SERVICE MANUAL

M660S / M665S

notebook

Notebook Computer

M660S/M665S

Service Manual

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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 ***M660S/ M665S*** 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 19V, 3.42A or 18.5, 3.5A AC/DC Adapter, **OR** by a DC Output 20V, 4.5A minimum AC/DC Adapter if you are using the **optional port replicator**.

CAUTION

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

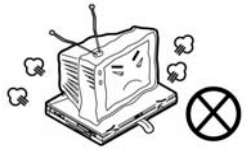
TO REDUCE THE RISK OF FIRE, USE ONLY NO. 26 AWG OR LARGER, TELECOMMUNICATION LINE CORD

This Computer's Optical Device is a Laser Class I Product

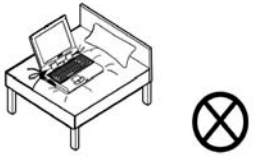
Instructions for Care and Operation

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.*
		

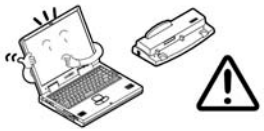
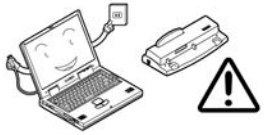
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

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.*
	

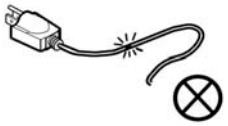
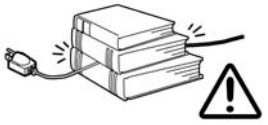
Power Safety

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

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***M660S/M665S*** 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. *DOS, Windows 9x, Windows NT 4.0, Windows 2000, Windows XP, OS/2 Warp, UNIX,* 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 ***M660S/M665S*** 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

Latest Specification Information

The specifications listed in this Appendix are correct at the time of going to press. Certain items (particularly processor types/speeds and CD/DVD device types) may be changed, delayed or updated due to the manufacturer's release schedule. Check with your service center for details.

Feature	Specification	
Processor	Intel® Core™ Duo Processor (478-pin) Micro-FC-PGA Package **T2300/ T2400/ T2500/ T2600/ T2700**	65nm (65 Nanometer) Process Technology 2MB On-die L2 Cache & 667MHz FSB 1.66/ 1.83/ 2.0/ 2.16/ 2.33 GHz
	Intel® Core™ Solo Processor (478-pin) Micro-FC-PGA Package **T1300/ T1400**	65nm (65 Nanometer) Process Technology 2MB On-die L2 Cache & 667MHz FSB 1.66/ 1.83 GHz
	Intel® Celeron® M Processor (478-pin) Micro-FCPGA Package **410/ 420/ 430**	65nm (65 Nanometer) Process Technology 1MB On-die L2 Cache & 533MHz FSB 1.46/ 1.60/ 1.73 GHz
Core Logic	VIA VN800 + VT8237R-Plus Chipset	
Memory	One 200 Pin SO-DIMM Sockets Supporting **DDRII (DDR2)** 533 MHz 2nd 200 Pin SO-DIMM Socket (**Factory Option**) 64-bit Wide DDRII (DDR2) Data Channel Memory Expandable up to 1GB (256/ 512/ 1024 MB **DDRII** Module) Memory Expandable up to 2GB if 2nd 200 Pin SO-DIMM Socket (**Factory Option**) is Used (**Note**: Do Not Use Other Module Types)	
Security	Security (Kensington® Type) Lock Slot	
BIOS	One 4Mb Flash ROM	Phoenix™ BIOS
LCD	15.4" WXGA TFT LCD	

Feature	Specification
Video Adapter	Video Controller: built-in VIA VN800 Chipset Video Memory: Supports up to 64MB of Video Memory (dynamically allocated from system memory where needed) Supports Analog Monitor Pixel Resolution up to 1600 * 1200 Integrated 128-bit 3D Graphics Engine Accelerator
Storage	One Changeable 12.7mm(h) Optical Device (CD/DVD) Type Drive One Easy Changeable 2.5" 9.5 mm (h) **PATA** (Parallel) HDD
Audio	Integrated AC97 Compliant Interface 3D Stereo Enhanced Sound System Sound-Blaster PRO™ Compatible 2 * Built-In Speakers Built-In Microphone
Keyboard & Pointing Device	Winkey Keyboard Built-In TouchPad with Scrolling Function
Interface	Three USB 2.0 Ports One External Monitor Port One Headphone-Out Jack One Microphone-In Jack One Line-In Jack One S/PDIF Out Jack One RJ-11 Modem Jack One RJ-45 LAN Jack One DC-in Jack
Card Reader	Embedded 7-in-1 Card Reader (MS/ MS Pro/ SD/ Mini SD/ MMC/ RS MMC/ MS Duo) **Note:** MS Duo/ Mini SD/ RS MMC Cards require a PC adapter
PCMCIA	One Type-II PCMCIA CardBus PC Card Slot
Communication	56K Plug & Play Fax/Modem, V.90/92 Compliant 10Mb/100Mb Ethernet LAN 802.11b/g USB Wireless LAN Module (**Option**) Bluetooth Module v2.0 (**Factory Option**) 300K or 1.3M Pixel USB PC Camera Module (**Factory Option**)
Power Management	Supports ACPI 2.0 Supports Wake on LAN
Power	Full Range AC/DC Adapter 19V, 3.42A or 18.5V, 3.5A (**65W**), 100~240V, 50~60Hz Full Range AC/DC Adapter 20V, 4.5A (**90W**), 100~240V, 50~60Hz (Supplied for the **Optional Port Replicator Only**)
Battery	6 Cell Smart Lithium-Ion Battery Pack, 4000mAH

Feature	Specification	
Environmental Spec	Temperature Operating: 5°C ~ 35°C Non-Operating: -20°C ~ 60°C	Relative Humidity Operating: 20% ~ 80% Non-Operating: 10% ~ 90%
Dimensions & Weight	360mm (w) * 267mm (d) * 25.4mm (h)	2.6 kg With 6 Cell Battery
Optional	**Optical Drive Module Options:** DVD/CD-RW Combo Drive Module DVD-Dual Drive Module Port Replicator (10/100 Base-T Ethernet Port, 4 * USB 2.0 Ports, Serial Port, Parallel Port, External Monitor Port, DC-In Jack) (**Note: Port Replicator requires the supplied 90W power adapter**)	802.11b/g USB Wireless LAN Module USB PC Camera Module (**Factory Option**) Bluetooth Module v2.0 (**Factory Option**)

Model Differences

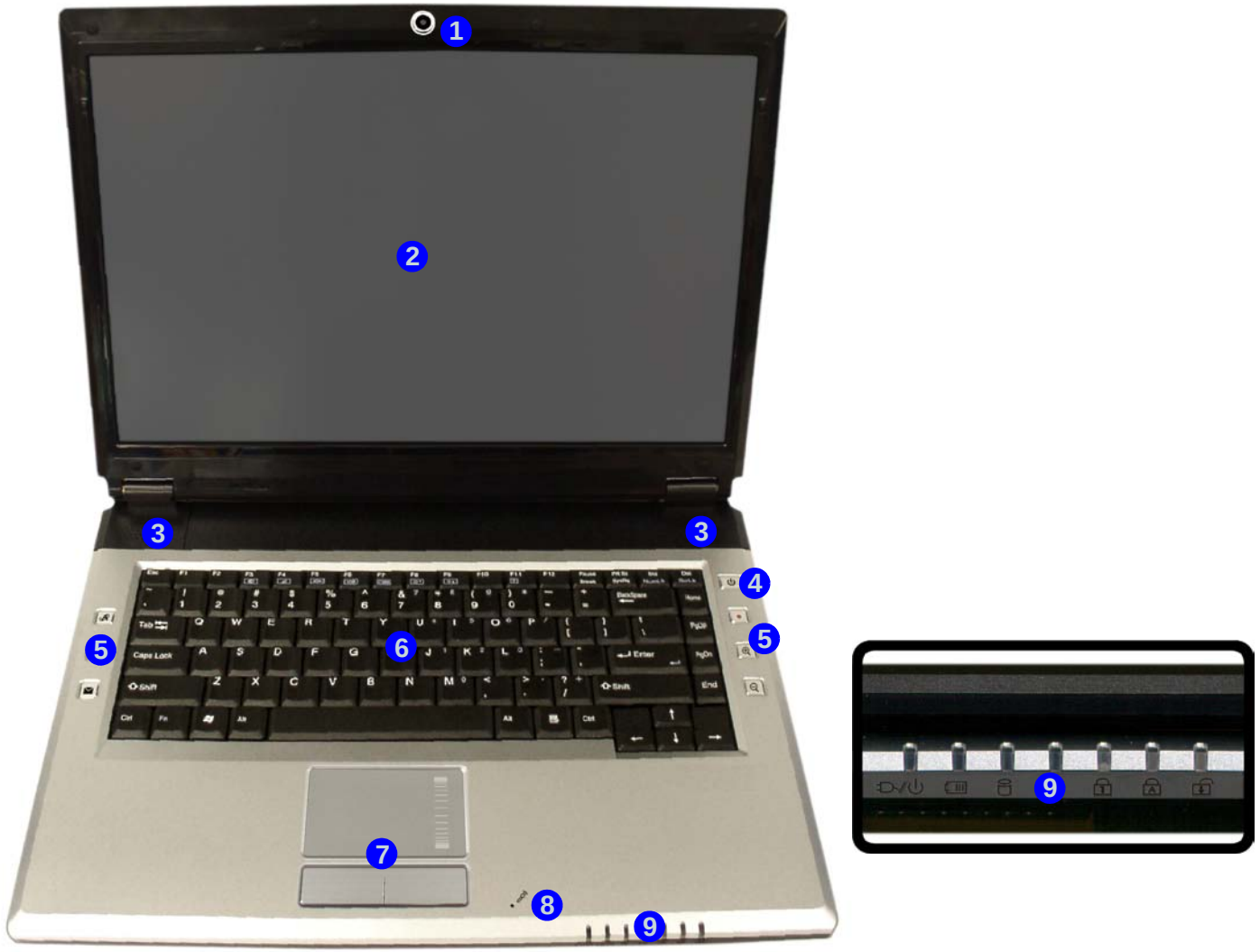
The models vary slightly in external cover design and color.

Figure 1
Model Differences

External Locator - Top View with LCD Panel Open

Figure 2
Top View

1. Optional Built-In PC Camera
2. LCD
3. Speakers
4. Power Button
5. Hot Key Buttons
6. Keyboard
7. TouchPad and Buttons
8. Built-In Microphone
9. LED Indicators



External Locator - Front & Rear Views

Figure 3
Front Views

1. LED Indicators

Figure 4
Rear Views

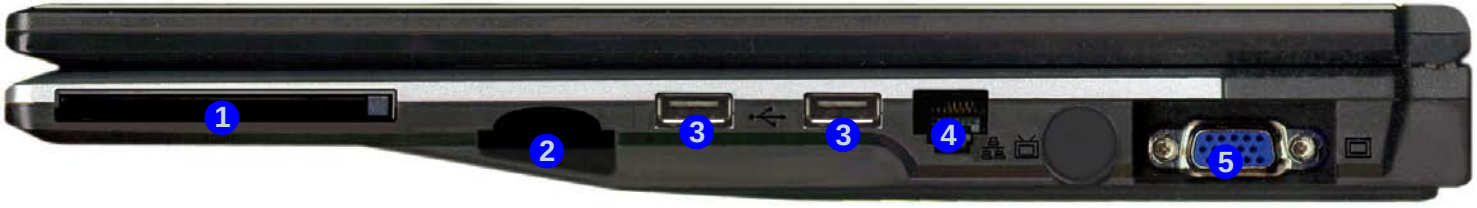
1. 1 * USB Port
2. DC-In Jack
3. Battery

External Locator - Left & Right Side Views

Figure 5
Left Side View

1. Security Lock Slot
2. Optical Device Drive Bay
3. RJ-11 Modem Jack
4. S/PDIF-Out Jack
5. Microphone-In Jack
6. Headphone-Out Jack
7. Line-In Jack

Figure 6
Right Side View



1. PC Card Slot
2. 7-in-1 Card Reader
3. 2 * USB 2.0 Ports
4. RJ-45 LAN Jack
5. External Monitor Port

External Locator - Bottom View

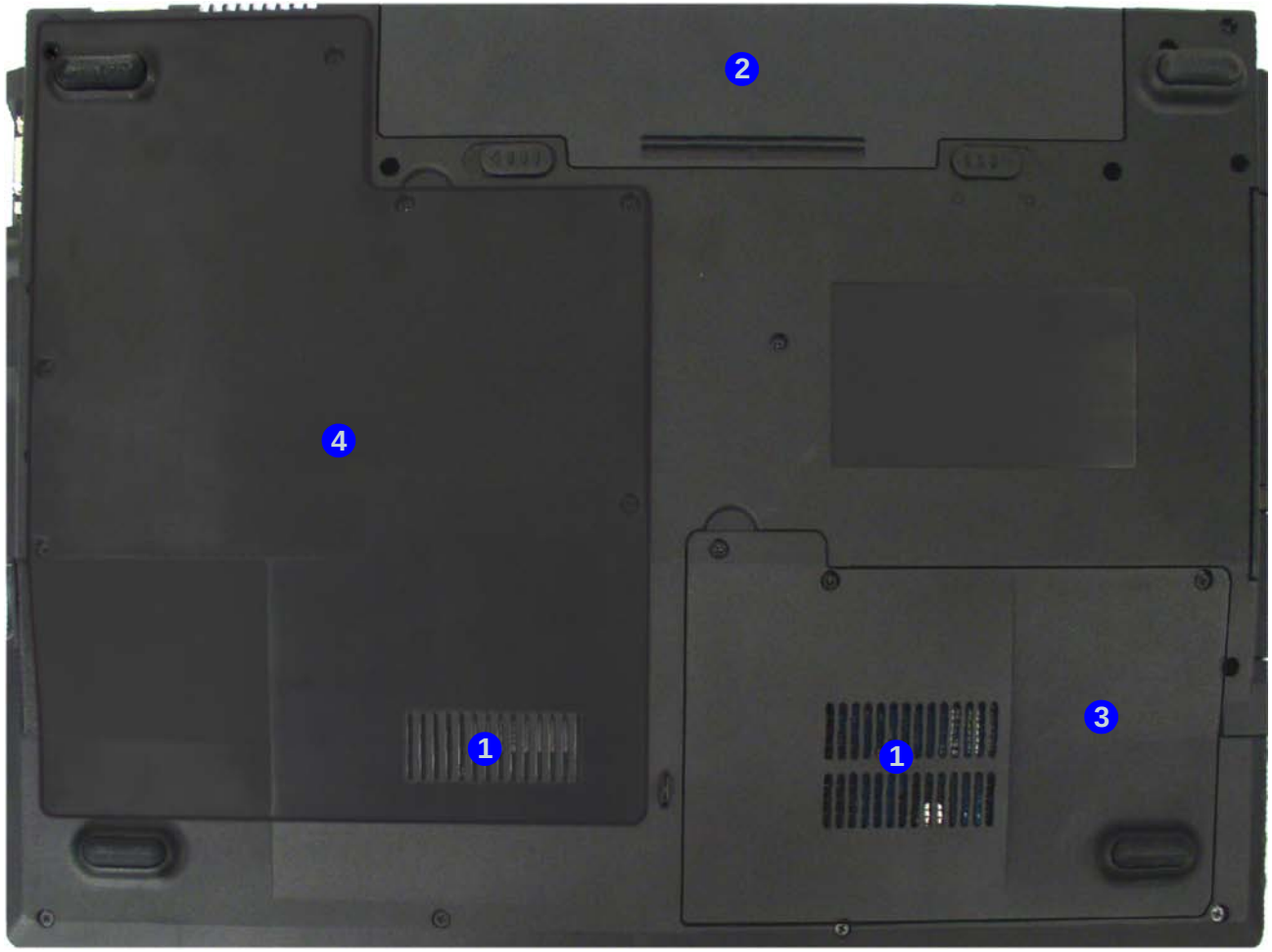


Figure 7
Bottom View

1. Vent/Fan Intake
2. Battery
3. Hard Disk Bay Cover
4. CPU/RAM Bay Cover

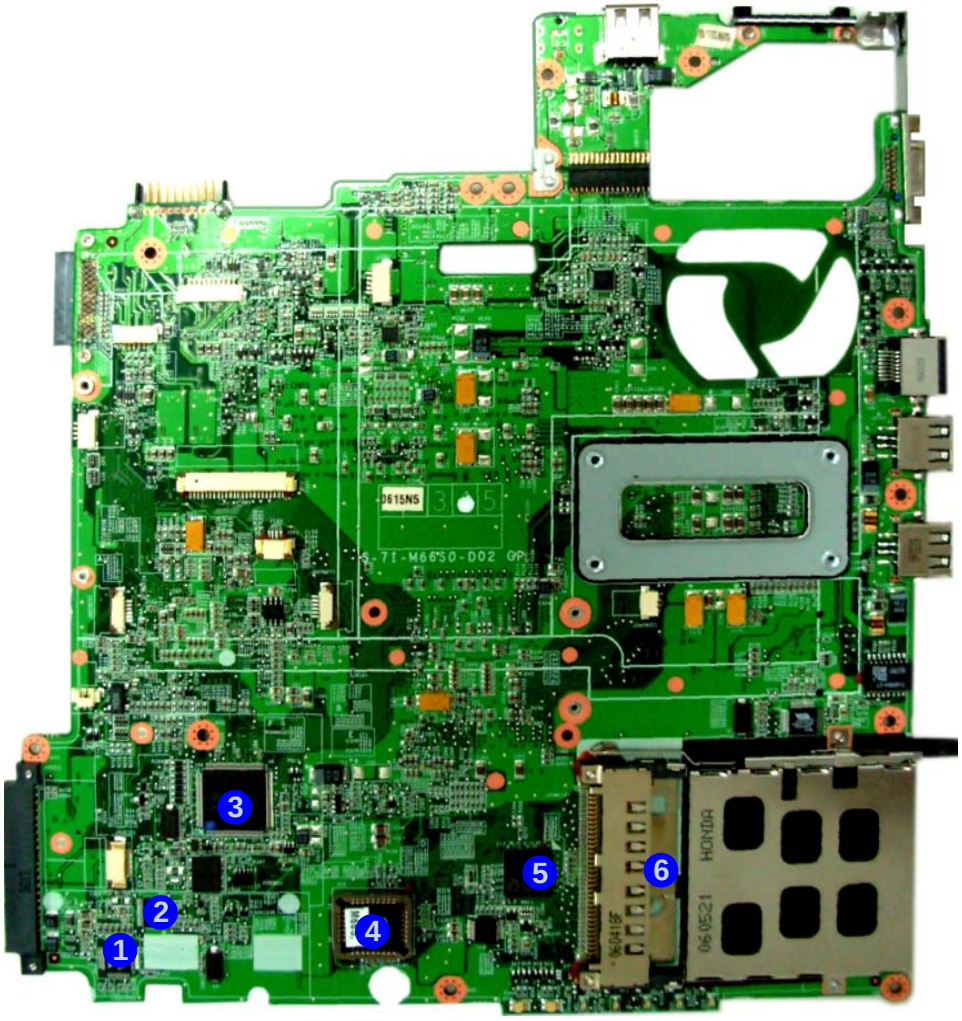
Overheating

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

M660S Mainboard Overview - Top (Key Parts)

Figure 8
Mainboard Top Key Parts

1. Audio Codec VT1613
2. Audio Amp.
3. Hitachi H8
4. Flash BIOS ROM
5. ENE PCMCIA & Card Control
6. PC Card Assembly



M660S Mainboard Overview - Bottom (Key Parts)

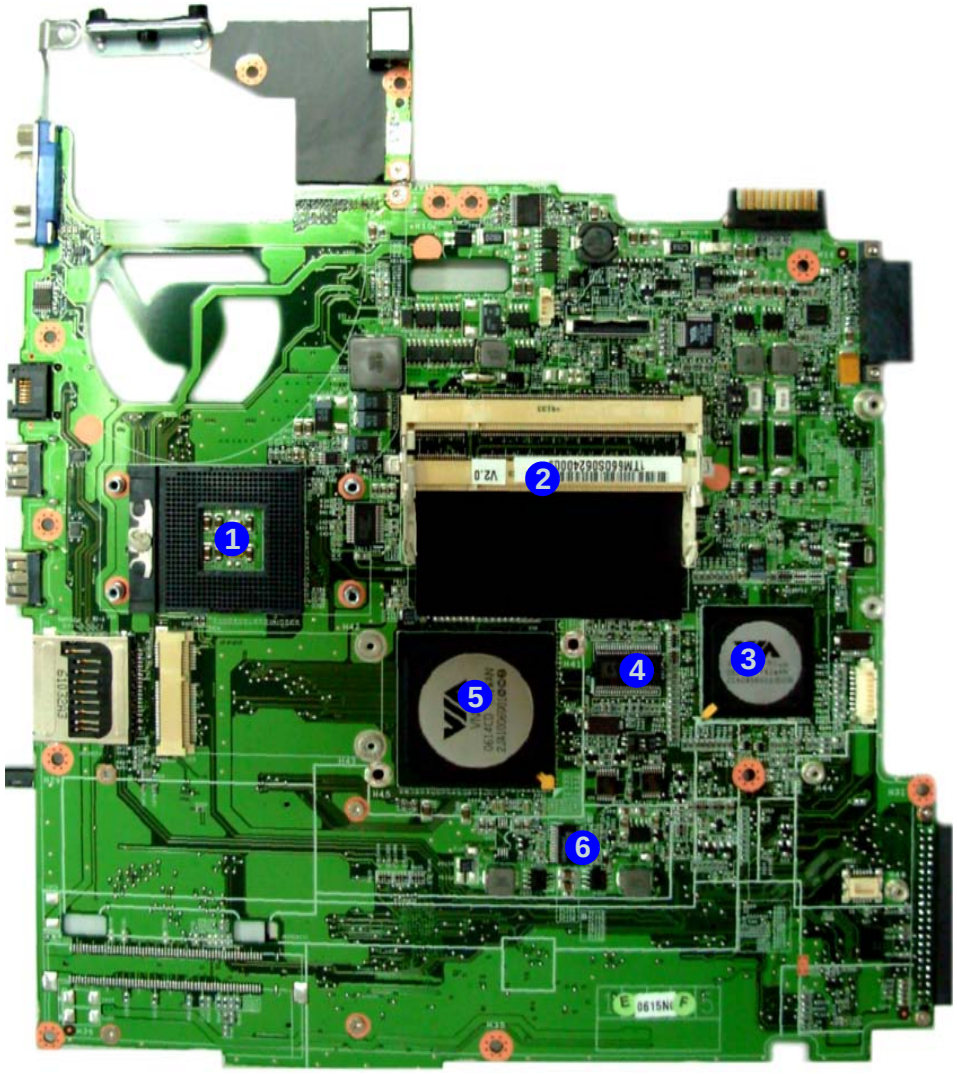


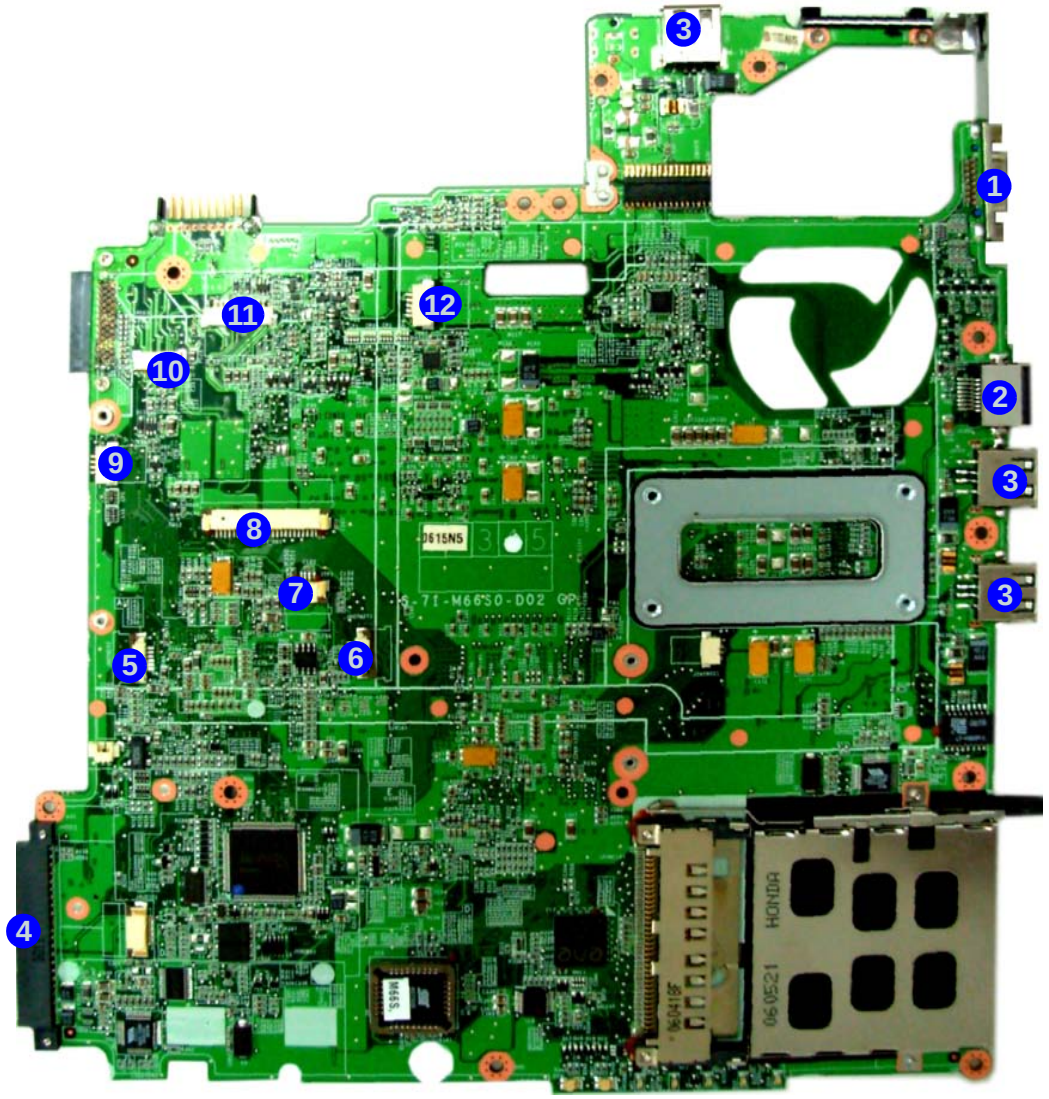
Figure 9
Mainboard Bottom Key Parts

1. CPU Socket (no CPU installed)
2. Memory Slots DDRII So-DIMM
3. Southbridge-VT8237R plus
4. ICS Clock Generator
5. Northbridge-VN800
6. SC1485ITS

Figure 10
Mainboard Top Connectors

1. External Monitor Port
2. RJ-45 LAN Jack
3. USB Port
4. HDD Connector
5. Hotkey Cable Connector
6. Power Hotkey Cable Connector
7. Touch Pad Cable Connector
8. Keyboard Cable Connector
9. Speaker Cable Connector
10. Inverter Cable Connector
11. Debug Cable Connector
12. CCD Cable Connector

M660S Mainboard Overview - Top (Connectors)



M660S Mainboard Overview - Bottom (Connectors)

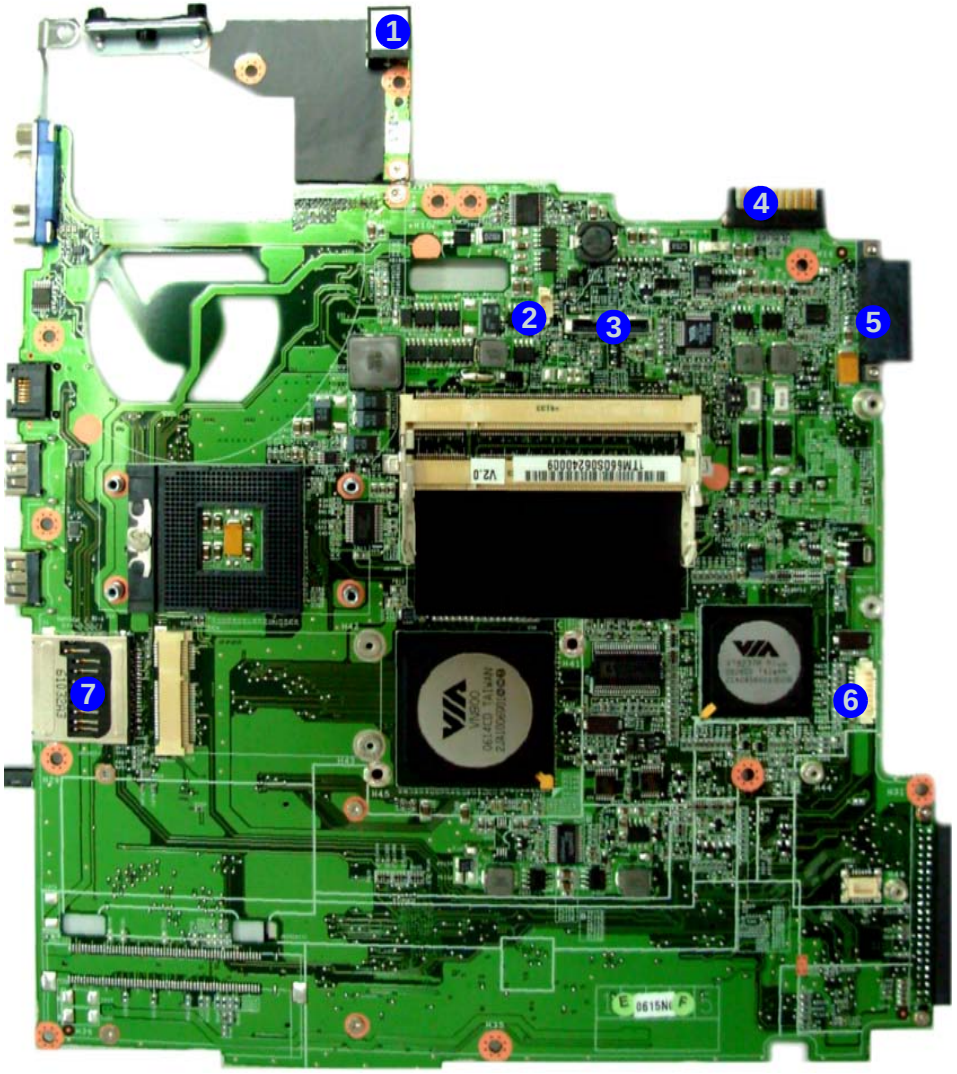


Figure 11
Mainboard Bottom Connectors

1. DC-In Jack
2. Fan Cable Connector
3. LCD Cable Connector
4. Batterry Connector
5. Optical Device Drive Connector
6. Bluetooth Cable Connector
7. Card Reader

Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***M660S/M665S*** series notebook's parts and sub-systems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

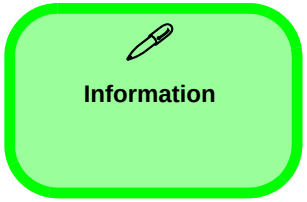
We suggest you completely review any procedure before you take the computer apart.

