

SERVICE MANUAL



D900F

notebook

Notebook Computer

D900F

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 *D900F* 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 (Full Range AC/DC Adapter – AC Input 100 - 240V, 50 - 60Hz, DC Output 19V, 1.57A).

This Computer's Optical Device is a Laser Class 1 Product

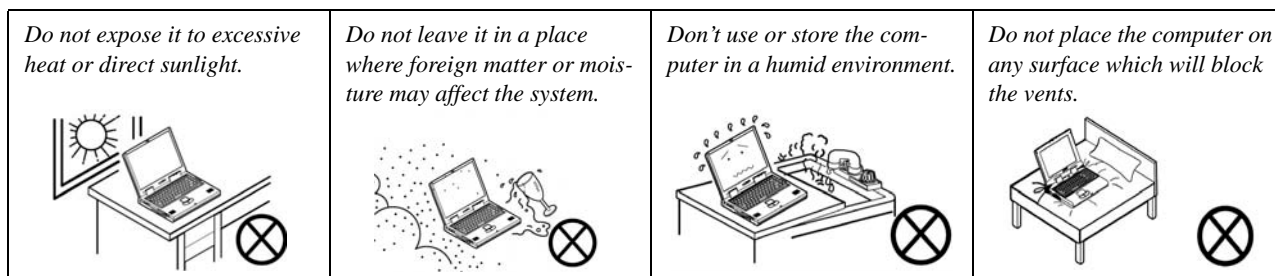
Instructions for Care and Operation

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

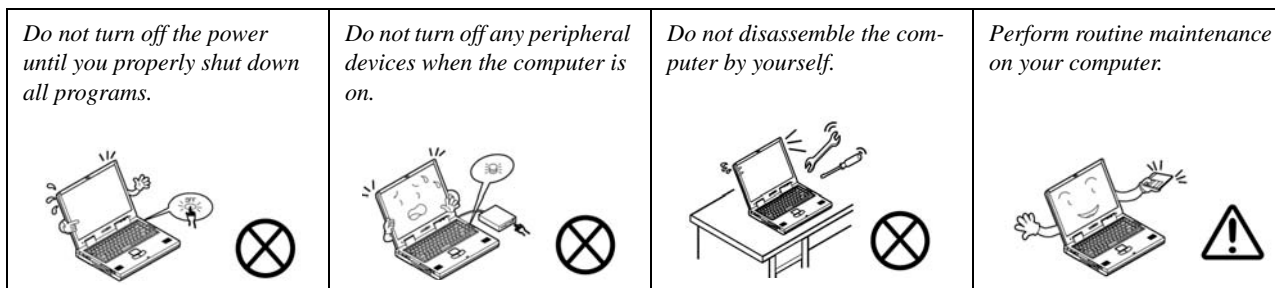
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



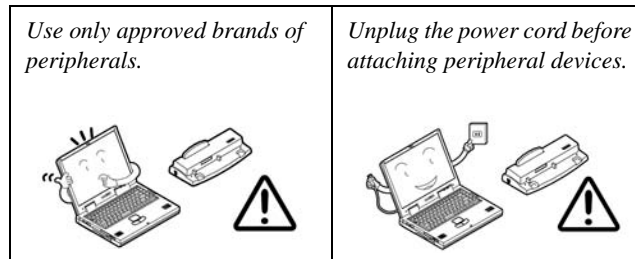
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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.



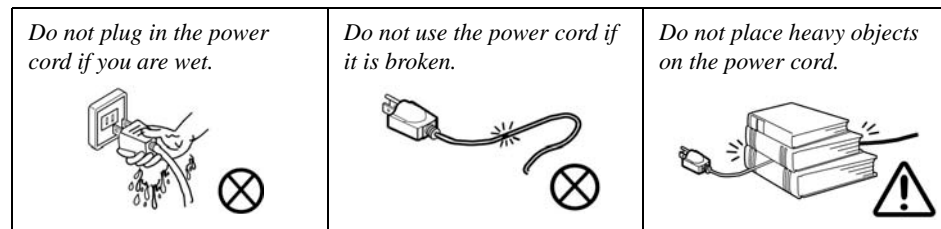
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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.

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not remove any batteries from the computer while it is powered on.
- 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.

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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **D900F** 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*, *Windows Vista*, 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 **D900F** 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

Processor
<p>Intel® Core® i7 Processor</p> <p>i7-965 (3.20 GHz, 6.4 GT/s, 8M L3 Cache, 45nm, LGA1366 Package)</p> <p>i7-940 (2.93 GHz, 4.8 GT/s, 8M L3 Cache, 45nm, LGA1366 Package)</p> <p>i7-920 (2.66 GHz, 4.8 GT/s, 8M L3 Cache, 45nm, LGA1366 Package)</p>
Core Logic
Intel® X58 + ICH10R
Display
17.1" WUXGA (1920 * 1200) TFT LCD
Memory
<p>Three 64-bit wide DDRIII (DDR3) data channels</p> <p>Three 204 Pin SO-DIMM Sockets Supporting DDRIII (DDR3) 1066/1333MHz Memory Modules</p> <p>Memory Expandable up to 6GB</p> <p>Note: Use either 1066MHz OR 1333MHz DDRIII (DDR3) Modules - Do not mix DRAM speeds</p>
Video Adapter
<p>nVIDIA® GeForce GTX 280M PCIe *16 Video Card</p> <p>1GB GDDR3 Video RAM on board</p> <p>Supports Microsoft DirectX® 10.0</p> <p>Supports HDCP</p>
BIOS
<p>One 16Mbit Flash ROM</p> <p>Phoenix™ BIOS</p>

Storage
<p>Up to three (Option) Changeable 2.5" 9.5 mm (h) SATA (Serial) Hard Disk Drives supporting RAID level 0/1/5</p> <p>One 12.7 mm Super Multi/Blu-Ray SATA Optical Device Drive (Option)</p>
Pointing Device
Built-in TouchPad (scrolling key functionality integrated)
Keyboard
<p>"WinKey" keyboard (with embedded numeric keypad)</p> <p>Three Instant Keys (WWW, e-mail, Application)</p>
Audio
<p>High Definition Audio Compliant Interface</p> <p>Compliant with Microsoft UAA (Universal Audio Architecture)</p> <p>S/PDIF Digital Output</p> <p>Supports 5.1 Channel Analog Outputs</p> <p>4 * Built-In Speakers</p> <p>Built-In Microphone</p>
Slots
<p>One ExpressCard/34/54 Slot</p> <p>Three Mini Card Slots:</p> <ul style="list-style-type: none"> • Slot 1 for PCIe WLAN Module • Slot 2 for USB TV Tuner Module
Card Reader
<p>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</p>

Communication
10Mb/100Mb/1000Mb Base-T Ethernet LAN 56K MDC Modem, V.90 & V.92 Compliant 802.11b/g Wireless LAN Mini-Card Module (Option) Intel® WiFi Link 5300 Series (3*3 - 802.11a/g/n) Wireless LAN Mini-Card Module (Option) Intel® WiFi Link 5100 Series (1*2 - 802.11a/g/n) Wireless LAN Mini-Card Module (Option) 2.0M/3.0M Pixel USB PC Camera Module (Factory Option) Bluetooth 2.1 + EDR (Enhanced Data Rate) Module (Factory Option)
Security
Kensington Lock BIOS Password
Interface
Four USB 2.0 Ports One HDMI (High-Definition Multimedia Interface) Port with Audio Output (with HDCP Support) One DVI-Out Port (no HDCP Support) One eSATA Port (hot swapping supported in Windows Vista only) One S/PDIF Out Jack One Headphone-Out Jack One Microphone-In Jack One Mini-IEEE1394a Port One Line-In Jack for Audio Input One RJ-45 LAN Jack One RJ-11 Modem Jack One DC-in Jack One Cable (CATV) Antenna (Analog/Digital) Jack (Functions with Optional USB TV Tuner Module) One Consumer Infrared Transceiver (Functions with Optional USB TV Tuner Module)

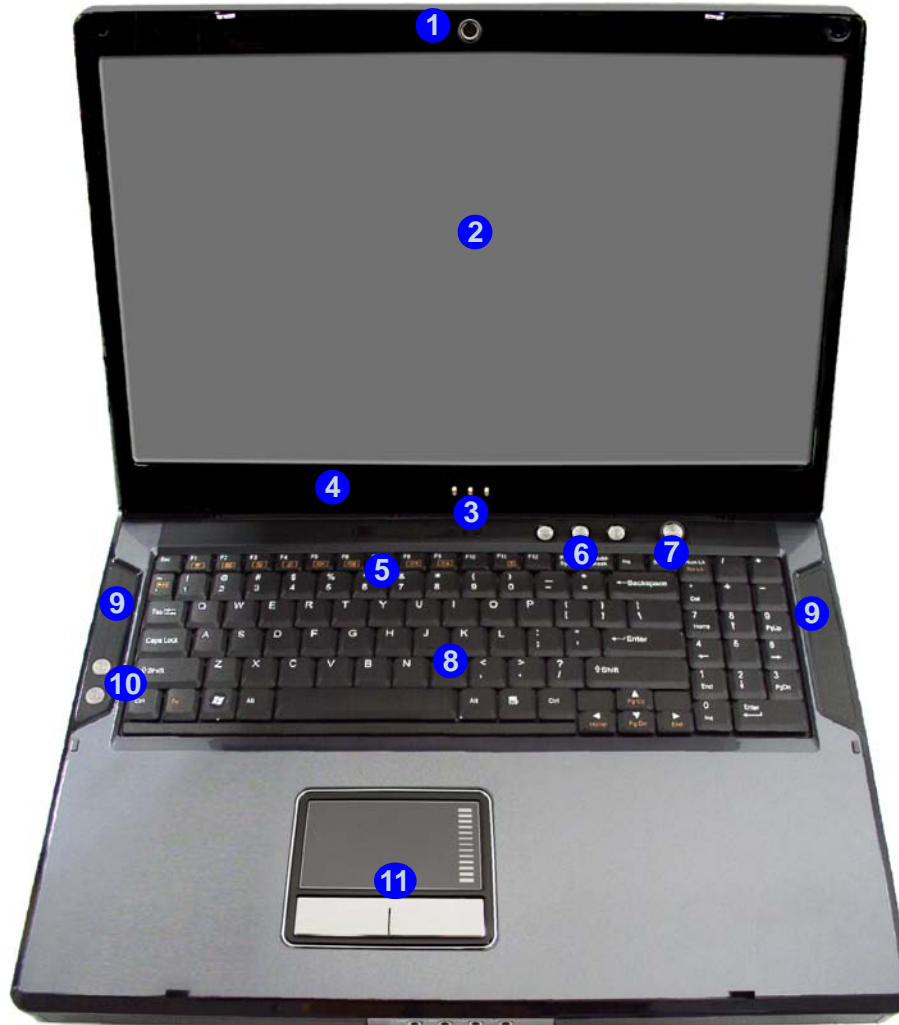
Operating System
Windows Vista Home Premium/ Business/ Enterprise/ Ultimate Note that the TV Tuner module (factory) option in Windows Vista is supported by the Windows Media Center software which comes built-in to the Windows Vista Home Premium and Ultimate Editions only .
Power
Full Range AC/DC Adapter AC Input: 100 - 240V, 50 - 60Hz DC Output: 20V, 11A or 19V, 11.6A (220 Watts)
Battery
12 Cell Smart Lithium-Ion Battery Pack, 6600mAh
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
397mm (w) * 298mm (d) * 51 - 60mm (h) 5.4 kg
Optional
One 12.7 mm Super Multi/Blu-Ray SATA Optical Device Drive PCIe or USB Mini-Card Wireless LAN Module (see " Communication " on page 1 - 3) USB Mini-Card Hybrid TV Tuner Module USB Bluetooth 2.1 + EDR Module (Factory Option - see " Communication " on page 1 - 3) USB PC Camera Module (Factory Option - see " Communication " on page 1 - 3)

Introduction

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. Built-In Microphone
5. LED Status Indicators
6. Hot Key Buttons
7. Power Button
8. Keyboard
9. Speakers
10. Game Hot Keys
11. Touchpad & Buttons



External Locator - Front & Right side Views



Figure 2
Front Views

1. LCD Latches
2. Consumer Infrared Transceiver*
3. Line-In Jack
4. S/PDIF-Out Jack
5. Microphone-In Jack
6. Headphone-Out Jack
7. Speakers



Figure 3
Right Side Views

8. USB Ports
9. Security Lock Slot

Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. HDMI-Out Port
2. e-SATA Port
3. Cable (CATV) Antenna Jack*
4. RJ-11 Phone Jack
5. RJ-45 LAN Jack
6. Mini-IEEE 1394 Port
7. ExpressCard Slot (see page 2 - 7)
8. Optical Device Drive Bay (for DVD Device)
9. 7-in-1 Card Reader



