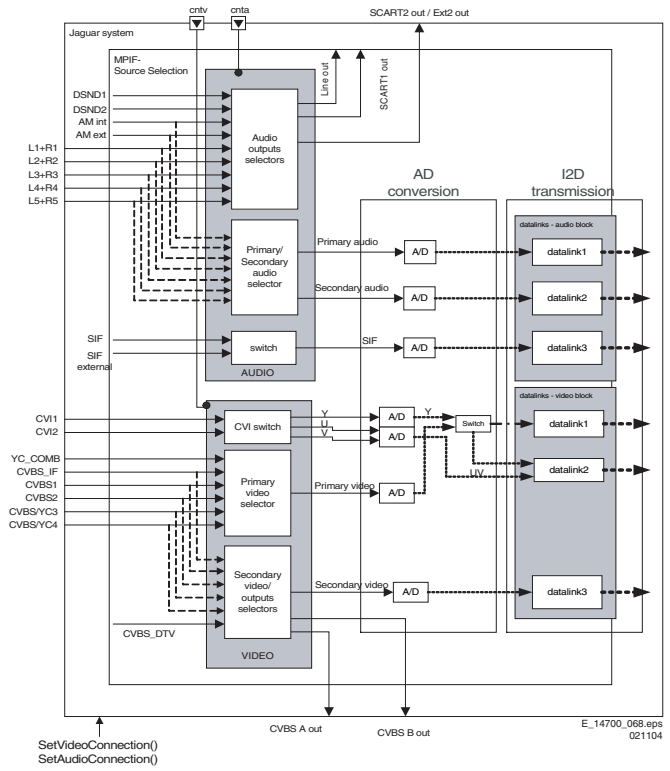


Figure 9-16 MPIF analog source selection block

Video Selectors
The CVI switch (Composite Video Input, including RGB, YUV, and YPbPr) is selecting the signal from one of the two CVI inputs; the output is always a YUV signal.
The primary video selector is selecting a signal from the CVBS and YC inputs; the video coding of the output signal equals to the video coding of the input signal.
The primary video selector has an extra input (YC_COMB), capable of selecting an Y/C signal from the comb filter. This input cannot be downscaled to a CVBS signal and fed back to the CVBS_A or CVBS_B output. It is also advisable not to connect other sources to the YC_COMB input because it is treated as an internal one that is not available for the outside world.
Two video output selectors are responsible for the contents of CVBS_A and CVBS_B video out.

Audio Selectors
The primary audio selector is selecting a signal from five external stereo inputs and one stereo input that handles two mono signals (AM internal and AM external). The AM internal signal is demodulated in the IF part and is internally routed, so not available as external input. Additionally, the AM internal signal is available on the left channel whereas the AM external signal is available on the right channel.
The secondary audio selector is selecting a signal from the same range as the primary audio selector; the second audio selector can work in stereo or mono mode. In case the stereo mode is selected, it is alike the primary audio selector. In mono mode, the input stereo signal L+R is transformed into a mono signal (L+R)/2 and put on the left channel of the stereo output. When the stereo input (handling two mono signals) is selected and the selector works in mono mode, the AMint and AMext can be swapped on the primary as well as on the secondary audio channel. It is also possible to digitize the mono + AM on the secondary audio channel.
Further it is possible to select the AM signal on the analog audio outputs independently from the AM signal that is selected for the secondary (digital) audio channel.
Three audio output selectors are responsible for the content of the Line, SCART1, and SCART2 outputs. These selectors

allow selection of the output out of five L+R inputs, two mono signals (AM internal or AM external) and two externally connected DSND streams.

SIF Switching
SIF (Sound Intermediate Frequency) switching allows selecting between internal or external SIF signals.

AD Converters
The second part of the MPIF is responsible for conversion of the chosen signals into digital signals and grouping them into three data streams. Each data stream handles both video and audio. These data streams are fed into three data links and send via I2D to the outside.

The MPIF contains four video ADCs for analog and digital video broadcast signals. The clock frequency for these ADCs is either 27 MHz or 54 MHz. In some cases, two analog signals are multiplexed at the input of one ADC. In these cases, the clock frequency of the ADCs is 54 MHz, while the sample frequency for each of the two signals is 27 MHz.

The sample frequency for standard 1fH video signals is 27 MHz. For the YUV channel the sample frequency of the U and V components is half the sample frequency of the Y signal. For 2fH YPbPr or RGB input signals (for instance 480p or 1080i ATSC signals), the frequency that is used to sample the YUV signals is twice as high as for 1fH signals. The sample frequency is 54 MHz for Y and 27 MHz for U and V.
Due to the high sample frequency, two data links are needed for transport of the video data to the digital video processor.

I^2D Data Link
The digital interface between MPIF and AVIP is called Data Link (or I^2D Link). This is a serial interface that transfers the data from MPIF to AVIP over three Data Link interfaces. Each Data Link has a data signal and a strobe signal. The synchronization information is distributed over the data and the strobe signal. To minimize EMC, both signal outputs are low voltage differential swing signals, with a swing of about 300 mV.
Each Data Link has four lines, one differential pair for the data, and one differential pair for the strobe. The data rate is 594 Mbit/s. Each Data Link can carry two 27 MHz sampled video streams (or one 54 MHz sampled 2fH video stream) and two audio channels sampled at 6.75 MHz.

In the MPIF, the (video and audio) data to be transmitted is multiplexed in an output register of 44 bits (including the 2 bit sync information). The content of that 44 bits register is serial transmitted on one of the three data links. In the AVIP, the serial data is de-multiplexed into parallel streams. The data on the data link is divided in several groups of signals (video, audio and strobe signals). Obvious it is important that the transmitter and receiver are in the same transmitting mode

Data links can operate in two different modes called:
1. Normal mode.
2. YUV2fH.

Normal Mode
In the normal mode the content of the data links is as follows:

Table 9-2 Normal mode

Data Stream	Video	Audio
1	CVBS/YC primary	(L+R) primary
2	YUV 1fH	(L+R) secondary
3	CVBS secondary	SIF
Data link Mode bit: DM= 0		

In the normal mode the data links can handle up to three video signals: CVBS or YC signal from the primary video selector, CVI 1fH source selected on the CVI switch, and CVBS signal from the secondary video selector.

YUV 2fH Mode
In the YUV 2fH mode (higher bandwidth signal) the data links content is as follows:

Table 9-3 YUV 2fH mode

Data Stream	Video	Audio
1	Y 2fH	(L+R) primary
2	UV 2fH	(L+R) secondary
3	CVBS secondary	SIF
Data link Mode bit: DM= 1		

The data link 1 can output only one of two input signals: the output of the primary video selector or the Y output of the CVI switch. Only one can be active at a moment, and that is determined by the data link mode bit (DM). It means, that for data links working in YUV 2fH mode, the data link 1 carries the Y component of the YUV 2fH signal, the data link 2 carries the UV component, and the data link 3 contains the signal that is connected through the secondary video selector.

9.7 PNX2015

The functional blocks of the PNX2015 (item 7J00) are:
- Audio Video Input Processor (AVIP).
- 3D Comb Filter (COLUMBUS).
- High Definition MPEG Decoder (HD Subsystem).
- LVDS transmitter.
- Stand-by Processor for low-power control.

BLOCK DIAGRAM

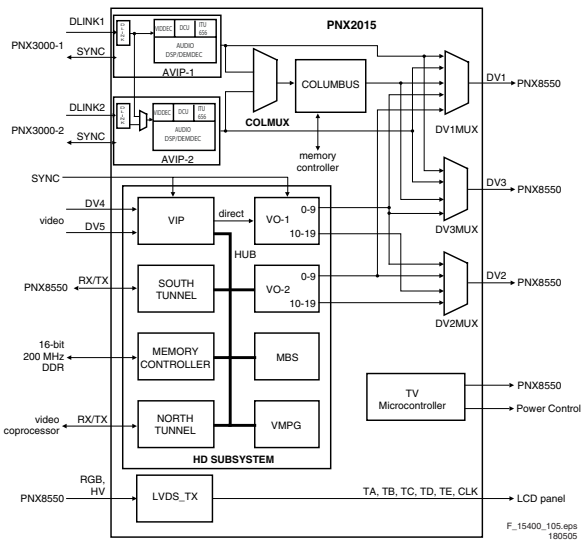


Figure 9-17 Block diagram PNX2015

These different blocks are described separately in the next paragraphs.

9.8 PNX2015: AVIP

9.8.1 Introduction

The AVIP (Audio Video Input Processor) receives the digital data via the I²D link (coming from MPIF). It reformats this data and maps (synchronizes) the data to the clock of the AVIP. Then a digital AGC is passed. After this, the video decoding is performed in the VIDDEC-block of the AVIP. The decoded video is sent to an output block, which formats the data to an ITU-656 compatible standard data stream.
The AVIP power supply is 1.2 V and 3.3 V. To ensure synchronization of video streams processed across the VIPER and PNX2015 devices, a 27 MHz is coming from the VIPER. The AVIP is I²C driven.
Initialization of this IC begins with a hard reset (MIPS-RESET) provided by the VIPER. Besides video decoding, the AVIP is also used for decoding and presentation of all audio output streams in the system.

9.8.2 Block Diagrams

Below the main functions and features in the AVIP for video and audio are given.

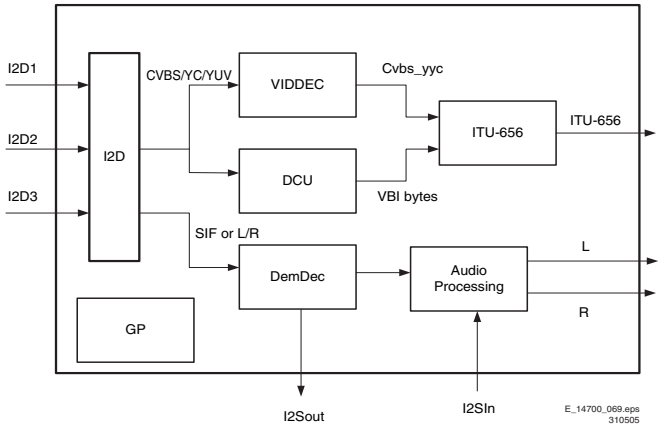


Figure 9-18 AVIP block diagram

Main AVIP function:
- I²D receiver.
- Color decoding into ITU-601 compatible format (1fH/2fH).
- Interface with 3D comb filter (called Columbus in this chassis).
- VBI data capture via DCU (Teletext, CC, etc.).
- ITU-656 formatting.
- Audio demodulation and decoding via DEMDEC.
- Audio processing and D/A conversion.

I²D Receiver

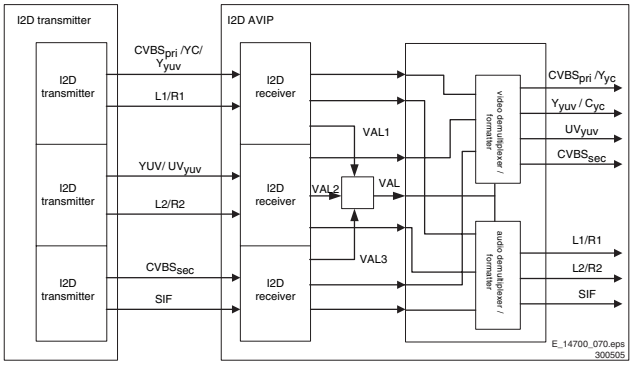


Figure 9-19 I²D receiver block diagram

The receiver block gets the serial data stream and converts it to a parallel stream. This parallel data is fed to the "de-multiplexer and formatter " block where the selected audio/ video stream is forwarded to the video and audio decoder for further processing. This communication bus is completely digital and very difficult to monitor.

The I²D link has the following characteristics.
- The data-link runs at 297 MHz / 594 Mbps.
- The driver rise/fall time is around 200 ps.
- The data-link uses differential signals.

VIDDEC (Video Decoder)

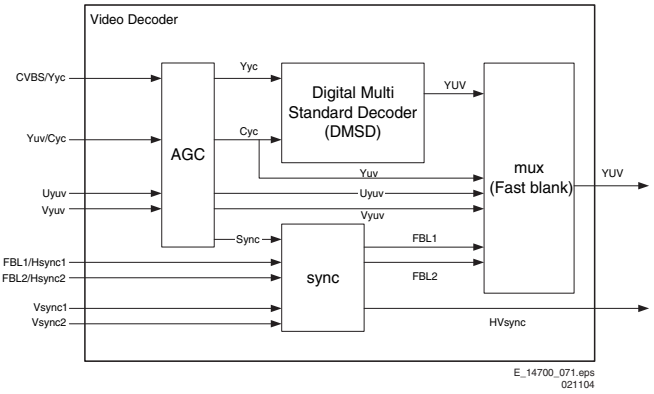


Figure 9-20 VIDDEC block diagram

The CVBS/YC/YUV signals (coming from the I²D receiver block) enter the DMSD block (Digital Multi Standard Decoder) via the AGC (Automatic Gain Control) block. The multiplexer block (MUX) takes care of the correct output signal. The sync signals are processed in the sync block.

The VIDDEC has the following main functions:
- Multi standard color decoder.
- Automatic system recognition.
- Fully programmable static or automatic (AGC) for all analog video base band signals.
- AGC on sync amplitude in digital domain.
- Selectable peak white control.
- AGC for chrominance (PAL and NTSC only).
- Programmable Luminance and Chrominance bandwidth for CVBS and Y/C sources.
- Programmable clamp window for the selected video base band signals.
- Digital PLL for synchronization on 2fH and ATSC standards.
- Horizontal (including 3-level sync for 2fH) and vertical sync detection.
- Automatic detection of 50/60Hz ATSC field frequency.
- Adaptive 2/4-line delay comb filter for two-dimensional Chrominance/Luminance separation.
- Copy protected source detection according to MacroVision up to version 7.01
- Possibility of RGB insertion through fast blanking in CVBS input mode, not in Y/C.

DCU (Data Capturing Unit)

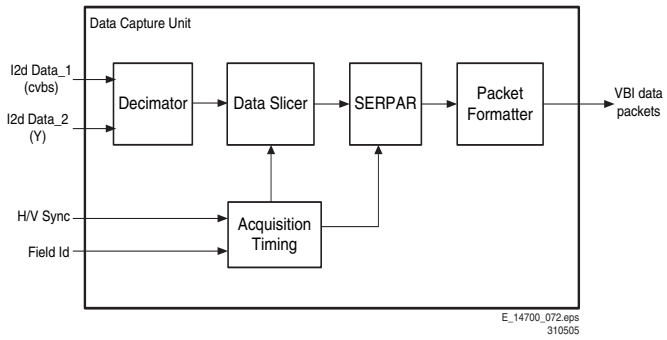


Figure 9-21 DCU block diagram

The purpose of this block is to acquire digital data (containing Teletext, Closed Captions, ...) from a CVBS/Y/C video input source. It performs processing on the received data and provides the data to the ITU-656 formatter unit.
The decimator reduces the sample rate (from 27 MHz to 13.5 MHz) of the incoming digitized CVBS or Y data stream from the I^2D receiver. From the video input, the data slicer reconstructs the transmitted bit stream and associated clock. The SERPAR block converts the serial bits, coming from the data slicer, into parallel bytes. The packet processor performs data decoding and some error correction, assembles received bytes into packet structure, and streams out the data to the ITU-656 formatter.
The acquisition-timing block locks onto sync signals, and provides timing information to the other blocks of the data capture unit.

ITU656 Output Formatter

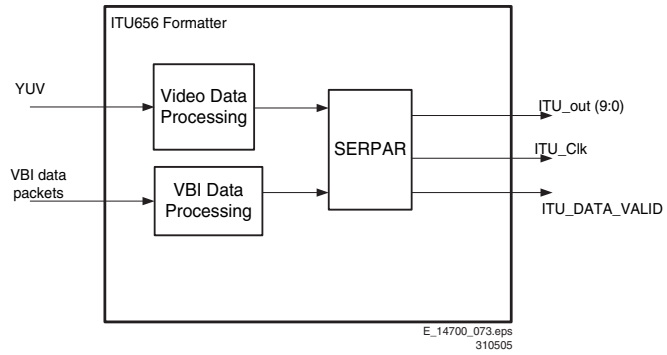


Figure 9-22 ITU656 formatter block diagram

The ITU656 formatter gets YUV data as video input signal, coming from the VIDDEC block. These YUV data are either decoded CVBS signals, matrixed RGB signals, or YUV input signals. The second input data are VBI sliced data coming from the DCU. The output of the ITU delivers a data stream, which is ITU-601/656/1364 compliant, and includes video as well as the VBI data.

DEMDEC (Demodulator and Decoder)

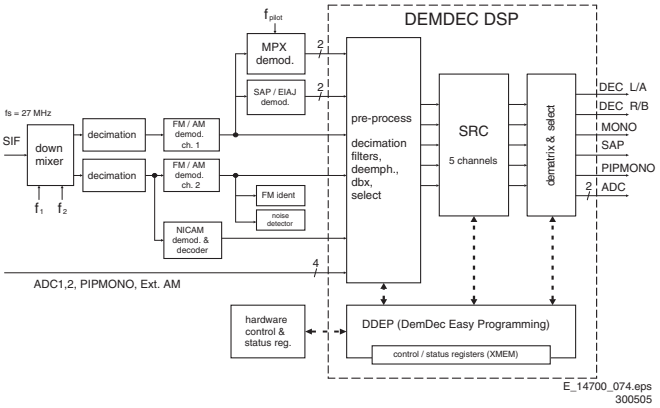


Figure 9-23 DEMDEC block diagram

The demodulator and decoder (DEMDEC) is responsible for demodulating and decoding incoming SIF signals.

The main features of the DEMDEC are:
- Auto Standard Detection (ASD).
- DQPSK demodulation for different standards, simultaneously with 1-channel demodulation.
- NICAM decoding (B/G, I, D/K, and L standard).
- Two-carrier multi standard FM demod. (B/G, D/K and M).
- Optional AM demodulation for system L, simultaneously with NICAM.
- Identification A2 systems (B/G, D/K and M standard) with different identification time constants.
- FM pilot carrier present detector.
- BTSC MPX decoder.
- SAP decoder.
- dBx noise reduction.
- Japan (EIAJ) decoder.
- FM radio decoder.

Audio Processing

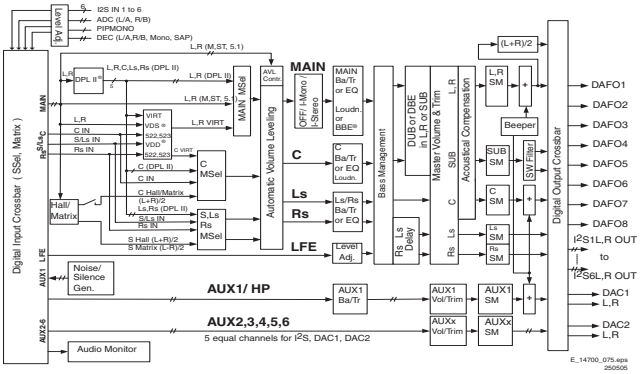


Figure 9-24 Audio processing block diagram

Main features are:
- Master volume control and Balance.
- Tone control (Loudness, Bass, Treble, Equalizer).
- Dolby ProLogic delay.
- Incredible Mono and Stereo.
- Virtual Dolby Surround (VDS 522, 523).
- Virtual Dolby Digital (VDD 522, 523).
- Digital audio I/O interface (stereo I2S input interface).
- Eight audio DACs for six channel loudspeaker outputs and stereo headphones output.
- Audio DACs for stereo SCART output and stereo LINE output.
- Serial data link interface for interfacing with the analog multi-purpose interface IC PNX3000 (MPIF).

9.9 PNX2015: Columbus (Comb Filter)

9.9.1 Introduction

This block provides the following picture improvement functions:

- Enhanced 2D combing for PAL and NTSC.
- 3D field combing for PAL and NTSC.
- 3D frame combing for PAL and NTSC.
- Spatial noise reduction for all component video standards.
- Temporal noise reduction for all component video standards.

The comb filter is controlled via a separate I^2C interface on the PNX2015, this is to ensure registers containing measurement information, are accessed at appropriate times. The measurement information is also available as ancillary data within the video stream (ITU-656).
For certain features of the comb filter, access to external memory is required. The PNX2015 has a unified memory that both comb filter and HD subsystem's share concurrently.

9.9.2 Block Diagram

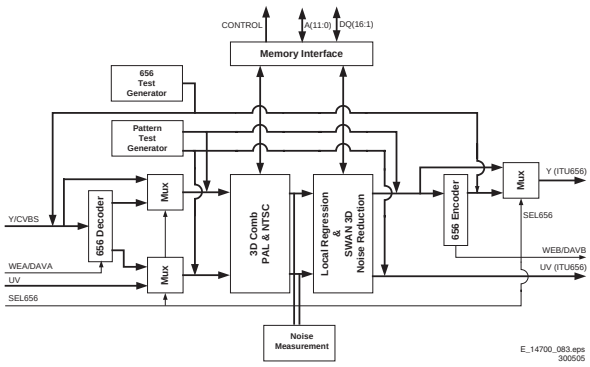


Figure 9-25 COLUMBUS internal block diagram

Figure above, shows a block diagram of the Columbus comb filter in the PNX2015 device. An input video signal is supplied by the AVIP and fed to the Columbus block. The signal is supplied in digitized components of:

- CVBS or Y.
- Uncombed U.
- Uncombed V.

The CVBS signal is combed, extracting the luminance components and rejecting the chroma components. The UV signals are combed, rejecting the left over luminance components, from a previous filtering (normally band pass filtered).

The outputs from the 3D comb filter are:

- Combed luminance signal (Y).
- Combed U signal.
- Combed V signal.

The output from the 3D comb filter feeds the SWAN and LORE noise reduction block, which performs spatial/temporal noise reduction, for both luminance and chrominance components.

Control Register Interface

The control registers are accessed via I^2C. Most signals that can be written via I^2C are double buffered. The fast I^2C interface implemented on the COLUMBUS is a 5V compliant, 400 kHz slave receiver/transmitter. The I^2C will not be blocked during voltage shorts or opens.

For the system dependent parameters of the 3D-Comb filter, five register banks are present. Data can be written in one of the banks via I^2C, by programming bits [2:0] of the SYSTEM_SELECT register. The bits [6:4] of the SYSTEM_SELECT register select, which register bank is used by Columbus to define the filter settings.

Bank number	System
0	PAL B, G, H, I, D, K
1	PAL M
2	PAL N
3	NTSC
4	Bypass

Internal Test Generators

There are two test generators inside the COLUMBUS chip:

- The "656 test generator" generates a 656 compliant stream and is used for testing the functionality of the 656 encoder and decoder. The 656 stream can be injected at the front end or the back end of the chip.
- A second internal test pattern generator enables testing of the device and attached external memory (if present). The test pattern generator signal can be inserted at the front end of the chip (passing through the 3D Comb and noise reduction system and external memory) or at the back end of the chip. Test patterns are available for both PAL/SECAM and NTSC systems.

9.10 PNX2015: HD Subsystem

The HD subsystem performs MPEG video decoding on HD/SD transport streams. It interfaces with the PNX8550 and video coprocessor via tunnel interfaces, HD/SD using DV4 and DV5 inputs, and PNX8550 using DV1, DV2 and DV3 outputs. The HD subsystem can also perform horizontal and vertical scaling of video images, and perform a range of video measurements on a transport stream.

9.11 PNX2015: LVDS Transmitter

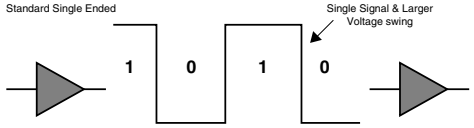
Low Voltage Differential Signaling (LVDS) is a low-power, low-noise differential technology for high speed data transmission over two PWB traces, or a balanced cable. LVDS allows single-channel data transmission at hundreds, or even up to a thousand Mbps. Low swing and current-mode driver outputs create low noise and provide very low power consumption across frequency ranges.
The LVDS transmitter IP provides a connection interface to FPDs.

Differences between standard and LVDS signalling:

- Standard single ended signal (TTL):
  - Requires 28 signal lines and more than 14 grounds.
  - Single ended signals up to 3 V.
  - Wide flat ribbon cable.
  - EMI/EMC problems.
  - Feasible up to VGA/NTSC resolution (limited to 250 Mb/s).
- LVDS:
  - Five low voltage (350 mV) differential pairs: one clock pair and four data pairs.
  - Five grounds.
  - EMI/EMC friendly.
  - WXGA and HD-1280x720p (up to 1 Gb/s).

LVDS offers superior performance compared to the standard single ended signal (TTL).
It is even "protocol independent" so it requires no software.

- Lower Voltage Swing (only 350 mV vs. 3 V)
- Allows faster Clocking
  - Standard open Ended: 250Mbps
  - LVDS: >1 Gbps



- Differential Signals (Two Signals) ...Low Noise!
- Receiver reads a 1 or 0 based on the delta of the two signals.
- Noise Impacts both lines and cancels out each others.

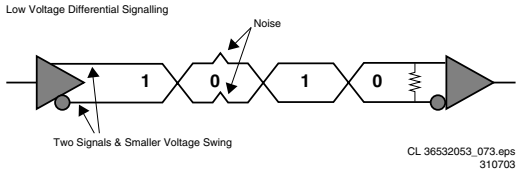


Figure 9-26 LVDS technology

The digital video output from the VIPER is connected to the display via the LVDS interface. This transmitter converts 28 bits of LVCMOS/LVTTL data into four LVDS (Low Voltage Differential Signalling) data streams. A phase-locked transmit clock is transmitted in parallel with the data streams over a fifth LVDS link. With every cycle of the transmit clock, 28 bits of input data are sampled and transmitted. At a transmit clock frequency of 85 MHz, 24 bits of RGB data and 3 bits of LCD timing and control data (FPLINE, FPFRAME, DRDY) are transmitted at a rate of 595 Mbps per LVDS data channel. Using a 85 MHz clock, the data throughput is 297.5 Mbytes/sec.

9.12 PNX2015: Stand-by Processor

9.12.1 Introduction

The Stand-by Processor's sub system is isolated from the other sub systems within thePNX2015. It has its own power supply (1.2V and 3.3V), together with separate clocking (16MHz) and reset. This allows for it to be active while all other sub systems are either inactive, via clock being disabled, or powered down.

The main tasks of the Stand-by Controller are:
- RC5/RC6 remote control handling.
- P50.
- Keyboard handling (side control, "on/off" switch).
- Detection and protection of the power supplies.
- Status detection on EXTernals.
- SAM/SDM entering.
- Provide boot-scripts to the VIPER.
- Start-up behavior of the set; sequentially enabling the power supplies via the ENABLE lines.

9.12.2 TV Start-up Behavior and Fault Detection

1. The Stand-by Controller is powered by the +5V2 voltage (3V3_STBY voltage is derived from the +5V2), which becomes available when the set is connected to the Mains / AC Power.
2. By default, all I/O lines of the controller are "high", this state is also the state that will not trigger protections or cause supplies to rise, since enabling a supply requires that an IO line is pulled "low". Also all protections are active "low".
3. The 16 MHz crystal starts running.
4. Reset IC 7M03 will generate a RESET_STBY pulse.
5. All I/O lines will be set in default state, as "told" by the software.
   – RESET_SYSTEM will be "low" (this will hold the VIPER in reset).
   – LAMP_ON will be "low".
6. The system waits for an RC or functional switch command: when this command is "low" the set will start-up.

The Stand-by Microprocessor is responsible for the start-up of the VIPER, by providing the correct timing for the DC/DC converted voltages (for timing of DC/DC converter voltages see description in paragraph "Power Supply").
The +12V switch (via POD_MODE) and the DC/DC converters (via ENABLE) are switched "on" (active "low"). Once these voltages are switched "on", the Stand-by Controller is monitoring these voltages via a voltage detector circuit connected to port P2.x. When one of the voltages is missing, the fault detection will be active "low" on port P2.x. An error code will be written in the error buffer.
There is a common SUPPLY_FAULT line; connected to port P1.3 (INT5) that is active "low" when there is a problem detected on one of the DC/DC power supplies driver circuits. One input (P2.6) is used for the Audio Supply protection from the audio amplifier.
The RESET_SYSTEM line (P4.0) is "low" in Stand-by and at Start-up to keep the VIPER in reset state. Once the VIPER core supply is available, the RESET_SYSTEM line will become "high". The VIPER is starting up and will provide a RESET-MIPS active "high" to the Stand-by Processor P3.3, AVIP, and COLUMBUS.

9.12.3 I/O Stand-by Processor

The inputs on the Stand-by Microprocessor are used to detect the AV status from the front inputs (see also the control block diagram in chapter 6 "Block diagrams,...").
An UART communication line via an electronic switch is available on a connector and will be used for Service to communicate with ComPair. The UART line is switched to the Stand-by Processor when the UART_SWITCH line (P0.7) is "high". Otherwise it is switched to the VIPER.

9.13 VIPER 2 (PNX 8550)

9.13.1 Introduction

The PNX8550 is a highly integrated media processor intended for deployment in analog, digital, and hybrid TV receivers. It can be used for 100 Hz interlaced as well as 60 Hz progressive screens. It is fully capable of performing advanced video improvement algorithms, such as Digital Natural Motion™, on Standard Definition analog or digital sources. It includes an HD capable de-interlacer for converting interlaced HD transmission signals to progressive output for driving wide-XGA class Plasma or LCD displays. Two 32-bit 240 MHz VLIW media processors, referred to as the TriMedia TM3260 CPU core, carry out the advanced video improvement processing as well as all audio operations. Fixed hardware functions perform stable core video functions, such as picture level MPEG2 decoding, scaling, image composition and pixel post processing.

The PNX8550 provides a primary digital (YUV or RGB) output to connect to the display specific output processor. In addition, a secondary analog video output (CVBS or S-Video) for a VCR is available. This is the so-called DENC-out. It can operate either in analog PAL/NTSC or digital mode.

9.13.2 Block Diagram

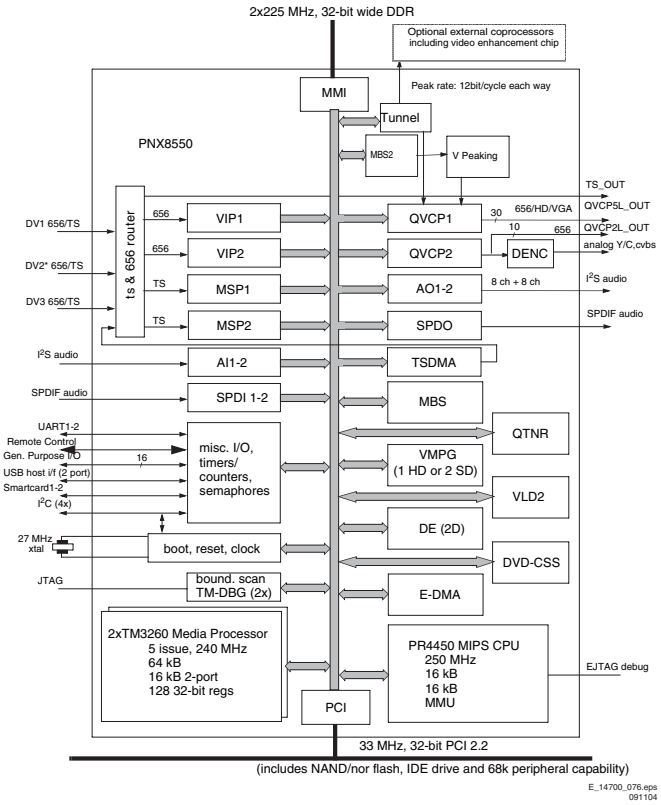


Figure 9-27 VIPER 2 internal block diagram

Control

An embedded MIPS32 processor (PR4450) running at 266 MHz is available to run the Operating System. The PR4450 processor is primarily responsible for running the demand paged graphics-intensive operating system, while the TM3260 media processors are responsible for running all real-time media functions. All hardware resources inside the PNX8550 are accessible by both the MIPS processor and the TM3260 CPUs. A "'sandbox" style system protection provision ensures that selected MIPS memory regions and critical peripherals cannot be corrupted or inspected.