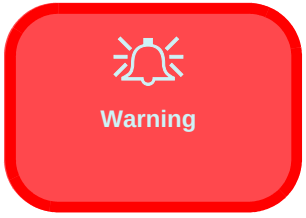
Procedures such as upgrading/replacing the RAM, CD device and hard disk are included in the User's Manual but are repeated here for your convenience.

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 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 - 10*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the wireless LAN *page 2 - 12*

To remove the Modem :

1. Remove the battery *page 2 - 5*
2. Remove the modem *page 2 - 13*

To remove the Bluetooth:

1. Remove the battery *page 2 - 5*
2. Remove the bluetooth *page 2 - 14*

To remove the Optical Device:

1. Remove the battery *page 2 - 5*
2. Remove the Optical device *page 2 - 15*

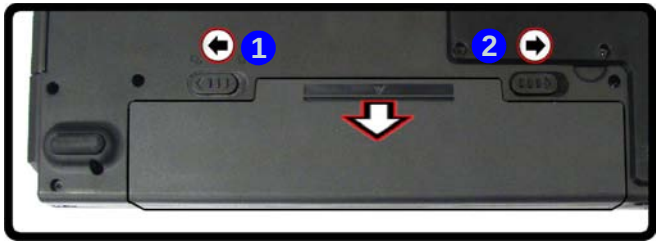
To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 16*

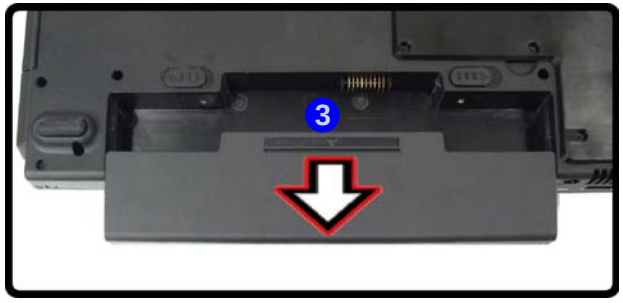
Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the latches (1 & 2) the direction of the arrow, and hold latch 2 in place.
3. Slide the battery in the direction of the arrow 3.
4. Lift the battery 4 out.

a.



b.



c.

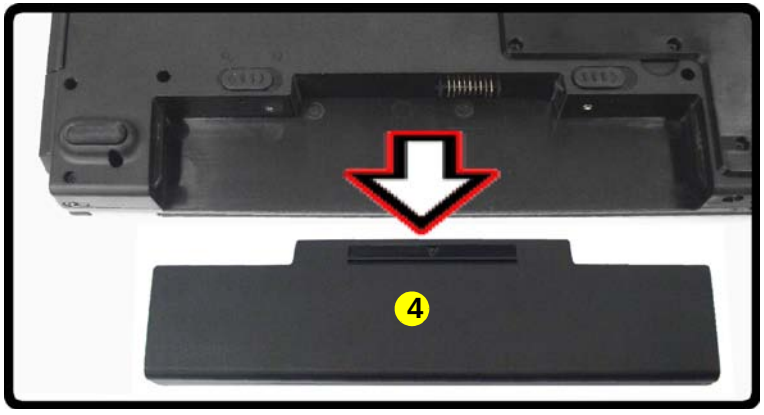


Figure 1
Battery Removal

a. Slide the 2 latches and hold latch 2 in place.
b. Slide the battery in the direction of the arrow.
c. Lift the battery out.

4. Battery

Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (**PATA**) 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.

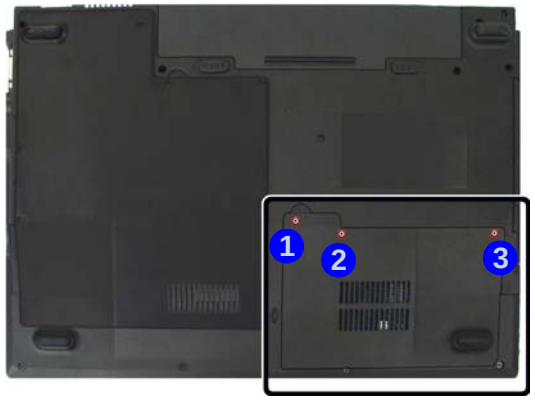
Figure 2
HDD Assembly Removal

a. Locate the HDD bay cover and remove the screws.
b. Remove the bay cover.

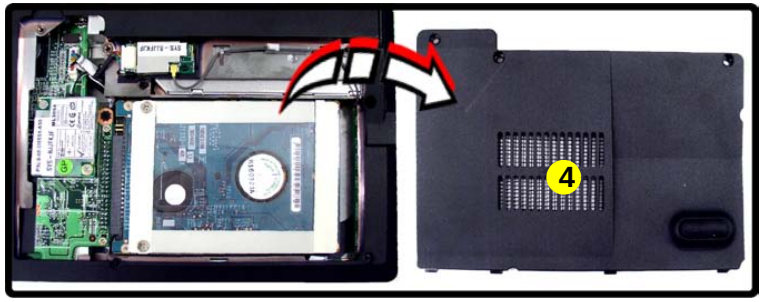
Hard Disk Upgrade Process

1. Turn **off** the computer, and remove the battery (*page 2 - 5*).
2. Locate the hard disk bay cover and remove the screws (1 - 3).
3. Remove the bay cover 4.

a.



b.



4. HDD Bay Cover
- 3 Screw

HDD System Warning

New HDD's are blank. Before you begin make sure:

You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

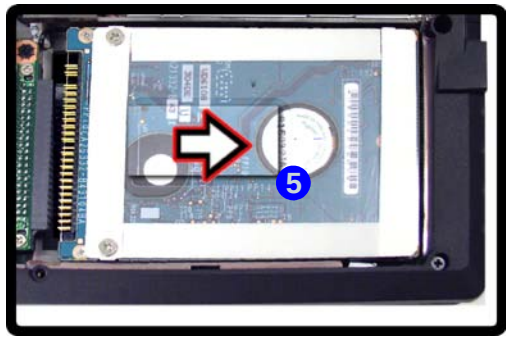
If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

4. Carefully grip the mylar tab 5 and slide the hard disk in the direction of arrow .
5. Lift the hard disk up (***Figure d***) in the direction of arrow.
6. Remove the screws 6 - 7 and separate the mylar 8 from the hard disk 9.
7. Reverse the process to install any new hard disk.

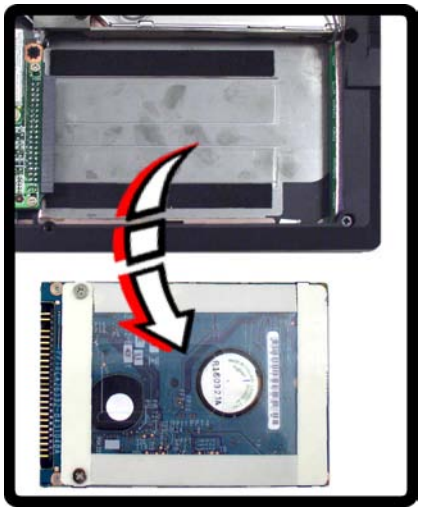
Figure 3
HDD Assembly Removal Sequence

c. Slide the HDD in the direction of the arrow.
d. Lift the HDD out of the bay.
e. Remove the screws and separate the mylar cover from the HDD.

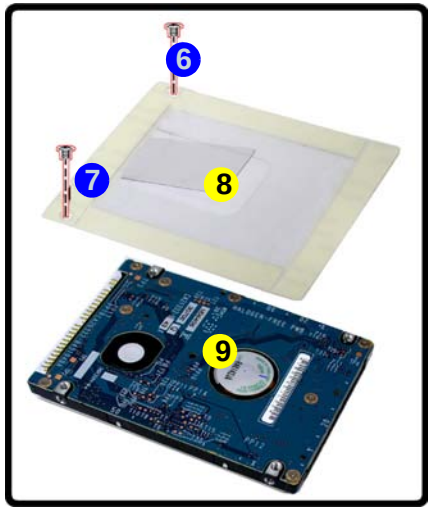
c.



d.



e.



8. Mylar Cover
9. HDD

Removing the System Memory (RAM)

Figure 4
RAM Module Removal

a. Remove the screws.
b. Remove the cover.

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting **DDRII** 533MHz. The main memory can be expanded up to 2GB. The SO-DIMM modules supported are 256MB, 512MB and 1024MB **DDRII** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

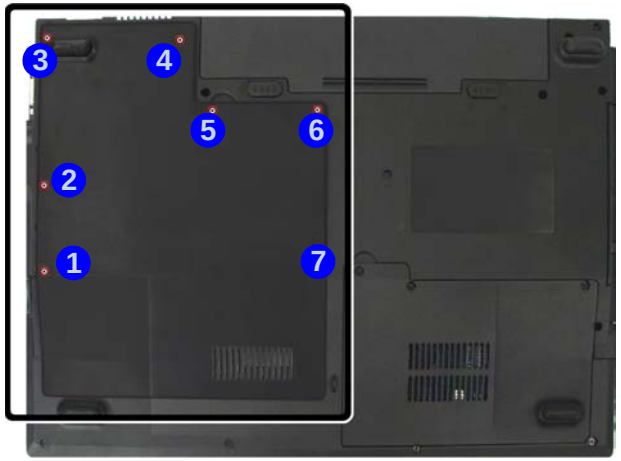
Memory Upgrade Process

1. Turn **off** the computer, remove the battery (*page 2 - 5*).
2. Locate the CPU/RAM bay cover, and remove screws 1 - 7.
3. Remove the bay cover 8.
4. The RAM will be visible at point 9 on the mainboard.

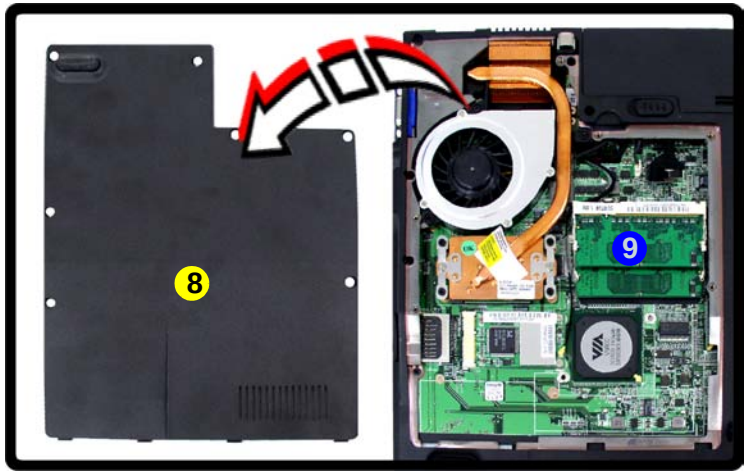
Contact Warning

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.

a.



b.



8. CPU/RAM Bay Cover

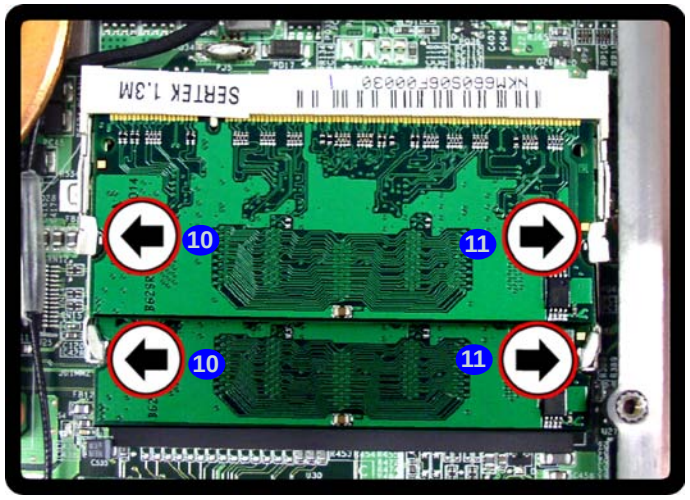
- 7 Screws

5. Gently push the two release latches (10 & 11) on the sides of the memory socket in the direction indicated by the arrows (***Figure c***).
6. The RAM module(s) 12 will pop-up (***Figure d***), and you can then remove it.

Figure 5
Memory Removal Sequence

c. Push the release latch(es).
d. Remove the module(s).

c.



d.

7. Push 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 (see ***page 2 - 8***).
12. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

12 Ram Module(s)

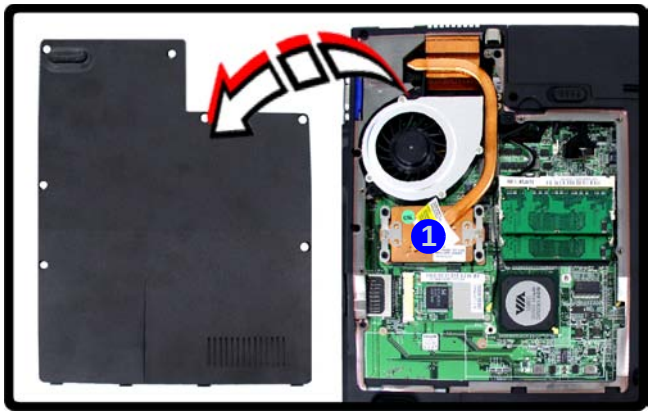
Figure 6
Processor Removal

a. Remove the cover and locate the heat sink.
b. Remove the 4 screws in the order indicated.
c. Remove the heat sink.

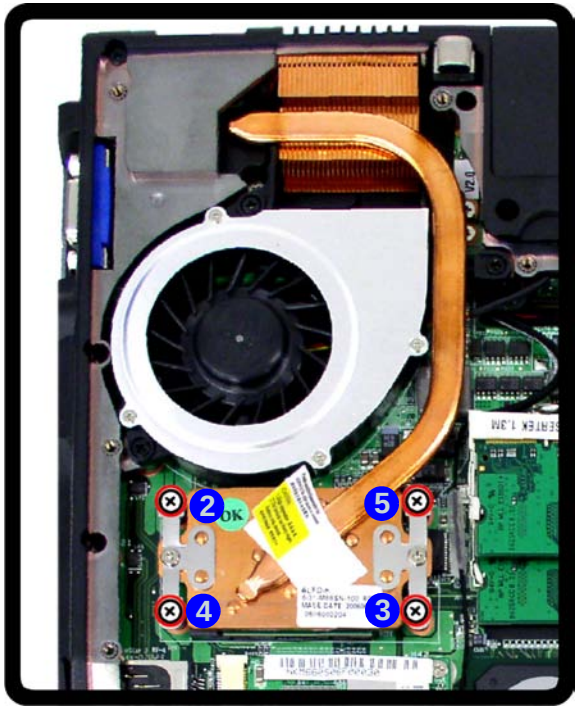
Removing the Processor

1. Turn **off** the computer, and remove the battery (*page 2 - 5*) and the CPU/RAM bay cover (*page 2 - 8*).
2. The CPU heat sink will be visible at point 1 on the mainboard.
3. Remove screws 2 - 5 from the heat sink in the order indicated.
4. Carefully lift up the heat sink 6 (*Figure c*) off the computer.

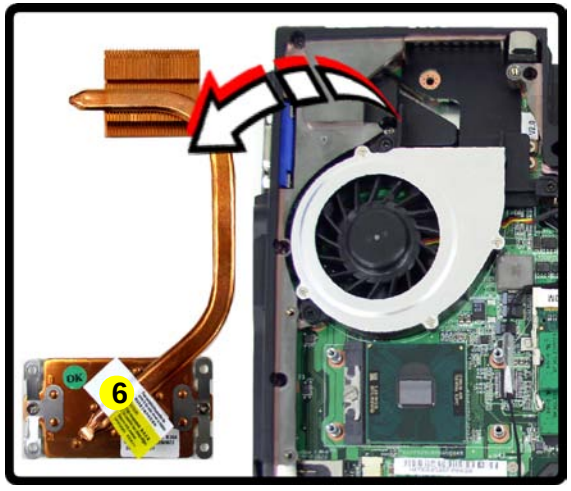
a.



b.



c.



6. Heat Sink
- 4 Screws

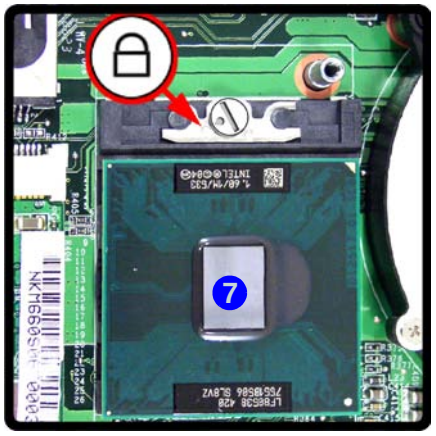
5. Turn the release latch 7 towards the unlock symbol, to release the CPU (*Figure d*).
6. Carefully (it may be hot) lift the CPU 8 up out of the socket (*Figure e*).
7. Reverse the process to install a new CPU.
8. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

Figure 7
Processor Removal (cont'd)

d. Turn the release latch to unlock the CPU.
e. Lift the CPU out of the socket.

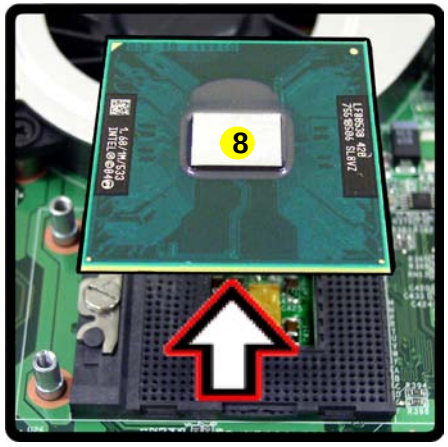
d.

Unlock



Lock

e.



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.

8. CPU

Figure 8
Wireless LAN Module Removal

a. Remove the cover and locate the heat sink.
b. Disconnect the cable and remove the 2 screws.
c. The WLAN module will pop up.
d. Remove the WLAN module.

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

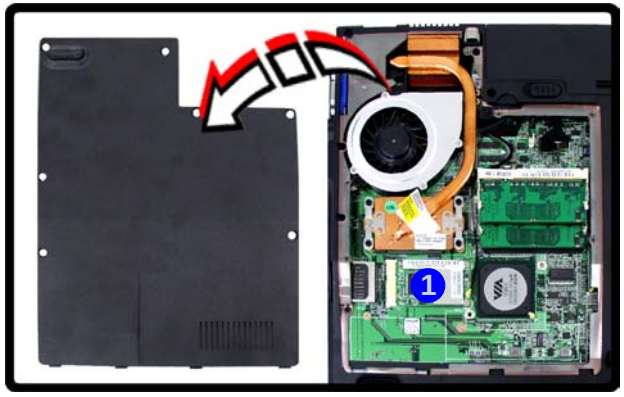
5. WLAN Module

- 2 Screws

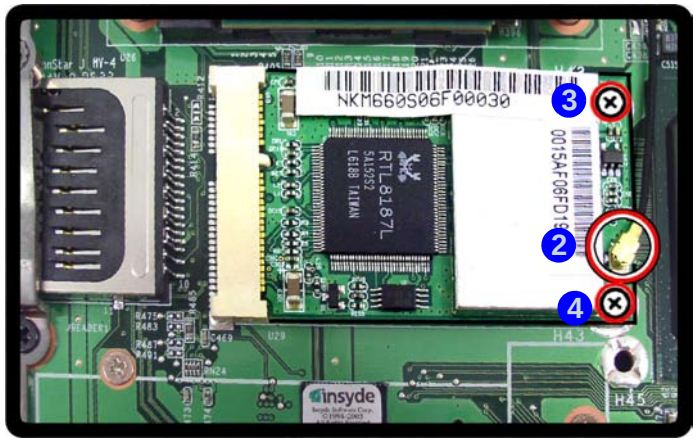
Removing the Wireless LAN Module

1. Turn **off** the computer, remove the battery (***page 2 - 5***) and the module bay cover (***page 2 - 8***).
1. The Wireless LAN module will be visible at point 1 on the mainboard.
2. Carefully disconnect cable 2, then remove the screws 3 - 4 from the module socket.
3. The wireless LAN module 5 will pop-up.
4. Lift the wireless LAN module (***Figure d***) up and off the computer.

a.

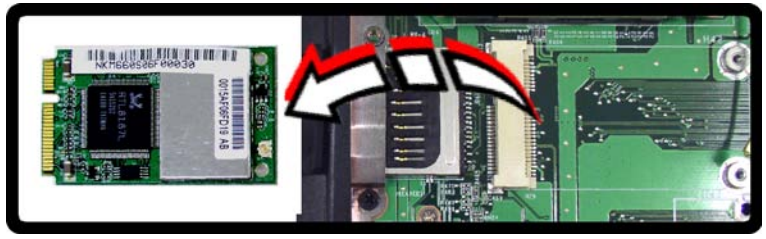


b.



c.

d.



Removing the Modem

1. Turn **off** the computer, remove the battery (*page 2 - 5*), and remove the hard disk bay cover (*page 2 - 6*).
2. The modem will be visible at point 1 on the mainboard.
3. Remove screws 2 - 3 from the modem module.
4. Lift the modem up off the socket 4 and separate the modem from the connector 5.
5. Lift the modem 6 up and off the computer.

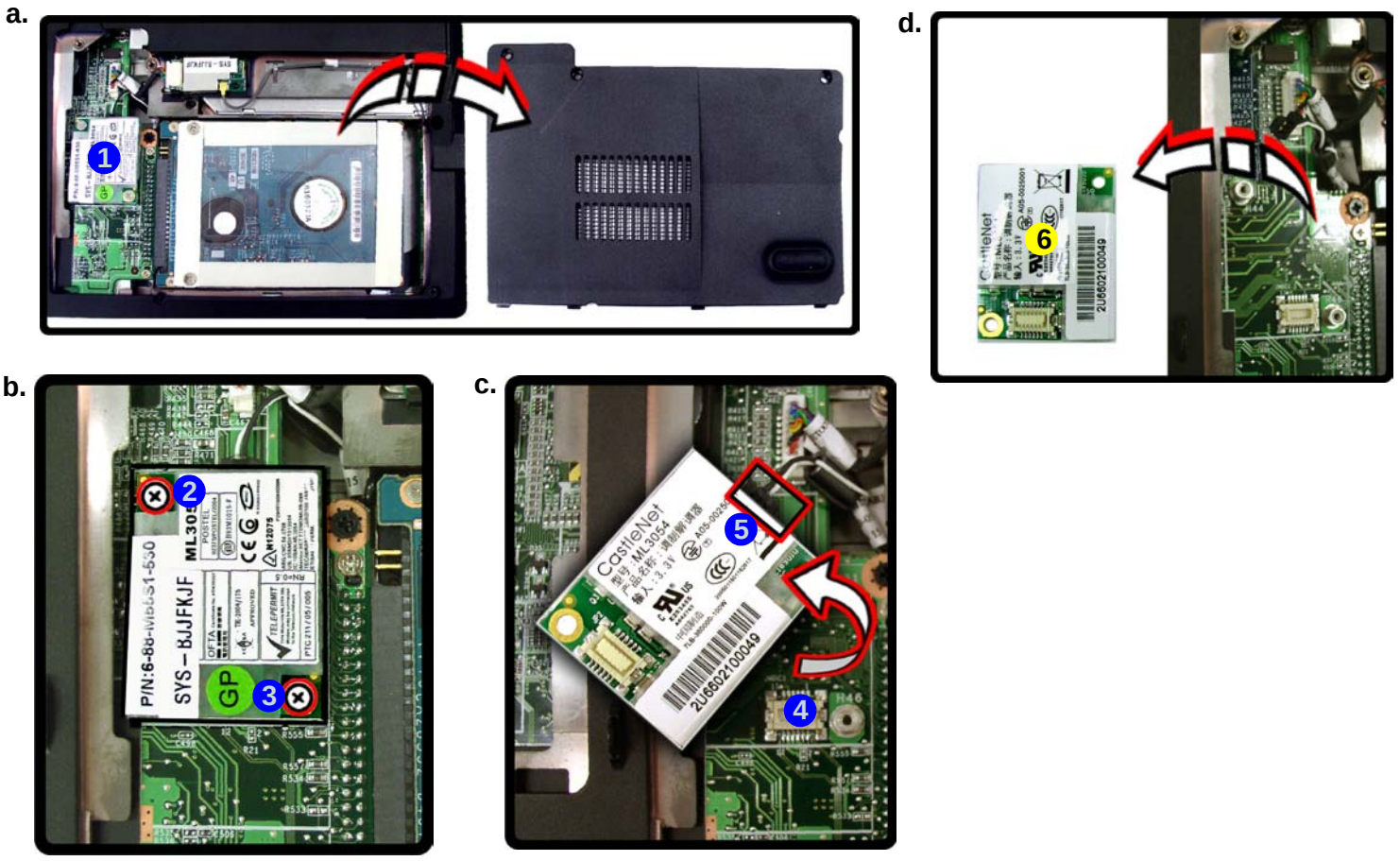


Figure 9
Modem Removal

a. Remove the cover and locate the modem.
b. Remove the screws.
c. Lift the modem up off the socket and disconnect the connector.
d. Lift the modem out.

