SERVICE MANUAL

M590K

notebook

Notebook Computer

M590K

Service Manual

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Version 1.0
March 2006

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About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the ***M590K*** series notebook PC.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.
Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.

Appendix A, Part Lists
Appendix B, Schematic Diagrams

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit (DC Output 20V, 11A minimum AC/DC Adapter.

CAUTION

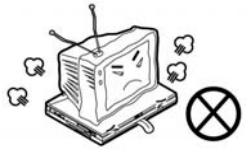
Always disconnect all telephone lines from the wall outlet before servicing or disassembling this equipment.

TO REDUCE THE RISK OF FIRE, USE ONLY NO. 26 AWG OR LARGER, TELECOMMUNICATION LINE CORD

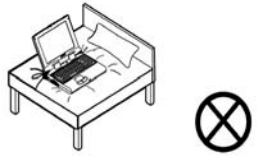
Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

Do not expose the computer to any shock or vibration.	*Do not place it on an unstable surface.*	*Do not place anything heavy on the computer.*
		

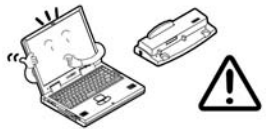
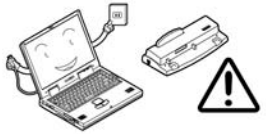
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

Do not expose it to excessive heat or direct sunlight.	*Do not leave it in a place where foreign matter or moisture may affect the system.*	*Don't use or store the computer in a humid environment.*	*Do not place the computer on any surface which will block the vents.*
			

3. **Follow the proper working procedures for the computer**. Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.

Do not turn off the power until you properly shut down all programs.	*Do not turn off any peripheral devices when the computer is on.*	*Do not disassemble the computer by yourself.*	*Perform routine maintenance on your computer.*
			

4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices**.

Use only approved brands of peripherals.	*Unplug the power cord before attaching peripheral devices.*
	

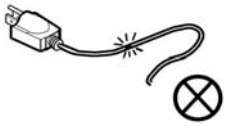
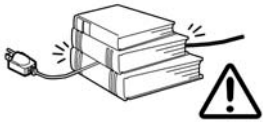
Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies.

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Do not plug in the power cord if you are wet.	*Do not use the power cord if it is broken.*	*Do not place heavy objects on the power cord.*
		

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Related Documents

You may also need to consult the following manual for additional information:

User's Manual on CD
This describes the notebook PC's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC.

Contents

1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***M590K*** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *Windows XP,* etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The ***M590K***series notebook is designed to be upgradeable. See ***"Disassembly" on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the "  " symbol.

The balance of this chapter reviews the computer's technical specifications and features.

System Specifications

Feature	Specification	
Processor Types	Mobile AMD Turion™ 64 Processor (35W), 754-pin Micro-PGA Package Models **ML-28/ ML-32**	(µ0.09) 0.09 Micron Silicon-On-Insulator (SOI) Process Technology, 512KB L2 Cache 1.6GHz/ 1.8GHz/ 2.4GHz
	Mobile AMD Turion™ 64 Processor (35W), 754-pin Micro-PGA Package Models **ML-30/ ML-34/ ML-37/ ML-40/ ML-42**	(µ0.09) 0.09 Micron Silicon-On-Insulator (SOI) Process Technology, 1MB L2 Cache 1.6GHz/ 1.8GHz/ 2.0GHz/ 2.2GHz/ 2.4GHz
	Mobile AMD Turion™ 64 Processor (25W), 754-pin Micro-PGA Package Models **MT-28/ MT-32**	(µ0.09) 0.09 Micron Silicon-On-Insulator (SOI) Process Technology, 512KB L2 Cache 1.6GHz/ 1.8GHz
	Mobile AMD Turion™ 64 Processor (25W), 754-pin Micro-PGA Package Models **MT-30/ MT-34/ MT-37/ MT-40**	(µ0.09) 0.09 Micron Silicon-On-Insulator (SOI) Process Technology, 1MB L2 Cache 1.6GHz/ 1.8GHz/ 2.0GHz/ 2.2GHz
Core Logic	nVIDIA nForce4 SLI Chipset	
LCD	19" WSXGA+ (1680 * 1050) TFT LCD	
Security	Security (Kensington® Type) Lock Slot	BIOS Password
Memory	Two 64-bit wide **DDR** Data Channels Two 200 Pin DDR SODIMM Sockets Supporting **DDR 400/333 MHz** Expandable up to **2GB** (Compatible with 1024MB, 512MB, 256MB **DDR 400/333 MHz** Modules)	
BIOS	One 512KB Flash ROM	Phoenix BIOS
Video Card Options	**NVIDIA GeForce Go 7800 GTX** High Performance Video Card **512MB (Dual VGA)** or **256MB (Single VGA) DDR-III (DDR3)** Video RAM On Board 256 bit Memory Interface PCI Express * 8 by 2 Supports DirectX® 9, SM 3.0 (NVIDIA Only) Modular Design	

Video Card Options

Note that card types, specifications and drivers are subject to continual updates and changes. Check with your service center for the latest details on video cards supported.

Feature	Specification	
Storage Options	One Changeable 2.5" 9.5mm (h) **Serial-ATA II (SATA II)** Hard Disk Drive One Changeable Optical Device Bay - 12.7 mm (h) for Optical CD/DVD Device Drive Options (see *"Optional" on page 1 - 4*)	
Card Reader	Built-In 4-in-1 Card Reader (SD/ MMC/ MS/ MS Pro)	
Audio	SRS **WOW** Surround Sound Technology Inside 3D Enhanced Sound System Sound Blaster PRO™ Compatible	Virtual 4-Channel Sound System S/PDIF Digital Output (5.1 CH) Built-In Microphone 4 * Built-In Speakers Built-In Sub Woofer
Keyboard & Pointing Device	Full Size Winkey Keyboard with Numeric Keypad	Built-In TouchPad (Scroll Functionality Included)
PCMCIA	One Type II PCMCIA 3.3V/5V Socket	
I/O Ports	Five USB 2.0 Ports One Mini-IEEE1394a Port One Serial Port One Infrared Transceiver (IrDA 1.1 / FIR) One DVI-Out Port One Headphone/Speaker-Out Jack One Microphone-In Jack One S/PDIF Out Jack One Line-In Jack for Audio Input	One RJ-11 Jack (Modem) One RJ-45 Giga LAN (Local Area Network) Jack One DC-In Jack One 7-Pin S-Video-Out Jack for TV & HDTV Output (requires adapter) One TV Antenna (Analog/Digital) Jack (Functions with **Optional** TV Tuner Module) One Consumer Infrared Transceiver (Functions with **Optional** TV Tuner Module) One S-Video-In Jack for Video Input (Functions with **Optional** TV Tuner Module)

Feature	Specification	
Communication	Infrared Transceiver Infrared Transfer 1cm ~ 1M Operating Distance 115.2K bps SIR 4M bps FIR IrDA 1.1 Compliant 10/100/1000 BASE-TX Fast Ethernet LAN on board (PCIe Interface) Integrated 56K AC'97 Modem (V.92 Compliant)	802.11 a/b/g Mini-PCI Wireless LAN Module Bluetooth™ Class II V1.2 USB 2.0 Module 1.3M Pixel USB 2.0 Video Camera Module (**Factory Option**) TV Tuner Module (either analog only **OR** analog/digital options) with Mini-PCI Interface (**Factory Option**)
Operating Systems Supported	Windows XP SP2	
Power Management	Supports ACPI 2.0	Supports Hibernate/Stand by Modes
Power	Full Range AC/DC Adapter – AC in 100 ~ 240V, 47 ~ 63Hz DC Output 20V, 11 A (220 Watts) Easy Changeable 12-Cell Smart Lithium-Ion 6600mAH / 14.8V Main Battery	
Environmental Spec	**Temperature** Operating: 5°C ~ 35°C Non-Operating: -20°C ~ 60°C	**Relative Humidity** Operating: 20% ~ 80% Non-Operating: 10% ~ 90%
Physical Dimensions & Weight	476mm (w) * 343mm (d) * 29.5 ~ 47.8mm (h)	6.6kg with 12-Cell Battery
Optional	**Optical Drive Module Options:** DVD/CD-RW Combo Drive Module DVD-Dual Drive Module DVD-Super Multi Drive Module	TV Tuner Module (either analog only **OR** analog/digital options) with Mini-PCI Interface (**Factory Option**) 1.3M Pixel USB 2.0 Video Camera Module (**Factory Option**) DVD Software Player

External Locator - Top View with LCD Panel Open

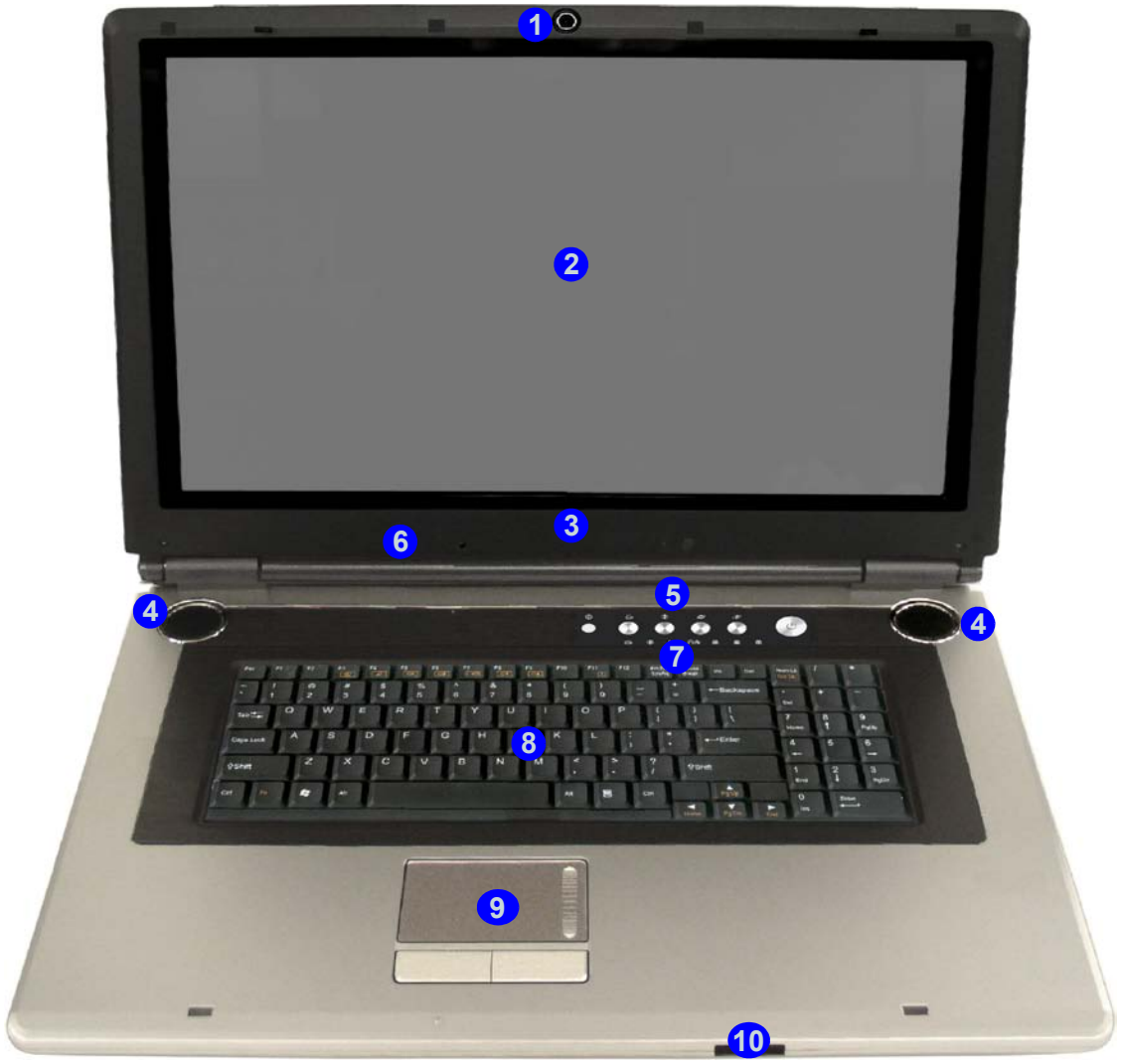
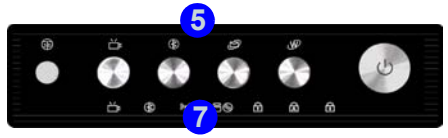


Figure 1
Top View

1. Optional Built-In PC Camera
2. LCD
3. LED Power & Communication Indicators
4. Speakers
5. AP-Key Buttons & Power Button
6. Built-In Microphone
7. LED Status Indicators
8. Keyboard
9. TouchPad and Buttons
10. Consumer Infrared Transceiver*

*Enabled with Optional Mini-PCI TV Tuner Only



External Locator - Front & Rear Views

Figure 2
Front Views

1. LCD Latches
2. Consumer Infrared Transceiver*

*Enabled with Optional Mini-PCI TV Tuner Only

Figure 3
Rear Views

1. 7-Pin S-Video-Out Jack
2. DVI-Out Port
3. DC-In Jack
4. Vent/Fan Intake
5. RJ-11 Phone Jack
6. 2 * USB 2.0 Ports
7. Serial Port
8. S-Video-In Jack*
9. Security Lock Slot

*Enabled with Optional Mini-PCI TV Tuner Only

External Locator - Left & Right Side View

Figure 4
Left Side View

1. S/PDIF-Out Jack
2. Line-In Jack
3. Microphone-In Jack
4. Headphone-Out Jack
5. Optical Device Drive Bay (for CD/DVD Device)

Figure 5
Right Side View

1. PC Card Slot
2. Mini-IEEE 1394a Port
3. 3 * USB 2.0 Ports
4. TV Antenna Jack*
5. 4-in-1 Card Reader
6. Infrared Transceiver
7. RJ-45 LAN Jack

External Locator - Bottom View

Figure 6
Bottom View

1. Battery
2. Battery Release Latch
3. CD/DVD Device Release Latch
4. Hard Disk Bay Cover
5. Vent/Fan Intake
6. Sub Woofer
7. Component Bay Cover
8. Speakers

Overheating

To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

M590K Mainboard Overview - Top (Key Parts)

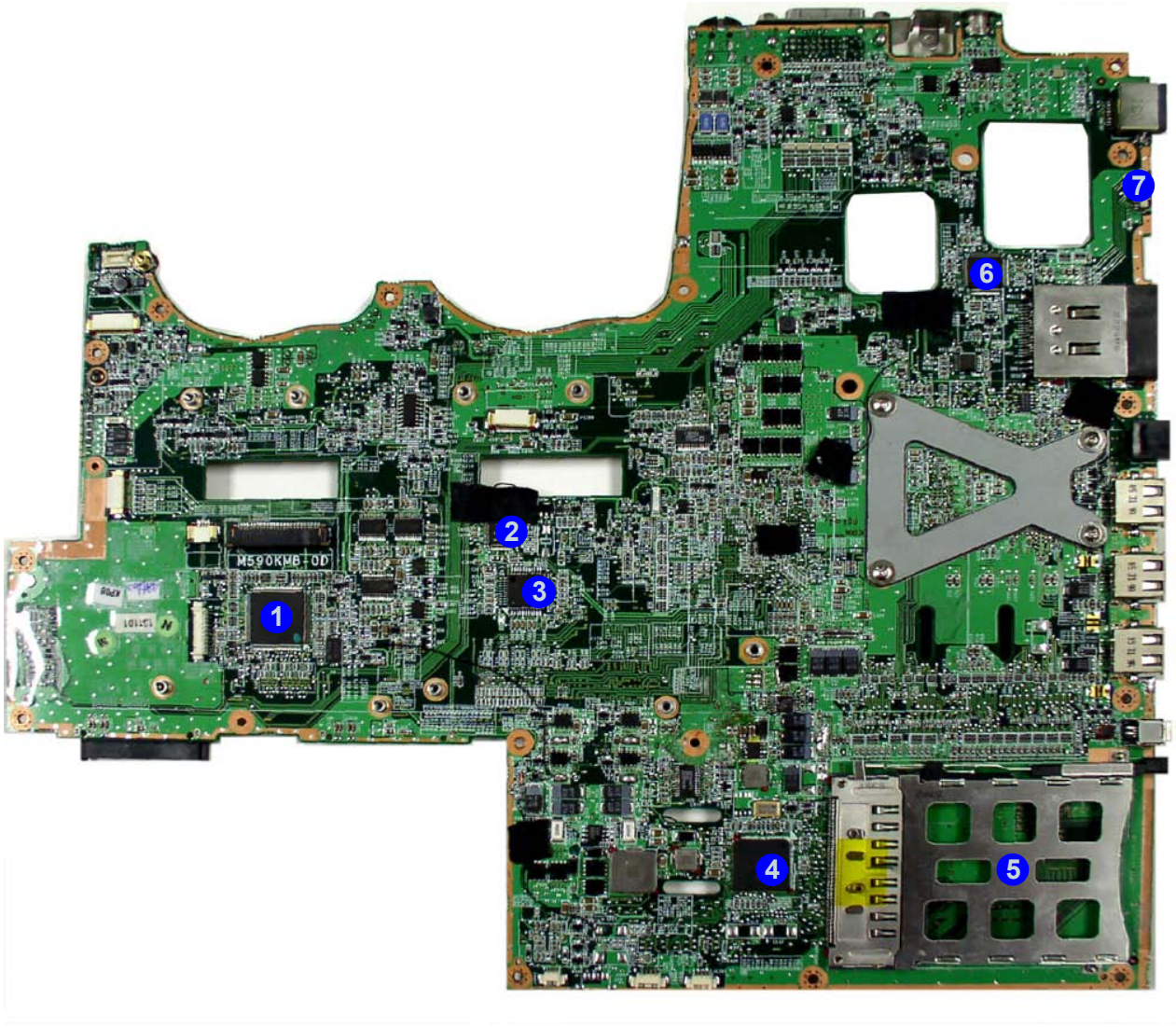


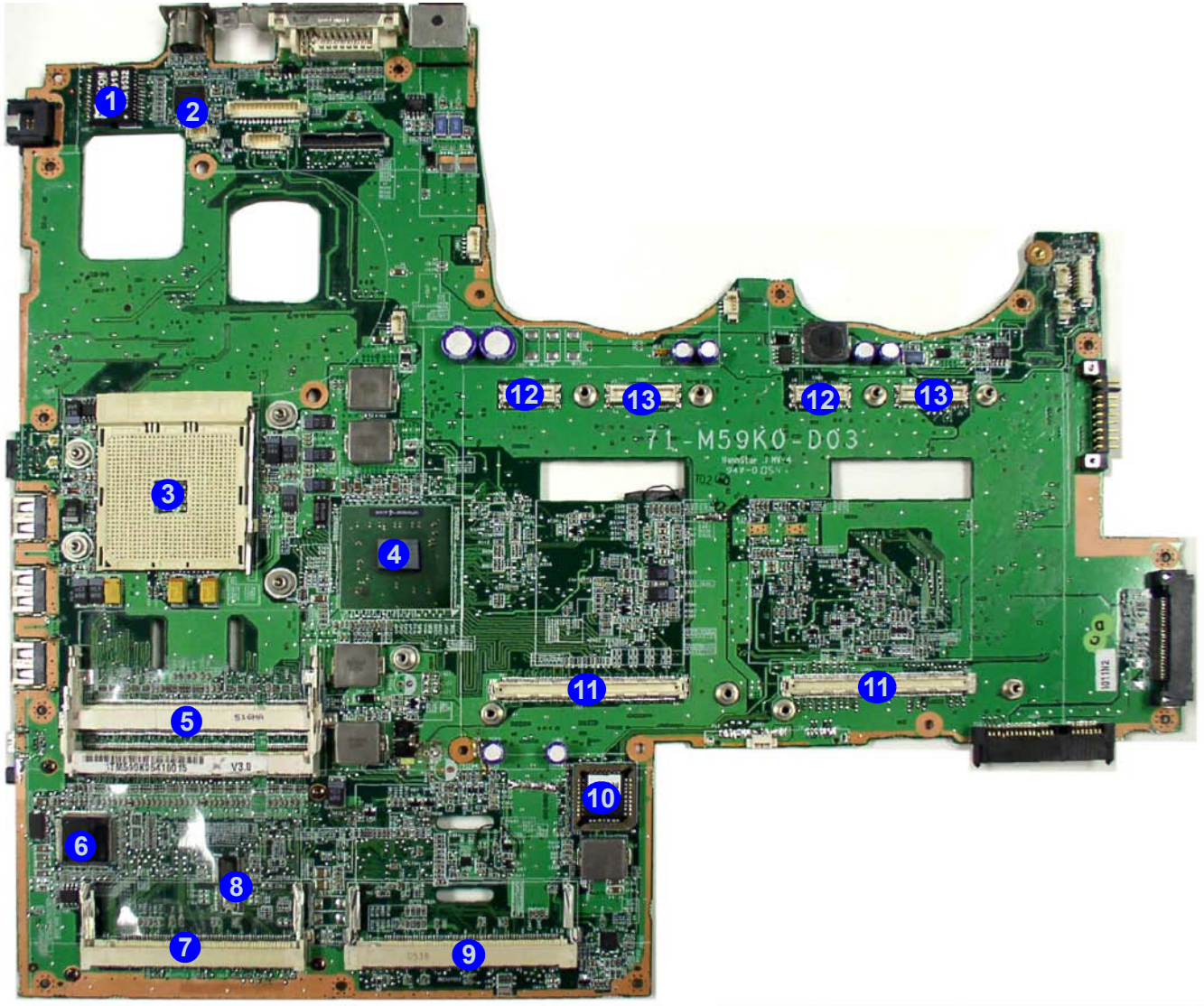
Figure 7
Mainboard Top Key Parts

1. H8S/2111
2. Audio ALC655
3. SRS WOW Surround
4. Ultra Media
5. PC Card Assembl
6. Super I/O PC87383
7. Infrared Transceiver

M590K Mainboard Overview - Bottom (Key Parts)

Figure 8
Mainboard Bottom Key Parts

1. HS5019
2. PCI-E LAN 88E8053
3. CPU Socket (no CPU installed)
4. nVIDIA nForce4 SLI Chipset
5. Memory Slots DDR2 So-DIMM
6. 1394a (TSB43AB22A)
7. Mini-PCI Socket (Wireless Lan Module)
8. ENE Card Control
9. Mini-PCI Socket (TV Tuner Card)
10. Flash BIOS ROM
11. 160-Pin VGA Socket
12. 30-Pin VGA Socket
13. 40-Pin VGA Socket



M590K Mainboard Overview - Top (Connectors)

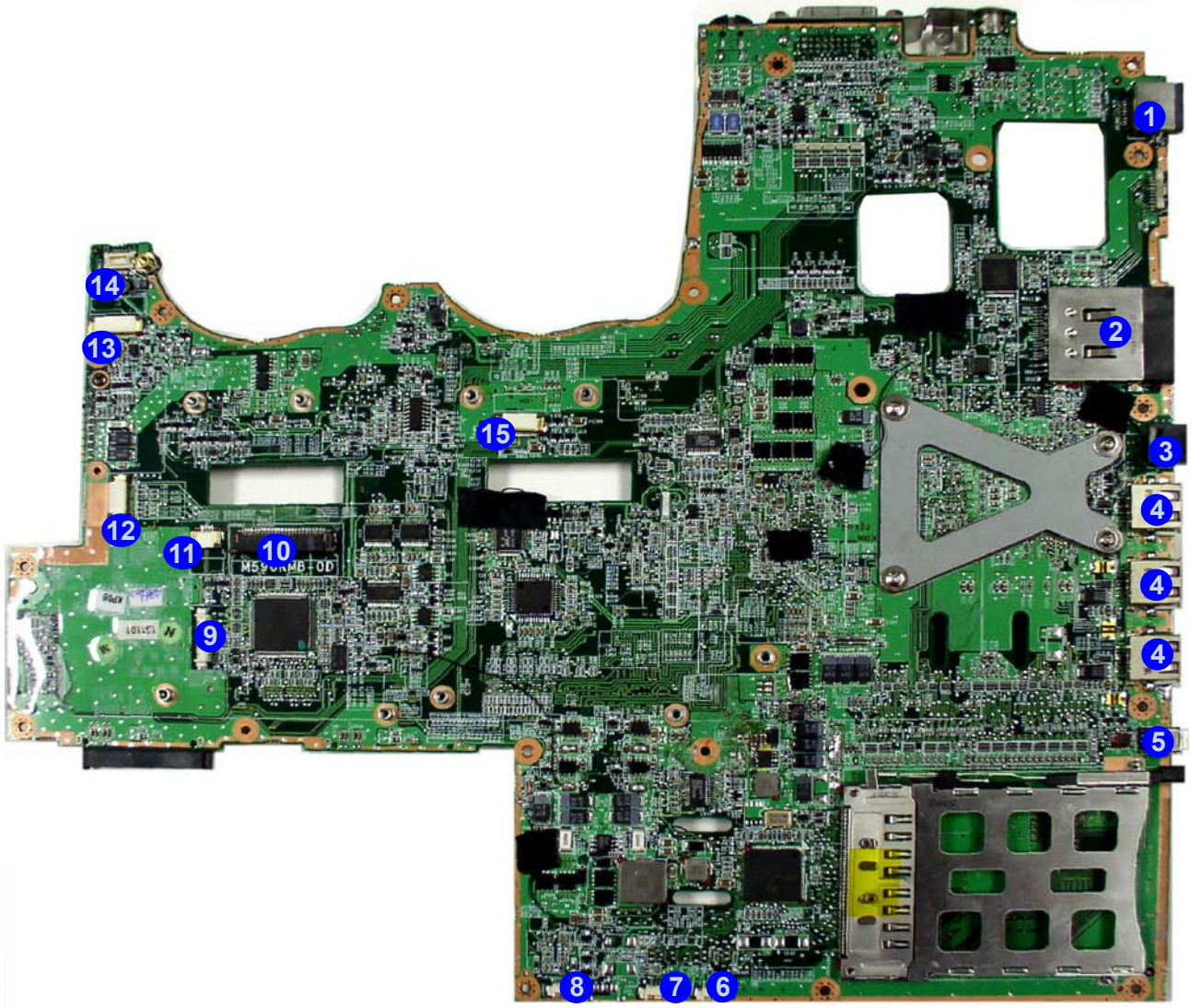


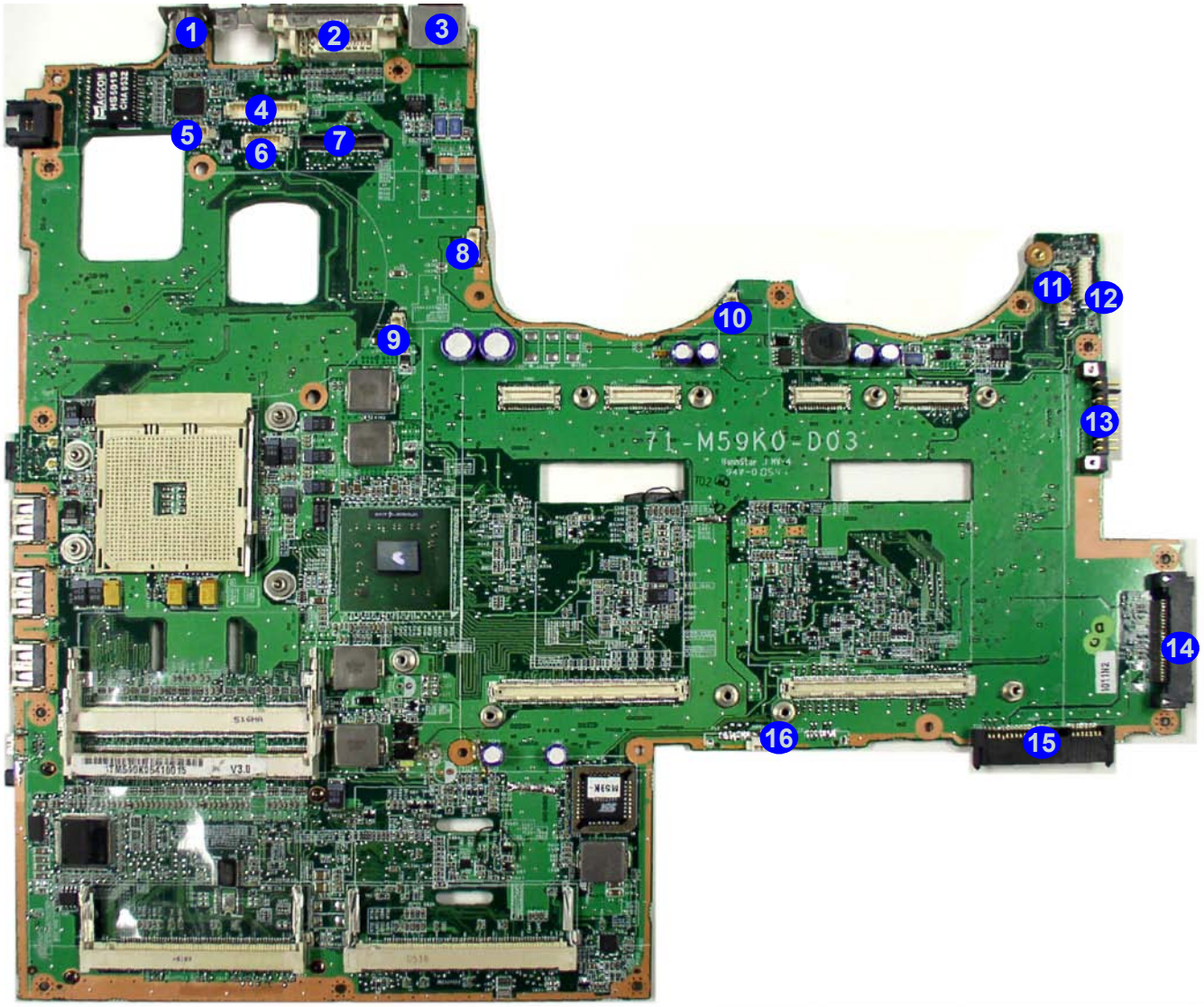
Figure 9
Mainboard Top Connectors

1. RJ-45 Jack
2. 4-in-1 Card Reader Connector
3. TV Antenna Jack
4. USB Port
5. Mini-IEEE 1394a Port
6. Consumer Infrared Transceiver Cable Connector
7. Speaker-3 Cable Connector
8. Speaker-2 Cable Connector
9. Debug Connector
10. Keyboard Cable Connector
11. Touch Pad Cable Connector
12. Audio Cable Connector
13. AP-Key Buttons & Power Button Cable Connector
14. Modem Module Connector
15. LED Cable Connector

M590K Mainboard Overview - Bottom (Connectors)

Figure 10
Mainboard Bottom Connectors

1. 7-Pin S-Video-Out Jack
2. DVI-Out Port
3. DC-In Jack
4. Inventer Board Cable Connector
5. CPU Fan Cable Connector
6. CCD Cable Connector
7. LCD Cable Connector
8. Speaker-1 Cable Connector
9. Chipset Fan Cable Connector
10. VGA Fan Cable Connector
11. VGA Fan Cable Connector
12. Bluetooth Cable Connector
13. Battery Connector
14. CD Connector
15. HDD Connector
16. HDD Fan Cable Connector



2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***M590K*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

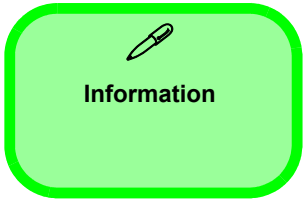
We suggest you completely review any procedure before you take the computer apart.

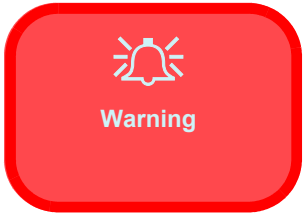
Procedures such as upgrading/replacing the RAM, CD device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a  lists the relevant parts you will have after the disassembly process is complete. **Note**: The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a  will also provide any possible helpful information. A box with a  contains warnings.

An example of these types of boxes are shown in the sidebar.





NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it**. Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it**. Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference**. Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry**. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power**. Avoid accidental shocks, discharges or explosions.
   - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
   - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge**. ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion**. As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean**. Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components**. When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.
Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

To remove the Battery:

1. Remove the battery *page 2 - 5*

To remove the HDD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*

To remove the Optical Device:

1. Remove the battery *page 2 - 5*
2. Remove the Optical device *page 2 - 7*

To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 8*

To remove the Processor:

1. Remove the battery *page 2 - 5*
2. Remove the processor *page 2 - 9*

To remove the VGA Card:

1. Remove the battery *page 2 - 5*
2. Remove the VGA(s) Card *page 2 - 11*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the WLAN module *page 2 - 12*

To remove the TV Tuner Card:

1. Remove the battery *page 2 - 5*
2. Remove the TV Tuner Card *page 2 - 13*

To remove the Bluetooth Module:

1. Remove the battery *page 2 - 5*
2. Remove the Bluetooth Module *page 2 - 14*

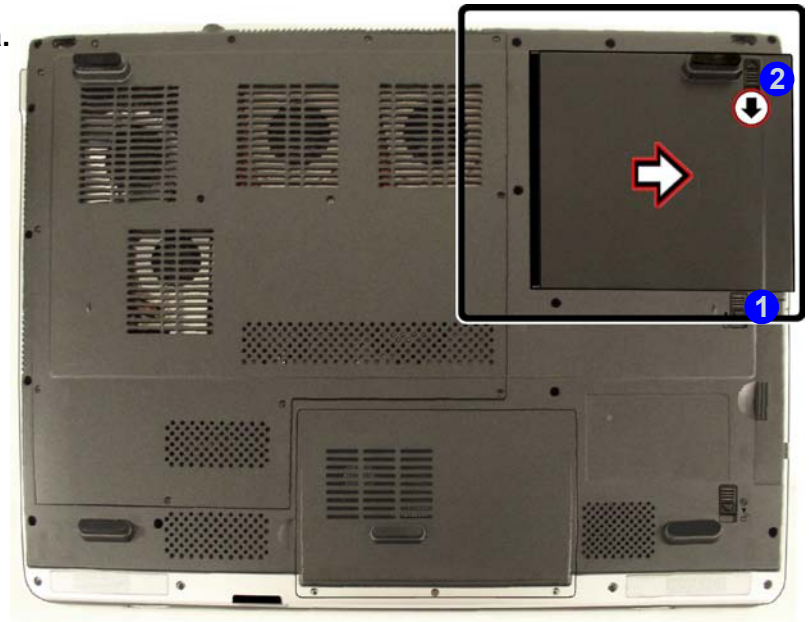
To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 15*

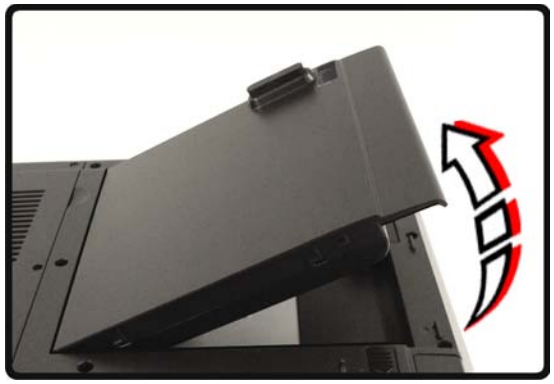
Removing the Battery

1. Turn the computer off, and turn it over.
2. Slide latch 1 towards the unlock symbol and hold it in place, and slide latch 2 in the direction of the arrow.
3. Slide the battery 3 (*Figure c*) out and lift it up and out of the battery bay.

a.



b.



c.

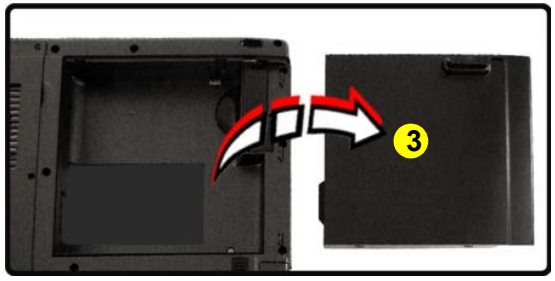


Figure 1
Battery Removal

a. Slide latch at point 1 towards the unlock symbol and hold it in place, and slide latch at point 2 in the direction of the arrow..
b. Slide the battery out.
c. Lift the battery out.

3. Battery

Figure 2
HDD Assembly Removal

a. Remove the screws and the cover.
b. Remove the cover.
c. Slide the HDD assembly in the direction of the arrow .
d. Remove the HDD assembly .
e. Remove the screws and separate the bracket from the HDD.

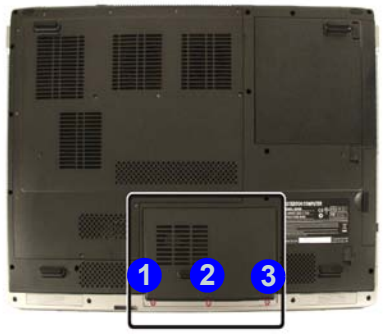
Removing the Hard Disk Drive

The hard disk drive is mounted in a removable case and can be taken out to accommodate other 2.5" serial (SATA II) hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

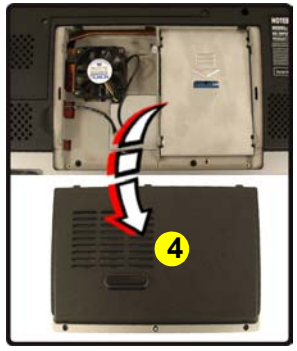
Hard Disk Upgrade Process

1. Turn **off** the computer, and turn it over and remove the battery (*page 2 - 5*).
2. Locate the hard disk bay cover and remove screws 1 - 3.
3. Remove the bay cover 4.
4. Slide the hard disk assembly in the direction of the arrow 5.
5. Remove the hard disk assembly (*Figure d*).
6. Remove screws 6 - 9 and separate the bracket 10 from the hard disk 11 .
7. Reverse the process to install a new hard disk(s).

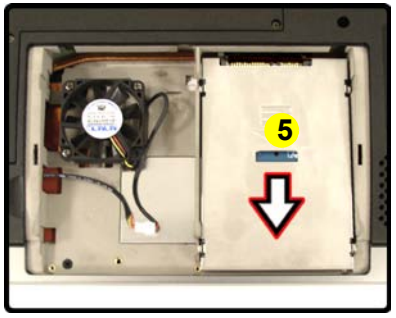
a.



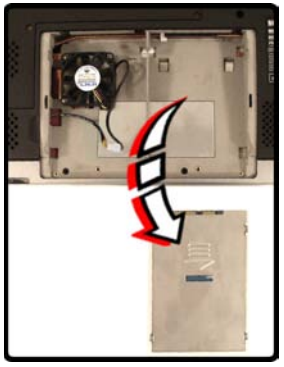
b.



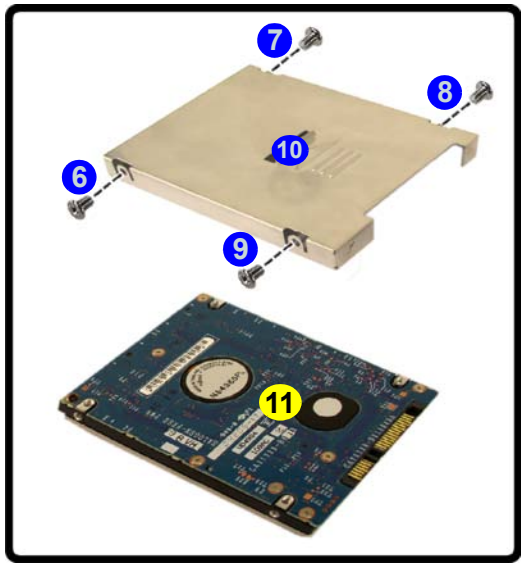
c.



d.



e.



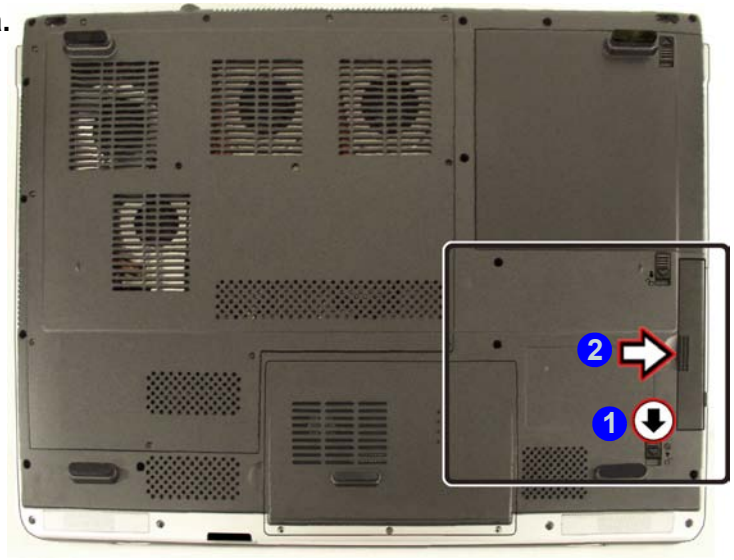
4. HDD Bay Cover
5. HDD Assembly
11. HDD

- 7 Screws

Removing the Optical (CD/DVD) Device

1. Turn **off** the computer, and turn it over and remove the battery (*page 2 - 5*).
2. Slide latch 1 towards the unlock symbol and hold it in place.
3. Slide the optical device 3 out of the computer at point 2.
4. Restart the computer to allow it to automatically detect the new device.

a.



b.

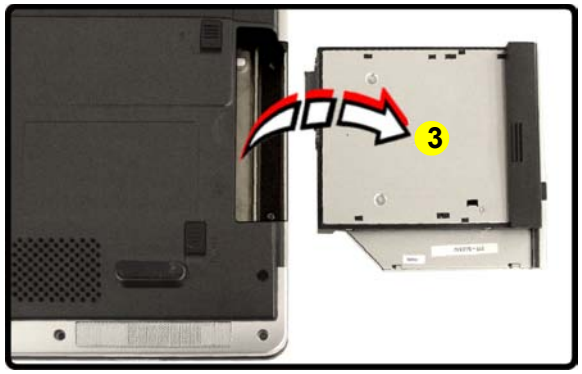


Figure 3
Optical Device Removal

a. Slide latch at point 1 towards the unlock symbol and hold it in place.
b. Slide the optical device out of the computer at point 2.

3. Optical Devive

Figure 4
RAM Module Removal

a. Remove the screws.
b. Remove the cover.
c. Pull the release latch(es).
d. Remove the module(s).

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

14. Component Bay Cover
18. RAM Module

- 13 Screws

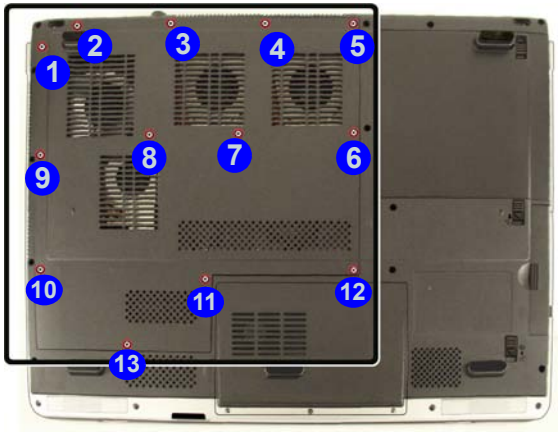
Removing the System Memory (RAM)

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR 400/333 MHz. The main memory can be expanded up to 2GB. The SO-DIMM modules supported are 256MB, 512MB and 1024MB DDR 400/333 MHz Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

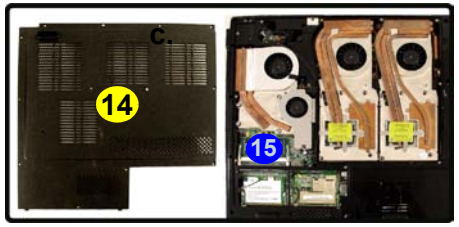
Memory Upgrade Process

1. Turn **off** the computer, and turn it over remove the battery (*page 2 - 5*).
2. Locate the component bay cover and remove screws 1 - 13.
3. Remove the bay cover 14.
4. The RAM module(s) will be visible at point 15 on the mainboard.
5. Gently pull the two release latches(16 & 17) on the sides of the memory socket in the direction indicated by the arrows (*Figure c*).

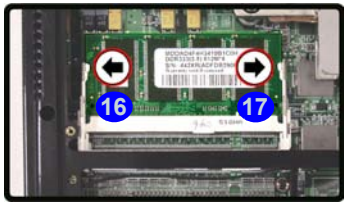
a.



b.



c.



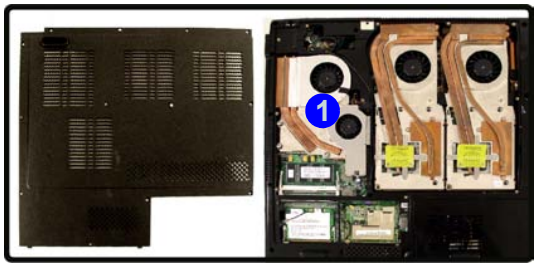
d.

6. The RAM module(s) 18 will pop-up (*Figure d*), and you can then remove it.
7. Pull the latches to release the second module if necessary.
8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
9. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
10. Press the module down towards the mainboard until the slot levers click into place to secure the module.
11. Replace the bay cover and the screws (*Figure a*).
12. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

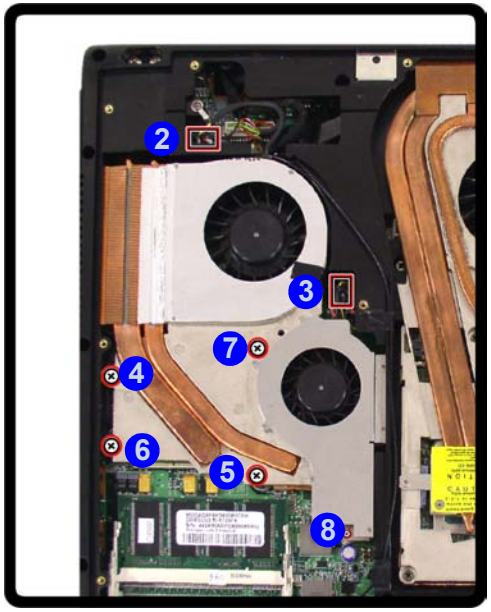
Removing the Processor

1. Turn **off** the computer, and turn it over, remove the battery (*page 2 - 5*) and remove the component bay cover (*page 2 - 8*).
2. The heat sink will be visible at point 1 on the mainboard
3. Carefully disconnect cables 2 and 3, then remove the screws 4 - 8 from the heat sink in the order indicated (*Figure b*).
4. Carefully lift the heat sink 9 (*Figure 5c*) up off the computer.

a.



b.



c.

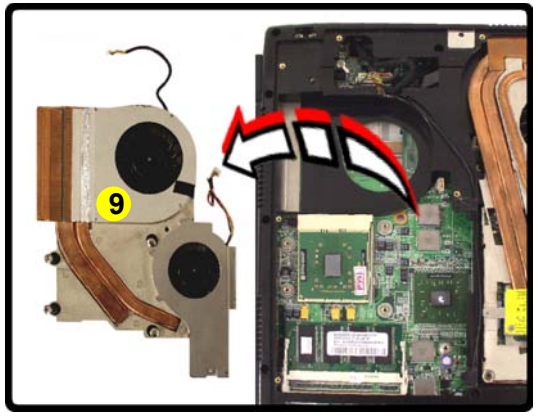


Figure 5
Processor Removal

a. Locate the heat sink.
b. Disconnect the cables and remove the screws in the order indicated.
c. Remove the heat sink.

8. Heat Sink

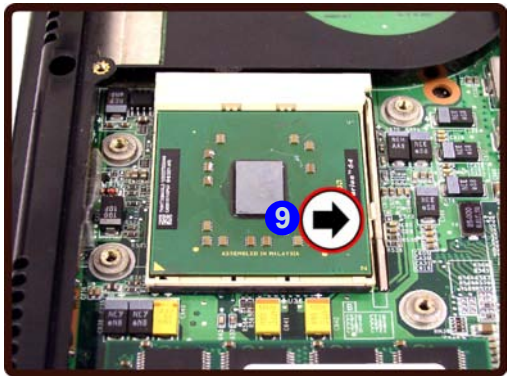
- 5 Screws

Figure 6
Processor Removal (cont'd)

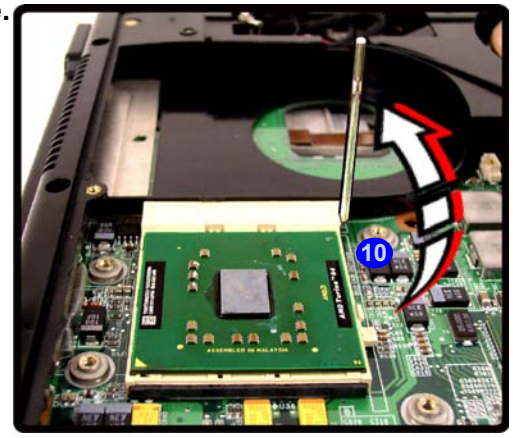
d. Press and hold the latch down.
e. Lift the latch to unlock the CPU.
f. Lift the CPU out of the socket.

5. Press down and hold the latch 9 (with the latch held down you will be able to release it).
6. Move the latch 10 fully in the direction indicated to unlock the CPU.
7. Carefully (it may be hot) lift the CPU 11 up out of the socket (***Figure f***).
8. Reverse the process to install a new CPU.
9. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

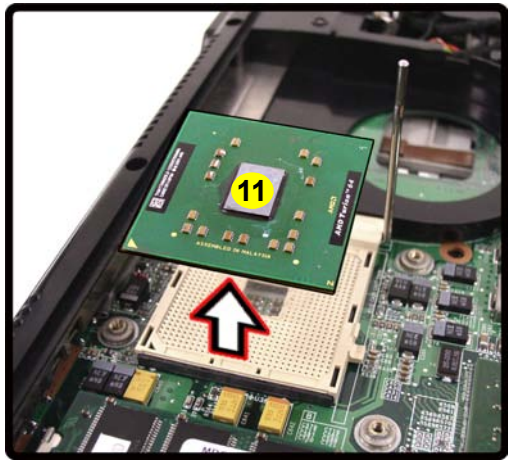
d.



e.



f.



Caution

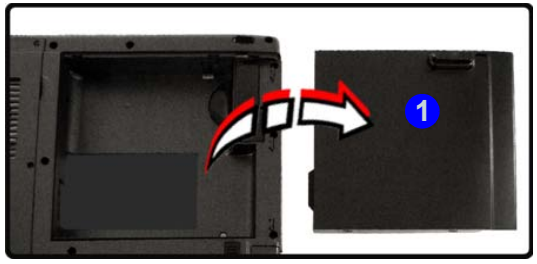
The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

11. CPU

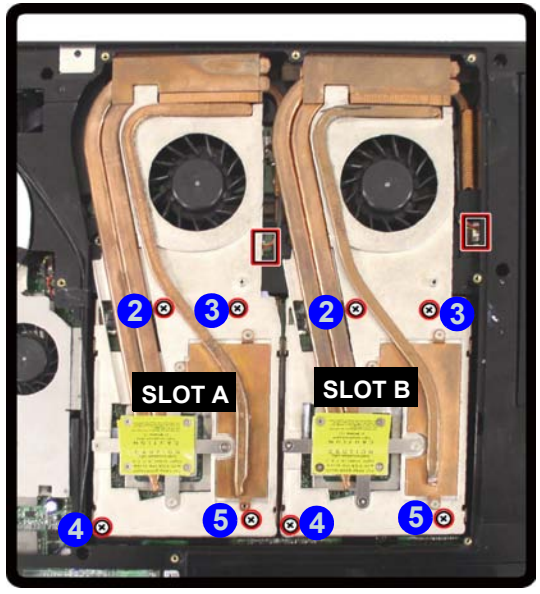
Removing the VGA Card(s)

1. Turn **off** the computer, and turn it over, remove the battery (***page 2 - 5***) and remove the component bay cover (***page 2 - 8***).
2. The VGA Card(s) will be visible at point 1 on the mainboard.
3. Remove screws 2 - 5 (***Figure b***).
4. Carefully (a cable is still connected) grip the plastic tag and lift the video card up 10 off the sockets 6 - 8 and disconnect cable 9.
5. Reverse the process to install the new VGA Card.

a.



b.



c.

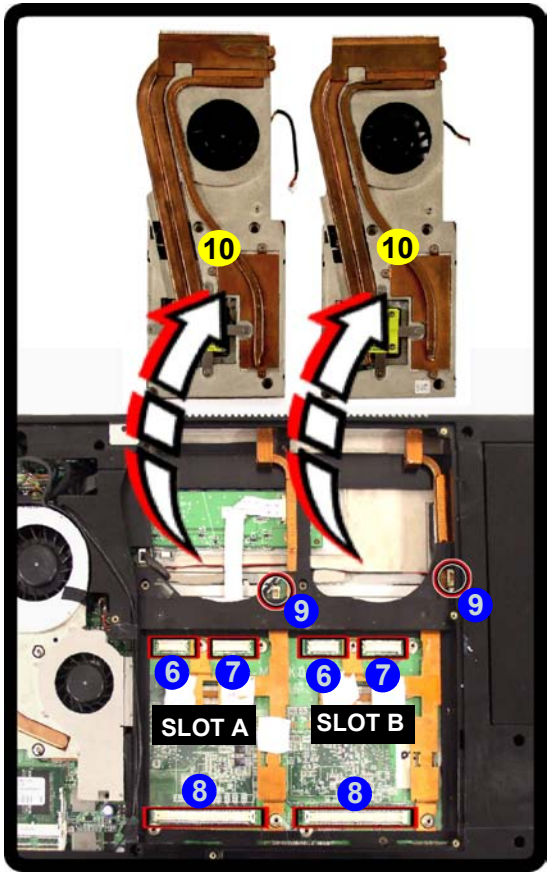


Figure 7
VGA Card(s) Removal

a. Locate the heat sink.
b. Remove the screws.
c. Lift the VGA card up off the sockets and disconnect the cable.

Single Video Card

Note that if you are using a single video card, it must be inserted in **Slot A** (i.e. the left sided slot when viewed from the bottom with the front of the machine pointing towards you).

10. VGA Card(s)

- 4 Screws

Removing the Wireless LAN Module

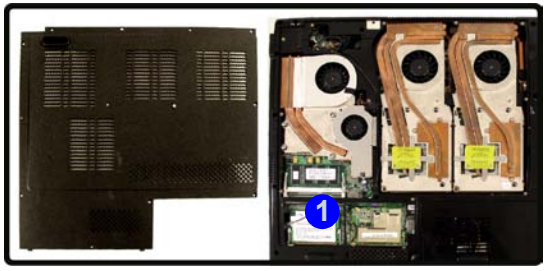
1. Turn **off** the computer, and turn it over, remove the battery (***page 2 - 5***) and remove the component bay cover (***page 2 - 8***).
2. The wireless LAN module will be visible at point 1 on the mainboard.
3. Carefully disconnect cable 2, then gently pull the two release latches (3 - 4) on the sides of the module socket.
4. The wireless LAN module 5 (***Figure c***) will pop-up, and you can remove it.

Figure 8
Wireless LAN Module Removal

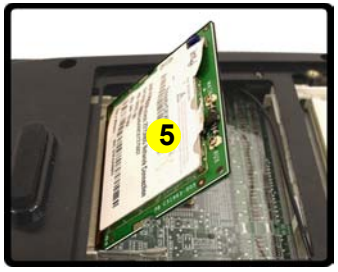
a. Locate the WLAN.
b. Disconnect the cable and pull the release latches.
c. The WLAN module will pop up.
d. Remove the Wireless LAN module.

Note: Make sure you reconnect the antenna cable to the "Main" socket (***Figure b***).

a.



c.



b.

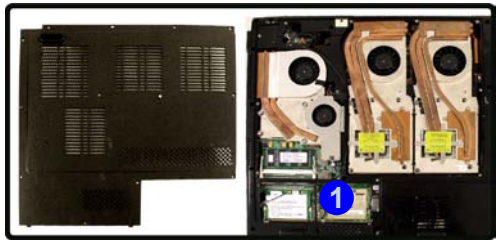
d.

5.Wireless LAN Module

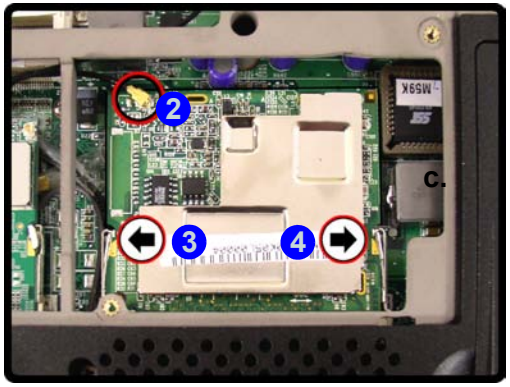
Removing the TV Tuner Card

1. Turn **off** the computer, and turn it over, remove the battery (*page 2 - 5*) and remove the component bay cover (*page 2 - 8*).
2. The TV Tuner card will be visible at point 1 on the mainboard.
3. Carefully disconnect cable 2, then gently pull the two release latches (3 - 4) on the sides of the module socket.
4. The TV Tuner card 5 (*Figure c*) will pop-up, and you can remove it.

a.



b.



c.

d.

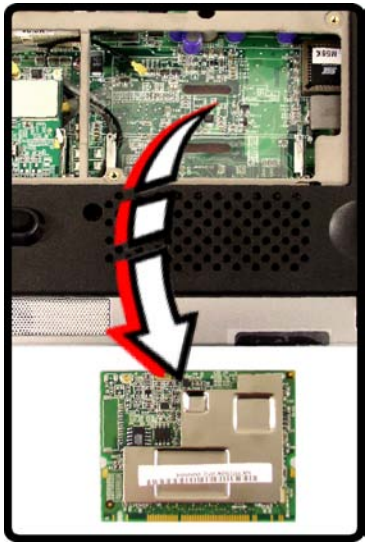


Figure 9
TV Tuner Card Removal

a. Locate the TV Tuner card.
b. Disconnect the cable and pull the release latches.
c. The TV Tuner card will pop up.
d. Remove the TV Tuner card.

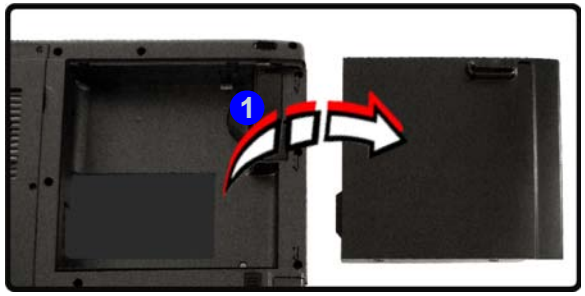
5. TV Tuner Card

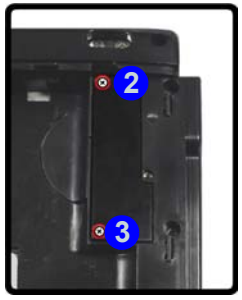
Figure 10
Bluetooth Module Removal

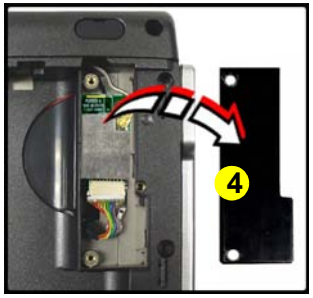
a. Remove the battery and locate the Bluetooth module bay cover.
b. Remove the screws.
c. Remove the cover.
d. Disconnect the cable and the connector from the bluetooth module.
e. Lift the Bluetooth module out.

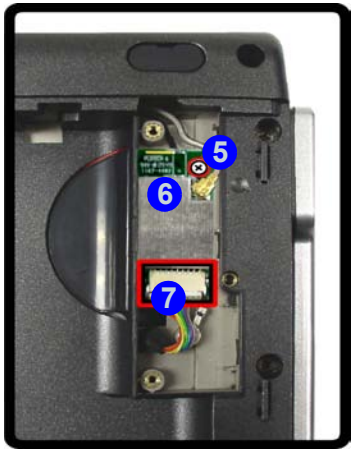
Removing the Bluetooth Module

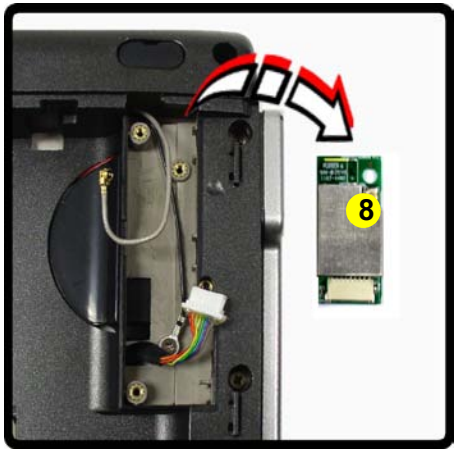
1. Turn **off** the computer, and turn it over, remove the battery (***page 2 - 5***).
1. The Bluetooth module bay cover 1 is located under the battery.
2. Remove screws 2 and 3 from the bay cover.
3. Remove the bay cover 4.
4. Remove screw 5 then disconnect the cable 6 and carefully separate the Bluetooth Module from the connector 7 (***Figure d***).
5. Lift the Bluetooth Module 8 (***Figure e***) up and off the computer.

a.


b.


c.


d.


e.


4. Bluetooth Module Bay Cover
8. Bluetooth Module

- 3 Screws

Removing the Keyboard

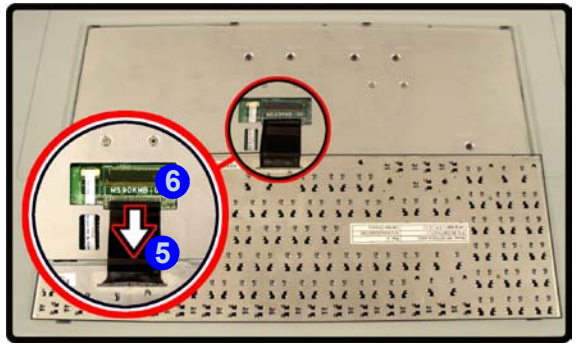
1. Turn **off** the computer, and remove the battery (*page 2 - 5*).
2. Press the **four** keyboard latches at the top of the keyboard to elevate the keyboard from its normal position (you may need to use a small screwdriver to do this).
3. Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable 5 (*Figure b*).
4. Disconnect the keyboard ribbon cable 5 from the locking collar socket 6.
5. Carefully lift up the keyboard 7 (*Figure c*) off the computer.

Figure 11
Keyboard Removal

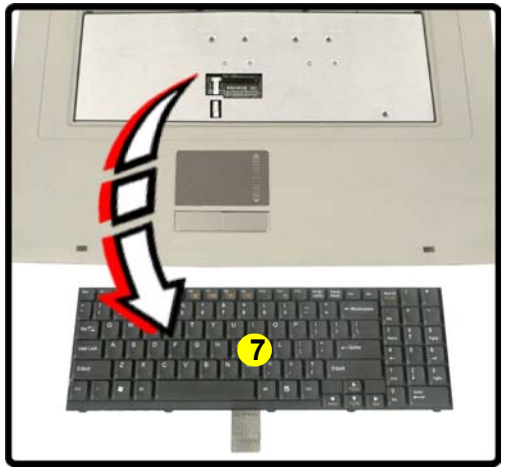
a. Press the four latches to release the keyboard.
b. Lift the keyboard up and disconnect the cable from the locking collar.
c. Remove the keyboard.

a.

b.



c.



d.

Re-Inserting the Keyboard

When re-inserting the keyboard firstly align the **five** keyboard tabs at the bottom (*Figure d*) at the bottom of the keyboard with the slots in the case.

7. Keyboard

Appendix A:.