VIP (Video Input Processor)

The Video Input Processors (VIP) handles incoming digital video and processes it for use by other components of the PNX8550. It provides the following functions:

- Receives 10-bit YUV4:2:2 digital video data from the selected DVx video port (input signal coming from the AVIP or Columbus IC output). The data is dithered down to in-memory 8-bit data format.
- Performs horizontal down scaling or up scaling by 2x (not available in HD video capture mode).
- Provides an internal Test Pattern Generator with NTSC, PAL, and variable format support.
- Acquire VBI data using a separate acquisition window from the video acquisition window.
- ANC header decoding or window mode for VBI data extraction.
- Interrupt generation for VBI or video written to memory input mode.
- Color space conversion (mutual exclusive with horizontal scaling).
- Raw data mode captures of 8- or 10-bit data.

MBS (Memory Based Scaler)

The PNX8550 contains a Memory Based Scaler that performs operation on images in main memory. The MBS can either be controlled task by task by a TM3260, or it can be given a list of de-interlacing and scaling tasks. It reads images from memory, performs a transformation, and writes the result back in memory.

The MBS main features are:

- De-interlacing using either a median, 2-field majority select, or 3-field majority select algorithm with an edge detect/correct post-pass (these three provide increasing quality, at expense of increased bandwidth).
- Edge detect/correct on an input frame that has been software de-interlaced (this provides future capabilities in case we develop a better core de-interlacer than 3-field majority select).
- Horizontal and vertical scaling (on the input image, or on the result of edge detect/correct stage).
- Linear and non-linear aspect ratio conversion.
- Anti-flicker filtering.
- Conversions from any input pixel format to any non-indexed pixel format, including conversions between 4:2:0, 4:2:2 and 4:4:4, indexed to true color conversion, color expansion / compression, de-planarisation / planarisation (to convert between planar and packed pixel formats), programmable color space conversion.

Supported video measurement functions during scaling or de-interlacing pass:

- Gather a histogram of luminance values (this data is used by software to control histogram modification).
- Measure noise level inside a rectangular window.
- Measure the lowest level luminance within a rectangular window (used to control black stretch in QVCP).
- Measure UV bandwidth inside a rectangular window.

QTNR (Quality Temporal Noise Reduction and Video Measurement)

The QTNR block has two primary functions: Temporal Noise Reduction: reading two video fields from memory, "current" (noisy) and "previous" (noise reduced) and producing a noise-reduced version of "current" in memory. While doing this, or as a separate "measurement only" pass, perform video measurements:

- Gather a histogram of luminance values (this data is used by software to control histogram modification).
- Measure noise level inside a rectangular window.
- Measure the lowest level luminance within a rectangular window (used to control black stretch in QVCP).
- Measure UV bandwidth inside a rectangular window.
- Measure the position of top and bottom black bars in the image.

QVCP (Quality Video Composition Processor)

The PNX8550 contains two QVCPs, which are responsible for combining and displaying video and graphics images from main memory. The primary QVCP serves as the main display pipeline, the second one is targeted to be connected to a record device (VCR). The primary QVCP allows composition of up to five layers, and can output in ITU-656/HD/VGA format in 10 bits per component up to 81 Mpix/s.

The secondary QVCP allows composition of up to two layers, can output in 656 10-bit component mode up to 81 MHz (40.5 Mpix/s). The secondary QVCP is connected to an on-chip Digital Video Encoder (DENC), allowing direct analog CVBS or S-video output.
In analog output mode, standard definition interlaced NTSC or PAL is supported (SCART2-out signal, for VCR-recording). The encoder has two DACs. DAC1 provides CVBS or luminance for S-video. DAC2 provides chrominance for S-video.
Internal sensors allow software to test loading on the S-video Chrominance line to decide whether to output luminance or CVBS on DAC1.

The primary and secondary QVCP each contain a series of layers and mixers. The QVCP creates a series of display data layers (pixel streams) and mixes them logically from back to front to create the composite output picture.

Some of the features the QVCP provides are:
- Video Quality Enhancement.
- Luminance Transient Improvement.
- Color Dependent Sharpening.
- Horizontal Dynamic Peaking.
- Histogram Modification.
- Digital Color Transient Improvement.
- Black Stretch.
- Skin Tone Correction.
- Blue Stretch and Green Enhancement.
- Video and Graphics horizontal up scaling.
- Color space unification of all the display surfaces.
- Contrast and Brightness Control.
- Screen timing generation adopted to the connected display requirements (SD-TV standards, HD-TV standards, progressive, interlaced formats).

9.14 Ambient Light (if present)

9.14.1 Introduction

At the rear left and right side of the TV-set, three gas discharging lamps are mounted. With the red, green, and blue lamps, each color can be made.
- Ambient light is adjustable with three variables: Hue, Saturation, and Brightness.
- Hue and saturation are controlled via menu control or via smart settings.
- The brightness is controlled via menu or via a cycle generator.
- The light sensor influences the brightness.
- Switching "on" or "off" goes via a ramp up or down.
- The ambient light may be active or passive.

In the user set up menu the following items are added:
- Ambient Light.
- Lights "On/Off".
- Ambient Light: "Personal/Normal/Warm/Cool".

Two extra keys are added on the Remote Control:
- ON/OFF: A (normal) press on this key switches the Ambient Light "On/Off".
- MODE: In case the set is "On", to toggle the smart modes.

Specifications:
- Lamp current frequency= 43 kHz.
- Lamp dimming frequency= 85 Hz.
- PWM duty cycle range= 30%
- Each lamp is only driven one third of the period to avoid crosstalk (drive lamps at 33.3% to have no losses in output).

9.14.2 Block Diagram

All mentioned blocks (from "Cycle Generator" to "HSV-to-RGB Converter" are implemented in the main software. Via I^2C, the RGB values are sent to the Pacific 3 (where a selection is made between "active" and "passive" mode) and again via I^2C the Inverter board is addressed.
In "passive" mode, the RGB values from the "HSV-to-RGB Converter" are used, while in "active" mode the picture content is used to steer the ambient lights.

Cycle Generator
The Cycle Generator (for fade in/out) starts with a long press on the "On/Off" button on the RC. It stops when the button is released.

Light Sensor
The light sensor influences the Brightness: when the room is darker, the ambient light is reduced. The amount of dimming is set according to an algorithm in the Auto TV software. In "active" Ambient Light mode, the light sensor does not influence the Brightness.

Ramp Up/Down
The Brightness is changing with a speed from min. to max. in 2 s.

HSV to RGB Converter
The HSV (Hue, Saturation, Value) values are converted to RGB values.

Outputs
The outputs are RGB values and can individually be decreased.

Pacific 3
In this chassis, no MOP is implemented. Instead, the Pacific 3 performs the signal processing to the screen. The Pacific 3 performs additional signal improvement. The AmbiLight units are also driven by the Pacific 3.

9.14.3 Inverter Board

This board is for Service a "Black Box". This means that it is not repairable on component level, but when found defective, the board must be swapped. See the Spare Parts List for the order code.

Some specifications:
- There are three inverters to drive the lamps, each inverter drives a lamp for one color.
- DC-to-AC converter: 2.3 kV.
- Able to drive Cold Cathode Fluorescent Lamps (CCFL). There are two lamp units, three lamps (RGB) per unit= six lamps.
- The lamps are driven with Pulse Width Modulation (PWM).
- The inverters and lamps are supplied with 12V from main supply.

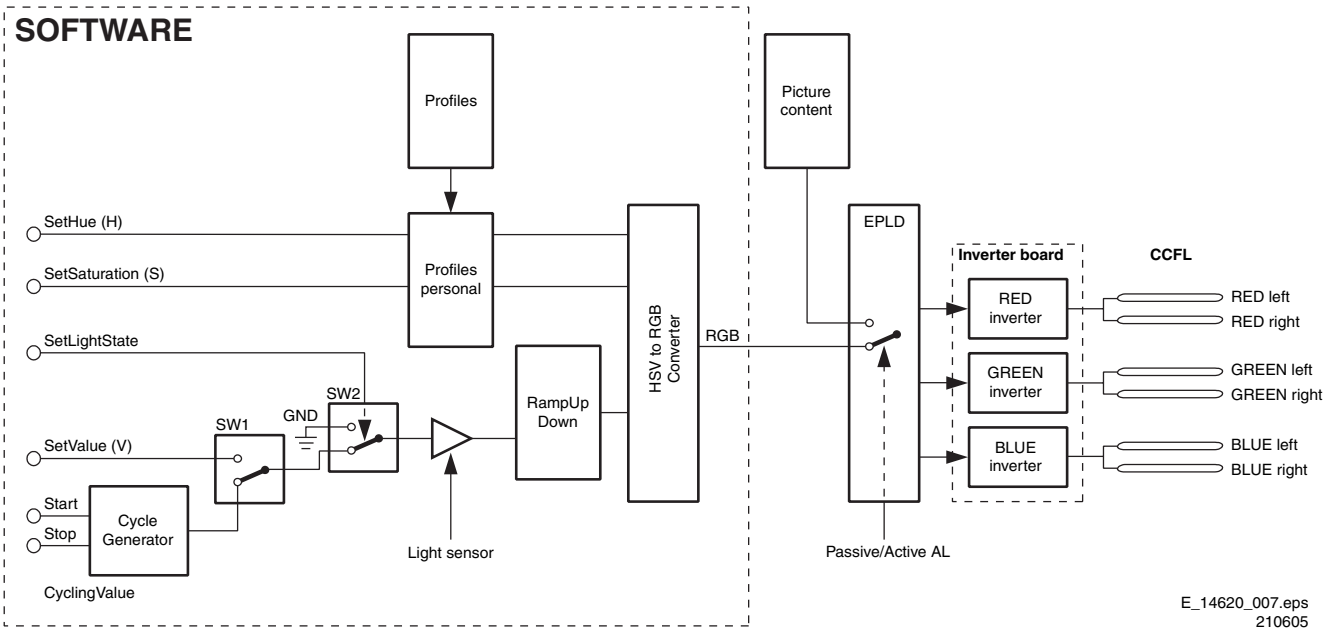


Figure 9-28 Ambient light block diagram

9.15 Abbreviation List

0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format
2DNR	Spatial (2D) Noise Reduction
3DNR	Temporal (3D) Noise Reduction
AARA	Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeps the original aspect ratio
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
ANR	Automatic Noise Reduction: one of the algorithms of Auto TV
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASF	Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars without discarding video information
ATSC	Advanced Television Systems Committee, the digital TV standard in the USA
ATV	See Auto TV
Auto TV	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way
AV	External Audio Video
AVIP	Audio Video Input Processor
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BTSC	Broadcast Television Standard Committee. Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries
B-TXT	Blue TeleteXT
C	Centre channel (audio)
CA(M)	Conditional Access (Module)
CEC	Consumer Electronics Control bus: remote control bus on HDMI connections
CIS	Card Information Structure: Protocol which identifies the card in a POD module
CL	Constant Level: audio output to connect with an external amplifier
COLUMBUS	COlor LUMinance Baseband Universal Sub-system
ComPair	Computer aided rePair
CP	Connected Planet / Copy Protection
CSM	Customer Service Mode
CSS	Content Scrambling System; An encryption method for MPEG-2 video on DVDs. The algorithm and keys required to decode the disc are stored on the DVD-player
CTI	Color Transient Improvement: manipulates steepness of chroma transients
CVBS	Composite Video Blanking and Synchronization
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DDC	See "E-DDC"
D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz
DFU	Directions For Use: owner's manual
DMR	Digital Media Reader: card reader
DNR	Digital Noise Reduction: noise reduction feature of the set
DRAM	Dynamic RAM
DRM	Digital Rights Management
DSP	Digital Signal Processing
DST	Dealer Service Tool: special remote control designed for service technicians
DTCP	Digital Transmission Content Protection; A protocol for protecting digital audio/video content that is traversing a high speed serial bus, such as IEEE-1394
DVD	Digital Versatile Disc
DVI(-d)	Digital Visual Interface (d= digital only)
EAS	Emergency Alert Signalling; A cable TV standard (SCTE18) to signal emergency information to digital terminal devices
ECM	Entitlement Control Message
E-DDC	Enhanced Display Data Channel (VESA standard for communication channel and display). Using E-DDC, the video source can read the EDID information form the display.
EDID	Extended Display Identification Data (VESA standard)
EEPROM	Electrically Erasable and Programmable Read Only Memory
EMI	Electro Magnetic Interference
EMM	Entitlement Management Message
EPLD	Erasable Programmable Logic Device
EU	Europe
EXT	EXTernal (source), entering the set by SCART or by cinches (jacks)
FAT	Forward Application Transport channel
FBL	Fast BLanking: DC signal accompanying RGB signals
FDC	
FDS	Full Dual Screen (same as FDW)
FDW	Full Dual Window (same as FDS)
FLASH	FLASH memory
FM	Field Memory or Frequency Modulation
FTV	Flat TeleVision
Gb/s	Giga bits per second
G-TXT	Green TeleteXT
H	H_sync to the module
HD	High Definition
HDD	Hard Disk Drive
HDCP	High-bandwidth Digital Content Protection: A "key" encoded into the HDMI/DVI signal that prevents video data piracy. If a source is HDCP coded and connected via HDMI/DVI without the proper HDCP decoding, the picture is put into a "snow vision" mode or changed to a low resolution. For normal content distribution the source and the display device must be enabled for HDCP "software key" decoding.
HDMI	High Definition Multimedia Interface
HP	HeadPhone

I	Monochrome TV system. Sound carrier distance is 6.0 MHz
I^2C	Integrated IC bus
I^2D	Integrated IC Data bus
I^2S	Integrated IC Sound bus
IB	In Band channel
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IR	Infra Red
IRQ	Interrupt Request
ITU-656	The ITU Radio communication Sector (ITU-R) is a standards body subcommittee of the International Telecommunication Union relating to radio communication. ITU-656 (a.k.a. SDI), is a digitized video format used for broadcast grade video. Uncompressed digital component or digital composite signals can be used. The SDI signal is self-synchronizing, uses 8 bit or 10 bit data words, and has a maximum data rate of 270 Mbit/s, with a minimum bandwidth of 135 MHz.
ITV	Institutional TeleVision; TV sets for hotels, hospitals etc.
JOP	Jaguar Output Processor
LS	Last Status; The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customer's preferences
LATAM	Latin America
LCD	Liquid Crystal Display
LED	Light Emitting Diode
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
LORE	LOcal REgression approximation noise reduction
LPL	LG.Philips LCD (supplier)
LS	Loudspeaker
LVDS	Low Voltage Differential Signalling
Mbps	Mega bits per second
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MOP	Matrix Output Processor
MOSFET	Metal Oxide Silicon Field Effect Transistor, switching device
MPEG	Motion Pictures Experts Group
MPIF	Multi Platform InterFace
MUTE	MUTE Line
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe.
NTC	Negative Temperature Coefficient, non-linear resistor
NTSC	National Television Standard Committee. Color system mainly used in North America and Japan. Color carrier NTSC M/N= 3.579545 MHz, NTSC 4.43= 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non-Volatile Memory: IC containing TV related data such as alignments
O/C	Open Circuit
OOB	Out Of Band channel
OSD	On Screen Display
OTC	On screen display Teletext and Control; also called Artistic (SAA5800)
P50	Project 50: communication protocol between TV and peripherals
PAL	Phase Alternating Line. Color system mainly used in West Europe (color carrier= 4.433619 MHz) and South America (color carrier PAL M= 3.575612 MHz and PAL N= 3.582056 MHz)
PCB	Printed Circuit Board (same as "PWB")
PCM	Pulse Code Modulation
PCMCIA	Personal Computer Memory Card International Association
PDP	Plasma Display Panel
PFC	Power Factor Corrector (or Pre-conditioner)
PIP	Picture In Picture
PLL	Phase Locked Loop. Used for e.g. FST tuning systems. The customer can give directly the desired frequency
POD	Point Of Deployment: A removable CAM module, implementing the CA system for a host (e.g. a TV-set)
POR	Power On Reset, signal to reset the uP
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PSIP	Program and System Information Protocol: A standard for (broadcast) digital television. PSIP consists of channel mapping data, program guide data, information about closed captions and content advisory ratings, and other data related to the current and future programs.
PTC	Positive Temperature Coefficient, non-linear resistor
PWB	Printed Wiring Board (same as "PCB")
PWM	Pulse Width Modulation
QAM	Quadrature Amplitude Modulation; modulation method
QTNR	Quality Temporal Noise Reduction
QVCP	Quality Video Composition Processor
RAM	Random Access Memory
RGB	Red, Green, and Blue. The primary color signals for TV. By mixing levels of R, G, and B, all colors (Y/C) are reproduced.
RC	Remote Control
RC5 / RC6	Signal protocol from the remote control receiver
RESET	RESET signal
ROM	Read Only Memory
R-TXT	Red TeleteXT
SAM	Service Alignment Mode
S/C	Short Circuit
SCART	Syndicat des Constructeurs d'Appareils Radiorecepteurs et Televisieurs
SCL	Serial Clock I^2C
SCL-F	CLock Signal on Fast I^2C bus
SD	Standard Definition
SDA	Serial Data I^2C
SDA-F	DAta Signal on Fast I^2C bus
SDI	Serial Digital Interface, see “ITU-656”
SDRAM	Synchronous DRAM
SECAM	SEequence Couleur Avec Memoire. Color system mainly used in France and East Europe. Color carriers= 4.406250 MHz and 4.250000 MHz
SIF	Sound Intermediate Frequency
SMPS	Switched Mode Power Supply

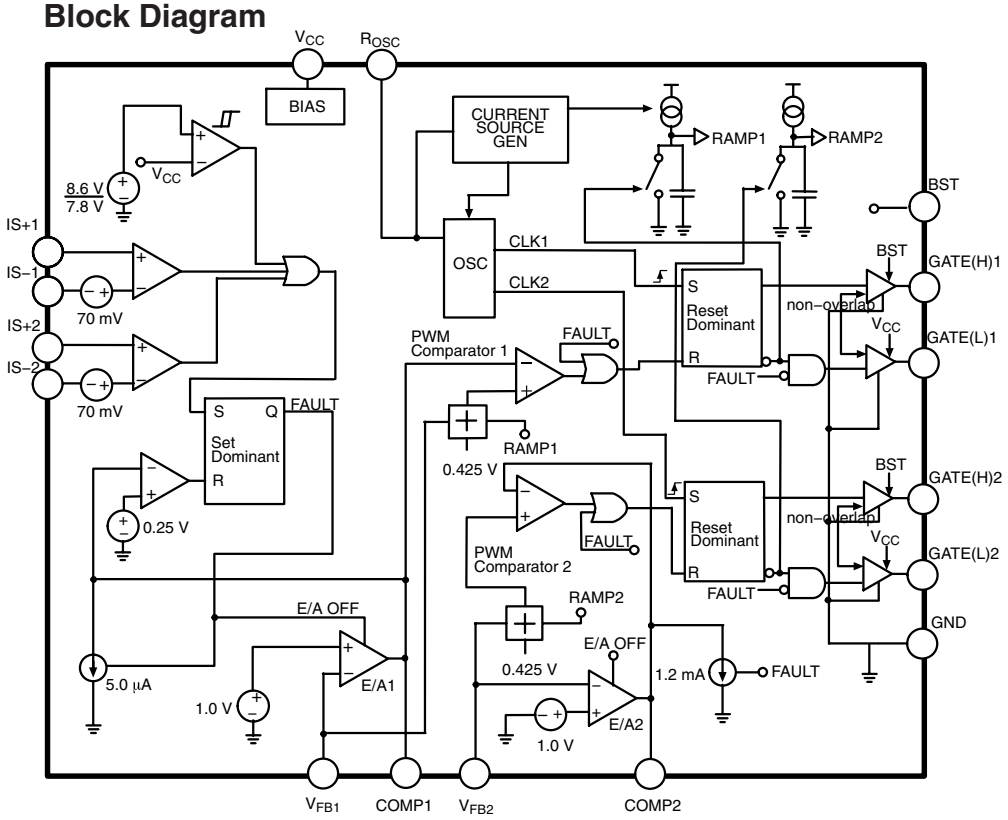
SOG	Sync On Green
SOPS	Self Oscillating Power Supply
S/PDIF	Sony Philips Digital InterFace
SRAM	Static RAM
SSB	Small Signal Board
STBY	STandBY
SOG	Sync On Green
SVGA	800x600 (4:3)
SVHS	Super Video Home System
SW	Software
SWAN	Spatial temporal Weighted Averaging Noise reduction
SXGA	1280x1024
TFT	Thin Film Transistor
THD	Total Harmonic Distortion
TMDS	Transmission Minimized Differential Signalling
TXT	TeleteXT
TXT-DW	Dual Window with TeleteXT
uP	Microprocessor
UXGA	1600x1200 (4:3)
V	V-sync to the module
VCR	Video Cassette Recorder
VESA	Video Electronics Standards Association
VGA	640x480 (4:3)
VL	Variable Level out: processed audio output toward external amplifier
VSB	Vestigial Side Band; modulation method
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
WXGA	1280x768 (15:9)
XTAL	Quartz crystal
XGA	1024x768 (4:3)
Y	Luminance signal
Y/C	Luminance (Y) and Chrominance (C) signal
YPbPr	Component video. Luminance and scaled color difference signals (B-Y and R-Y)
YUV	Component video

9.16 IC Data Sheets

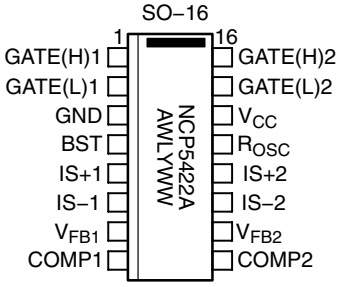
This section shows the internal block diagrams and pin configurations of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs).

9.16.1 Diagram B1A, NCP5422AD (IC 7U00)

Block Diagram



Pin Configuration



A = Assembly Location
WL = Wafer Lot
Y = Year
WW = Work Week

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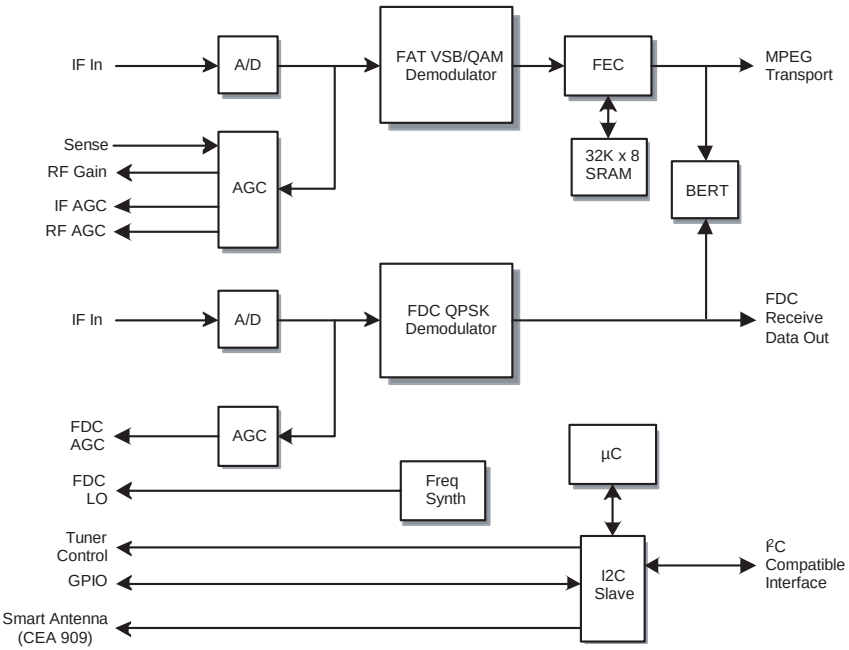
Figure 9-29 Internal block diagram and pin configuration

9.16.2 Diagram B2A, NXT2003 (IC 7TG0)

Block Diagram



Pin Configuration

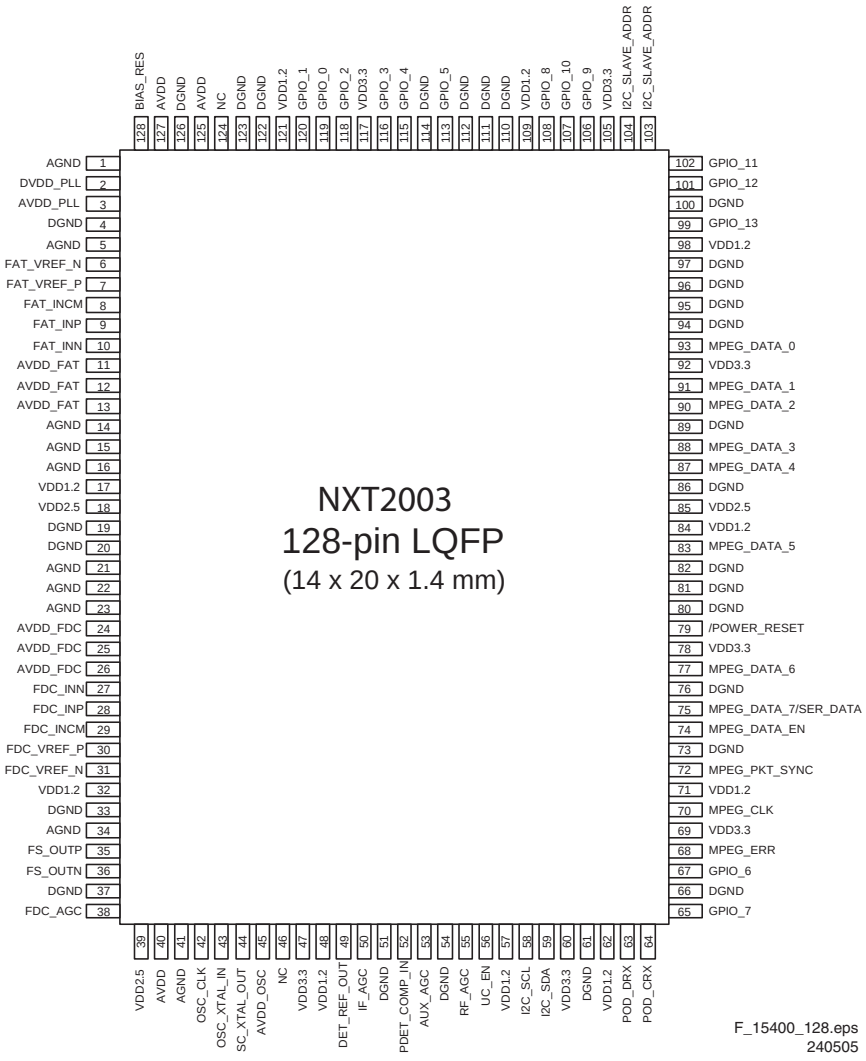


Figure 9-30 Internal block diagram and pin configuration

9.16.3 Diagram B2B, UPC3220GR (IC 7T43)

Block Diagram and Pin Configuration

(Top View)

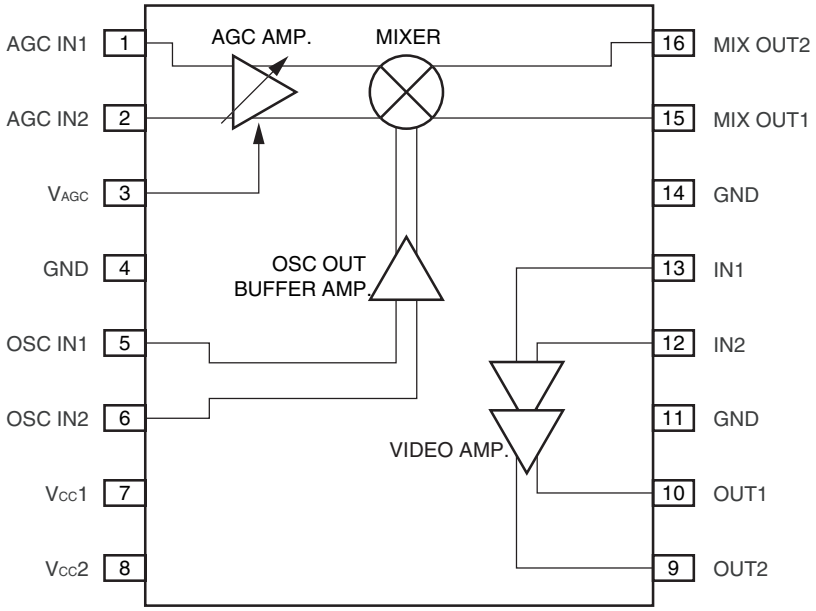


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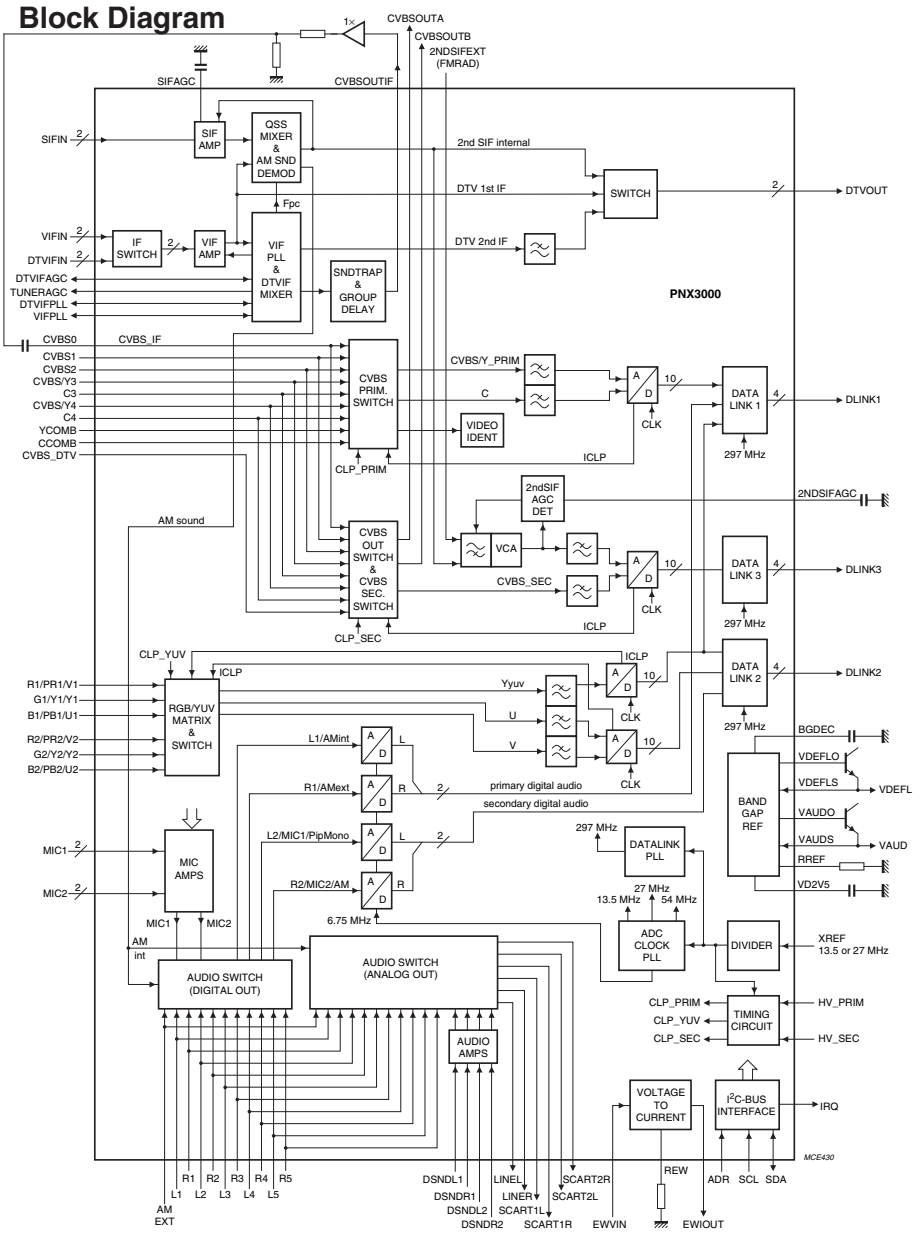
Figure 9-31 Internal block diagram and pin configuration