6. Modem

- 2 Screws

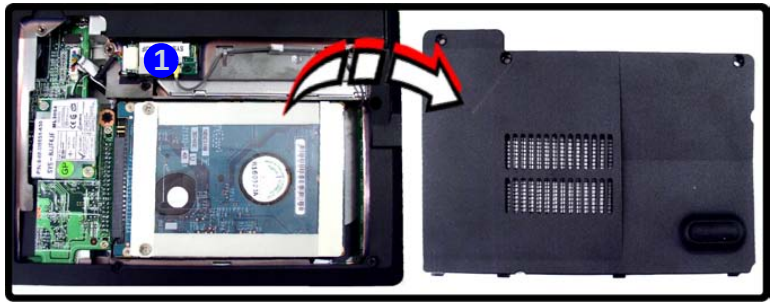
Figure 10
Bluetooth Removal

a. Remove the cover and locate the Bluetooth module.
b. Seperate the the module from connector and disconnect the cable.
c. Remove Bluetooth module.

Removing the Bluetooth Module

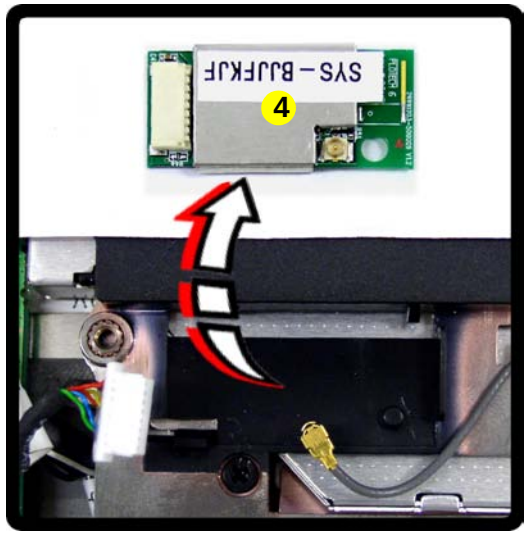
1. Turn off the computer, remove the battery (*page 2 - 5*) and remove the hard disk bay cover (*page 2 - 6*).
2. The Bluetooth module will be visible at point 1 on the mainboard.
3. Carefully separate the module from the connector 2 and disconnect the cable 3.
4. Lift the Bluetooth module 4 (*Figure c*) up and off the computer.

a.



b.

c.



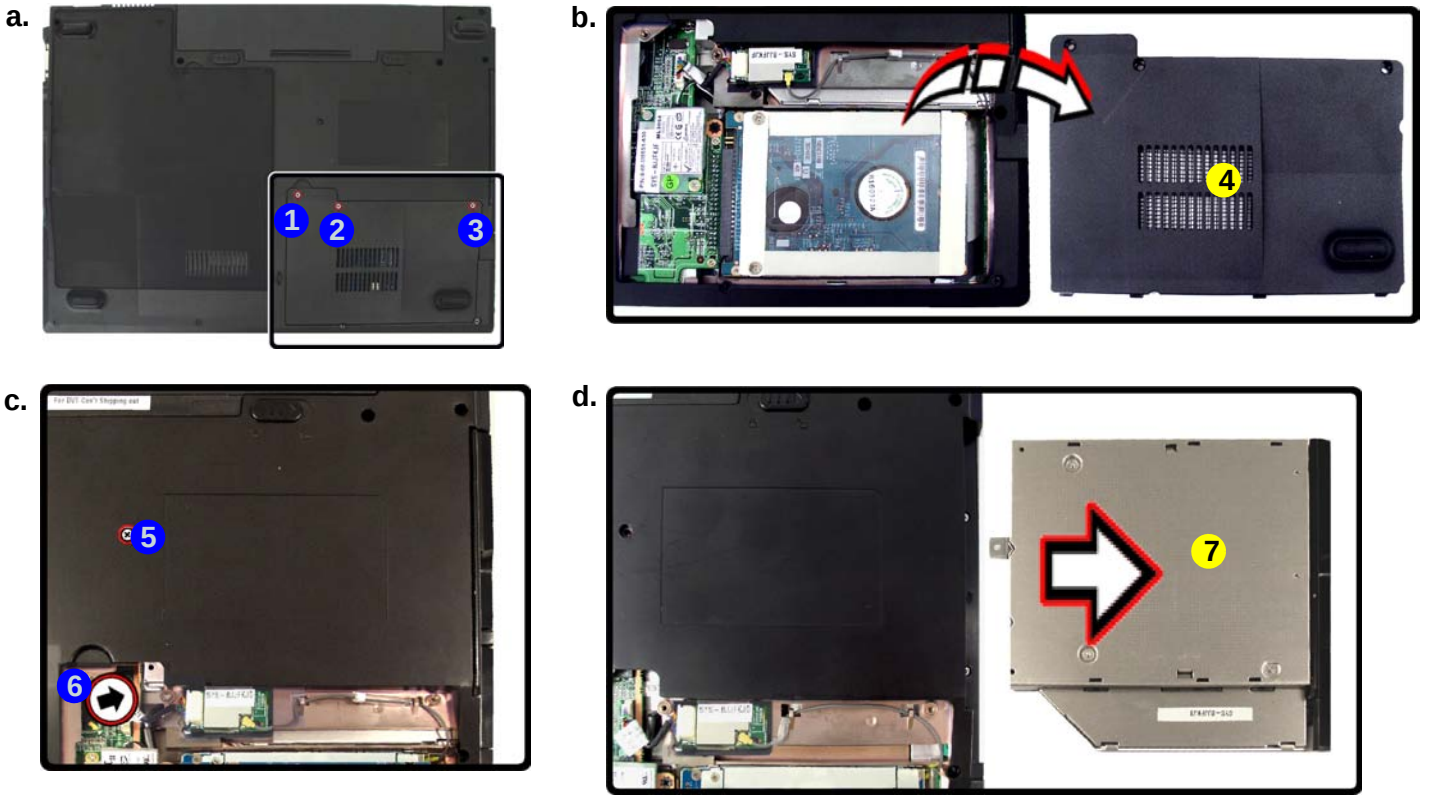
4. Bluetooth Module

Removing the Optical (CD/DVD) Device

1. Turn off the computer, 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. Remove the screw at point 5, and use a screwdriver to carefully push out the optical device at point 6.
5. Insert the new device and carefully slide it into the computer (the device only fits one way. DO NOT FORCE IT; The screw holes should line up.
6. Restart the computer to allow it to automatically detect the new device.

Figure 11
Optical Device Removal

a. Remove the screws.
b. Remove the cover.
c. Remove the screw and push the optical device out off the computer at point 6.
d. Remove the optical device.



4 HDD Bay Cover
7 Optical Device

- 4 Screws

Figure 12
Keyboard Removal

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

Removing the Keyboard

1. Turn **off** the computer, and remove the battery (***page 2 - 5***).
2. Press the **three** 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 (***Figure b***).
4. Disconnect the keyboard ribbon cable 4 from the locking collar socket 5.
5. Carefully lift up the keyboard 6 (***Figure c***) off the computer.

a.

b.

c.

Re-Inserting the Keyboard

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

6. Keyboard

Appendix A:Part Lists

This appendix breaks down the ***M660S/M665S*** 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.

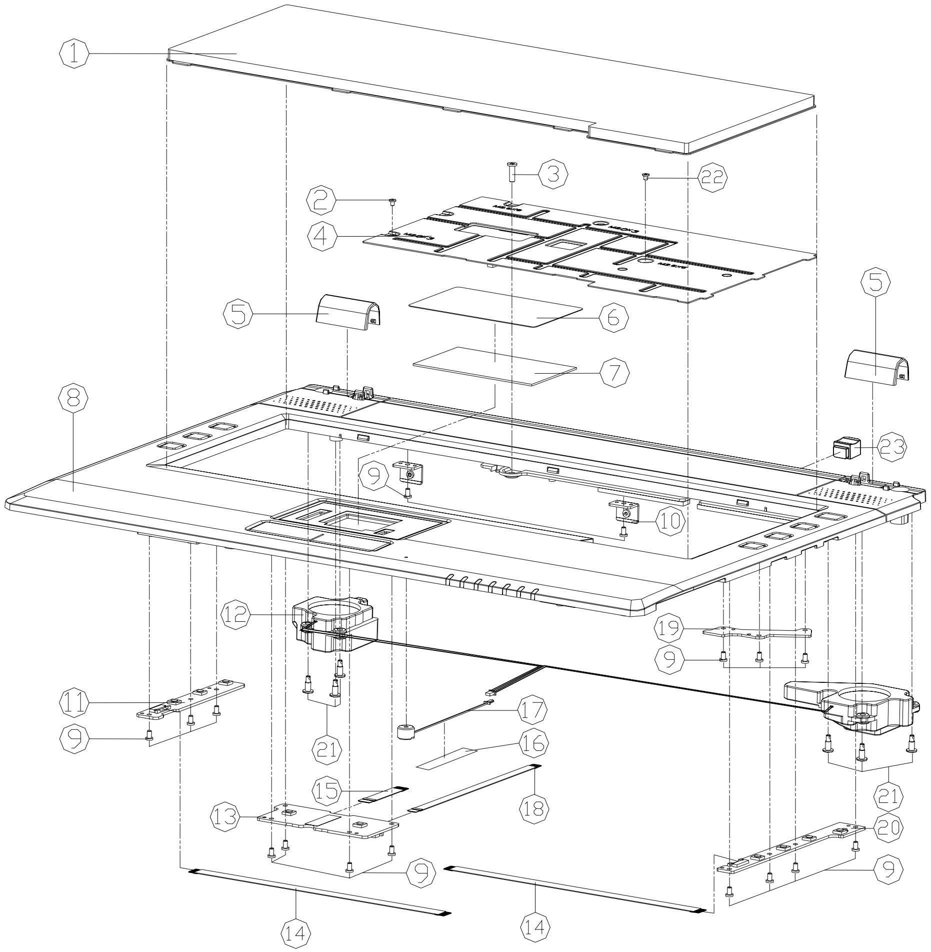
Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

Part List Illustration Location

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

Table A - 1
Part List Illustration Location

Top (M660S)

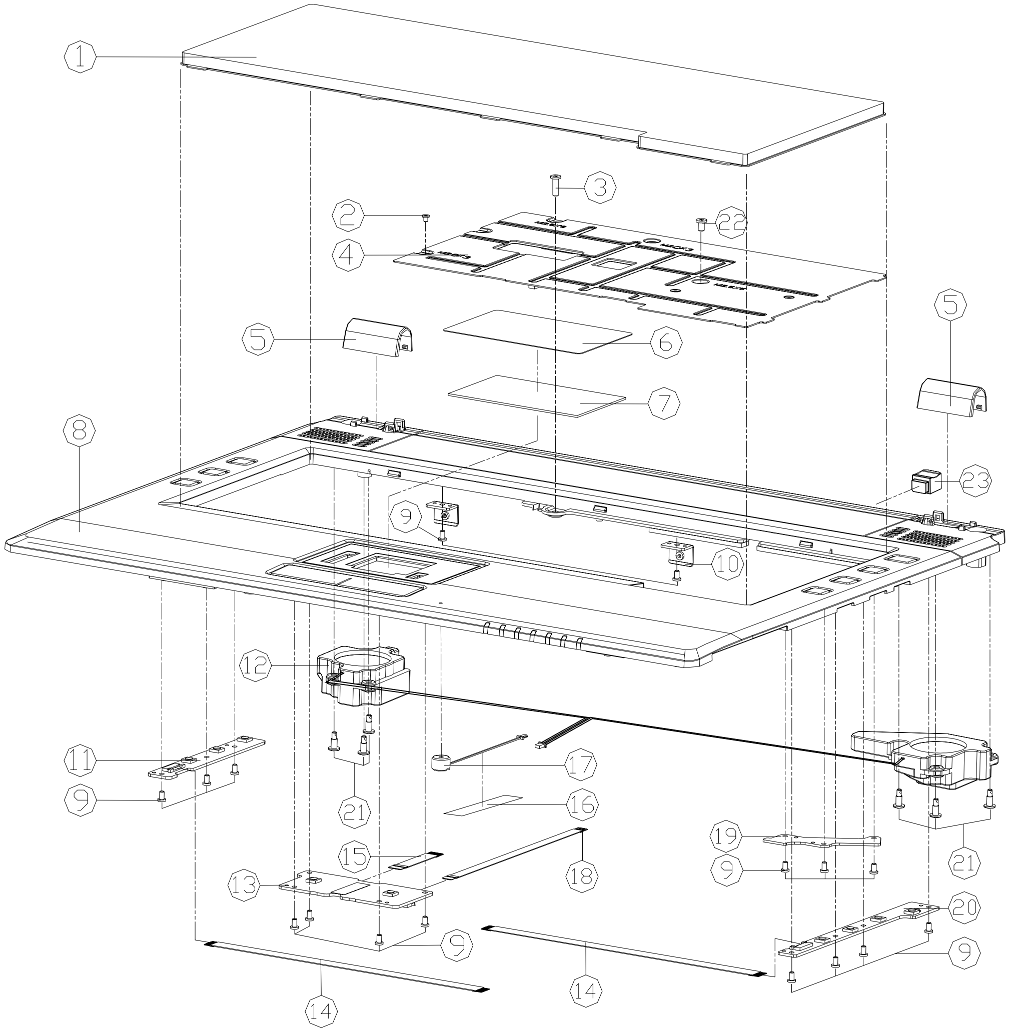


ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD(OPTION)	6-80-M55G0-011-1	
2	SCREW M2*3L K1 NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
3	SCREW M2.5*8L KI BK/Z NY ICT 無鉛	6-35-B6125-8R0	
4	KEYBOARD SHIELDING M660JE 無鉛	6-33-M66E7-010	
5	HINGE COVER FOR M660N 無鉛	6-42-M66N2-011	
6	TRACKET PAD MYLAR,(加邊框) 8B35 M550G(71.8+0.1/-0X 無鉛	6-40-M55G2-024	
7	TOUCH PAD TM61PDZ1R389 M660JE 無鉛	6-49-M66E2-010	
8	TOP CASE MODULE (PVT後設變)無鉛	6-39-M66N2-014	
9	SCREW M2*3.5L KI NI ICT NY 無鉛	6-35-B1120-350	
10	REAR REINFORCE BRACKET 無鉛	6-33-M66N2-031	
11	HOTKEY LT BOARD	6-77-M66NS-D11	
12	SPEAKER-L/R 25D*10.8H 1.5W 4OHM 185MM/240M	6-23-5M66N-012	
13	CLICK BOARD	6-77-M66N2-D02	
14	FFC CABLE FOR PWR-HOTKEY 6P PITCH=1.0MM 鴻富	6-43-M66N0-010	
15	FFC CABLE FOR TOUCHPAD BOARD 12P PITCH=0.5	6-43-M66N0-030	
16	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
17	MICPHONE 6MM*3.5(EM6035-FOL-U) 10V?2V 2.2K	6-23-EM55G-010	
18	FFC CABLE FOR CLICK BOARD 4P PITCH=1.0MM	6-43-M66N0-020	
19	CABLE ALIGN BRACKET 無鉛	6-33-M66N2-040	
20	POWER HOT BOARD	6-77-M66N5-D01	
21	SCREW FOR SPEAKER M2 無鉛	6-35-Z0Z20-000	
22	SCREW M2.5*5L KI BK/Z ICT NY 無鉛	6-35-B6125-5RA	
23	MINI-1394 RUBBER 無鉛	6-47-M66SP-010	

Figure A - 1
Top (M660S)

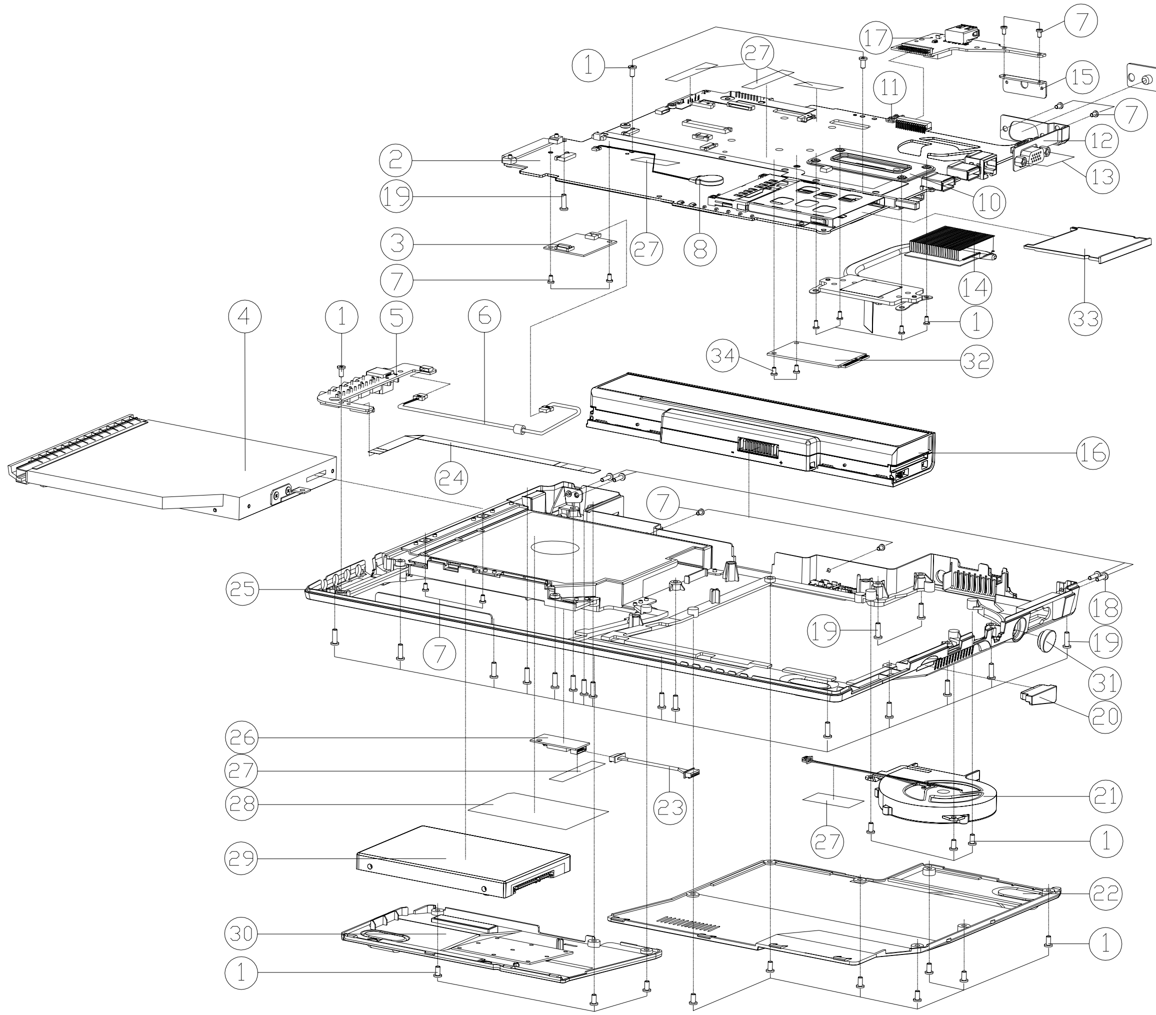
Top (M665S)

Figure A - 2
Top (M665S)



ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD(OPTION)	6-80-M55G0-011-1	
2	SCREW M2*3L K1 NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
3	SCREW M2.5*8L KI BK/Z NY ICT 無鉛	6-35-B6125-8R0	
4	KEYBOARD SHIELDING M660JE 無鉛	6-33-M66E7-010	
5	HINGE COVER FOR M665N 無鉛	6-42-M6652-010	
6	TRACKET PAD MYLAR, (加邊框) 8B35 M550G(71.8+0.1/-0)(無鉛	6-40-M55G2-024	
7	TOUCH PAD TM61PDZ1R389 M660JE 無鉛	6-49-M66E2-010	
8	TOP CASE MODULE M665N 無鉛 (加入ESD對策)	6-39-M6652-013	
9	SCREW M2*3.5L KI NI ICT NY 無鉛	6-35-B1120-350	
10	REAR REINFORCE BRACKET 無鉛	6-33-M66N2-031	
11	HOTKEY LT BOARD	6-77-M66NS-D11	
12	SPEAKER-L/R 25D*10.8H 1.5W 4OHM 185MM/240M	6-23-5M66N-012	
13	CLICK BOARD	6-77-M66N2-D02	
14	FFC CABLE FOR PWR-HOTKEY 6P PITCH=1.0MM 鴻富	6-43-M66N0-010	
15	FFC CABLE FOR TOUCHPAD BOARD 12P PITCH=0.5	6-43-M66N0-030	
16	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
17	MICPHONE 6MM*3.5(EM6035-FOL-U) 10V~2V 2.2K	6-23-EM55G-010	
18	FFC CABLE FOR CLICK BOARD 4P PITCH=1.0MM	6-43-M66N0-020	
19	CABLE ALIGN BRACKET 無鉛	6-33-M66N2-040	
20	POWER HOT BOARD	6-77-M66N5-D01	
21	SCREW FOR SPEAKER M2 無鉛	6-35-Z0Z20-000	
22	SCREW M2.5*5L KI BK/Z ICT NY 無鉛	6-35-B6125-5RA	
23	MINI-1394 RUBBER 無鉛	6-47-M66SP-010	

Bottom (M660S/M665S)



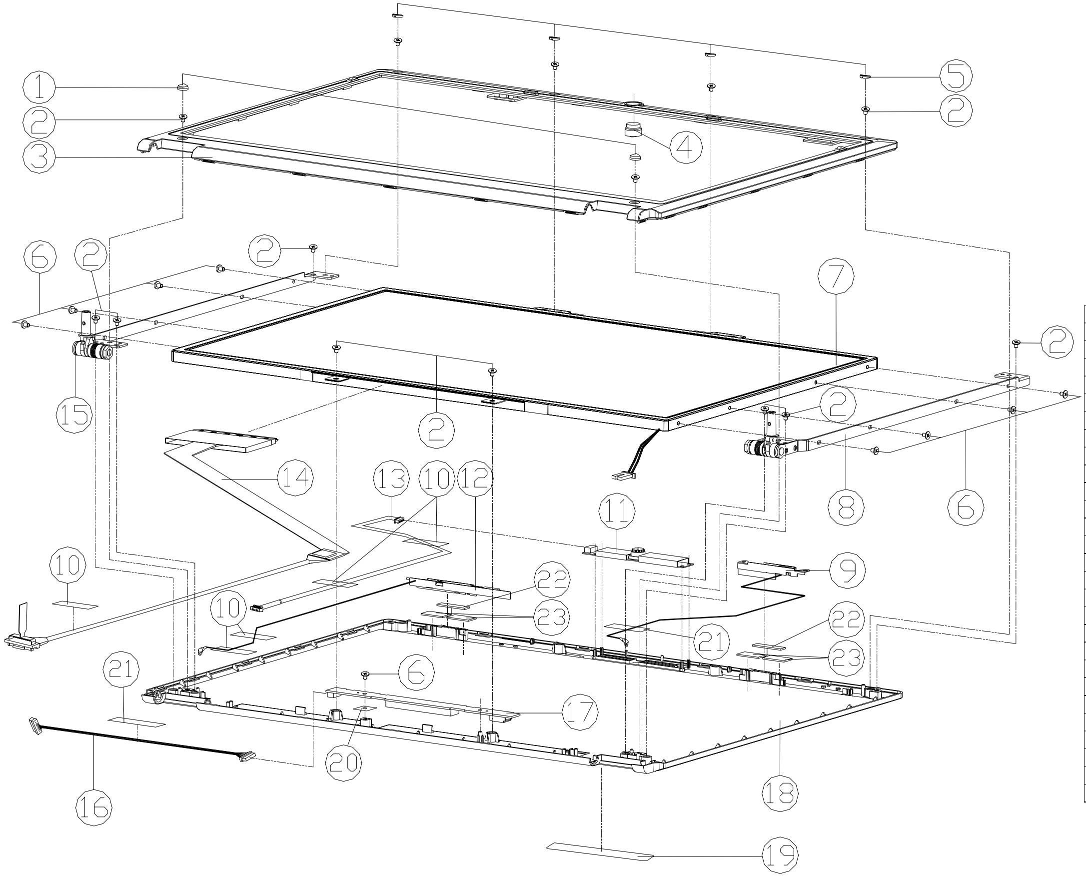
ITEM	PART NAME	PART NO	REMARK
1	SCREW M2.5*5L KI BK/Z ICT NY 無鉛	6-35-B6125-5RA	
2	MAIN BOARD VD3.0 M660S 無鉛	6-77-M66S0-D03	
3	MODEM 12 PIN (MOTOROLA SOLUTION) ML3054 (G	6-88-M66S1-620	
3	MODEM AZALIA+AC97 12 PIN (MOTOROLA SOLUTIO	6-88-M55S1-531	
4	DVD/RW (OPTION) M660S 無鉛	6-79-M66NQ-020	
4	COMBO 24X TSST(TS-L462C) ASS'Y M660S 無鉛	6-79-M66SX-010	
4	CD-RW /DVD 24X PANASONIC(UJDA770CL)ASS'Y M660N 無鉛	6-79-M66NX-010	
5	AUDIO BOARD VD4.0 無鉛	6-77-M66N8-D04	
6	MDC CABLE 2P AWG.30 華力M660N 無鉛	6-43-M66N0-050	
7	SCREW M2*3L K1 NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
8	BAT. 20MM 3V 230MAH W/CABLE 140MM CR2032M5	6-23-22015-P39	
9	SERIAL-BOARD RUBBER 無鉛	6-47-M66SS-011	
10	CPU SUPPORTER M660N 無鉛	6-33-M66NS-030	
11	REINFORCE BRACKET(M/B LINK UP SERIAL B)無鉛	6-33-M66NS-050	
12	I/O BRACKET FOR M/B 無鉛	6-33-M66NS-011	
13	HEX STUD SUM22 NI-PL 10mm NY 無鉛	6-34-96002-00A	
14	CPU HEATSINK MODULE M660S 無鉛	6-31-M66SN-100	
15	SERIAL B BRACKET 無鉛	6-33-M66SS-020	
16	BAT(?),S,LI, 4.0AH,3S2P,FOR M660N,GLW /PAN	6-87-M66NS-453	
17	USB BOARD VD3.0 無鉛	6-77-M66S3-D03	
18	SCREW M2*8L K1 BK/Z ICT NY 無鉛	6-35-B6120-8R0	
19	SCREW M2.5*8L KI BK/Z NY ICT 無鉛	6-35-B6125-8R0	
20	CARD READER RUBBER COVER 無鉛	6-47-M66NE-010	
21	CPU FAN MODULE 螺絲孔位置加厚度補強) M660N 無鉛	6-31-M66NN-204	
22	CPU COVER MODULE M660JE 無鉛	6-42-M66ES-102	
23	BLUETOOTH CABLE 8P AWG.30華力,M660N 無鉛	6-43-M66NB-010	
24	FFC CABLE FOR AUDIO JACK BOARD 15P PITCH=0	6-43-M66N0-041	
25	BOTTOM CASE MODULE(ODD BKT改爲無破孔,設變改硬)黑色(無鉛)	6-39-M66N3-014	
26	BLUETOOTH 2.0 8 PIN MODULE GUBTCR42M BILLI	6-88-M55J5-390	
27	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
28	PRODUCT LABEL FOR M660S 昆山 無鉛	6-45-M66S3-010-C	
28	PRODUCT LABEL FOR M665S 昆山 無鉛	6-45-M665S-010-C	
29	W/O HDD ASS'Y M660N 無鉛	6-79-M66NJ-010	
30	HDD COVER MODULE黑色(恢復全面濺鍍)(無鉛)	6-42-M66NJ-102	
31	TV-OUT RUBBER 無鉛	6-47-M66S3-010	
32	802.11 B+G MINI CARD(USB) REALTEK CHIPSET	6-88-M7702-701	
33	PCMCIA DUMMY CARD 無鉛	6-42-M300P-012	
34	SCREW M2*4L KI BNI ICT NY 無鉛	6-35-B9120-4RA	