Appendix A:Part Lists

This appendix breaks down the ***M590K***series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

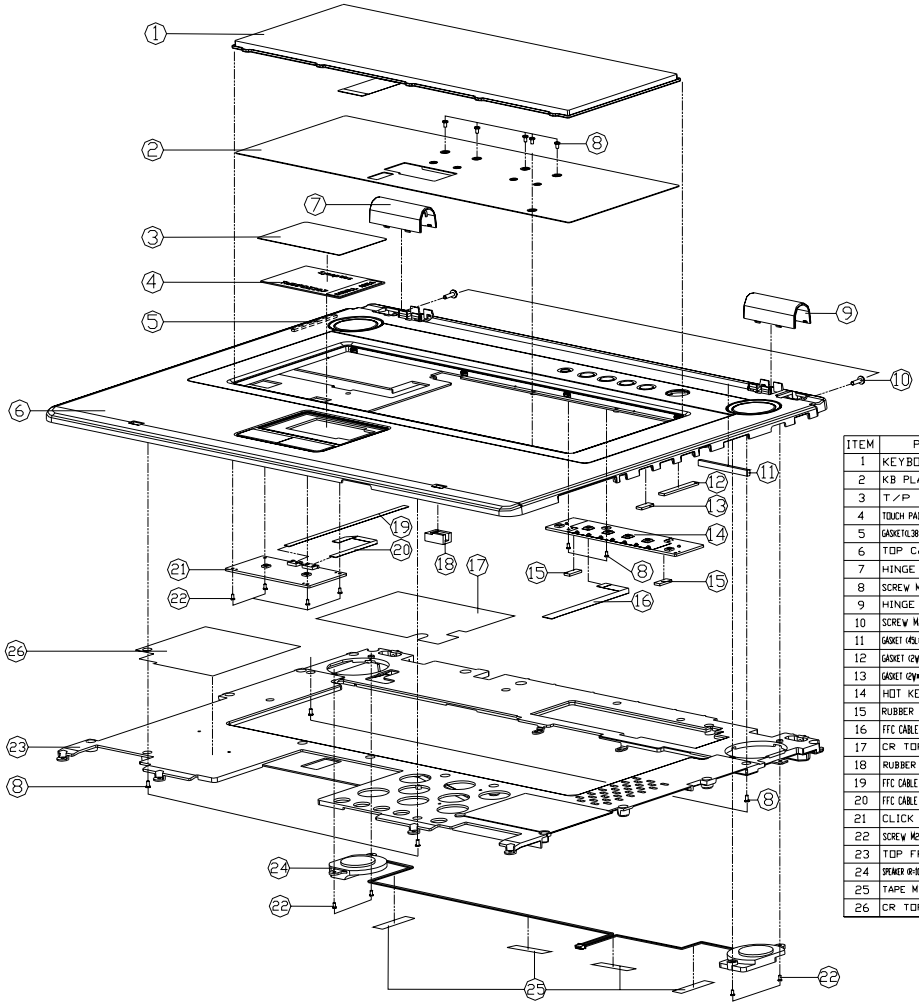
Part List Illustration Location

The following table indicates where to find the appropriate part list illustration.

Table A - 1
Part List Illustration Location

Part	M590K
Top - (M590K)	*page A - 3*
Bottom - (M590K)	*page A - 4*
LCD - (M590K)	*page A - 5*
DVD DUAL - (M590K)	*page A - 6*
Combo Drive - (M590K)	*page A - 7*
HDD - (M590K)	*page A - 8*

Top (M590K)

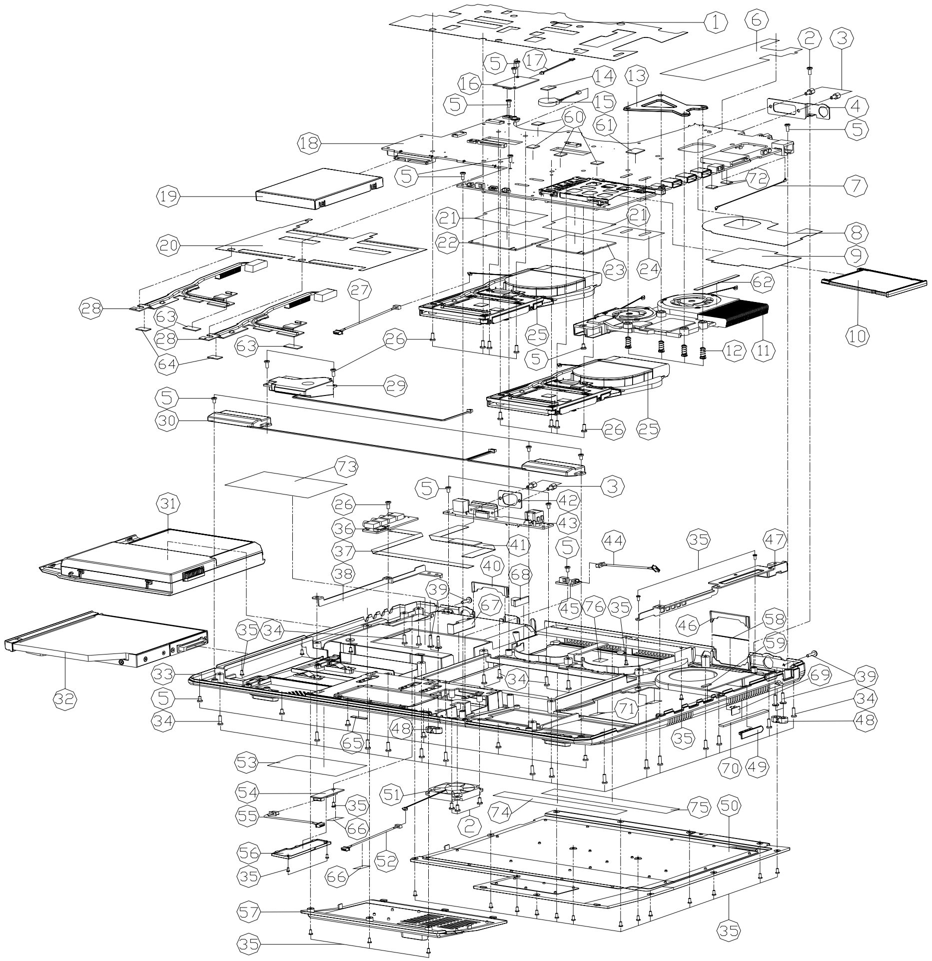


ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD	6-80-D90T0-011-1	
2	KB PLATE MODULE M590K 無鉛	6-33-M59K7-101	
3	T/P MYLAR M590K 無鉛	6-40-M59K2-011	
4	TOUCH PAD ELANTECH 810504-2602 M570A 無鉛	6-49-M57A2-020	
5	GASKET(L38xW3xH4) TOP CASE ON AUDIO AERA M 無鉛	6-47-00190-383	
6	TOP CASE MODULE M590K 無鉛	6-39-M59K2-012	
7	HINGE COVER (L) M590K 無鉛	6-42-M59K2-022	
8	SCREW M2.5*4L K1 BK/D ICT NY 無鉛	6-35-B4125-4RA	
9	HINGE COVER (R) M590K 無鉛	6-42-M59K2-012	
10	SCREW M2.5*10L P BNI ICT NYCD=5.8) 無鉛	6-35-09125-10A	
11	GASKET (45xW6x3D) TOP FRAME ON HING AERA 無鉛	6-47-00190-45C	
12	GASKET (2W*4L*4H) TOP CASE ON USB(A) AREA 無鉛	6-47-00190-410	
13	GASKET (2W*10L*4H) TOP CASE ON USB(B) AREA 無鉛	6-47-00190-188	
14	HOT KEY BOARD V3.0 M590K 無鉛	6-77-M59KS-003	
15	RUBBER FOR HOTKEY BOARD M590K 無鉛	6-47-M59KS-060	
16	FFC CABLE FOR HOT KEY BOARD 18P PITCH=0.5	6-43-M59KS-012	
17	CR TOP FRAME R M590K 無鉛	6-47-M59K2-070	
18	RUBBER TOP CASE HOOK M590K 無鉛	6-47-M59K2-050	
19	FFC CABLE FOR CLICK BOARD 4P PITCH=1.0 M59	6-43-M59K2-021	
20	FFC CABLE FOR TOUCHPAD 12P PITCH=0.5 M590K	6-43-M59K2-011	
21	CLICK BOARD V3.0 M590K 無鉛	6-77-M59K2-003	
22	SCREW M2*4L K1 NI ICT (Da=14.0,Dt=0.5) 無鉛	6-35-B1120-4RB	
23	TOP FRAME MODULE M590K 無鉛	6-39-M59K2-022	
24	SPEAKER (R=8ΩW 1.5W) M590K 無鉛	6-23-5M59K-032	
25	TAPE MYLAR (A),MYLAR M550J 無鉛	6-40-M55J2-010	
26	CR TOP FRAME L M590K 無鉛	6-47-M59K2-060	

Figure A - 1
Top (M590K)

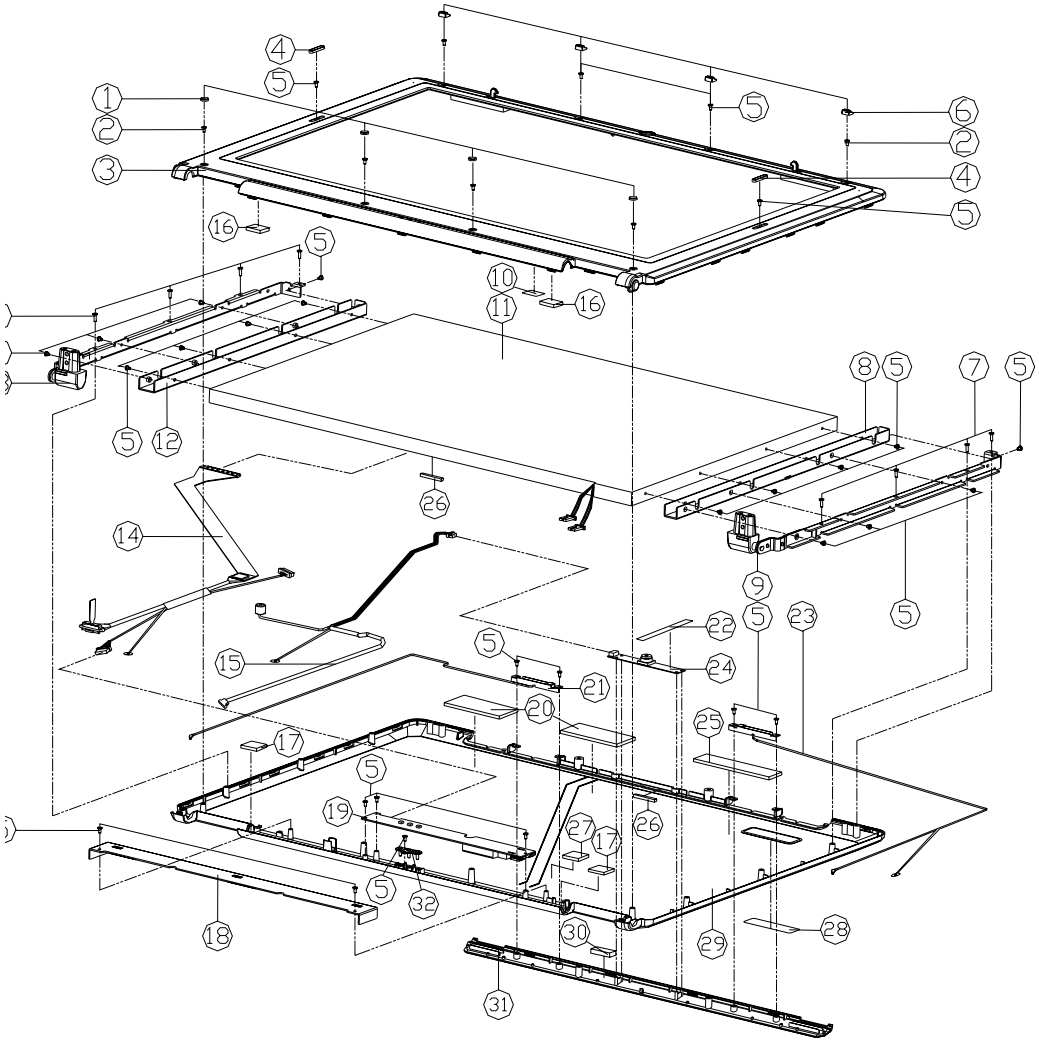
Bottom (M590K)

Figure A - 2
Bottom (M590K)



ITEM	PART NAME	PART NO	REMARK
1	MYLAR FOR KB PLATE M590K 無鉛	6-40-M59K7-011	
2	SCREW M2*6L B BNI ICT NY	6-35-49120-6RA	
3	HEX STUD (SUM22 NI-PL) 11MM GTY-PATCH 無鉛	6-34-07009-012	
4	DVI PLATE M590K 無鉛	6-33-M59K3-051	
5	SCREW M2.5*4L K1 BK/O ICT NY 無鉛	6-35-B4125-4RA	
6	MYLAR FOR SD CARD M590K 無鉛	6-40-M59KA-010	
7	COAXIAL CABLE 1.37MM BLACK L=300MM FOR TV	6-43-M59KT-031-1	
8	MYLAR FOR CPU M590K 無鉛	6-40-M59KS-011	
9	MYLAR FOR PCMCIA M590K 無鉛	6-40-M59KP-011	
10	M520G PCMCIA DUMMY CARD 無鉛	6-42-M52G3-072	
11	CPU HEAT SINK M590K 無鉛	6-31-M59KN-012	
12	SCREW M2.5*0.45P*10.5 D1=3.5 L=10.5 S=2.5	6-35-41025-105	
13	CPU SUPPORT MODULE M590K 無鉛	6-33-M59KS-101	
14	DOUBLE TAPE FOR CMOS BAT M590K 無鉛	6-40-M59K3-030	
15	BAT. 20MM 3V 210MAH W/CABLE 56MM CR2032C1	6-23-22015-P2C	
16	MODEM AC97 12 PIN CONEXANT RD02-D110(AC97	6-88-D90K1-530	
16	MODEM AC97 12 PIN CONEXANT RD02-D110(AC97	6-88-D90K1-390	
17	CABLE FOR MODEM M590K 無鉛	6-43-M59KU-010	
18	MAIN BOARD V3.A M590K	6-77-M59K0-003A	
19	W/O HDD ASS'Y M590K	6-79-M59KJ-010	
20	MYLAR FOR VGA M590K 無鉛	6-40-M59KS-022	
21	MYLAR FOR MINI PCI M590K 無鉛	6-40-M59KS-041	
22	TV TUNER CARD M103-B HYBRID MINI-PCI-3A W/	6-88-M59K7-461	
22	TV TUNER CARD M102 ANALOGY MINI-PCI-3A W/O	6-88-M59K7-462	
22	TV TUNER CARD M102 ANALOGY MINI-PCI-3A W/O	6-88-M59K7-462	
23	QCOM USB2.0 802.11B+G WLAN MINI CARD (Q802	6-88-M66E2-620	
23	WLAN 802.11ABG MINI-PCI 3B PB-FREE INTEL W	6-88-M55G2-421	
23	WLAN 802.11ABG MINI-PCI 3B PB-FREE INTEL W	6-88-M55G2-422	
23	WLAN 802.11ABG MINI-PCI 3B INTEL WM3B2915A	6-88-M55G2-423	
23	WLAN 802.11ABG MINI-PCI 3B PB-FREE INTEL W	6-88-M55G2-424	
23	WLAN 802.11G+B MINI-PCI 3B MS-6833B MSI 無鉛	6-88-M55J2-470	
24	MYLAR FOR RAM M590K 無鉛	6-40-M59KS-031	
25	VGA BOARD (G70M-GTX) V3.A M590K	77-M59KL-003A	
25	VGA BOARD (G71M) V1.0 M590K	77-M59KL-011	
26	SCREW M2.5*6L K BZ ICT NY 無鉛	6-35-82125-6RA	
27	CABLE FOR VGA EXTENSION M590K 無鉛	6-43-M59K3-011	
28	M/B HEAT SINK M590K 無鉛	6-31-M59KS-010	
29	SPEAKER (WOOFER) 2W 4? 2P L=230MM M590K 無鉛	6-23-5M59K-012	
30	SPEAKER-FRONT (R=75MM L=265MM,COMMON=40MM)2W 4? 4PIN M590K 無鉛	6-23-5M59K-022	
31	BAT.P(外) S LI 4S3P 14.8V 6.6AH (SMP/SAMSUN	6-87-M59KS-4D62	
31	BAT.P(外)S LI 4S3P 14.8V 6.6AH 新盛力/SONY	6-87-M59KS-4K62	
32	DVD/DUAL ASS'Y M590K	6-79-M59KQ-000	
32	COMBO ASS'Y M590K	6-79-M59KX-000	
33	BOTTOM CASE MODULE M590K 無鉛	6-39-M59K3-012	
34	SCREW M2.5*8.5L KI BNI ICT NY 無鉛	6-35-B9125-8R5	
35	SCREW M2*4L KI BNI ICT NY 無鉛	6-35-B9120-4RA	
36	PHONE JACK BOARD V2.0 M590K	6-77-M59KA-002	
37	FFC CABLE FOR AUDIO BOARD 18P PITCH=0.5 M5	6-43-M59K8-011	
38	BRACKET REINFORCED (L) BOTTOM M590K 無鉛	6-33-M59K3-041	
39	SCREW M2.5*10L P BNI ICT NY(D=5.8) 無鉛	6-35-09125-10A	
40	COM-PORT FRAME M590K 無鉛	6-42-M59K3-051	
41	FFC CABLE FOR RJ11 BOARD 24P PITCH=0.5 M59	6-43-M59KH-012	
42	COM-PORT PLATE M590K 無鉛	6-33-M59K3-061	
43	RJ11 BOARD V3.0 M590K	6-77-M59KH-003	
44	CABLE FOR C.IR M590K 無鉛	6-43-M59KK-010	
45	C.IR BOARD V2.0 M590K	6-77-M59KK-002	
46	DVI FRAME M590K 無鉛	6-42-M59K3-031	
47	REINFORCED BRACKET-R MODULE M590K 無鉛	6-33-M59K3-201	
48	BOTTOM HOLE RUBBER M590K 無鉛	6-47-M59K3-040	
49	RUBBER COVER FOR CARD READER (黑色)硬度:30度 無鉛	6-47-M40A1-040	
50	BOTTOM DOOR MODULE M590K 無鉛	6-42-M59K3-102	
51	FAN 40*40*7T 5V 0.2A(A-POWER)	6-23-A4011-462-1	
52	CABLE FOR SYSTEM FAN EXTENSION M590K 無鉛	6-43-M59K3-020	
53	PRODUCT LABEL FOR 昆山 M590K 無鉛	6-45-M59K3-010-C	
54	BLUETOOTH 2.0 8 PIN MODULE GUBTCR42M BILLIONTON	6-88-M55J5-390	
55	CABLE FOR BLUETOOTH M590K 無鉛	6-43-M59KB-012	
56	BLUETOOTH DOOR M590K 無鉛	6-42-M59KB-011	
57	HDD COVER MODULE M590K 無鉛	6-42-M59KJ-102	
58	GASKET (2W*43L*2H) BOTTOM ON DVI CONN AERA	6-47-00190-430	
59	GASKET(L15*W3*H4) BOTTOM ON USB(C) AREA M5	6-47-00190-15N	
60	M/B THERMAL PAD 12*12*1.5 D系列 M590K 無鉛	6-47-M59KS-010	
61	M/B MOS THERMAL PAD M590K 無鉛	6-47-M59KS-030	
62	GASKET (L60*W5*H1) CPU FINMOLDUE M590K 無鉛	6-47-00190-60N	
63	GASKET(L24*W9*H2) M/B HEAT PIPE ON VGA DOWN AREA M590K 無鉛	6-47-00190-247	
64	GASKET (L10*W5*H2) M/B HEAT PIPE ON VGA TOP AREA M590K 無鉛	6-47-00190-10E	
65	GASKET (30L*7W*1H) BOTTOM ON HDD AREA M590 無鉛	6-47-00190-30S	
66	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
67	RUBBER FOR BAT CON HOLE M590K 無鉛	6-47-M59KM-011	
68	RUBBER BIOS BATTERY M590K 無鉛	6-47-M59KM-020	
69	RUBBER FOR TV TUNNER CONNECTOR M590K 無鉛	6-47-M59KE-010	
70	ELECTRIC CONDUCTION CLOTH(15*68) ON BOTTOM 無鉛	6-47-M59K3-090	
71	TAPE MYLAR (A),MYLAR M550J 無鉛	6-40-M55J2-010	
72	RUBBER FOR HOTKEY BOARD M590K 無鉛	6-47-M59KS-060	
73	MYLAR BATTERY M590K 無鉛	6-40-M59KM-010	
74	MYLAR BOTTOM ON VGA AREA M590K 無鉛	6-40-M59K3-040	
75	MYLAR BOTTOM ON VGA AREA (A) M590K 無鉛	6-40-M59KS-0D0	
76	MYLAR BOTTOM ON VGA AREA (B) M590K 無鉛	6-40-M59KS-0E0	

LCD (M590K)



ITEM	PART NAME	PART NO	REMARK
1	LCD BOTTOM RUBBER M590K 無鉛	6-47-M59K1-021	
2	SCREW M2.5*4L K1 BK/O ICT NY無鉛	6-35-B4125-4RA	
3	LCD FRONT COVER MODULE FOR 19" M590K 無鉛	6-39-M59K1-012	
4	LCD SIDE RUBBER M590K 無鉛	6-47-M59K1-031	
5	SCREW M2*4L K1 BNI ICT NY 無鉛	6-35-B9120-4RA	
6	LCD TOP RUBBER M590K 無鉛	6-47-M59K1-011	
7	SCREW M2.5*5L F NI ICT NY 120°無鉛	6-35-21125-5RC	
8	LCD BRACKET (R) M590K 無鉛	6-33-M59K1-031	
9	HINGE (R) M590K 無鉛	6-33-M59K1-012	
10	MYLAR LCD MAGNET (24X30) M590K 無鉛	6-40-M59K1-010	
11	LCD 19" TFT SAMSUNG LTN190W1-L01 WSXGA+ 112MM	6-50-QA2B2-M00	
12	LCD BRACKET (L) M590K 無鉛	6-33-M59K1-041	
13	HINGE (L) M590K 無鉛	6-33-M59K1-022	
14	COAXIAL CABLE FOR SAMSUNGLTN190W1-L01 M590K 無鉛	6-43-M59K1-012	
15	CABLE FOR CCD-MIC M590K 無鉛	6-43-M59KT-011	
16	GASKET 20*13*3.5 無鉛	6-47-00190-20H	
17	GASKET (20L+12W+3H) LCD FRONT DN HING AREA M590K 無鉛	6-47-00190-20G	
18	LCD REINFORCE BRACKET M590K 無鉛	6-33-M59K1-052	
19	INVERTER MODULE (EPS) M590K	6-76-M59KR-011	
20	LCD FRONT RUBBER A (90*30*T2.6) M590K無鉛	6-47-M59K1-040	
21	ANTENNA DUAL-BAND PIFA BLUETOOTH WITH GND	6-23-7M59K-021	
22	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
23	ANTENNA DUAL-BAND PIFA WLAN WITH GND (BLAC	6-23-7M59K-011	
24	CMOS CAMERA 1.3M CMM-2223-01P USB2.0 11MM	6-88-M59KC-681	
25	LCD FRONT RUBBER (B) (90*20*T2.6) M590K 無鉛	6-47-M59K1-050	
26	GASKET(L15*W3*H4) BOTTOM DN USB(C) AREA M5 無鉛	6-47-00190-15N	
27	RUBBER TV TURNER CABLE M590K 無鉛	6-47-M59KT-010	
28	FOR M550G 中性LOGO(STYLE-NOTE) 無鉛	6-45-M55G1-020	
29	LCD BACK COVER,MG-AL M590K 無鉛	6-39-M59K1-02B	
30	CCD RUBBER M590K 無鉛	6-47-M59KT-020	(option)
31	ANTENNA COVER M590K 無鉛	6-42-M59K1-061	
32	LENS FOR BACK COVER M590K 無鉛	6-42-M59K1-031	

Figure A - 3
LCD (M590K)

DVD DUAL (M590K)

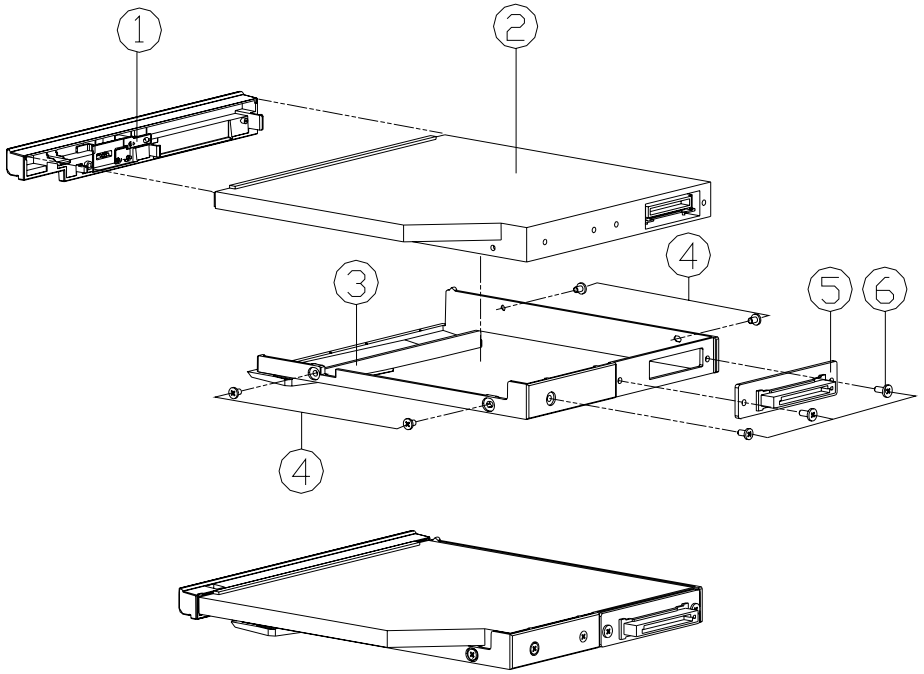


Figure A - 4
DVD DUAL (M590K)

ITEM	PART NAME	PART NO	REMARK
1	DVD DUAL BEZEL MODULE M590K 無鉛	6-42-M59KQ-101	
2	DVD/DUAL RW 5 1/4" 8X 12.7MM UJ-840S PANAS 無鉛	6-85-A078X-P02	
2	DVD/DUAL RW 5 1/4" 8X 12.7MM UJ-840S PANAS 無鉛	6-85-A078X-P03	
2	DVD/DUAL RW 5 1/4" 8X 12.7MM TS-L532U TSST 無鉛	6-85-A078X-T01	
3	G BEZEL HOLDER FOR ODD M590K 無鉛	6-42-M59KZ-042	
4	SCREW M2*3L K1 NI ICT NY 無鉛	6-35-B1120-3RA	
5	CD-ROM BOARD V3.0 M590K	6-77-M59KZ-003	
6	SCREW M2*5L K1 NI ICT 無鉛	6-35-B1120-5RA	

Combo Drive (M590K)

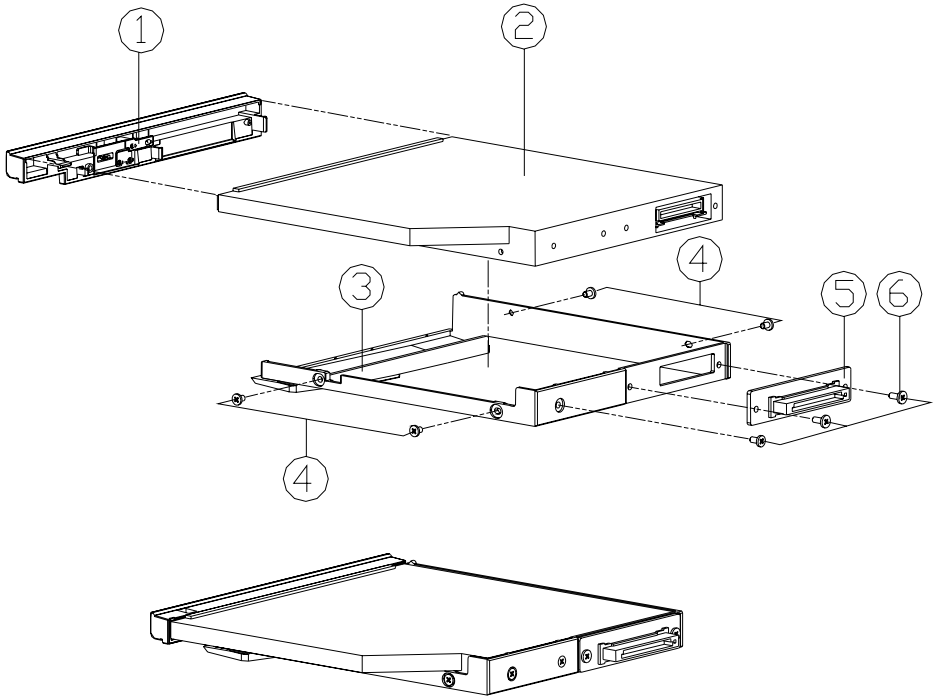
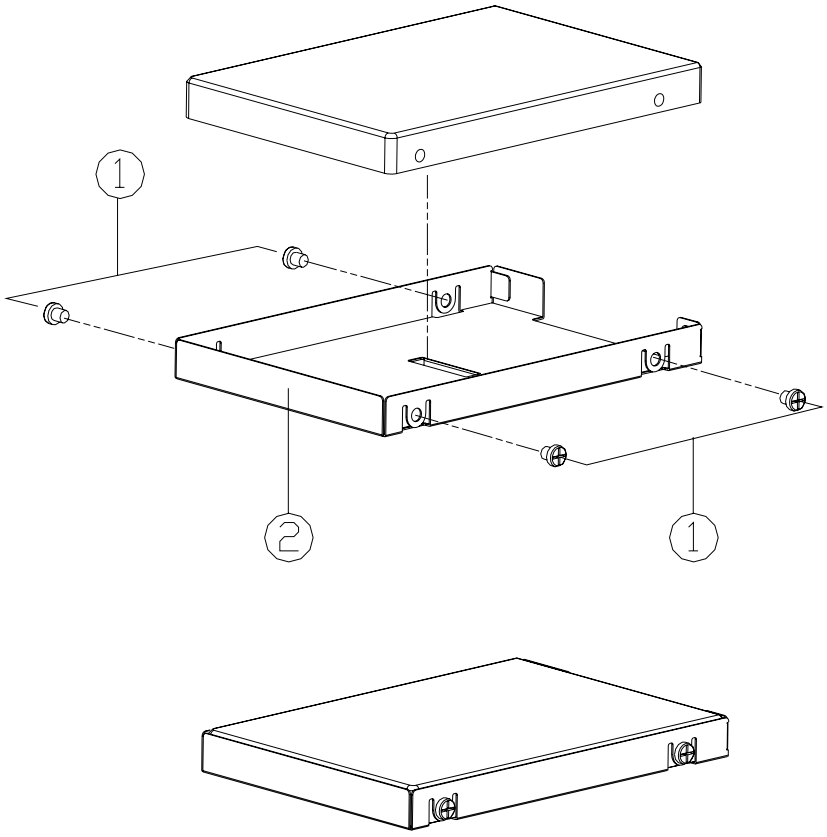


Figure A - 5
Combo Drive (M590K)

ITEM	PART NAME	PART NO	REMARK
1	COMBO BEZEL MODULE M590K 無鉛	6-42-M59KX-101	
2	CD-RW/DVD 5 1/4" 24X 12.7MM SCB5265 PHILIP	6-85-907PX-C00	
2	CD-RW/DVD 5 1/4" 24X 12.7MM UJDA770CL-A PA 無鉛	6-85-907PX-P00	
3	G BEZEL HOLDER FOR ODD M590K 無鉛	6-42-M59KZ-042	
4	SCREW M2*3L K1 NI ICT NY 無鉛	6-35-B1120-3RA	
5	CD-ROM BOARD V3.0 M590K	6-77-M59KZ-003	
6	SCREW M2*5L KI NI ICT 無鉛	6-35-B1120-5RA	

HDD (M590K)

Figure A - 6
HDD (M590K)



ITEM	PART NAME	PART NO	REMARK
1	SCREW M3*3L T16 P NI ICT NY	6-35-01130-3RA	
2	HDD BRACKET MODULE M590K	6-33-M59KJ-101	

Appendix B:Schematic Diagrams

This appendix has circuit diagrams of the ***M590K*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