9.16.4 Diagram B3x, PNX3000HL (IC 7C00)

Block Diagram



Pin Configuration

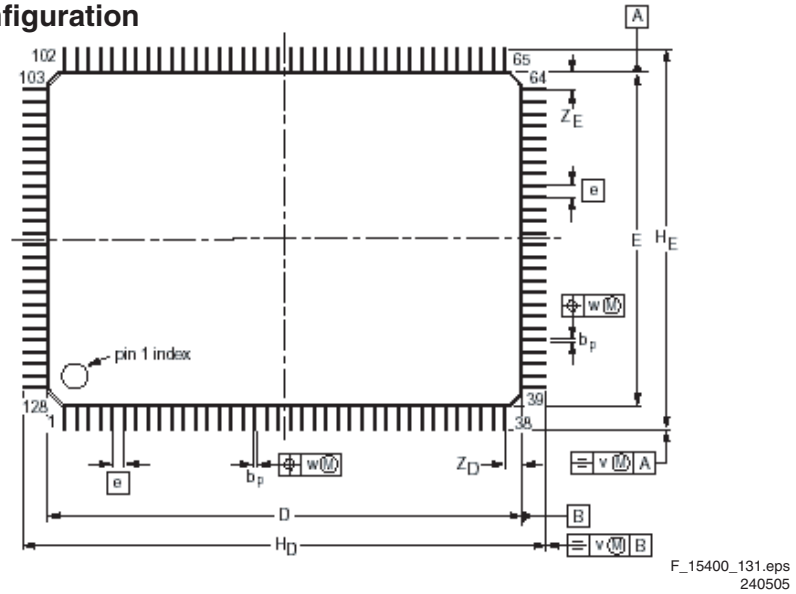


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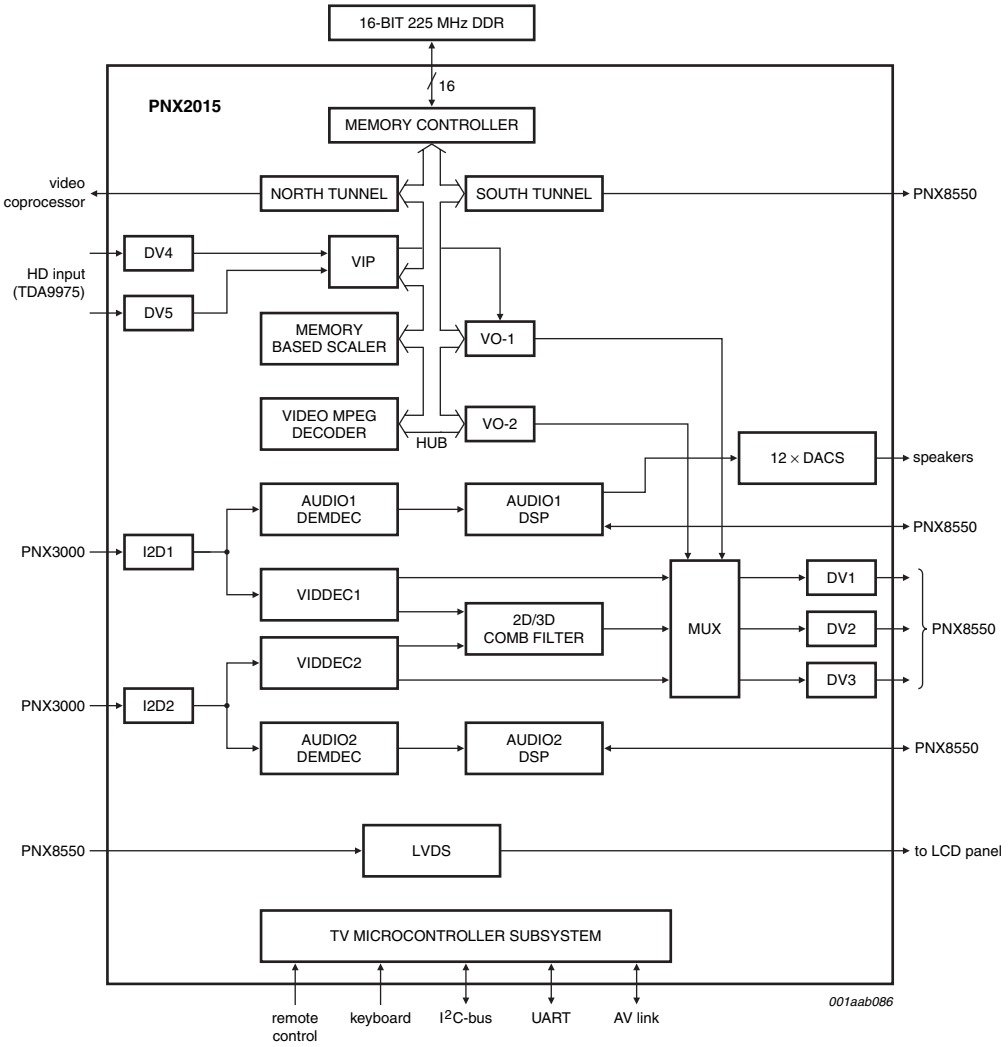
Figure 9-32 Internal block diagram and pin configuration

9.16.5 Diagram B4x, PNX2015E (IC 7J00)

Block Diagram



Pin Configuration

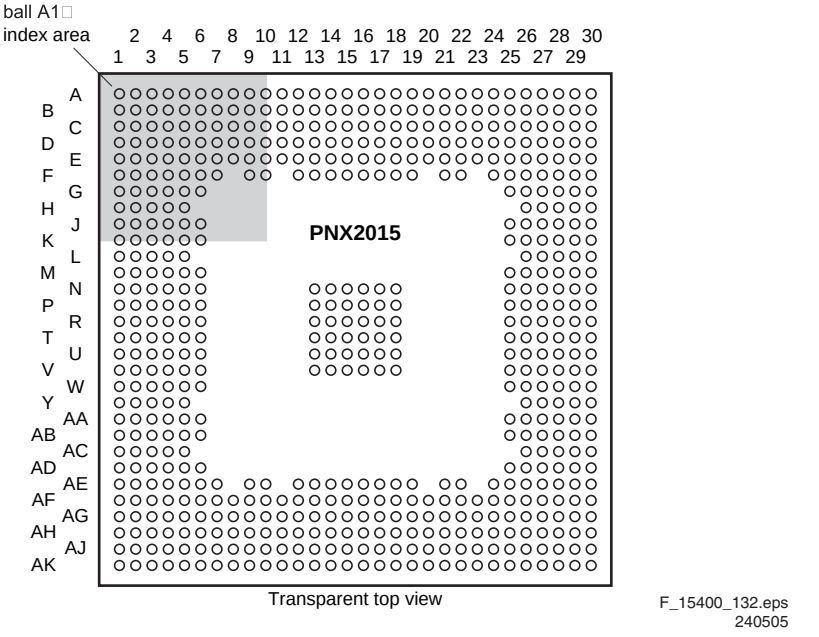


Figure 9-33 Internal block diagram and pin configuration

9.16.6 Diagram B4A, CY2305SC-1 (IC 7J08)

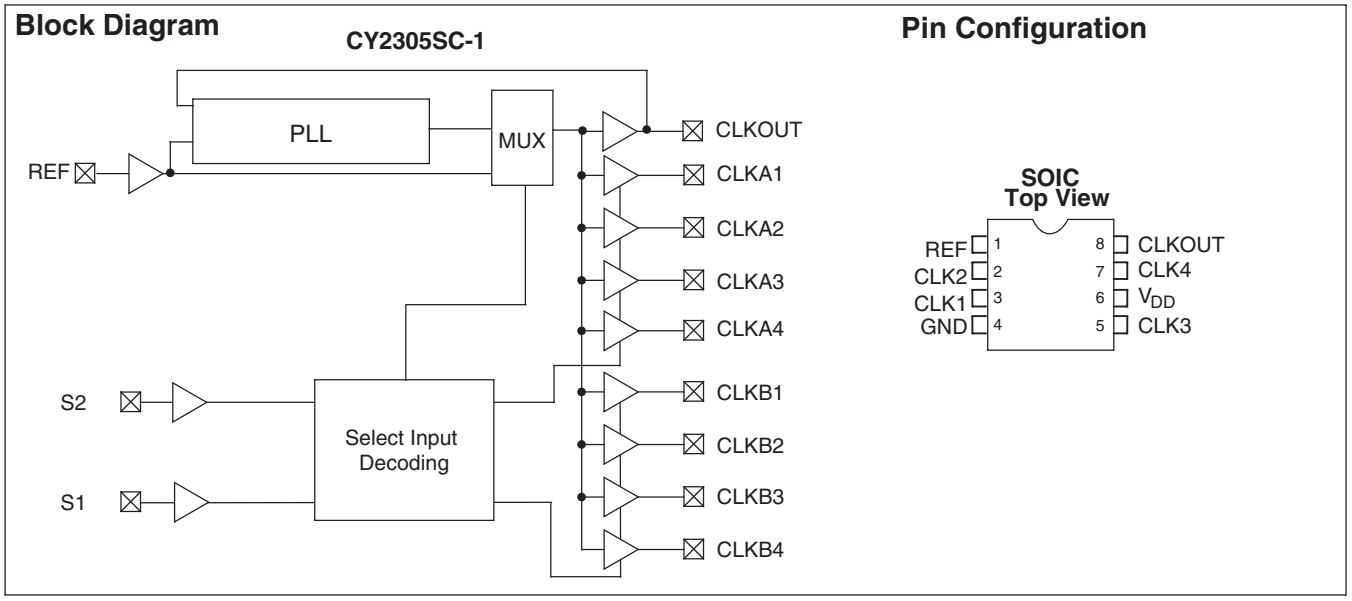


Figure 9-34 Internal block diagram and pin configuration

9.16.7 Diagram B4E, NCP303LSN (IC 7LB0 - 7LB4)

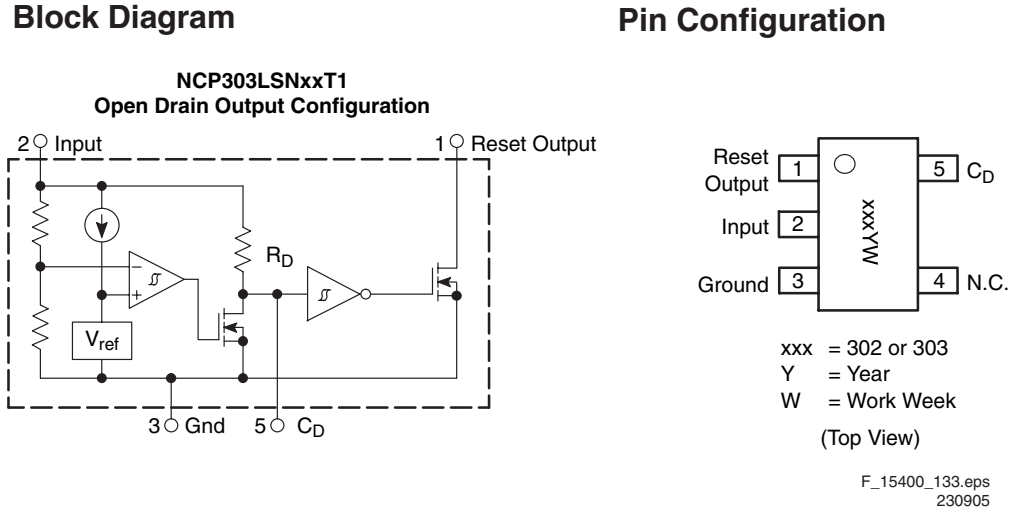
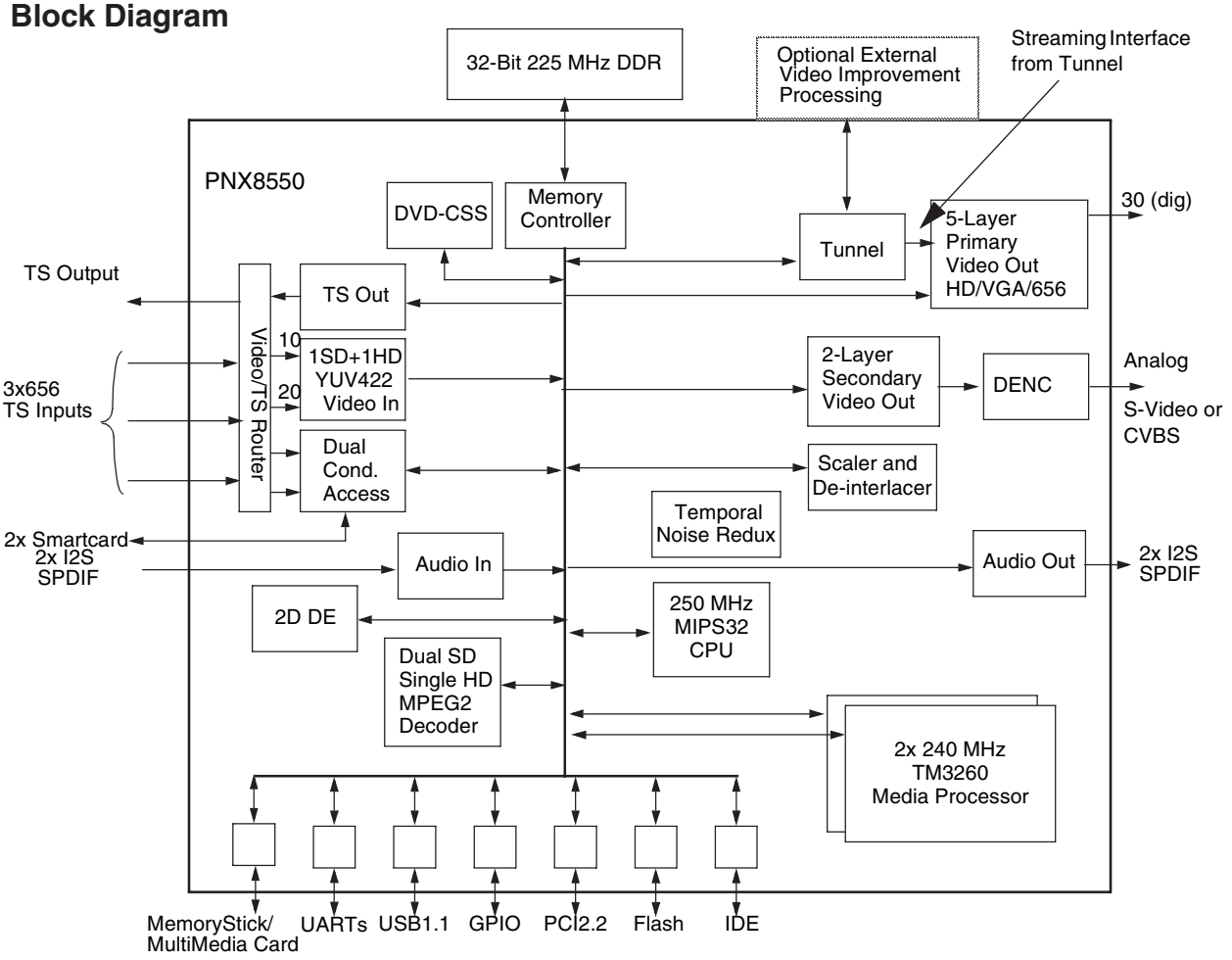


Figure 9-35 Internal block diagram and pin configuration

9.16.8 Diagram B5x, PNX8550EH (IC 7V00)

Block Diagram



Pin Configuration

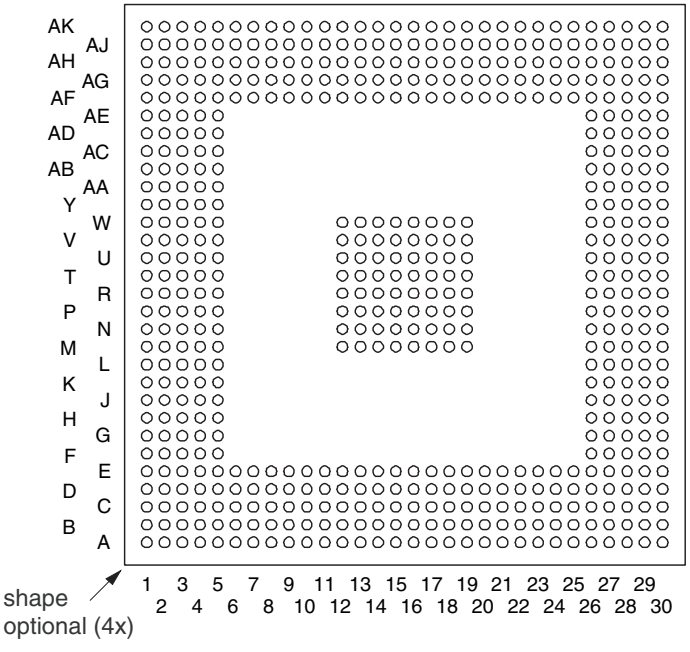


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Figure 9-36 Internal block diagram and pin configuration

9.16.9 Diagram B5A, LM3526MX (IC 7Q01)

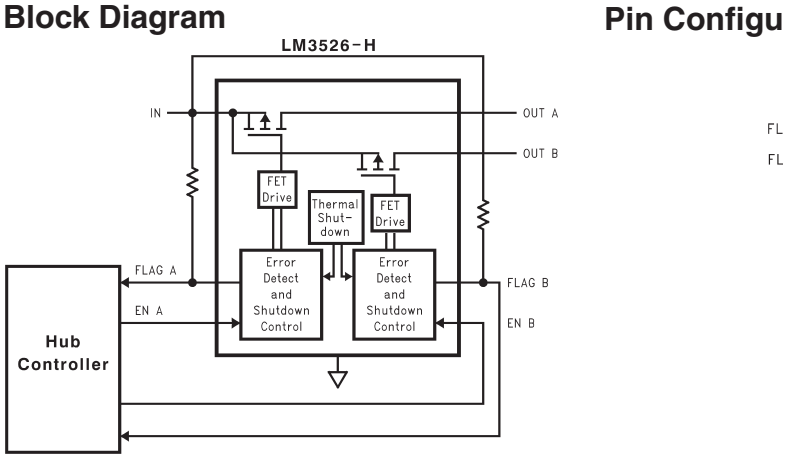
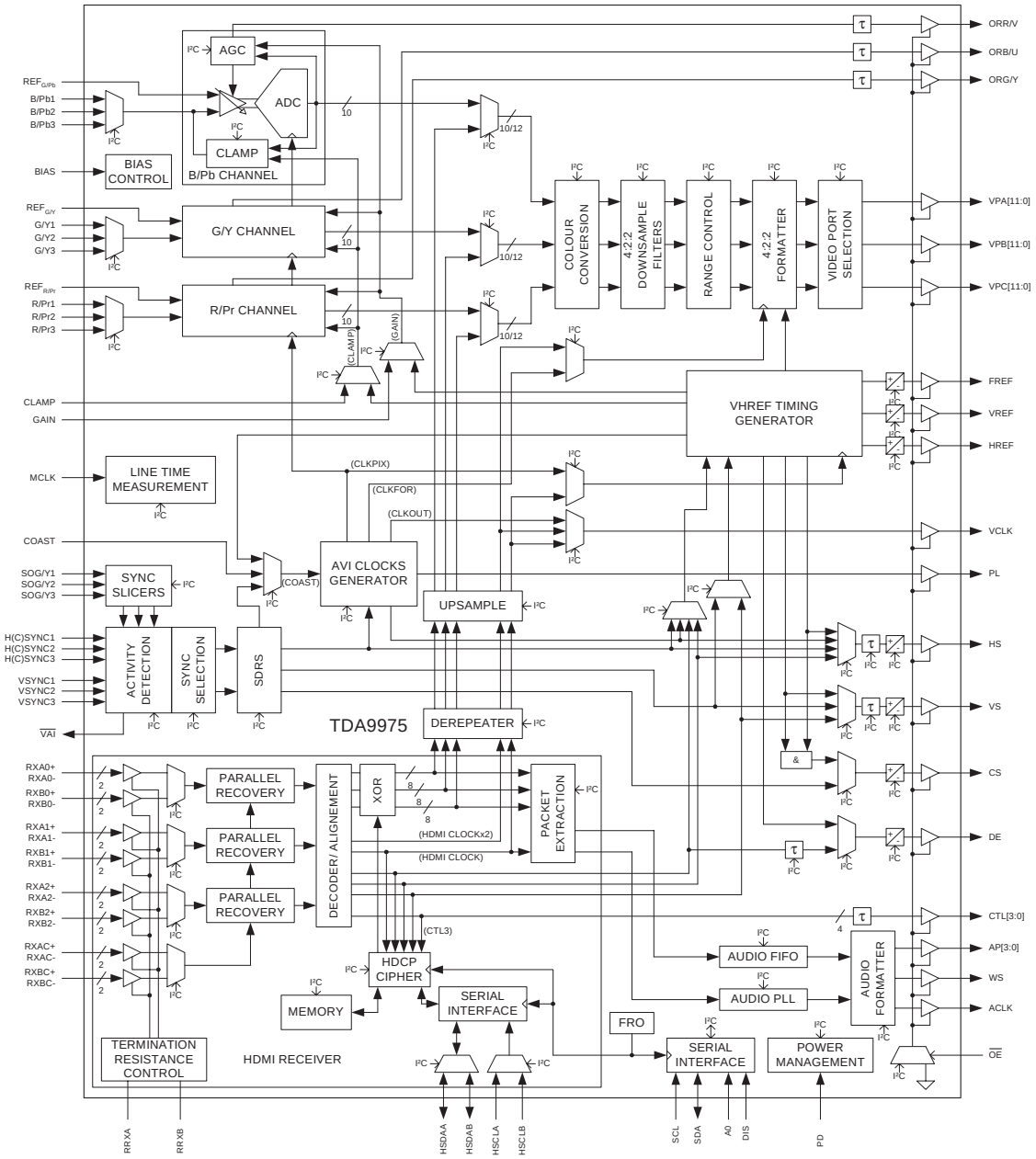


Figure 9-37 Internal block diagram and pin configuration

9.16.10 Diagram B7B & B7C, TDA9975EL (IC 7B11)

Block Diagram



Pin Configuration

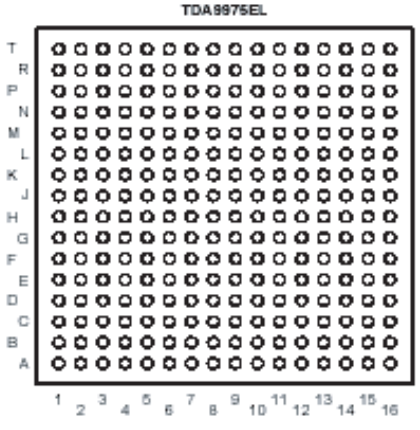


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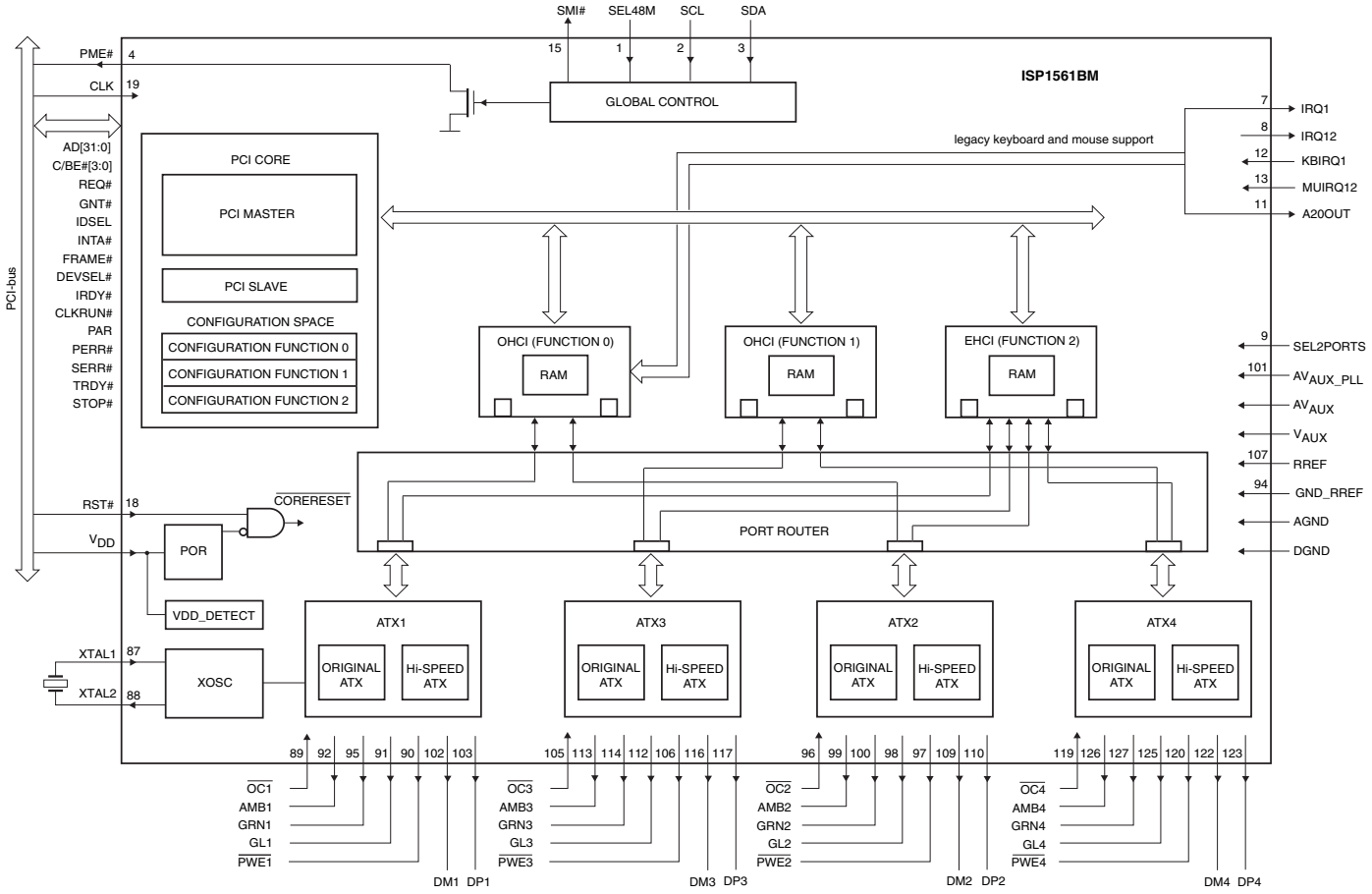
Figure 9-38 Internal block diagram and pin configuration

9.16.11 Diagram B8, ISP1561BM (IC 7N00)

Block Diagram



Pin Configuration

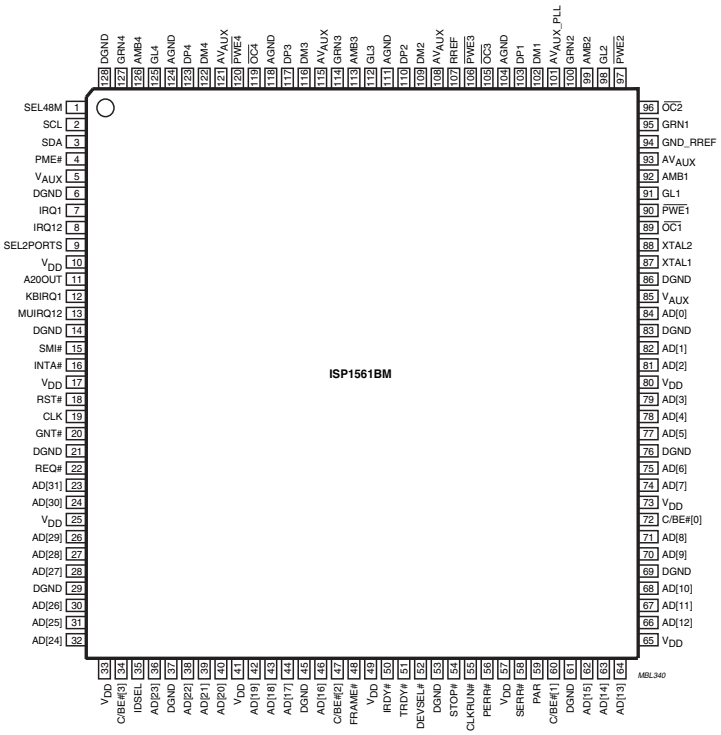


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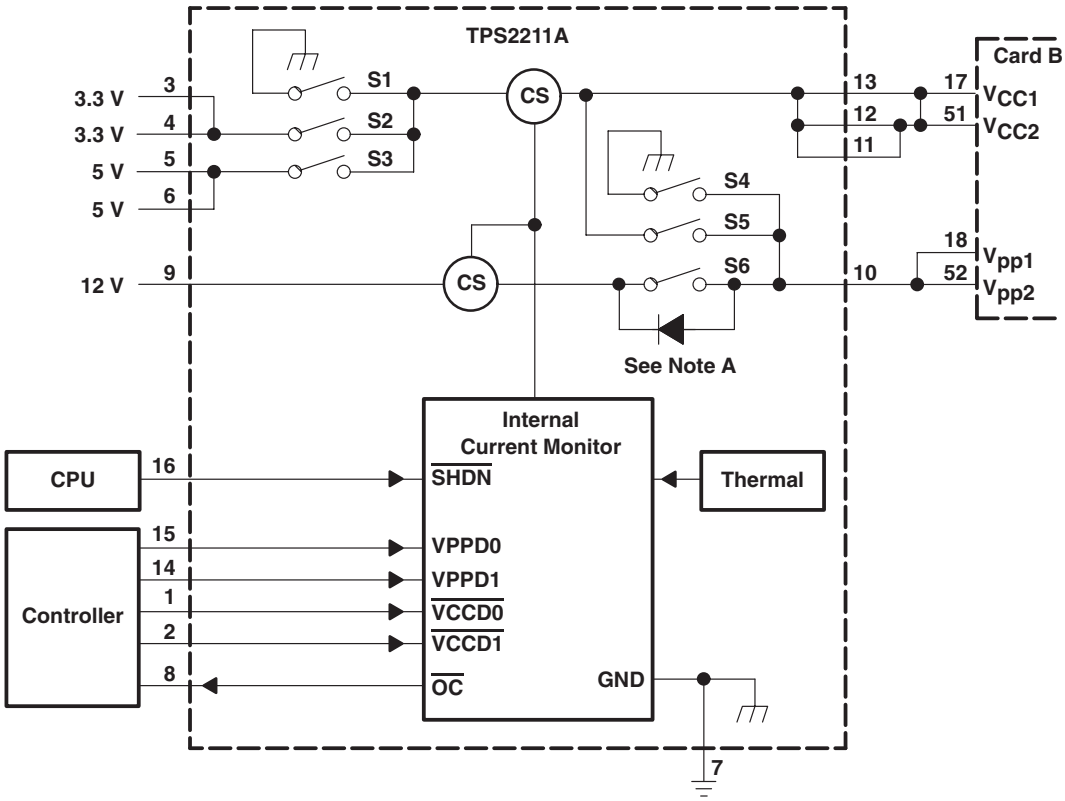
Figure 9-39 Internal block diagram and pin configuration

9.16.12 Diagram B10A, TPS2211AIDB (IC 7P00)

Block Diagram



Pin Configuration

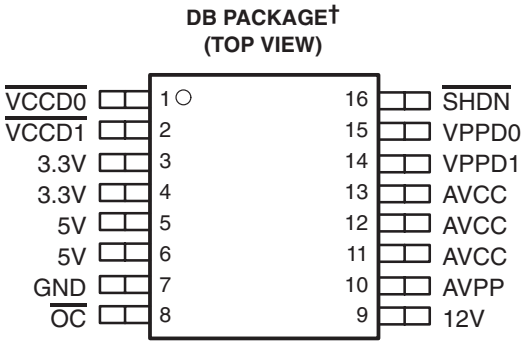


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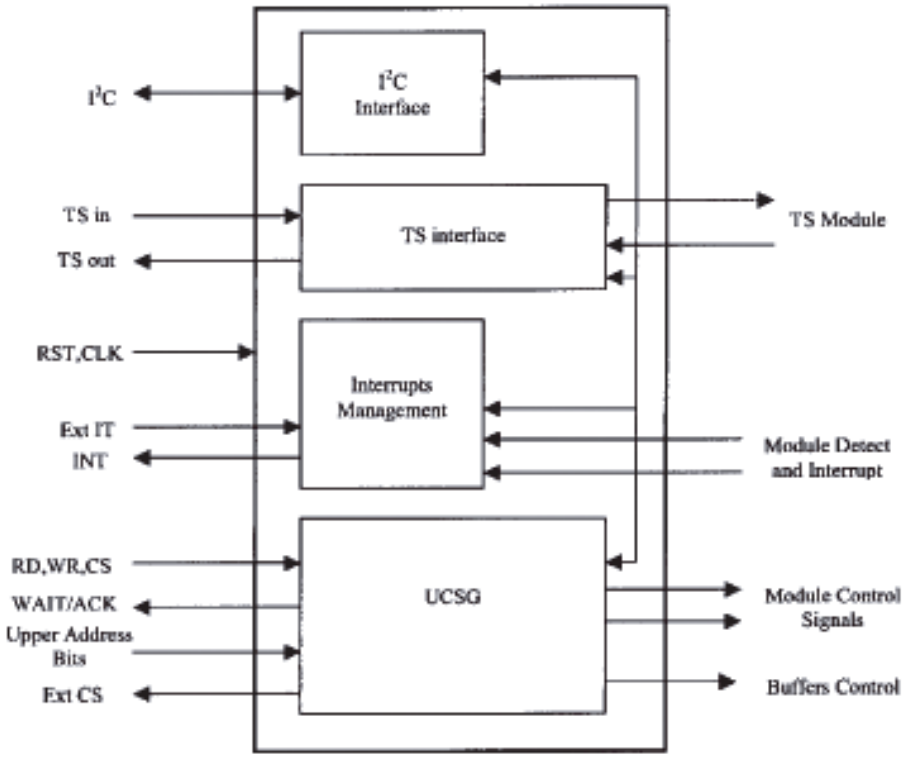
Figure 9-40 Internal block diagram and pin configuration