Figure 5
Rear View

10. Vent/Fan Intake
11. DC-In Jack
12. DVI-Out Port



External Locator - Bottom View



Figure 6
Bottom View

1. Fan Outlet/Intake
2. Battery
(Secondary HDD Bay - HDD3)
3. Primary HDD Bay (HDD1 & 2)
4. Component Bay Cover



Overheating

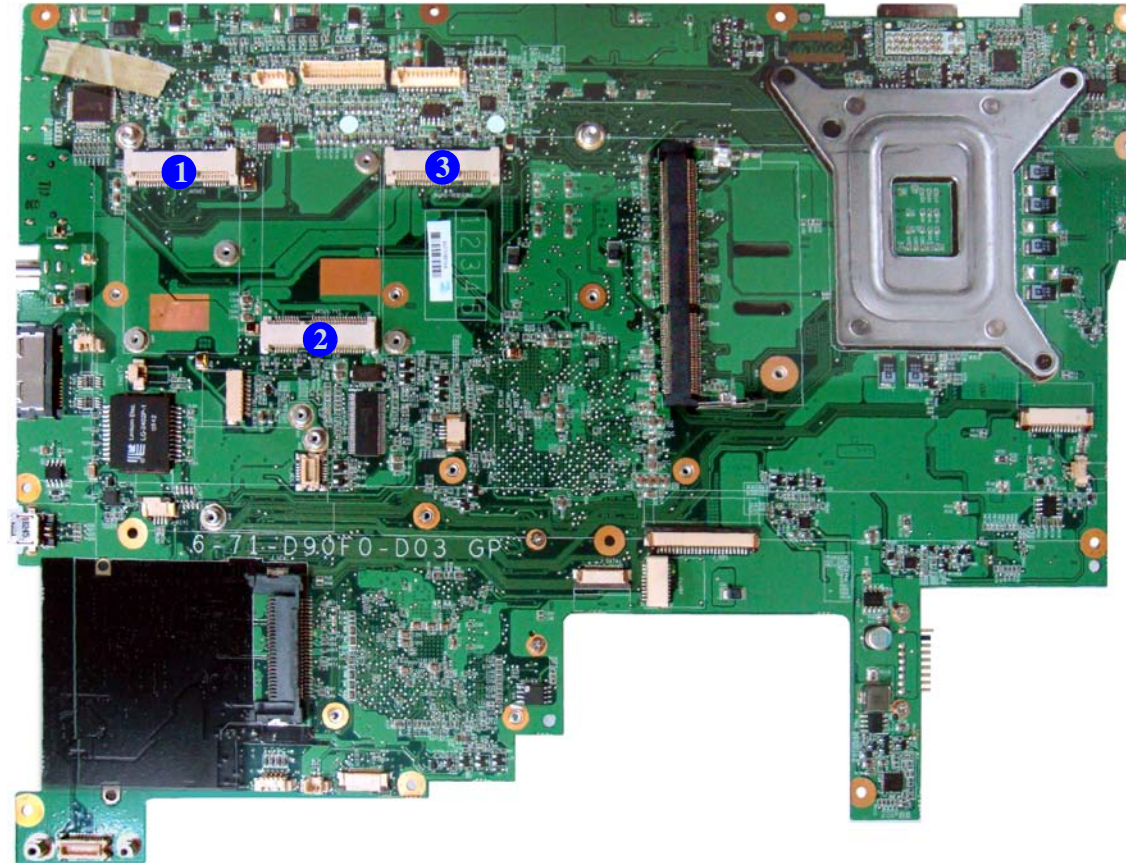
To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

Introduction

Figure 7
**Mainboard Top
Key Parts**

1. Mini-Card Connector (WLAN Module)
2. Mini-Card Connector (TV Module)
3. Mini-Card Connector (Robson Module)

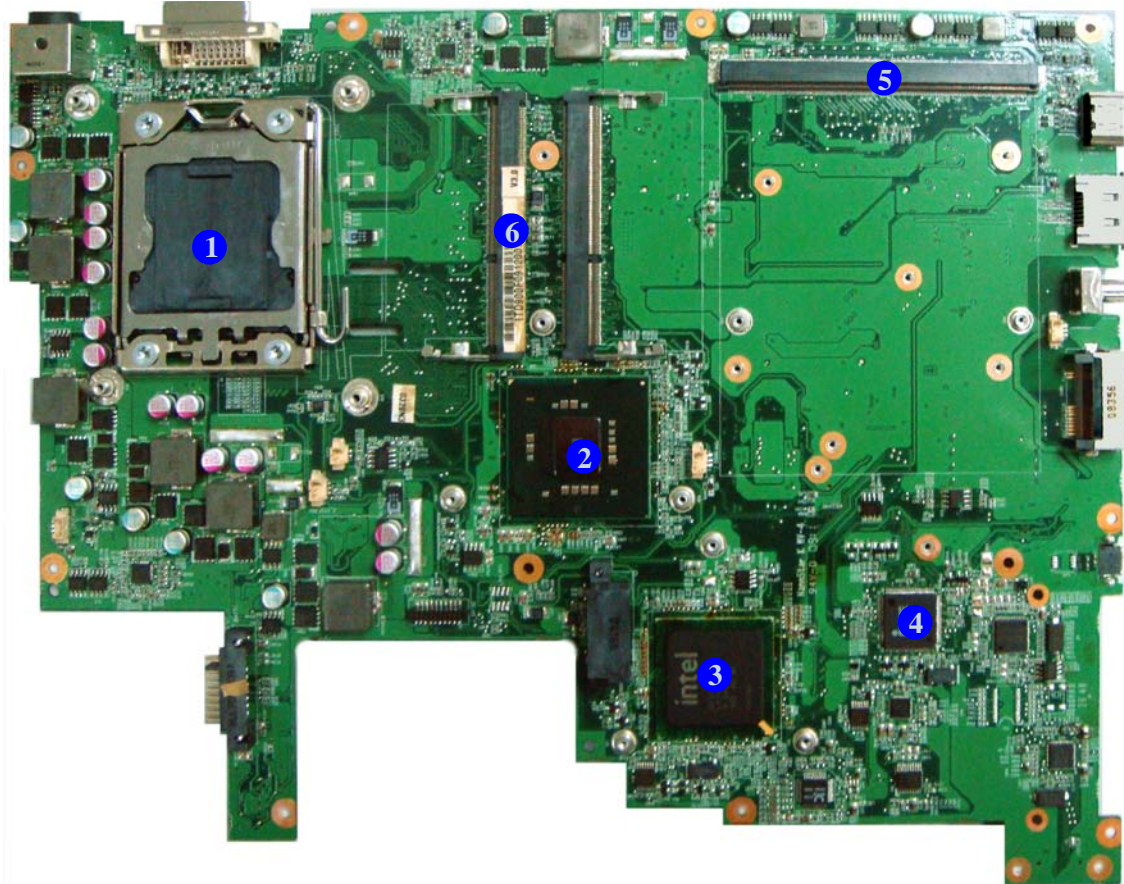
Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

Figure 8
**Mainboard Bottom
Key Parts**

1. CPU Socket
2. North Bridge
3. South Bridge
4. KBC ITE IT8512E
5. Memory Slots
DDR2 So-DIMM
6. VGA Socket

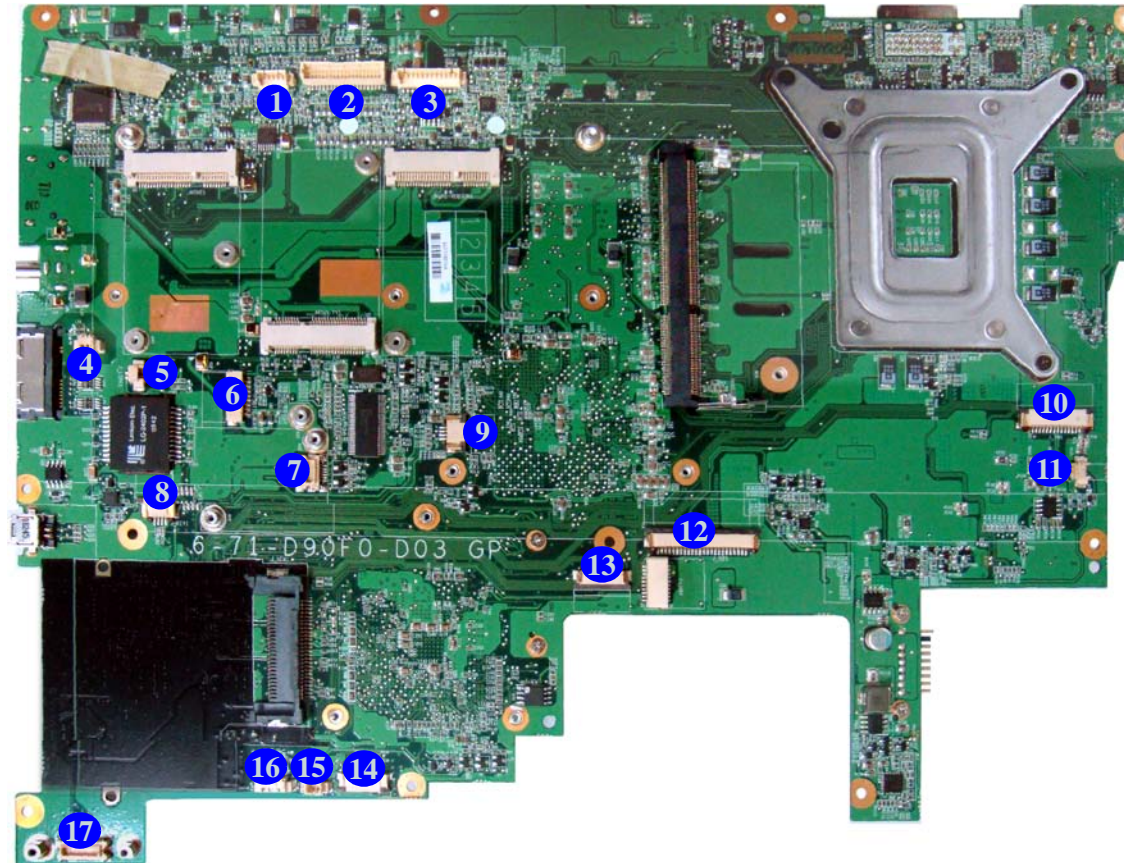


Introduction

Figure 9
**Mainboard Top
Connectors**

Mainboard Overview - Top (Connectors)

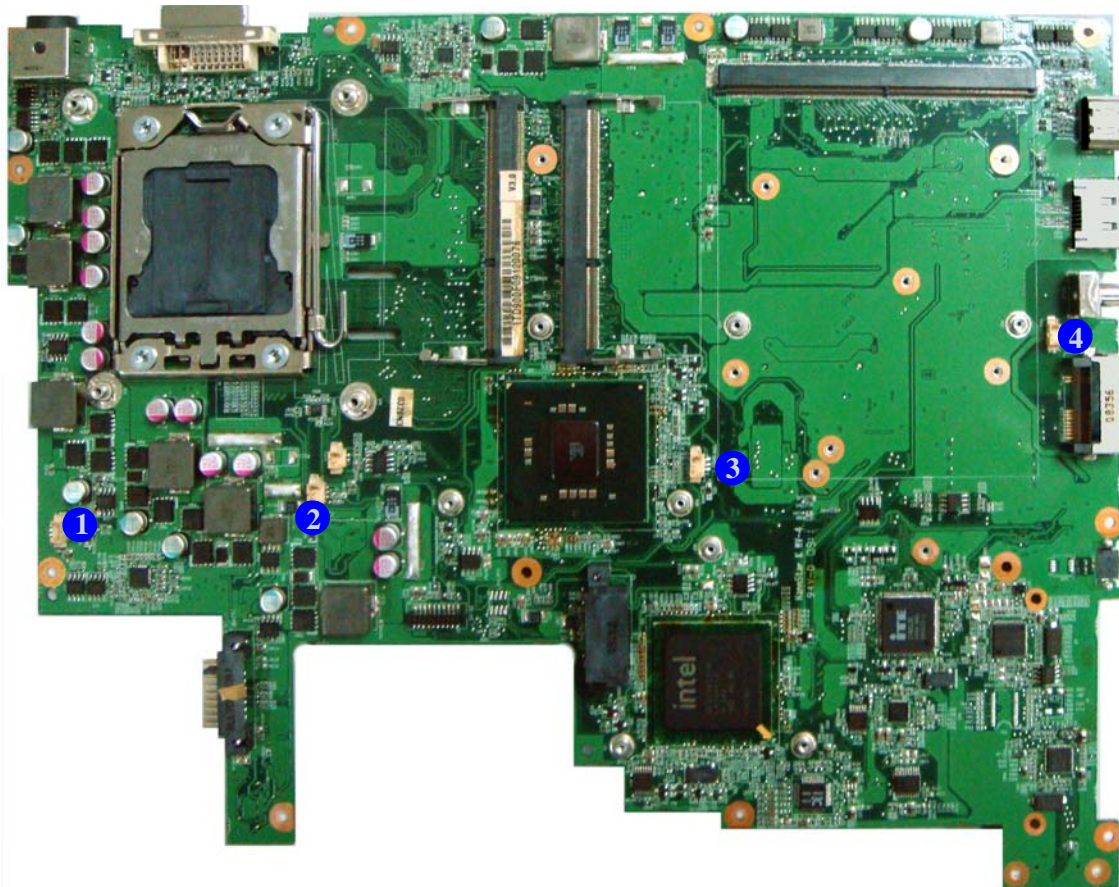
1. CCD Cable Connector
2. LCD Cable Connector
3. LED Cable Connector
4. Wire Cable Connector
5. SPK 1 Connector
6. Bluetooth Module Connector
7. MDC Module Connector
8. AP-Key Cable Connector
9. Touch Pad Connector
10. SW1 Connector
11. SPK 2 Connector
12. Keyboard Cable Connector
13. USB Cable Connector
14. Audio Cable Connector
15. RTC Battery Connector
16. SPK Sub Cable Connector
17. Card Reader Board Connector