Figure A - 3
Bottom (M660S/ M665S)

A.Part Lists

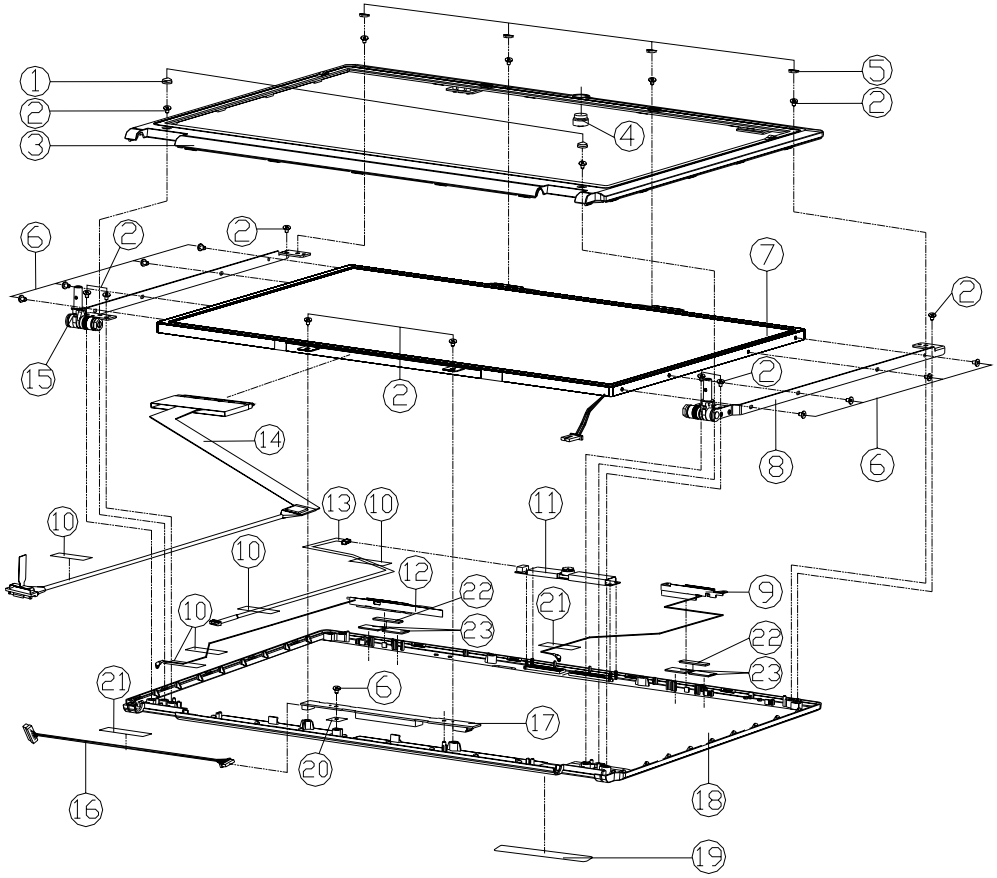
LCD (M660S)

Figure A - 4
LCD (M660S)



ITEM	PART NAME	PART NO	REMARK
1	LCD RUBBER 無鉛	6-47-M56A1-010	
2	SCREW M2.5*5L KI NI ICT NY 無鉛	6-35-B6125-5RA	
3	LCD FRONT COVER MODULE 無鉛	6-39-M66N1-012	
4	W/O CCD RUBBER,RUBBER M550G 無鉛	6-47-M55GT-020	
5	LCD RUBBER ø6 無鉛	6-47-M66N1-030	
6	SCREW M2*3L K1 NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
7	LCD T AU B154EW01(GLARE TYPE) V.9 15.4" WX	6-50-L8262-G00	FOR AU
7	LCD T CPT CLAA154WA05 15.4" WXGA (1280X800	6-50-L8262-C00	FOR CPT
7	LCD T CPT CLAA154WA01A(GLARE TYPE) 15.4" W	6-50-L8260-C03	FOR CPT
8	LCD HINGE ASSY R M660N 無鉛	6-33-M66N1-011	
9	M660N WLAN ANTENNA WITH BLOCK CABLE AND IPEX CONNECT	6-23-7M66N-022	
10	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
11	CMOS VIDEO CAMERA BN2A-OV9650-D-501G 1.3M	6-88-M55GC-612	
11	CMOS VIDEO CAMERA BN2C-OV7660-D 300K PIXEL	6-88-M66NC-491	
12	M660N BT ANTENNA WITH GRAY CABLE AND IPEX	6-23-7M66N-012	
13	CCD CABLE 5P AWG.30華力,M660N-D04 無鉛	6-43-M66N1-062	
13	CCD CABLE 5P AWG.30華力,M660N-D03 無鉛	6-43-M66N1-061	
14	LCD COAXIAL CABLE FOR 15.4" WXGA/WSXGA+(華力	6-43-M66N1-011	FOR M660N
15	LCD HINGE ASSY L M660N 無鉛	6-33-M66N1-021	
16	INVERTER CABLE 4P AWG.28--M/B D04 華力,M660N 無鉛	6-43-M66N2-053	
17	INVERTER EPS V2.0 ASS'Y M660S 無鉛	6-79-M66SR-010	
18	LCD BACK COVER MODULE 無鉛(CCD處增加卡勾)	6-39-M66N1-023	
19	FOR M550G中性LOGO(STYLE-NOTE)無鉛	6-45-M55G1-020	
20	MYLAR FOR INVERTER (14*10.4*0.4) M660N 無鉛	6-40-M66NS-060	
21	TAPE MYLAR (A),MYLAR M550J 無鉛	6-40-M55J2-010	
22	SPONGE (L33*W5*H0.65MM 含背膠)(無鉛)	6-47-M6651-010	Only FOR LCD AU
23	SPONGE L22*W10*H1.65 含背膠)(無鉛)	6-47-M6651-020	Only FOR LCD AU

LCD (M665S)

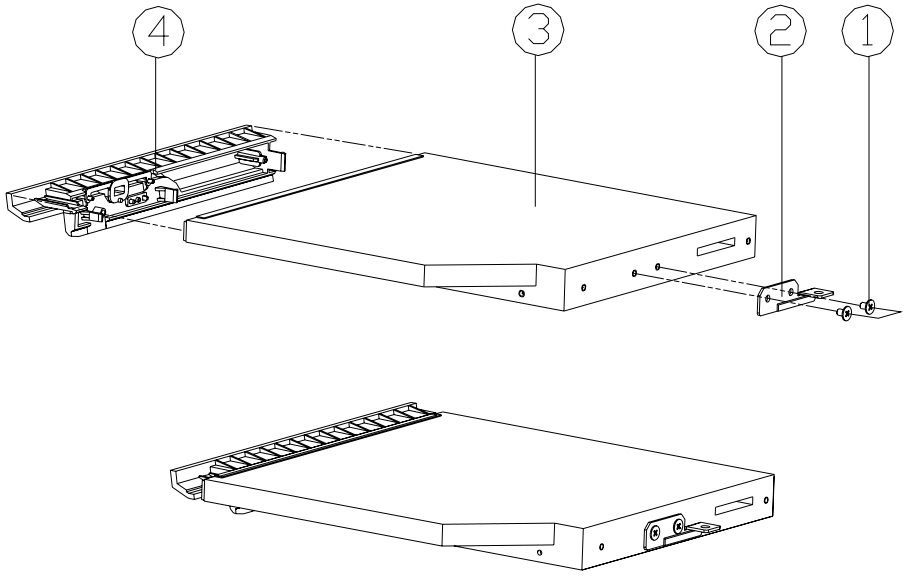


ITEM	PART NAME	PART NO	REMARK
1	LCD RUBBER 無鉛	6-47-M56A1-010	
2	SCREW M2.5*5L KI NI ICT NY 無鉛	6-35-B6125-5RA	
3	LCD FRONT COVER MODULE 無鉛	6-39-M66N1-012	
4	W/O CCD RUBBER,RUBBER M550G 無鉛	6-47-M55GT-020	
5	LCD RUBBER Ø6 無鉛	6-47-M66N1-030	
6	SCREW M2*3L KI NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
7	LCD T AU B154EW01(GLARE TYPE) V.9 15.4" WX	6-50-L8262-G00	FOR AU
7	LCD T CPT CLAA154WA05 15.4" WXGA (1280X800	6-50-L8262-C00	FOR CPT
7	LCD T CPT CLAA154WA01A(GLARE TYPE) 15.4" W	6-50-L8260-C03	FOR CPT
8	LCD HINGE ASSY R M660N 無鉛	6-33-M66N1-011	
9	M66N WLAN ANTENNA WITH BLOCK CABLE AND IPEX CONNECT	6-23-7M66N-022	
10	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
11	CMOS VIDEO CAMERA BN2C-DV7668-D 300K PIXEL	6-88-M66NC-491	<OPTION>
11	CMOS VIDEO CAMERA BN2A-DV9650-D-501G 1.3M	6-88-M55GC-612	<OPTION>
12	M660N BT ANTENNA WITH GRAY CABLE AND IPEX	6-23-7M66N-012	
13	CCD CABLE 5P AWG.30 華力M660N-D03 無鉛	6-43-M66N1-062	
13	CCD CABLE 5P AWG.30 _M660N-D03	6-43-M66N1-061	
14	LCD COAXIAL CABLE FOR 15.4" WXGA/WSXGA+(華力	6-43-M66N1-011	
15	LCD HINGE ASSY L M660N 無鉛	6-33-M66N1-021	
16	INVERTER CABLE 4P AWG.28 華力M660N-D03 無鉛	6-43-M66N2-053	
17	INVERTER EPS V2.0 ASS'Y M660S 無鉛	6-79-M66SR-010	
18	LCD BACK COVER MODULE 無鉛	6-39-M6651-022	
19	FOR M550G 中性LOGO(STYLE-NOTE) 無鉛	6-45-M55G1-020	
20	MYLAR FOR INVERTER (14*10.4*0.4) M660N 無鉛	6-40-M66NS-060	
21	TAPE MYLAR (A),MYLAR M550J 無鉛	6-40-M55J2-010	
22	SPONGE (L33*W5*H0.65MM 含背膠)無鉛	6-47-M6651-010	Only FOR LCD AU
23	SPONGE L22*W10*H1.65 含背膠)無鉛	6-47-M6651-020	Only FOR LCD AU

Figure A - 5
LCD (M665S)

Combo (M660S/M665S)

Figure A - 6
Combo(M660S/ M665S)



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L K1 NI ICT GTY-PATCH	6-35-B1120-3RE	
2	ODD FIX BRACKET M660N	6-33-M66NZ-010	
3	CD-RW/DVD 5 1/4" 24X 12.7MM TS-L462C TOSHIBA	6-85-907PX-T00	
4	CD-RW/DVD 5 1/4" 24X 12.7MM UJDA770CL-A PANASONIC	6-85-907PX-P00	
4	G BEZEL MODULE FOR DVD COMBO	6-42-M66NX-101	

DVDRW (M660S/M665S)

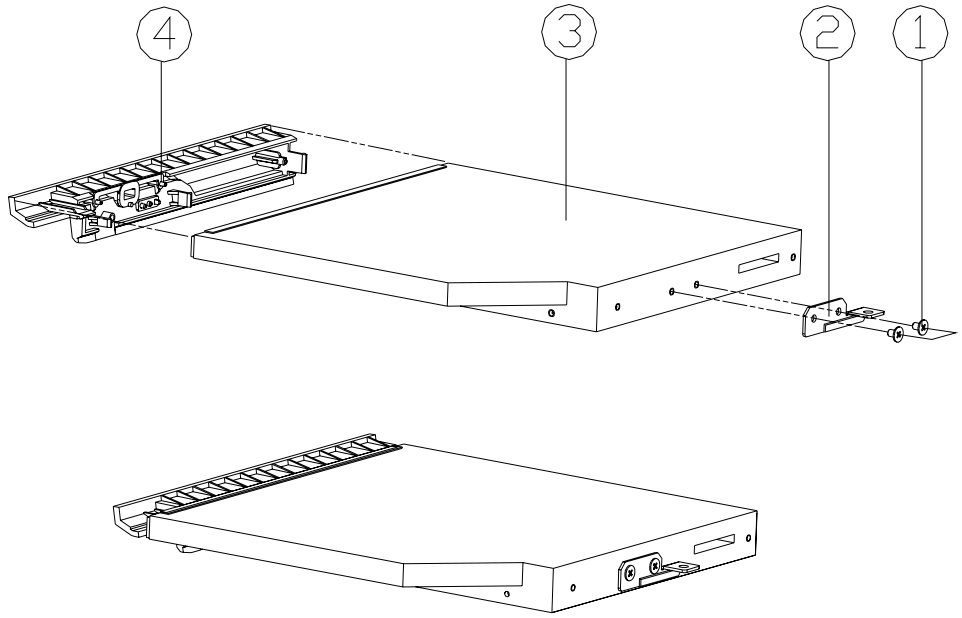


Figure A - 7
DVDRW(M660S/ M665S)

ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L K1 NI ICT GTY-PATCH	6-35-B1120-3RE	
2	ODD FIX BRACKET M660N	6-33-M66NZ-010	
3	DVD/DUAL RW 5 1/4" 8X 12.7MM SDVD8441	6-85-A078X-C03	
4	G BEZEL MODULE FOR DVD DUAL M660N	6-42-M66NQ-101	

Appendix B:Schematic Diagrams

This appendix has circuit diagrams of the ***M660S/M665S*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

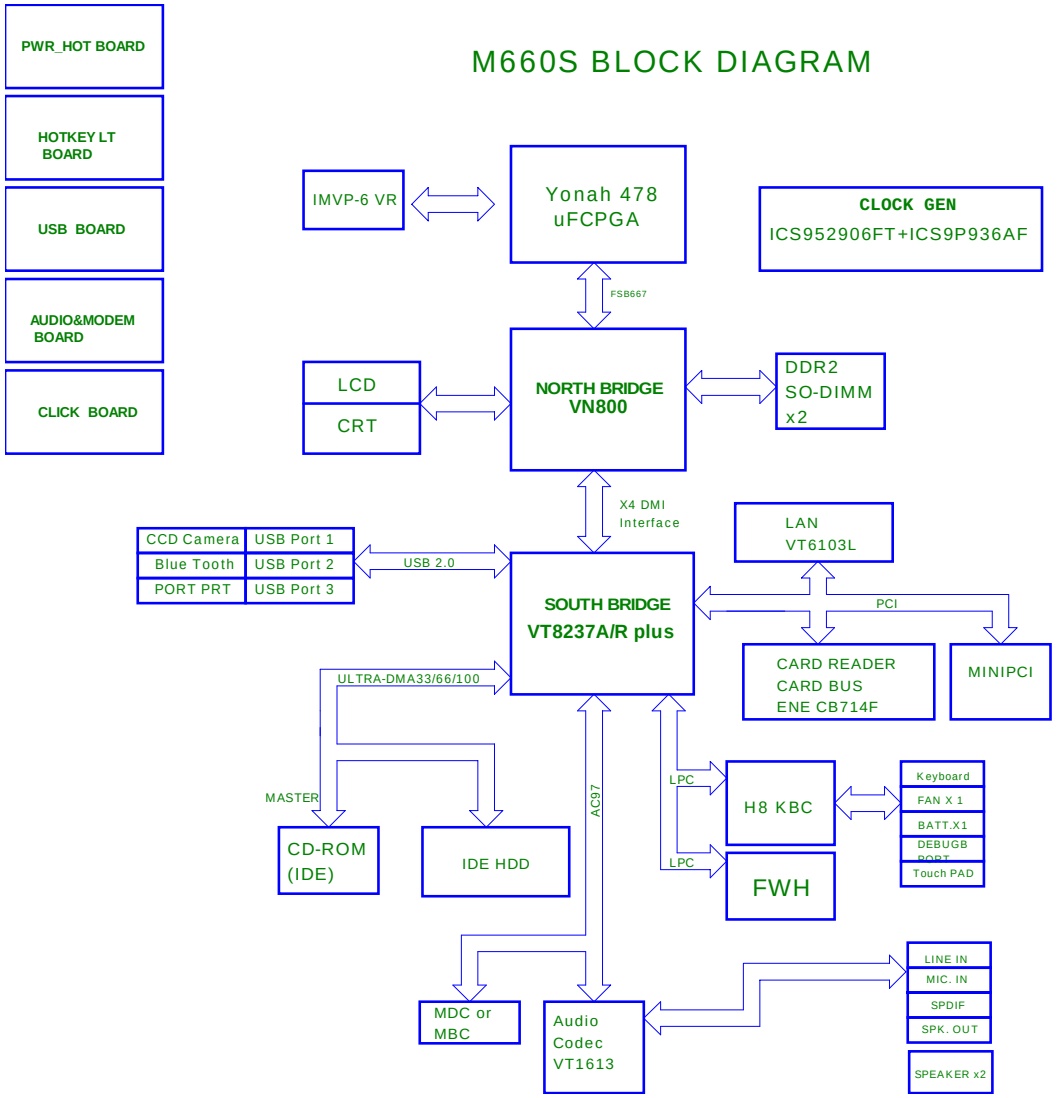
Table B - 1
Schematic Diagrams

Version Note

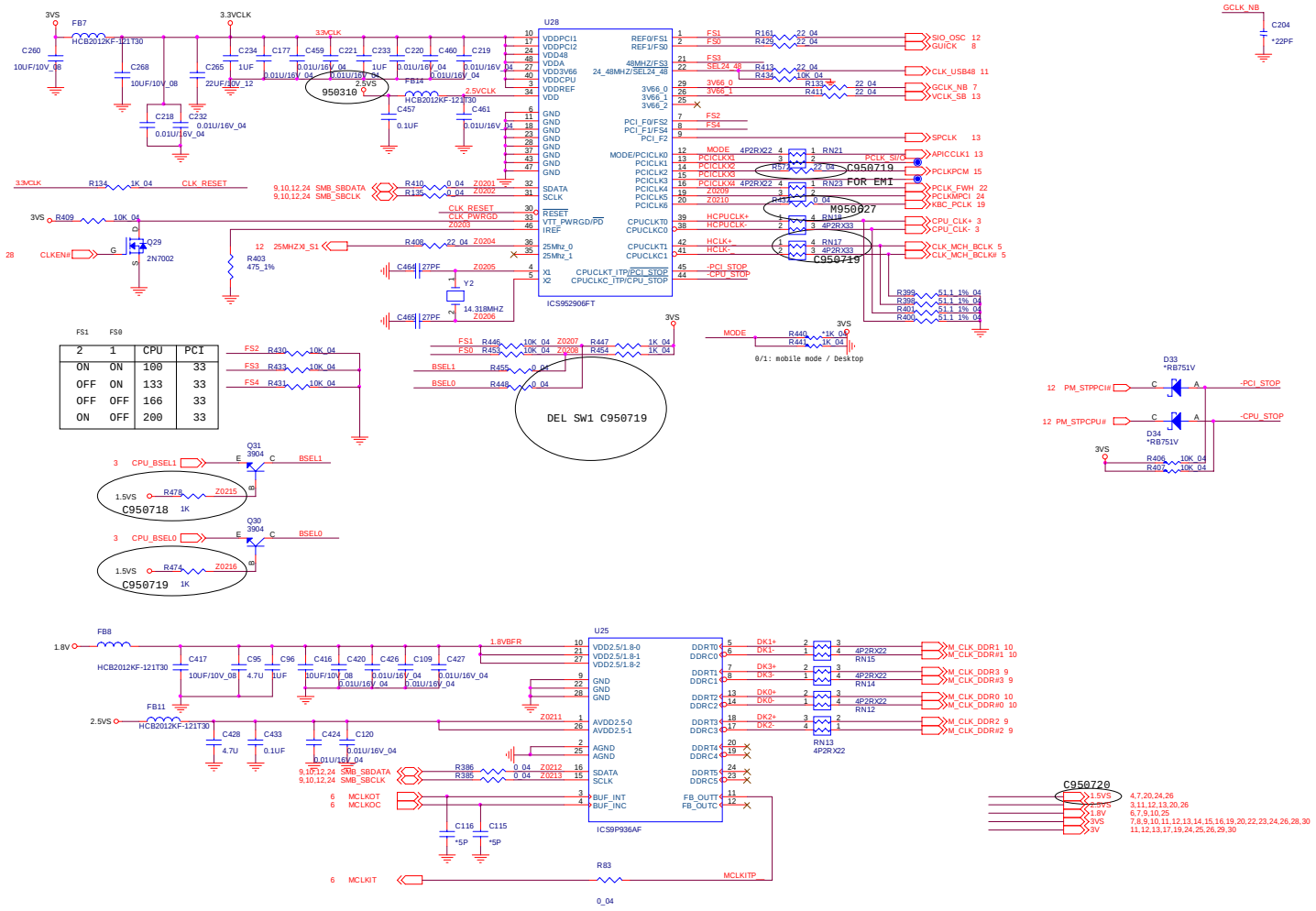
The schematic diagrams in this chapter are based upon version **6-71-M66S-003**. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