9.16.13 Diagram B10A, STV0701 (IC 7P03)

Block Diagram



Pin Configuration

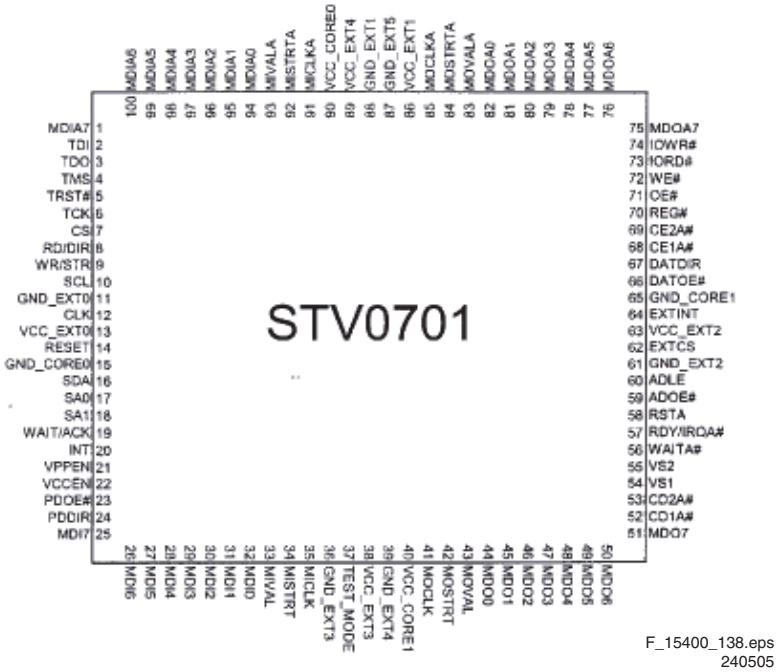
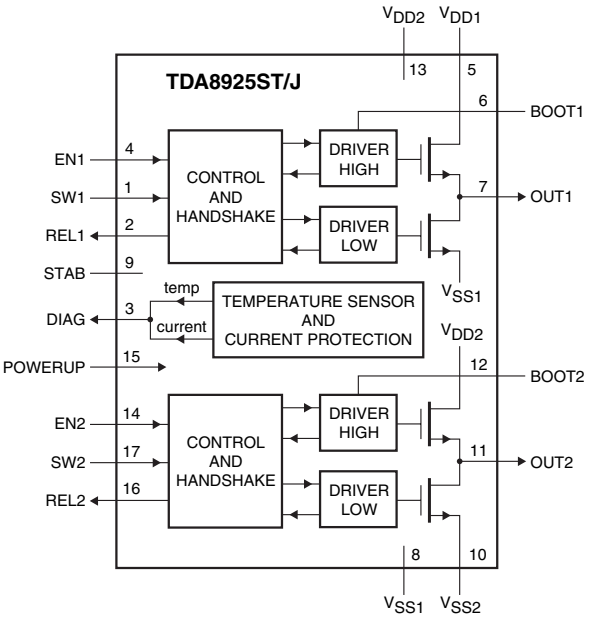


Figure 9-41 Internal block diagram and pin configuration

9.16.14 Diagram C, TDA8925ST (IC 7701)

Block Diagram



Pin Configuration

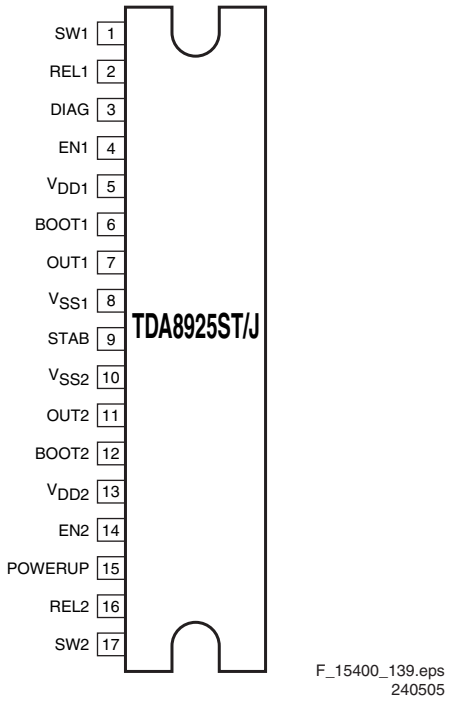


Figure 9-42 Internal block diagram and pin configuration

10. Spare Parts List

Sets Listed

	8670 000 24253	42PF9431D/37
	8670 000 23431	42PF9631D/37
	8670 000 24254	50PF9431D/37
	8670 000 23433	50PF9631D/37
	8670 000 23439	50PF9731D/37

Set Level

Various

1002	3104 328 44981	Externals [BE
1004⚠	9322 240 08682	PDP S42AX-YD02
1004⚠	9322 240 25682	PDP S50HW-YD01
1010	3104 328 41771	Control Assy [E]
1012	3104 328 36781	LED panel assy [J]
1017	3104 328 44981	Externals [BE]
1074	3104 328 42541	Audio Panel Assy [C]
1102	See Table 5.4	SSB Service Kits
1110	3104 328 45092	Control Assy STEP 42"
1110	3104 328 45152	Control Assy STEP 50"
1115	3104 328 42511	Side I/O Assy [D] TOP B
1115	3104 328 44121	Side I/O Assy [D]
1116	3104 328 44121	Side I/O Assy [D]
1131	2722 171 00378	AmbiLight Unit 580L
1132	2722 171 00379	AmbiLight Unit 580R
1151	3104 328 45071	Cardreader Assy PDP
1164	3104 328 40322	Double AL Inv. Assy [AL]
1164	3104 328 42731	Single AL Inv. Assy [AL]
1166	3104 328 40322	Double AL Inv. Assy [AL]
1166	3104 328 42731	Single AL Inv. Assy [AL]
1174	3104 328 47961	Audio Panel Assy [C]
1180	8204 000 79501	Cardreader/USB 1k
8000	3104 311 11851	Cable 4p5/1k3/4p5 Bk
8000	3104 311 11861	Cable 4p5/1k5/4p5 Bk
8000	3104 311 11881	Cable 5p/1k5/5p Bk
8000	3104 311 11901	Cable 2p3/820/2p
8102	3104 311 12131	Cable 7p/1000/7p Wh
8103	3104 311 06511	Cable 10p/280/10p
8103	3104 311 07391	Cable 10p/220/10p
8120	3104 311 07291	Cable 12p/820/12p
8136	3104 311 04331	Cable 9p/740/9p Wh
8136	3104 311 07951	Cable 11p/680/11p
8146	3104 311 06991	Cable 11p/280/11p
8146	3104 311 08621	Cable 11p/220/11p
8150	3104 311 08841	Cable 31p/220/31p
8152⚠	3104 311 07941	Cable 9p/820/9p
8152	3104 311 12101	Cable 9p/560/9p Wh
8152	3104 311 12201	Cable 9p/820/9p Wh
8201	2422 076 00783	Cable USB-A 1M0 4P Bk
8302	3104 311 12001	Cable 7p/680/7p Wh
8508	3104 311 11011	Cable 6p/1k3/6p Wh
8508	3104 311 11091	Cable 7p/1k5/7p Wh
8509	3104 311 11403	Cable 4p/1k5/4p
8509	3104 311 11841	Cable 4p/1800/4p
8539	3104 311 06551	Cable 3p/1300/3p
8539	3104 311 10521	Cable 3p/1400/3p
8609	3104 311 11841	Cable 4p/1800/4p
8900⚠	3104 311 07911	Cable ring/180/ring
8900⚠	3104 311 10931	Wire ring /220/ring 4.3

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5222	2441 257 10006	Loudsp. 10Ω 12W FR
5223	2441 257 10006	Loudsp. 10Ω 12W FR

Ambi Light Inverter Panel [AL]

Various

1010	2422 086 00657	Fuse 3A 125V F SMD
1011	2422 086 00657	Fuse 3A 125V F SMD
1060	2422 543 01431	Xtal 20MHz 16pF
1M08	2422 025 08149	Connector 6p m
1M09	2422 025 09406	Connector 4p m
1M10	2422 025 08149	Connector 6p m
1M11	2422 025 19068	Connector 11p m
1M12	2422 025 09406	Connector 4p m
1M13	2422 025 19068	Connector 11p m
1M15	2422 025 19069	Connector 3p m
1M16	2422 025 19069	Connector 3p m
1M39	2422 025 10768	Connector 3p m
1M49	2422 025 18884	Connector 4p m
1M59	2422 025 19265	Connector 5p m Bk

⊣⊢

2001	2020 012 00018	1000µF 20% 16V
2002	2238 586 59812	100nF 20% 50V 0603
2013	2238 916 15641	22nF 10% 25V 0603
2014	2238 916 15641	22nF 10% 25V 0603
2015	2238 916 15641	22nF 10% 25V 0603
2016	3198 034 01590	15pF 1% 50V 0402
2017	5322 126 11578	1nF 10% 50V 0603
2018	5322 126 11578	1nF 10% 50V 0603
2019	5322 126 11578	1nF 10% 50V 0603
2023	5322 126 11578	1nF 10% 50V 0603
2024	2238 586 59812	100nF 20% 50V 0603
2073	3198 034 01590	15pF 1% 50V 0402
2075	4822 126 14238	2.2nF 50V 0603
2076	4822 126 14238	2.2nF 50V 0603
2077	4822 126 14238	2.2nF 50V 0603
2078	5322 126 11583	10nF 10% 50V 0603
2086	5322 126 11578	1nF 10% 50V 0603
2101	2020 012 00018	1000µF 20% 16V
2102	2238 586 59812	100nF 20% 50V 0603
2113	2238 916 15641	22nF 10% 25V 0603
2114	2238 916 15641	22nF 10% 25V 0603
2115	2238 916 15641	22nF 10% 25V 0603
2173	5322 126 11583	10nF 10% 50V 0603
2174	5322 126 11583	10nF 10% 50V 0603
2177	5322 126 11578	1nF 10% 50V 0603
2201	2020 552 96684	470nF 10% 25V 0805

⊣WW⊢

3004	4822 051 20471	470Ω 5% 0.1W
3005	4822 051 20561	560Ω 5% 0.1W
3006	2322 762 60102	1kΩ 5% 2512
3007	2322 762 60102	1kΩ 5% 2512
3008	4822 051 20471	470Ω 5% 0.1W
3009	4822 051 20561	560Ω 5% 0.1W
3010	2322 762 60102	1kΩ 5% 2512
3011	2322 762 60102	1kΩ 5% 2512
3012	4822 051 20471	470Ω 5% 0.1W
3013	4822 051 20561	560Ω 5% 0.1W
3014	2322 762 60102	1kΩ 5% 2512
3015	2322 762 60102	1kΩ 5% 2512
3016	4822 051 30472	4.7Ω 5% 0.062W
3017	4822 051 30472	4.7Ω 5% 0.062W
3018	4822 051 30472	4.7Ω 5% 0.062W
3019	4822 051 30472	4.7Ω 5% 0.062W
3020	4822 051 30472	4.7Ω 5% 0.062W
3021	4822 051 30101	100Ω 5% 0.062W
3022	4822 051 30472	4.7Ω 5% 0.062W
3023	4822 051 30101	100Ω 5% 0.062W
3024	4822 051 30472	4.7Ω 5% 0.062W
3025	4822 051 30472	4.7Ω 5% 0.062W
3027	4822 051 30272	2.7kΩ 5% 0.062W
3027	5322 117 13028	12kΩ 1% 0.063W 0603
3028	4822 051 30103	10kΩ 5% 0.062W
3029	4822 051 30472	4.7Ω 5% 0.062W
3030	4822 051 30472	4.7Ω 5% 0.062W
3031	4822 051 30472	4.7Ω 5% 0.062W
3032	4822 053 20105	1MΩ 5% 0.25W
3034	4822 051 30479	47Ω 5% 0.062W
3035	4822 051 30479	47Ω 5% 0.062W
3036	4822 051 30479	47Ω 5% 0.062W
3037	4822 051 30561	560Ω 5% 0.062W
3038	4822 051 30561	560Ω 5% 0.062W
3039	4822 051 30103	10kΩ 5% 0.062W
3041	4822 051 30221	220Ω 5% 0.062W
3060	4822 051 20332	2.3kΩ 5% 0.1W
3061	4822 051 20332	2.3kΩ 5% 0.1W
3062	4822 051 20332	2.3kΩ 5% 0.1W
3064	4822 051 30683	68kΩ 5% 0.062W
3065	4822 051 30683	68kΩ 5% 0.062W
3104	4822 051 20471	470Ω 5% 0.1W
3105	4822 051 20561	560Ω 5% 0.1W
3106	2322 762 60102	1kΩ 5% 2512
3107	2322 762 60102	1kΩ 5% 2512
3108	4822 051 20471	470Ω 5% 0.1W
3109	4822 051 20561	560Ω 5% 0.1W
3110	2322 762 60102	1kΩ 5% 2512
3111	2322 762 60102	1kΩ 5% 2512
3112	4822 051 20471	470Ω 5% 0.1W
3113	4822 051 20561	560Ω 5% 0.1W
3114	2322 762 60102	1kΩ 5% 2512
3115	2322 762 60102	1kΩ 5% 2512
3117	4822 051 30472	4.7Ω 5% 0.062W
3118	4822 051 30472	4.7Ω 5% 0.062W
3119	4822 051 30472	4.7Ω 5% 0.062W
3120	4822 051 30472	4.7Ω 5% 0.062W
3124	4822 051 30472	4.7Ω 5% 0.062W
3125	4822 051 30472	4.7Ω 5% 0.062W
3129	4822 051 30472	4.7Ω 5% 0.062W
3130	4822 051 30472	4.7Ω 5% 0.062W
3131	4822 051 30472	4.7Ω 5% 0.062W
3132	4822 051 30479	47Ω 5% 0.062W
3133	4822 051 30479	47Ω 5% 0.062W
3134	4822 051 30479	47Ω 5% 0.062W
3135	4822 051 30102	1kΩ 5% 0.062W
3136	4822 117 12925	47kΩ 1% 0.063W 0603
3137	5322 117 13028	12kΩ 1% 0.063W 0603
3150	4822 051 20332	2.3kΩ 5% 0.1W
3151	4822 051 20332	2.3kΩ 5% 0.1W
3152	4822 051 20332	2.3kΩ 5% 0.1W
3153	4822 051 30101	100Ω 5% 0.062W
3154	4822 051 30101	100Ω 5% 0.062W
3155	4822 051 30333	33kΩ 5% 0.062W
3156	4822 051 30103	10kΩ 5% 0.062W
3157	4822 051 30101	100Ω 5% 0.062W
3160	4822 051 30103	10kΩ 5% 0.062W
3161	4822 051 30101	100Ω 5% 0.062W
3162	4822 051 30101	100Ω 5% 0.062W
3163	4822 051 30101	100Ω 5% 0.062W
3164	4822 051 30333	33kΩ 5% 0.062W
3200	4822 051 10102	1kΩ 2% 0.25W
3201	4822 051 10102	1kΩ 2% 0.25W
3202	4822 051 30479	47Ω 5% 0.062W
3203	4822 051 20105	1MΩ 5% 0.1W
3204	4822 051 30103	10kΩ 5% 0.062W
3205	4822 051 30102	1kΩ 5% 0.062W
3206	4822 051 30221	220Ω 5% 0.062W
3207	4822 051 30223	22kΩ 5% 0.062W
3208	4822 051 10102	1kΩ 2% 0.25W
3209	4822 051 10102	1kΩ 2% 0.25W
3210	4822 051 30479	47Ω 5% 0.062W
3211	4822 051 20105	1MΩ 5% 0.1W
3212	4822 051 30221	220Ω 5% 0.062W
9001	4822 051 10008	Jumper 1206

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5002	2422 536 00923	22µH 10% LHL10
5007	2422 536 00923	22µH 10% LHL10
5008	2422 536 00923	22µH 10% LHL10
5011	2422 549 42896	Bead 120Ω 100MHz
5014	2422 531 00128	BD21506-01
5015	2422 531 00128	BD21506-01
5016	2422 531 00128	BD21506-01
5102	2422 536 00923	22µH 10% LHL10
5107	2422 536 00923	22µH 10% LHL10
5108	2422 536 00923	22µH 10% LHL10
5114	2422 531 00128	BD21506-01
5115	2422 531 00128	BD21506-01
5116	2422 531 00128	BD21506-01
5200	2422 549 42896	Bead 120Ω 100MHz
5201	4822 526 10697	MMZ2012S601AT
5202	4822 526 10697	MMZ2012S601AT
5203	2422 549 42896	Bead 120Ω 100MHz
5204	4822 526 10697	MMZ2012S601AT
5205	4822 526 10697	MMZ2012S601AT

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6000	4822 130 11397	BAS316
6001	4822 130 11397	BAS316
6002	4822 130 11397	BAS316
6003	4822 130 11397	BAS316
6004	4822 130 11397	BAS316
6005	4822 130 11397	BAS316
6006	4822 130 11152	UDZ18B
6007	4822 130 11152	UDZ18B
6008	4822 130 11152	UDZ18B
6009	4822 130 11152	UDZ18B
6010	4822 130 11152	UDZ18B
6011	4822 130 11152	UDZ18B
6013	4822 130 11397	BAS316
6014	4822 130 11397	BAS316
6014	4822 130 11522	UDZ15B
6015	4822 130 11397	BAS316
6016	4822 130 11397	BAS316
6017	4822 130 11397	BAS316
6017	4822 130 11522	UDZ15B
6018	4822 130 11397	BAS316
6019	4822 130 11397	BAS316
6019	4822 130 11551	UDZS10B
6020	4822 130 11397	BAS316
6100	4822 130 11397	BAS316
6101	4822 130 11397	BAS316

6102	4822 130 11397	BAS316
6103	4822 130 11397	BAS316
6104	4822 130 11397	BAS316
6105	4822 130 11397	BAS316
6106	4822 130 11152	UDZ18B
6107	4822 130 11152	UDZ18B
6108	4822 130 11152	UDZ18B
6109	4822 130 11152	UDZ18B
6110	4822 130 11152	UDZ18B
6111	4822 130 11152	UDZ18B
6112	4822 130 11148	UDZ4.7B
6113	4822 130 11397	BAS316
6114	4822 130 11397	BAS316
6115	4822 130 11397	BAS316
6117	4822 130 11397	BAS316
6118	4822 130 11551	UDZS10B
6119	4822 130 11397	BAS316
6120	4822 130 11397	BAS316
6121	4822 130 11397	BAS316
6200	4822 130 11397	BAS316
6201	4822 130 11397	BAS316
6202	4822 130 11416	PDZ6.8B
6203	4822 130 11397	BAS316
6204	4822 130 11397	BAS316
6205	4822 130 11416	PDZ6.8B
6206	9322 129 41685	BZM55-C12

7002	9322 202 58668	LD1117DT50
7009	3198 010 42310	BC847BW
7010	3198 010 42310	BC847BW
7011	3198 010 42310	BC847BW
7015	9322 214 20668	SI4946EY
7016	9322 214 20668	SI4946EY
7017	9322 214 20668	SI4946EY
7018	3198 010 42310	BC847BW
7019	3198 010 42310	BC847BW
7020	3198 010 42310	BC847BW
7109	3198 010 42310	BC847BW
7110	3198 010 42310	BC847BW
7111	3198 010 42310	BC847BW
7115	9322 214 20668	SI4946EY
7116	9322 214 20668	SI4946EY
7117	9322 214 20668	SI4946EY
7118	3198 010 42310	BC847BW
7119	3198 010 42310	BC847BW
7120	3198 010 42310	BC847BW
7130	9340 425 10115	BC857BS
7132	9340 425 10115	BC857BS
7200	9322 217 55685	FET SI2302ADS-E3
7201⚠	9322 149 04682	TCET1102
7202	9322 217 55685	FET SI2302ADS-E3

Small Signal Board [B]

Software (see Philips Service Website)

0802	Downloadable file

Various

1062	2422 549 00148	Socket 3p m
1B01	2422 033 00018	Connector 19p f
1B02	2422 033 00018	Connector 19p f
1B30	2422 549 00146	Line filter 20V 3A
1B31	2422 549 00146	Line filter 20V 3A
1B32	2422 549 00146	Line filter 20V 3A
1B33	2422 549 00146	Line filter 20V 3A
1B34	2422 549 00146	Line filter 20V 3A
1B35	2422 549 00146	Line filter 20V 3A
1B36	2422 549 00146	Line filter 20V 3A
1B37	2422 549 00146	Line filter 20V 3A
1C33⚠	2422 086 11092	Fuse 500mA 50V F SMD
1C52	2422 549 44377	Filter 45.75MHz
1C54	2422 549 00505	Filter 4.5MHz
1D42	4822 267 10637	Connector 5p
1E40	2422 025 17601	Connector 40p f
1E62	2422 025 17759	Connector 20p f
1G01	2422 540 00017	Reson. 60MHz CSTCW
1G02	2422 540 00012	Reson. 10MHz CSTCE
1G50	2422 025 18427	Connector 31p f
1H00	2422 543 01397	Xtal 27MHz 18pF
1H01	2422 025 17775	Socket USB 4p f
1LA0	2422 543 01443	Xtal 16MHz 20pF
1M03	2422 025 10771	Connector 10p m
1M15	2422 025 18749	Connector 3p m
1M46	2422 025 10655	Connector 11p m
1M52	2422 025 18744	Connector 9p m
1M59	2422 025 19265	Connector 5p m Bk
1M63	2422 025 09405	Connector 2p m
1M64	2422 025 18779	Connector 4p m
1N00	2422 543 01095	Res. 12MHz DSX840
1N62	2422 025 18779	Connector 4p m
1P01	2422 025 19501	Socket PCMCIA H 68P f
1T04	3112 297 14221	Tuner TD1336O/FGHP
1T04	3112 297 14491	Tuner TD1336/FGHP
1T41	2422 549 00137	Filter 44MHz
1T44	2422 549 00137	Filter 44MHz
1T55⚠	2422 086 11092	Fuse 500mA 50V F SMD
1TG0	2422 543 01522	Xtal 25.140MHz 20pF
1U01⚠	2422 086 00623	Fuse 3A T 125V
1U04⚠	2422 086 00623	Fuse 3A T 125V
8140	3104 311 10451	Cable FFC 40p/120/40p
8162	3104 311 10461	Cable FFC 20p/180/20p
8240	3104 311 10451	Cable FFC 40p/120/40p
8262	3104 311 10461	Cable FFC 20p/180/20p
8264	3104 311 09871	Cable 4p/220/4p
8321	3104 311 08731	Cable POSI/100/POSI
8921	3104 311 08731	Cable POSI/100/POSI

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2A01	2238 586 59812	100nF 20% 50V 0603
2A20	4822 124 12095	100µF 20% 16V
2A21	4822 124 12095	100µF 20% 16V
2A22	2022 552 05679	1µF 10% 16V 0805
2A23	2020 552 96618	1nF 10% 50V 0402
2A24	2238 586 59812	100nF 20% 50V 0603
2A25	2238 586 59812	100nF 20% 50V 0603
2A29	2238 586 59812	100nF 20% 50V 0603
2A31	2238 586 59812	100nF 20% 50V 0603
2A32	4822 124 80151	47µF 16V
2A34	2238 869 15101	100pF 5% 50V 0402
2A35	2238 869 15101	100pF 5% 50V 0402
2A36	2238 869 15101	100pF 5% 50V 0402
2A37	2020 552 96628	10nF 10% 16V 0402
2A38	2238 869 15101	100pF 5% 50V 0402
2A39	2020 552 96618	1nF 10% 50V 0402
2A39	2238 869 15101	100pF 5% 50V 0402
2A75	2238 869 15101	100pF 5% 50V 0402
2A76	2238 869 15101	100pF 5% 50V 0402
2A77	2238 869 15101	100pF 5% 50V 0402
2A79	2022 552 05679	1µF 10% 16V 0805
2A80	3198 035 02210	220pF 5% 50V 0402
2A81	2022 552 05679	1µF 10% 16V 0805
2A83	2022 552 05679	1µF 10% 16V 0805
2A84	2022 552 05679	1µF 10% 16V 0805
2A85	2238 586 59812	100nF 20% 50V 0603
2A86	2022 552 05679	1µF 10% 16V 0805
2A87	2022 552 05679	1µF 10% 16V 0805
2A88	2238 586 59812	100nF 20% 50V 0603
2A89	4822 126 14324	33pF 5% 50V 0402
2A90	4822 126 14324	33pF 5% 50V 0402
2A91	2022 552 05679	1µF 10% 16V 0805
2A93	2238 586 59812	100nF 20% 50V 0603
2A96	2238 586 59812	100nF 20% 50V 0603
2A98	4822 126 14324	33pF 5% 50V 0402
2A99	4822 126 14324	33pF 5% 50V 0402
2AA0	4822 124 12095	100µF 20% 16V
2AA1	4822 124 80151	47µF 16V
2AA2	4822 124 12095	100µF 20% 16V
2AA3	2238 586 59812	100nF 20% 50V 0603
2AA4	4822 124 12108	100µF 20% 4V
2AA5	4822 126 13879	220nF +80-20% 16V
2AA6	2022 552 05679	1µF 10% 16V 0805
2AB1	2020 552 96618	1nF 10% 50V 0402
2AB2	2020 552 96618	1nF 10% 50V 0402
2AB5	2020 552 96618	1nF 10% 50V 0402
2AB7	2238 586 59812	100nF 20% 50V 0603
2AB8	3198 035 03310	330pF 5% 50V 0402
2B00	2238 586 59812	100nF 20% 50V 0603
2B01	2238 586 59812	100nF 20% 50V 0603
2B02	2238 586 59812	100nF 20% 50V 0603
2B04	2238 586 59812	100nF 20% 50V 0603
2B05	2238 586 59812	100nF 20% 50V 0603
2B21	2020 552 96628	10nF 10% 16V 0402
2B22	2020 552 96628	10nF 10% 16V 0402
2B23	2020 552 96628	10nF 10% 16V 0402
2B24	2020 552 96628	10nF 10% 16V 0402
2B25	2020 552 96628	10nF 10% 16V 0402
2B26	2020 552 96628	10nF 10% 16V 0402
2B27	2020 552 96628	10nF 10% 16V 0402
2B28	2020 552 96628	10nF 10% 16V 0402
2B29	2020 552 96628	10nF 10% 16V 0402
2B30	2020 552 96628	10nF 10% 16V 0402
2B31	2020 552 96628	10nF 10% 16V 0402
2B32	2238 869 15109	10pF 5% 50V 0402
2B33	2238 869 15109	10pF 5% 50V 0402
2B34	2238 869 15109	10pF 5% 50V 0402
2B35	2238 869 15109	10pF 5% 50V 0402
2B36	2238 869 15109	10pF 5% 50V 0402
2B37	2238 869 15109	10pF 5% 50V 0402
2B38	2022 552 05679	1µF 10% 16V 0805
2B39	2020 004 00003	330µF 20% 6.3V
2B40	2238 586 59812	100nF 20% 50V 0603
2B41	2238 586 59812	100nF 20% 50V 0603
2B42	2238 586 59812	100nF 20% 50V 0603
2B43	4822 117 13605	Jumper 0402
2B44	2020 552 96628	10nF 10% 16V 0402
2B45	2020 552 96628	10nF 10% 16V 0402
2B46	2020 552 96628	10nF 10% 16V 0402
2B49	2238 586 59812	100nF 20% 50V 0603
2B51	2238 586 59812	100nF 20% 50V 0603
2B52	2238 586 59812	100nF 20% 50V 0603
2B53	2238 586 59812	100nF 20% 50V 0603
2B62	2238 586 59812	100nF 20% 50V 0603
2B64	2238 586 59812	100nF 20% 50V 0603
2B67	4822 124 81058	47µF 20% 4V
2B69	2238 586 59812	100nF 20% 50V 0603
2B77	2238 586 59812	100nF 20% 50V 0603
2B79	2238 586 59812	100nF 20% 50V 0603
2B80	2238 586 59812	100nF 20% 50V 0603
2B81	2238 586 59812	100nF 20% 50V 0603
2B89	5322 126 11583	10nF 10% 50V 0603
2B90	4822 124 81058	47µF 20% 4V
2B92	2238 586 59812	100nF 20% 50V 0603
2BA0	2020 552 96628	10nF 10% 16V 0402
2BA1	3198 035 14720	4.7nF 5% 25V 0402
2BA2	2020 552 96628	10nF 10% 16V 0402
2BA3	3198 035 14720	4.7nF 5% 25V 0402
2BA4	3198 034 01580	1.5pF 1% 50V 0402
2BA5	3198 034 01580	1.5pF 1% 50V 0402
2BA6	3198 034 01580	1.5pF 1% 50V 0402
2BA7	3198 034 01580	1.5pF 1% 50V 0402
2BA8	3198 034 01580	1.5pF 1% 50V 0402
2BA9	3198 034 01580	1.5pF 1% 50V 0402
2C01	2238 787 15641	22nF 5% 16V 0402
2C02	2238 787 15641	22nF 5% 16V 0402
2C04	2238 787 15641	22nF 5% 16V 0402
2C05	2238 787 15641	22nF 5% 16V 0402
2C06	2238 787 15641	22nF 5% 16V 0402
2C07	2238 787 15641	22nF 5% 16V 0402
2C08	2238 787 15641	22nF 5% 16V 0402
2C09	2238 787 15641	22nF 5% 16V 0402
2C11	2238 787 15641	22nF 5% 16V 0402
2C14	2238 787 15641	22nF 5% 16V 0402
2C22	2238 787 15641	22nF 5% 16V 0402
2C23	2238 787 15641	22nF 5% 16V 0402
2C27	2238 586 59812	100nF 20% 50V 0603
2C28	2238 586 59812	100nF 20% 50V 0603
2C31	2238 586 59812	100nF 20% 50V 0603
2C32	2020 004 90283	10µF 20% 10V 1206
2C33	2238 586 59812	100nF 20% 50V 0603
2C34	2022 552 05679	1µF 10% 16V 0805
2C35	2238 586 59812	100nF 20% 50V 0603
2C36	2022 552 05679	1µF 10% 16V 0805
2C37	2022 552 05679	1µF 10% 16V 0805
2C39	2238 586 59812	100nF 20% 50V 0603
2C40	2238 586 59812	100nF 20% 50V 0603
2C42	4822 126 14519	22pF 5% 50V 0402
2C43	4822 124 12108	100µF 20% 4V
2C44	2238 586 59812	100nF 20% 50V 0603
2C45	2020 004 90283	10µF 20% 10V 1206
2C46	2022 552 05679	1µF 10% 16V 0805
2C50	2020 552 96628	10nF 10% 16V 0402
2C52	4822 124 23002	10µF 16V
2C53	2020 552 96628	10nF 10% 16V 0402
2C55	2238 586 59812	100nF 20% 50V 0603
2C57	2020 552 96628	10nF 10% 16V 0402
2C58	2020 552 96628	10nF 10% 16V 0402
2C60	2020 552 96628	10nF 10% 16V 0402
2C63	2238 586 59812	100nF 20% 50V 0603
2C65	2020 552 96628	10nF 10% 16V 0402
2C67	2022 552 05679	1µF 10% 16V 0805
2C68	2022 552 05679	1µF 10% 16V 0805
2C70	2020 552 96628	10nF 10% 16V 0402
2C75	2020 004 00003	330µF 20% 6.3V
2C78	2022 552 05679	1µF 10% 16V 0805
2C79	2022 552 05679	1µF 10% 16V 0805
2G00	2020 552 96628	10nF 10% 16V 0402
2G01	2020 552 96628	10nF 10% 16V 0402
2G02	2020 552 96628	10nF 10% 16V 0402
2G03	2020 552 96628	10nF 10% 16V 0402
2G04	2020 552 96628	10nF 10% 16V 0402
2G05	2020 552 96628	10nF 10% 16V 0402
2G06	2020 552 96628	10nF 10% 16V 0402
2G07	2020 552 96628	10nF 10% 16V 0402
2G08	2020 552 96628	10nF 10% 16V 0402
2G09	2020 552 96628	10nF 10% 16V 0402
2G10	2020 552 96628	10nF 10% 16V 0402
2G11	2020 552 96628	10nF 10% 16V 0402
2G12	2020 552 96628	10nF 10% 16V 0402
2G13	2022 552 05679	1µF 10% 16V 0805
2G14	2020 552 96628	10nF 10% 16V 0402
2G15	2020 552 96628	10nF 10% 16V 0402
2G16	2020 552 96628	10nF 10% 16V 0402
2G17	2020 552 96628	10nF 10% 16V 0402