Mainboard Overview - Bottom (Connectors)

Figure 10
**Mainboard Bottom
Connectors**

1. CPU Fan Cable Connector
2. System Fan Cable Connector
3. DDR Fan Cable Connector
4. VGA Fan Cable Connector




Chapter 2: Disassembly



Overview

This chapter provides step-by-step instructions for disassembling the *D900F* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

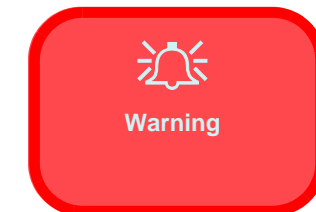
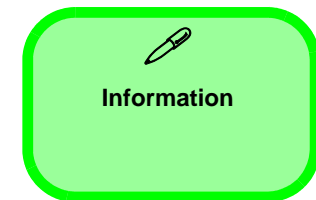
We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, optical 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.



Disassembly

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-borne 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.

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.



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.

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 Optical Device:

1. Remove the battery [page 2 - 5](#)
2. Remove the Optical device [page 2 - 6](#)

To remove the HDD:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 7](#)

To remove the Keyboard:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 9](#)

To remove the System Memory:

1. Remove the battery [page 2 - 5](#)
2. Remove the System Memory [page 2 - 10](#)

To remove the Processor:

1. Remove the battery [page 2 - 5](#)
2. Remove the Processor [page 2 - 14](#)

To remove the VGA card:

1. Remove the battery [page 2 - 5](#)
2. Remove the VGA card [page 2 - 15](#)

To remove the Wireless LAN Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 9](#)
3. Remove the Wireless LAN [page 2 - 18](#)

To remove the Bluetooth Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 9](#)
3. Remove the Bluetooth [page 2 - 19](#)

To remove the Modem:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 9](#)
3. Remove the Modem [page 2 - 20](#)

To remove the TV Tuner Card:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 9](#)
3. Remove the TV tuner card [page 2 - 21](#)

To remove the Intel Turbo Memory Card:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 9](#)
3. Remove the Intel Turbo Memory card [page 2 - 22](#)

Removing the Battery

If you are confident in undertaking upgrade procedures yourself, for safety reasons it is best to remove the battery.

1. Turn the computer off, and turn it over.
2. Loosen screws 1 - 3.
3. Release the battery.
4. Lift the battery 4 (Figure b) out of the bay as indicated.

Figure 1
Battery Removal

- a. Loosen screws.
- b. Release the battery.
- c. Lift the battery out of the bay as indicated.



4. Battery

- 3 Screws

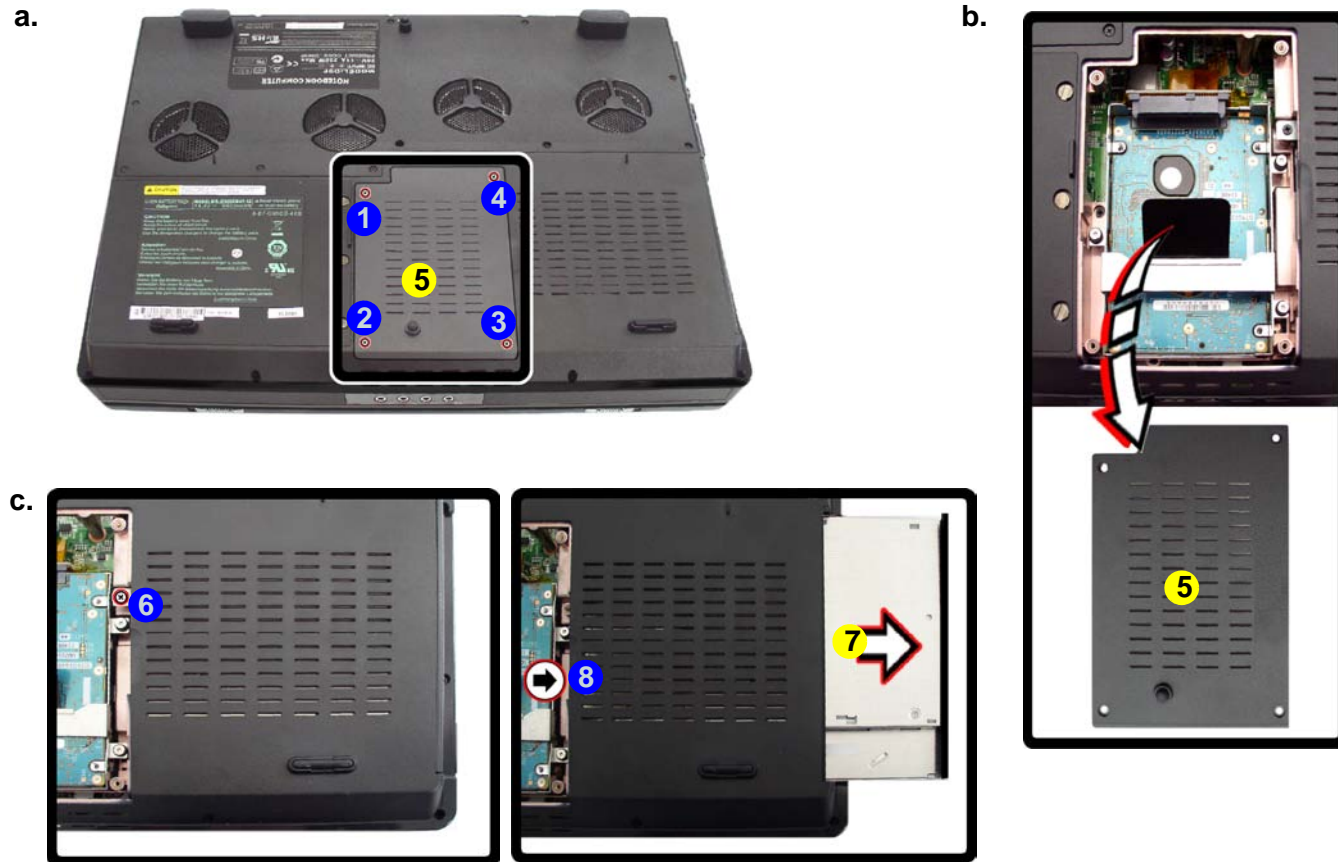
Disassembly

Figure 2
**Optical Device
Removal**

- Remove the screws.
- Remove the cover.
- Remove the screw and push the optical device out of the computer at point 8.

Removing the Optical (CD/DVD) Device

- Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
- Locate the hard disk bay cover and remove screws ① - ④, and remove the bay cover ⑤.
- Remove screw ⑥.
- Use the screwdriver to push the optical device ⑦ out of the computer at point ⑧.
- Reverse the process to install the new device.



- Hard Disk Bay Cover
- Optical Device

- 5 Screws

Removing the Hard Disk Drive

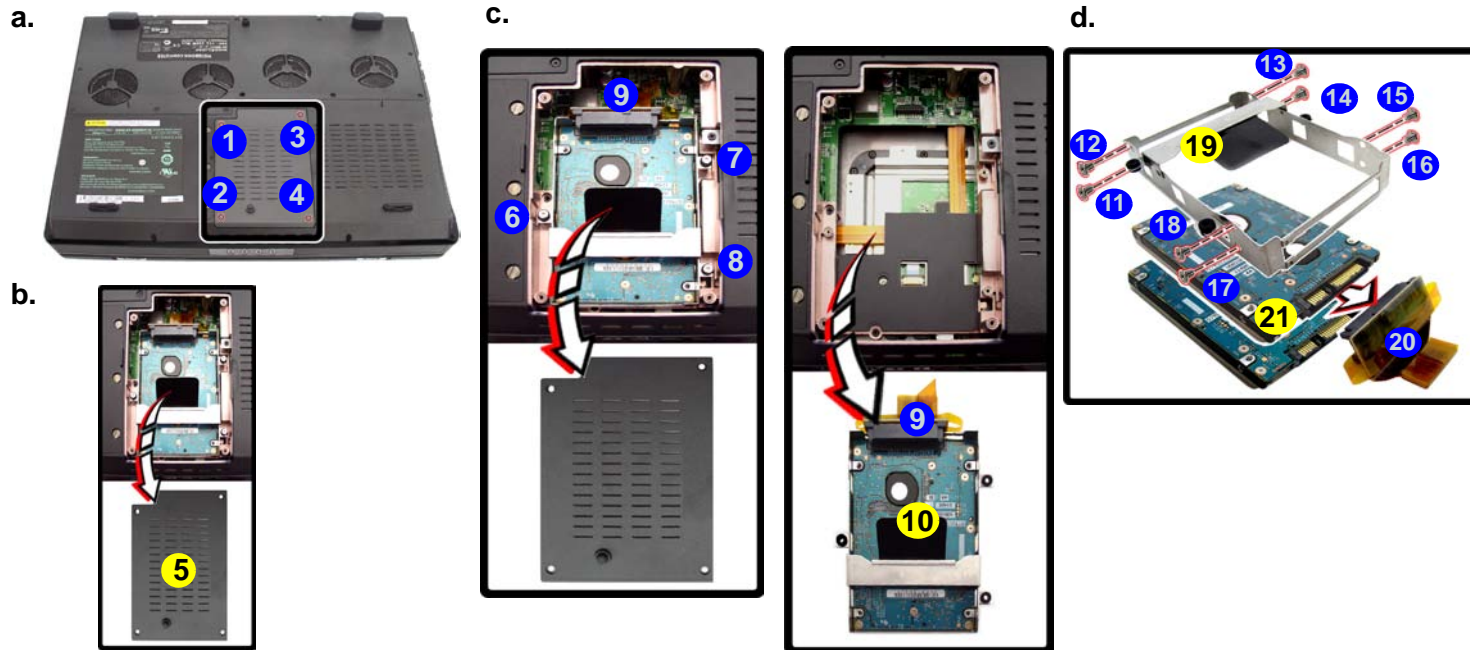
The hard disk drive is mounted in a removable case and can be taken out to accommodate other 2.5" SATA hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) 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** - **4**.
3. Remove the bay cover **5**.
4. Remove screws **6** - **8** and pull the tab to release the cable **9** from hard disk assembly.
5. Lift the hard disk assembly **10** out of the computer.
6. Remove screws **11** - **18**.
7. Separate the hard disk(s) **21** from the bracket **19** and connector cable **20**.
8. Reverse the process to install a new hard disk(s).

Figure 3
HDD Assembly Removal

- a. Remove the screws.
- b. Remove the cover
- c. Release the cable and lift the hard disk assembly up out of the computer.
- d. Remove the screws and separate the HDD(s) from the bracket and connector.