SYSTEM BLOCK DIAGRAM

Sheet 1 of 34
SYSTEM BLOCK DIAGRAM



CLOCK GENERATOR

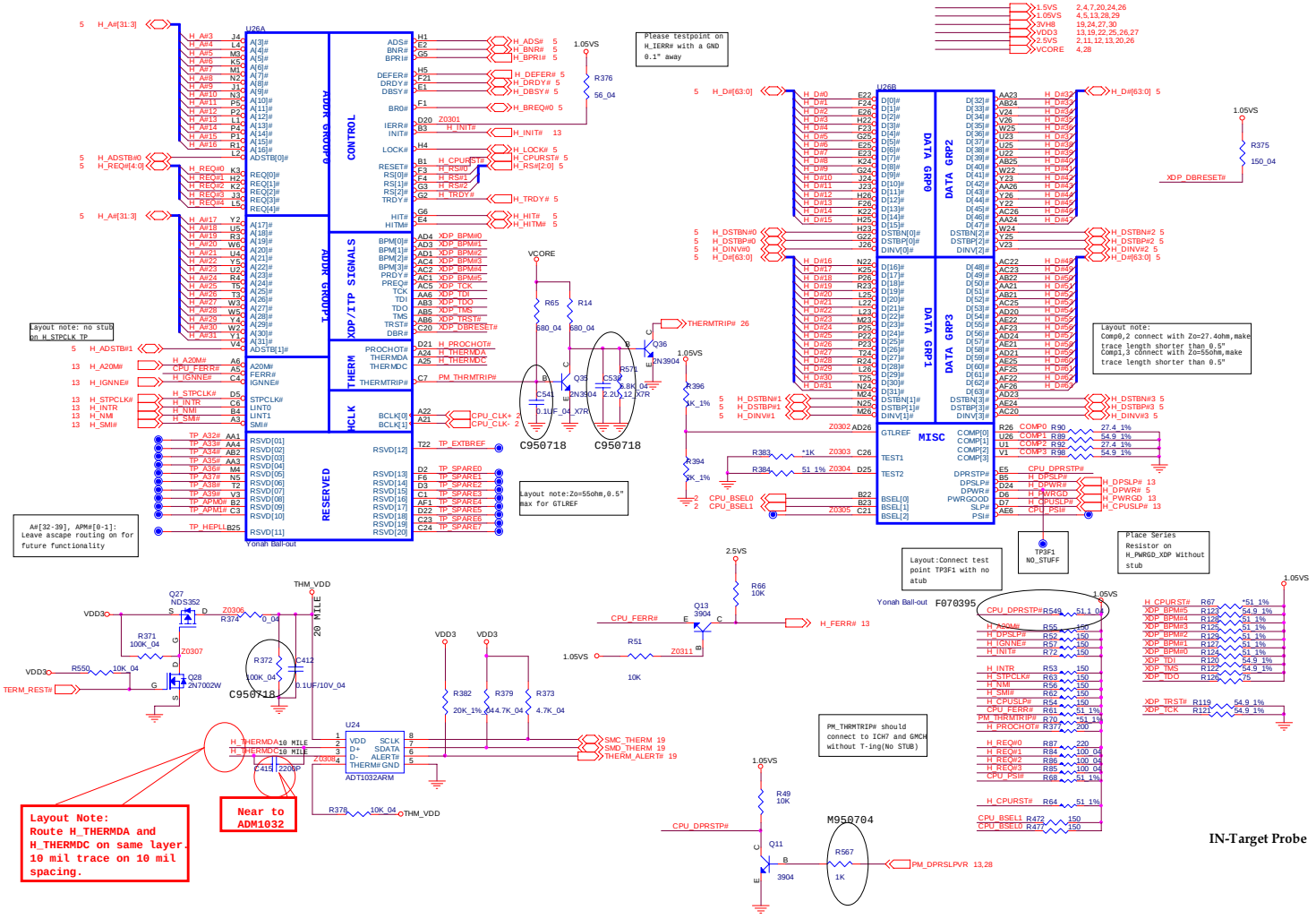


FS1	FS0	CPU	PCI
2	1	CPU	PCI
ON	ON	100	33
OFF	ON	133	33
OFF	OFF	166	33
ON	OFF	200	33

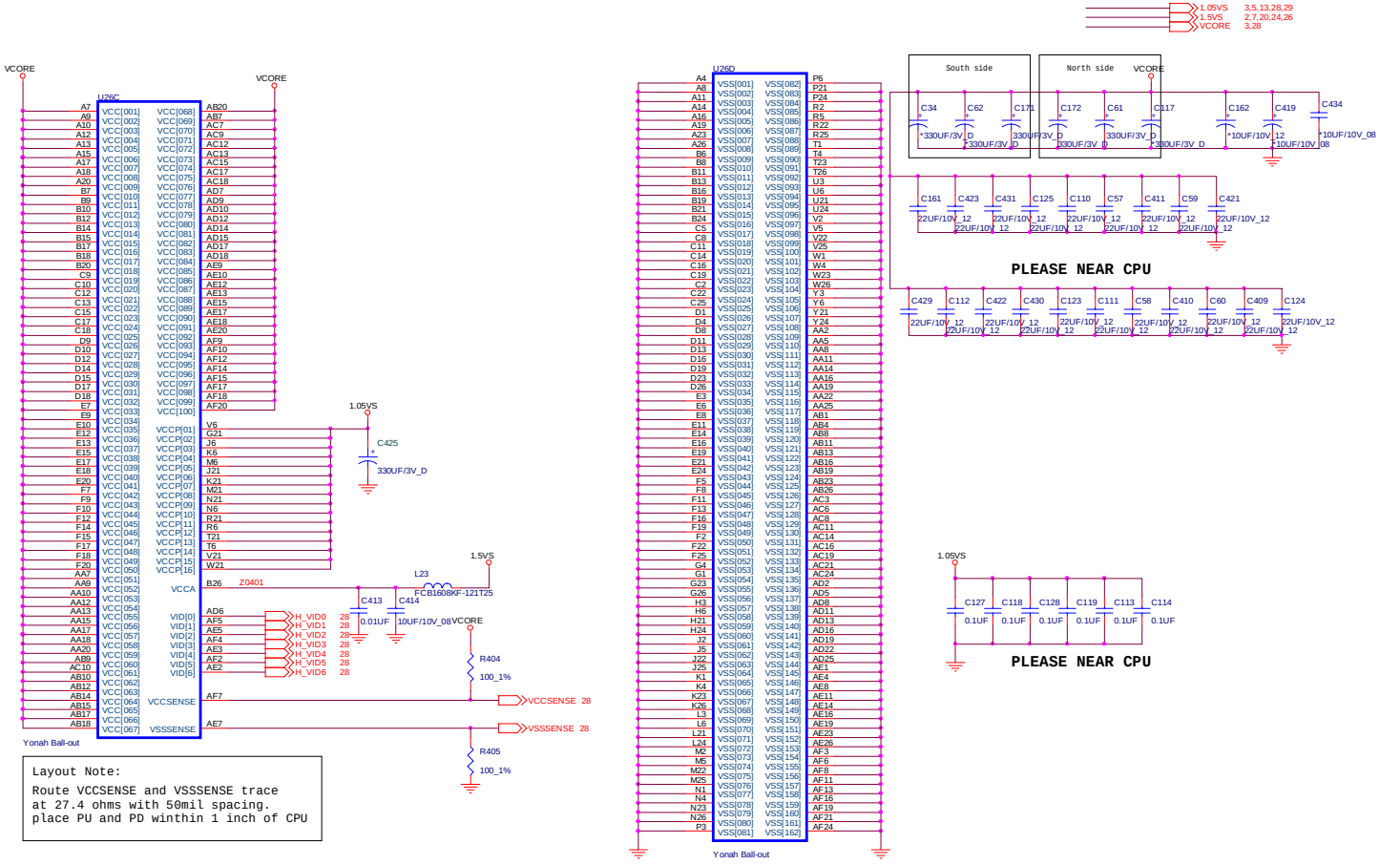
Sheet 2 of 34
CLOCK
GENERATOR

CPU-1

Sheet 3 of 34
CPU-1



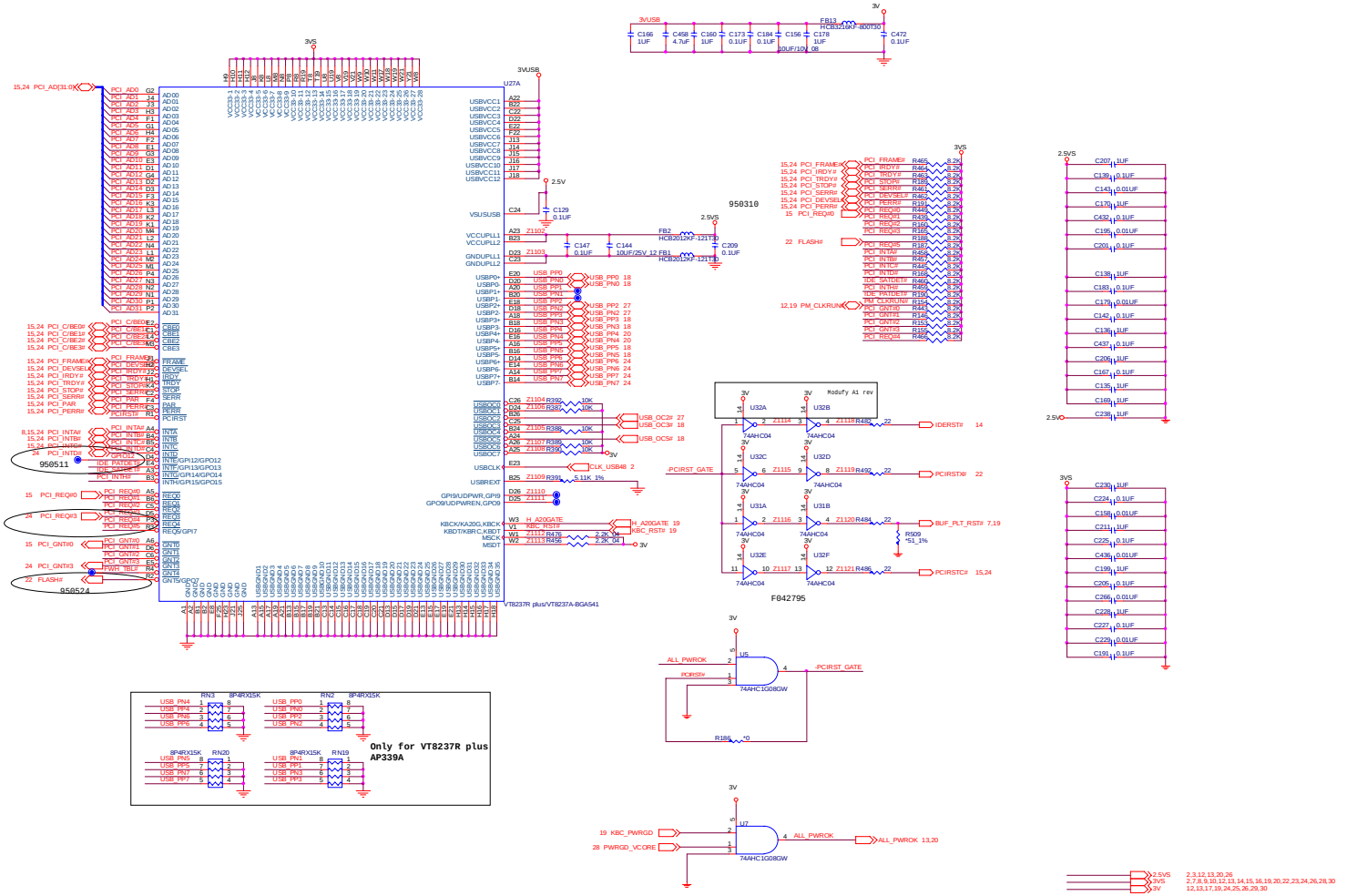
CPU-2



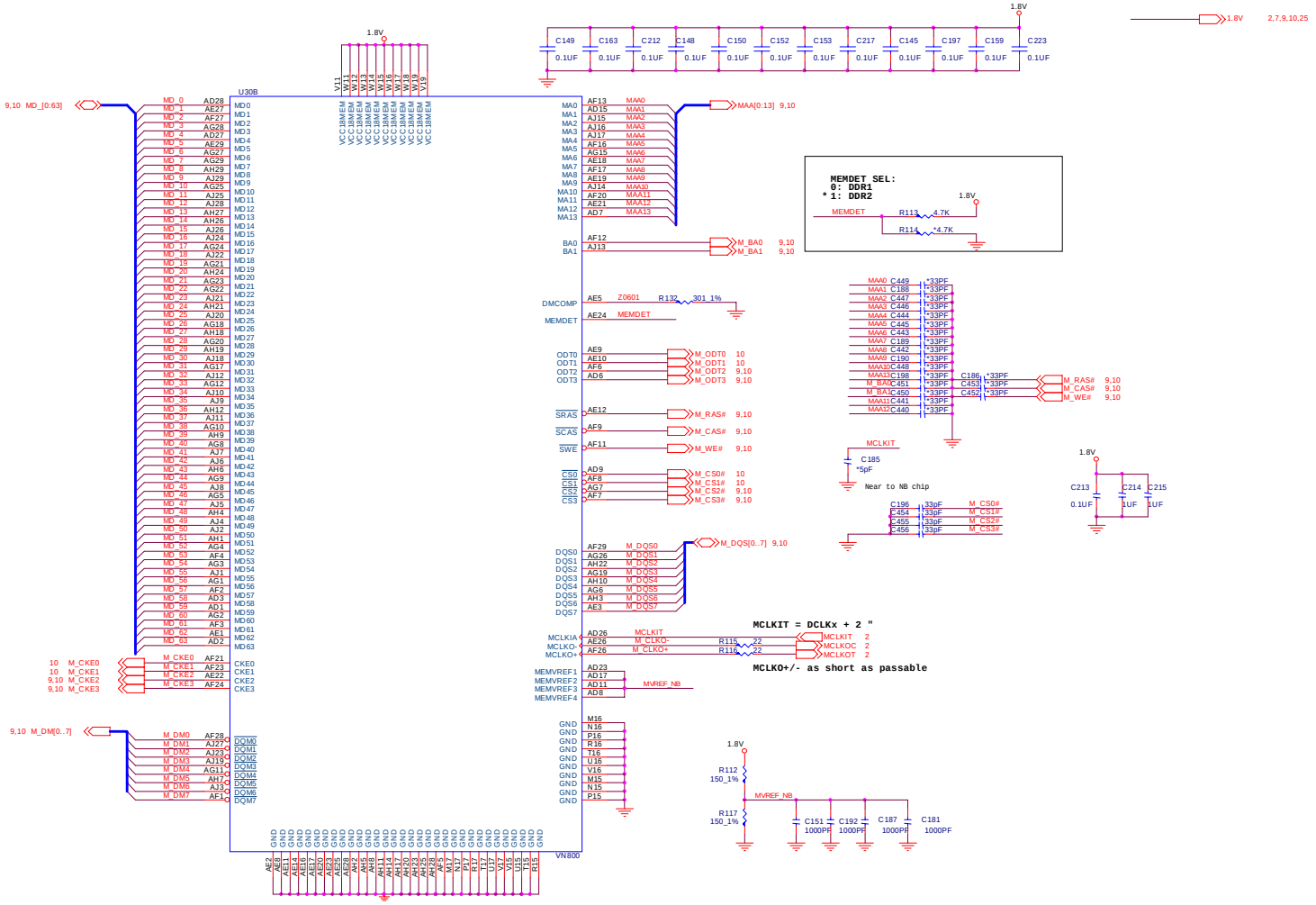
Sheet 4 of 34
CPU-2

VN800-1

Sheet 5 of 34
VN800-1



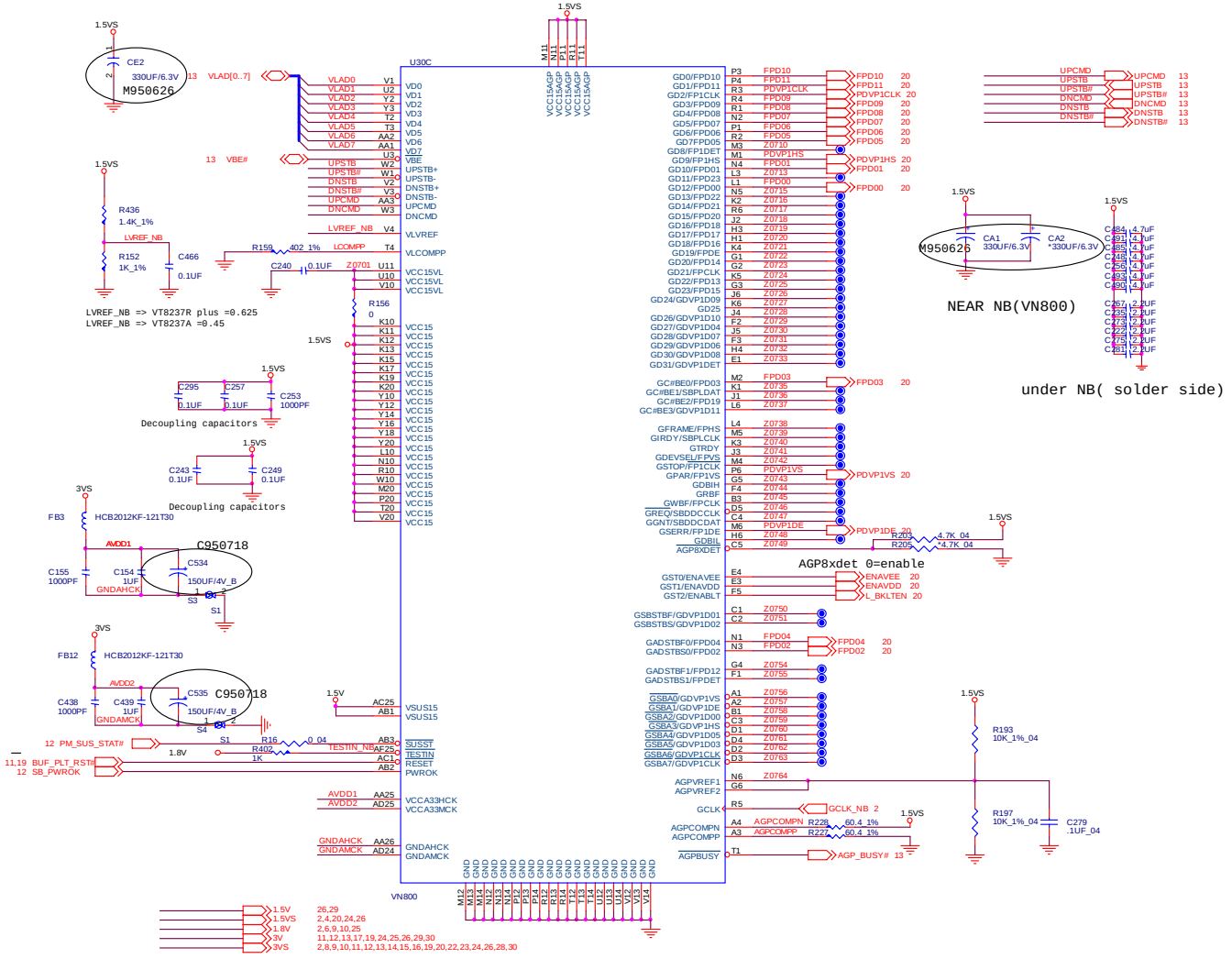
VN800-2



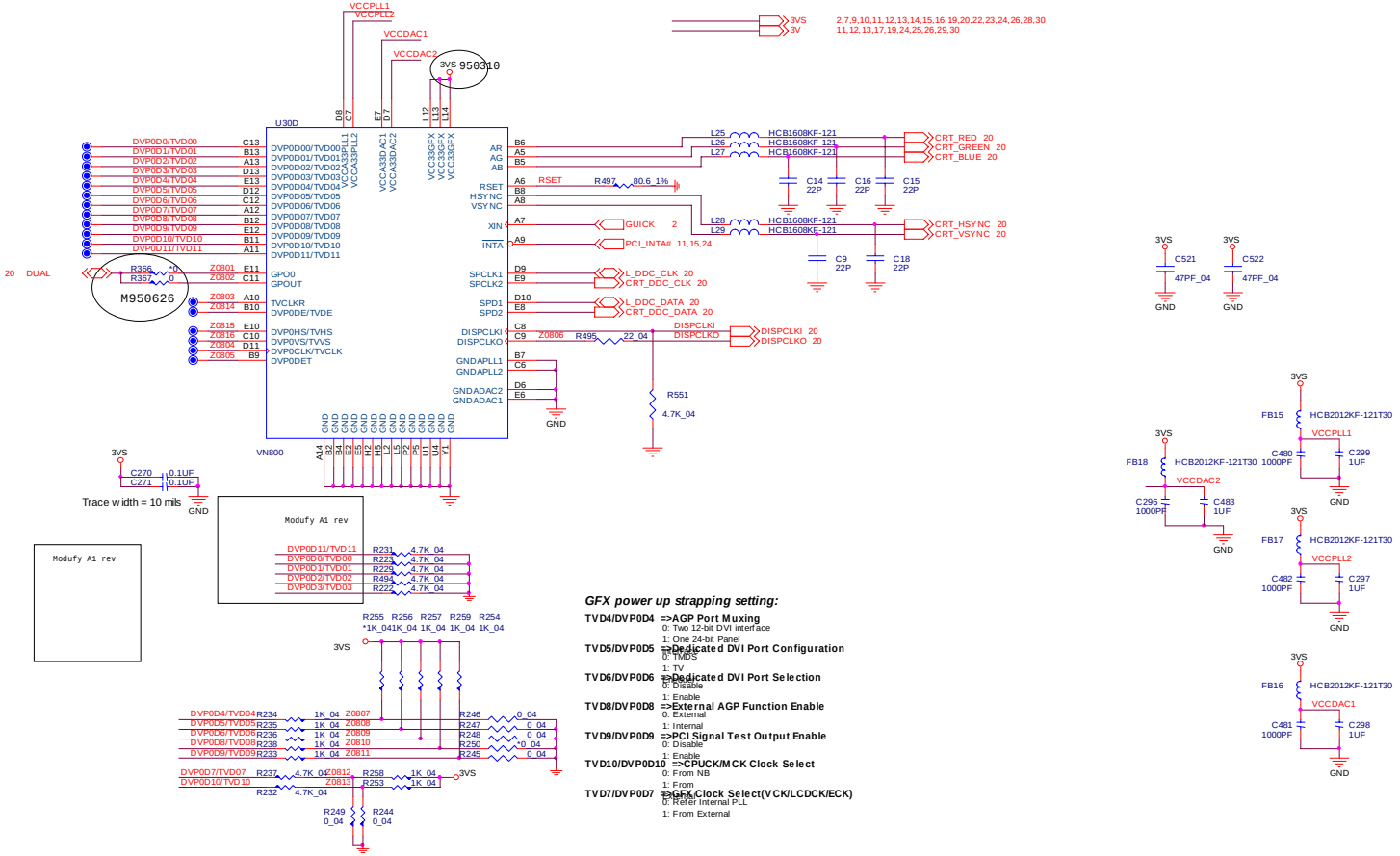
Sheet 6 of 34
VN800-2

VN800-3

Sheet 7 of 34
VN800-3



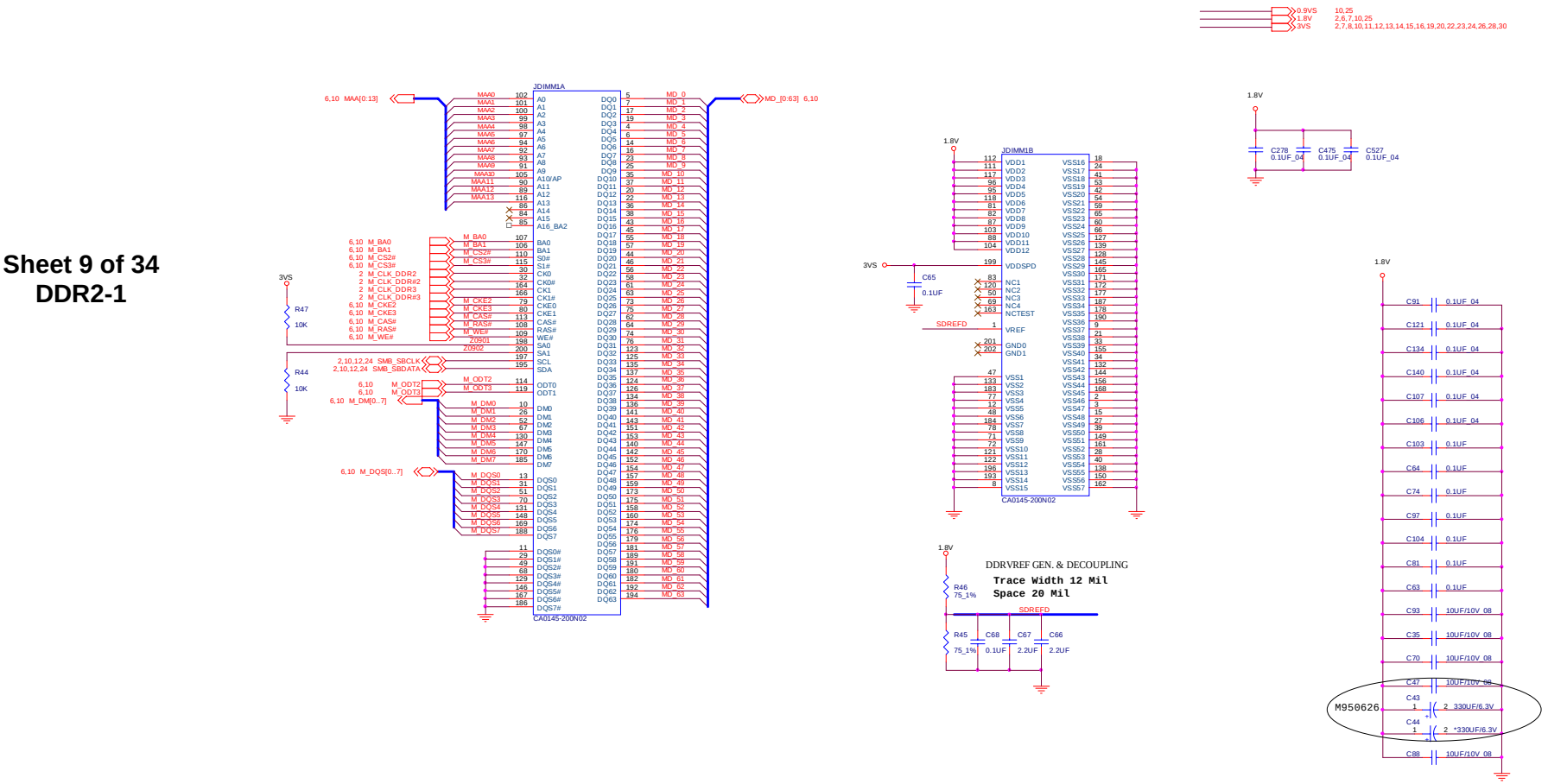
VN800-4



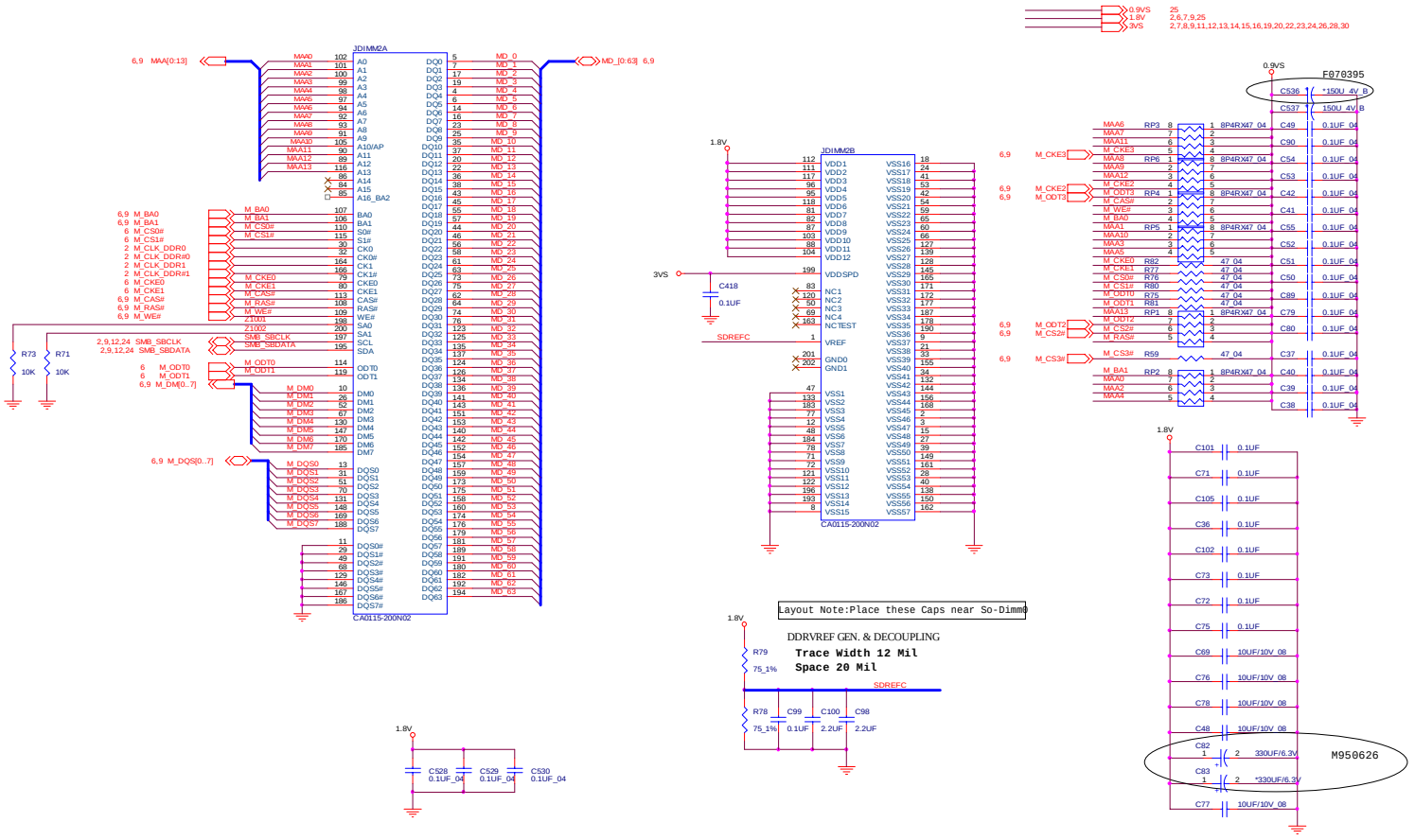
Sheet 8 of 34
VN800-4

DDR2-1

Sheet 9 of 34
DDR2-1