2G18	2020 552 96628	10nF 10% 16V 0402
2G19	2020 552 96628	10nF 10% 16V 0402
2G20	2020 552 96628	10nF 10% 16V 0402
2G21	2020 552 96628	10nF 10% 16V 0402
2G22	2020 552 96628	10nF 10% 16V 0402
2G23	2020 552 96628	10nF 10% 16V 0402
2G24	2020 552 96628	10nF 10% 16V 0402
2G25	2020 552 96628	10nF 10% 16V 0402
2G26	2022 552 05679	1µF 10% 16V 0805
2G27	2020 552 96628	10nF 10% 16V 0402
2G28	2020 552 96628	10nF 10% 16V 0402
2G36	2022 552 05679	1µF 10% 16V 0805
2G40	2238 586 59812	100nF 20% 50V 0603
2G41	2238 586 59812	100nF 20% 50V 0603
2G42	4822 124 81058	47µF 20% 4V
2G43	2022 552 05679	1µF 10% 16V 0805
2G44	2022 552 05679	1µF 10% 16V 0805
2G45	5322 126 11583	10nF 10% 50V 0603
2G46	2250 200 13667	2.2µF 10% 6.3V 0805
2G47	2022 552 05679	1µF 10% 16V 0805
2G48	2020 552 96628	10nF 10% 16V 0402
2G49	2020 552 96618	1nF 10% 50V 0402
2G50	2022 552 05679	1µF 10% 16V 0805
2G51	2020 552 96628	10nF 10% 16V 0402
2G52	2020 552 96628	10nF 10% 16V 0402
2G53	2020 552 96628	10nF 10% 16V 0402
2G56	2022 552 05679	1µF 10% 16V 0805
2G57	2250 200 13667	2.2µF 10% 6.3V 0805
2G58	2020 552 96628	10nF 10% 16V 0402
2G59	2020 552 96628	10nF 10% 16V 0402
2G60	3198 035 04710	470pF 50V 0402
2H00	2238 586 59812	100nF 20% 50V 0603
2H01	2238 586 59812	100nF 20% 50V 0603
2H02	2238 586 59812	100nF 20% 50V 0603
2H03	2238 586 59812	100nF 20% 50V 0603
2H06	2020 552 96618	1nF 10% 50V 0402
2H07	2020 552 96618	1nF 10% 50V 0402
2H08	3198 034 02790	47pF 1% 50V 0402
2H09	3198 034 02790	47pF 1% 50V 0402
2H12	3198 034 02790	47pF 1% 50V 0402
2H20	2022 552 05679	1µF 10% 16V 0805
2H21	2022 552 05679	1µF 10% 16V 0805
2J01	2238 586 59812	100nF 20% 50V 0603
2J03	2238 586 59812	100nF 20% 50V 0603
2J06	2238 586 59812	100nF 20% 50V 0603
2J08	2238 586 59812	100nF 20% 50V 0603
2J10	2238 586 59812	100nF 20% 50V 0603
2J13	2238 586 59812	100nF 20% 50V 0603
2J16	2238 586 59812	100nF 20% 50V 0603
2J18	2238 586 59812	100nF 20% 50V 0603
2J20	2238 586 59812	100nF 20% 50V 0603
2J22	3198 035 03320	3.3nF 5% 50V 0402
2J23	3198 035 03320	3.3nF 5% 50V 0402
2J24	3198 035 03320	3.3nF 5% 50V 0402
2J25	3198 035 03320	3.3nF 5% 50V 0402
2J37	2020 552 96618	1nF 10% 50V 0402
2J40	2238 869 15109	10pF 5% 50V 0402
2J41	2238 869 15109	10pF 5% 50V 0402
2J42	2238 869 15109	10pF 5% 50V 0402
2J43	2238 869 15109	10pF 5% 50V 0402
2J44	2238 869 15109	10pF 5% 50V 0402
2J45	2238 869 15109	10pF 5% 50V 0402
2J46	2238 869 15109	10pF 5% 50V 0402
2J47	2238 869 15109	10pF 5% 50V 0402
2J48	2238 869 15109	10pF 5% 50V 0402
2J49	2238 869 15109	10pF 5% 50V 0402
2J57	2238 586 59812	100nF 20% 50V 0603
2J64	2020 552 96618	1nF 10% 50V 0402
2J66	2238 586 59812	100nF 20% 50V 0603
2J67	2238 869 15101	100pF 5% 50V 0402
2J68	2238 869 15101	100pF 5% 50V 0402
2J69	2020 552 96618	1nF 10% 50V 0402
2J70	2020 552 96618	1nF 10% 50V 0402
2J71	2238 586 59812	100nF 20% 50V 0603
2J72	2238 869 15109	10pF 5% 50V 0402
2J73	2238 869 15109	10pF 5% 50V 0402
2J76	2022 552 05679	1µF 10% 16V 0805
2K40	2238 586 59812	100nF 20% 50V 0603
2K41	2238 586 59812	100nF 20% 50V 0603
2K43	2238 586 59812	100nF 20% 50V 0603
2K45	2238 586 59812	100nF 20% 50V 0603
2K46	2022 552 05679	1µF 10% 16V 0805
2K47	2022 552 05679	1µF 10% 16V 0805
2K58	2022 552 05679	1µF 10% 16V 0805
2K60	2022 552 05679	1µF 10% 16V 0805
2K61	2022 552 05679	1µF 10% 16V 0805
2K63	2022 552 05679	1µF 10% 16V 0805
2K64	2022 552 05679	1µF 10% 16V 0805
2K65	2022 552 05679	1µF 10% 16V 0805
2K67	2022 552 05679	1µF 10% 16V 0805
2K68	2022 552 05679	1µF 10% 16V 0805
2K75	2022 552 05679	1µF 10% 16V 0805
2K76	2022 552 05679	1µF 10% 16V 0805
2L01	2238 586 59812	100nF 20% 50V 0603
2L06	2238 586 59812	100nF 20% 50V 0603
2L07	2238 586 59812	100nF 20% 50V 0603
2L08	2238 586 59812	100nF 20% 50V 0603
2L50	2238 586 59812	100nF 20% 50V 0603
2L51	2238 586 59812	100nF 20% 50V 0603
2L52	2238 586 59812	100nF 20% 50V 0603
2L53	2238 586 59812	100nF 20% 50V 0603
2L54	2238 586 59812	100nF 20% 50V 0603
2L55	2238 586 59812	100nF 20% 50V 0603
2L56	2238 586 59812	100nF 20% 50V 0603
2L57	2238 586 59812	100nF 20% 50V 0603
2L58	2238 586 59812	100nF 20% 50V 0603
2L59	2238 586 59812	100nF 20% 50V 0603
2L60	2238 586 59812	100nF 20% 50V 0603
2L61	2020 552 96618	1nF 10% 50V 0402
2L62	2020 552 96618	1nF 10% 50V 0402
2L63	2238 869 15101	100pF 5% 50V 0402
2L64	2238 586 59812	100nF 20% 50V 0603
2L80	2250 200 13667	2.2µF 10% 6.3V 0805
2L81	2250 200 13667	2.2µF 10% 6.3V 0805
2L82	2250 200 13667	2.2µF 10% 6.3V 0805
2L83	2250 200 13667	2.2µF 10% 6.3V 0805
2L84	2238 586 59812	100nF 20% 50V 0603
2L85	2238 586 59812	100nF 20% 50V 0603
2L86	2238 586 59812	100nF 20% 50V 0603
2L87	2238 586 59812	100nF 20% 50V 0603
2L88	2238 869 15101	100pF 5% 50V 0402
2L89	2020 552 96618	1nF 10% 50V 0402
2L90	2020 552 96618	1nF 10% 50V 0402
2L91	2020 552 96618	1nF 10% 50V 0402
2L92	2020 552 96618	1nF 10% 50V 0402
2LA0	4822 126 14519	22pF 5% 50V 0402
2LA1	4822 126 14519	22pF 5% 50V 0402
2LA2	2238 869 15109	10pF 5% 50V 0402
2LA4	2238 586 59812	100nF 20% 50V 0603
2LA5	3198 035 03320	3.3nF 5% 50V 0402
2LA6	3198 035 03320	3.3nF 5% 50V 0402
2LA7	3198 035 03320	3.3nF 5% 50V 0402
2LA8	3198 035 03320	3.3nF 5% 50V 0402
2LA9	3198 035 03320	3.3nF 5% 50V 0402
2LB0	2238 586 59812	100nF 20% 50V 0603
2LB1	2238 586 59812	100nF 20% 50V 0603
2LB3	2020 552 96618	1nF 10% 50V 0402
2LB4	2238 586 59812	100nF 20% 50V 0603
2LN2	4822 124 81058	47µF 20% 4V
2LN3	2238 586 59812	100nF 20% 50V 0603
2LN4	2238 586 59812	100nF 20% 50V 0603
2LN5	2238 586 59812	100nF 20% 50V 0603
2LN6	2238 586 59812	100nF 20% 50V 0603
2LN7	2238 586 59812	100nF 20% 50V 0603
2LN8	2238 586 59812	100nF 20% 50V 0603
2LP0	4822 124 12108	100µF 20% 4V
2LP2	2238 586 59812	100nF 20% 50V 0603
2LP3	2238 586 59812	100nF 20% 50V 0603
2LP4	2238 586 59812	100nF 20% 50V 0603
2LP7	4822 124 12108	100µF 20% 4V
2LP8	2238 586 59812	100nF 20% 50V 0603
2LP9	2238 586 59812	100nF 20% 50V 0603
2LR0	2238 586 59812	100nF 20% 50V 0603
2LR2	2238 586 59812	100nF 20% 50V 0603
2LR4	2238 586 59812	100nF 20% 50V 0603
2LR5	2238 586 59812	100nF 20% 50V 0603
2LR6	2238 586 59812	100nF 20% 50V 0603
2LR8	2238 586 59812	100nF 20% 50V 0603
2LR9	2238 586 59812	100nF 20% 50V 0603
2LS5	2238 586 59812	100nF 20% 50V 0603
2LT0	2022 552 05679	1µF 10% 16V 0805
2LT1	2238 586 59812	100nF 20% 50V 0603
2LT2	2238 586 59812	100nF 20% 50V 0603
2LT3	2238 586 59812	100nF 20% 50V 0603
2LT4	2238 586 59812	100nF 20% 50V 0603
2LT5	2238 586 59812	100nF 20% 50V 0603
2LT6	2238 586 59812	100nF 20% 50V 0603
2LT7	4822 126 14519	22pF 5% 50V 0402
2M90	2238 586 59812	100nF 20% 50V 0603
2M91	2020 552 96628	10nF 10% 16V 0402
2M92	2020 004 90283	10µF 20% 10V 1206
2M93	2020 552 96628	10nF 10% 16V 0402
2M94	2020 004 90283	10µF 20% 10V 1206
2N00	4822 126 14324	33pF 5% 50V 0402
2N01	4822 126 14324	33pF 5% 50V 0402
2N02	2238 586 59812	100nF 20% 50V 0603
2N03	2238 586 59812	100nF 20% 50V 0603
2N04	2238 586 59812	100nF 20% 50V 0603
2N05	2238 586 59812	100nF 20% 50V 0603
2N06	2238 586 59812	100nF 20% 50V 0603
2N07	2238 586 59812	100nF 20% 50V 0603
2N08	2238 586 59812	100nF 20% 50V 0603
2N09	2238 586 59812	100nF 20% 50V 0603
2N10	2238 586 59812	100nF 20% 50V 0603
2N11	2238 586 59812	100nF 20% 50V 0603
2N12	2238 787 15641	22nF 5% 16V 0402
2N13	2238 787 15641	22nF 5% 16V 0402
2O50	2238 869 15101	100pF 5% 50V 0402
2O51	2238 869 15101	100pF 5% 50V 0402
2P02	2238 586 59812	100nF 20% 50V 0603
2P03	2238 586 59812	100nF 20% 50V 0603
2P04	2238 586 59812	100nF 20% 50V 0603
2P06	2238 586 59812	100nF 20% 50V 0603
2P07	2238 586 59812	100nF 20% 50V 0603
2P09	2020 552 96618	1nF 10% 50V 0402
2P10	2238 586 59812	100nF 20% 50V 0603
2P15	2238 586 59812	100nF 20% 50V 0603
2P16	2238 586 59812	100nF 20% 50V 0603
2P18	2238 586 59812	100nF 20% 50V 0603
2P19	2238 586 59812	100nF 20% 50V 0603
2P20	2238 586 59812	100nF 20% 50V 0603
2P22	2238 586 59812	100nF 20% 50V 0603
2P23	2238 586 59812	100nF 20% 50V 0603
2P24	2020 552 96628	10nF 10% 16V 0402
2P25	2020 552 96628	10nF 10% 16V 0402
2P31	2238 586 59812	100nF 20% 50V 0603
2P32	2238 586 59812	100nF 20% 50V 0603
2P33	2238 586 59812	100nF 20% 50V 0603
2P34	2238 586 59812	100nF 20% 50V 0603
2P35	2238 586 59812	100nF 20% 50V 0603
2P40	2238 586 59812	100nF 20% 50V 0603
2P41	2238 586 59812	100nF 20% 50V 0603
2P50	2238 586 59812	100nF 20% 50V 0603
2P51	2238 586 59812	100nF 20% 50V 0603
2P76	2238 586 59812	100nF 20% 50V 0603
2P77	2238 586 59812	100nF 20% 50V 0603
2P80	2238 586 59812	100nF 20% 50V 0603
2P81	2238 586 59812	100nF 20% 50V 0603
2P82	2238 586 59812	100nF 20% 50V 0603
2Q00	4822 124 81058	47µF 20% 4V
2Q01	2020 552 96637	10µF 10% 6.3V 0805
2Q02	4822 124 81058	47µF 20% 4V
2Q03	2020 552 96637	10µF 10% 6.3V 0805
2Q04	2238 586 59812	100nF 20% 50V 0603
2Q05	2238 586 59812	100nF 20% 50V 0603
2Q06	2238 586 59812	100nF 20% 50V 0603
2Q07	2238 586 59812	100nF 20% 50V 0603
2Q08	2238 586 59812	100nF 20% 50V 0603
2Q09	2238 586 59812	100nF 20% 50V 0603
2Q10	2238 586 59812	100nF 20% 50V 0603
2Q11	2238 586 59812	100nF 20% 50V 0603
2Q12	2238 586 59812	100nF 20% 50V 0603
2Q13	2238 586 59812	100nF 20% 50V 0603
2Q14	2238 586 59812	100nF 20% 50V 0603
2Q15	2238 586 59812	100nF 20% 50V 0603
2Q16	2238 586 59812	100nF 20% 50V 0603
2Q17	2238 586 59812	100nF 20% 50V 0603
2Q18	2238 586 59812	100nF 20% 50V 0603
2Q19	2238 586 59812	100nF 20% 50V 0603
2Q20	4822 124 81058	47µF 20% 4V
2Q21	2020 552 96637	10µF 10% 6.3V 0805
2Q22	4822 124 81058	47µF 20% 4V
2Q23	2020 552 96637	10µF 10% 6.3V 0805
2Q24	2238 586 59812	100nF 20% 50V 0603
2Q25	3198 034 01290	12pF 1% 50V 0402
2Q26	2238 586 59812	100nF 20% 50V 0603
2Q27	2238 586 59812	100nF 20% 50V 0603
2Q28	2238 586 59812	100nF 20% 50V 0603
2Q29	2238 869 15101	100pF 5% 50V 0402
2Q30	2238 586 59812	100nF 20% 50V 0603
2Q31	2238 587 15619	560pF 10% 50V 0402
2Q32	2238 586 59812	100nF 20% 50V 0603
2Q33	2238 586 59812	100nF 20% 50V 0603
2Q34	2238 586 59812	100nF 20% 50V 0603
2Q35	2238 586 59812	100nF 20% 50V 0603
2Q36	2020 552 96618	1nF 10% 50V 0402
2Q37	2238 586 59812	100nF 20% 50V 0603
2Q38	2238 586 59812	100nF 20% 50V 0603
2Q39	2238 586 59812	100nF 20% 50V 0603
2Q40	4822 124 81058	47µF 20% 4V
2Q42	4822 124 81058	47µF 20% 4V
2Q43	2020 552 96637	10µF 10% 6.3V 0805
2Q44	2238 586 59812	100nF 20% 50V 0603
2Q45	2238 586 59812	100nF 20% 50V 0603
2Q46	2238 586 59812	100nF 20% 50V 0603
2Q47	2238 586 59812	100nF 20% 50V 0603
2Q48	2238 586 59812	100nF 20% 50V 0603
2Q49	2238 586 59812	100nF 20% 50V 0603
2Q50	2238 586 59812	100nF 20% 50V 0603
2Q51	2238 586 59812	100nF 20% 50V 0603
2Q52	2238 586 59812	100nF 20% 50V 0603
2Q53	2238 586 59812	100nF 20% 50V 0603
2Q54	2238 586 59812	100nF 20% 50V 0603
2Q55	2238 586 59812	100nF 20% 50V 0603
2Q56	2238 586 59812	100nF 20% 50V 0603
2Q57	2238 586 59812	100nF 20% 50V 0603
2Q58	2238 586 59812	100nF 20% 50V 0603
2Q59	2238 586 59812	100nF 20% 50V 0603
2Q60	2238 586 59812	100nF 20% 50V 0603
2Q61	2020 552 96618	1nF 10% 50V 0402
2Q62	2238 869 15101	100pF 5% 50V 0402
2Q63	2238 586 59812	100nF 20% 50V 0603

2Q64	2238 586 59812	100nF 20% 50V 0603
2Q65	2238 586 59812	100nF 20% 50V 0603
2Q66	2238 586 59812	100nF 20% 50V 0603
2Q67	2238 586 59812	100nF 20% 50V 0603
2Q68	2238 586 59812	100nF 20% 50V 0603
2Q69	4822 124 11131	47µF 6.3V
2Q70	4822 124 11131	47µF 6.3V
2Q71	2238 869 15101	100pF 5% 50V 0402
2Q72	2238 869 15101	100pF 5% 50V 0402
2Q73	2238 869 15101	100pF 5% 50V 0402
2Q74	2020 552 96618	1nF 10% 50V 0402
2Q75	2020 552 96618	1nF 10% 50V 0402
2Q76	2022 552 05679	1µF 10% 16V 0805
2Q79	2020 552 96618	1nF 10% 50V 0402
2Q80	2020 552 96618	1nF 10% 50V 0402
2Q81	2238 586 59812	100nF 20% 50V 0603
2Q83	2238 869 15101	100pF 5% 50V 0402
2Q86	2238 869 15101	100pF 5% 50V 0402
2Q89	2238 869 15101	100pF 5% 50V 0402
2Q91	3198 035 04710	470pF 50V 0402
2Q92	3198 035 04710	470pF 50V 0402
2Q93	2020 552 96618	1nF 10% 50V 0402
2T01	2238 586 59812	100nF 20% 50V 0603
2T02	2238 586 59812	100nF 20% 50V 0603
2T04	3198 034 02280	2.2pF 1% 50V 0402
2T05	2238 869 15829	82pF 5% 50V 0402
2T06	2238 869 15829	82pF 5% 50V 0402
2T07	2022 552 05679	1µF 10% 16V 0805
2T08	2020 004 90283	10µF 20% 10V 1206
2T09	2020 552 96628	10nF 10% 16V 0402
2T10	2238 586 59812	100nF 20% 50V 0603
2T11	2020 552 96628	10nF 10% 16V 0402
2T12	2022 552 05679	1µF 10% 16V 0805
2T13	2020 552 96628	10nF 10% 16V 0402
2T14	2020 552 96628	10nF 10% 16V 0402
2T15	2020 552 96628	10nF 10% 16V 0402
2T16	2020 552 96628	10nF 10% 16V 0402
2T17	2238 586 59812	100nF 20% 50V 0603
2T18	2238 586 59812	100nF 20% 50V 0603
2T19	2020 552 96628	10nF 10% 16V 0402
2T20	2020 552 96628	10nF 10% 16V 0402
2T21	2020 552 96628	10nF 10% 16V 0402
2T23	2020 552 96628	10nF 10% 16V 0402
2T24	2238 586 59812	100nF 20% 50V 0603
2T25	2020 004 00006	470µF 20% 6V3
2T27	2020 552 96628	10nF 10% 16V 0402
2T28	2020 552 96628	10nF 10% 16V 0402
2T30	3198 032 15190	100µF 20% 4V
2T31	2238 586 59812	100nF 20% 50V 0603
2T33	2238 586 59812	100nF 20% 50V 0603
2T35	2238 586 59812	100nF 20% 50V 0603
2T43	2022 552 05679	1µF 10% 16V 0805
2T45	2020 552 96628	10nF 10% 16V 0402
2T48	2020 552 96628	10nF 10% 16V 0402
2T51	2020 552 96628	10nF 10% 16V 0402
2T53	2020 552 96628	10nF 10% 16V 0402
2T58	2238 586 59812	100nF 20% 50V 0603
2T98	2020 552 96628	10nF 10% 16V 0402
2TG0	2238 586 59812	100nF 20% 50V 0603
2TG1	3198 032 15190	100µF 20% 4V
2TG2	2238 586 59812	100nF 20% 50V 0603
2TG3	2020 552 96628	10nF 10% 16V 0402
2TG4	2238 586 59812	100nF 20% 50V 0603
2TG5	2020 552 96628	10nF 10% 16V 0402
2TG6	2238 586 59812	100nF 20% 50V 0603
2TG7	2238 586 59812	100nF 20% 50V 0603
2TG8	2238 586 59812	100nF 20% 50V 0603
2TG9	2238 586 59812	100nF 20% 50V 0603
2TJ0	2238 586 59812	100nF 20% 50V 0603
2TJ1	2238 586 59812	100nF 20% 50V 0603
2TJ2	2238 586 59812	100nF 20% 50V 0603
2TJ3	2238 586 59812	100nF 20% 50V 0603
2TJ4	2238 586 59812	100nF 20% 50V 0603
2TJ5	2238 586 59812	100nF 20% 50V 0603
2TJ6	2238 586 59812	100nF 20% 50V 0603
2TJ7	2020 552 96628	10nF 10% 16V 0402
2TJ8	2020 552 96628	10nF 10% 16V 0402
2TJ9	2020 552 96628	10nF 10% 16V 0402
2TK0	2020 552 96628	10nF 10% 16V 0402
2TK1	2020 552 96628	10nF 10% 16V 0402
2TK2	2020 552 96628	10nF 10% 16V 0402
2TK3	2020 552 96628	10nF 10% 16V 0402
2TK4	2238 586 59812	100nF 20% 50V 0603
2TK5	2238 586 59812	100nF 20% 50V 0603
2TK6	2022 552 05679	1µF 10% 16V 0805
2TK7	2022 552 05679	1µF 10% 16V 0805
2TK8	2022 552 05679	1µF 10% 16V 0805
2TK9	2022 552 05679	1µF 10% 16V 0805
2TL0	2238 586 59812	100nF 20% 50V 0603
2TL7	4822 126 14324	33pF 5% 50V 0402
2TL9	4822 126 14324	33pF 5% 50V 0402
2TM2	2020 552 96628	10nF 10% 16V 0402
2TM3	2022 552 05679	1µF 10% 16V 0805
2TM4	2020 552 96628	10nF 10% 16V 0402
2TM5	2020 552 96628	10nF 10% 16V 0402
2TM7	2020 552 96628	10nF 10% 16V 0402
2TM8	2022 552 05679	1µF 10% 16V 0805
2TN0	4822 124 11946	22µF 20% 16V
2TN1	4822 124 11946	22µF 20% 16V
2TN3	2238 586 59812	100nF 20% 50V 0603
2U00	2238 869 15101	100pF 5% 50V 0402
2U01	2238 869 15101	100pF 5% 50V 0402
2U02	2238 869 15101	100pF 5% 50V 0402
2U03	2238 869 15101	100pF 5% 50V 0402
2U04	2238 586 59812	100nF 20% 50V 0603
2U05	2238 586 59812	100nF 20% 50V 0603
2U06	2238 586 59812	100nF 20% 50V 0603
2U07	2238 586 59812	100nF 20% 50V 0603
2U09	2238 869 15101	100pF 5% 50V 0402
2U10	2238 586 59812	100nF 20% 50V 0603
2U11	2022 552 05679	1µF 10% 16V 0805
2U12	2238 586 59812	100nF 20% 50V 0603
2U13	2238 586 59812	100nF 20% 50V 0603
2U14	2238 586 59812	100nF 20% 50V 0603
2U15	2238 586 59812	100nF 20% 50V 0603
2U16	2022 552 05679	1µF 10% 16V 0805
2U17	2022 552 05635	22µF 10% 16V
2U18	2238 586 59812	100nF 20% 50V 0603
2U19	2238 586 59812	100nF 20% 50V 0603
2U20	2238 586 59812	100nF 20% 50V 0603
2U21	3198 035 03320	3.3nF 5% 50V 0402
2U22	2022 552 05635	22µF 10% 16V
2U23	2238 869 15101	100pF 5% 50V 0402
2U24	2022 552 05635	22µF 10% 16V
2U25	2022 552 05635	22µF 10% 16V
2U26	2238 586 59812	100nF 20% 50V 0603
2U27	2020 552 96618	1nF 10% 50V 0402
2U28	2020 552 96618	1nF 10% 50V 0402
2U29	2020 552 96618	1nF 10% 50V 0402
2U30	2020 552 96618	1nF 10% 50V 0402
2U31	3198 035 03320	3.3nF 5% 50V 0402
2U32	3198 035 03320	3.3nF 5% 50V 0402
2U33	2238 869 15101	100pF 5% 50V 0402
2U35	2022 552 05679	1µF 10% 16V 0805
2U37	2020 552 96684	470nF 10% 25V 0805
2U38	2238 586 59812	100nF 20% 50V 0603
2U39	2238 869 15101	100pF 5% 50V 0402
2U40	2022 552 05679	1µF 10% 16V 0805
2U41	2022 552 05679	1µF 10% 16V 0805
2U45	2022 552 05635	22µF 10% 16V
2U46	2022 552 05679	1µF 10% 16V 0805
2U47	2020 552 96618	1nF 10% 50V 0402
2U50	2022 552 05679	1µF 10% 16V 0805
2U55	2238 586 59812	100nF 20% 50V 0603
2U58	2022 552 05679	1µF 10% 16V 0805
2U72	2238 586 59812	100nF 20% 50V 0603
2U73	2020 552 96618	1nF 10% 50V 0402
2U85	3198 035 03320	3.3nF 5% 50V 0402
2V00	2020 552 96618	1nF 10% 50V 0402
2V01	2020 552 96618	1nF 10% 50V 0402
2V02	2020 552 96618	1nF 10% 50V 0402
2V03	2238 586 59812	100nF 20% 50V 0603
2V04	2020 552 96618	1nF 10% 50V 0402
2V05	2238 869 15101	100pF 5% 50V 0402
2V16	2238 586 59812	100nF 20% 50V 0603
2V17	2238 586 59812	100nF 20% 50V 0603
2V18	2238 586 59812	100nF 20% 50V 0603
2V19	2238 586 59812	100nF 20% 50V 0603
2V20	2238 586 59812	100nF 20% 50V 0603
2V21	2238 586 59812	100nF 20% 50V 0603
2V22	2238 586 59812	100nF 20% 50V 0603
2V23	2238 586 59812	100nF 20% 50V 0603
2V24	2238 586 59812	100nF 20% 50V 0603
2V25	2238 586 59812	100nF 20% 50V 0603
2V26	2238 586 59812	100nF 20% 50V 0603
2V27	2238 586 59812	100nF 20% 50V 0603
2V28	2238 586 59812	100nF 20% 50V 0603
2V29	2238 586 59812	100nF 20% 50V 0603
2V30	2238 586 59812	100nF 20% 50V 0603
2V31	2238 586 59812	100nF 20% 50V 0603
2V35	4822 124 81058	47µF 20% 4V
2V36	2238 586 59812	100nF 20% 50V 0603
2V37	2020 552 96628	10nF 10% 16V 0402
2V38	2020 552 96637	10µF 10% 6.3V 0805
2V39	2238 586 59812	100nF 20% 50V 0603
2V40	2020 552 96628	10nF 10% 16V 0402
2V41	2020 552 96637	10µF 10% 6.3V 0805
2Z51	2238 586 59812	100nF 20% 50V 0603
2Z52	2238 586 59812	100nF 20% 50V 0603