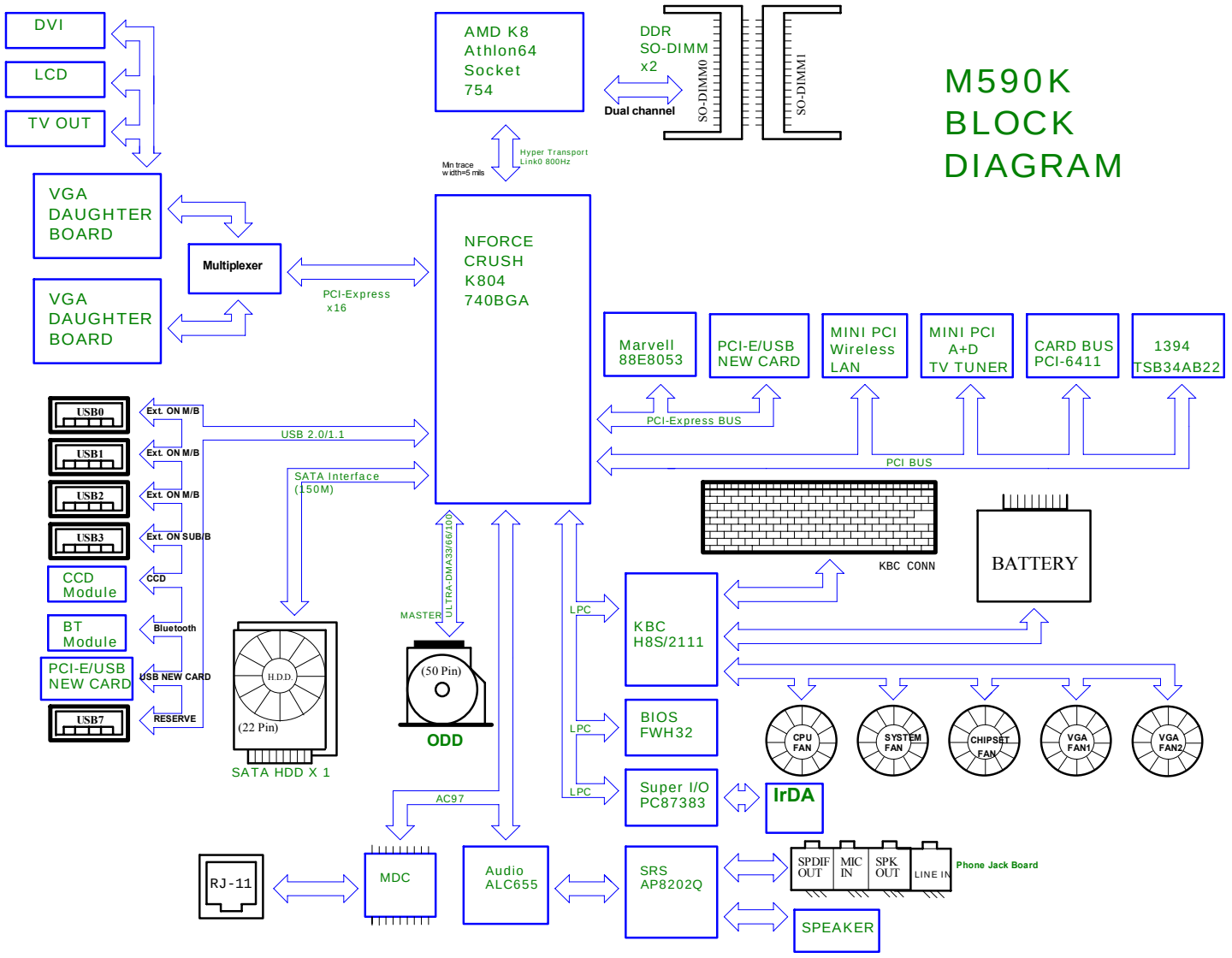
Table B - 1
Schematic Diagrams

Version Note

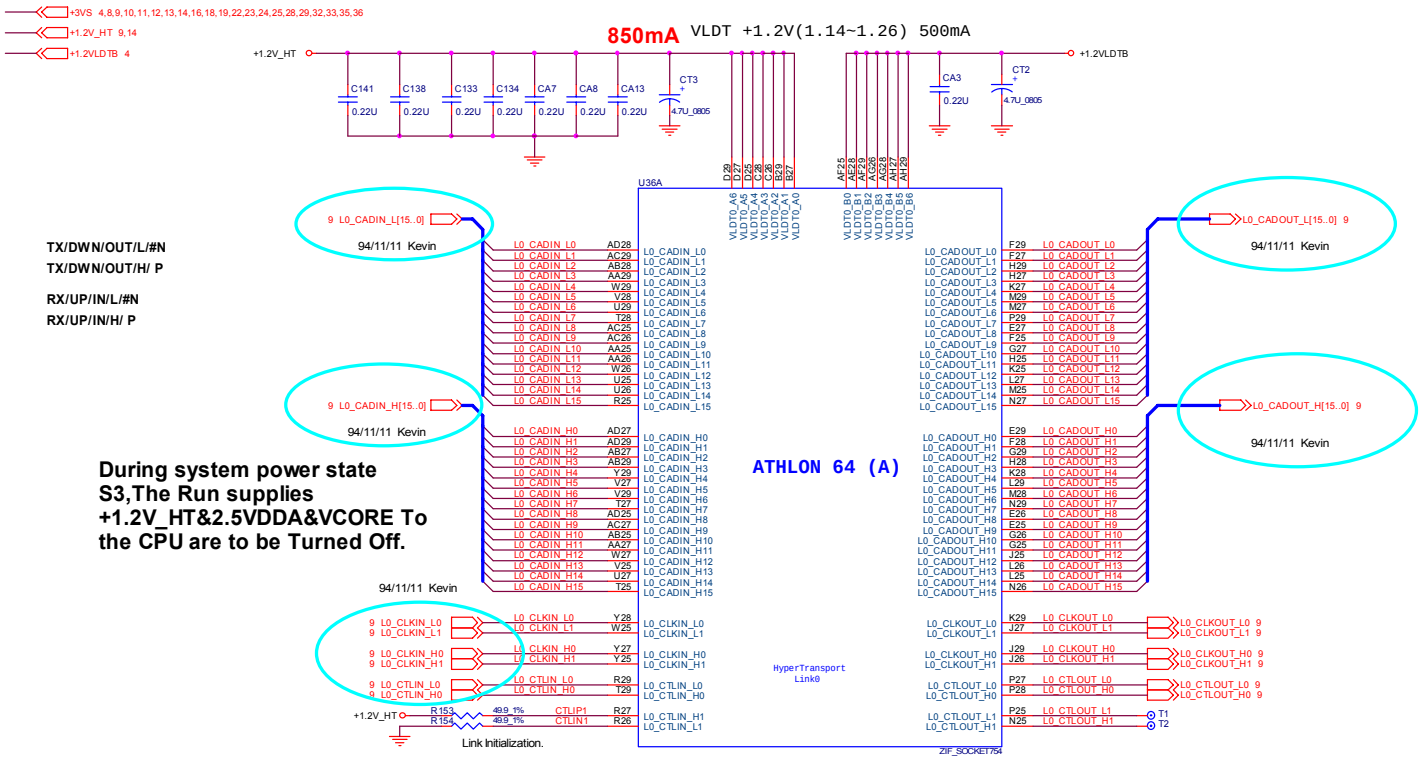
The schematic diagrams in this chapter are based upon version **71-M59K0-D03A**. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

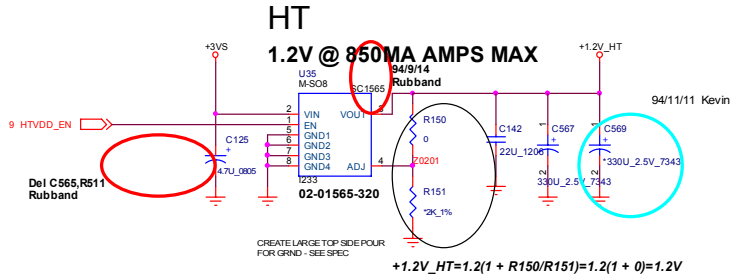
SYSYTEM BLOCK DIAGRAM

Sheet 1 of 45
SYSYTEM BLOCK DIAGRAM



ATHLON 64 1/4 HyperTransport

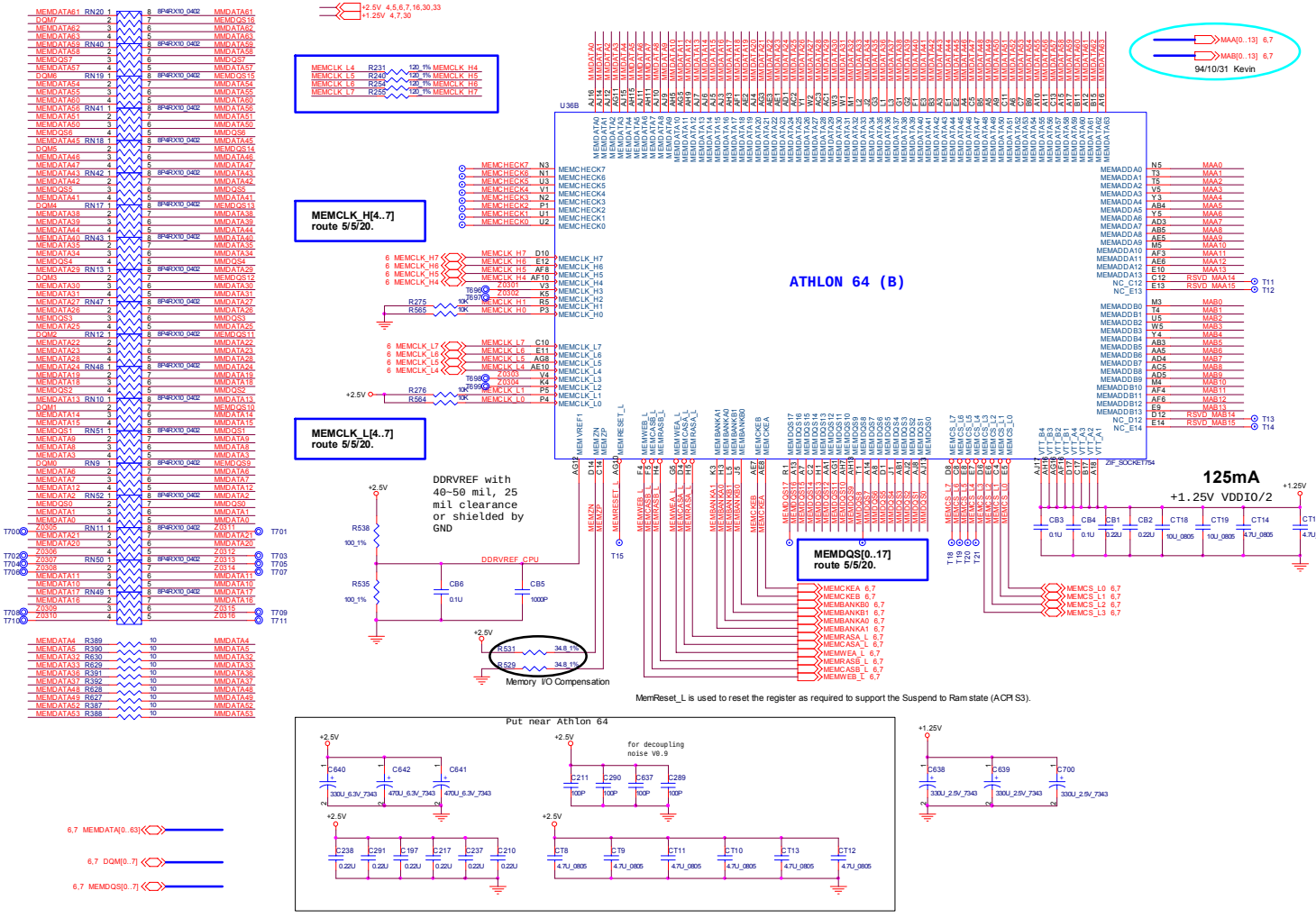




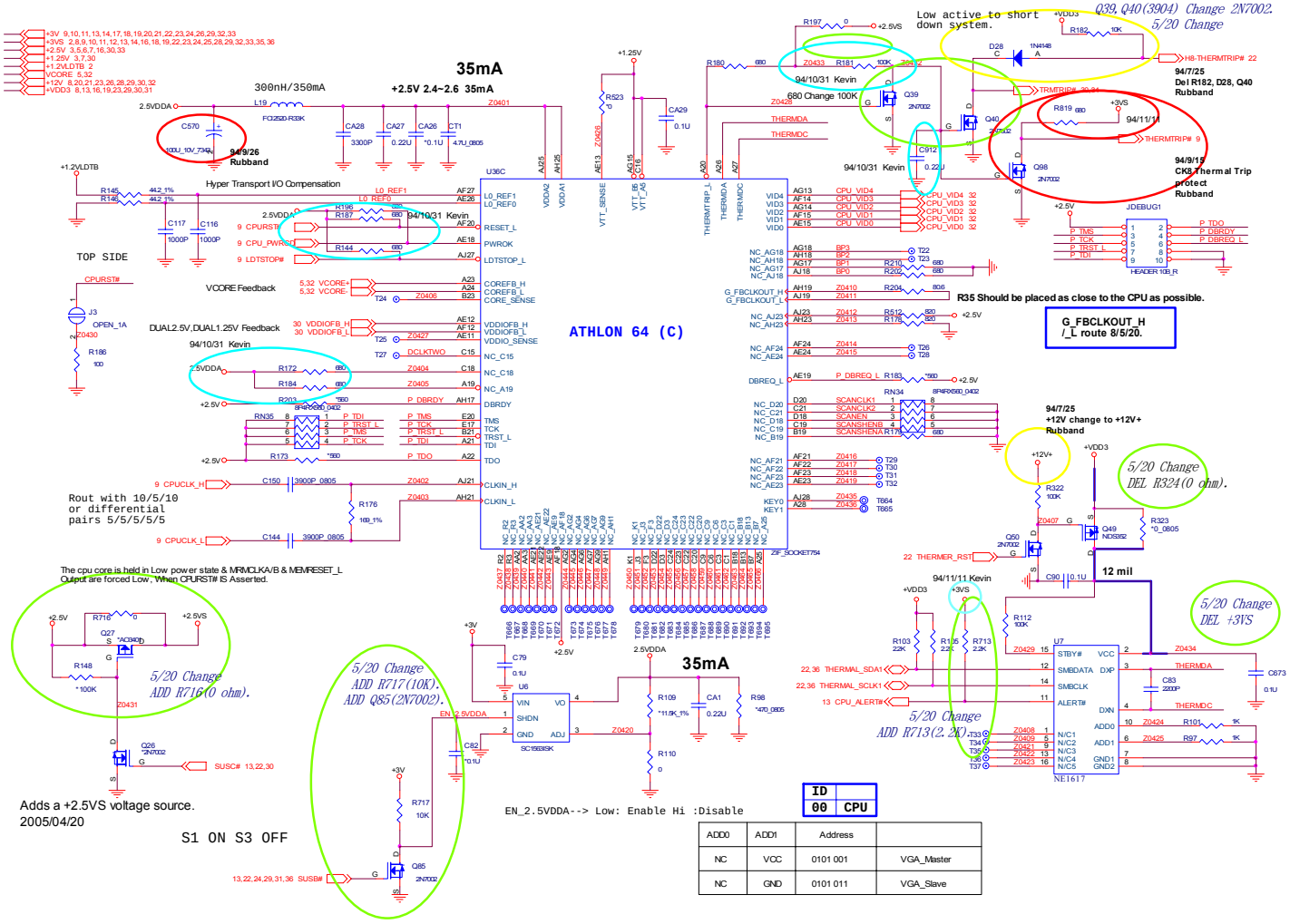
Sheet 2 of 45
ATHLON 64 1/4
HyperTransport