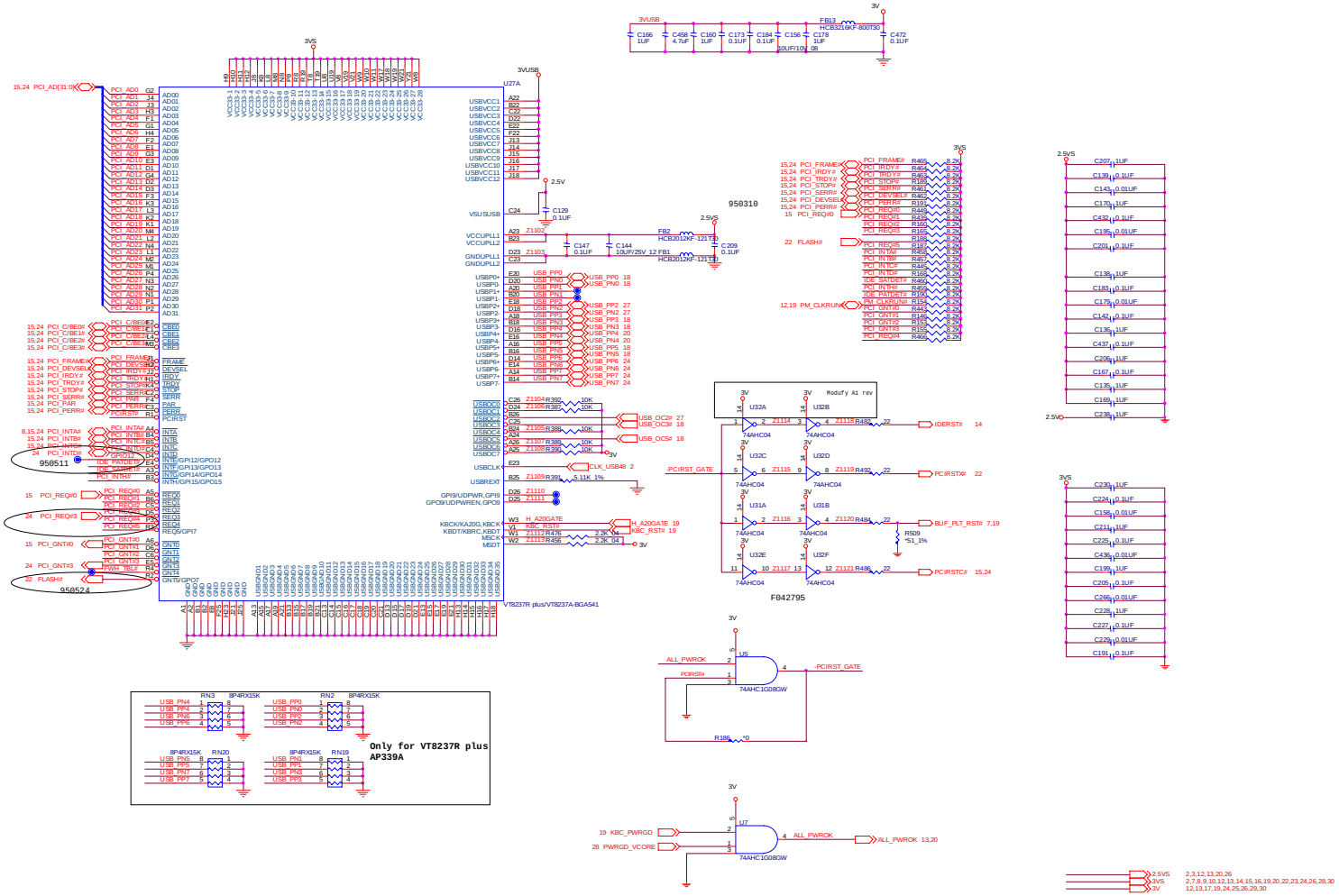
DDR2-2



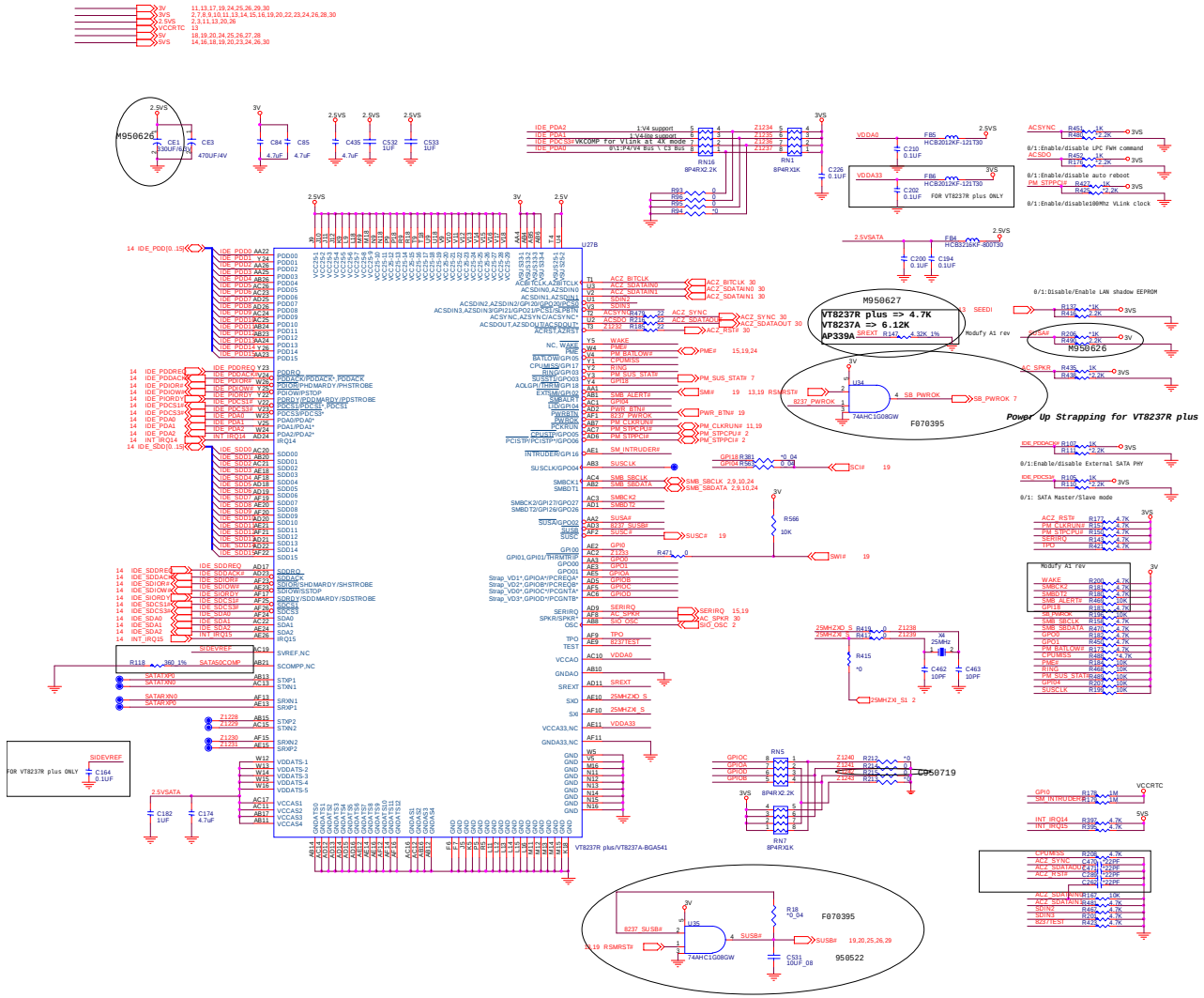
Sheet 10 of 34
DDR2-2

VT8237-1

Sheet 11 of 34
VT8237-1



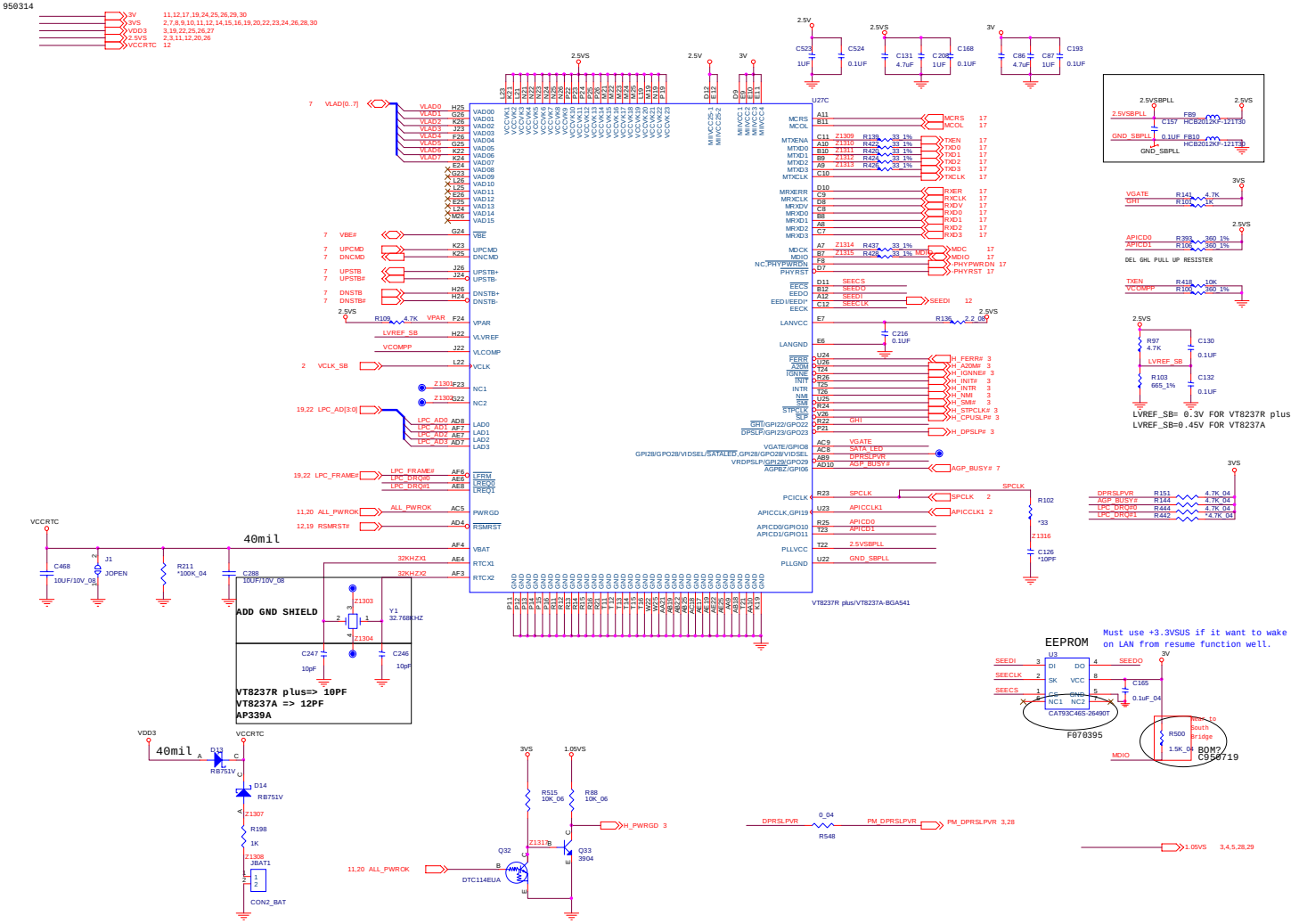
VT8237-2



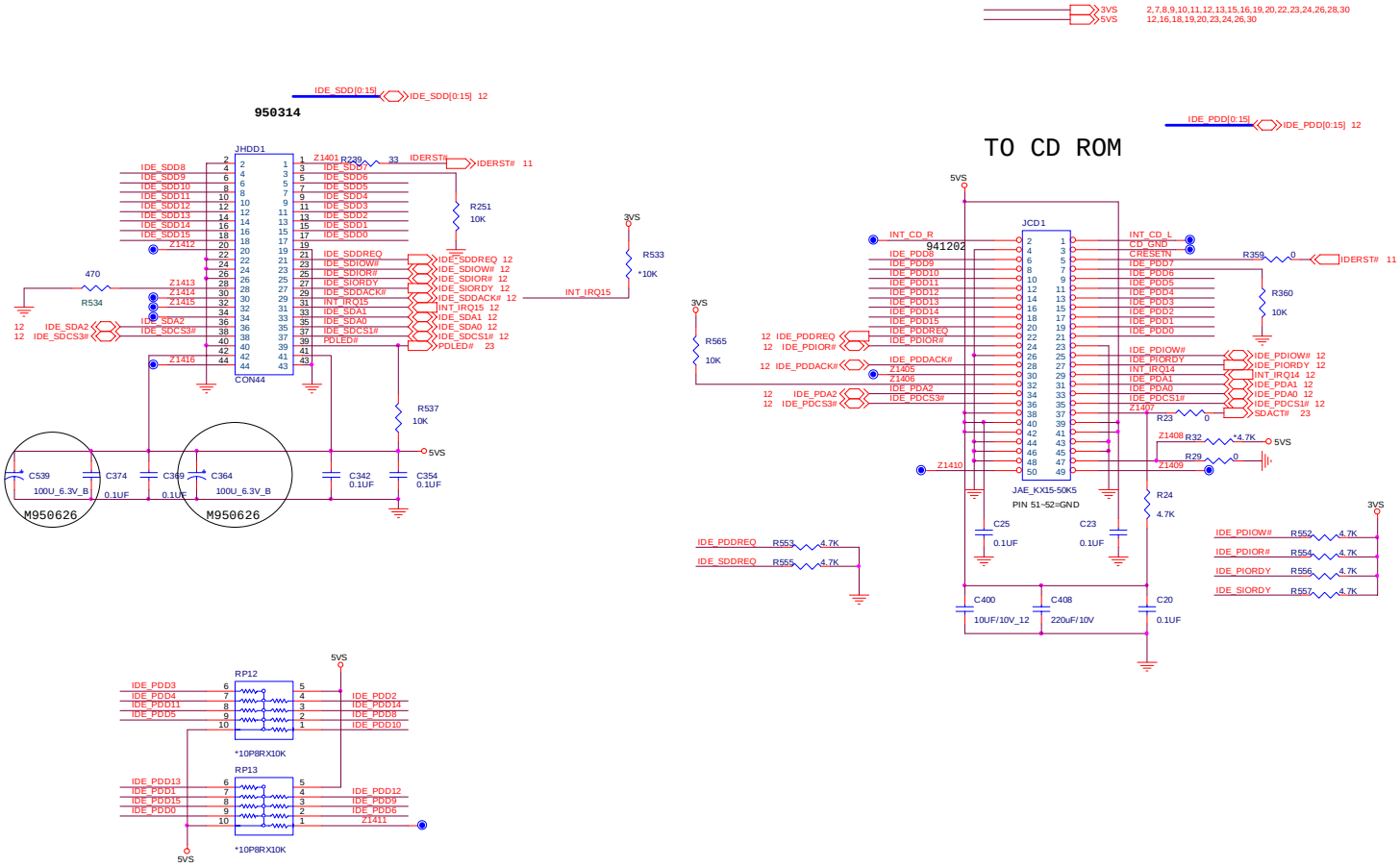
Sheet 12 of 34
VT8237-2

VT8237-3

Sheet 13 of 34
VT8237-3



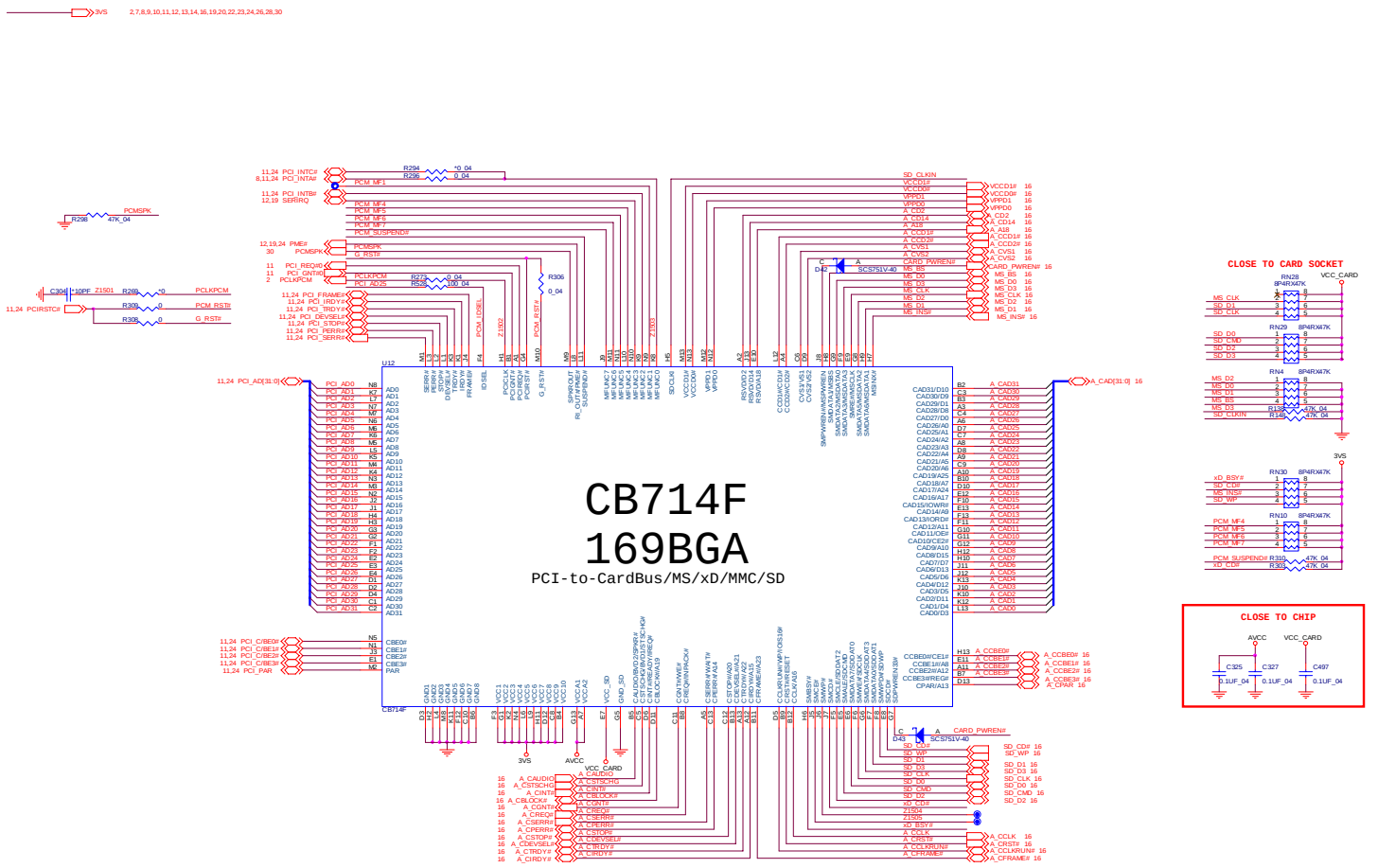
HDD & CDROM



Sheet 14 of 34
HDD & CDROM

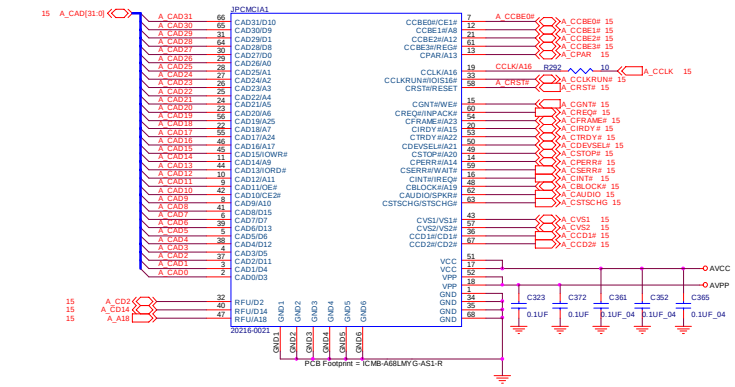
CARDBUS / CARD READER

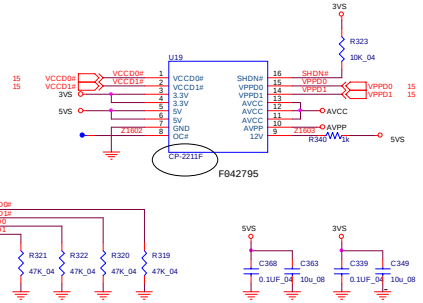
Sheet 15 of 34
CARDBUS / CARD READER



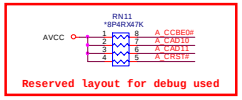
CARD SOCKET

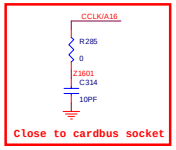
CARDBUS SOCKET

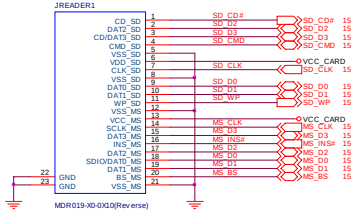




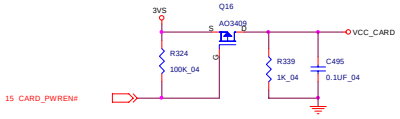
3 IN 1 SOCKET SD/MMC/MS(Pro)