5. Hard Disk Bay Cover
10. Hard Disk Assembly
19. HDD Bracket
21. HDD

- 15 Screws

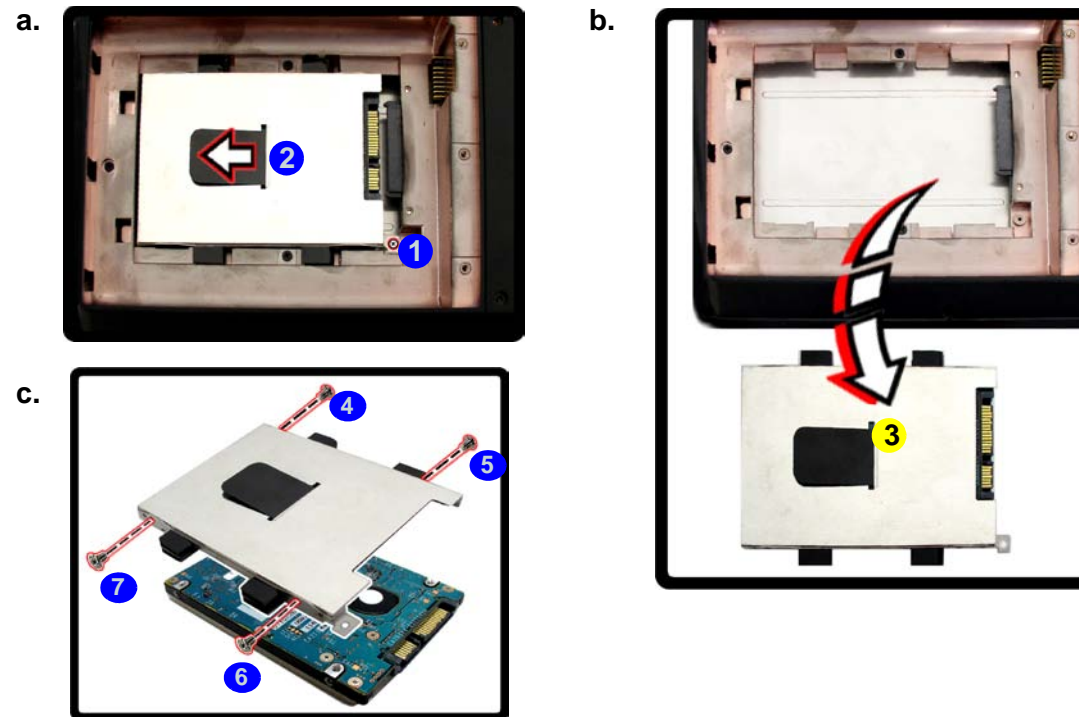
Disassembly

Figure 4 Secondary HDD Assembly Removal

- Remove the screws and slide the hard disk assembly in the direction of the arrow.
- Lift the hard disk assembly out of the computer.
- Remove the screws to release the hard disk from the case.

Removing the Hard Disk(s) in the Secondary HDD Bay

- Turn **off** the computer, and turn it over and remove the battery.
- The secondary hard disk bay is located under the battery compartment.
- Remove screw **1**.
- Slide the hard disk assembly in the direction of the arrow **2**.
- Lift the hard disk assembly **3** out of the compartment.
- Remove the screws **4** - **7** to release the hard disk from the case.



3. Hard Disk Assembly

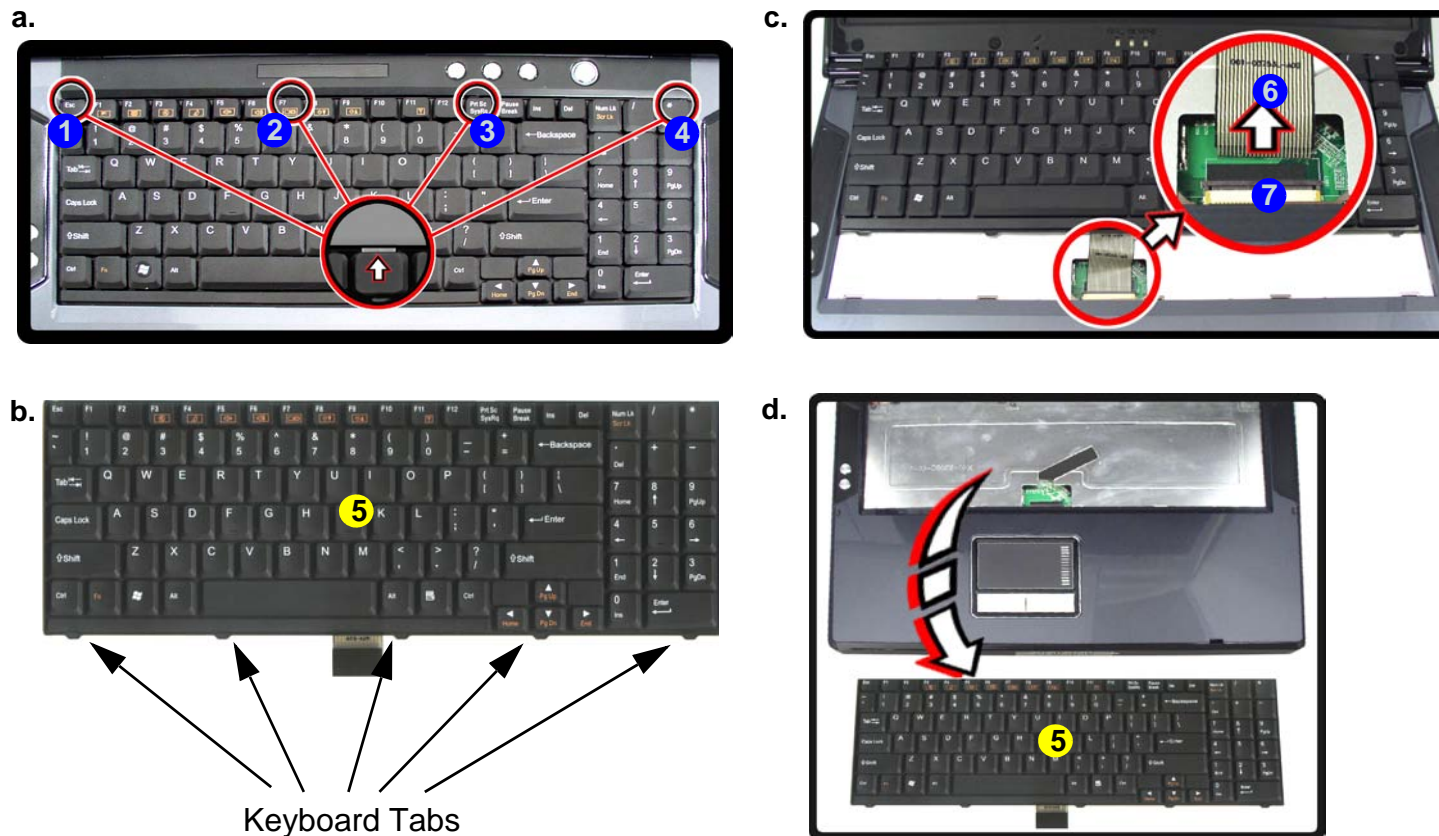
- 5 Screws


Removing the Keyboard

1. Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
2. Turn the computer back over to access the keyboard.
3. Press the **four** keyboard latches **1** - **4** 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).
4. Carefully lift the keyboard **5** up, being careful not to bend the keyboard ribbon cable **6** ([Figure c](#)).
5. Disconnect the keyboard ribbon cable **6** from the locking collar socket **7**.
6. Carefully lift up the keyboard **5** ([Figure d](#)) off the computer.

Figure 5
Keyboard Removal


- a. Press the four latches to release the keyboard.
- b. Lift the keyboard up.
- c. Disconnect the cable from the locking collar.
- d. Remove the keyboard.





Re-Inserting the Keyboard

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



5. Keyboard

Disassembly

Figure 6
RAM Module Removal

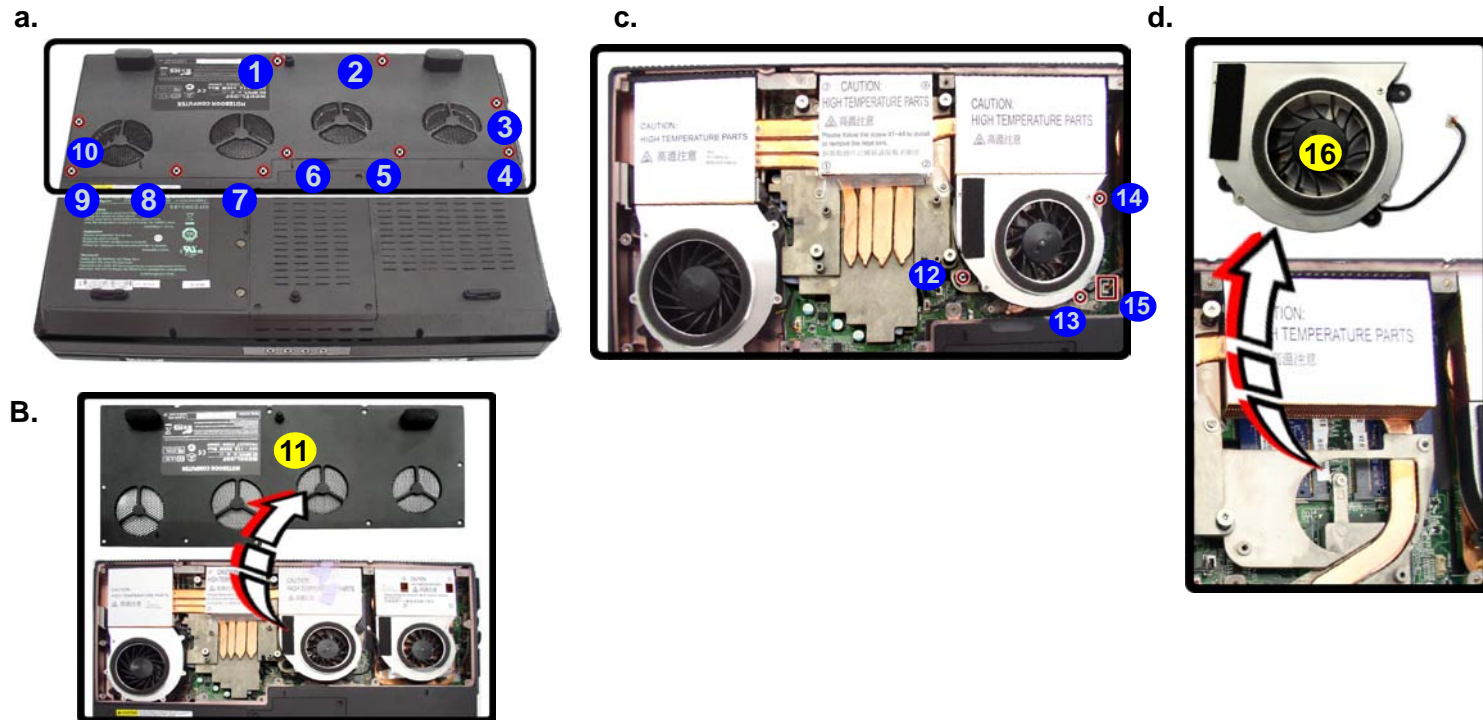
- Remove the screws.
- Lift off the bay cover.
- Remove the screws and disconnect the fan cable.
- Remove the RAM fan.

Removing the System Memory (RAM)

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) DDR III (DDR3) supporting 667/800 MHz. The main memory can be expanded up to 6GB. The SO-DIMM modules supported are 1024MB and 2048MB **DDR** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

- Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
- Locate the memory (RAM) bay cover and remove screws ① - ⑩.
- Lift off the bay cover ⑪ .
- Remove screws ⑫ - ⑭ from the RAM fan, and disconnect the fan cable ⑮.
- Remove the RAM fan unit ⑯ .



Caution

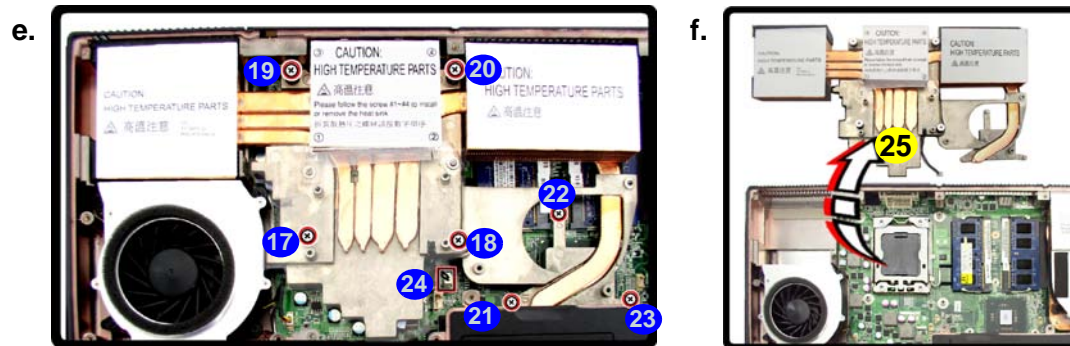
The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.