ATHLON 64 2/2 DDR

Sheet 3 of 45
ATHLON 64 2/2 DDR



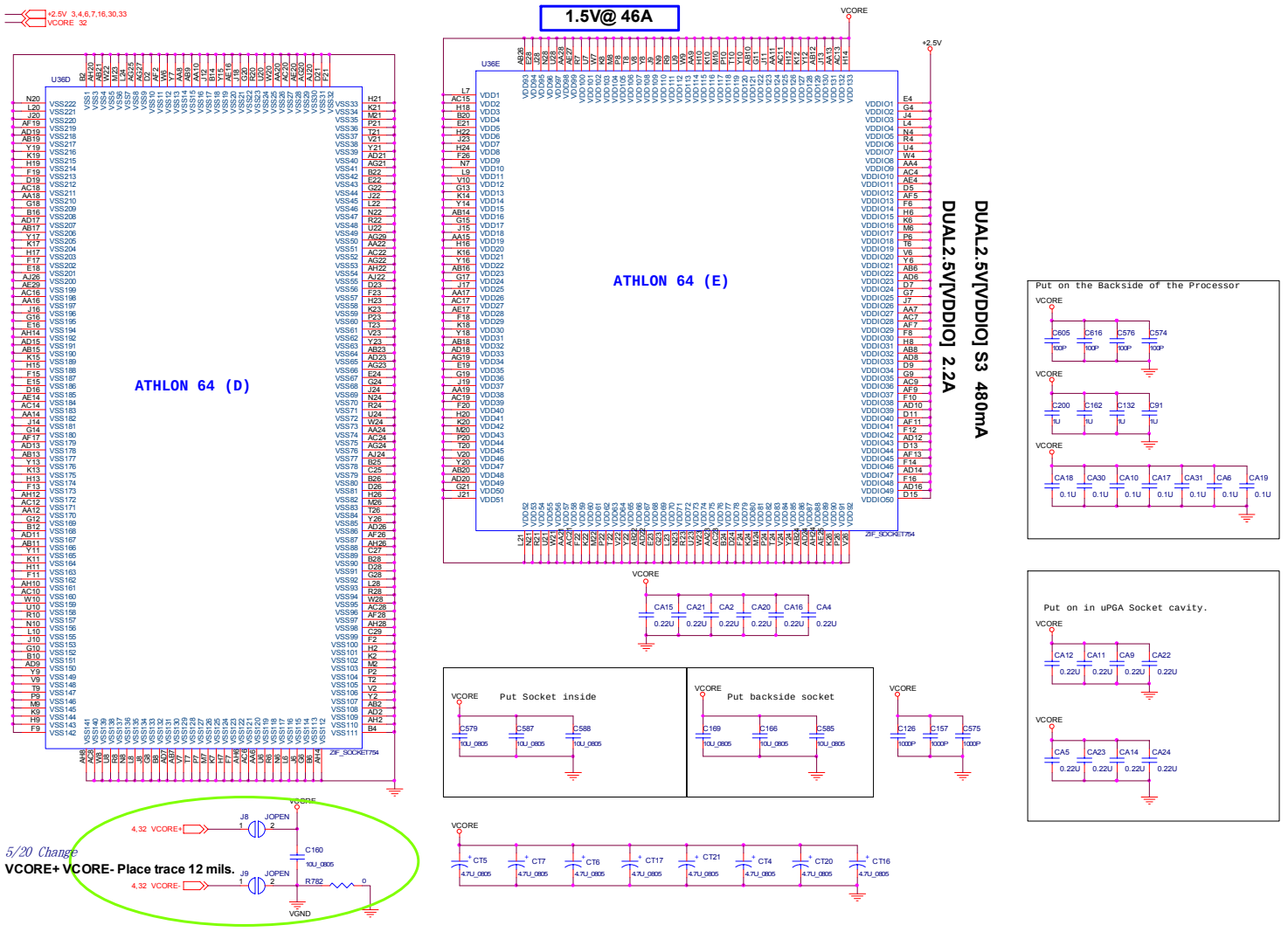
ATHLON 64 3/4 Misc



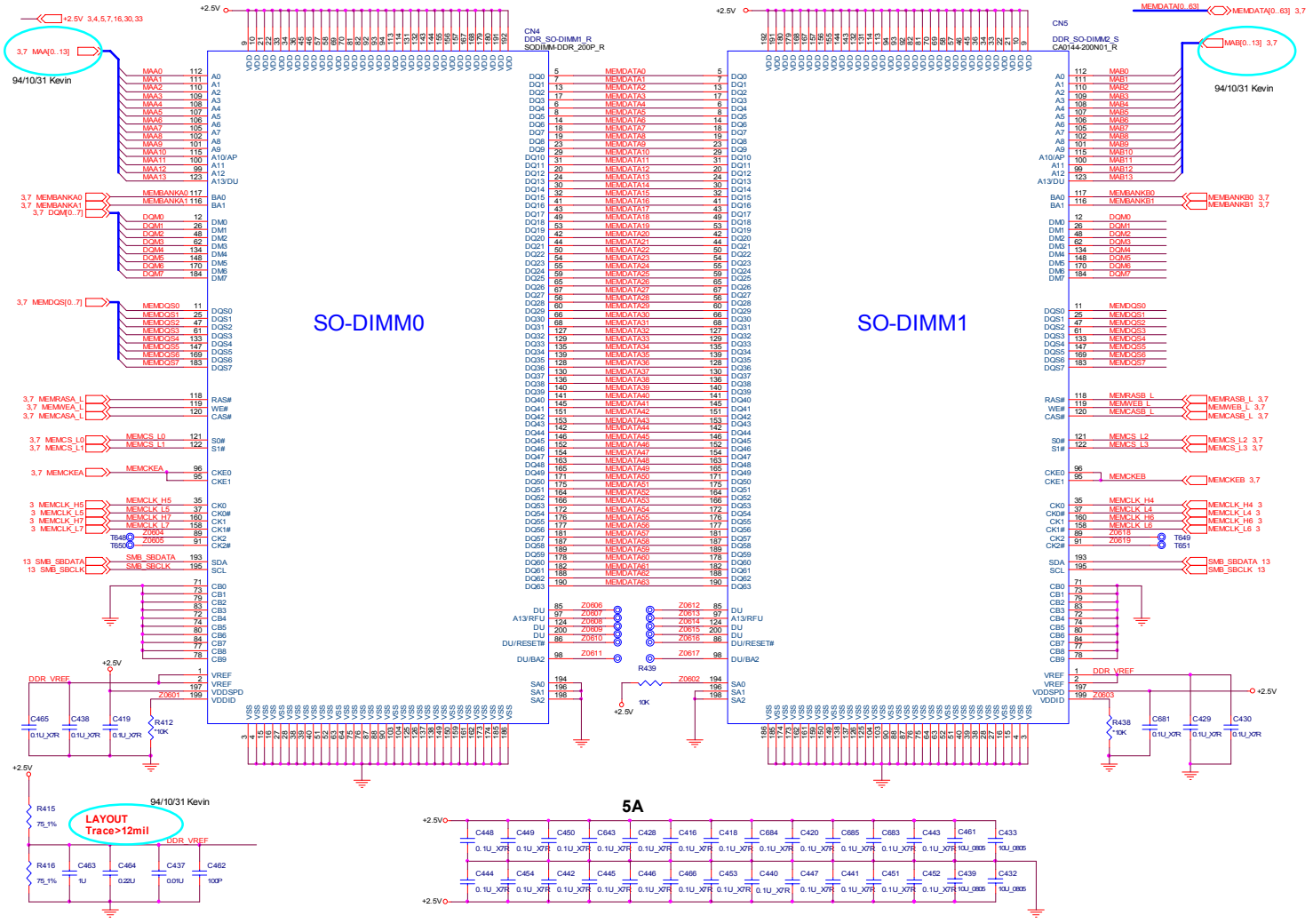
Sheet 4 of 45
ATHLON 64 3/4
Misc

ATHLON 64 4/4 Power

Sheet 5 of 45
ATHLON 64 4/4 Power



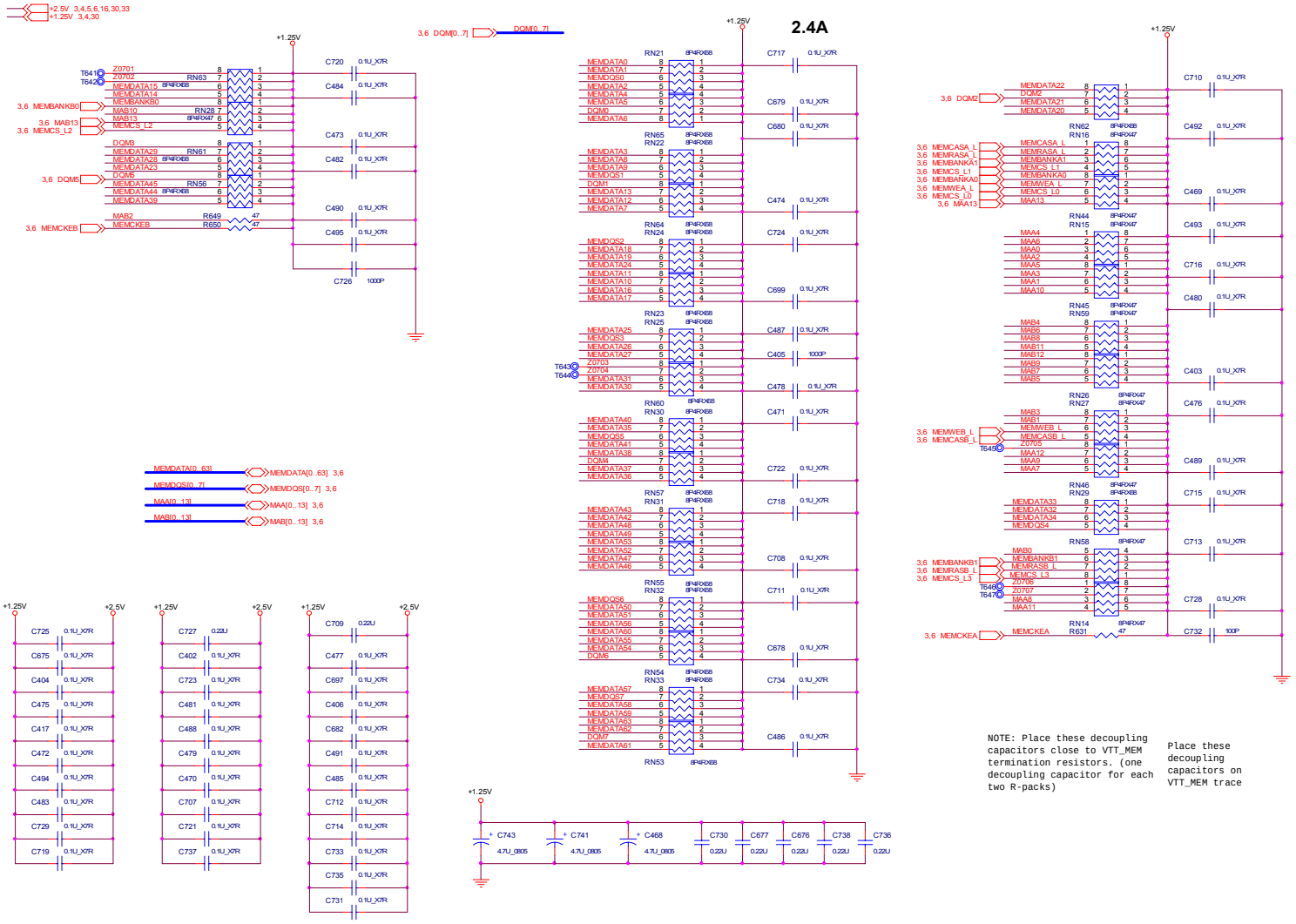
DDR SODIMM



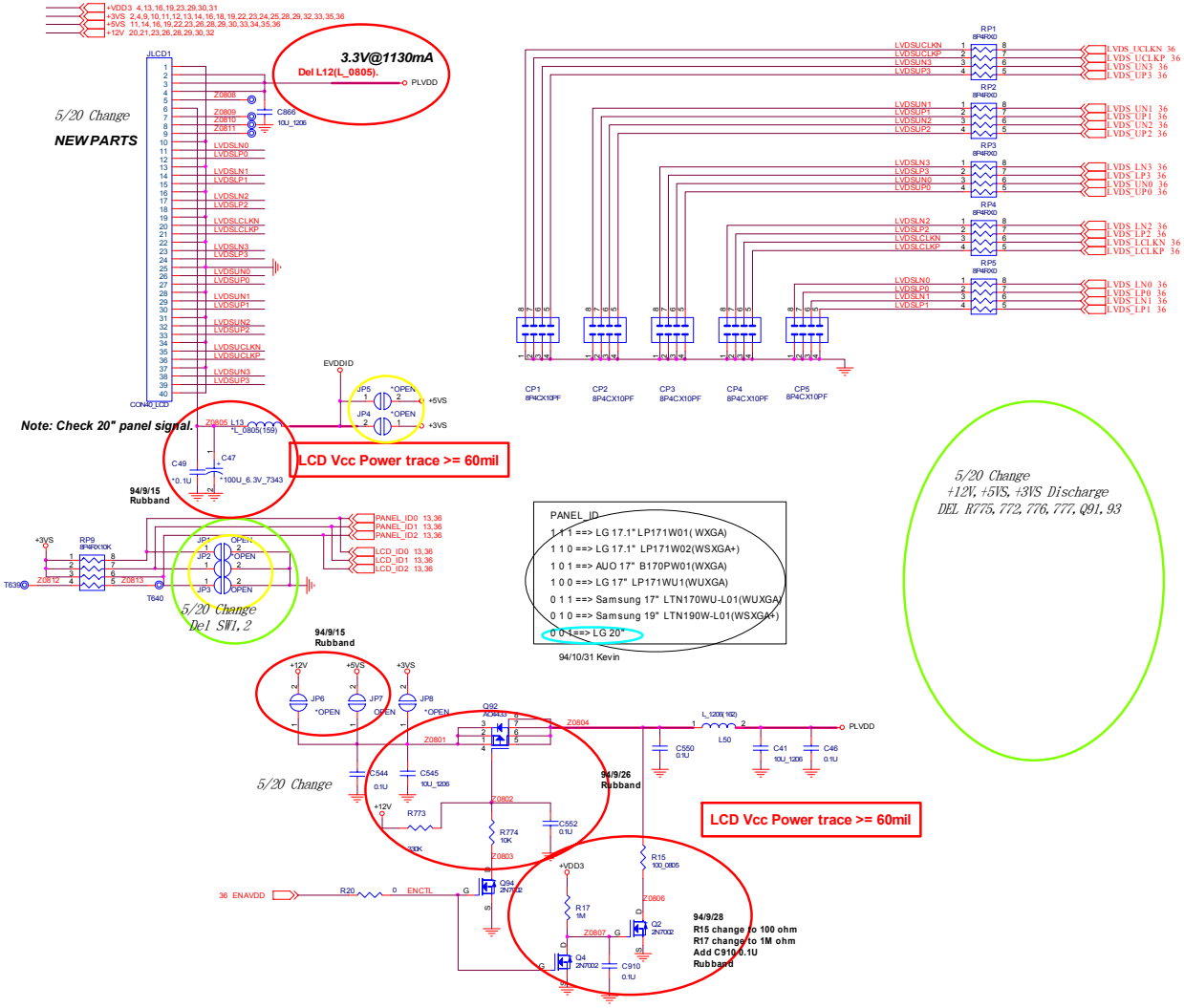
Sheet 6 of 45
DDR SODIMM

DDR TERMINATION

Sheet 7 of 45
DDR
TERMINATION



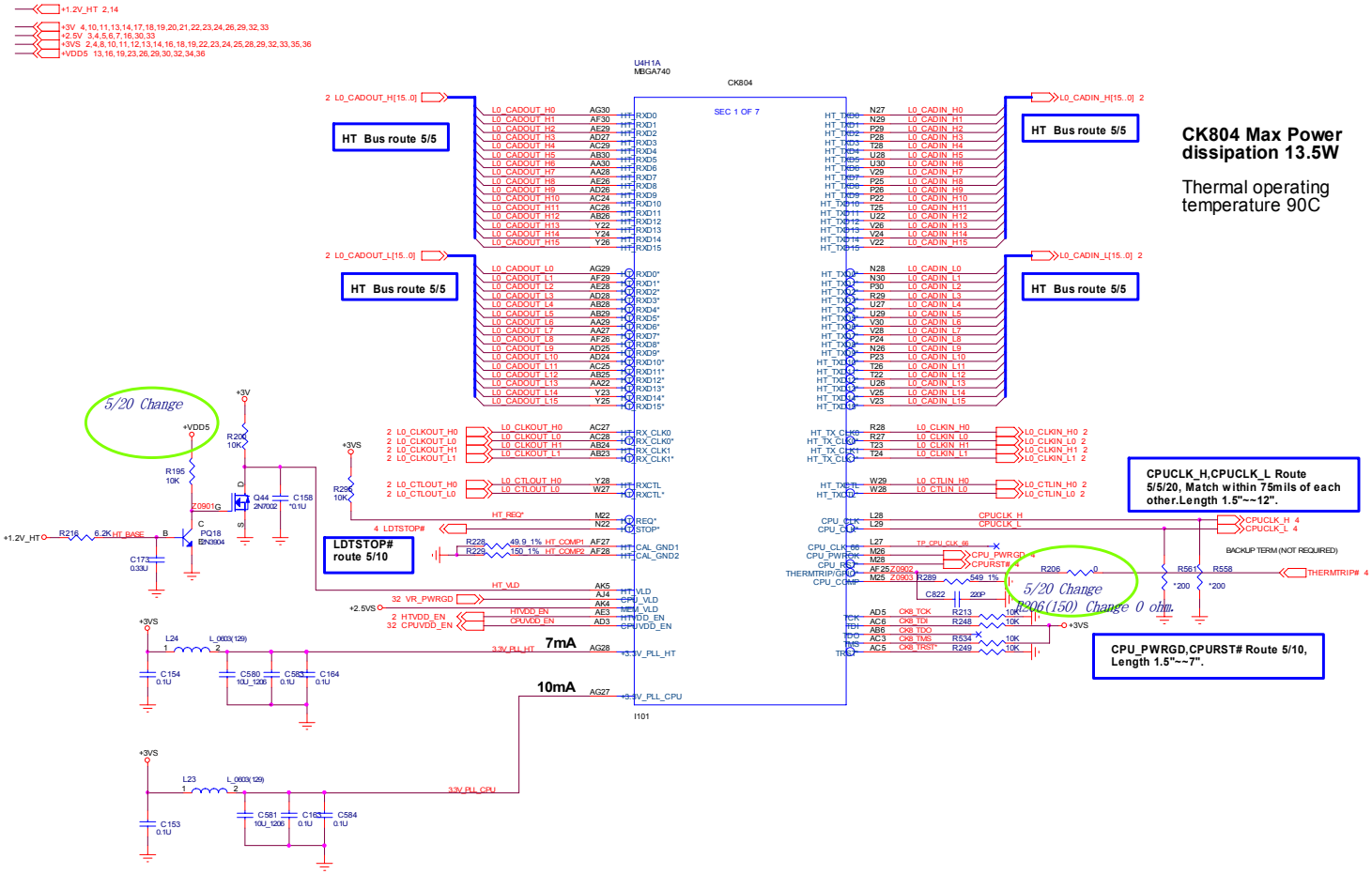
LCD CON & LCD VCC



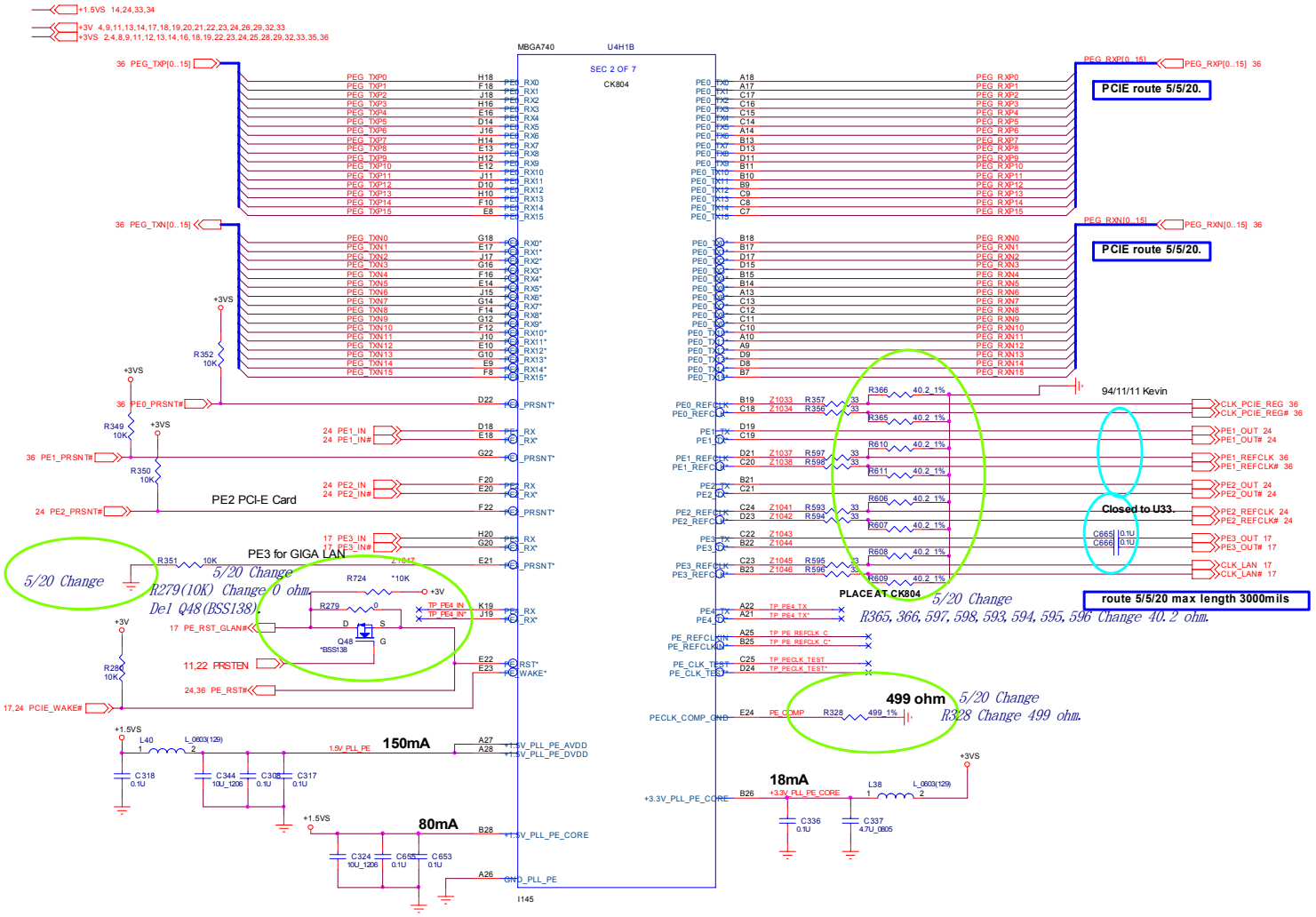
Sheet 8 of 45
LCD CON & LCD VCC

CK804 HT Part A

Sheet 9 of 45
CK804 HT Part A



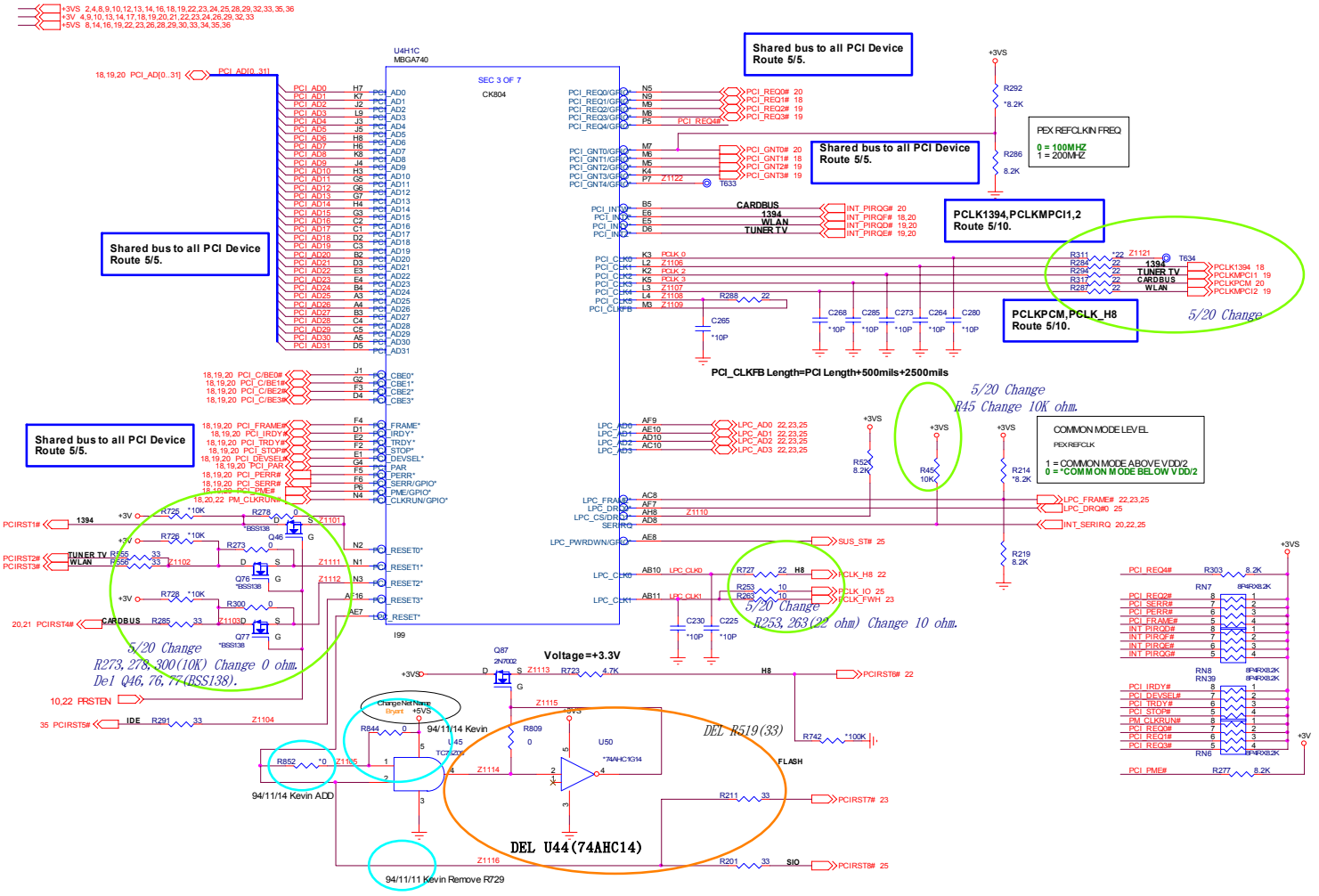
CK804 PCI-E Part B



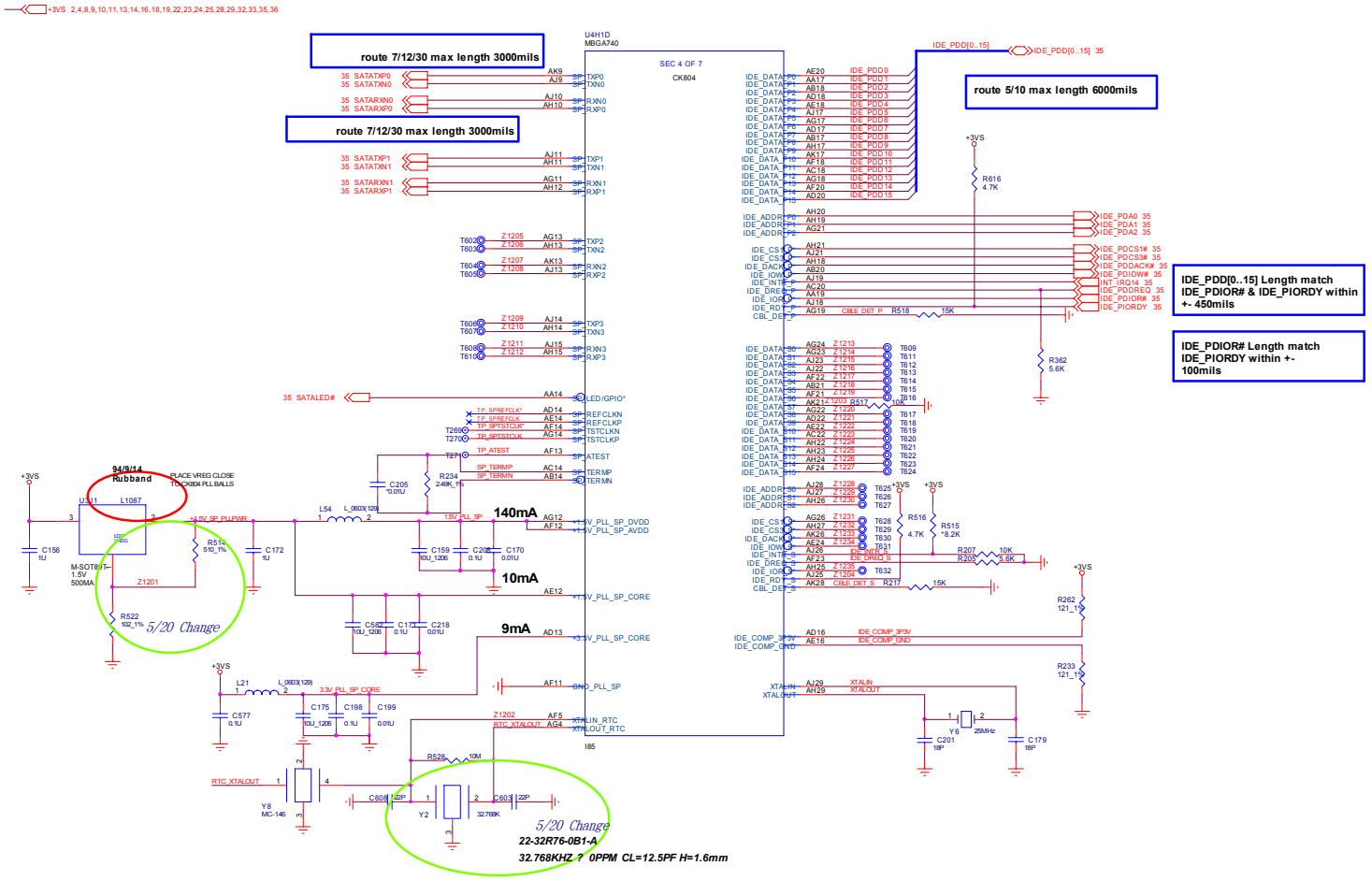
Sheet 10 of 45
CK804 PCI-E Part B

CK804 PCI Part C

Sheet 11 of 45
CK804 PCI Part C



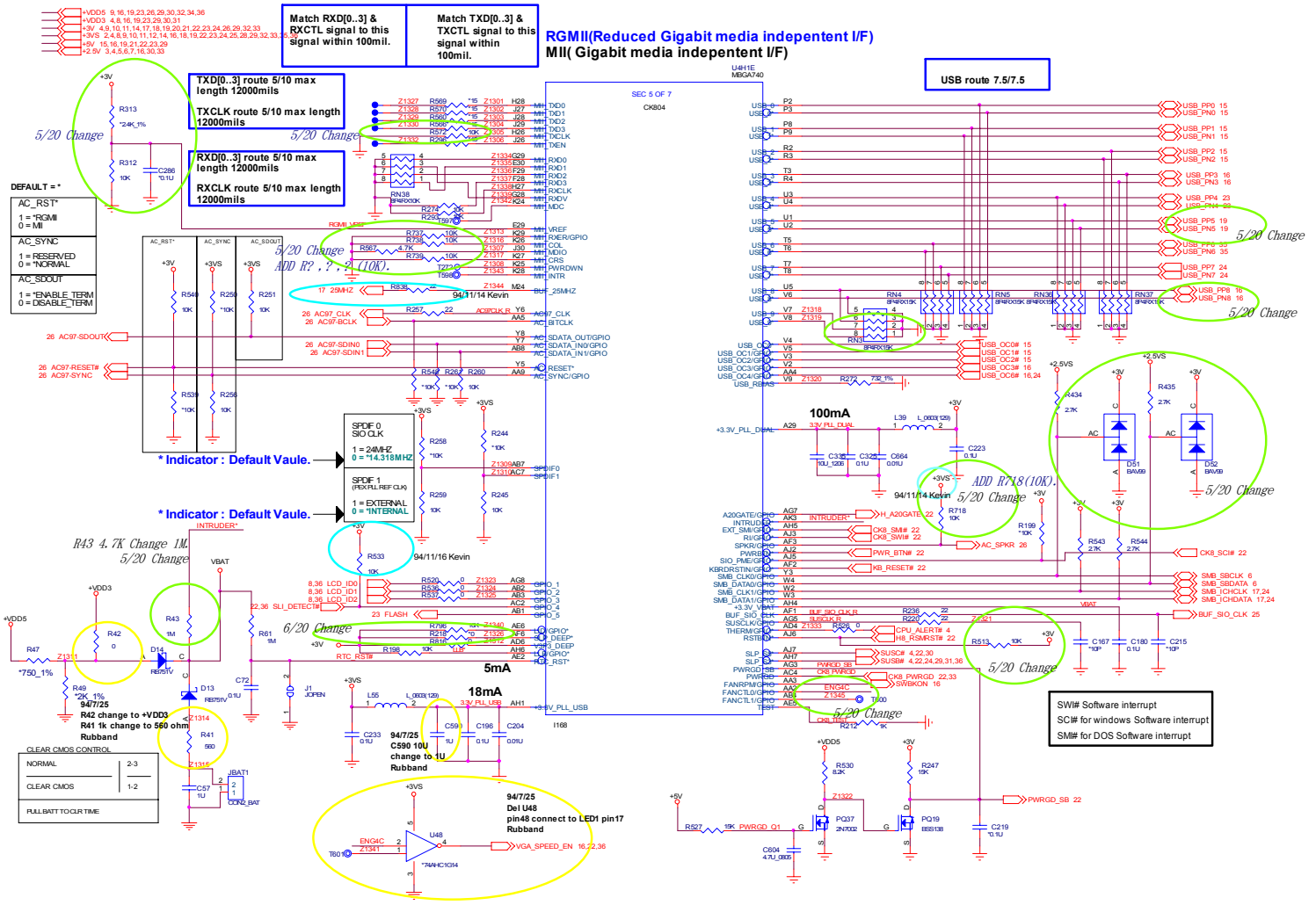
CK804 SATA & PATA Part D



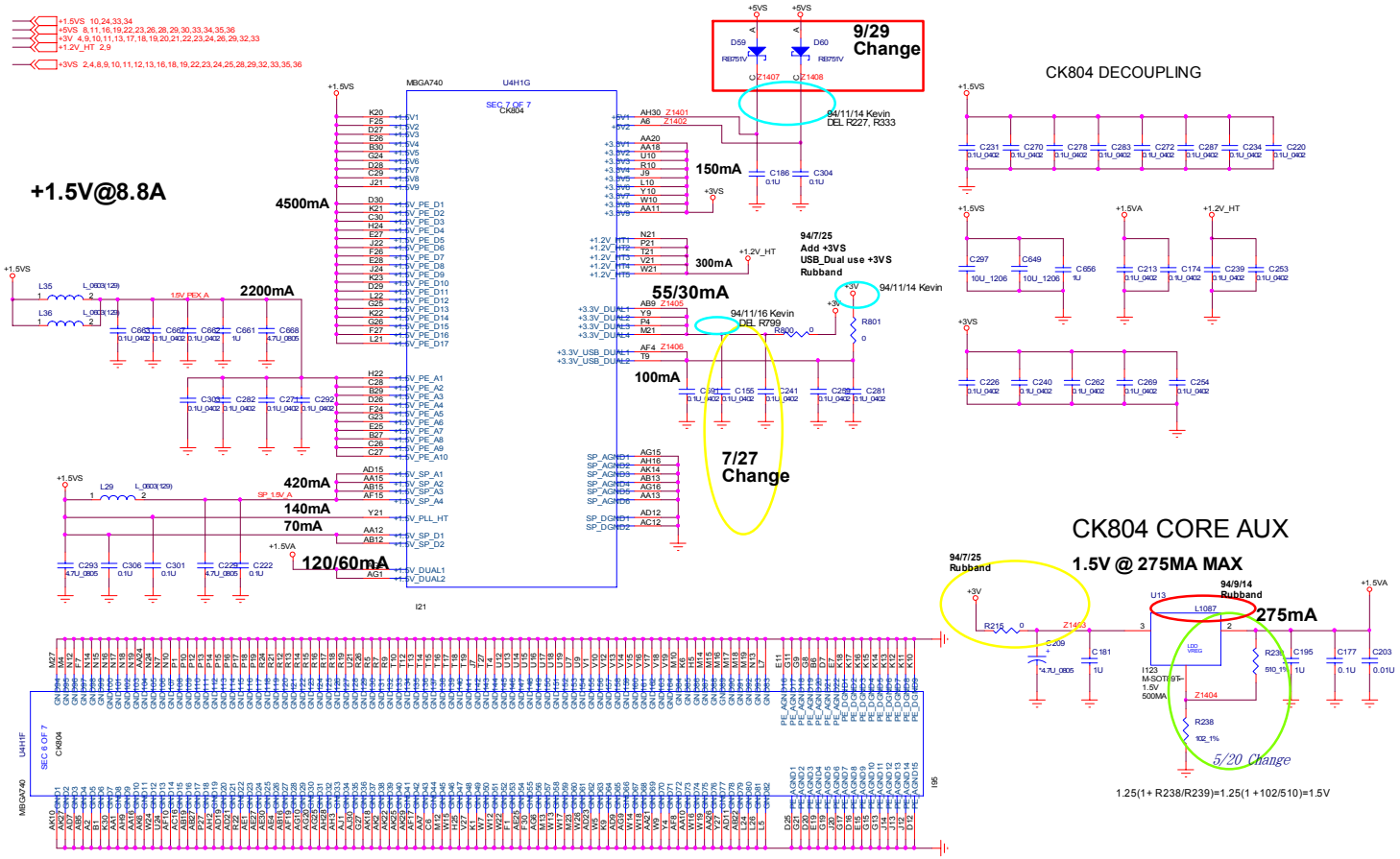
Sheet 12 of 45
CK804 SATA &
PATA Part D

CK804 CODEC, USB, IO Part E

Sheet 13 of 45
CK804 CODEC,
USB, IO Part E



CK804 POWER & GND F



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CK804 POWER & GND F

USB CON X3, TV-OUT

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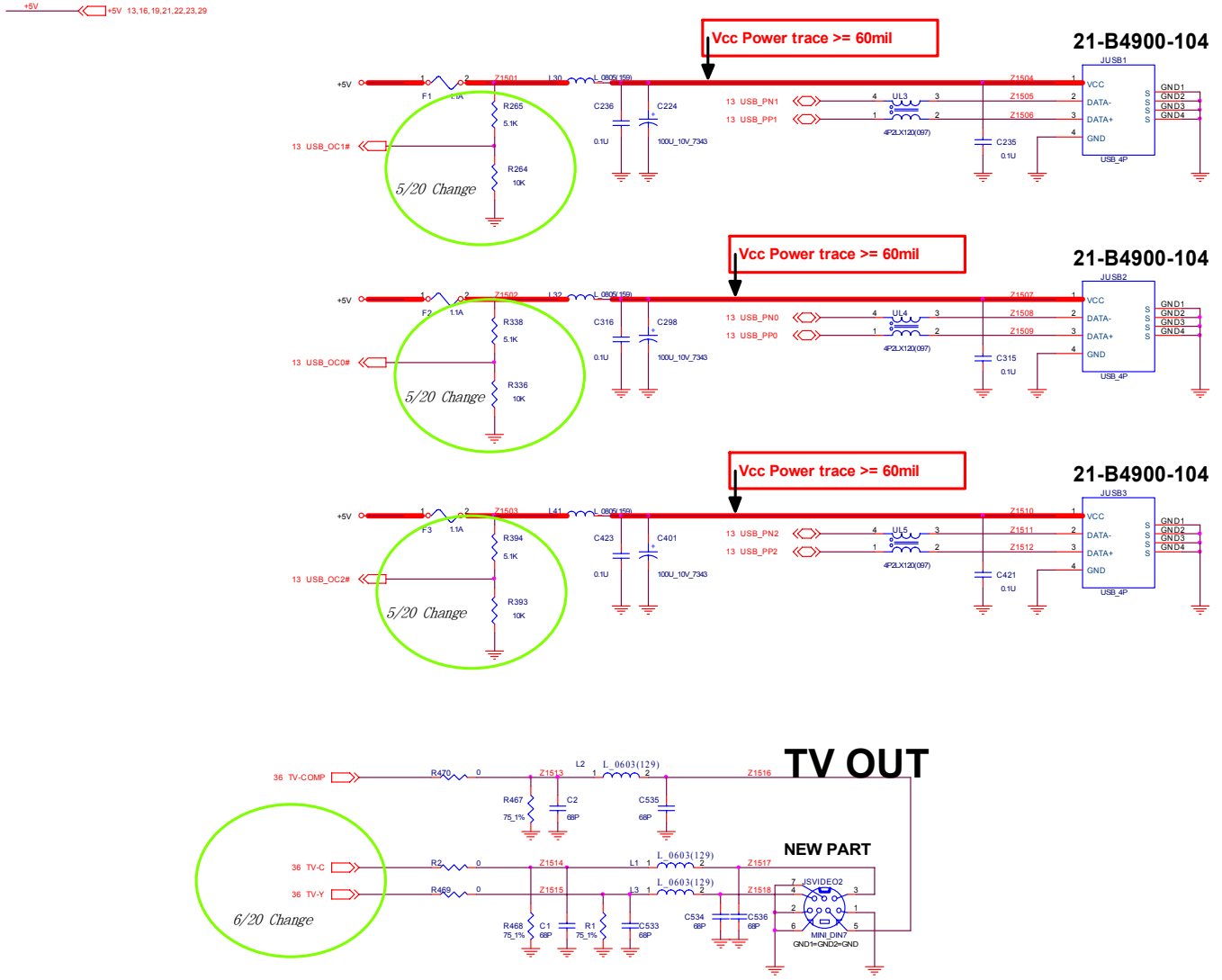
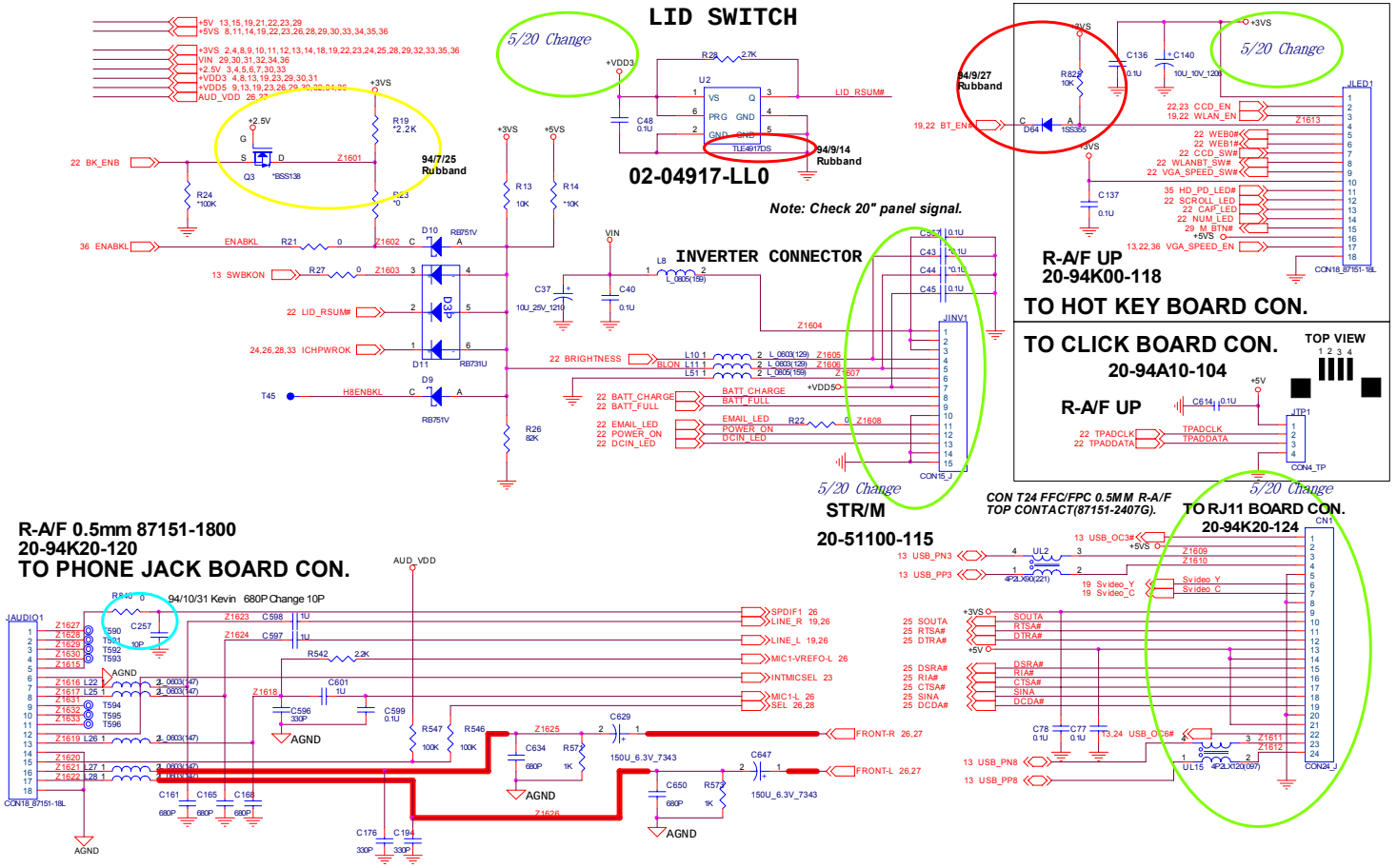
USB CON X3, TV-OUT



INV, WEB, CLICK, S/W CON



Sheet 16 of 45
INV, WEB, CLICK, S/W CON

PCI-E LAN (MARVELL)

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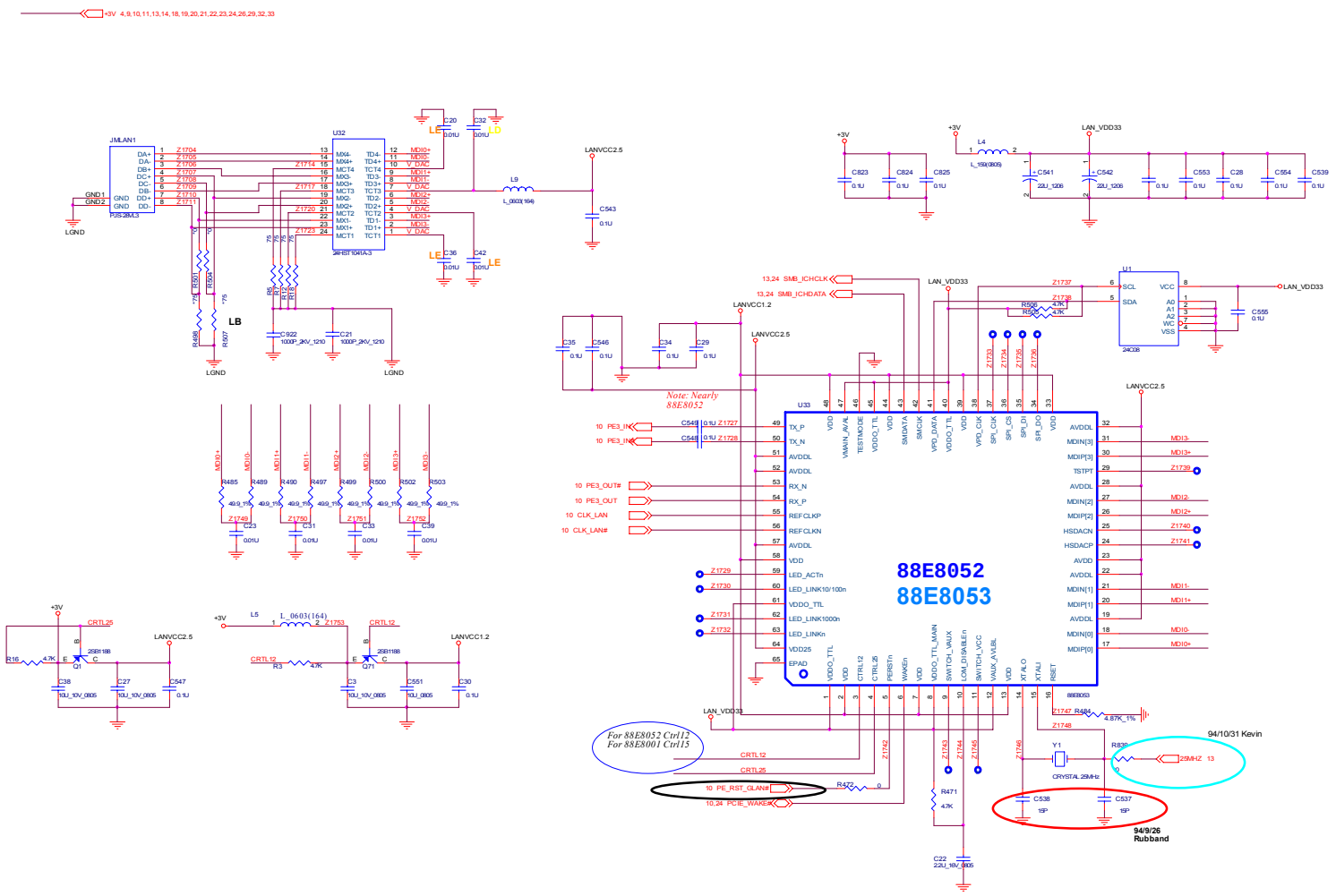
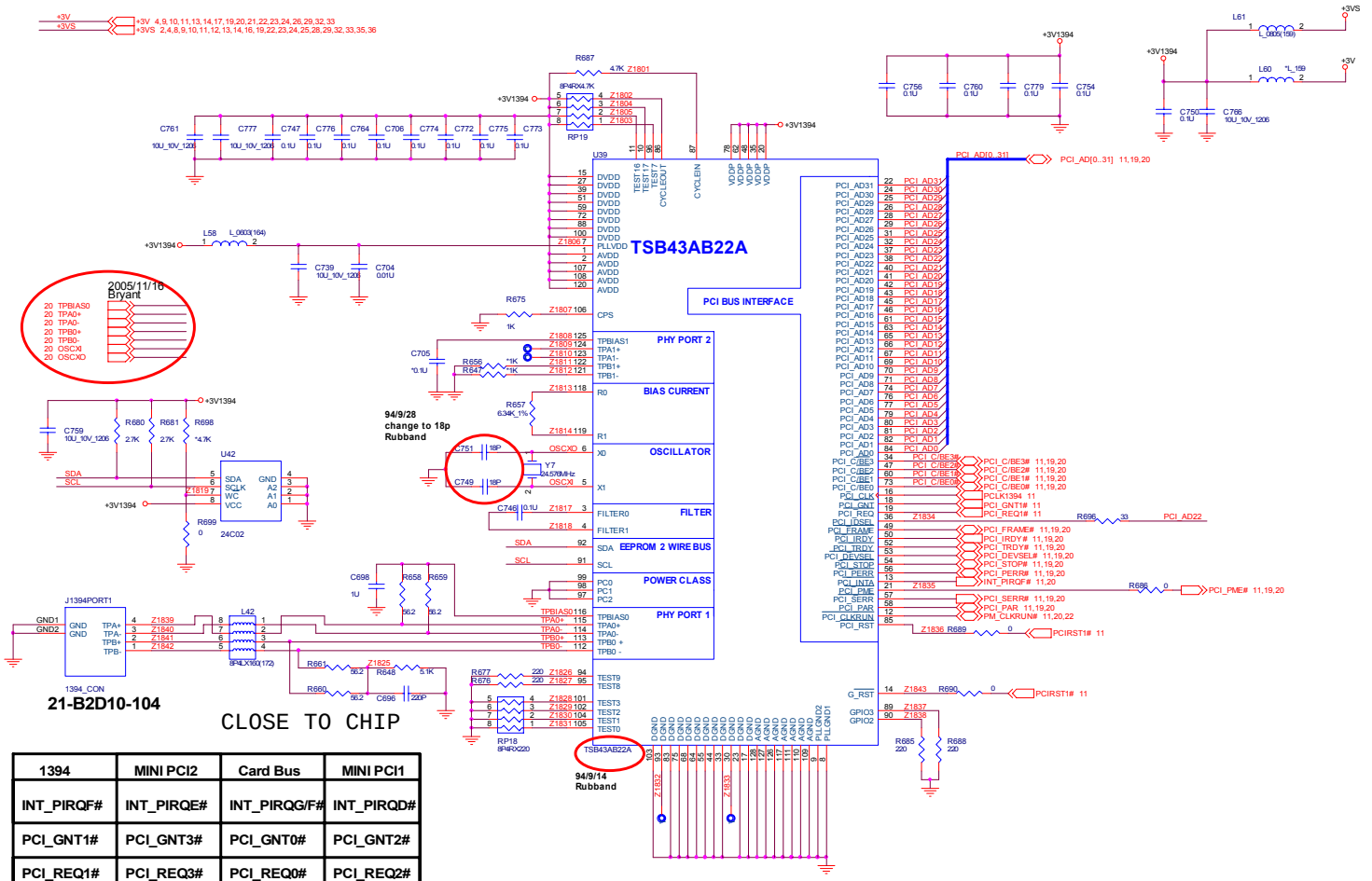
PCI-E LAN
(MARVELL)