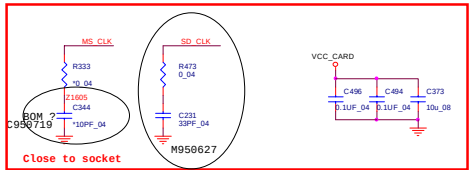


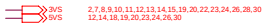




Card Reader Power



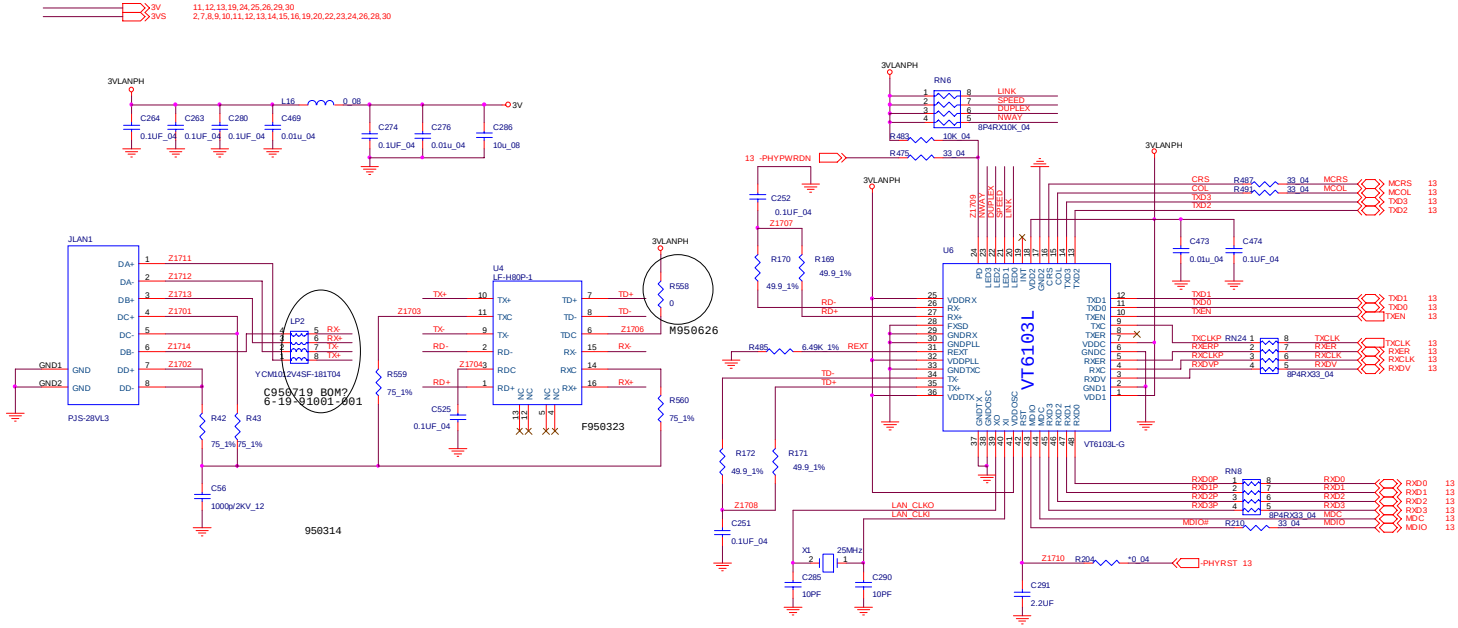




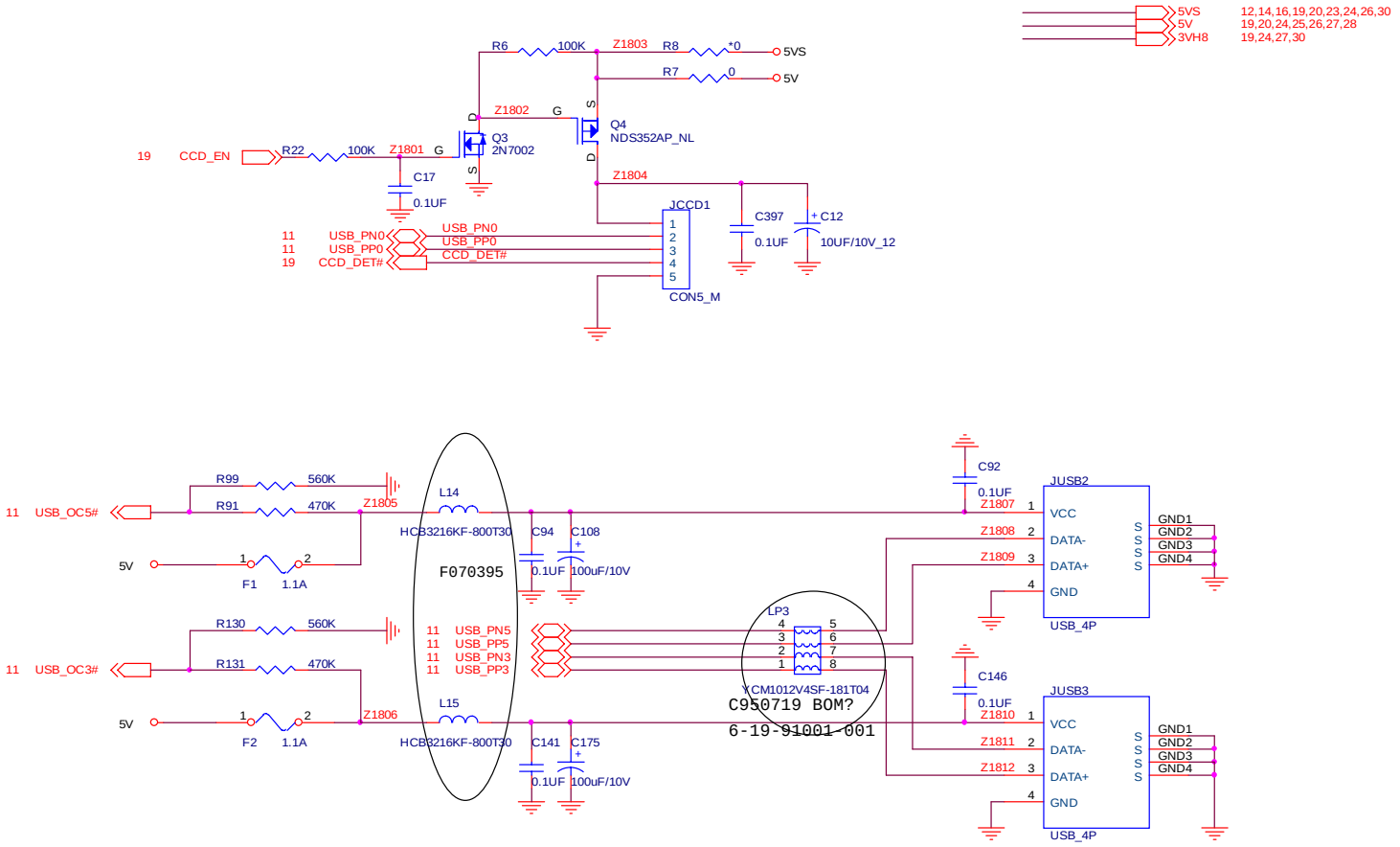
Sheet 16 of 34
CARD SOCKET

LAN

Sheet 17 of 34
LAN



USB & CCD



Sheet 18 of 34
USB & CCD

HITACHI H8

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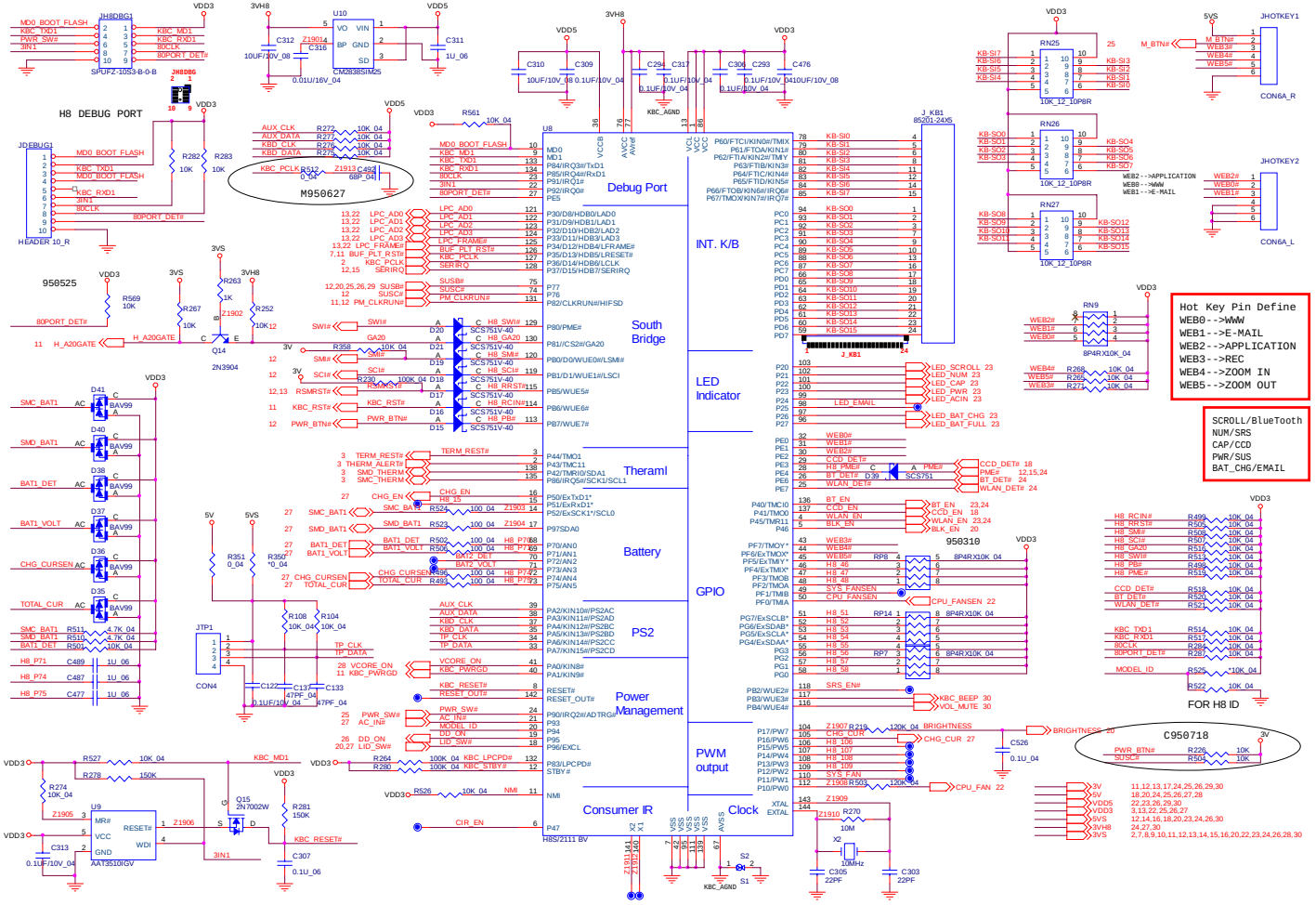
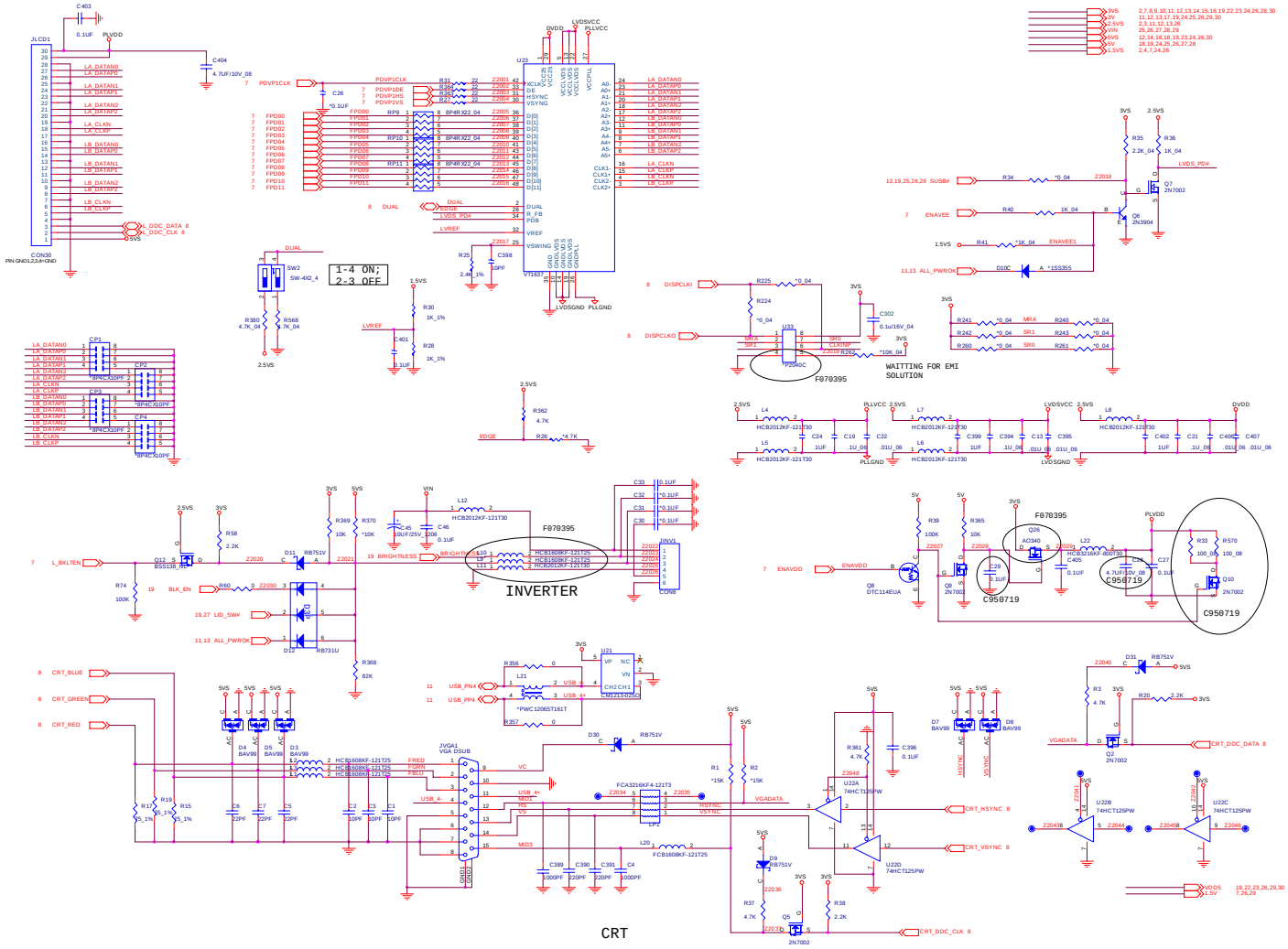
HITACHI H8