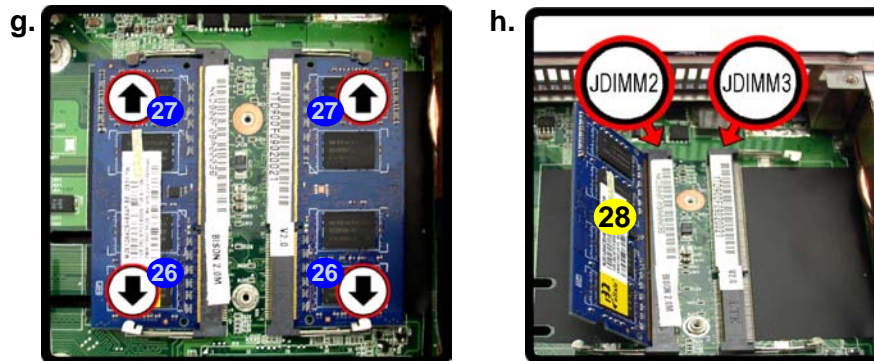
11. Bay Cover
16. RAM Fan Unit

- 13 Screws

6. Fully loosen screws 17 - 23 in the order indicated here (and on the label) and disconnect the cable 24.
7. Carefully (make sure all the screws are sufficiently loosened and cables disconnected) remove the heat sink and fan unit 25.




8. Gently pull the two release latches 26 & 27 on the sides of the memory socket in the direction indicated by the arrows (Figure g).
9. The RAM module 28 will pop-up (Figure h), and you can then remove it.




10. Pull the latches to release the second module if necessary.
11. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
12. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the socket as it will go. DO NOT FORCE the module; it should fit without much pressure.
13. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
14. Replace the heat sink unit, RAM fan, cover and screws.
15. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Figure 7
RAM Module
Removal (cont'd.)

- e. Loosen the screws and disconnect the cable.
- f. Remove the heat sink and fan unit.
- g. Pull the release latch(es).
- h. 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.



25. heatsink and fan unit
28. RAM Module(s)

- 7 Screws

Disassembly

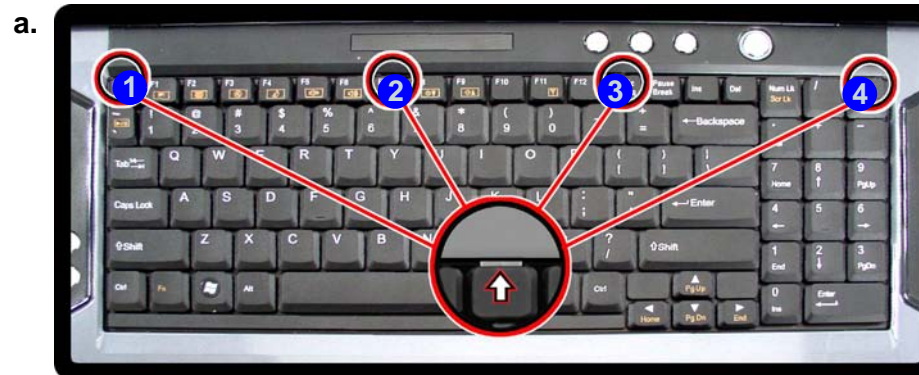
Figure 8 Third RAM Module Removal

- Press the four latches to release the keyboard.
- Lift the keyboard up.
- Remove the screws and keyboard plate.

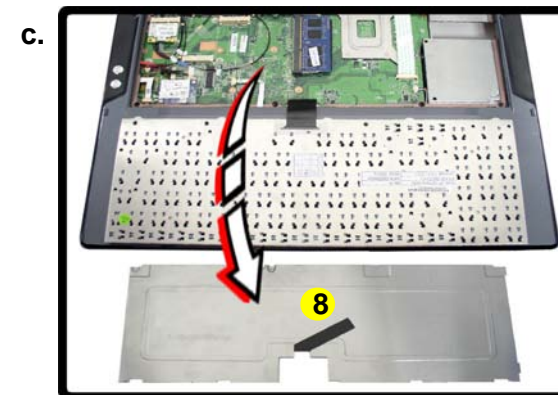
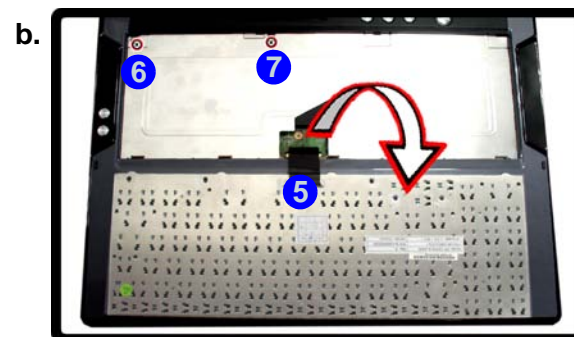
Upgrading a Third System Memory (RAM) Module

If you wish to add a third memory module follow the procedure below (note the sidebar warning on RAM speeds).

- Turn **off** the computer, and turn it over and remove the battery.
- Turn the computer back over to access the keyboard.
- Press the **four** keyboard latches **1** - **4** at the top of the keyboard to elevate the keyboard from its normal position (you may need to use a small screwdriver or pair of tweezers to do this).



- Lift the keyboard up, but be careful not to twist the keyboard ribbon cable **5**.
- Remove screws **6** - **7** and remove the keyboard plate **8**.



RAM Module Speeds

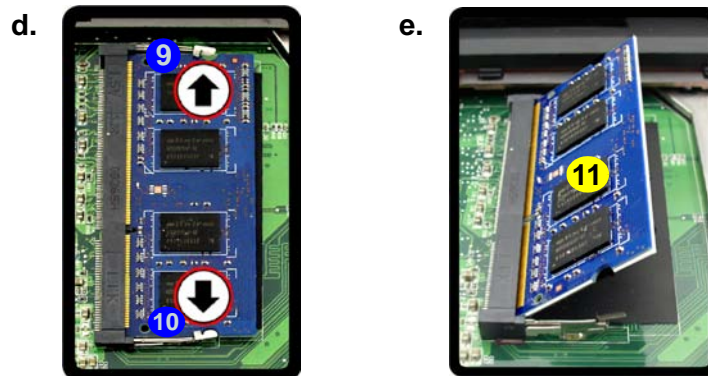
Use either 1066MHz OR 1333MHz DDRIII (DDR3) modules of the same brand. Do not mix DRAM speeds/brands in order to prevent unexpected system behavior.



8. Keyboard Plate

- 2 Screws

- Gently pull the two release latches (9 - 10) on the sides of the memory socket in the direction indicated by the arrows in **Figure 9**
- The RAM module 11 will pop-up, and you can remove it.



- Pull the latches to release the second module if necessary.
- Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory socket.
- The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the socket as it will go. **DO NOT FORCE** the module; it should fit without much pressure.
- Press the module in and down towards the mainboard until the socket levers click into place to secure the module.
- Replace the keyboard plate, screws and keyboard.
- Restart the computer to allow the BIOS will register the new memory configuration as it starts up.

Figure 9
Third RAM Module Removal (cont'd.)

- Pull the release latch(es).
- Remove the module(s).



Contact Warning

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



28. RAM Module

Disassembly

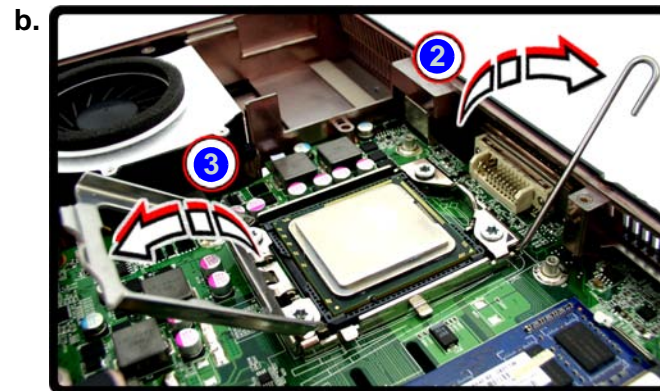
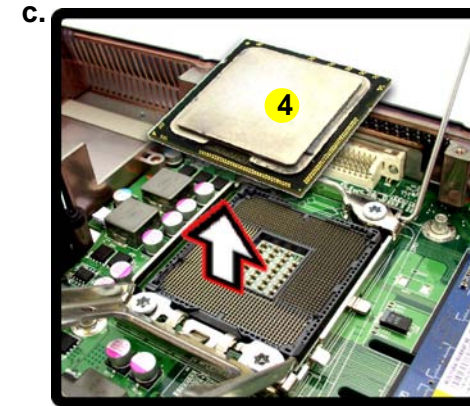
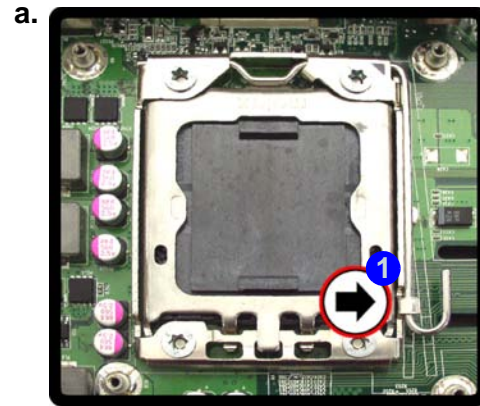
Figure 10

Processor Removal

- Press and hold the latch.
- Move the latch and bracket fully in the direction to unlock the CPU.
- Lift the CPU out of the socket.

Removing the Processor

- Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)) and RAM ([page 2 - 10](#)).
- Press down and hold the latch **1** (with the latch held down you will be able to release it).
- Move the latch **2** and bracket **3** fully in the direction indicated to unlock the CPU.
- Carefully (it may be hot) lift the CPU **4** up out of the socket ([Figure c](#)).
- Reverse the process to install a new CPU.
- When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).



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.



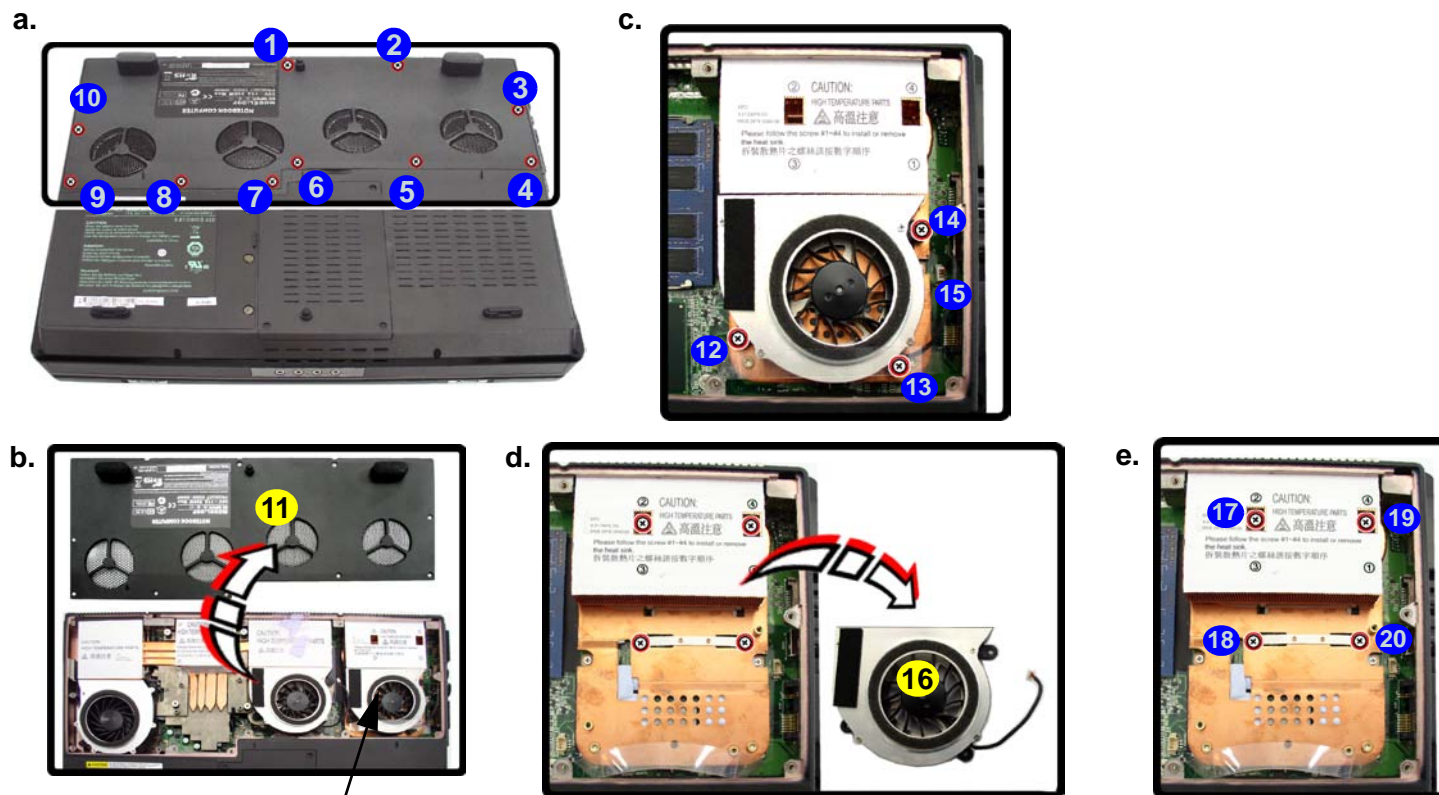
4. CPU

Removing the VGA Card

1. Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
2. Locate the VGA bay cover and remove screws ① - ⑩.
3. Lift off the bay cover ⑪.
4. Remove screws ⑫ - ⑭ from the VGA card fan and disconnect the fan cable ⑮.
5. Remove the VGA card fan ⑯.
6. Remove screws ⑰ - ⑳ from the heatsink in the order indicated on the label.