⊣WW⊢

3A01	4822 117 13545	100Ω 1% 0402
3A02	4822 117 13545	100Ω 1% 0402
3A03	4822 117 13545	100Ω 1% 0402
3A04	4822 117 13545	100Ω 1% 0402
3A05	4822 117 13545	100Ω 1% 0402
3A06	4822 117 13545	100Ω 1% 0402
3A07	4822 117 13605	Jumper 0402
3A08	3198 031 05610	560Ω 5% 0.01W 0402
3A09	4822 117 13605	Jumper 0402
3A10	3198 031 05610	560Ω 5% 0.01W 0402
3A11	4822 117 13605	Jumper 0402
3A12	3198 031 05610	560Ω 5% 0.01W 0402
3A13	4822 117 13605	Jumper 0402
3A14	3198 031 01230	12kΩ 5% 0402
3A15	4822 051 30759	75Ω 5% 0.062W
3A16	4822 051 30221	220Ω 5% 0.062W
3A18	3198 031 05610	560Ω 5% 0.01W 0402
3A19	4822 117 13605	Jumper 0402
3A20	3198 031 01530	15kΩ 5% 0.01W 0402
3A21	3198 031 02730	27kΩ 5% 0402
3A22	3198 031 01530	15kΩ 5% 0.01W 0402
3A23	3198 031 02730	27kΩ 5% 0402
3A24	3198 031 01830	18kΩ 5% 0.01W 0402
3A25	3198 031 04730	47Ω 5% 0402
3A26	3198 031 01830	18kΩ 5% 0.01W 0402
3A27	3198 031 04730	47Ω 5% 0402
3A28	3198 031 04730	47Ω 5% 0402
3A29	3198 031 04740	470kΩ 5% 0402
3A30	3198 031 04740	470kΩ 5% 0402
3A31	4822 117 13603	33kΩ 5% 0402
3A32	3198 031 04730	47Ω 5% 0402
3A33	4822 117 11297	100kΩ 5% 0.1W
3A34	4822 117 13603	33kΩ 5% 0402
3A35	3198 031 04730	47Ω 5% 0402
3A36	4822 117 11297	100kΩ 5% 0.1W
3A37	4822 117 11297	100kΩ 5% 0.1W
3A38	4822 117 11297	100kΩ 5% 0.1W
3A39	4822 051 30102	1kΩ 5% 0.062W
3A40	4822 051 30102	1kΩ 5% 0.062W
3A41	4822 117 13548	1kΩ 5% 0402
3A42	4822 117 13606	10kΩ 5% 0.01W 0402
3A43	4822 117 13606	10kΩ 5% 0.01W 0402
3A44	3198 031 02240	220kΩ 5% 0.1W 0402
3A45	3198 031 01830	18kΩ 5% 0.01W 0402
3A46	4822 117 13548	1kΩ 5% 0402
3A47	4822 117 13606	10kΩ 5% 0.01W 0402
3A48	4822 117 13606	10kΩ 5% 0.01W 0402
3A49	4822 117 13606	10kΩ 5% 0.01W 0402
3A50	3198 031 01830	18kΩ 5% 0.01W 0402
3A51	3198 031 06840	680kΩ 5% 0.01W 0402
3A52	4822 117 11297	100kΩ 5% 0.1W
3A53	4822 117 13606	10kΩ 5% 0.01W 0402
3A54	4822 117 13606	10kΩ 5% 0.01W 0402
3A55	4822 117 11297	100kΩ 5% 0.1W
3A56	4822 051 30221	220Ω 5% 0.062W
3A57	3198 031 01510	150Ω 5% 0.01W 0402
3A58	3198 031 02240	220kΩ 5% 0.1W 0402
3A60	2322 734 63309	33Ω 1% 0.1W 0805
3A61	2322 734 63309	33Ω 1% 0.1W 0805
3A62	4822 051 30102	1kΩ 5% 0.062W
3A63	4822 117 13606	10kΩ 5% 0.01W 0402
3A64	4822 117 13606	10kΩ 5% 0.01W 0402
3A65	3198 031 02240	220kΩ 5% 0.1W 0402
3A66	4822 117 11297	100kΩ 5% 0.1W
3A67	2322 734 63309	33Ω 1% 0.1W 0805
3A68	2322 734 63309	33Ω 1% 0.1W 0805
3A69	4822 051 30102	1kΩ 5% 0.062W
3A71	3198 031 01510	150Ω 5% 0.01W 0402
3A72	3198 031 02240	220kΩ 5% 0.1W 0402
3A73	4822 051 30221	220Ω 5% 0.062W
3A74	4822 117 13606	10kΩ 5% 0.01W 0402
3A75	4822 117 13606	10kΩ 5% 0.01W 0402
3A76	3198 031 02240	220kΩ 5% 0.1W 0402
3A77▲	4822 117 11748	Fuse 2.2Ω 5% 1206
3A78	4822 117 13601	22kΩ 5% 0402
3A79	3198 031 04730	47Ω 5% 0402
3A80	3198 031 03930	39kΩ 5% 0402
3A81	4822 117 13603	33kΩ 5% 0402
3A82	4822 117 13603	33kΩ 5% 0402
3A83	3198 031 01220	1.2kΩ 5% 0.01W 0402
3A84	3198 031 01810	180Ω 5% 0402
3A85	4822 117 13597	330Ω 5% 0.01W 0402
3A86	3198 031 06890	68Ω 5% 0402
3A87	4822 117 13606	10kΩ 5% 0.01W 0402
3A88	4822 117 13548	1kΩ 5% 0402
3A89	4822 117 13548	1kΩ 5% 0402
3A91	4822 117 12521	68Ω 1% 0.1W
3A92	4822 117 12521	68Ω 1% 0.1W
3A93	4822 117 13601	22kΩ 5% 0402
3A94	3198 031 05620	5.6kΩ 5% 0.01W 0402
3A95	4822 051 20159	15Ω 5% 0.1W
3A96	4822 117 13543	470Ω 5% 0402
3A97	3198 031 05610	560Ω 5% 0.01W 0402
3A98	4822 117 13605	Jumper 0402
3A99	3198 031 05610	560Ω 5% 0.01W 0402
3AA1	4822 051 30221	220Ω 5% 0.062W
3AA2	4822 051 30221	220Ω 5% 0.062W
3AA3	4822 117 13596	220Ω 5% 0.01W 0402
3B00	3198 031 04720	4.7kΩ 5% 0402

3B01	3198 031 04720	4.7kΩ 5% 0402
3B02	4822 117 13545	100Ω 1% 0402
3B03	4822 117 13545	100Ω 1% 0402
3B04	4822 117 13606	10kΩ 5% 0.01W 0402
3B05	3198 031 04730	47Ω 5% 0402
3B06	3198 031 04730	47Ω 5% 0402
3B07	4822 117 13545	100Ω 1% 0402
3B08	4822 117 13545	100Ω 1% 0402
3B09	2120 550 00054	VDR 90V 1mA 0402
3B10	2120 550 00054	VDR 90V 1mA 0402
3B11	2120 550 00054	VDR 90V 1mA 0402
3B12	3198 031 04720	4.7kΩ 5% 0402
3B13	3198 031 04720	4.7kΩ 5% 0402
3B14	4822 117 13545	100Ω 1% 0402
3B15	4822 117 13545	100Ω 1% 0402
3B16	4822 117 13606	10kΩ 5% 0.01W 0402
3B17	3198 031 04730	47Ω 5% 0402
3B18	3198 031 04730	47Ω 5% 0402
3B19	4822 117 13545	100Ω 1% 0402
3B20	4822 117 13545	100Ω 1% 0402
3B21	2120 550 00054	VDR 90V 1mA 0402
3B22	2120 550 00054	VDR 90V 1mA 0402
3B23	4822 117 13548	1kΩ 5% 0402
3B24	4822 117 13548	1kΩ 5% 0402
3B27	3198 031 03390	33Ω 1% 0402
3B28	3198 031 03390	33Ω 1% 0402
3B29	3198 031 03390	33Ω 1% 0402
3B30	2322 705 70399	39Ω 5% 0402
3B32	2322 705 70399	39Ω 5% 0402
3B34	2322 705 70399	39Ω 5% 0402
3B36	3198 031 01230	12kΩ 5% 0402
3B37	4822 117 13548	1kΩ 5% 0402
3B38	4822 117 13548	1kΩ 5% 0402
3B40	4822 117 13548	1kΩ 5% 0402
3B41	3198 031 03390	33Ω 1% 0402
3B43	4822 117 13606	10kΩ 5% 0.01W 0402
3B45	4822 117 13606	10kΩ 5% 0.01W 0402
3B48	2322 706 71002	1kΩ 1% 0402
3B49	3198 031 04730	47Ω 5% 0402
3B50	4822 117 13543	470Ω 5% 0402
3B51	3198 021 34780	4.7Ω 5% 0603
3B52	4822 117 13597	330Ω 5% 0.01W 0402
3B53	4822 051 20109	10Ω 5% 0.1W
3B54	4822 051 20109	10Ω 5% 0.1W
3B55	4822 051 20109	10Ω 5% 0.1W
3B56	2350 033 11339	4 x 33Ω 5%
3B57	2350 033 11339	4 x 33Ω 5%
3B58	2350 033 11339	4 x 33Ω 5%
3B59	2350 033 11339	4 x 33Ω 5%
3B60	4822 117 13545	100Ω 1% 0402
3B61	4822 117 13545	100Ω 1% 0402
3B62	2350 033 11339	4 x 33Ω 5%
3B65	4822 117 13548	1kΩ 5% 0402
3B66	4822 117 13548	1kΩ 5% 0402
3B67	4822 117 13548	1kΩ 5% 0402
3B68	4822 117 13548	1kΩ 5% 0402
3B69	4822 117 13548	1kΩ 5% 0402
3B70	4822 117 13548	1kΩ 5% 0402
3B90	3198 031 02290	22Ω 5% 0.1W 0402
3B91	4822 117 11297	100kΩ 5% 0.1W
3B92	3198 031 02290	22Ω 5% 0.1W 0402
3B93	4822 117 11297	100kΩ 5% 0.1W
3B94	4822 117 13543	470Ω 5% 0402
3B95	4822 117 13543	470Ω 5% 0402
3B96	4822 117 13543	470Ω 5% 0402
3B97	4822 117 13543	470Ω 5% 0402
3B98	4822 117 13543	470Ω 5% 0402
3B99	4822 117 13543	470Ω 5% 0402
3BA0	2120 550 00054	VDR 90V 1mA 0402
3BA1	2120 550 00054	VDR 90V 1mA 0402
3BA2	2120 550 00054	VDR 90V 1mA 0402
3BA3	2120 550 00054	VDR 90V 1mA 0402
3BA4	2120 550 00054	VDR 90V 1mA 0402
3BA5	2120 550 00054	VDR 90V 1mA 0402
3BA6	2120 550 00054	VDR 90V 1mA 0402
3BA7	2120 550 00054	VDR 90V 1mA 0402
3BA8	2120 550 00054	VDR 90V 1mA 0402
3BA9	2120 550 00054	VDR 90V 1mA 0402
3BB0	2120 550 00054	VDR 90V 1mA 0402
3C30	2322 704 65601	560Ω 1% 0.063W 0603
3C31▲	5322 117 11726	10Ω 5%
3C32	5322 117 13036	1.2kΩ 1% 0.063W 0603
3C33	3198 031 08210	820Ω 5% 0.5W
3C34	5322 117 13036	1.2kΩ 1% 0.063W 0603
3C35	4822 117 13548	1kΩ 5% 0402
3C36	3198 031 08230	82kΩ 5% 0402
3C37	4822 117 13597	330Ω 5% 0.01W 0402
3C38	4822 117 13606	10kΩ 5% 0.01W 0402
3C39	4822 117 13545	100Ω 1% 0402
3C40	4822 117 13545	100Ω 1% 0402
3C41	4822 117 13606	10kΩ 5% 0.01W 0402
3C42	4822 117 13597	330Ω 5% 0.01W 0402
3C43	3198 031 01820	1.8kΩ 5% 0.01W 0402
3C44	3198 031 01220	1.2kΩ 5% 0.01W 0402
3C45	3198 031 04730	47Ω 5% 0402
3C46	3198 031 03390	33Ω 1% 0402
3C47	3198 031 04730	47Ω 5% 0402
3C51▲	4822 117 11748	Fuse 2.2Ω 5% 1206
3C53	3198 031 03910	390Ω 1% 0402
3C55	4822 051 30331	330Ω 5% 0.062W
3C70	4822 117 13545	100Ω 1% 0402
3C71	4822 117 13548	1kΩ 5% 0402
3C73	4822 117 13545	100Ω 1% 0402
3C74	3198 031 01810	180Ω 5% 0402
3C75	3198 031 01810	180Ω 5% 0402
3G05	3198 031 04720	4.7kΩ 5% 0402
3G08	3198 031 06890	68Ω 5% 0402
3G09	3198 031 06890	68Ω 5% 0402
3G10	3198 031 06890	68Ω 5% 0402
3G11	3198 031 06890	68Ω 5% 0402
3G12	4822 117 13605	Jumper 0402
3G13	3198 031 06890	68Ω 5% 0402
3G14	3198 031 06890	68Ω 5% 0402
3G15	3198 031 06890	68Ω 5% 0402
3G16	3198 031 06890	68Ω 5% 0402
3G17	3198 031 06890	68Ω 5% 0402
3G18	3198 031 06890	68Ω 5% 0402
3G23	2322 706 78202	8.2kΩ 1% 0402 RC321
3G25	2322 706 71003	10kΩ 5% 0402
3G26	3198 031 04720	4.7kΩ 5% 0402
3G34	4822 117 13548	1kΩ 5% 0402
3G35	2322 706 71203	12kΩ 5% 0402
3G51	4822 117 13606	10kΩ 5% 0.01W 0402
3G55	2350 033 11689	4x 68Ω 5% Netw.
3G56	2350 033 11689	4x 68Ω 5% Netw.
3G57	2350 033 11689	4x 68Ω 5% Netw.
3G58	2350 033 11689	4x 68Ω 5% Netw.
3G59	2350 033 11689	4x 68Ω 5% Netw.
3G60	2350 033 11689	4x 68Ω 5% Netw.
3G61	3198 031 04720	4.7kΩ 5% 0402
3G62	3198 031 04720	4.7kΩ 5% 0402
3G63	3198 031 04720	4.7kΩ 5% 0402
3G64	3198 031 04720	4.7kΩ 5% 0402
3G65	3198 031 04720	4.7kΩ 5% 0402
3G70	4822 117 13602	2.2kΩ 5% 0.01W 0402
3G71	4822 117 13548	1kΩ 5% 0402
3G72	4822 117 11297	100kΩ 5% 0.1W
3G73	4822 117 13546	47Ω 5% 0402
3G74	3198 031 01050	1MΩ 5% 0402
3G77	4822 117 13545	100Ω 1% 0402
3G78	4822 117 13545	100Ω 1% 0402
3G83	4822 117 13548	1kΩ 5% 0402
3G85	3198 031 04720	4.7kΩ 5% 0402
3G86	3198 031 04720	4.7kΩ 5% 0402
3G87	3198 031 04720	4.7kΩ 5% 0402
3G89	4822 117 13545	100Ω 1% 0402
3G90	4822 117 13545	100Ω 1% 0402
3G91	4822 117 13548	1kΩ 5% 0402
3G92	4822 117 13545	100Ω 1% 0402
3G93	4822 117 13545	100Ω 1% 0402
3G94	3198 031 04720	4.7kΩ 5% 0402
3G95	4822 117 13606	10kΩ 5% 0.01W 0402
3H01	3198 031 04720	4.7kΩ 5% 0402
3H02	3198 031 06890	68Ω 5% 0402
3H03	3198 031 04720	4.7kΩ 5% 0402
3H04	3198 031 01820	1.8kΩ 5% 0.01W 0402
3H05	3198 031 01820	1.8kΩ 5% 0.01W 0402
3H06	3198 031 02290	22Ω 5% 0.1W 0402
3H07	3198 031 02290	22Ω 5% 0.1W 0402
3H08	3198 031 04720	4.7kΩ 5% 0402
3H10	3198 031 04720	4.7kΩ 5% 0402
3H12	3198 031 02290	22Ω 5% 0.1W 0402
3H13	3198 031 04720	4.7kΩ 5% 0402
3H14	3198 031 02290	22Ω 5% 0.1W 0402
3H15	4822 117 13545	100Ω 1% 0402
3H16	3198 031 04720	4.7kΩ 5% 0402
3H17	4822 117 13606	10kΩ 5% 0.01W 0402
3H18	3198 031 04720	4.7kΩ 5% 0402
3H19	4822 117 13548	1kΩ 5% 0402
3H20	2322 705 70399	39Ω 5% 0402
3H21	2322 705 70399	39Ω 5% 0402
3H22	3198 031 04720	4.7kΩ 5% 0402
3H23	3198 031 04720	4.7kΩ 5% 0402
3H25	4822 117 13545	100Ω 1% 0402
3H26	4822 117 13545	100Ω 1% 0402
3H28	3198 031 04720	4.7kΩ 5% 0402
3H29	3198 031 04720	4.7kΩ 5% 0402
3H31	3198 031 04720	4.7kΩ 5% 0402
3H32	3198 031 04720	4.7kΩ 5% 0402
3H41	4822 117 13606	10kΩ 5% 0.01W 0402
3H48	3198 031 06890	68Ω 5% 0402
3H49	3198 031 06890	68Ω 5% 0402
3H50	3198 031 08210	820Ω 5% 0.5W
3H51	2322 706 75601	560Ω 1% 0402
3H70	3198 031 04720	4.7kΩ 5% 0402
3H71	3198 031 04720	4.7kΩ 5% 0402
3H72	4822 117 13545	100Ω 1% 0402
3H73	3198 031 02290	22Ω 5% 0.1W 0402
3H74	3198 031 06890	68Ω 5% 0402
3H75	4822 117 13545	100Ω 1% 0402
3H79	3198 031 02290	22Ω 5% 0.1W 0402
3H80	2350 033 11472	4x 4.7kΩ 5%
3H81	2350 033 11472	4x 4.7kΩ 5%
3H82	3198 031 01050	1MΩ 5% 0402
3H83	3198 031 04720	4.7kΩ 5% 0402
3H84	3198 031 04720	4.7kΩ 5% 0402
3H85	3198 031 04720	4.7kΩ 5% 0402
3H86	3198 031 04720	4.7kΩ 5% 0402
3H87	3198 031 04720	4.7kΩ 5% 0402
3H88	3198 031 04720	4.7kΩ 5% 0402
3H90	3198 031 04720	4.7kΩ 5% 0402
3H92	3198 031 07590	75Ω 5% 0402
3H93	3198 031 04720	4.7kΩ 5% 0402
3H94	3198 031 04720	4.7kΩ 5% 0402
3H95	4822 117 13597	330Ω 5% 0.01W 0402
3H97	3198 031 04720	4.7kΩ 5% 0402
3H98	4822 117 13545	100Ω 1% 0402
3H99	4822 117 13545	100Ω 1% 0402
3J02	3198 031 02290	22Ω 5% 0.1W 0402
3J05	3198 031 02290	22Ω 5% 0.1W 0402
3J06	3198 031 02290	22Ω 5% 0.1W 0402
3J07	4822 117 13605	Jumper 0402
3J08	4822 117 13605	Jumper 0402
3J11	4822 117 13605	Jumper 0402
3J25	3198 031 04730	47Ω 5% 0402
3J26	4822 117 13601	22kΩ 5% 0402
3J28	2350 033 11103	4x 10kΩ 5% Netw.
3J43	4822 117 13546	47Ω 5% 0402
3J49	4822 117 13545	100Ω 1% 0402
3J51	4822 117 13546	47Ω 5% 0402
3J52	3198 031 04720	4.7kΩ 5% 0402
3J55	4822 117 11297	100kΩ 5% 0.1W
3J56	4822 117 11297	100kΩ 5% 0.1W
3J86	4822 117 13548	1kΩ 5% 0402
3J88	4822 117 13606	10kΩ 5% 0.01W 0402
3J91	4822 117 13545	100Ω 1% 0402
3J92	3198 031 04730	47Ω 5% 0402
3J99	4822 117 13546	47Ω 5% 0402
3L00	4822 117 11297	100kΩ 5% 0.1W
3L01	4822 117 11297	100kΩ 5% 0.1W
3L02	4822 117 13606	10kΩ 5% 0.01W 0402
3L03	3198 031 04740	470kΩ 5% 0402
3L04▲	4822 117 11748	Fuse 2.2Ω 5% 1206
3L05▲	5322 117 11726	10Ω 5%
3L06	4822 117 11297	100kΩ 5% 0.1W
3L08	4822 117 13546	47Ω 5% 0402
3L09	4822 117 13546	47Ω 5% 0402
3L10	4822 117 13546	47Ω 5% 0402
3L11	4822 117 13546	47Ω 5% 0402
3L12	4822 117 13546	47Ω 5% 0402
3L13	4822 117 13546	47Ω 5% 0402
3L14	4822 117 13546	47Ω 5% 0402
3L15	4822 117 13546	47Ω 5% 0402
3L16	4822 117 13546	47Ω 5% 0402
3L17	4822 117 13546	47Ω 5% 0402
3L18	4822 117 13546	47Ω 5% 0402
3L19	4822 117 13546	47Ω 5% 0402
3L21	4822 117 13546	47Ω 5% 0402
3L23	4822 117 13546	47Ω 5% 0402
3L25	4822 117 13546	47Ω 5% 0402
3L27	4822 117 13546	47Ω 5% 0402
3L29	4822 117 13546	47Ω 5% 0402
3L31	4822 117 13546	47Ω 5% 0402
3L33	4822 117 13546	47Ω 5% 0402
3L36	4822 117 13606	10kΩ 5% 0.01W 0402
3L37	4822 117 13606	10kΩ 5% 0.01W 0402
3L38	4822 117 13606	10kΩ 5% 0.01W 0402
3L39	4822 117 13606	10kΩ 5% 0.01W 0402
3L40	3198 031 03390	33Ω 1% 0402
3L41	3198 031 03390	33Ω 1% 0402
3L42	3198 031 03390	33Ω 1% 0402
3L43	3198 031 03390	33Ω 1% 0402
3L44	3198 031 03390	33Ω 1% 0402
3L45	3198 031 03390	33Ω 1% 0402
3L46	3198 031 03390	33Ω 1% 0402
3L47	3198 031 03390	33Ω 1% 0402
3L48	3198 031 03390	33Ω 1% 0402
3L49	3198 031 03390	33Ω 1% 0402
3L50	3198 031 02290	22Ω 5% 0.1W 0402
3L51	4822 117 13545	100Ω 1% 0402
3L52	3198 031 02290	22Ω 5% 0.1W 0402
3L56	3198 031 02290	22Ω 5% 0.1W 0402
3L57	3198 031 02290	22Ω 5% 0.1W 0402
3L58	3198 031 02290	22Ω 5% 0.1W 0402
3L59	3198 031 02290	22Ω 5% 0.1W 0402
3L60	3198 031 02290	22Ω 5% 0.1W 0402
3L61	3198 031 02290	22Ω 5% 0.1W 0402
3L62	3198 031 02290	22Ω 5% 0.1W 0402
3L63	3198 031 02290	22Ω 5% 0.1W 0402
3L64	3198 031 02290	22Ω 5% 0.1W 0402
3L65	3198 031 02290	22Ω 5% 0.1W 0402
3L66	3198 031 02290	22Ω 5% 0.1W 0402

3L67	3198 031 02290	22Ω 5% 0.1W 0402
3L68	3198 031 02290	22Ω 5% 0.1W 0402
3L69	3198 031 02290	22Ω 5% 0.1W 0402
3L70	3198 031 02290	22Ω 5% 0.1W 0402
3L71	3198 031 02290	22Ω 5% 0.1W 0402
3L89	3198 031 02290	22Ω 5% 0.1W 0402
3L90	4822 117 13548	1kΩ 5% 0402
3L91	3198 031 03390	33Ω 1% 0402
3L92	3198 031 03390	33Ω 1% 0402
3L93	3198 031 03390	33Ω 1% 0402
3L94	3198 031 03390	33Ω 1% 0402
3L95	3198 031 03390	33Ω 1% 0402
3L96	3198 031 03390	33Ω 1% 0402
3L97	3198 031 03390	33Ω 1% 0402
3L98	3198 031 03390	33Ω 1% 0402
3L99	3198 031 02290	22Ω 5% 0.1W 0402
3LA0	4822 117 13606	10kΩ 5% 0.01W 0402
3LA1	4822 117 13606	10kΩ 5% 0.01W 0402
3LA2	4822 117 13606	10kΩ 5% 0.01W 0402
3LA3	4822 117 13606	10kΩ 5% 0.01W 0402
3LA4	4822 117 13606	10kΩ 5% 0.01W 0402
3LA5	4822 117 13548	1kΩ 5% 0402
3LA6	4822 117 13606	10kΩ 5% 0.01W 0402
3LA7	4822 117 13606	10kΩ 5% 0.01W 0402
3LA9	4822 117 13606	10kΩ 5% 0.01W 0402
3LB4	4822 117 13606	10kΩ 5% 0.01W 0402
3LB5	4822 117 13606	10kΩ 5% 0.01W 0402
3LB7	4822 117 13606	10kΩ 5% 0.01W 0402
3LB8	4822 117 13606	10kΩ 5% 0.01W 0402
3LB9	4822 117 13606	10kΩ 5% 0.01W 0402
3LC0	4822 117 13606	10kΩ 5% 0.01W 0402
3LC1	4822 117 13606	10kΩ 5% 0.01W 0402
3LC2	4822 117 13606	10kΩ 5% 0.01W 0402
3LC3	4822 117 13606	10kΩ 5% 0.01W 0402
3LC4	4822 117 13606	10kΩ 5% 0.01W 0402
3LC5	4822 117 11297	100kΩ 5% 0.1W
3LC8	4822 117 13606	10kΩ 5% 0.01W 0402
3LC9	4822 117 13606	10kΩ 5% 0.01W 0402
3LD0	4822 117 13606	10kΩ 5% 0.01W 0402
3LD1	4822 117 13606	10kΩ 5% 0.01W 0402
3LD2	4822 117 13606	10kΩ 5% 0.01W 0402
3LD3	4822 117 13606	10kΩ 5% 0.01W 0402
3LD4	4822 117 13606	10kΩ 5% 0.01W 0402
3LD5	4822 117 13606	10kΩ 5% 0.01W 0402
3LD6	4822 117 13606	10kΩ 5% 0.01W 0402
3LD7	4822 117 13606	10kΩ 5% 0.01W 0402
3LD8	4822 117 13606	10kΩ 5% 0.01W 0402
3LD9	4822 117 13606	10kΩ 5% 0.01W 0402
3LE0	4822 117 13606	10kΩ 5% 0.01W 0402
3LE1	4822 117 11373	100Ω 1% 0805
3LE2	4822 117 13545	100Ω 1% 0402
3LE3	3198 031 04720	4.7kΩ 5% 0402
3LE4	3198 031 04720	4.7kΩ 5% 0402
3LE5	4822 117 13606	10kΩ 5% 0.01W 0402
3LE6	4822 117 13606	10kΩ 5% 0.01W 0402
3LE7	4822 117 13606	10kΩ 5% 0.01W 0402
3LE8	4822 117 13606	10kΩ 5% 0.01W 0402
3LE9	4822 117 13606	10kΩ 5% 0.01W 0402
3LF0	4822 117 13545	100Ω 1% 0402
3LF1	4822 117 13545	100Ω 1% 0402
3LF8	4822 117 13545	100Ω 1% 0402
3LG3	4822 117 13545	100Ω 1% 0402
3LG5	4822 117 13545	100Ω 1% 0402
3LG6	4822 117 13545	100Ω 1% 0402
3LG7	4822 117 13545	100Ω 1% 0402
3LG8	4822 117 13545	100Ω 1% 0402
3LG9	4822 117 13545	100Ω 1% 0402
3LH0	4822 117 13545	100Ω 1% 0402
3LH1	4822 117 13545	100Ω 1% 0402
3LH2	4822 117 11373	100Ω 1% 0805
3LH3	4822 117 13545	100Ω 1% 0402
3LH4	4822 117 13545	100Ω 1% 0402
3LH5	4822 117 13606	10kΩ 5% 0.01W 0402
3LH6	4822 117 13606	10kΩ 5% 0.01W 0402
3LH7	4822 117 11373	100Ω 1% 0805
3LH8	4822 117 13545	100Ω 1% 0402
3LH9	4822 117 13545	100Ω 1% 0402
3LJ0	4822 117 13545	100Ω 1% 0402
3LJ1	4822 117 13545	100Ω 1% 0402
3LJ2	4822 117 13606	10kΩ 5% 0.01W 0402
3LJ3	4822 117 13606	10kΩ 5% 0.01W 0402
3LJ4	4822 117 13545	100Ω 1% 0402
3LJ5	4822 117 13545	100Ω 1% 0402
3LJ6	4822 117 13545	100Ω 1% 0402
3LJ7	4822 117 13545	100Ω 1% 0402
3LJ8	4822 117 13545	100Ω 1% 0402
3LJ9	4822 117 13545	100Ω 1% 0402
3LK0	4822 117 13545	100Ω 1% 0402
3LK1	4822 117 13545	100Ω 1% 0402
3LK2	4822 117 13545	100Ω 1% 0402
3LK3	4822 117 13545	100Ω 1% 0402
3LK4	4822 117 13545	100Ω 1% 0402
3LK5	4822 117 13545	100Ω 1% 0402
3LK6	4822 117 13545	100Ω 1% 0402
3LK7	4822 117 13545	100Ω 1% 0402
3LK8	4822 117 13545	100Ω 1% 0402
3LK9	4822 117 13545	100Ω 1% 0402
3LL0	4822 117 13545	100Ω 1% 0402
3LL1	4822 117 13545	100Ω 1% 0402
3LL2	4822 117 13545	100Ω 1% 0402
3LL3	4822 117 13545	100Ω 1% 0402
3LL4	4822 117 13545	100Ω 1% 0402
3LL5	4822 117 13545	100Ω 1% 0402
3LL6	4822 117 13545	100Ω 1% 0402
3LL7	4822 117 13545	100Ω 1% 0402
3LL8	4822 117 13597	330Ω 5% 0.01W 0402
3LL9	4822 117 13596	220Ω 5% 0.01W 0402
3LM0	4822 117 11373	100Ω 1% 0805
3LM1	4822 117 11373	100Ω 1% 0805
3LM2	4822 117 11373	100Ω 1% 0805
3LM3	4822 117 11373	100Ω 1% 0805
3LM4	4822 117 11373	100Ω 1% 0805
3LM5	4822 117 11373	100Ω 1% 0805
3LM6	4822 117 11373	100Ω 1% 0805
3LM7	4822 117 11373	100Ω 1% 0805
3LN0	4822 117 11373	100Ω 1% 0805
3LN1	4822 117 11373	100Ω 1% 0805
3LN2	4822 117 11373	100Ω 1% 0805
3LN3	4822 117 11373	100Ω 1% 0805
3LN4	4822 117 11373	100Ω 1% 0805
3LN5	4822 117 11373	100Ω 1% 0805
3LN6	4822 117 11373	100Ω 1% 0805
3LN7	4822 117 11373	100Ω 1% 0805
3LQ6	4822 117 11373	100Ω 1% 0805
3LQ7	4822 117 13545	100Ω 1% 0402
3LQ8	4822 117 13545	100Ω 1% 0402
3LR0	3198 031 03390	33Ω 1% 0402
3LR1	3198 031 03390	33Ω 1% 0402
3LR2	4822 117 13606	10kΩ 5% 0.01W 0402
3LR3	2350 033 11339	4 x 33Ω 5%
3LR4	2350 033 11339	4 x 33Ω 5%
3LR5	2350 033 11339	4 x 33Ω 5%
3LR6	2350 033 11339	4 x 33Ω 5%
3LR7	2350 033 11339	4 x 33Ω 5%
3LR8	2350 033 11339	4 x 33Ω 5%
3LR9	2350 033 11339	4 x 33Ω 5%
3LS0	2350 033 11339	4 x 33Ω 5%
3LS1	2350 033 11339	4 x 33Ω 5%
3LS2	3198 031 06810	680Ω 5% 0.01W 0402
3LS3	4822 117 13606	10kΩ 5% 0.01W 0402
3LS4	4822 117 13606	10kΩ 5% 0.01W 0402
3LS5	4822 117 13606	10kΩ 5% 0.01W 0402
3LS6	4822 117 13606	10kΩ 5% 0.01W 0402
3LS7	4822 117 13597	330Ω 5% 0.01W 0402
3LS8	4822 117 13606	10kΩ 5% 0.01W 0402
3LS9	3198 031 05610	560Ω 5% 0.01W 0402
3LT0	4822 117 13606	10kΩ 5% 0.01W 0402
3LT1	4822 117 13606	10kΩ 5% 0.01W 0402
3LT2	4822 117 13606	10kΩ 5% 0.01W 0402
3LT3	3198 031 01090	10Ω 5% 0.01W 0402
3LT4	3198 031 04720	4.7kΩ 5% 0402
3LT5	2322 705 70184	180Ω 5% 0402
3LT6	3198 031 06830	68kΩ 5% 0.01W 0402
3LT7	4822 117 11297	100kΩ 5% 0.1W
3LT8	4822 117 13606	10kΩ 5% 0.01W 0402
3LT9	3198 031 01090	10Ω 5% 0.01W 0402
3LU0	4822 117 11297	100kΩ 5% 0.1W
3LU1	3198 031 06830	68kΩ 5% 0.01W 0402
3LU2	4822 117 13601	22kΩ 5% 0402
3LU3	4822 117 13606	10kΩ 5% 0.01W 0402
3LU4	4822 117 13606	10kΩ 5% 0.01W 0402
3LU5	4822 117 13601	22kΩ 5% 0402
3LU6	3198 031 06830	68kΩ 5% 0.01W 0402
3LU7	2322 705 70184	180Ω 5% 0402
3LU8	3198 031 01090	10Ω 5% 0.01W 0402
3LU9	3198 031 04730	47Ω 5% 0402
3LV0	3198 031 03340	330kΩ 5% 0402
3LV1	3198 031 06830	68kΩ 5% 0.01W 0402
3LV2	4822 117 13601	22kΩ 5% 0402
3LV3	4822 117 13606	10kΩ 5% 0.01W 0402
3LV4	4822 117 13606	10kΩ 5% 0.01W 0402
3LV5	4822 117 13601	22kΩ 5% 0402
3LV6	3198 031 06830	68kΩ 5% 0.01W 0402
3LV7	2322 705 70564	560kΩ 5% 0402
3LV8	3198 031 01090	10Ω 5% 0.01W 0402
3M00	4822 117 13606	10kΩ 5% 0.01W 0402
3M01	4822 117 13606	10kΩ 5% 0.01W 0402
3M02	4822 117 13606	10kΩ 5% 0.01W 0402
3M03	4822 117 13603	33kΩ 5% 0402
3M04	3198 031 01830	18kΩ 5% 0.01W 0402
3M05	4822 117 13548	1kΩ 5% 0402
3M09	4822 117 13606	10kΩ 5% 0.01W 0402
3M14	3198 021 34780	4.7Ω 5% 0603
3M70	4822 117 13602	2.2kΩ 5% 0.01W 0402
3M71	3198 031 01220	1.2kΩ 5% 0.01W 0402
3M72	4822 117 13606	10kΩ 5% 0.01W 0402
3M73	4822 117 13543	470Ω 5% 0402
3M74	4822 117 10353	150Ω 1% 0.1W
3M75	4822 117 10353	150Ω 1% 0.1W
3M76	4822 117 13548	1kΩ 5% 0402
3M77	3198 031 01520	1.2kΩ 5% 0.01W 0402
3M78	4822 117 13548	1kΩ 5% 0402
3M79	4822 117 13548	1kΩ 5% 0402
3M80	4822 117 10353	150Ω 1% 0.1W
3M81	4822 117 10353	150Ω 1% 0.1W
3M82	4822 117 10353	150Ω 1% 0.1W
3N08	2322 706 71203	12kΩ 5% 0402
3N09	4822 117 13545	100Ω 1% 0402
3N12	3198 031 01530	15kΩ 5% 0.01W 0402
3N13	3198 031 01530	15kΩ 5% 0.01W 0402
3N14	3198 031 01530	15kΩ 5% 0.01W 0402
3N15	3198 031 01530	15kΩ 5% 0.01W 0402
3N25	3198 031 04720	4.7kΩ 5% 0402
3N30	4822 117 10353	150Ω 1% 0.1W
3N31	4822 117 10353	150Ω 1% 0.1W
3N32	4822 117 10353	150Ω 1% 0.1W
3N33	3198 021 34780	4.7Ω 5% 0603
3N90	3198 031 04720	4.7kΩ 5% 0402
3N92	3198 031 04720	4.7kΩ 5% 0402
3O15	4822 117 13545	100Ω 1% 0402
3O16	4822 117 13545	100Ω 1% 0402
3P10	4822 117 13606	10kΩ 5% 0.01W 0402
3P11	4822 117 13606	10kΩ 5% 0.01W 0402
3P12	4822 117 13545	100Ω 1% 0402
3P13	4822 117 13545	100Ω 1% 0402
3P14	4822 117 13545	100Ω 1% 0402
3P15	4822 117 13606	10kΩ 5% 0.01W 0402
3P16	4822 117 13606	10kΩ 5% 0.01W 0402
3P17	4822 117 13606	10kΩ 5% 0.01W 0402
3P18	4822 117 13606	10kΩ 5% 0.01W 0402
3P19	4822 117 13606	10kΩ 5% 0.01W 0402
3P20	4822 117 13606	10kΩ 5% 0.01W 0402
3P21	4822 117 13606	10kΩ 5% 0.01W 0402
3P22	4822 117 13606	10kΩ 5% 0.01W 0402
3P23	4822 117 13606	10kΩ 5% 0.01W 0402
3P24	4822 117 13606	10kΩ 5% 0.01W 0402
3P25	4822 117 13606	10kΩ 5% 0.01W 0402
3P26	4822 117 13606	10kΩ 5% 0.01W 0402
3P27	4822 117 13606	10kΩ 5% 0.01W 0402
3P28	4822 117 13606	10kΩ 5% 0.01W 0402
3P29	4822 117 13606	10kΩ 5% 0.01W 0402
3P30	4822 117 13606	10kΩ 5% 0.01W 0402
3P31	4822 117 13606	10kΩ 5% 0.01W 0402
3P32	4822 117 13606	10kΩ 5% 0.01W 0402
3P33	4822 117 11297	100kΩ 5% 0.1W
3P35	3198 031 02290	22Ω 5% 0.1W 0402
3P36	4822 117 13606	10kΩ 5% 0.01W 0402
3P37	4822 117 11297	100kΩ 5% 0.1W
3P38	4822 117 13606	10kΩ 5% 0.01W 0402
3P40	4822 117 13596	220Ω 5% 0.01W 0402
3P43	4822 117 13606	10kΩ 5% 0.01W 0402
3P45	4822 117 13606	10kΩ 5% 0.01W 0402
3P57	4822 117 13606	10kΩ 5% 0.01W 0402
3P60	2350 033 11479	4x 47Ω 5%
3P61	2350 033 11479	4x 47Ω 5%
3P62	2350 033 11479	4x 47Ω 5%
3P63	2350 033 11479	4x 47Ω 5%
3P73	3198 031 01810	180Ω 5% 0402
3P74	3198 031 04720	4.7kΩ 5% 0402
3P75	3198 031 04730	47Ω 5% 0402
3P76	4822 117 13548	1kΩ 5% 0402
3P77	4822 117 13548	1kΩ 5% 0402
3P78	4822 117 13606	10kΩ 5% 0.01W 0402
3P79	3198 031 02710	270Ω 5% 0.1W 0402
3P80	4822 117 13606	10kΩ 5% 0.01W 0402
3P81	4822 117 13602	2.2kΩ 5% 0.01W 0402
3P82	4822 117 13606	10kΩ 5% 0.01W 0402
3P83	4822 117 13545	100Ω 1% 0402
3P84	4822 117 13545	100Ω 1% 0402
3P85	4822 117 13545	100Ω 1% 0402
3P86	4822 117 13545	100Ω 1% 0402
3P88	4822 117 13606	10kΩ 5% 0.01W 0402
3Q00	4822 117 13546	47Ω 5% 0402
3Q03	3198 031 04720	4.7kΩ 5% 0402
3Q04	3198 031 04720	4.7kΩ 5% 0402
3Q05	2350 033 11689	4x 68Ω 5% Netw.
3Q06	2322 705 70399	39Ω 5% 0402
3Q07	2350 033 11689	4x 68Ω 5% Netw.
3Q08	2350 033 11689	4x 68Ω 5% Netw.
3Q09	3198 031 03390	33Ω 1% 0402
3Q10	4822 117 13545	100Ω 1% 0402
3Q11	4822 117 13545	100Ω 1% 0402
3Q12	4822 117 13545	100Ω 1% 0402
3Q13	4822 117 13545	100Ω 1% 0402
3Q14	4822 117 13545	100Ω 1% 0402
3Q15	4822 117 13545	100Ω 1% 0402
3Q16	3198 031 01530	15kΩ 5% 0.01W 0402
3Q17	3198 031 01530	15kΩ 5% 0.01W 0402
3Q18	3198 031 01530	15kΩ 5% 0.01W 0402
3Q19	3198 031 02290	22Ω 5% 0.1W 0402
3Q20	3198 031 02290	22Ω 5% 0.1W 0402
3Q21	3198 031 02290	22Ω 5% 0.1W 0402