TI-1394A (43AB22A)



1394	MINI PCI2	Card Bus	MINI PCI1
INT_PIRQF#	INT_PIRQE#	INT_PIRQG/F#	INT_PIRQD#
PCI_GNT1#	PCI_GNT3#	PCI_GNT0#	PCI_GNT2#
PCI_REQ1#	PCI_REQ3#	PCI_REQ0#	PCI_REQ2#
PCI_AD22	PCI_AD23	PCI_AD25	PCI_AD24
PCLK1394	PCLKMPCI1	PCLKPCM	PCLKMPCI2

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TI-1394A
(43AB22A)

MINIPCI (TUNER, WLAN, BT)

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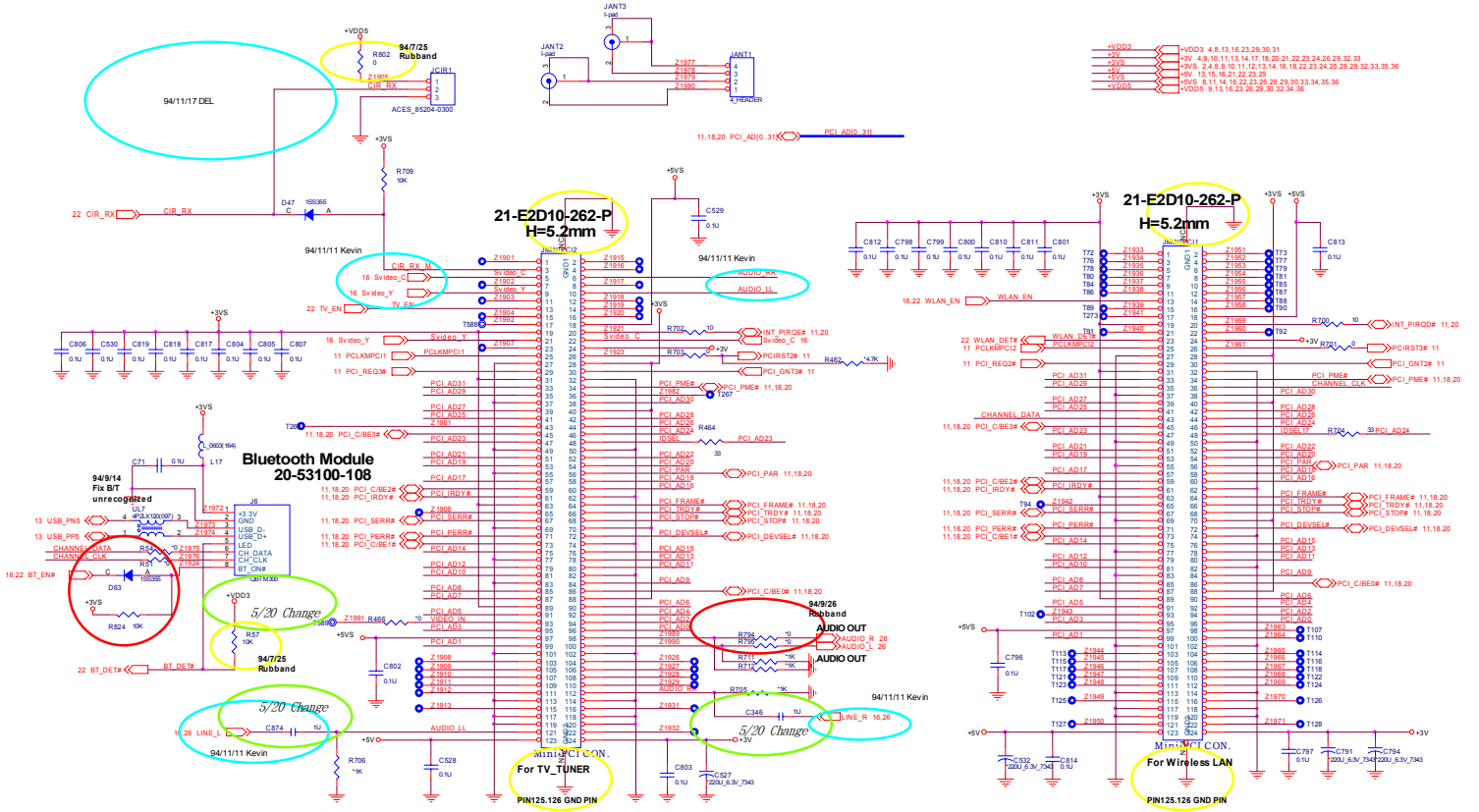
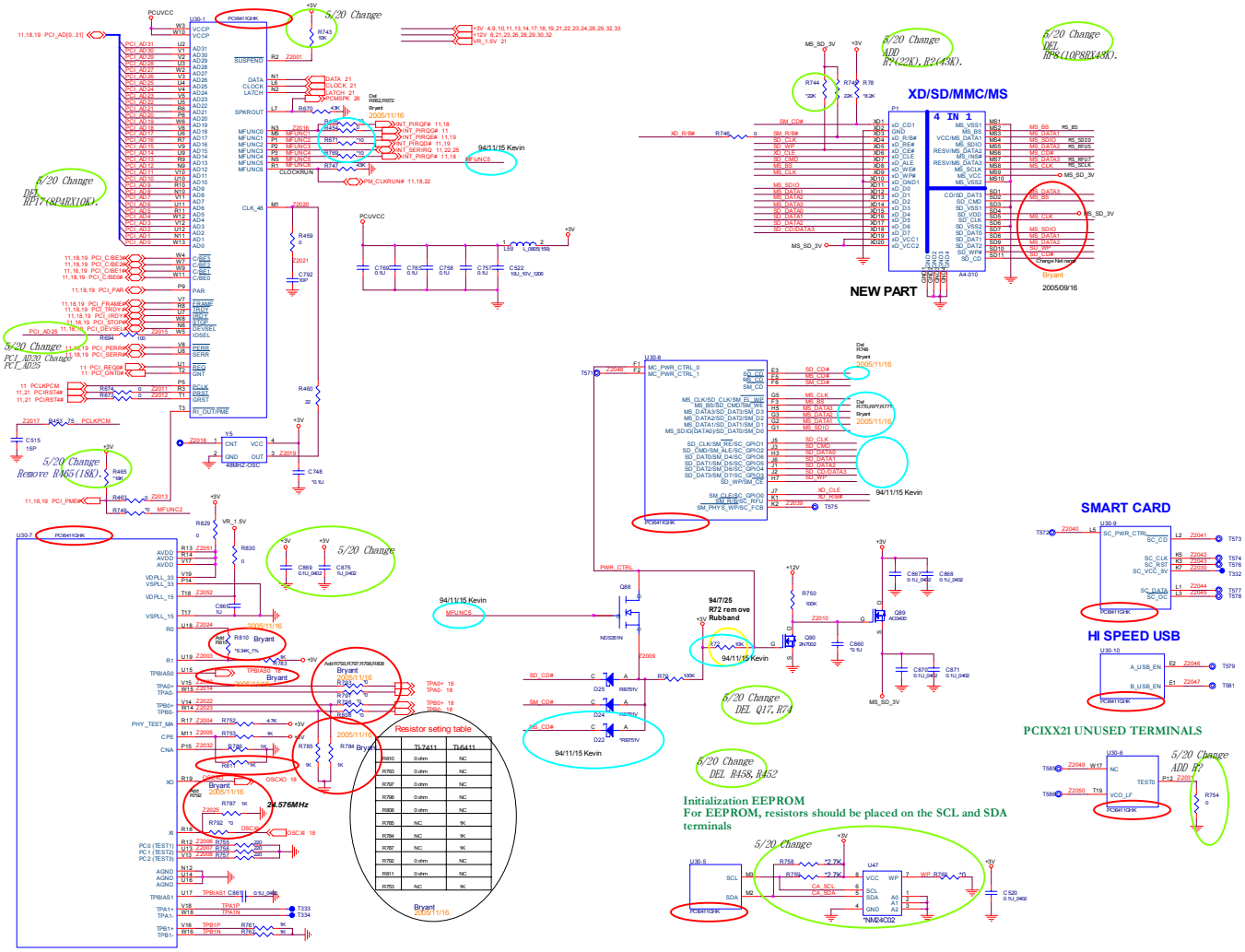
MINIPCI (TUNNER, WLAN, BT)



PCI6411, MCARD CON



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PCI6411, MCARD CON

B.Schematic Diagrams

PCMCIA SOCKET

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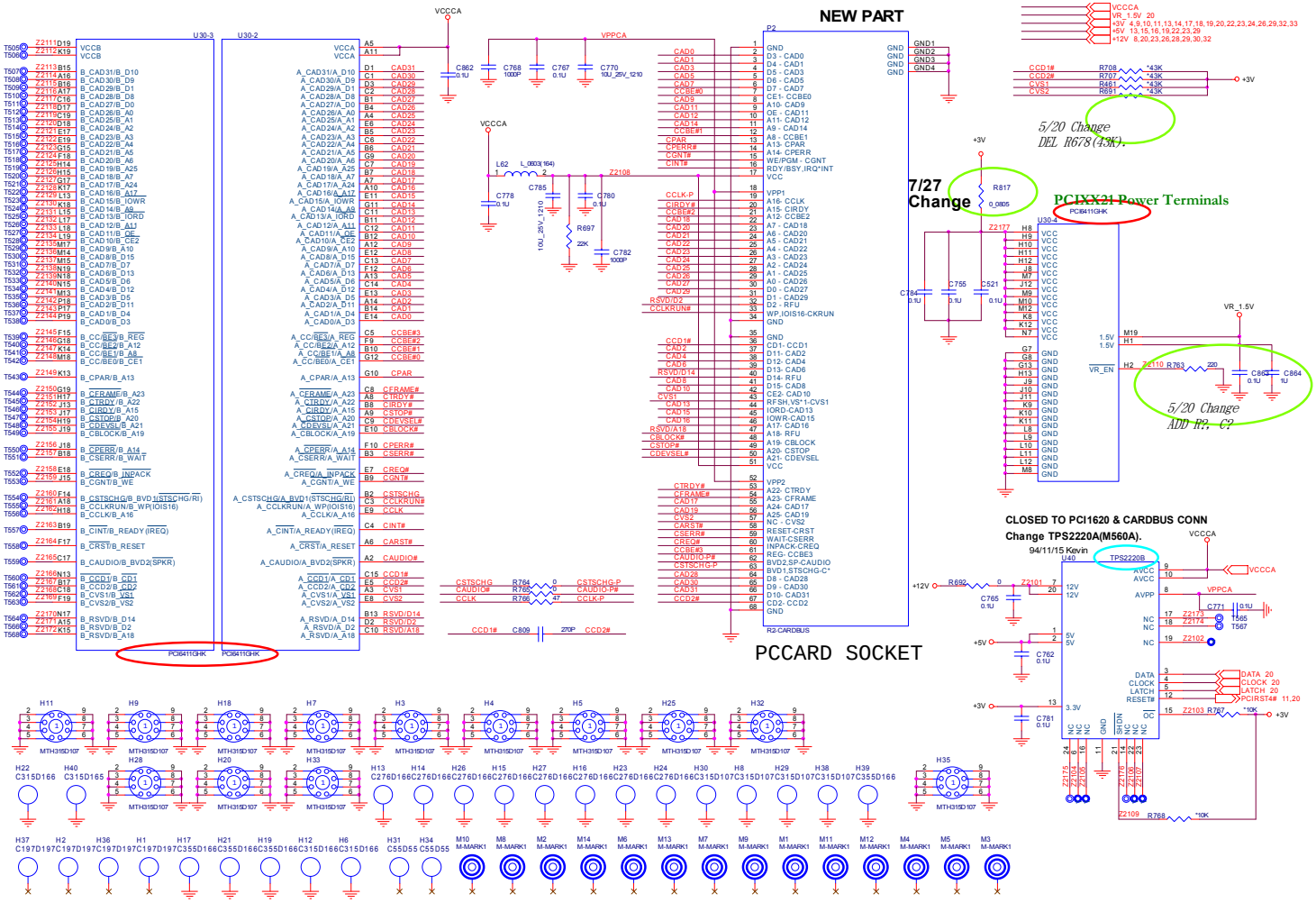
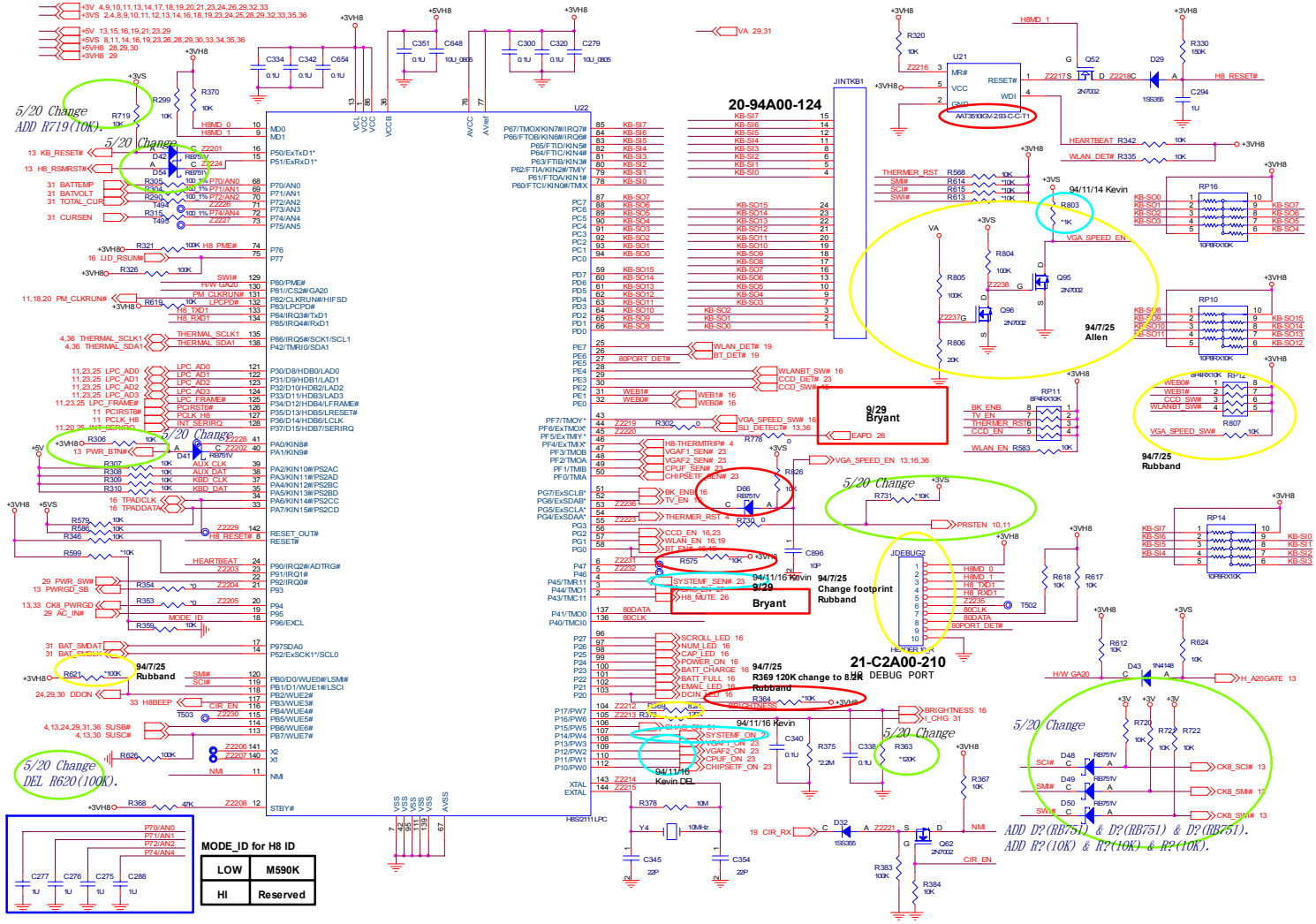
PCMCIA SOCKET



HITACHI H8S/2111



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HITACHI H8S/2111

BIOS, CCD CON & FAN CON

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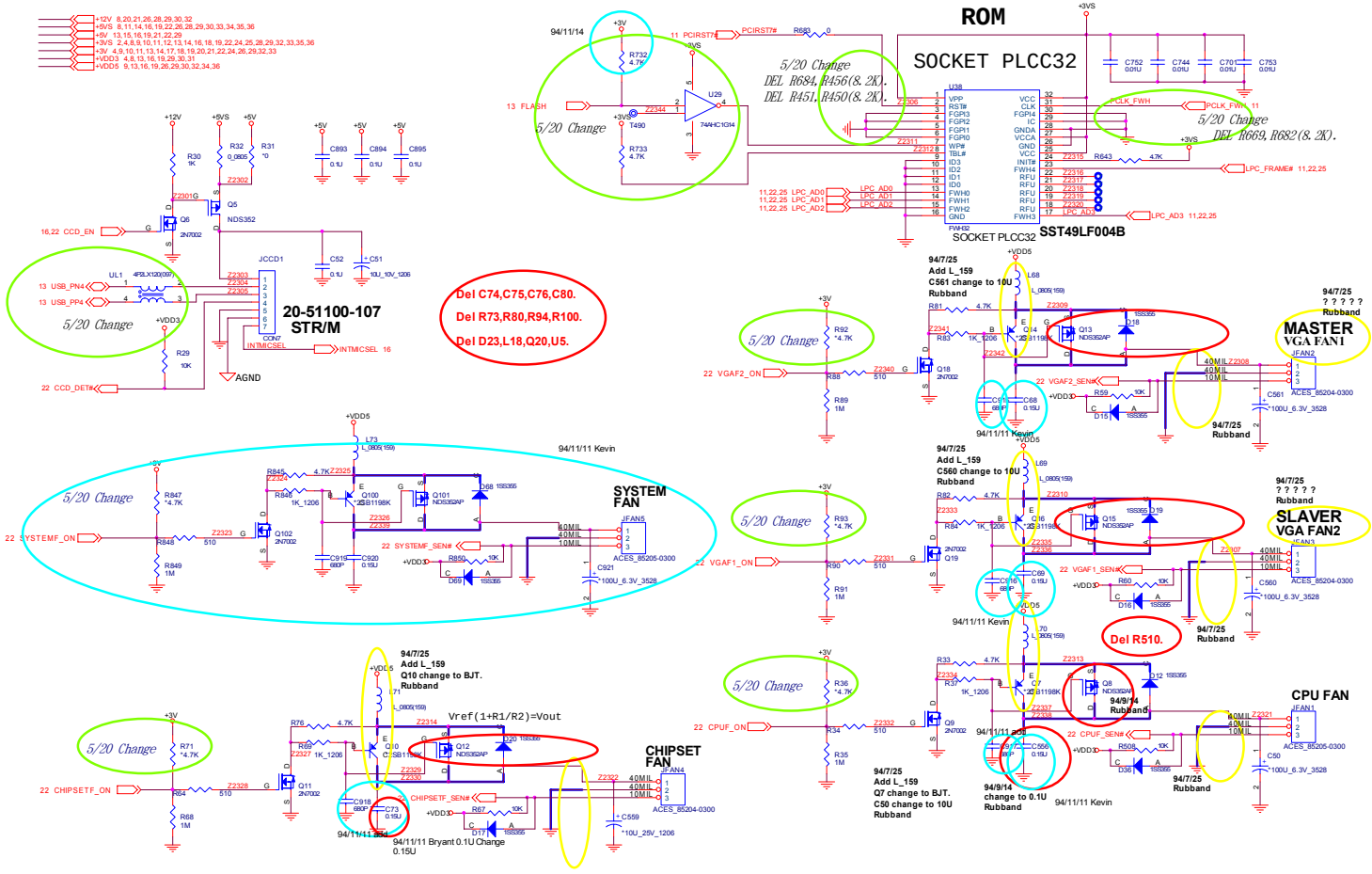
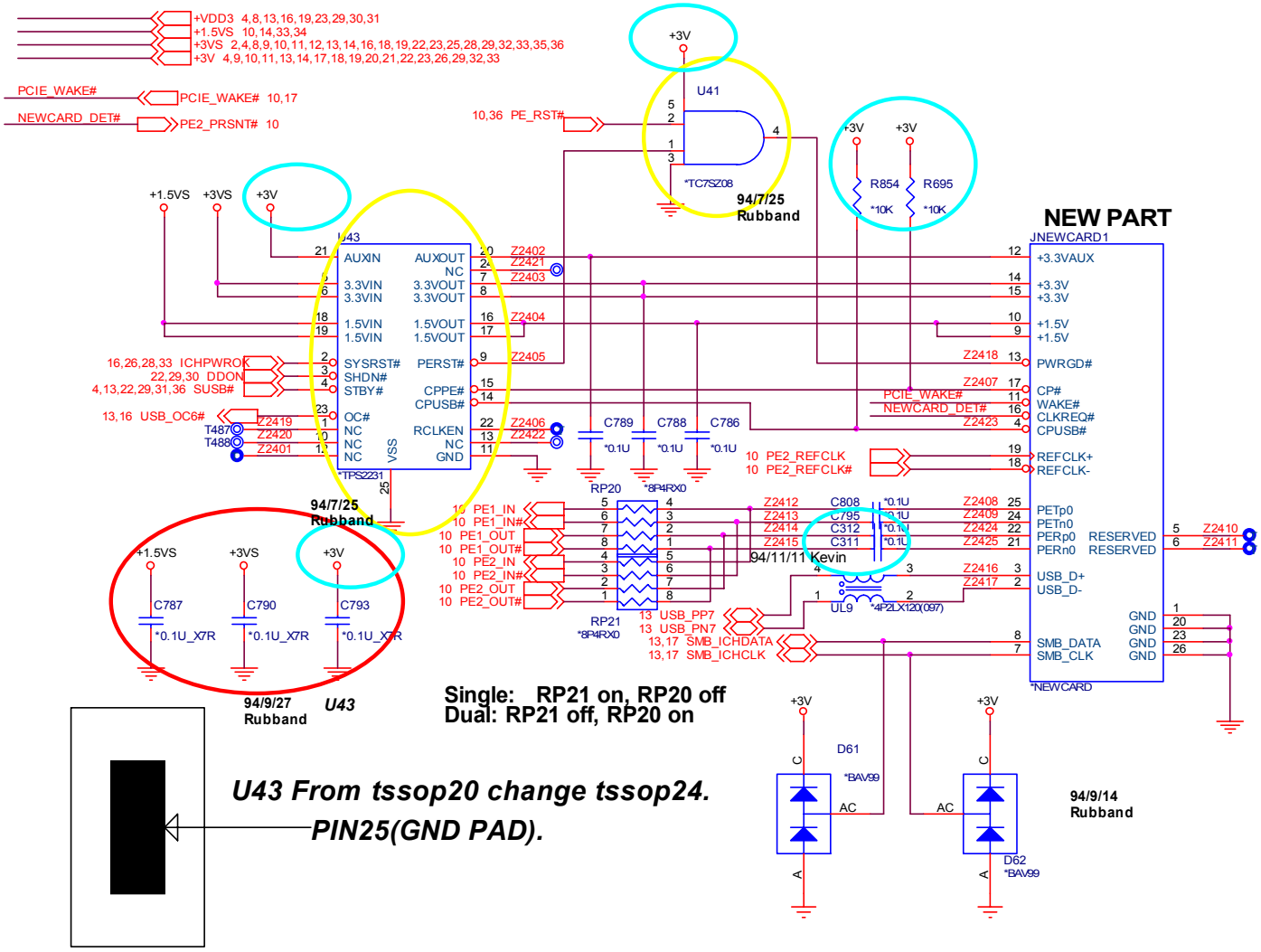
BIOS, CCD CON & FAN CON



PCI-E/USB NEW CARD



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PCI-E/USB NEW CARD

SUPER I/O & FIR

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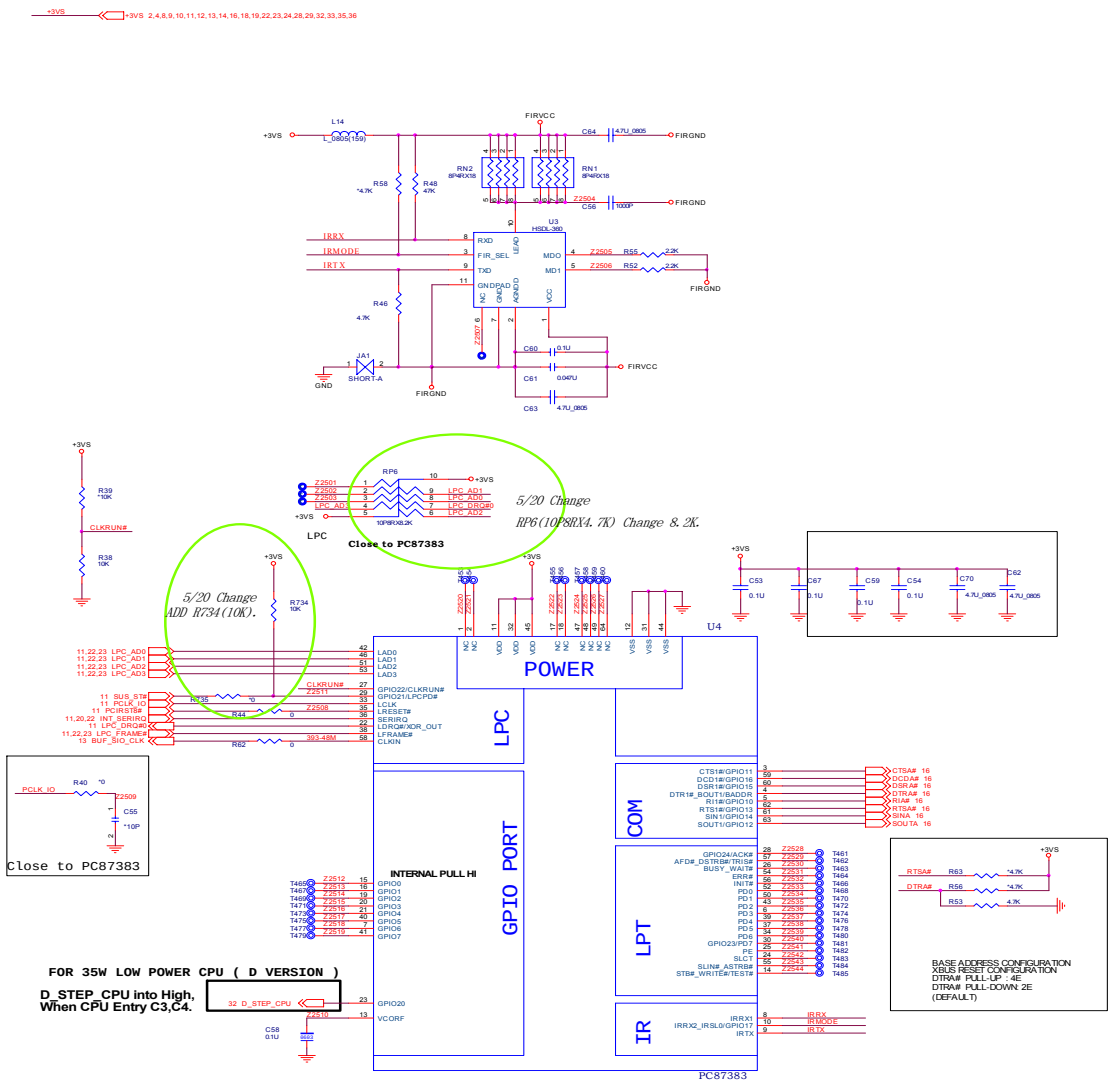
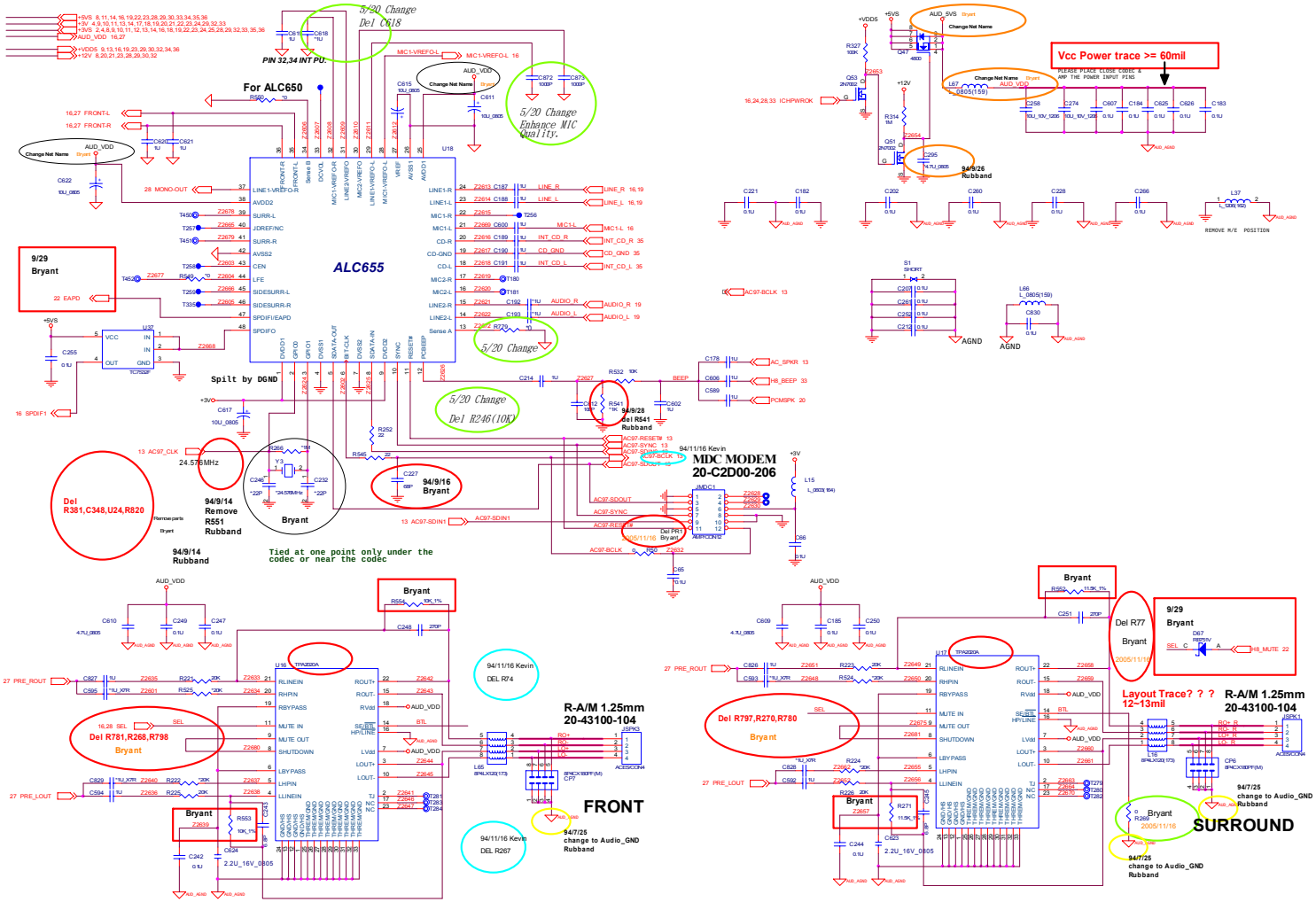
SUPER I/O & FIR



AUDIO (ALC655) & MDC



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AUDIO (ALC655) &
MDC

B.Schematic Diagrams

SRS AP8202Q

PIN32FocusBYPB Low --->ByPass.