Figure 11
VGA Card Removal

- a. Remove the screws.
- b. Remove the cover.
- c. Remove the screws and disconnect the cable(s).
- d. Release the VGA card fan.
- e. Remove the screws.



VGA Card Fans

✍️

11. Bay Cover
20. VGA card fan

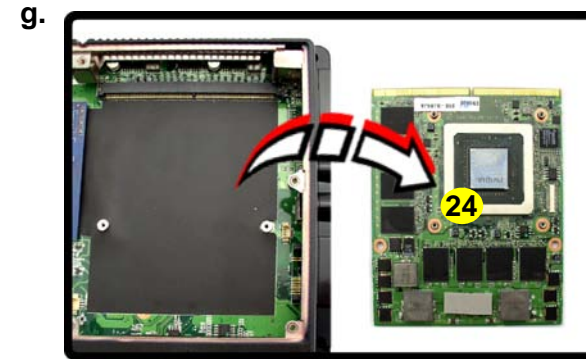
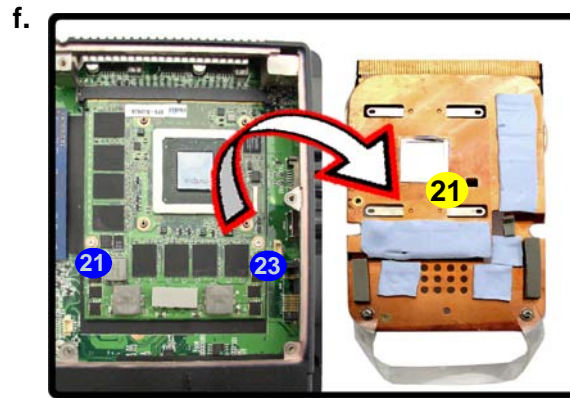
- 17 Screws

Disassembly

Figure 12
VGA Card Removal
(cont'd.)

- f. Remove the VGA module from slot A.
 h. Remove the VGA module.

7. Grip the handle and carefully remove the heatsink **21** .
 8. Remove screws **22** & **23** from the video card.
 9. Carefully remove the VGA card module **24** from the mainboard.



10. Reverse the process to install a new VGA card modules.



21. VGA Card Heatsink
 24. VGA Card Module

- 2 Screws

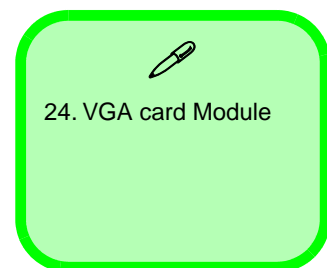
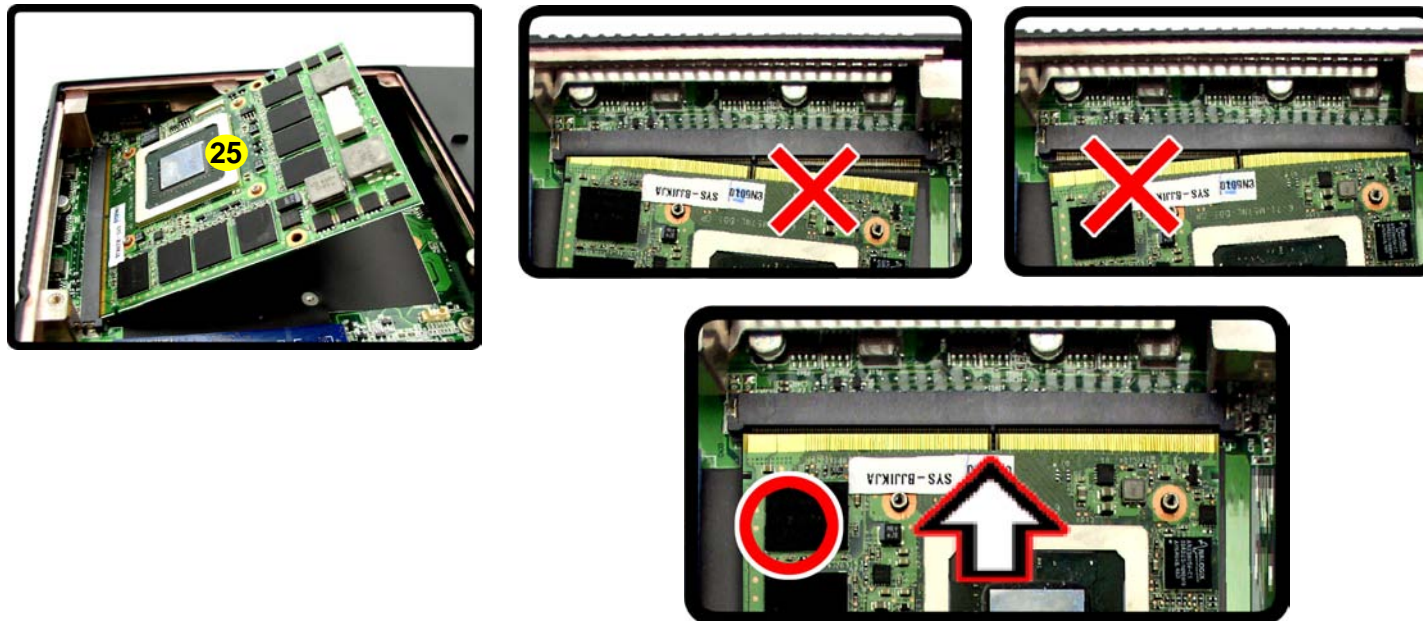
Installing the VGA Card

1. Prepare to fit the VGA card **24** into the slot by holding it at about a 30° angle.
2. The card needs to be fully into the slot, and the VGA card and socket have a guide-key and pin which align to allow the card to fit securely.
3. Fit the connectors firmly into the socket, straight and evenly.
4. DO NOT attempt to push one end of the card in ahead of the other.
5. The card's pin alignment will allow it to only fit one way. **Make sure the module is seated as far into the socket as it will go** (none of the gold colored contact should be showing). DO NOT FORCE the card; it should fit without much pressure.
6. Secure the card with screw **22** & **23** (*Figure 12f on page 2 - 16*).
7. Place the heatsink **24** back on the card, and secure the screws in the order indicated in *Figure 11 on page 2 - 15*.
8. Attach the VGA card fan and secure with the screws as indicated in *Figure 11 on page 2 - 15*.
9. Reinsert the component bay cover, and secure with the screws as indicated in *Figure 11 on page 2 - 15*.

Figure 13
VGA Card Installation

a. Carefully Insert the VGA Card.

a.



Disassembly

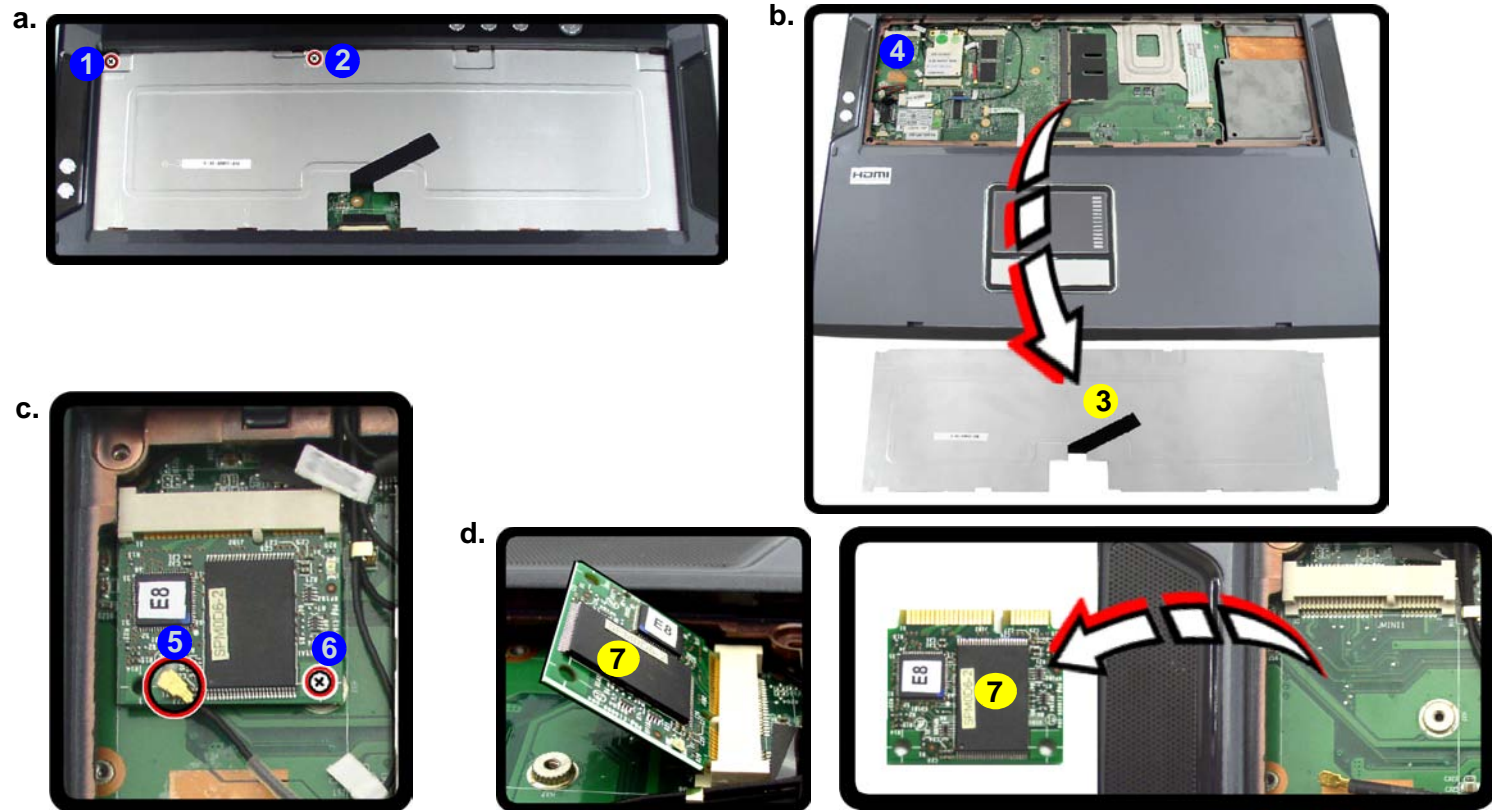
Figure 14
**Wireless LAN
 Module Removal**

- Remove the screws.
- Remove the keyboard shielding.
- Disconnect the cables and remove the screws.
- Remove the WLAN module.

Note: Make sure you reconnect the antenna cables to the “Main” socket (*Figure c*).

Removing the Wireless LAN Module

- Turn off the computer, and turn it over, remove the battery (*page 2 - 5*) and keyboard (*page 2 - 9*).
- Remove screws ① - ② from the keyboard shielding.
- Remove the keyboard shielding ③, the Wireless LAN Module will be visible at point ④.
- Carefully disconnect cables ⑤ and remove screws ⑥.
- The Wireless LAN Module ⑦ (*Figure c*) will pop-up, and you can remove it.



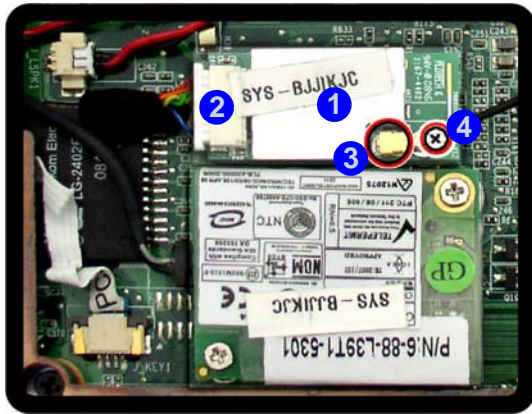
- 3. Keyboard Shielding
- 7. Wireless LAN Module

- 3 Screws

Removing the Bluetooth Module

1. Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 9](#)) and keyboard shielding ([page 2 - 18](#)).
2. The Bluetooth module is visible at point **1**.
3. Carefully disconnect cables **2** & **3** and remove the screw **4**.
4. Lift the Bluetooth module **5** off the computer.

a.



b.