CRT & LVDS

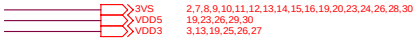


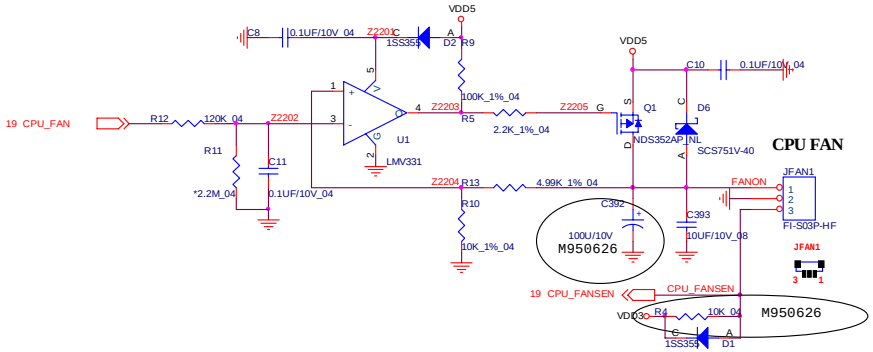
Sheet 20 of 34
CRT & LVDS

CPU FAN, ROM

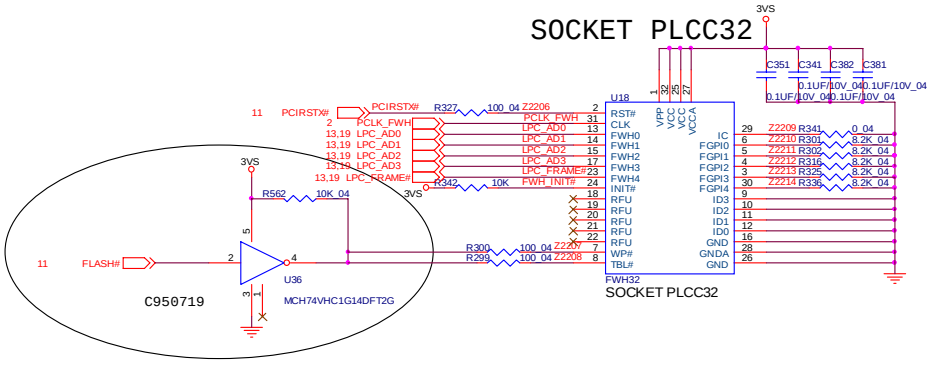
Sheet 21 of 34
CPU FAN, ROM

CPU_FAN

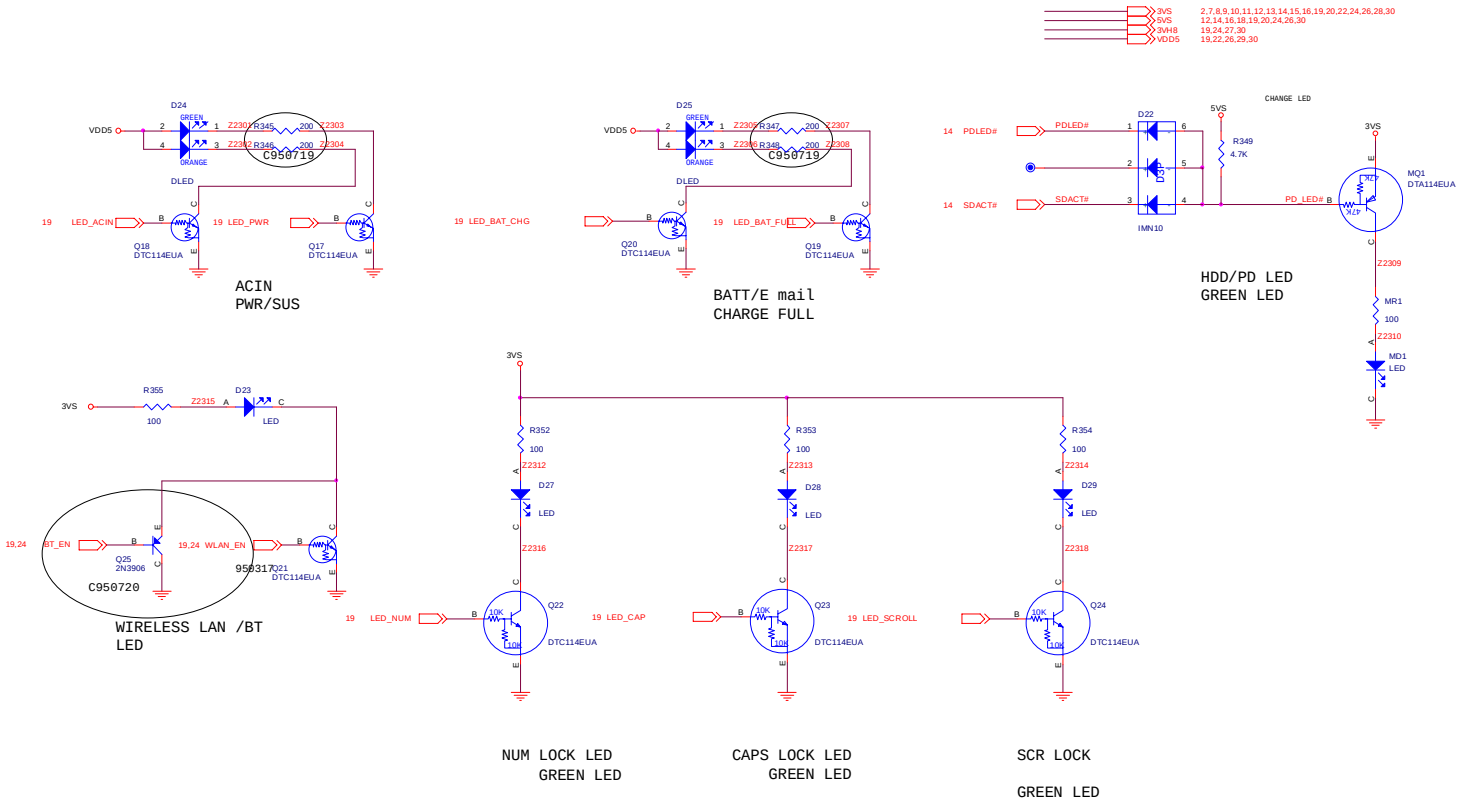




ROM



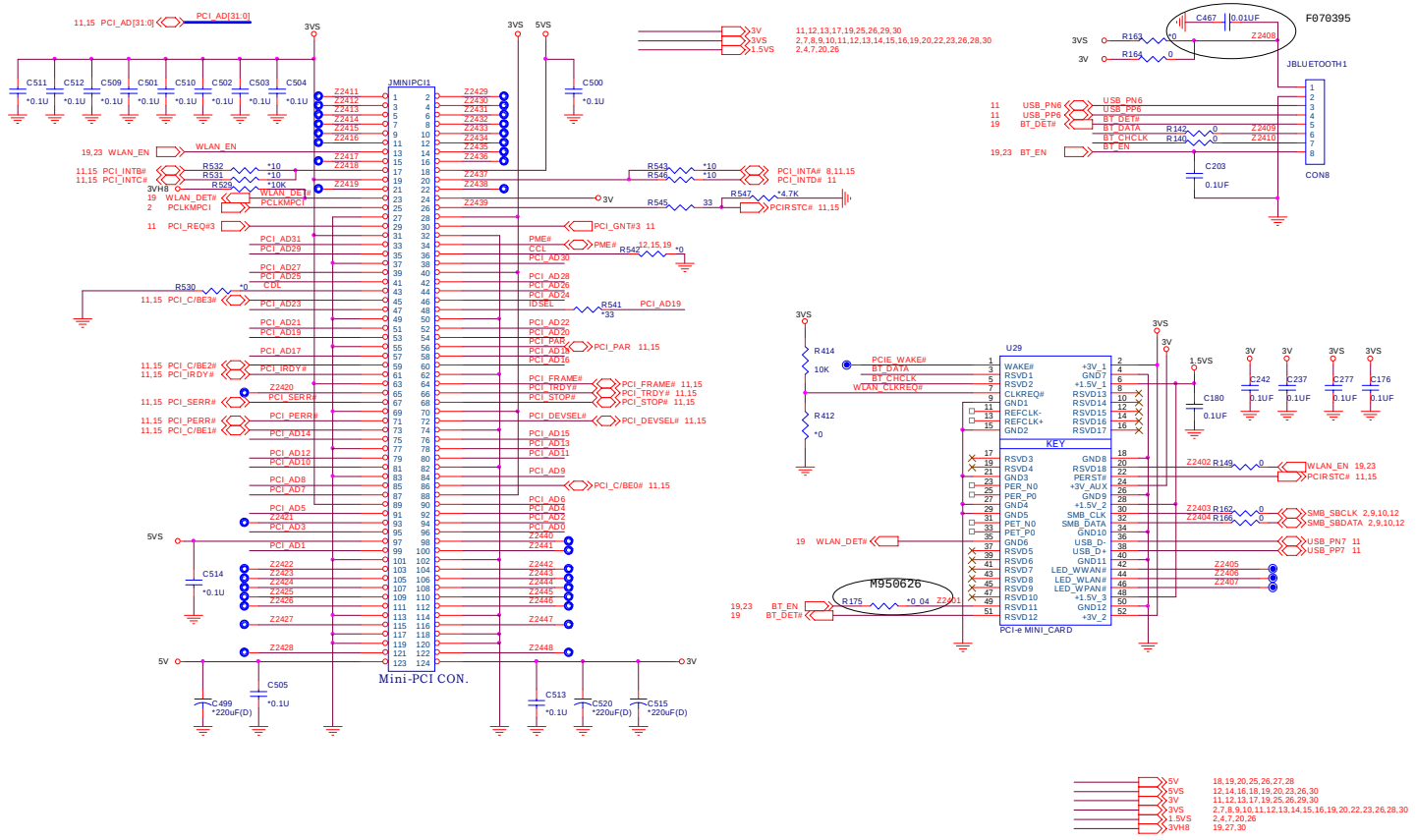
LED



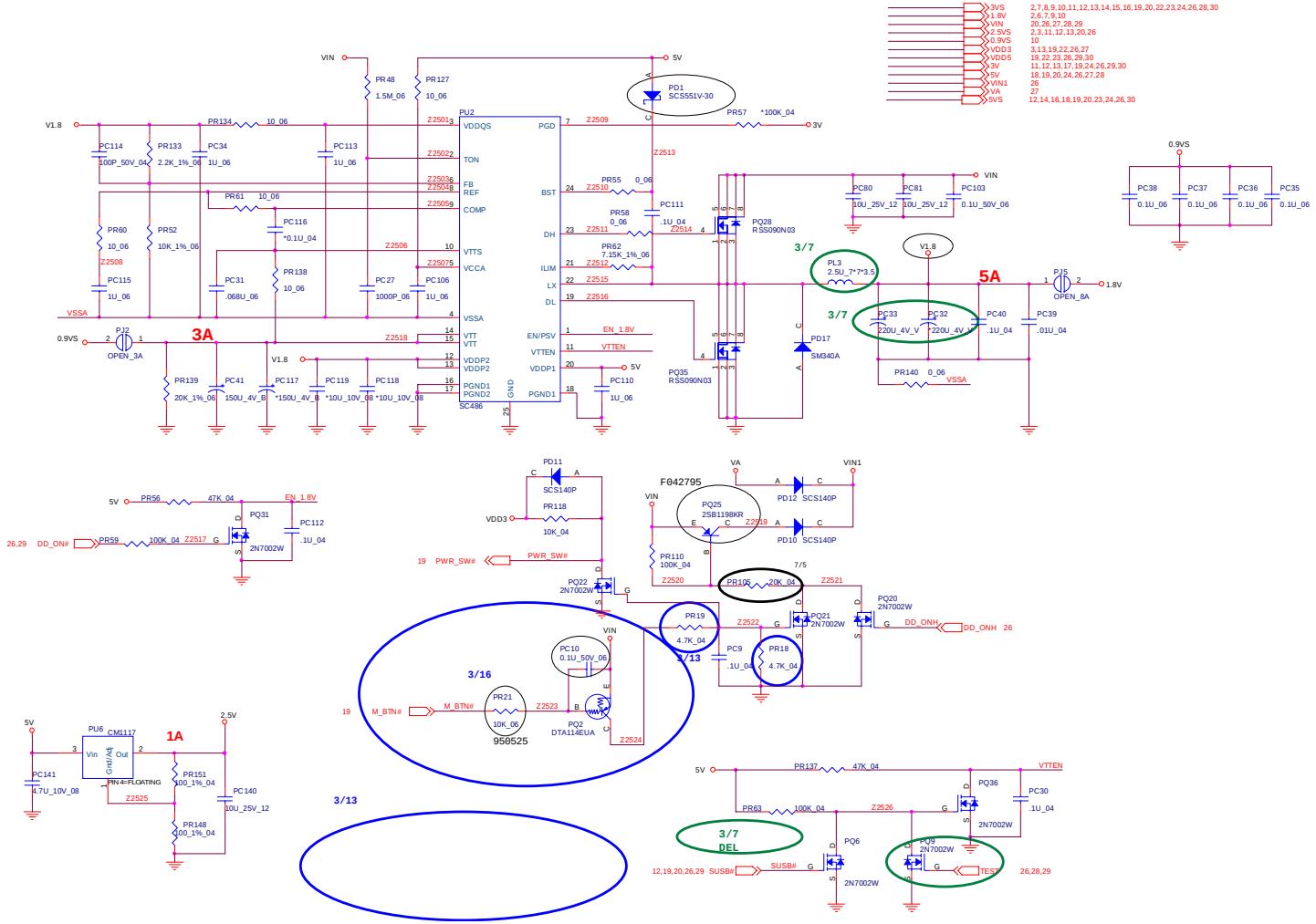
Sheet 22 of 34
LED

MINI-PCI & BLUETOOTH

Sheet 23 of 34
MINI-PCI & BLUETOOTH



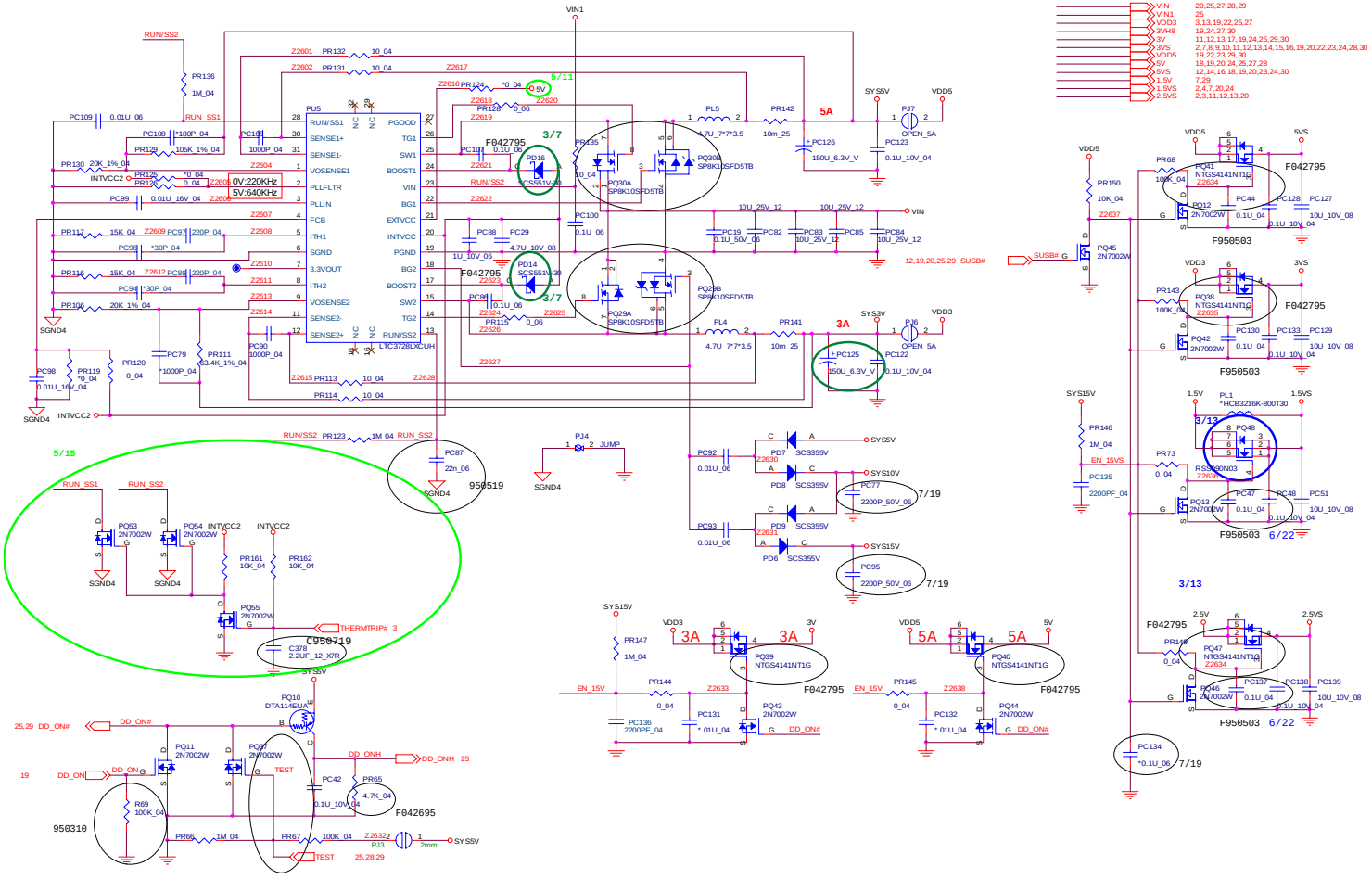
1.8V, 0.9VS, 2.5VS



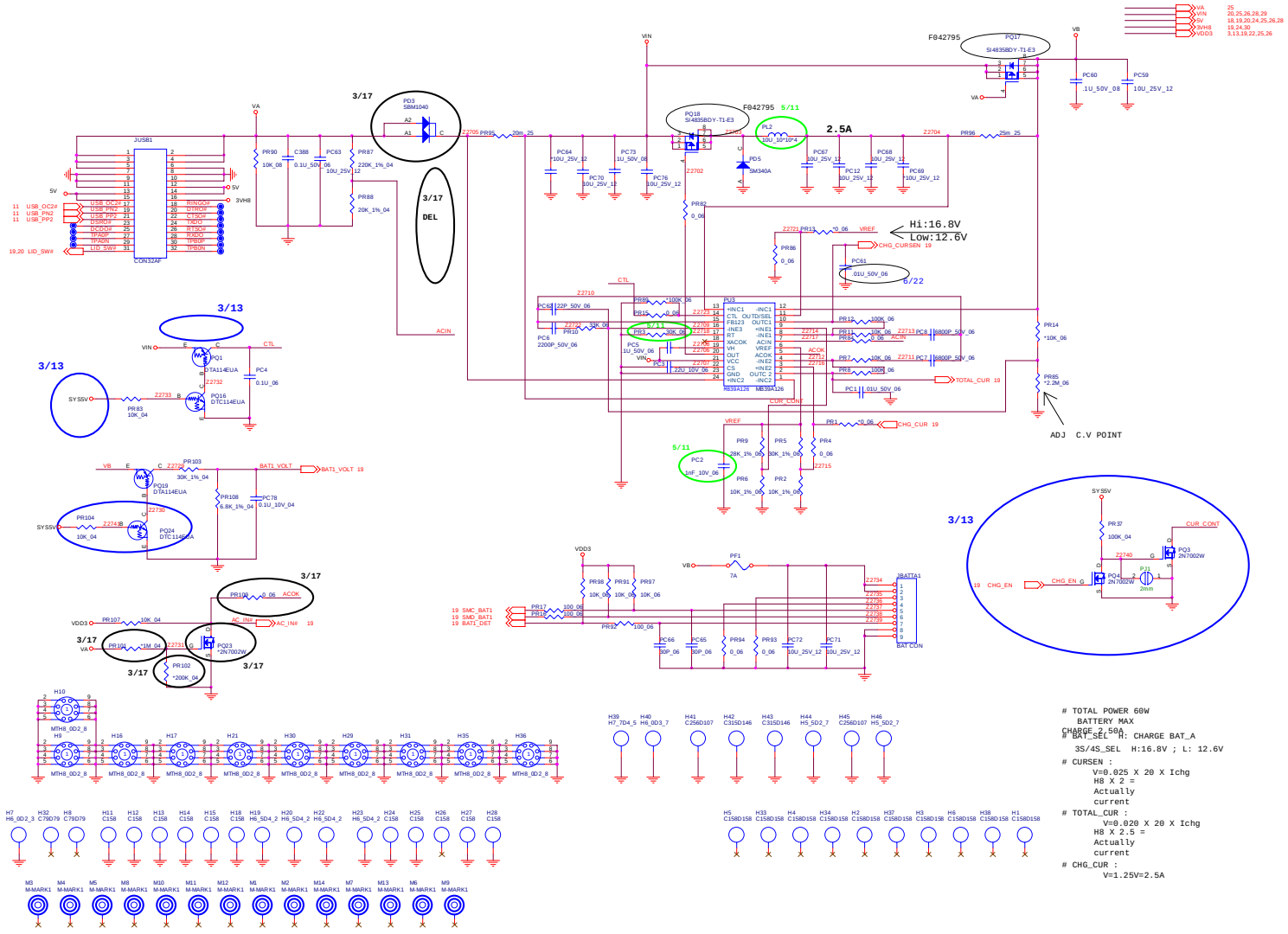
Sheet 24 of 34
1.8V, 0.9VS, 2.5VS

VDD3, VDD5

Sheet 25 of 34
VDD3, VDD5



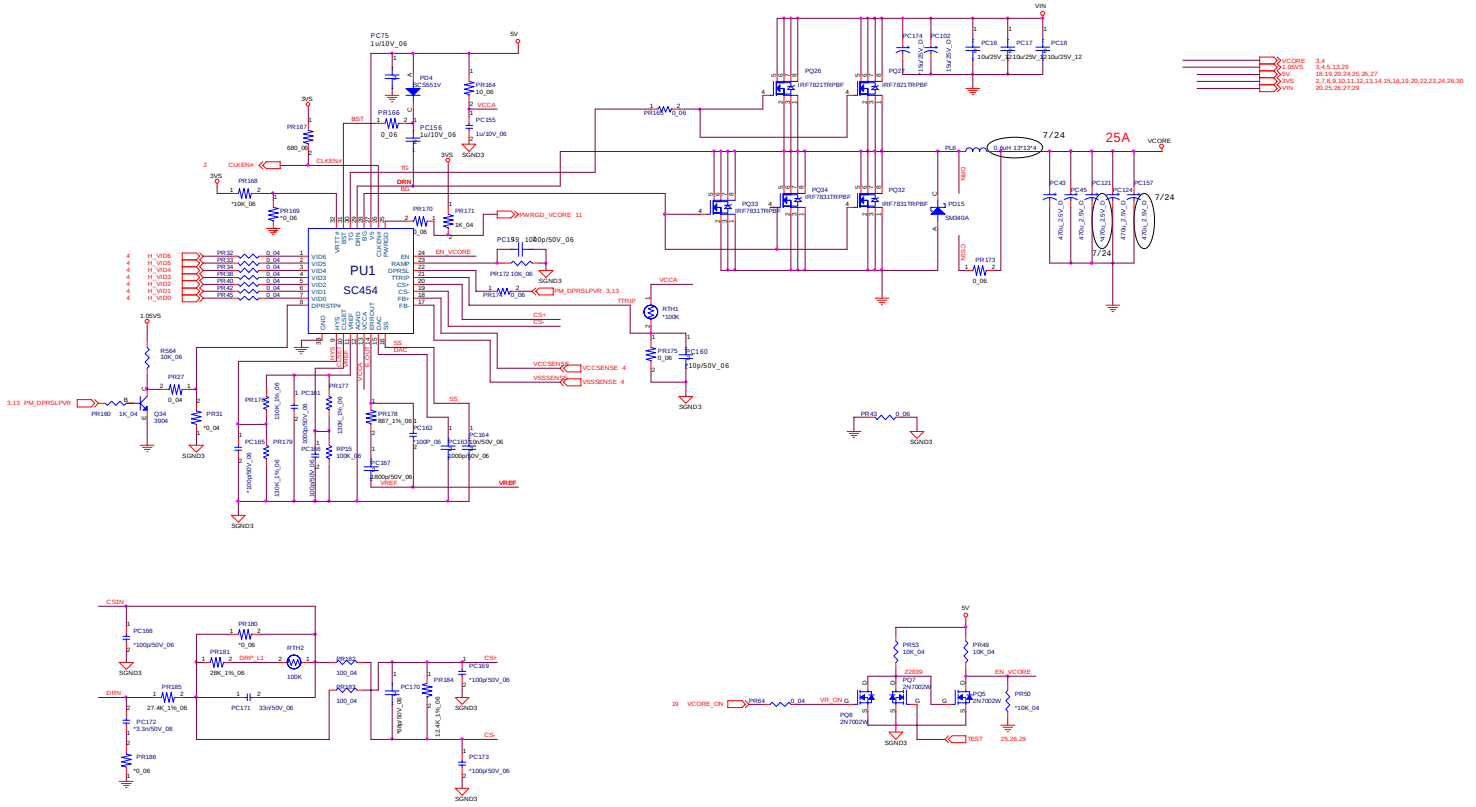
CHARGER, DC IN



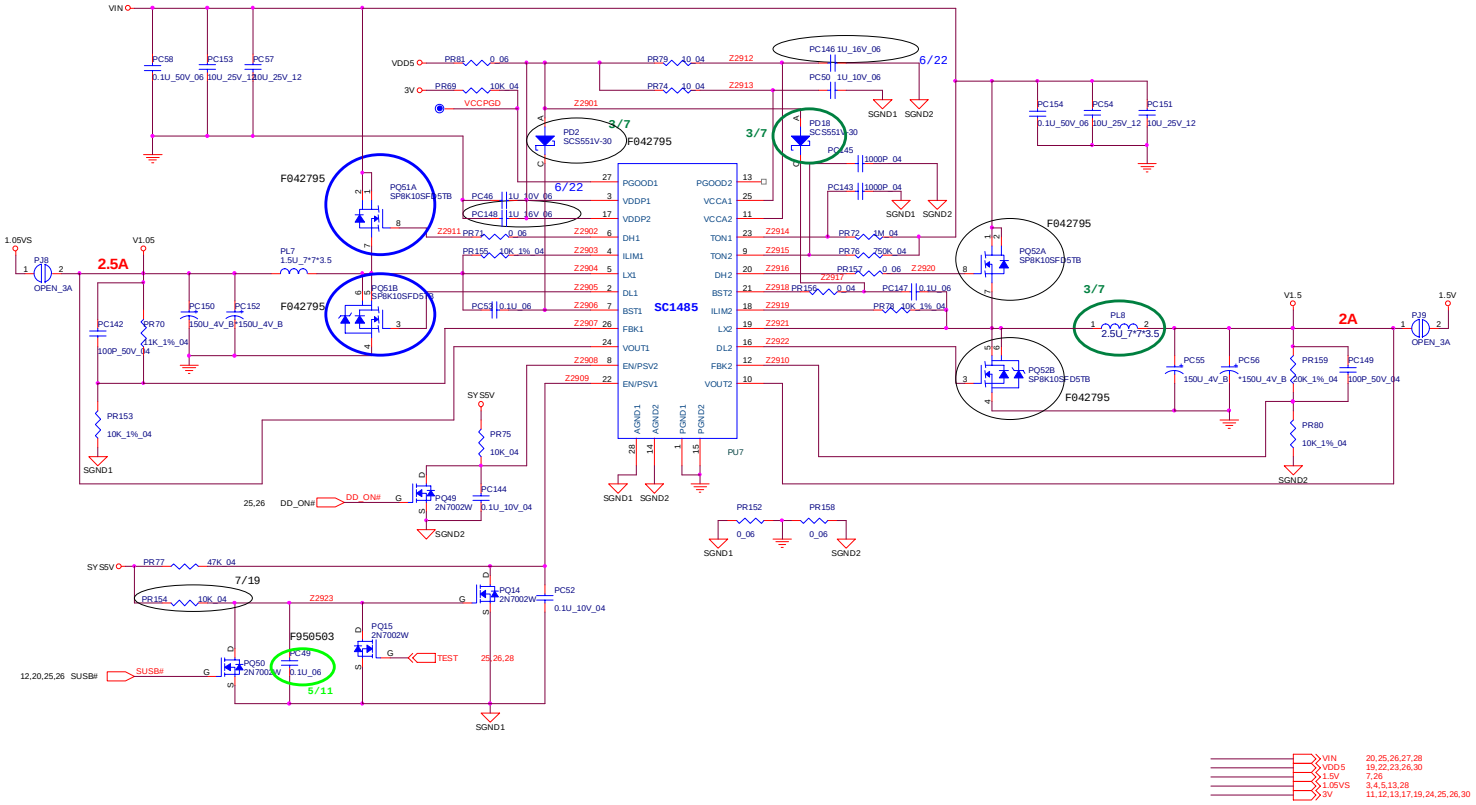
Sheet 26 of 34
CHARGER, DC IN

VCORE

Sheet 27 of 34
VCORE



1.05VS, 1.5V



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1.05VS, 1.5V

AUDIO VT1613

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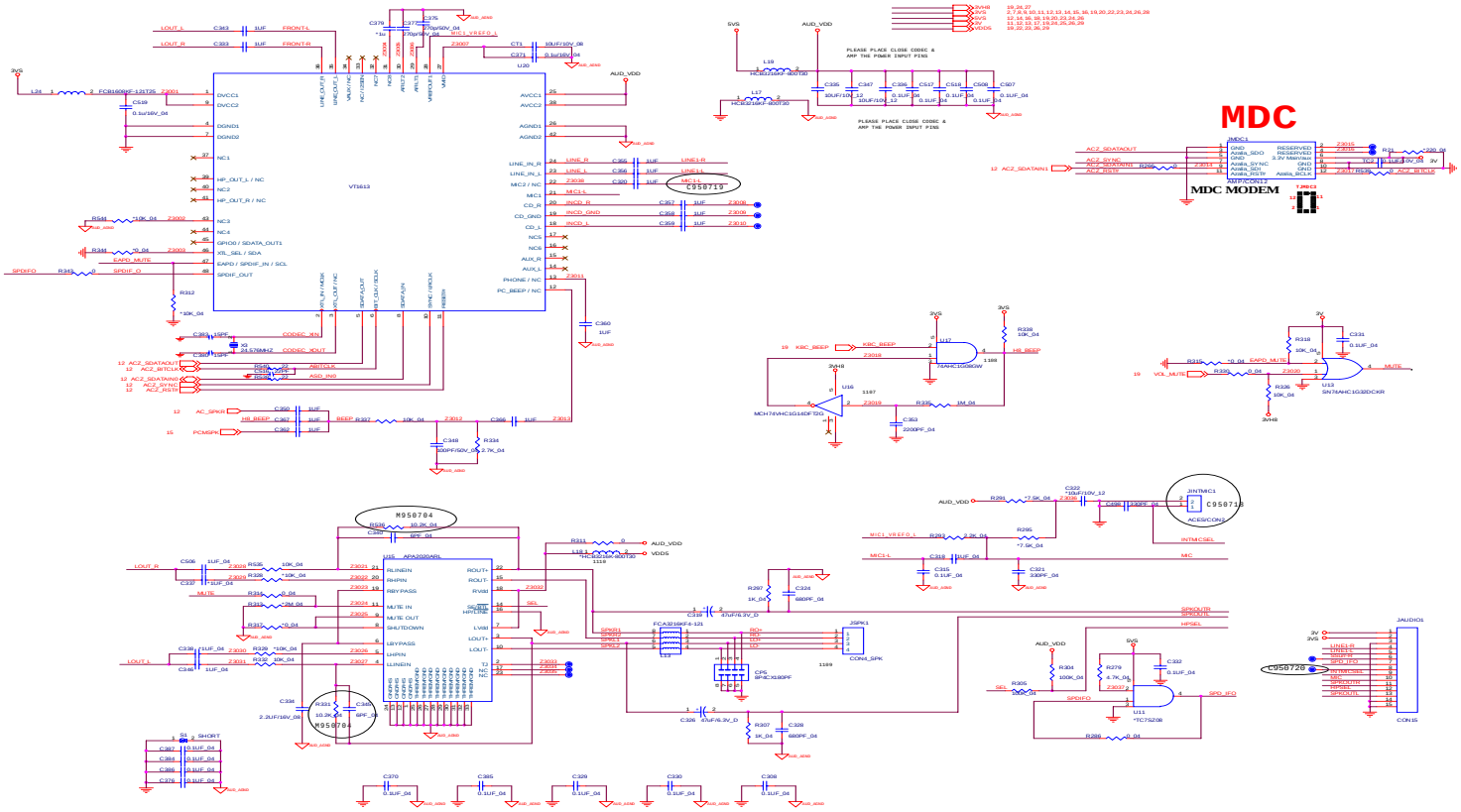
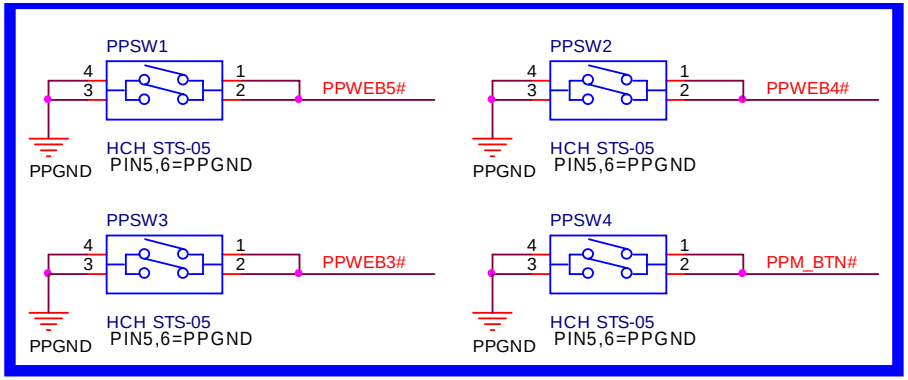
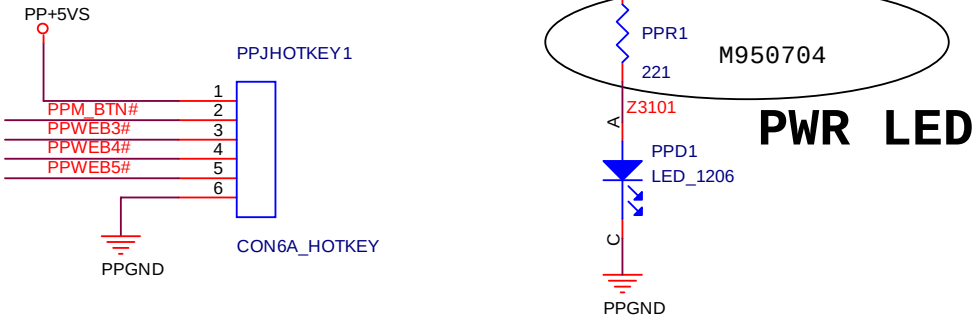
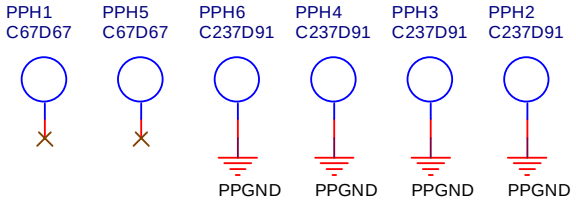
AUDIO VT1613



PWR HOT BOARD







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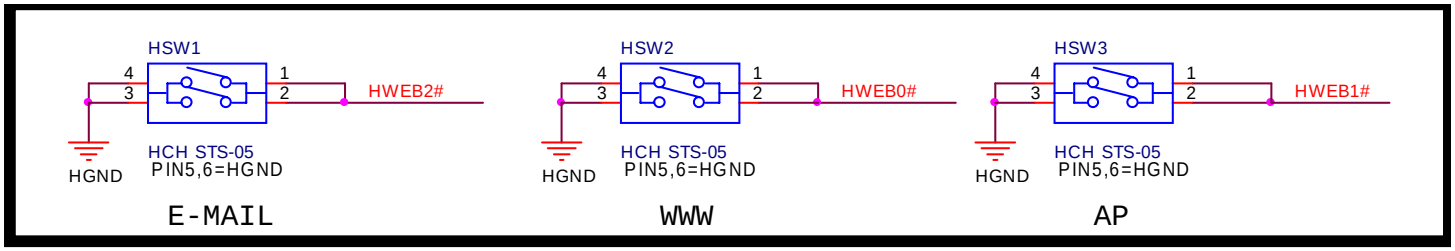
PWR HOT BOARD

HOTKEY LT BOARD



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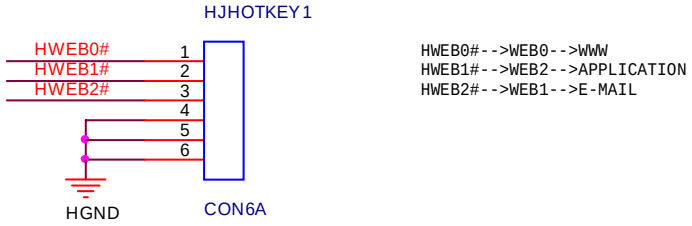
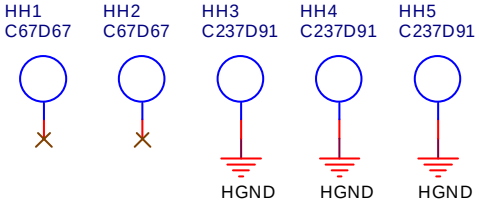
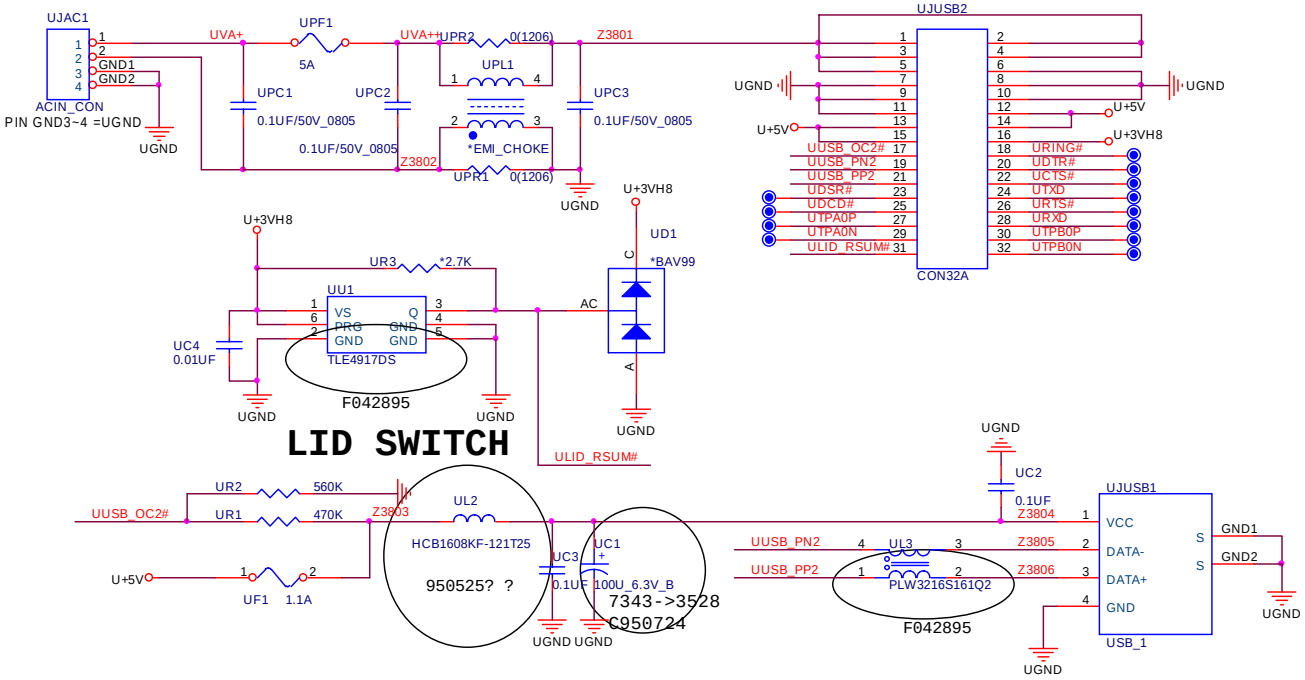
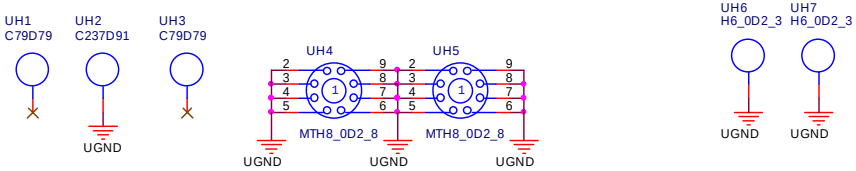
HOTKEY LT BOARD





USB BOARD





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USB BOARD

AUDIO & MODEM BOARD

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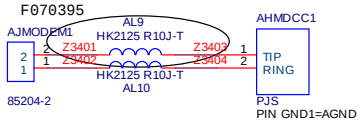
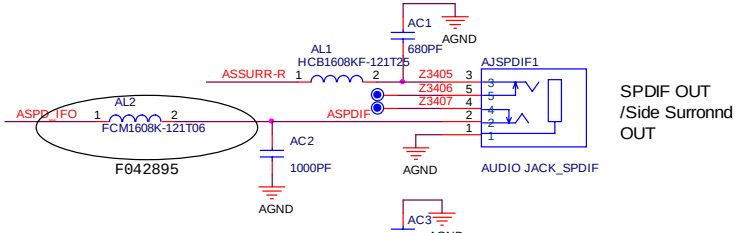
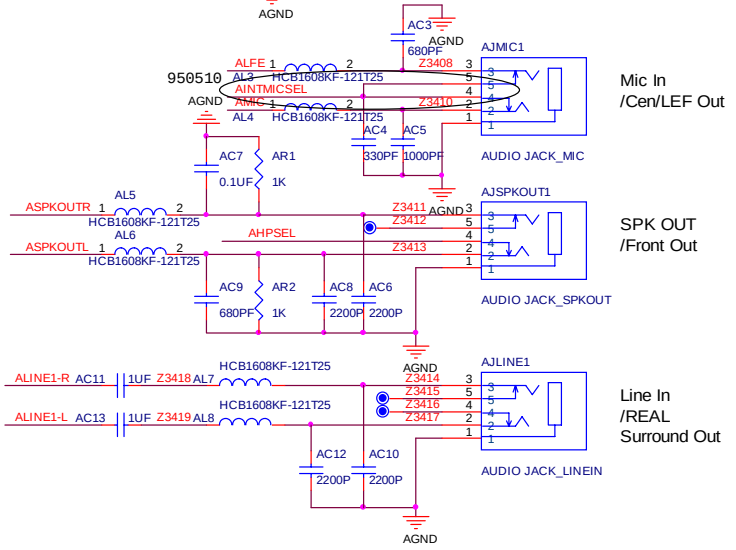
AUDIO & MODEM BOARD





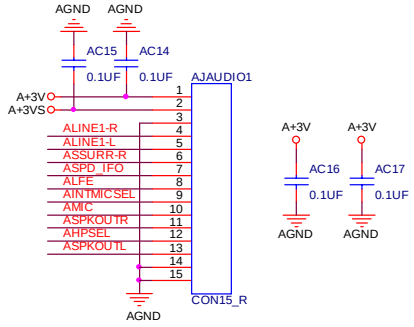
SPDIF OUT
/Side Surronnd
OUT

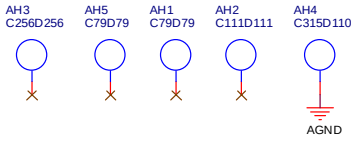


Mic In
/Cen/LEF Out

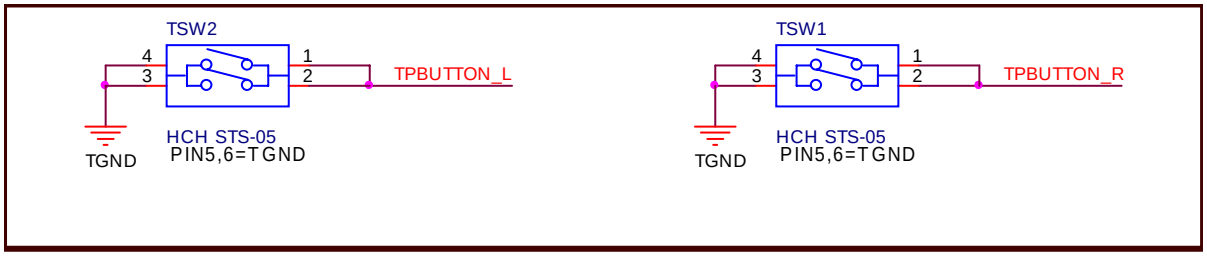
SPK OUT
/Front Out

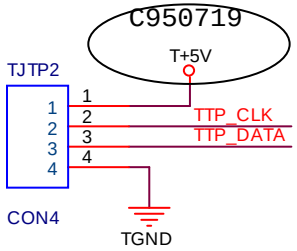
Line In
/REAL
Surround Out

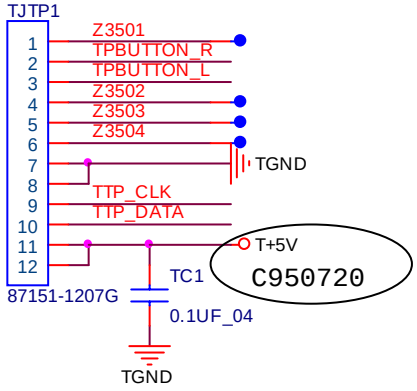


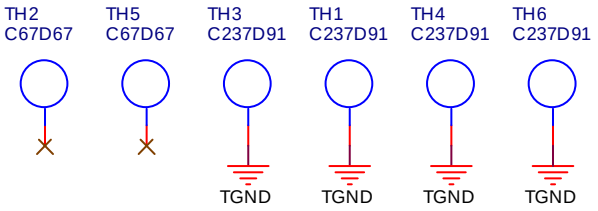


CLICK BOARD









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CLICK BOARD