3Q22	3198 031 02290	22Ω 5% 0.1W 0402
3Q23	3198 031 01530	15kΩ 5% 0.01W 0402
3Q24	4822 117 13606	10kΩ 5% 0.01W 0402
3Q25	2350 033 11689	4x 68Ω 5% Netw.
3Q26	2350 033 11689	4x 68Ω 5% Netw.
3Q27	3198 031 04720	4.7kΩ 5% 0402
3Q28	2350 033 11689	4x 68Ω 5% Netw.
3Q29	4822 117 13602	2.2kΩ 5% 0.01W 0402
3Q30	4822 117 13602	2.2kΩ 5% 0.01W 0402
3Q31	4822 117 13606	10kΩ 5% 0.01W 0402
3Q32	4822 117 13606	10kΩ 5% 0.01W 0402
3Q33	4822 117 13546	47Ω 5% 0402
3Q34	2350 033 11689	4x 68Ω 5% Netw.
3Q35	4822 117 13546	47Ω 5% 0402
3Q37	4822 117 13546	47Ω 5% 0402
3Q38	2350 033 10101	4 x 100Ω 5%
3Q39	4822 117 13546	47Ω 5% 0402
3Q40	2350 033 10101	4 x 100Ω 5%
3Q41	4822 117 13546	47Ω 5% 0402
3Q42	4822 117 13548	1kΩ 5% 0402
3Q43	4822 117 13546	47Ω 5% 0402
3Q44	2350 033 11689	4x 68Ω 5% Netw.
3Q45	4822 117 13546	47Ω 5% 0402
3Q47	4822 117 13546	47Ω 5% 0402
3Q48	4822 117 13545	100Ω 1% 0402
3Q49	4822 117 13546	47Ω 5% 0402
3Q50	4822 117 13545	100Ω 1% 0402
3Q51	4822 117 13546	47Ω 5% 0402
3Q52	4822 117 13545	100Ω 1% 0402
3Q53	4822 117 13546	47Ω 5% 0402
3Q54	3198 031 06890	68Ω 5% 0402
3Q55	4822 117 13546	47Ω 5% 0402
3Q56	3198 031 06890	68Ω 5% 0402
3Q57	4822 117 13546	47Ω 5% 0402
3Q58	3198 031 06890	68Ω 5% 0402
3Q59	4822 117 13546	47Ω 5% 0402
3Q61	4822 117 13546	47Ω 5% 0402
3Q63	4822 117 13546	47Ω 5% 0402
3Q64	3198 031 06890	68Ω 5% 0402
3Q66	4822 117 13546	47Ω 5% 0402
3Q67	4822 117 13546	47Ω 5% 0402
3Q68	4822 117 13546	47Ω 5% 0402
3Q72	4822 117 13545	100Ω 1% 0402
3Q73	4822 117 13545	100Ω 1% 0402
3Q74	4822 117 13545	100Ω 1% 0402
3Q75	4822 117 13545	100Ω 1% 0402
3Q76	4822 117 13545	100Ω 1% 0402
3Q79	4822 117 13545	100Ω 1% 0402
3Q81	4822 117 13548	1kΩ 5% 0402
3Q91	4822 117 13545	100Ω 1% 0402
3Q92	4822 117 13545	100Ω 1% 0402
3Q93	4822 117 13545	100Ω 1% 0402
3Q97	3198 031 04720	4.7kΩ 5% 0402
3Q98	3198 031 04720	4.7kΩ 5% 0402
3T02	4822 117 13548	1kΩ 5% 0402
3T04	3198 031 01090	10Ω 5% 0.01W 0402
3T05	3198 031 01090	10Ω 5% 0.01W 0402
3T06	4822 117 13548	1kΩ 5% 0402
3T09	3198 031 04720	4.7kΩ 5% 0402
3T10	3198 031 04720	4.7kΩ 5% 0402
3T11	3198 031 04720	4.7kΩ 5% 0402
3T12	3198 031 04720	4.7kΩ 5% 0402
3T13	4822 117 11297	100kΩ 5% 0.1W
3T14	4822 117 13548	1kΩ 5% 0402
3T15	4822 117 13606	10kΩ 5% 0.01W 0402
3T16	4822 117 11297	100kΩ 5% 0.1W
3T17	4822 117 13606	10kΩ 5% 0.01W 0402
3T18	4822 117 11297	100kΩ 5% 0.1W
3T19	2350 033 11689	4x 68Ω 5% Netw.
3T20	2350 033 11689	4x 68Ω 5% Netw.
3T21	2350 033 11689	4x 68Ω 5% Netw.
3T22	3198 031 06890	68Ω 5% 0402
3T23	3198 031 06890	68Ω 5% 0402
3T25	2020 552 96628	10nF 10% 16V 0402
3T26	4822 117 13545	100Ω 1% 0402
3TG2	4822 117 13596	220Ω 5% 0.01W 0402
3TG3	4822 117 13596	220Ω 5% 0.01W 0402
3TG4	4822 117 13596	220Ω 5% 0.01W 0402
3TG5	4822 117 13548	1kΩ 5% 0402
3TG6	4822 117 13596	220Ω 5% 0.01W 0402
3TG8	4822 117 13545	100Ω 1% 0402
3TG9	4822 117 13545	100Ω 1% 0402
3TH0	4822 117 13548	1kΩ 5% 0402
3TH3	2322 706 73303	33kΩ 5% 0402
3TH4	4822 117 13548	1kΩ 5% 0402
3TH5	2322 706 73303	33kΩ 5% 0402
3TH6	3198 031 04720	4.7kΩ 5% 0402
3TH7	3198 031 04720	4.7kΩ 5% 0402
3TH9	3198 031 04730	47Ω 5% 0402
3TJ0	3198 031 04730	47Ω 5% 0402
3TJ1	3198 031 04730	47Ω 5% 0402
3TJ2	3198 031 08220	8.2kΩ 5% 0.5W
3TJ3	3198 031 04730	47Ω 5% 0402
3TJ5	4822 117 13548	1kΩ 5% 0402
3TJ6	4822 117 13548	1kΩ 5% 0402
3TJ7	4822 117 13548	1kΩ 5% 0402
3U00	4822 117 13603	33kΩ 5% 0402
3U01	4822 117 13603	33kΩ 5% 0402
3U02	4822 117 13596	220Ω 5% 0.01W 0402
3U03	4822 117 13606	10kΩ 5% 0.01W 0402
3U04	4822 117 13601	22kΩ 5% 0402
3U05	4822 117 13596	220Ω 5% 0.01W 0402
3U06	3198 031 03930	39kΩ 5% 0402
3U07	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U08	3198 031 03320	3.3kΩ 5% 0402
3U09	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U10	3198 031 03320	3.3kΩ 5% 0402
3U11	4822 051 30221	220Ω 5% 0.062W
3U12	4822 117 13548	1kΩ 5% 0402
3U13	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U14	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U15	4822 117 13548	1kΩ 5% 0402
3U16	3198 031 04720	4.7kΩ 5% 0402
3U17	2322 706 71002	1kΩ 1% 0402
3U18	4822 117 13596	220Ω 5% 0.01W 0402
3U19	4822 117 13601	22kΩ 5% 0402
3U20	4822 051 30109	10Ω 5% 0.062W
3U21	4822 051 30109	10Ω 5% 0.062W
3U22⚠	5322 117 11726	10Ω 5%
3U24	4822 051 30109	10Ω 5% 0.062W
3U25	4822 117 13613	2.2Ω 5% 0603
3U27	4822 051 30109	10Ω 5% 0.062W
3U28	4822 117 13613	2.2Ω 5% 0603
3U29	4822 117 13548	1kΩ 5% 0402
3U30	4822 117 13602	2.2kΩ 5% 0.01W 0402
3U32	4822 117 13606	10kΩ 5% 0.01W 0402
3U33	4822 117 13606	10kΩ 5% 0.01W 0402
3U37	2322 706 74701	470Ω 1% 0402
3U38	3198 031 04720	4.7kΩ 5% 0402
3U41	2322 706 73303	33kΩ 5% 0402
3U42	3198 031 01090	10Ω 5% 0.01W 0402
3U45	3198 031 01050	1MΩ 5% 0402
3U46	2322 706 71203	12kΩ 5% 0402
3U54	3198 031 01090	10Ω 5% 0.01W 0402
3U55	4822 117 13606	10kΩ 5% 0.01W 0402
3U56	4822 117 13548	1kΩ 5% 0402
3U62	4822 117 13548	1kΩ 5% 0402
3U64	4822 117 10353	150Ω 1% 0.1W
3U65	4822 117 10353	150Ω 1% 0.1W
3U71	4822 117 13548	1kΩ 5% 0402
3U79	4822 117 13545	100Ω 1% 0402
3U80	4822 117 13606	10kΩ 5% 0.01W 0402
3U81	4822 117 13545	100Ω 1% 0402
3U82	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U83	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U85	4822 117 13606	10kΩ 5% 0.01W 0402
3U86	4822 117 13606	10kΩ 5% 0.01W 0402
3U87	4822 117 13606	10kΩ 5% 0.01W 0402
3U88	4822 117 13545	100Ω 1% 0402
3U89	4822 117 13606	10kΩ 5% 0.01W 0402
3U90	4822 117 13606	10kΩ 5% 0.01W 0402
3U91	4822 117 13606	10kΩ 5% 0.01W 0402
3U92	4822 117 13606	10kΩ 5% 0.01W 0402
3U93	4822 117 13606	10kΩ 5% 0.01W 0402
3U94	3198 031 03320	3.3kΩ 5% 0402
3U95	4822 117 13602	2.2kΩ 5% 0.01W 0402
3U96	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U97	3198 031 06820	6.8kΩ 5% 0.01W 0402
3U98	4822 117 13545	100Ω 1% 0402
3U99	4822 117 13545	100Ω 1% 0402
3UA1	4822 117 13602	2.2kΩ 5% 0.01W 0402
3UA2	4822 117 11297	100kΩ 5% 0.1W
3UA3	4822 117 13602	2.2kΩ 5% 0.01W 0402
3UA4	2322 706 71002	1kΩ 1% 0402
3UA5	4822 117 13546	47Ω 5% 0402
3UA7	2322 706 71002	1kΩ 1% 0402
3UA8	3198 031 06890	68Ω 5% 0402
3UA9	3198 031 06890	68Ω 5% 0402
3V00	3198 031 02290	22Ω 5% 0.1W 0402
3V01	3198 031 02290	22Ω 5% 0.1W 0402
3V02	3198 031 02290	22Ω 5% 0.1W 0402
3V03	3198 031 02290	22Ω 5% 0.1W 0402
3V04	3198 031 02290	22Ω 5% 0.1W 0402
3V05	3198 031 02290	22Ω 5% 0.1W 0402
3V06	3198 031 02290	22Ω 5% 0.1W 0402
3V07	3198 031 02290	22Ω 5% 0.1W 0402
3V08	3198 031 02290	22Ω 5% 0.1W 0402
3V09	3198 031 02290	22Ω 5% 0.1W 0402
3V10	3198 031 02290	22Ω 5% 0.1W 0402
3V11	3198 031 02290	22Ω 5% 0.1W 0402
3V12	3198 031 02290	22Ω 5% 0.1W 0402
3V13	3198 031 02290	22Ω 5% 0.1W 0402
3V14	3198 031 02290	22Ω 5% 0.1W 0402
3V15	3198 031 02290	22Ω 5% 0.1W 0402
3V16	3198 031 02290	22Ω 5% 0.1W 0402
3V17	3198 031 02290	22Ω 5% 0.1W 0402
3V18	3198 031 02290	22Ω 5% 0.1W 0402
3V19	3198 031 02290	22Ω 5% 0.1W 0402
3V20	3198 031 02290	22Ω 5% 0.1W 0402
3V21	3198 031 02290	22Ω 5% 0.1W 0402
3V22	3198 031 02290	22Ω 5% 0.1W 0402
3V23	3198 031 02290	22Ω 5% 0.1W 0402
3V32	3198 031 02290	22Ω 5% 0.1W 0402
3V33	3198 031 02290	22Ω 5% 0.1W 0402
3V34	3198 031 02290	22Ω 5% 0.1W 0402
3V35	3198 031 02290	22Ω 5% 0.1W 0402
3V36	3198 031 02290	22Ω 5% 0.1W 0402
3V37	3198 031 02290	22Ω 5% 0.1W 0402
3V38	3198 031 02290	22Ω 5% 0.1W 0402
3V39	3198 031 02290	22Ω 5% 0.1W 0402
3V40	3198 031 02290	22Ω 5% 0.1W 0402
3V41	3198 031 02290	22Ω 5% 0.1W 0402
3V42	3198 031 02290	22Ω 5% 0.1W 0402
3V43	3198 031 02290	22Ω 5% 0.1W 0402
3V44	4822 117 13545	100Ω 1% 0402
3V45	2322 706 73301	330Ω 1% 0402
3V46	2322 706 76801	680Ω 1% 0402
3V47	2322 706 75601	560Ω 1% 0402
3V48	2322 706 75601	560Ω 1% 0402
3V78	4822 117 13548	1kΩ 5% 0402
3Z53	4822 117 13545	100Ω 1% 0402
3Z54	4822 117 13545	100Ω 1% 0402
9A01	4822 051 20008	Jumper 0805
9A06	4822 051 20008	Jumper 0805
9A29	3198 031 03390	33Ω 1% 0402
9A71	4822 117 13605	Jumper 0402
9A75	4822 117 13605	Jumper 0402
9A79	4822 117 13605	Jumper 0402
9A86	4822 051 20008	Jumper 0805
9A89	4822 117 13605	Jumper 0402
9B10	4822 117 13605	Jumper 0402
9B11	4822 117 13605	Jumper 0402
9B13	4822 117 13605	Jumper 0402
9B14	4822 117 13605	Jumper 0402
9B16	4822 117 13605	Jumper 0402
9B19	4822 117 13605	Jumper 0402
9B30	4822 117 13606	10kΩ 5% 0.01W 0402
9B31	4822 117 13606	10kΩ 5% 0.01W 0402
9C49	4822 117 13605	Jumper 0402
9C50	4822 051 20008	Jumper 0805
9C53	4822 117 13605	Jumper 0402
9C57	4822 117 13605	Jumper 0402
9C60	4822 117 13605	Jumper 0402
9C61	4822 117 13605	Jumper 0402
9G10	4822 117 13605	Jumper 0402
9G11	4822 117 13605	Jumper 0402
9G12	4822 117 13605	Jumper 0402
9G35	4822 117 13605	Jumper 0402
9H03	4822 117 13605	Jumper 0402
9H05	4822 117 13605	Jumper 0402
9H06	4822 117 13605	Jumper 0402
9H07	4822 117 13605	Jumper 0402
9H08	4822 117 13605	Jumper 0402
9H13	4822 117 13605	Jumper 0402
9H14	4822 117 13605	Jumper 0402
9H15	4822 117 13605	Jumper 0402
9H16	4822 117 13605	Jumper 0402
9H18	4822 117 13605	Jumper 0402
9H19	4822 117 13605	Jumper 0402
9H26	4822 117 13605	Jumper 0402
9H27	4822 117 13605	Jumper 0402
9H29	4822 117 13605	Jumper 0402
9H30	4822 117 13605	Jumper 0402
9H32	4822 117 13605	Jumper 0402
9H33	4822 117 13605	Jumper 0402
9H34	4822 117 13605	Jumper 0402
9H40	4822 117 13605	Jumper 0402
9J16	4822 117 13605	Jumper 0402
9J17	4822 117 13605	Jumper 0402
9J24	4822 117 13605	Jumper 0402
9LA0	4822 117 13605	Jumper 0402
9LA1	4822 117 13605	Jumper 0402
9LA8	4822 117 13605	Jumper 0402
9LA9	4822 117 13605	Jumper 0402
9LC7	4822 117 13605	Jumper 0402
9M01	4822 117 13605	Jumper 0402
9M02	4822 117 13605	Jumper 0402
9M04	4822 117 13605	Jumper 0402
9M05	4822 117 13605	Jumper 0402
9P01	4822 117 13605	Jumper 0402
9P06	4822 117 13605	Jumper 0402
9P07	4822 117 13605	Jumper 0402
9P08	4822 117 13605	Jumper 0402
9P09	4822 117 13605	Jumper 0402
9P17	4822 117 13605	Jumper 0402
9P33	4822 117 13605	Jumper 0402
9P35	4822 117 13605	Jumper 0402
9P41	4822 117 13605	Jumper 0402
9P45	4822 117 13605	Jumper 0402
9P46	4822 117 13605	Jumper 0402
9P47	4822 117 13605	Jumper 0402
9P48	4822 117 13605	Jumper 0402

9P49	4822 117 13605	Jumper 0402
9P50	4822 117 13605	Jumper 0402
9P79	4822 117 13605	Jumper 0402
9Q14	4822 117 13605	Jumper 0402
9Q16	4822 117 13605	Jumper 0402
9Q19	4822 117 13605	Jumper 0402
9Q20	4822 117 13605	Jumper 0402
9TG2	4822 117 13605	Jumper 0402
9TG3	4822 117 13605	Jumper 0402
9U01	4822 117 13605	Jumper 0402
9U02	4822 117 13605	Jumper 0402
9U03	4822 117 13605	Jumper 0402
9U04	4822 051 20008	Jumper 0805
9U05	4822 051 20008	Jumper 0805
9U10	4822 051 20008	Jumper 0805
9U12	4822 051 20008	Jumper 0805
9U13	4822 117 13605	Jumper 0402
9U14	4822 117 13605	Jumper 0402
9U15	4822 117 13605	Jumper 0402
9U16	4822 117 13605	Jumper 0402

5A01	2422 549 43062	Bead 600Ω at 100MHz
5A02	2422 549 43062	Bead 600Ω at 100MHz
5A03	2422 549 43062	Bead 600Ω at 100MHz
5A03	4822 051 30221	220Ω 5% 0.062W
5A04	2422 549 43062	Bead 600Ω at 100MHz
5A05	2422 549 43062	Bead 600Ω at 100MHz
5A06	2422 549 42896	Bead 120Ω 100MHz
5A07	2422 549 42896	Bead 120Ω 100MHz
5A08	2422 549 43062	Bead 600Ω at 100MHz
5A10	2422 549 43062	Bead 600Ω at 100MHz
5B00	2422 549 43769	Bead 30Ω at 100MHz
5B01	2422 549 43769	Bead 30Ω at 100MHz
5B02	2422 549 44197	Bead 220Ω at 100MHz
5B10	2422 549 44197	Bead 220Ω at 100MHz
5B11	2422 549 44197	Bead 220Ω at 100MHz
5B12	2422 549 44197	Bead 220Ω at 100MHz
5B17	2422 549 44197	Bead 220Ω at 100MHz
5B18	2422 549 44197	Bead 220Ω at 100MHz
5C01	2422 549 44197	Bead 220Ω at 100MHz
5C03	2422 549 44197	Bead 220Ω at 100MHz
5C33	2422 549 44197	Bead 220Ω at 100MHz
5C34	2422 549 44197	Bead 220Ω at 100MHz
5C35	2422 549 44197	Bead 220Ω at 100MHz
5C36	2422 549 44197	Bead 220Ω at 100MHz
5C37	2422 549 42896	Bead 120Ω 100MHz
5C52	2422 549 44197	Bead 220Ω at 100MHz
5C53	2422 549 44197	Bead 220Ω at 100MHz
5C54	2422 549 44197	Bead 220Ω at 100MHz
5C57	3198 018 54770	0.47µH 10% 0603
5G01	2422 549 42896	Bead 120Ω 100MHz
5G02	2422 549 43062	Bead 600Ω at 100MHz
5G03	2422 549 43062	Bead 600Ω at 100MHz
5G04	2422 549 00287	Bead 220Ω 100MHz
5G05	2422 549 00287	Bead 220Ω 100MHz
5H01	2422 549 45325	Bead 67Ω at 100MHz
5H02	2422 549 45325	Bead 67Ω at 100MHz
5H03	2422 549 44197	Bead 220Ω at 100MHz
5H04	2422 549 44197	Bead 220Ω at 100MHz
5H05	2422 549 45843	100 Mhz 0603
5J00	2422 549 42896	Bead 120Ω 100MHz
5J01	2422 549 42896	Bead 120Ω 100MHz
5J02	2422 549 42896	Bead 120Ω 100MHz
5J03	2422 549 42896	Bead 120Ω 100MHz
5J04	2422 549 42896	Bead 120Ω 100MHz
5J05	2422 549 42896	Bead 120Ω 100MHz
5J06	2422 549 42896	Bead 120Ω 100MHz
5J07	2422 549 42896	Bead 120Ω 100MHz
5J10	2422 549 44197	Bead 220Ω at 100MHz
5J11	2422 549 44197	Bead 220Ω at 100MHz
5J12	2422 549 44197	Bead 220Ω at 100MHz
5J13	2422 549 44197	Bead 220Ω at 100MHz
5J50	2422 549 45325	Bead 67Ω at 100MHz
5J52	2422 549 45325	Bead 67Ω at 100MHz
5J54	2422 549 45325	Bead 67Ω at 100MHz
5J56	2422 549 45325	Bead 67Ω at 100MHz
5J58	2422 549 45325	Bead 67Ω at 100MHz
5J60	2422 549 45325	Bead 67Ω at 100MHz
5L01	2422 549 43062	Bead 600Ω at 100MHz
5L50	2422 549 43769	Bead 30Ω at 100MHz
5L51	2422 549 44197	Bead 220Ω at 100MHz
5L52	2422 549 44197	Bead 220Ω at 100MHz
5LA1	2422 549 43769	Bead 30Ω at 100MHz
5LA2	2422 549 43062	Bead 600Ω at 100MHz
5LA3	2422 549 43769	Bead 30Ω at 100MHz
5LN0	2422 549 43062	Bead 600Ω at 100MHz
5LN1	2422 549 43769	Bead 30Ω at 100MHz
5LN2	2422 549 43062	Bead 600Ω at 100MHz
5LN3	2422 549 43062	Bead 600Ω at 100MHz
5LN4	2422 549 43062	Bead 600Ω at 100MHz
5N00	2422 549 44197	Bead 220Ω at 100MHz
5N01	2422 549 43769	Bead 30Ω at 100MHz
5N02	2422 549 43769	Bead 30Ω at 100MHz
5P02	2422 549 43769	Bead 30Ω at 100MHz
5P08	2422 549 43769	Bead 30Ω at 100MHz
5Q01	2422 549 43769	Bead 30Ω at 100MHz
5Q02	2422 549 43769	Bead 30Ω at 100MHz
5Q03	2422 549 43769	Bead 30Ω at 100MHz
5Q04	2422 549 43769	Bead 30Ω at 100MHz
5Q06	3198 018 52280	2.2µH 10% 0603
5Q07	2422 549 44197	Bead 220Ω at 100MHz
5T10	2422 549 44197	Bead 220Ω at 100MHz
5T11	2422 549 43062	Bead 600Ω at 100MHz
5T45	4822 157 71206	Bead 600Ω 100MHz
5T47	3198 018 90050	Bead 1kΩ at 100MHz
5T48	3198 018 90050	Bead 1kΩ at 100MHz
5T49	2422 549 43062	Bead 600Ω at 100MHz
5T50	4822 157 71206	Bead 600Ω 100MHz
5T51	4822 157 71206	Bead 600Ω 100MHz
5T55	4822 051 20008	Jumper 0805
5TG0	2422 549 43062	Bead 600Ω at 100MHz
5TG1	2422 549 42896	Bead 120Ω 100MHz
5TG2	2422 549 42896	Bead 120Ω 100MHz
5TG3	2422 549 43062	Bead 600Ω at 100MHz
5TG4	2422 549 43062	Bead 600Ω at 100MHz
5TG5	2422 549 43062	Bead 600Ω at 100MHz
5TG6	2422 549 43062	Bead 600Ω at 100MHz
5TG7	2422 549 43062	Bead 600Ω at 100MHz
5TG8	2422 549 44197	Bead 220Ω at 100MHz
5U00	2422 536 00671	10µH 20%
5U01	4822 051 20008	Jumper 0805
5U02	2422 536 00779	10µH 20%
5U03	2422 536 00671	10µH 20%
5U04	4822 051 20008	Jumper 0805
5U05	4822 051 20008	Jumper 0805
5U06	4822 051 20008	Jumper 0805
5U07	4822 051 20008	Jumper 0805
5U08	4822 051 20008	Jumper 0805
5U10	4822 051 20008	Jumper 0805
5U11	4822 051 20008	Jumper 0805
5U12	4822 051 20008	Jumper 0805
5U13	4822 051 20008	Jumper 0805
5U14	4822 051 20008	Jumper 0805
5V01	2422 549 44197	Bead 220Ω at 100MHz
5Z50	2422 549 43769	Bead 30Ω at 100MHz

6A00	4822 130 80622	BAT54
6A01	4822 130 80622	BAT54
6A02	4822 130 11397	BAS316
6B20	4822 130 11397	BAS316
6B21	4822 130 11397	BAS316
6B22	4822 130 11397	BAS316
6B23	4822 130 11397	BAS316
6C59	4822 130 11397	BAS316
6G01	4822 130 11397	BAS316
6G02	5322 130 34331	BAV70
6G03	5322 130 34331	BAV70
6G04	5322 130 34331	BAV70
6H00	9322 134 46685	SML-310MT
6H01	4822 130 11397	BAS316
6H03	4822 130 11397	BAS316
6H06	9340 566 10115	BAV99S
6H07	9340 566 10115	BAV99S
6J01	3198 020 55680	BZX384-C5V6
6J06	9322 134 46685	SML-310MT
6J07	4822 130 11397	BAS316
6J08	4822 130 80622	BAT54
6L00	4822 130 11397	BAS316
6L01	4822 130 11397	BAS316
6L02	4822 130 11397	BAS316
6L03	4822 130 11397	BAS316
6M10	4822 130 11397	BAS316
6M11	4822 130 11397	BAS316
6O02	9340 566 10115	BAV99S
6P00	4822 130 11397	BAS316
6U05	9322 165 17668	STPS2L30A
6U07	9322 165 17668	STPS2L30A
6U17	4822 130 10838	UDZ3.3B
6U21	4822 130 11152	UDZ18B
6U22	4822 130 11397	BAS316
6U23	4822 130 11397	BAS316