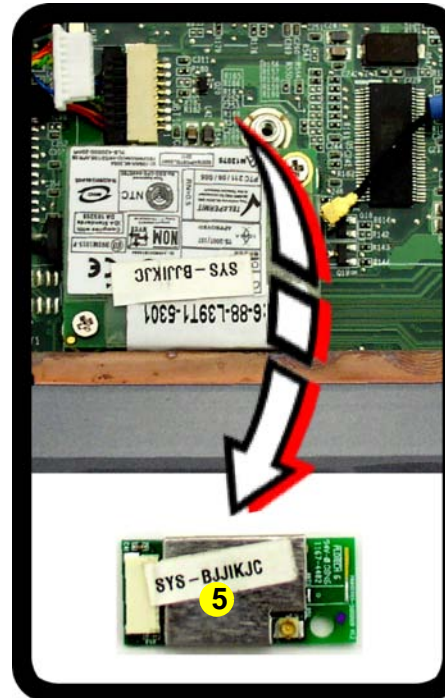


Figure 15
Bluetooth Module Removal

- a. Disconnect the cables and remove the screw.
- b. Remove the Bluetooth module.

Note: Make sure you reconnect the antenna cables to the socket ([Figure a](#)).



5. Bluetooth Module

- 1 Screw

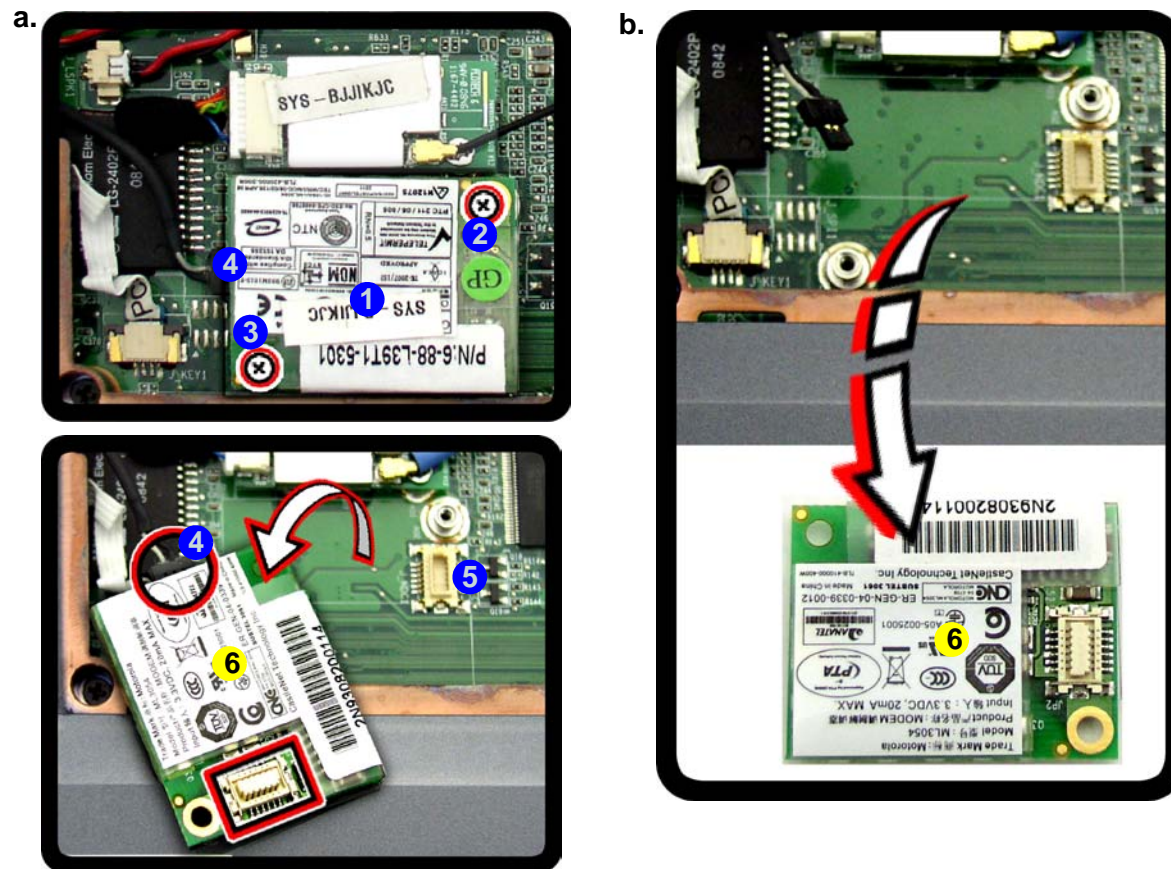
Disassembly

Figure 16
Modem Removal

- a. Remove the screws and disconnect the cable.
- b. Lift the modem up off the socket.

Removing the Modem

1. Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 9](#)) and keyboard shielding ([page 2 - 18](#)).
2. The modem is visible at point **1**.
3. Remove the screws **2** - **3** from the modem module and disconnect cable **4**.
4. Lift the modem up off the socket **5**.
5. Lift the modem **6** up and off the computer.



6. Modem

- 2 Screws

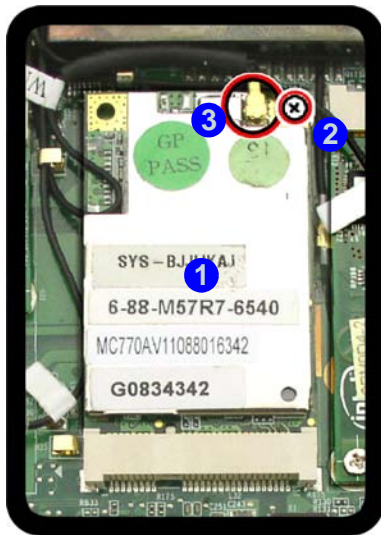
Removing the TV Tuner Card

1. Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 9](#)) and keyboard shielding ([page 2 - 18](#)).
2. The TV tuner card is visible at point ①.
3. Remove the screws ② from the TV tuner module and disconnect cable ③.
4. The TV tuner card ④ will pop-up and you can remove it.

Figure 17
TV Tuner Card Removal

- a. Remove the screws and disconnect the cable.
- b. The TV tuner card will pop up and remove it.

a.



b.

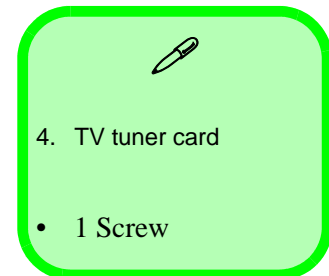
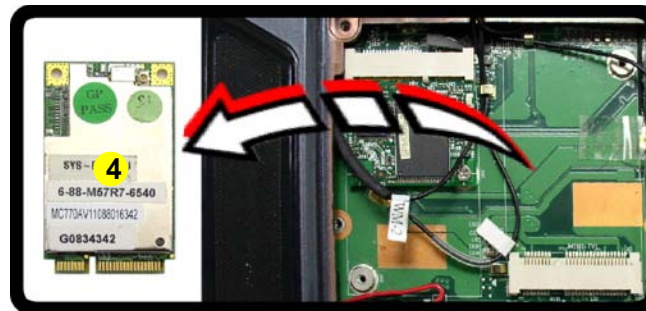
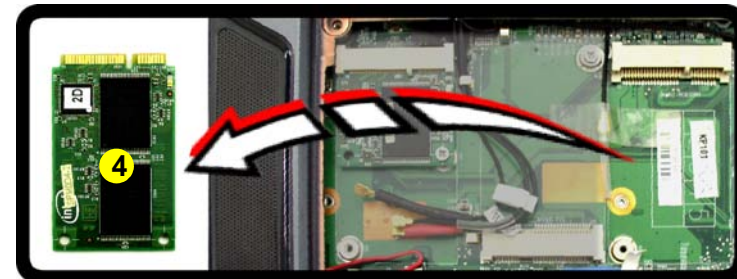
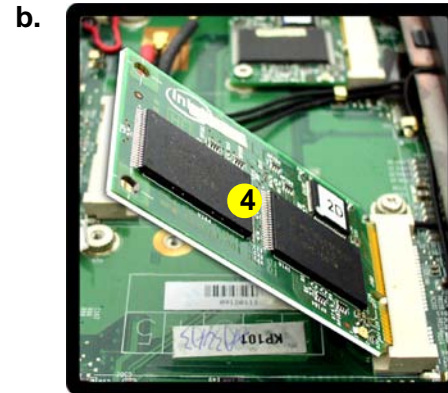
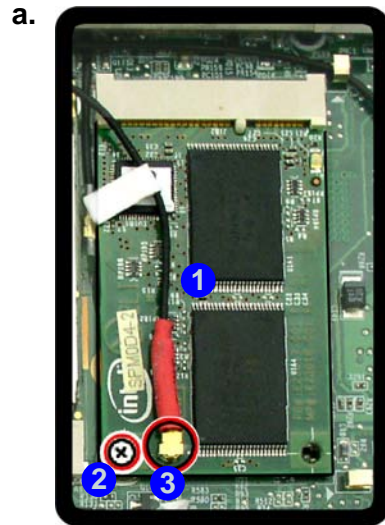


Figure 18
Intel Turbo Memory Card Removal

- a. Remove the screws and disconnect the cable.
- b. The Intel turbo memory card will pop up and remove it.

Removing the Intel Turbo Memory Card

1. Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 9](#)) and keyboard shielding ([page 2 - 18](#)).
2. The Intel turbo memory card is visible at point **1**.
3. Remove the screws **2** from the module and disconnect cable **3**.
4. The Intel turbo memory card **4** will pop-up and you can remove it.



4. Intel turbo memory card

- 1 Screw

Appendix A: Part Lists

This appendix breaks down the *D900F* 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**

Parts	
Top	<i>page A - 3</i>
Bottom	<i>page A - 4</i>
LCD	<i>page A - 5</i>
Mainboard	<i>page A - 6</i>
Blu-Ray Combo	<i>page A - 7</i>
DVD Super Multi	<i>page A - 8</i>