AUDIO PROCESSOR PRE-AMP

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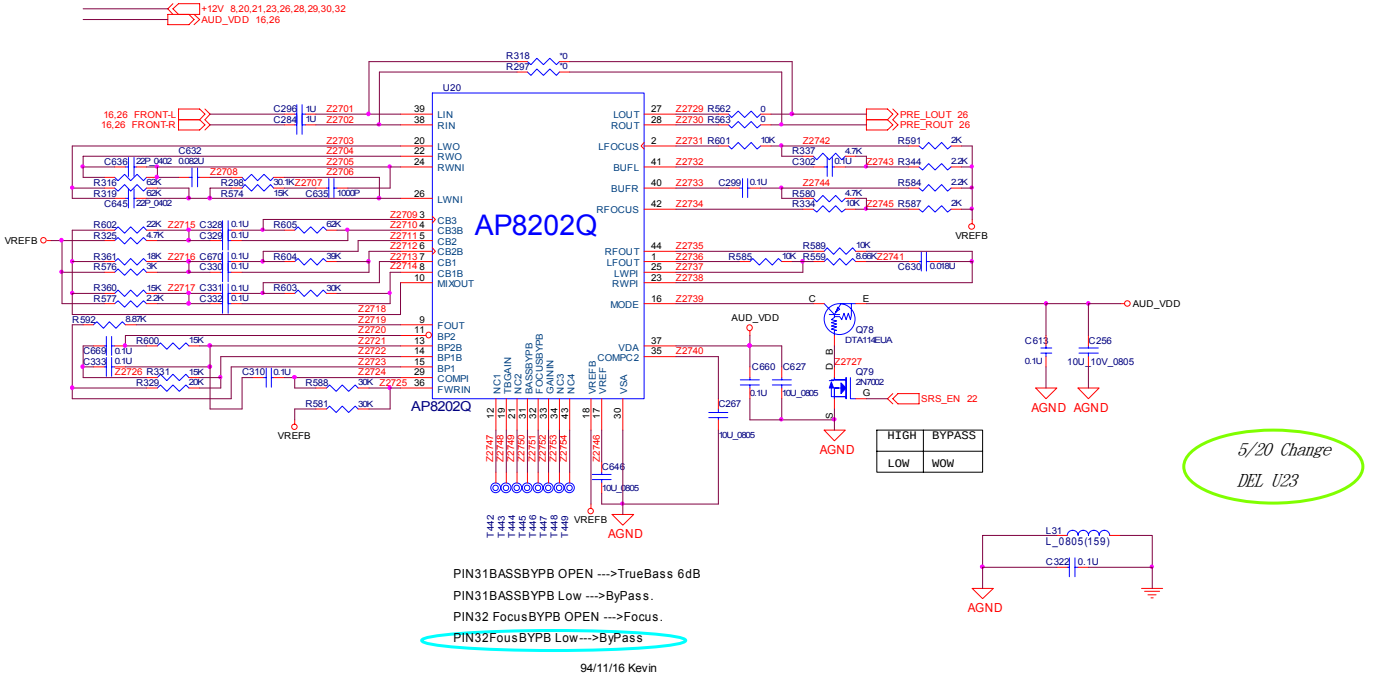
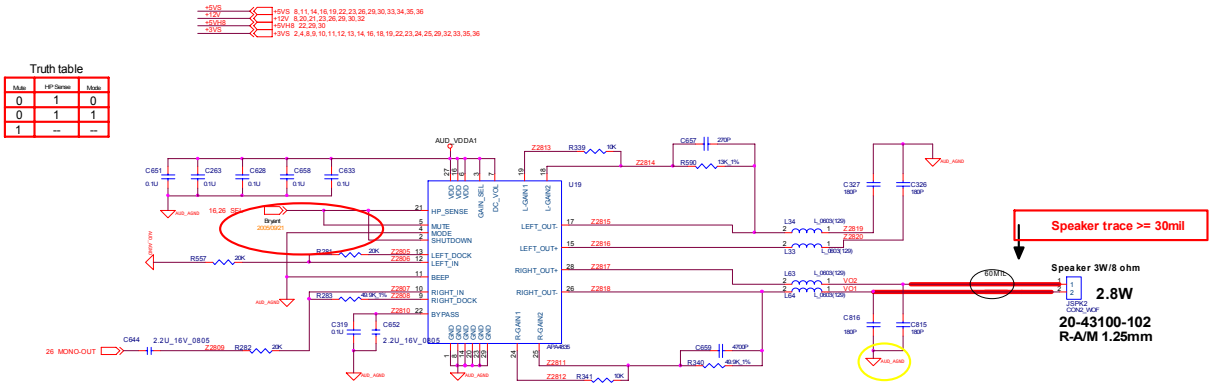
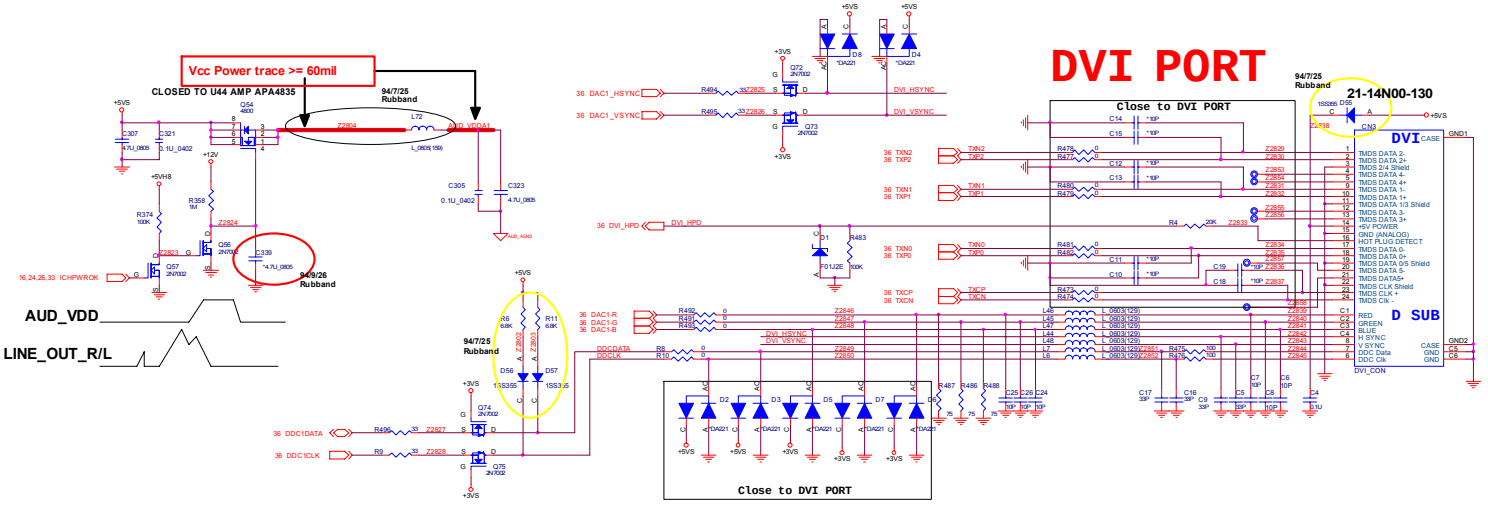
SRS AP8202Q



SUB-WOOFER & DVI CON





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SUB-WOOFER &
DVI CON

B.Schematic Diagrams

+5VS, +3VS, +5V, +3V

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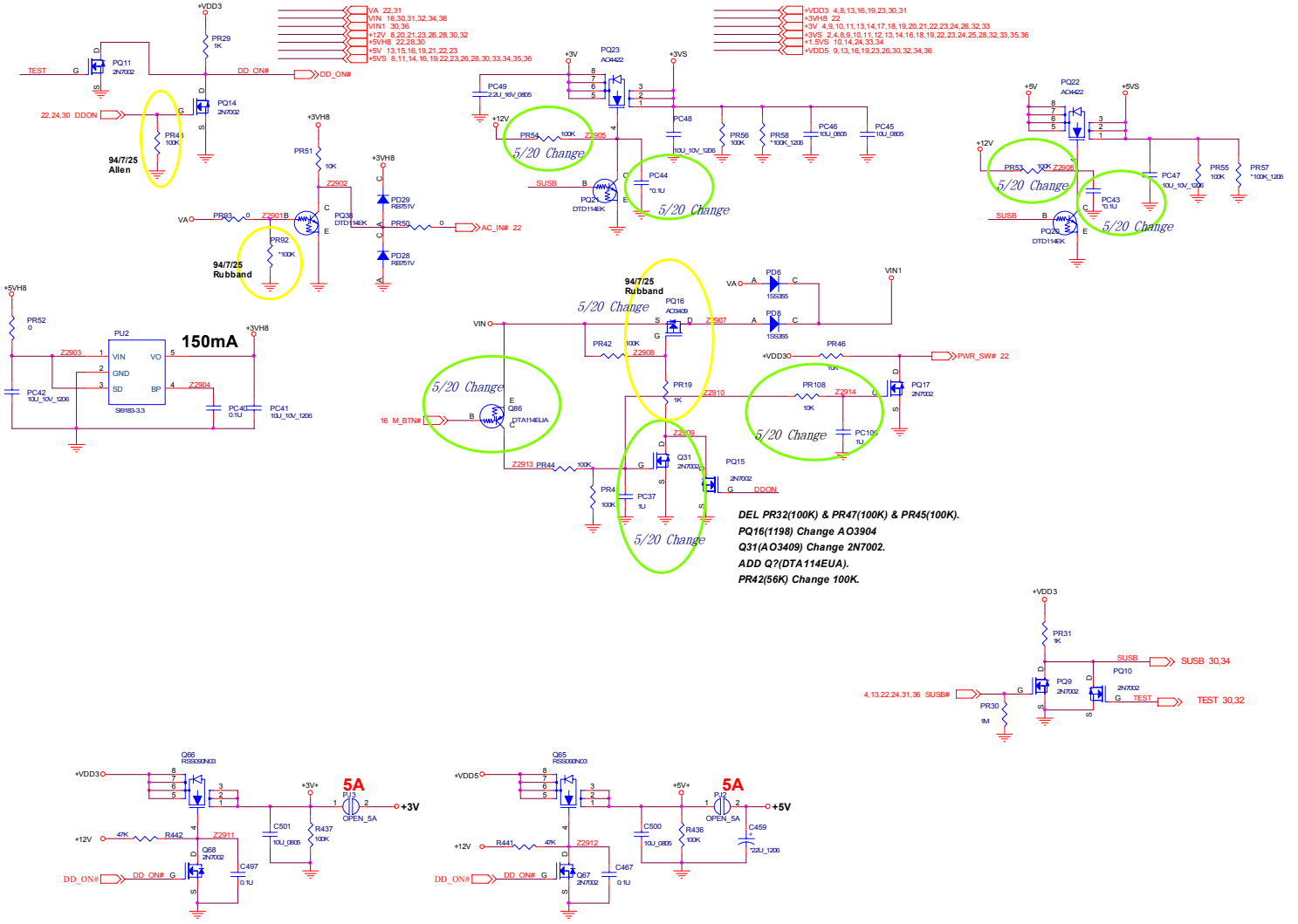
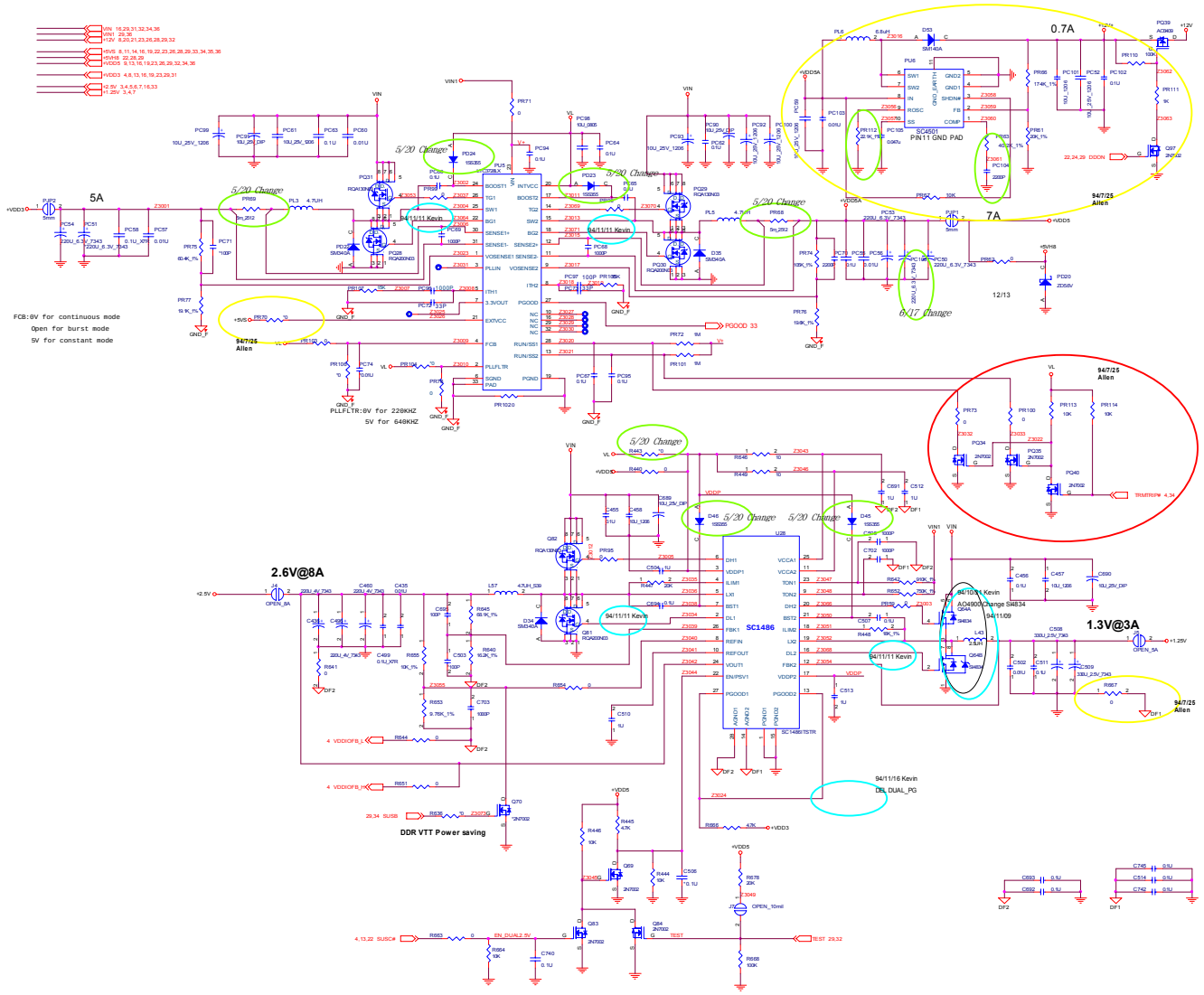
+5VS, +3VS, +5V, +3V



+VDD5, +VDD3, +3V, +5V, +1.25V



Sheet 31 of 45
+VDD5, +VDD3,
+3V, +5V, +1.25V

B.Schematic Diagrams

CHARGER, BAT CON, PWR CON

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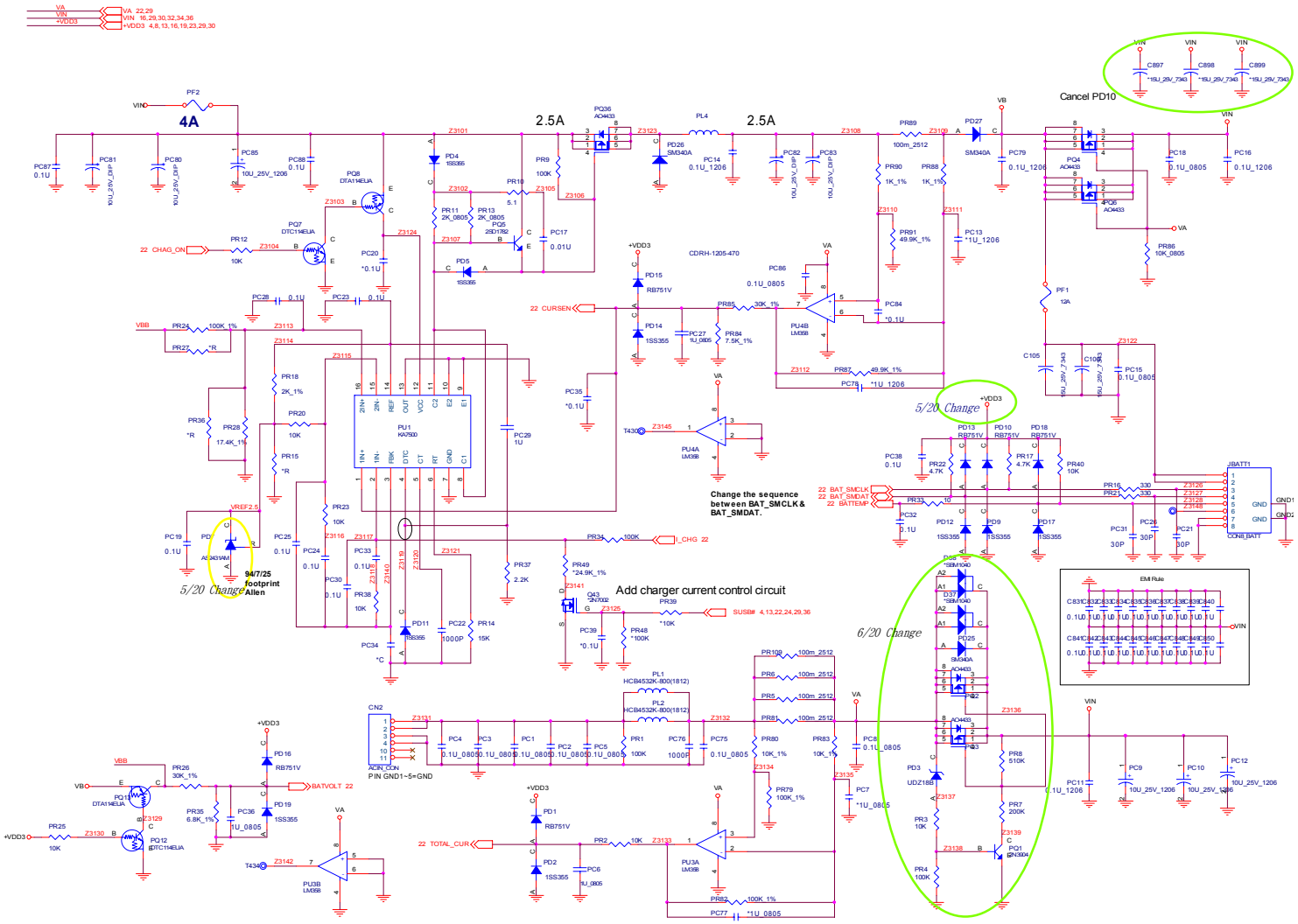
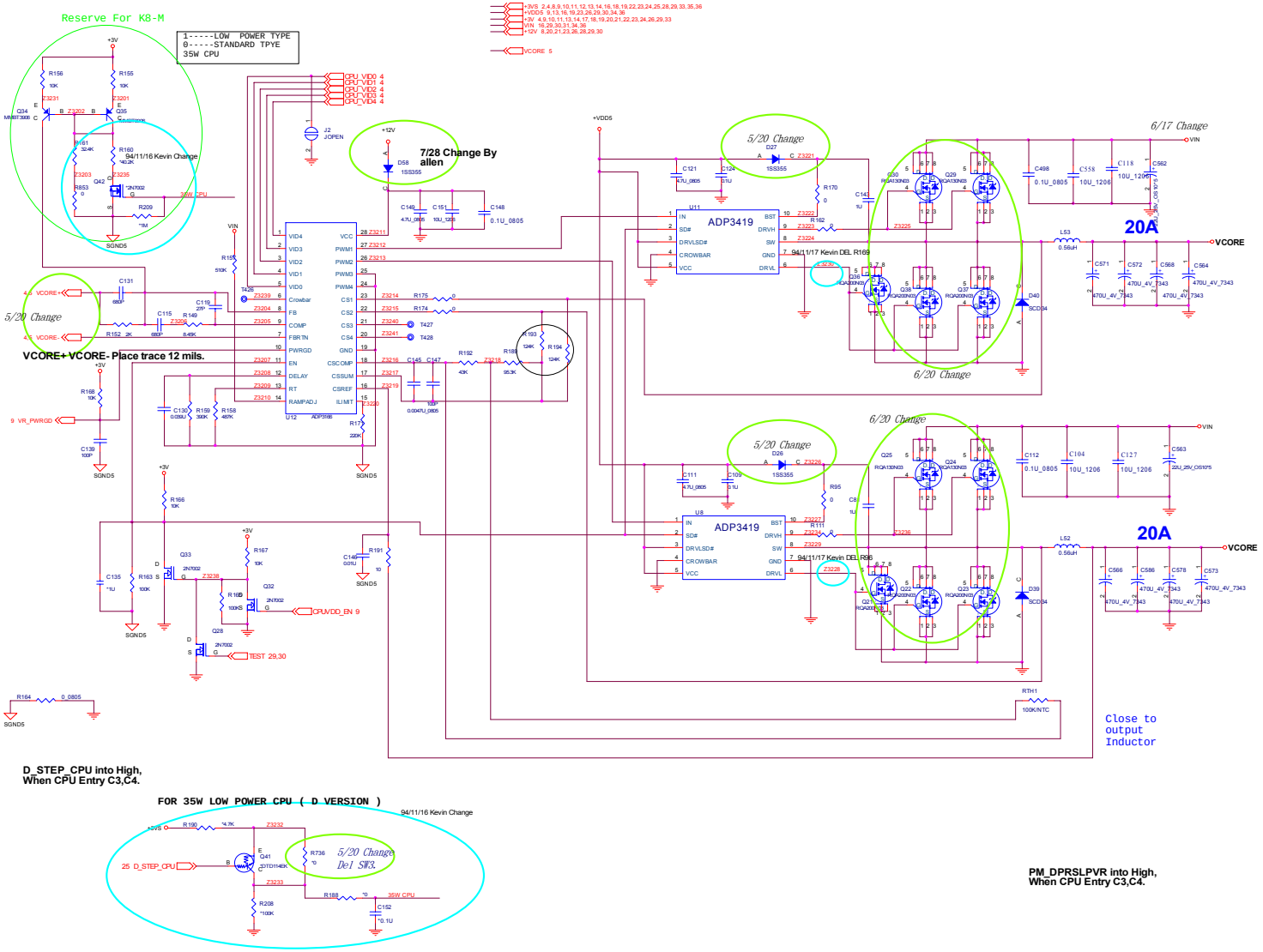
CHARGER, BAT CON, PWR CON



VCORE



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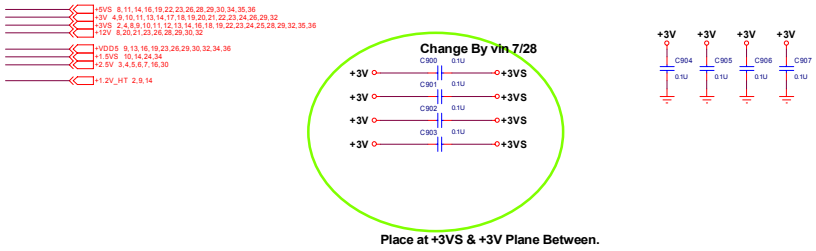
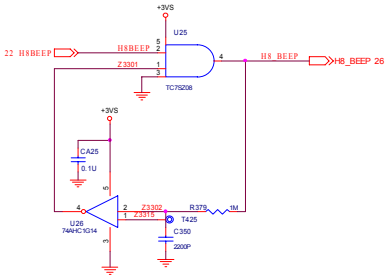
VCORE

POWER





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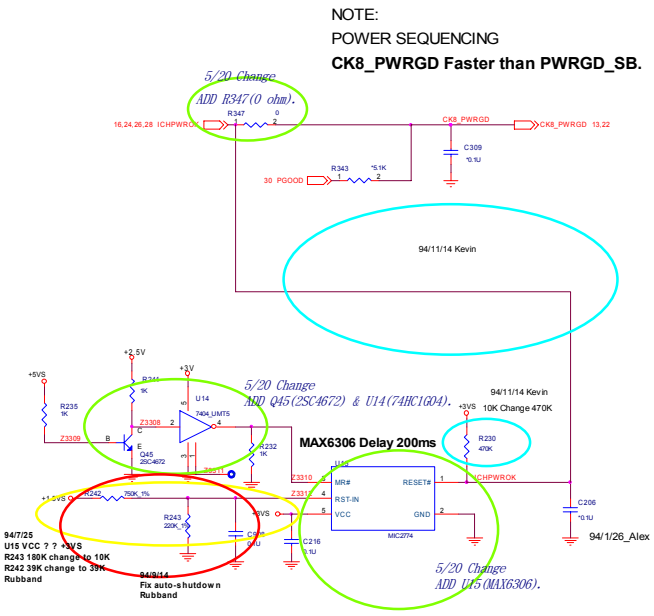
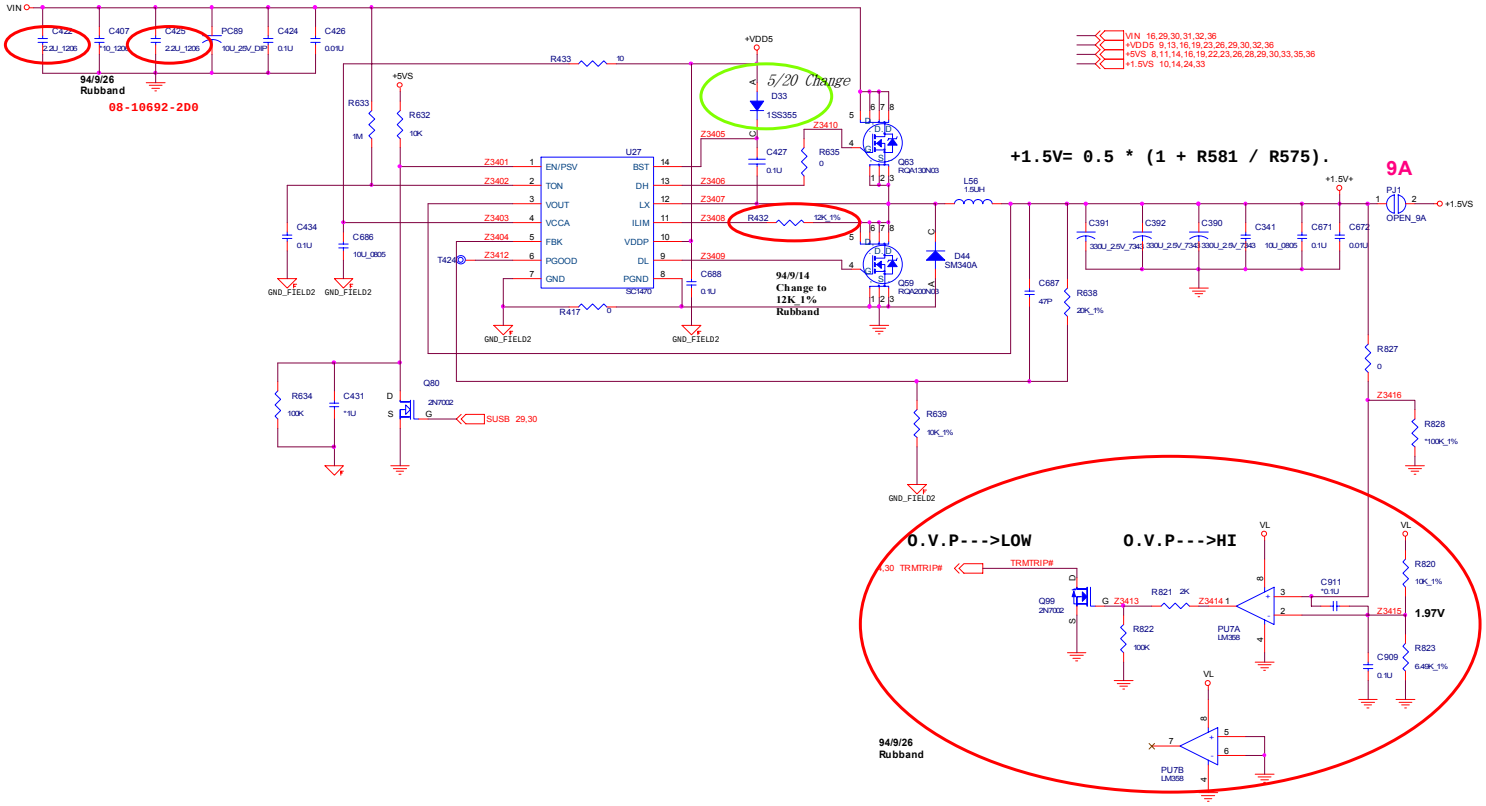
POWER