7A01	9340 425 20115	BC847BS
7A02	3198 010 42310	BC847BW
7A04	9322 187 67668	TS482IS
7A05	9322 185 74668	LM324P
7A06	9340 219 30115	BC817-25W
7A07	9340 219 30115	BC817-25W
7A08	9340 425 30115	BC847BPN
7A09	3198 010 44350	BC807-25W
7A10	9340 425 30115	BC847BPN
7A11	3198 010 44350	BC807-25W
7A12	9340 425 30115	BC847BPN
7A13	9351 875 80118	74HCU04PW
7A14	9340 425 30115	BC847BPN
7A15	3198 010 42320	BC857BW
7A16	9340 425 20115	BC847BS
7A18	9340 425 30115	BC847BPN
7A20	9340 425 20115	BC847BS
7A21	3198 010 42310	BC847BW
7B00	9340 560 35235	BSH112
7B01	9340 560 35235	BSH112
7B02		For SW see item 0802
7B03		For SW see item 0802
7B04	9340 560 35235	BSH112
7B05	9340 560 35235	BSH112
7B11	9352 798 11557	TDA9975EL/8/C2
7B12	9322 146 75685	TS431L
7B13	4822 130 42804	BC817-25
7B30	3198 010 42310	BC847BW
7B31	3198 010 42310	BC847BW
7B38	4822 209 17398	LD1117DT33
7C00	9352 767 55557	PNX3000HL/N3
7C31	9340 425 20115	BC847BS
7C32	9340 425 30115	BC847BPN
7C56	3198 010 42310	BC847BW
7C57	3198 010 42310	BC847BW
7G01	9322 214 08685	LD2985BM25
7G02	9322 206 45668	M25P05-AVMN6P
7G04	9322 230 92671	PACIFIC3-N3(O2)
7G07	9322 144 97668	LD1117DT
7G31	9340 425 30115	BC847BPN
7G34	3198 010 42310	BC847BW
7G35	3198 010 44310	PDTC114EU
7H01	3198 010 44310	PDTC114EU
7J00	9352 806 65557	PNX2015E/M1E03
7J01	9340 425 30115	BC847BPN
7J02	9340 425 30115	BC847BPN
7J06	9322 204 10685	SI3441BDV
7J07	9340 425 20115	BC847BS
7J08	9322 212 46668	CY2305SXC-1
7J09	3198 010 42310	BC847BW
7L50	9322 228 06671	K4D261638I-LC40
7LA2	9340 425 30115	BC847BPN
7LA3	9340 425 30115	BC847BPN
7LA7		For SW see item 0802
7LB0	9322 204 63685	NCP303LSN10
7LB1	9322 204 63685	NCP303LSN10
7LB2	9322 204 63685	NCP303LSN10
7LB3	9322 204 63685	NCP303LSN10
7LB4	9322 204 63685	NCP303LSN10
7LB5	3198 010 42310	BC847BW
7LB6	3198 010 44310	PDTC114EU
7LB7	3198 010 44310	PDTC114EU
7M01	3198 010 44310	PDTC114EU
7M03	9322 204 63685	NCP303LSN10
7M04	5322 130 60159	BC846B
7M05	9322 213 50685	TS431AIL
7M06	9322 213 50685	TS431AIL
7M07	5322 130 60159	BC846B
7M10	5322 130 60159	BC846B
7M11	5322 130 60159	BC846B
7M12	5322 130 60159	BC846B
7N00	9352 698 49518	ISP1561BM
7N10	5322 130 60159	BC846B
7P00	9322 173 43668	TPS2211AIDB
7P03	9322 160 60668	STV0701
7P10	9352 104 20118	74LVC244APW
7P13	9352 606 80118	74LVC257APW
7P14	9322 206 22668	M24C64-WDW6P
7P15	9351 750 00118	74HC4066PW
7P16	3198 010 44310	PDTC114EU
7P17	3198 010 44310	PDTC114EU
7P18	3198 010 42320	BC857BW
7P31	9352 190 20118	74LVC573APW
7P32	9352 190 20118	74LVC573APW
7P34	9352 115 40118	74LVC245APW
7P74	9340 269 20115	PMST3904
7P76	9352 115 40118	74LVC245APW
7P77	9352 115 40118	74LVC245APW
7P80		For SW see item 0802
7P81	9352 115 40118	74LVC245APW
7Q01	9322 204 86668	LM3526M-LNOPB
7Q05	9340 425 20115	BC847BS
7T00	9322 202 58668	LD1117DT50
7T10	9352 759 98118	PCA9515ADP
7T11	9340 425 30115	BC847BPN
7T12	3198 010 42310	BC847BW
7T41	9322 210 84685	UPC3218GV-A
7T43	9322 211 45668	UPC3220GR-A
7TG0	9322 211 46668	NXT2003
7TG1	9322 163 75685	SI2306DS
7TG3	9340 425 30115	BC847BPN

7U00	9322 207 46668	NCP5422AD
7U01	9322 218 27668	SI4944DY
7U03	9322 218 27668	SI4944DY
7U05	9340 425 20115	BC847BS
7U07	9340 219 30115	BC817-25W
7U10	9340 425 10115	BC857BS
7U11	9322 192 16685	TS2431AI
7U13	9340 425 30115	BC847BPN
7U15	9340 425 20115	BC847BS
7U17	9322 192 16685	TS2431AI
7U18	5322 130 60159	BC846B
7U27	9322 192 16685	TS2431AI
7U28	9340 575 87118	PHD38N02LT
7U29	9340 425 10115	BC857BS
7V00	9352 800 63557	PNX8550EH/M2/S1
7V01	9322 221 77671	K4D551638F-LC40
7V02	9322 221 77671	K4D551638F-LC40
7Z11	9352 115 40118	74LVC245APW
7Z12	9352 115 40118	74LVC245APW

Externals [BE]

Various

1001	2422 026 05607	Connector Cinch 1p f Bk
1002	2422 026 05606	Socket Cinch 1p Wh
1003	2422 026 05605	Socket Cinch 1p Rd
1020	2422 026 05778	Socket Cinch 3p f YeBkBk
1030	2422 026 05779	Socket Cinch 3p f GnBuRd
1040	2422 026 05781	Socket Cinch 3p f BkRdWh
1050	2422 026 05779	Socket Cinch 3p f GnBuRd
1060	2422 026 05782	Socket Cinch 3p f RdWhYe
1070	4822 265 11391	Connetor SVHS 4p f
1080	4822 265 11391	Connetor SVHS 4p f
1E40	2422 025 17601	Connector 40p f
1E62	2422 025 17759	Connector 20p f
1M01	2422 025 10768	Connector 3p m
1M21	2422 025 08149	Connector 6p m
1M36	2422 025 10655	Connector 11p m

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2002	2020 552 94427	100pF 5% 50V
2004	2238 586 59812	100nF 20% 50V 0603
2005	2020 552 94427	100pF 5% 50V
2007	5322 124 41945	22µF 20% 35V
2010	2020 552 94427	100pF 5% 50V
2012	2020 552 94427	100pF 5% 50V
2014	2238 586 59812	100nF 20% 50V 0603
2015	5322 124 41945	22µF 20% 35V
2016	2238 586 59812	100nF 20% 50V 0603
2017	5322 124 41945	22µF 20% 35V
2018	4822 126 11785	47pF 5% 50V 0603
2019	4822 124 23002	10µF 16V
2020	4822 126 11785	47pF 5% 50V 0603
2021	2020 552 94427	100pF 5% 50V
2022	4822 124 23002	10µF 16V
2023	2020 552 94427	100pF 5% 50V
2024	2238 869 15101	100pF 5% 50V 0402
2025	2238 869 15101	100pF 5% 50V 0402
2026	2238 869 15101	100pF 5% 50V 0402
2027	2238 869 15101	100pF 5% 50V 0402
2028	2238 869 15101	100pF 5% 50V 0402
2029	2238 869 15101	100pF 5% 50V 0402
2031	2238 869 15101	100pF 5% 50V 0402
2032	2238 869 15101	100pF 5% 50V 0402
2033	2238 869 15101	100pF 5% 50V 0402
2034	2238 869 15101	100pF 5% 50V 0402
2035	5322 124 41945	22µF 20% 35V
2036	2238 586 59812	100nF 20% 50V 0603
2037	2238 586 59812	100nF 20% 50V 0603
2038	5322 124 41945	22µF 20% 35V
2039	2238 586 59812	100nF 20% 50V 0603
2040	5322 124 41945	22µF 20% 35V
2042	2422 549 43062	Bead 600Ω at 100MHz
2124	2238 586 59812	100nF 20% 50V 0603
2125	4822 124 12095	100µF 20% 16V
2126	2022 552 05679	1µF 10% 16V 0805
2127	4822 124 12313	22µF 10V 20%
2128	2238 586 59812	100nF 20% 50V 0603
2133	2238 869 15101	100pF 5% 50V 0402
2134	2238 869 15101	100pF 5% 50V 0402
2135	2238 869 15101	100pF 5% 50V 0402
2136	2238 869 15101	100pF 5% 50V 0402
2137	2238 869 15101	100pF 5% 50V 0402
2138	2238 869 15101	100pF 5% 50V 0402
2139	2020 552 94427	100pF 5% 50V
2140	2020 552 94427	100pF 5% 50V
2141	2020 552 94427	100pF 5% 50V
2247	2020 552 94427	100pF 5% 50V
2248	2020 552 94427	100pF 5% 50V
2249	2020 552 94427	100pF 5% 50V
2250	2020 552 94427	100pF 5% 50V
2251	2020 552 94427	100pF 5% 50V
2252	2238 869 15101	100pF 5% 50V 0402
2I24	4822 126 11663	12pF 5% 50V 0603

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3000	4822 051 30101	100Ω 5% 0.062W
3002	4822 051 30101	100Ω 5% 0.062W
3004	4822 117 13632	100kΩ 1% 0603 0.62W
3005	4822 117 13632	100kΩ 1% 0603 0.62W
3006	4822 117 13601	22kΩ 5% 0402
3007	4822 117 13545	100Ω 1% 0402
3008	4822 051 30101	100Ω 5% 0.062W
3010	4822 051 30101	100Ω 5% 0.062W
3011	4822 051 30759	75Ω 5% 0.062W
3012	4822 051 30101	100Ω 5% 0.062W
3014	4822 051 30561	560Ω 5% 0.062W
3015	4822 117 13632	100kΩ 1% 0603 0.62W
3016	4822 117 13632	100kΩ 1% 0603 0.62W
3017	4822 117 13601	22kΩ 5% 0402
3018	4822 051 30759	75Ω 5% 0.062W
3020	4822 117 13545	100Ω 1% 0402
3022	4822 051 30101	100Ω 5% 0.062W
3023	4822 051 30759	75Ω 5% 0.062W
3024	3198 031 05610	560Ω 5% 0.01W 0402
3025	4822 051 30101	100Ω 5% 0.062W
3026	4822 051 30101	100Ω 5% 0.062W
3027	4822 117 13601	22kΩ 5% 0402
3028	4822 051 30759	75Ω 5% 0.062W
3029	4822 051 30759	75Ω 5% 0.062W
3030	4822 117 13545	100Ω 1% 0402
3031	4822 051 30101	100Ω 5% 0.062W
3032	4822 051 30759	75Ω 5% 0.062W
3033	3198 031 05610	560Ω 5% 0.01W 0402
3035	4822 051 30101	100Ω 5% 0.062W
3037	4822 051 30759	75Ω 5% 0.062W
3039	4822 051 30472	4.7Ω 5% 0.062W
3044	4822 051 30151	150Ω 5% 0.062W
3045	4822 051 30472	4.7Ω 5% 0.062W
3046	4822 051 30101	100Ω 5% 0.062W
3047	4822 051 30102	1kΩ 5% 0.062W
3048	4822 117 13632	100kΩ 1% 0603 0.62W
3049	4822 051 30151	150Ω 5% 0.062W
3050	4822 051 30101	100Ω 5% 0.062W
3051	4822 051 30102	1kΩ 5% 0.062W
3052	4822 117 13632	100kΩ 1% 0603 0.62W
3060	4822 122 33761	22pF 5% 50V
3065	4822 051 30101	100Ω 5% 0.062W
3070	4822 117 13601	22kΩ 5% 0402
3071	4822 117 13545	100Ω 1% 0402
3072	4822 051 30101	100Ω 5% 0.062W
3073	3198 031 05610	560Ω 5% 0.01W 0402
3074	4822 051 30759	75Ω 5% 0.062W
3075	4822 051 30759	75Ω 5% 0.062W
3076	4822 117 13601	22kΩ 5% 0402
3077	4822 117 13545	100Ω 1% 0402
3078	4822 051 30101	100Ω 5% 0.062W
3079	3198 031 05610	560Ω 5% 0.01W 0402
3080	4822 051 30759	75Ω 5% 0.062W
3081	4822 051 30223	22kΩ 5% 0.062W
3082	4822 051 30101	100Ω 5% 0.062W
3083	4822 051 30561	560Ω 5% 0.062W
3084	4822 051 30101	100Ω 5% 0.062W
3153▲	4822 117 11151	1Ω 5%
3154	4822 117 10361	680Ω 1% 0.1W
3999	4822 051 30101	100Ω 5% 0.062W
9100	4822 117 13605	Jumper 0402
9101	4822 117 13605	Jumper 0402
9104	4822 117 13605	Jumper 0402
9105	4822 117 13605	Jumper 0402
9106	4822 117 13605	Jumper 0402
9107	4822 117 13605	Jumper 0402
9210	4822 117 13605	Jumper 0402
9222	4822 117 13605	Jumper 0402

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5000	2422 549 42896	Bead 120Ω 100MHz
5100	2422 549 43769	Bead 30Ω at 100MHz

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6000	4822 130 11416	PDZ6.8B
6001	4822 130 11416	PDZ6.8B
6002	4822 130 11416	PDZ6.8B
6003	4822 130 11416	PDZ6.8B
6004	4822 130 10328	BAV99W
6005	4822 130 11416	PDZ6.8B
6006	4822 130 11416	PDZ6.8B
6007	4822 130 11416	PDZ6.8B
6008	4822 130 11416	PDZ6.8B
6009	4822 130 11416	PDZ6.8B
6010	4822 130 10328	BAV99W
6011	4822 130 11416	PDZ6.8B
6012	4822 130 11416	PDZ6.8B
6013	4822 130 11416	PDZ6.8B
6014	4822 130 10328	BAV99W
6015	4822 130 11416	PDZ6.8B
6017	4822 130 11416	PDZ6.8B
6018	4822 130 11416	PDZ6.8B
6019	4822 130 11416	PDZ6.8B
6021	4822 130 11416	PDZ6.8B
6022	4822 130 11416	PDZ6.8B
6023	4822 130 11416	PDZ6.8B
6024	4822 130 11416	PDZ6.8B
6025	4822 130 11416	PDZ6.8B
6026	4822 130 11416	PDZ6.8B
6027	4822 130 11416	PDZ6.8B
6029	4822 130 11416	PDZ6.8B
6030	4822 130 11416	PDZ6.8B
6040	4822 130 11416	PDZ6.8B
6041	4822 130 11416	PDZ6.8B
6045	4822 130 10328	BAV99W
6046	4822 130 11416	PDZ6.8B
6047	4822 130 10328	BAV99W
6048	4822 130 11416	PDZ6.8B
6049	4822 130 10328	BAV99W
6050	4822 130 11416	PDZ6.8B
6102	9322 102 64685	UDZ2.7B

7000	3198 010 42310	BC847BW
7001	3198 010 42310	BC847BW
7002	3198 010 42310	BC847BW
7004	9340 425 20115	BC847BS
7010	3198 010 42310	BC847BW
7011	3198 010 42310	BC847BW
7012	3198 010 42310	BC847BW

Audio Panel [C]

Various

1735	2422 025 16382	Connector 3p m
1736	4822 267 10735	Connector 3p
1M02	2422 025 11244	Connector 7p m
1M52	2422 025 10769	Connector 9p m

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2D00	3198 017 34730	47nF 16V 0603
2D01	5322 126 11578	1nF 10% 50V 0603
2D03	2238 916 11552	1.5nF 5% 25V 0603
2D04	2238 916 11552	1.5nF 5% 25V 0603
2D05	2022 552 05679	1µF 10% 16V 0805
2D06	4822 124 80061	1000µF 20% 25V
2D07	4822 126 14585	100nF 10% 0805 50V
2D08	4822 126 14247	1.5nF 50V 0603
2D09	4822 126 14247	1.5nF 50V 0603
2D10	2020 552 96828	470nF 20% 25V
2D12	4822 126 14585	100nF 10% 0805 50V
2D13	4822 124 80061	1000µF 20% 25V
2D14	4822 126 14585	100nF 10% 0805 50V
2D16	4822 122 33741	10pF 10% 50V
2D17	4822 122 33741	10pF 10% 50V
2D18	4822 122 33741	10pF 10% 50V
2D19	4822 122 33741	10pF 10% 50V
2D20	4822 126 14585	100nF 10% 0805 50V
2D21	4822 126 14585	100nF 10% 0805 50V
2D25	3198 017 34730	47nF 16V 0603
2D26	5322 126 11578	1nF 10% 50V 0603
2D28	2238 916 11552	1.5nF 5% 25V 0603
2D29	2238 916 11552	1.5nF 5% 25V 0603
2D30	2022 552 05679	1µF 10% 16V 0805
2D31	4822 124 80061	1000µF 20% 25V
2D32	4822 126 14585	100nF 10% 0805 50V
2D33	4822 126 14247	1.5nF 50V 0603
2D34	4822 126 14247	1.5nF 50V 0603
2D35	2020 552 96828	470nF 20% 25V
2D37	4822 126 14585	100nF 10% 0805 50V
2D38	4822 124 80061	1000µF 20% 25V
2D39	4822 126 14585	100nF 10% 0805 50V
2D40	2222 580 15649	100nF 10% 50V 0805
2D44	2238 586 59812	100nF 20% 50V 0603
2D45	2238 586 59812	100nF 20% 50V 0603

2D46	4822 122 33741	10pF 10% 50V
2D47	4822 122 33741	10pF 10% 50V
2DD1	2020 552 94427	100pF 5% 50V
2DD4	4822 126 14247	1.5nF 50V 0603
2DD8	5322 126 11583	10nF 10% 50V 0603
2DE0	4822 126 14247	1.5nF 50V 0603
2DF0	2022 552 05679	1µF 10% 16V 0805
2DF2	4822 126 14585	100nF 10% 0805 50V
2DF3	4822 126 14585	100nF 10% 0805 50V
2DF9	5322 126 11583	10nF 10% 50V 0603

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3999	4822 051 30102	1kΩ 5% 0.062W
3D01	3198 021 38220	8.2kΩ 5% 0.062W 0603
3D02	4822 051 30333	33kΩ 5% 0.062W
3D05	4822 051 30223	22kΩ 5% 0.062W
3D06	4822 051 30102	1kΩ 5% 0.062W
3D07	4822 051 30681	680Ω 5% 0.062W
3D08	4822 051 30223	22kΩ 5% 0.062W
3D09	4822 051 30123	12kΩ 5% 0.1W
3D10	4822 051 30561	560Ω 5% 0.062W
3D11	4822 051 30392	3.9Ω 5% 0.063W 0603
3D12	4822 117 13632	100kΩ 1% 0603 0.62W
3D13	4822 051 30103	10kΩ 5% 0.062W
3D14	4822 051 30561	560Ω 5% 0.062W
3D15	3198 013 03310	330Ω 20% 0.5W
3D16	4822 051 30223	22kΩ 5% 0.062W
3D17	2322 762 60107	0.1Ω 5% 2512
3D18	3198 021 34780	4.7Ω 5% 0603
3D19	4822 051 30333	33kΩ 5% 0.062W
3D26	3198 021 38220	8.2kΩ 5% 0.062W 0603
3D27	4822 051 30333	33kΩ 5% 0.062W
3D30	4822 051 30223	22kΩ 5% 0.062W
3D31	4822 051 30102	1kΩ 5% 0.062W
3D32	4822 051 30681	680Ω 5% 0.062W
3D33	4822 051 30223	22kΩ 5% 0.062W
3D34	4822 051 30123	12kΩ 5% 0.1W
3D35	4822 051 30561	560Ω 5% 0.062W
3D36	4822 051 30392	3.9Ω 5% 0.063W 0603
3D37	4822 117 13632	100kΩ 1% 0603 0.62W
3D38	4822 051 30103	10kΩ 5% 0.062W
3D39	4822 051 30561	560Ω 5% 0.062W
3D40	3198 013 03310	330Ω 20% 0.5W
3D41	4822 051 30223	22kΩ 5% 0.062W
3D42	2322 762 60107	0.1Ω 5% 2512
3D43	3198 021 34780	4.7Ω 5% 0603
3D46	4822 051 30223	22kΩ 5% 0.062W
3D48	4822 051 30223	22kΩ 5% 0.062W
3D69	4822 051 30223	22kΩ 5% 0.062W
3D70	4822 051 30223	22kΩ 5% 0.062W
3DD0▲	5322 117 11726	10Ω 5%
3DD1	4822 051 30153	15kΩ 5% 0.062W
3DD2	4822 117 12925	47kΩ 1% 0.063W 0603
3DD3	4822 051 30223	22kΩ 5% 0.062W
3DD7	4822 051 30471	47Ω 5% 0.062W
3DF2	4822 117 12891	220kΩ 1%
3DF3	4822 117 12891	220kΩ 1%
3DF4	4822 117 12925	47kΩ 1% 0.063W 0603
3DF5	4822 051 30272	2.7kΩ 5% 0.062W
3DF6	4822 051 30223	22kΩ 5% 0.062W
3DF7	4822 117 12925	47kΩ 1% 0.063W 0603
3DF8	4822 051 30272	2.7kΩ 5% 0.062W
3DF9	4822 117 12925	47kΩ 1% 0.063W 0603
3DG0	4822 051 30472	4.7Ω 5% 0.062W
3DG1	4822 051 30103	10kΩ 5% 0.062W
3DG2	4822 117 12925	47kΩ 1% 0.063W 0603
3DG3	4822 117 12925	47kΩ 1% 0.063W 0603
3DG4	4822 051 30472	4.7Ω 5% 0.062W
3DG5	4822 117 12925	47kΩ 1% 0.063W 0603
3DG6	4822 117 12925	47kΩ 1% 0.063W 0603
3DG7	4822 117 12925	47kΩ 1% 0.063W 0603
3DH0	4822 117 12925	47kΩ 1% 0.063W 0603
3DH1	4822 051 30222	2.2kΩ 5% 0.062W
3DH2	4822 117 12925	47kΩ 1% 0.063W 0603
3DH4	4822 051 30333	33kΩ 5% 0.062W
3DH5	4822 117 12925	47kΩ 1% 0.063W 0603
3DH6	4822 051 30102	1kΩ 5% 0.062W
3DH7	4822 117 13632	100kΩ 1% 0603 0.62W

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5D00	2422 536 00972	33µH 10% TSL1112
5D01	4822 157 11411	Bead 80Ω at 100MHz
5D02	4822 157 11411	Bead 80Ω at 100MHz
5D05	4822 157 11411	Bead 80Ω at 100MHz
5D06	4822 157 11411	Bead 80Ω at 100MHz
5D25	2422 536 00972	33µH 10% TSL1112
5D26	4822 157 11411	Bead 80Ω at 100MHz
5D27	4822 157 11411	Bead 80Ω at 100MHz

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6DF0	4822 130 11397	BAS316
6DF1	9340 548 69115	PDZ27B
6DF2	4822 130 11397	BAS316

7D00	9322 213 18668	LM393PW
7D05	3198 010 42310	BC847BW
7D06	3198 010 44350	BC807-25W
7D07	3198 010 42310	BC847BW
7D08	3198 010 42320	BC857BW
7D09	9340 219 30115	BC817-25W
7D10	9322 224 40668	FET FDS4559_NL
7D12	3198 010 42320	BC857BW
7D30	3198 010 42310	BC847BW
7D31	3198 010 44350	BC807-25W
7D32	3198 010 42310	BC847BW
7D33	3198 010 42320	BC857BW
7D34	9340 219 30115	BC817-25W
7D35	9322 224 40668	FET FDS4559_NL
7D37	3198 010 42320	BC857BW
7DD0	9340 219 30115	BC817-25W
7DF0	3198 010 42310	BC847BW
7DF1	3198 010 42310	BC847BW
7DF2	3198 010 42320	BC857BW
7DF3	3198 010 42310	BC847BW
7DF5	3198 010 42310	BC847BW
7DF6	3198 010 42320	BC857BW
7DF7	9322 202 89668	LM393P
7DF8	3198 010 42310	BC847BW

Side I/O Panel [D]

Various

1001	2422 026 05133	Connector SVHS 4p f
1002	2422 026 05807	Sckt Cinch 3p f YeWhRd
1005	2422 033 00486	Socket USB 4p F
1010	4822 267 31014	Sckt headphone
1H01	2422 033 00486	Socket USB 4p F
1M36	2422 025 10655	Connector 11p m
8136	3104 311 10733	Cable 11p/1000/11p
8201	2422 076 00706	Cable USB 4p/1100/4p

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2903	2020 552 94427	100pF 5% 50V
2904	2020 552 94427	100pF 5% 50V
2905	2238 916 15641	22nF 10% 25V 0603
2905	3198 017 33330	33nF 20% 16V 0603
2906	2238 916 15641	22nF 10% 25V 0603
2906	3198 017 33330	33nF 20% 16V 0603
2907	4822 126 14249	560pF 10% 50V 0603
2908	4822 126 14249	560pF 10% 50V 0603

⊣WW⊢

3902	4822 051 30759	75Ω 5% 0.062W
3904	4822 051 30759	75Ω 5% 0.062W
3905	4822 051 30222	2.2kΩ 5% 0.062W
3906	4822 051 30102	1kΩ 5% 0.062W
3907	4822 051 30333	33kΩ 5% 0.062W
3908	4822 051 30102	1kΩ 5% 0.062W
3909	4822 051 30333	33kΩ 5% 0.062W
3910	4822 051 30392	3.9Ω 5% 0.063W 0603
3911	4822 051 30103	10kΩ 5% 0.062W
3912	4822 051 30103	10kΩ 5% 0.062W
3999	4822 051 30102	1kΩ 5% 0.062W

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5001	2422 549 44197	Bead 220Ω at 100MHz

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6900	4822 130 11416	PDZ6.8B
6901	4822 130 11416	PDZ6.8B
6902	4822 130 11416	PDZ6.8B
6903	4822 130 11416	PDZ6.8B
6904	4822 130 11416	PDZ6.8B
6905	4822 130 11416	PDZ6.8B
6906	4822 130 11416	PDZ6.8B
6907	4822 130 11416	PDZ6.8B
6908	4822 130 11416	PDZ6.8B
6909	4822 130 11416	PDZ6.8B
6910	4822 130 11416	PDZ6.8B
6911	4822 130 11416	PDZ6.8B

Control Panel [E]

Various

1701	4822 276 13775	Switch 1p 0.1A 12V
1702	4822 276 13775	Switch 1p 0.1A 12V
1703	4822 276 13775	Switch 1p 0.1A 12V
1704	4822 276 13775	Switch 1p 0.1A 12V
1705	4822 276 13775	Switch 1p 0.1A 12V
1706	4822 276 13775	Switch 1p 0.1A 12V
1M01	4822 267 10459	Connector 3p
8101	3104 311 06551	Cable 3p/1300/3p
8101	3104 311 06732	Cable 3p/1500/3p Wh

⊣WW⊢

3002	4822 051 30151	150Ω 5% 0.062W
3002	4822 051 30681	680Ω 5% 0.062W
3003	4822 051 30102	1kΩ 5% 0.062W
3003	4822 051 30391	390Ω 5% 0.062W
3004	4822 051 30102	1kΩ 5% 0.062W
3004	4822 051 30561	560Ω 5% 0.062W
3005	3198 021 31820	1.8kΩ 5% 0.062W 0603
3005	4822 051 30391	390Ω 5% 0.062W
3006	4822 051 30101	100Ω 5% 0.062W
3006	4822 117 12968	820Ω 5% 0.62W
3008	4822 051 30102	1kΩ 5% 0.062W
3009	4822 051 30101	100Ω 5% 0.062W
3999	4822 051 30103	10kΩ 5% 0.062W
3999	4822 117 12968	820Ω 5% 0.62W
9002	4822 051 30101	100Ω 5% 0.062W

LED Panel [J]

Various

1040	9322 206 81667	TSOP34836YA1
1040	9322 223 97668	TSOP36236 IR
1112	3104 328 45811	LED Panel [J]
1M01	2422 025 18738	Connector 3p m
1M20	2422 025 18736	Connector 12p m
1M21	2422 025 18753	Connector 6p m
8121	3104 311 11011	Cable 6p/1k3/6p Wh
8121	3104 311 11781	Cable 6p/1400/6p Wh

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2014	2238 586 59812	100nF 20% 50V 0603
2040	4822 124 12095	100µF 20% 16V
2070	4822 124 12095	100µF 20% 16V
2070	4822 126 14583	470nF 10% 16V 0805
2071	4822 124 23002	10µF 16V

⊣WW⊢

3040	4822 117 13597	330Ω 5% 0.01W 0402
3041	4822 117 13606	10kΩ 5% 0.01W 0402
3042	3198 031 06820	6.8kΩ 5% 0.01W 0402
3051	4822 051 30331	330Ω 5% 0.062W
3051	4822 117 13597	330Ω 5% 0.01W 0402
3053	4822 117 13606	10kΩ 5% 0.01W 0402
3055	4822 051 30103	10kΩ 5% 0.062W
3055	4822 117 13606	10kΩ 5% 0.01W 0402
3056	4822 051 30103	10kΩ 5% 0.062W
3058	4822 117 13606	10kΩ 5% 0.01W 0402
3059	4822 117 13606	10kΩ 5% 0.01W 0402
3061	4822 051 30331	330Ω 5% 0.062W
3061	4822 117 13597	330Ω 5% 0.01W 0402
3063	4822 117 13606	10kΩ 5% 0.01W 0402
3065	4822 117 13606	10kΩ 5% 0.01W 0402
3068	4822 117 13606	10kΩ 5% 0.01W 0402
3069	4822 117 13606	10kΩ 5% 0.01W 0402
3070	2322 705 70475	4.7MΩ 5% 0402
3071	2322 705 70475	4.7MΩ 5% 0402
3071	4822 117 13603	33kΩ 5% 0402
3072	4822 117 13548	1kΩ 5% 0402
3072	4822 117 13606	10kΩ 5% 0.01W 0402
3073	3198 031 03320	3.3kΩ 5% 0402
3074	4822 117 13606	10kΩ 5% 0.01W 0402
3075	3198 031 04720	4.7kΩ 5% 0402
3076	3198 031 03320	3.3kΩ 5% 0402
3077	3198 031 03320	3.3kΩ 5% 0402
3077	4822 117 13606	10kΩ 5% 0.01W 0402
3079	2322 705 70475	4.7MΩ 5% 0402
3999	4822 117 13606	10kΩ 5% 0.01W 0402
9011	4822 117 13605	Jumper 0402
9012	4822 117 13605	Jumper 0402

9015	4822 117 13605	Jumper 0402
9016	4822 117 13605	Jumper 0402
9017	4822 117 13605	Jumper 0402
9041	4822 117 13605	Jumper 0402
9042	4822 117 13605	Jumper 0402
9056	4822 117 13605	Jumper 0402
9071	4822 117 13605	Jumper 0402
9072	4822 117 13605	Jumper 0402
9120	4822 117 13605	Jumper 0402
9121	4822 117 13605	Jumper 0402

6051	4822 130 83915	TLMV3100
6051	9322 218 97685	SML-310VTK
6060	9322 134 46685	SML-310MT
6070	9322 140 63685	TEMD5000

7051	3198 010 42310	BC847BW
7052	4822 130 60373	BC856B
7061	3198 010 42310	BC847BW
7062	4822 130 60373	BC856B
7070	9322 192 63668	LM358P
7070	9322 218 83685	TEMT6000
7071	3198 010 42310	BC847BW

11. Revision List

Manual xxxx xxx xxxx.0

- First release.

Manual xxxx xxx xxxx.1

- Ch. 5.2: Display option code overview updated.
- Ch. 5.3: flowcharts updated.
- Ch. 5.9.4: Stand-by Software Upgrade instructions modified.