+1.5VS, +1.8VS



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+1.5VS, +1.8VS

SATA HDD & CDROM

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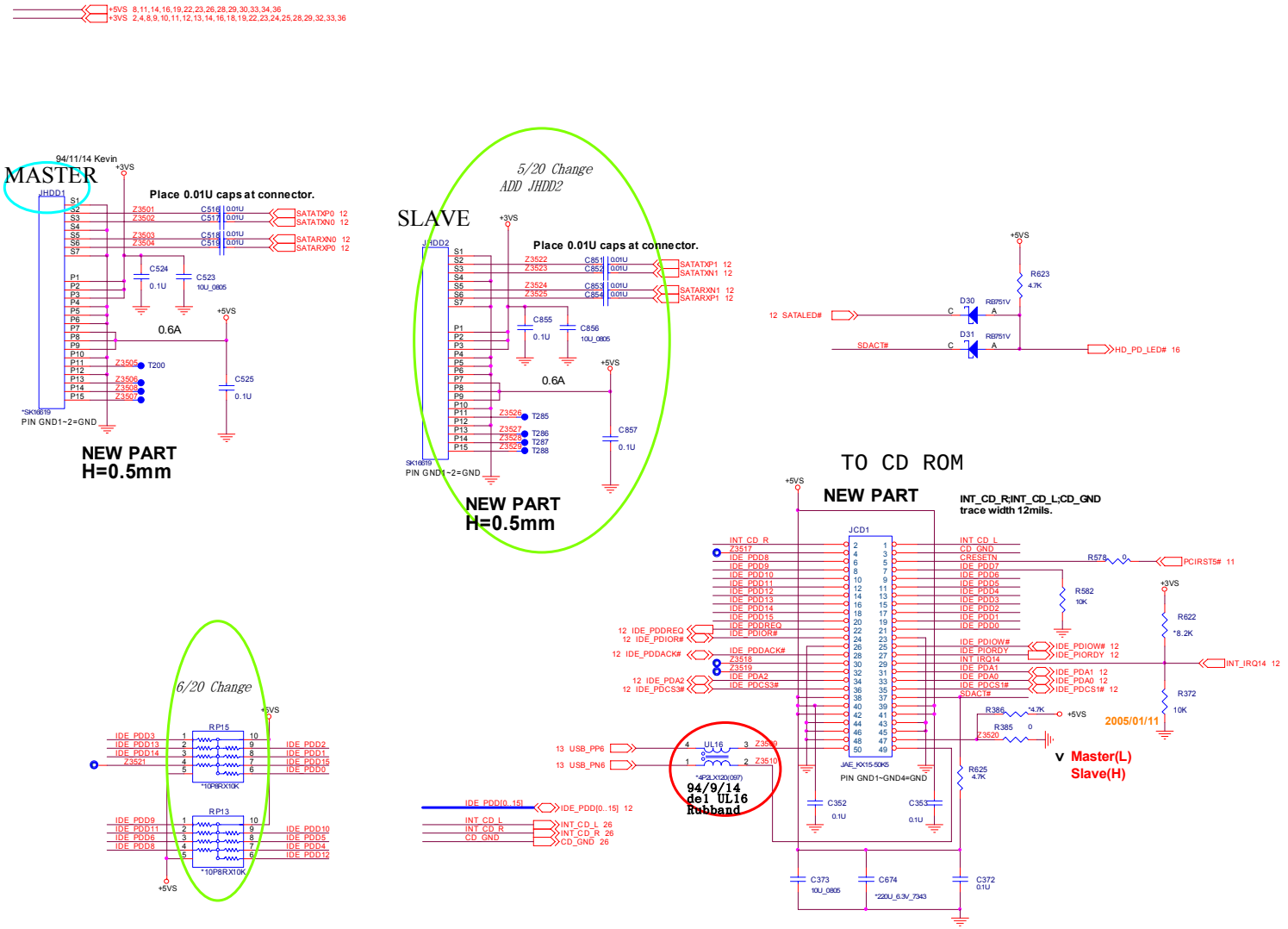
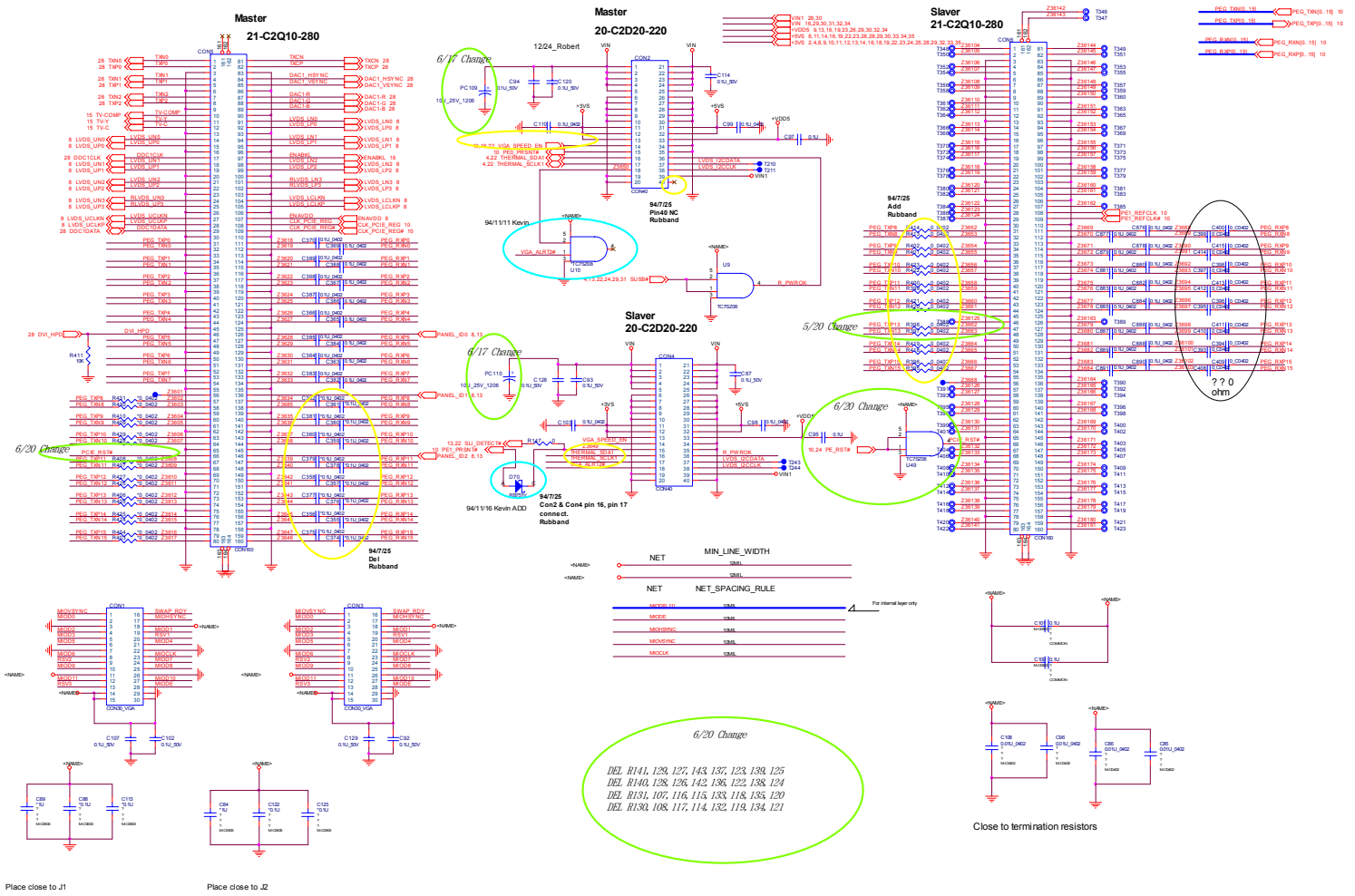
SATA HDD &
CDROM



VGA Board Connector



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VGA Board Connector

CLICK BOARD

CLICK BOARD

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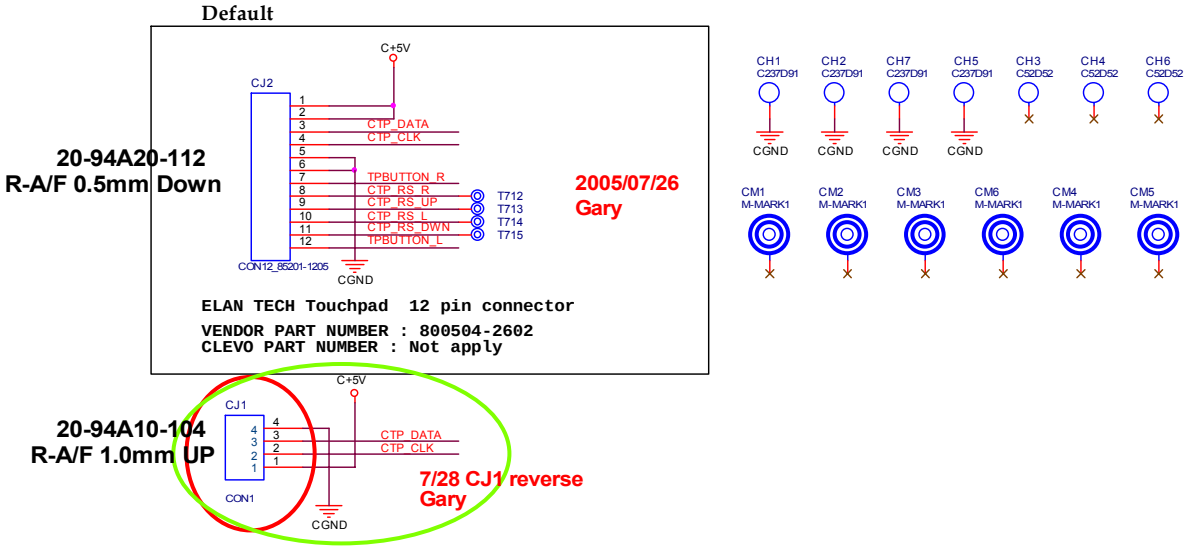
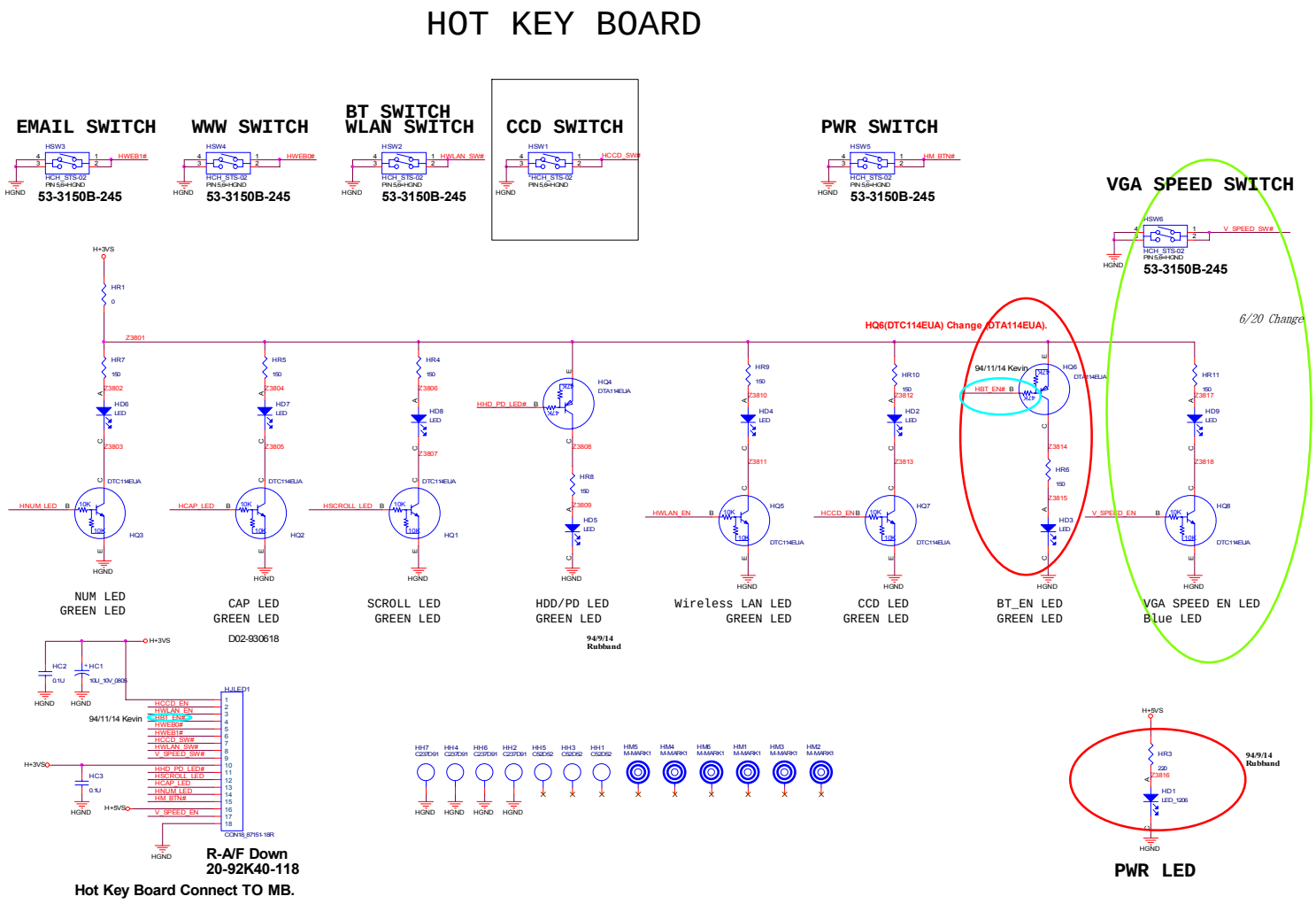
CLICK BOARD



HOT KEY BOARD



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HOT KEY BOARD

B.Schematic Diagrams

PHONE JACK BOARD

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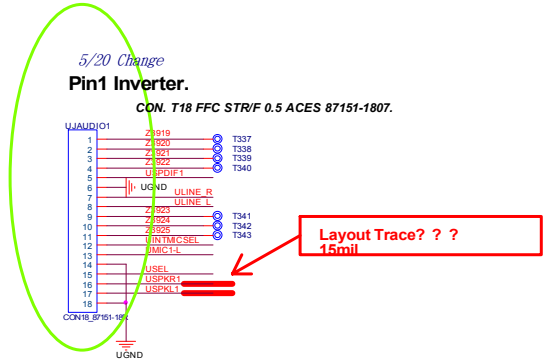
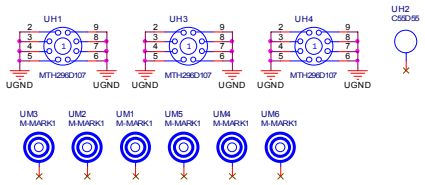
PHONE JACK BOARD

PHONE JACK BOARD

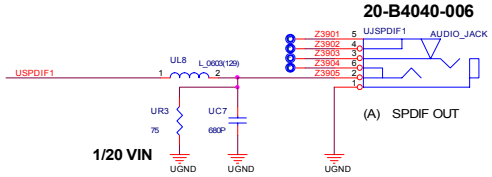


20-92K40-118

Down contact.
Phone Jack Board Connect TO MB.



20-B4040-006



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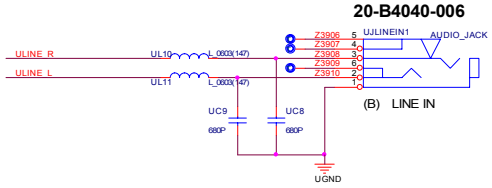

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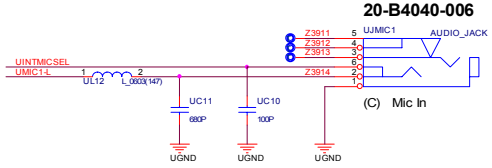
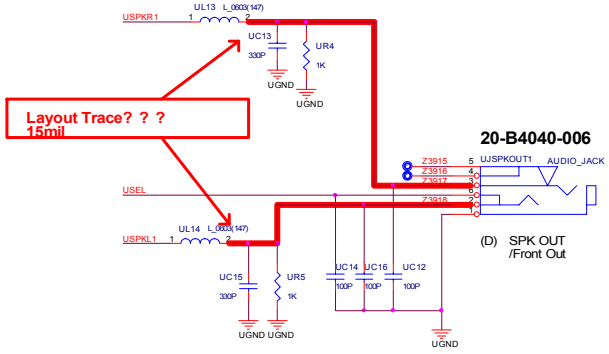
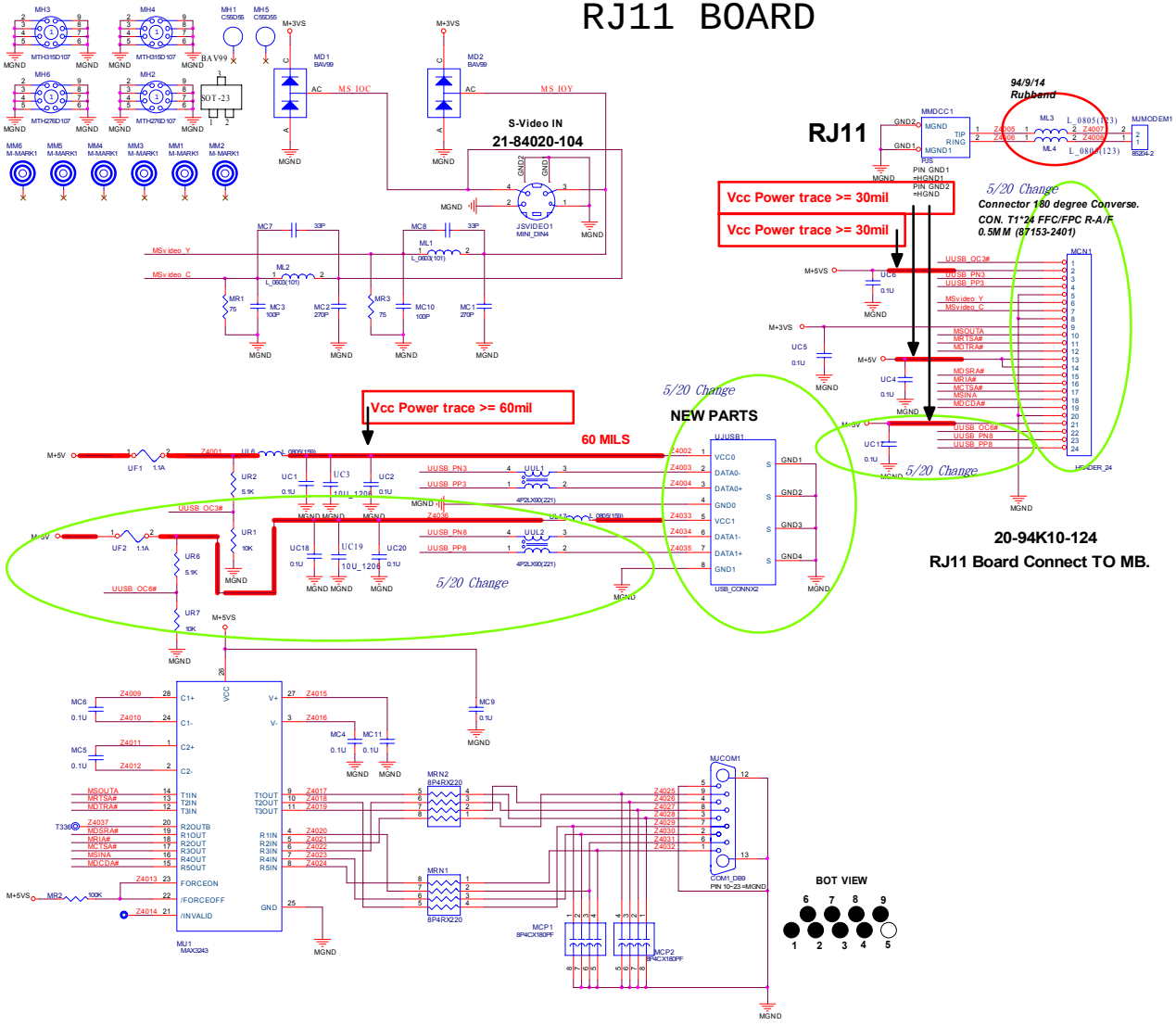




RJ11 BOARD



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RJ11 BOARD

CD-ROM BOARD

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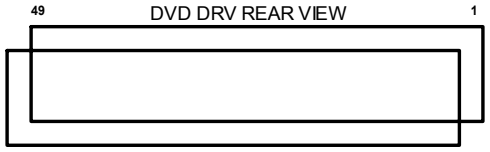
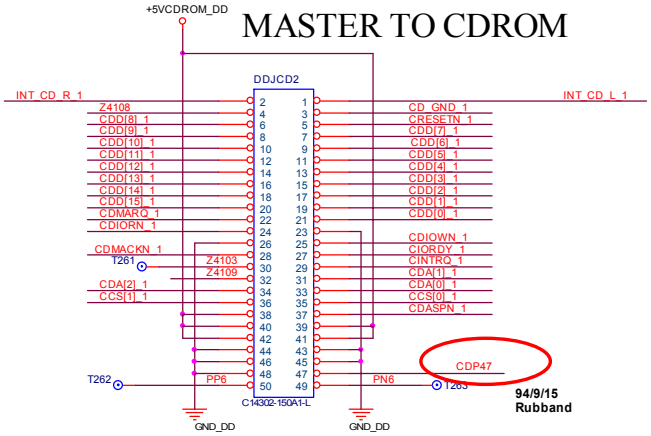
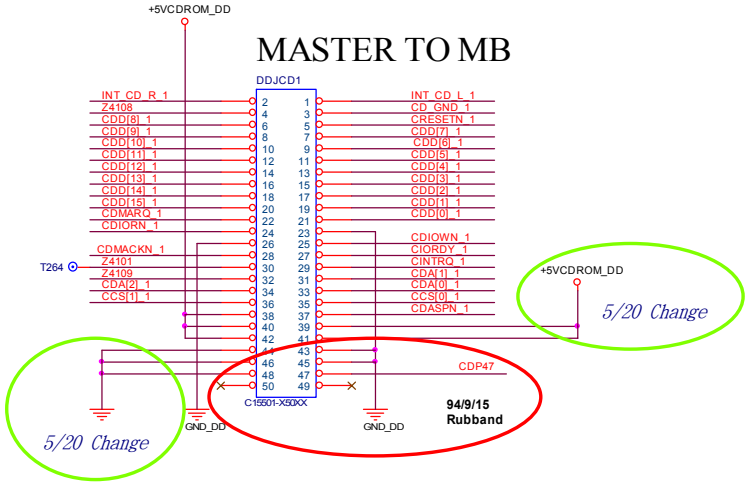
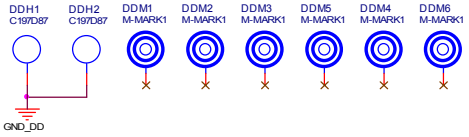
CD-ROM BOARD

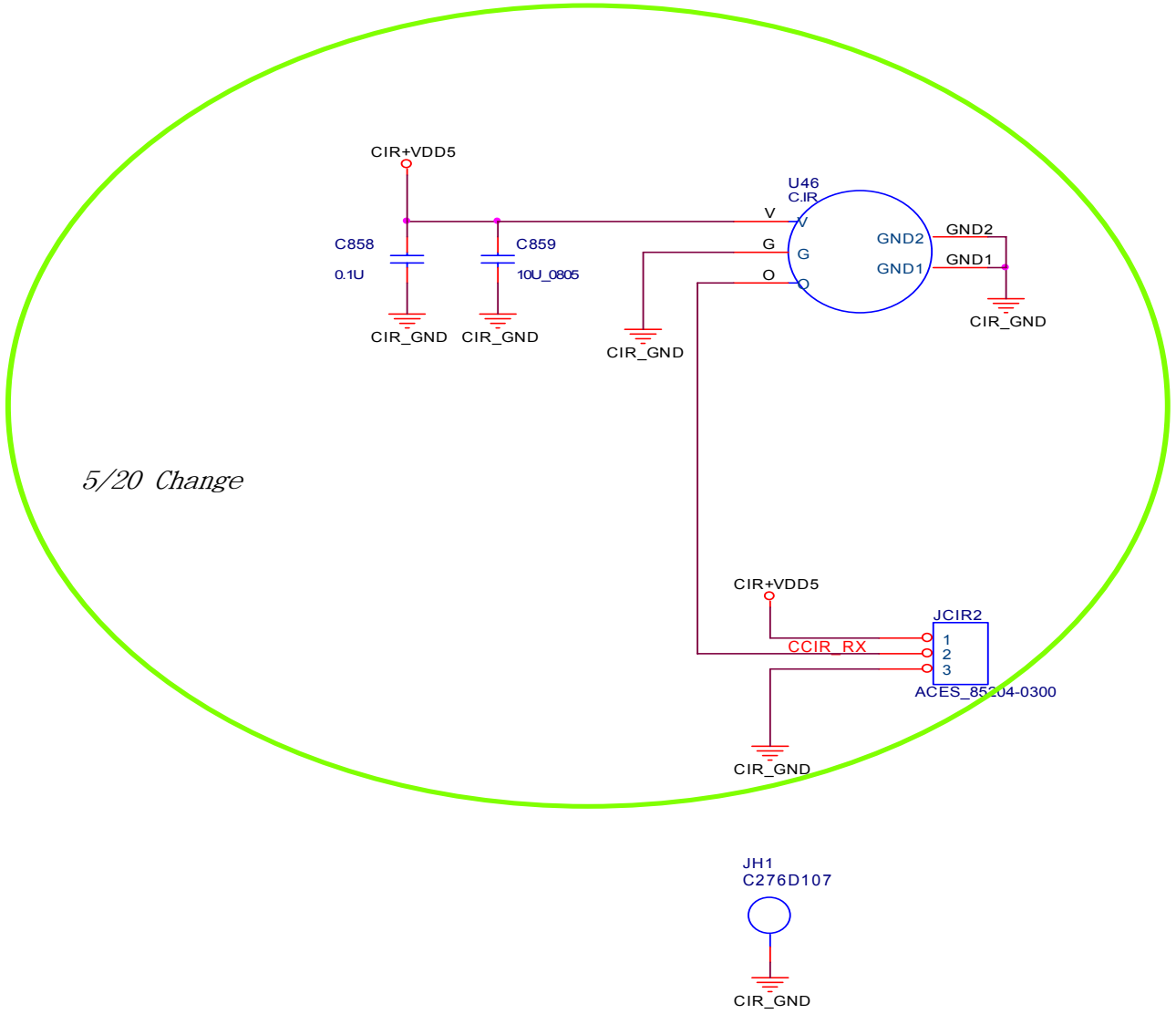








CIR BOARD



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CIR BOARD

FLASH BOARD

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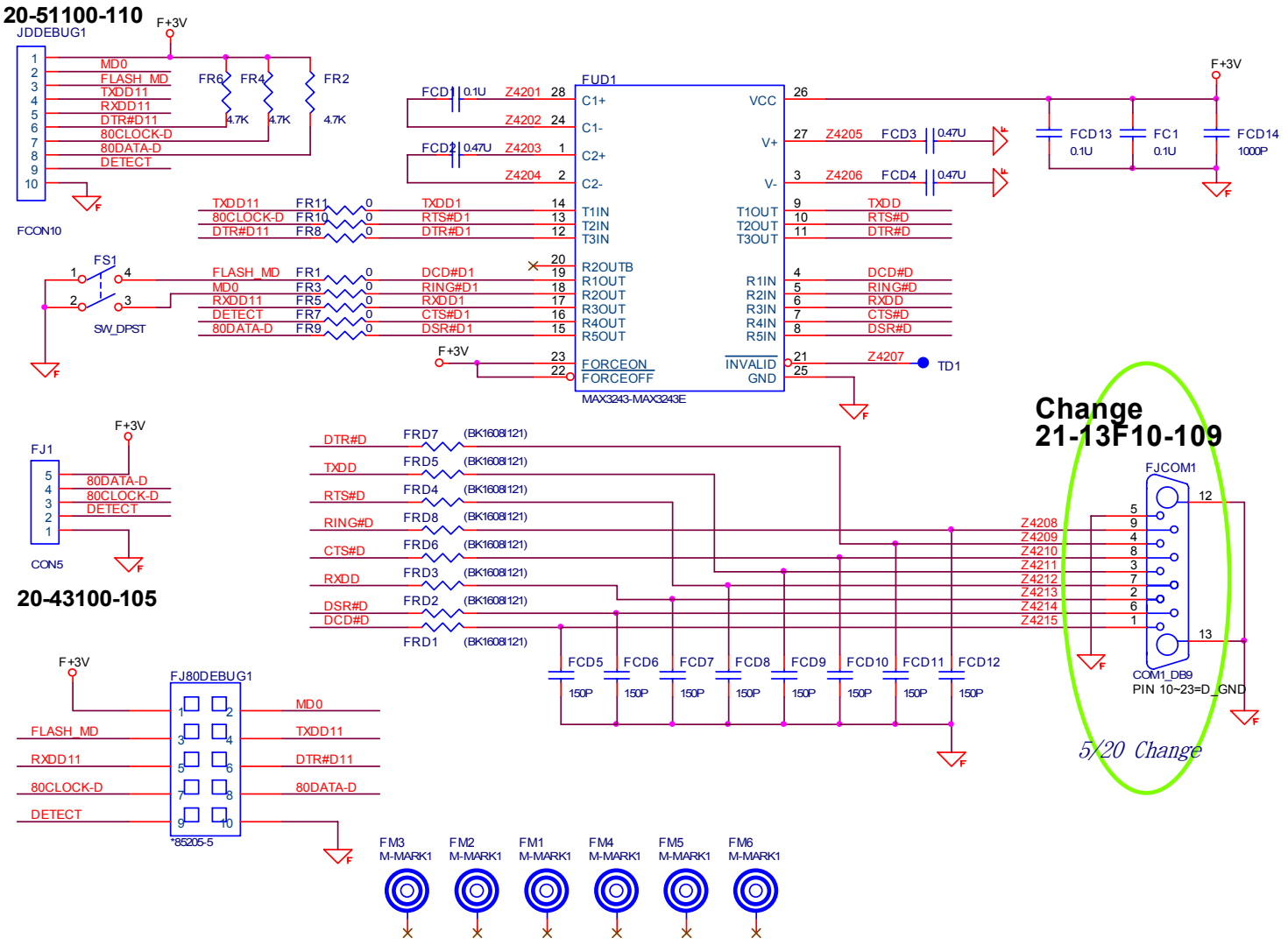
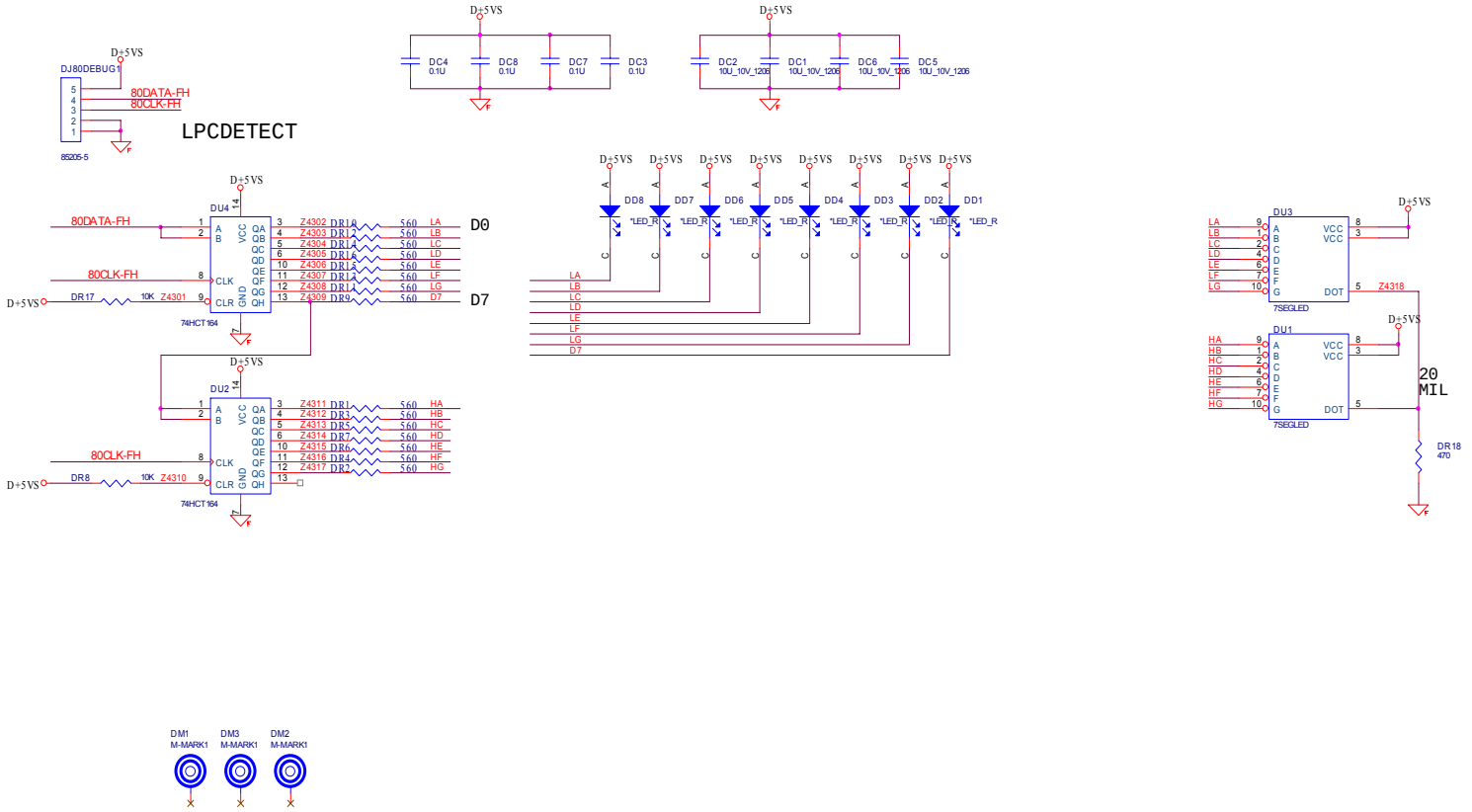
FLASH BOARD



DEBUG BOARD



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DEBUG BOARD