Top

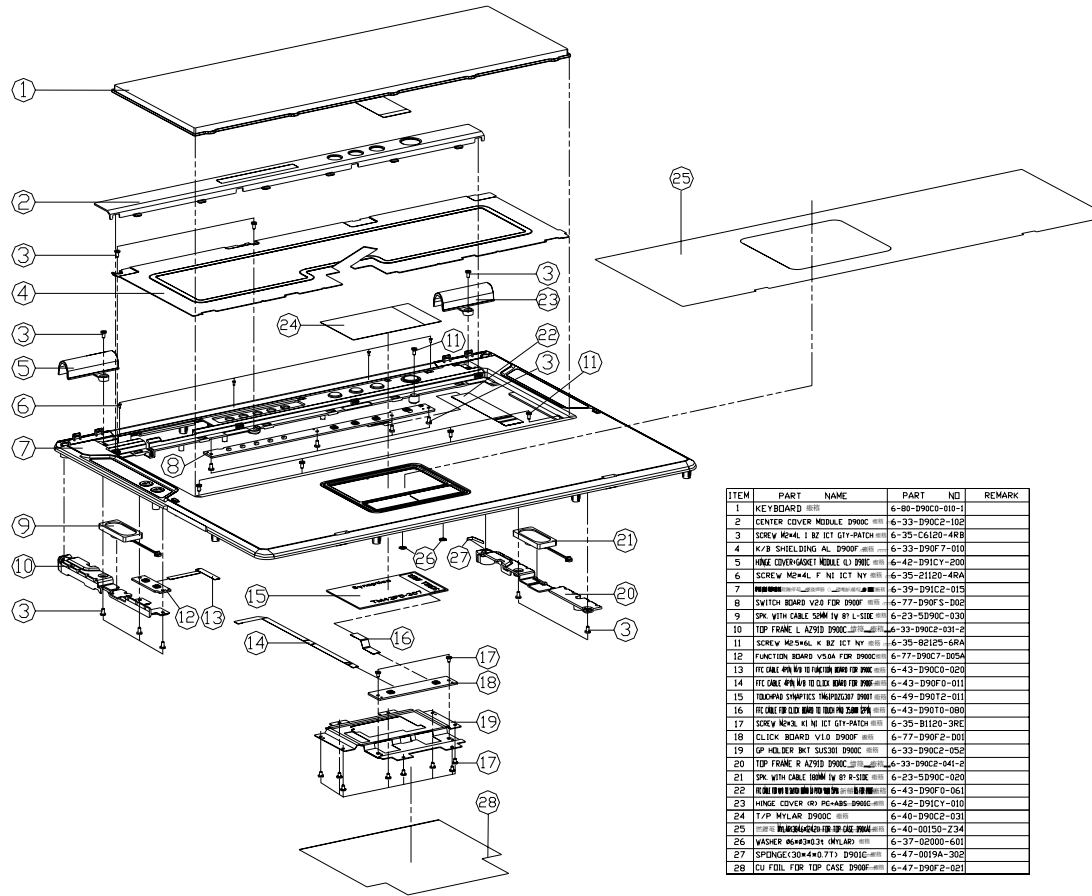


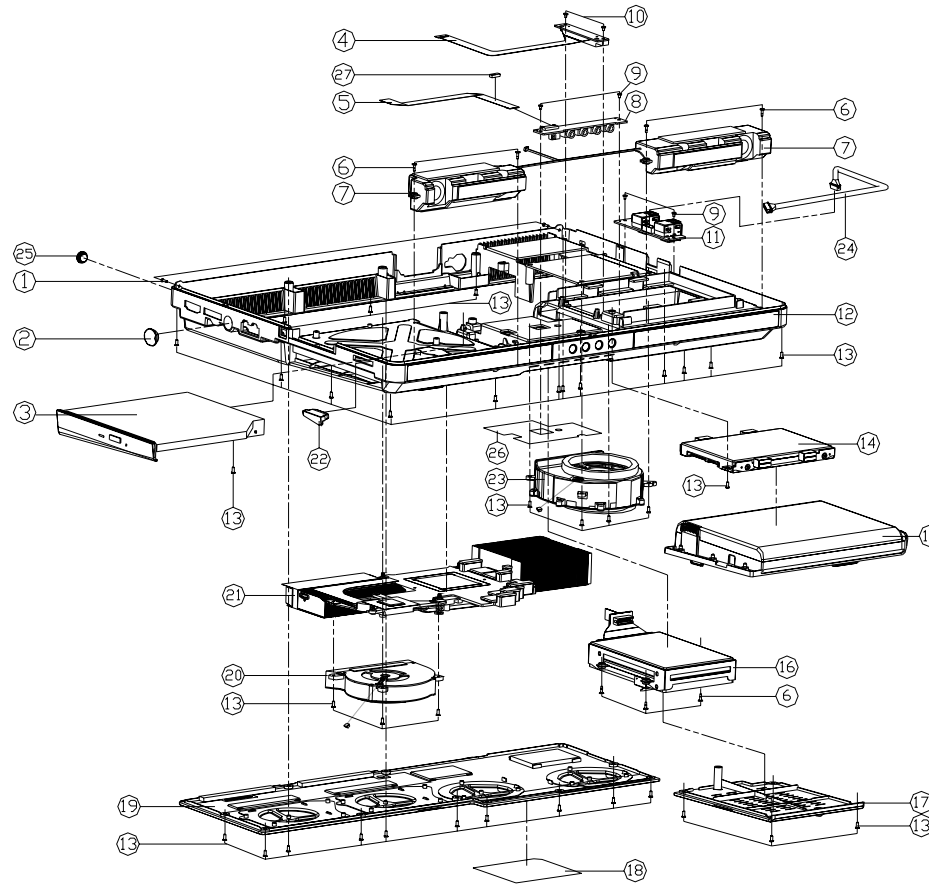
Figure A - 1
Top

ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD	6-80-D90C0-010-1	
2	CENTER COVER MODULE D90C	6-33-D90C2-102	
3	SCREW M4x1.6 BZ ICT D17-PATCH	6-35-C6100-46B	
4	K/R SHIELDING AL D90F	6-33-D90F7-010	
5	HINGE COVER/GARDET MOBILE C3 D90C	6-42-D91C1-200	
6	SCREW M4x4.0 F NI ICT NY	6-35-21120-4RA	
7	FUNCTION BOARD V50A FOR D90C	6-39-D91C2-015	
8	SWITCH BOARD V20 FOR D90F	6-77-D90F3-D02	
9	SPK WITH CABLE 180MM BY 81 L-SIDE	6-23-SD90C-030	
10	TOP FRAME L AZ90 D90C	6-33-D90C2-031-2	
11	SCREW M2x4.0 BZ ICT NY	6-35-80125-6RA	
12	FUNCTION BOARD V50A FOR D90C	6-77-D90C7-D05A	
13	PC CABLE 4P/4P TO FUNCTION BOARD FOR P90C	6-43-D90C0-020	
14	PC CABLE 4P/4P TO CLICK BOARD FOR P90C	6-43-D90F0-011	
15	TACTICAP SWITCHES UNPUSHED BT D90F	6-49-D90T2-011	
16	PC CABLE TO CLICK BOARD TO CLICK BOARD FOR P90C	6-43-D90T0-080	
17	SCREW M2x4.0 BZ ICT NY	6-35-81120-3RC	
18	CLICK BOARD V1.0 D900F	6-77-D90F2-D01	
19	SP HOLDER BKT SUS304 D900C	6-33-D90C2-052	
20	TOP FRAME R AZ90 D90C	6-33-D90C2-041-2	
21	SPK WITH CABLE 180MM BY 81 R-SIDE	6-23-SD90C-020	
22	HINGE COVER (R) PC-ABS D90C	6-42-D91C1-051	
23	HINGE COVER (L) PC-ABS D90C	6-42-D91C1-010	
24	T/P NYLON D900C	6-40-D90C2-031	
25	NYLON HINGE/GARDET FOR TOP CASE D90C	6-40-00150-Z34	
26	WASHER M6x3x0.34 (NYLON)	6-37-02000-601	
27	SPONGE (30x40x7.1) D901G	6-47-0019A-302	
28	CU FILL FOR TOP CASE D900F	6-47-D90F2-021	

A.Part Lists

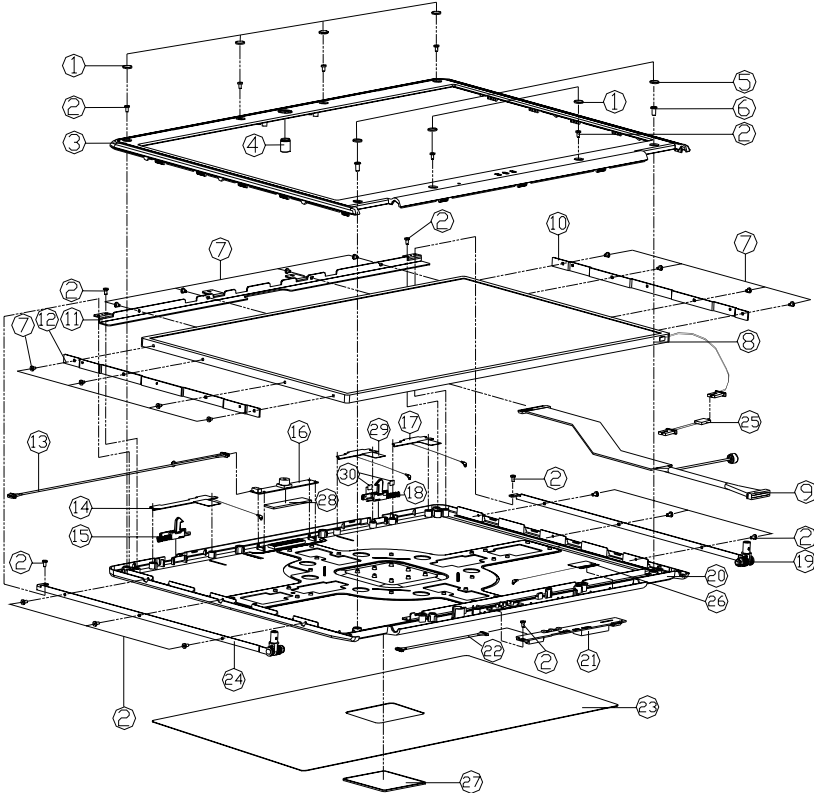
Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*BL F NI ICT NY	6-35-21120-BRA	
2	RUBBER FOR TV TUNER SILICONE D900F	6-47-D90F E-010	
3	SATA BLU-RAY COMBO 5.25" AL ASSY D900F	6-79-D900F 00V-010	
3	SATA DVD SUPER MULTI BK ASSY D900F	6-79-D900F 000-000	
4	YPC CABLE R/W TO 3RD SATA HD FOR D900F	6-43-D90C J-011	
5	YPC CABLE R/W R/W TO AUDIO BOARD FOR D900F	6-43-D90C0-040	
6	SCREW M2*BL K BZ ICT NY	6-35-81120-750	
7	SPK WITH CABLE 2X 4W/6-8500M D900F	6-23-5D90C-010	
8	AUDIO BOARD V.I.D D900F	6-77-D90F B-D01	
9	SCREW M2*BL 1 BZ ICT QTY-PATCH	6-35-C6120-4R8	
10	SCREW M2*DL K1 NI ICT NY	6-35-81120-7RA	
11	USB BOARD V.I.D D900F	6-77-D90F 3-D01	
12	BOTTOM CASE MIDDLE D900F	6-39-D90F 3-010	
13	SCREW M2*4GL K BZ ICT NY	6-35-82125-6RA	
14	W/D 2ND HDD ASS'Y D900F	6-79-D900F 00J-000	
15	W/D 1ST HDD ASS'Y D900F	6-79-D900F 00J-000	
15	W/D HDD ASS'Y D900F	6-79-D900F 00J-000	
16	HDD COVER MODULE D900C	6-42-D90C 3-101	
17	PRODUCT LABEL FOR D900F	6-45-D90F 3-010	
18	CPU COVER MODULE D900C	6-42-D90C 3-103	
19	W/D HDD ASS'Y D900F	6-23-AD90C-032	
20	CPU THERMAL MODULE D900F	6-31-D90F N-101	
21	CARD READER RUBBER COVER	6-47-M66NE-010	
22	W/D HDD ASS'Y D900F	6-23-AD90C-011	
23	YPC CABLE R/W R/W TO USB BOARD FOR D900F	6-43-D90C0-051	
24	RUBBER FOR VIDEO-IN SILICONE D900F	6-47-D90F 3-010	
25	M2*BL 2*4GL K BZ ICT NY	6-40-00150-710	
26	BOTTOM CASE FRONT FOR D900F	6-47-D90F 3-021	
27	BOTTOM CASE REAR FOR D900F	6-47-D90F 3-021	

LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD RUBBER CLIP 1x1.5MM	6-47-D90T1-012	
2	SCREW M2x4.1 12 BT 01-ANCO (1.6x3.0)	6-35-C6120-4RB	
3	DISPLAY FRONT COVER MODULE BRG	6-39-D91C1-010	
4	VIDEO CAMERA RUBBER	6-47-D90T1-030	FOR W/CCD
5	LCD RUBBER (DOWN)	6-47-D90T1-020	
6	SCREW M2x6.1 KI NI ICT NY	6-35-B1130-6RA	
7	SCREW M2x3.0 KI NI ICT NY	6-35-B1120-3RA	
8	LCD TP VMSA W/ RETROREFL VLS GLASS TYP	6-50-NB266-C50	
8	LCD TP *VMSA W/ RETROREFL VLS GLASS TYP	6-50-NB266-G01	
8	LCD TP VMSA LG LPTNME-1.62 GLASS TYP	6-50-NB266-L07	
8	LCD TP VMSA LG LPTNME-1.62 GLASS TYP	6-50-NB266-L02	
9	WIRE CABLE W/ 12 LG LPTNME FOR PROXIM	6-43-D90C1-011	
10	LG LCD17 BRACKET CR	6-33-D90T1-061	
11	TOP BRACKET OF LG LCD17	6-33-D90T1-143	
12	LG LCD17 BRACKET FL	6-33-D90T1-071	
13	WIRE CABLE W/ 10 LG LPTNME FOR PROX	6-43-D90C1-010	
14	WIRE CABLE W/ 2 LG LPTNME FOR PROX	6-23-D90C1-010	
15	HOOK KNOB (L) MODULE	6-42-D90T1-804	
16	WIRE CABLE FOR MESH27-00 IN HOSE	6-88-M5C4C-4915	OPTION
16	WIRE CABLE FOR MESH27-00 IN HOSE	6-88-D90C1-4900	OPTION
17	WIRE CABLE W/ 2 LG LPTNME FOR PROX	6-23-D90C1-020	
18	HOOK KNOB (R) MODULE	6-42-D90T1-704	
19	HINGE CR	6-33-D90T1-012	
20	DISPLAY BACK COVER MODULE	6-39-D91C1-022-1	
21	WIRE CABLE W/ 10 LG LPTNME FOR PROX	6-76-D90CR-022	
22	WIRE CABLE FOR W/ 10 LG LPTNME FOR PROX	6-43-D90T0-053	
23	BACK PANEL COGNIC PLATE AL W/RE	6-33-D91C1-011	
24	HINGE (L)	6-33-D90T1-022	
25	WIRE CABLE COGNIC W/ 10 LG LPTNME FOR PROX	6-43-D4701-031	
26	WIRE CABLE W/ 2 LG LPTNME FOR PROX	6-23-D90C1-040	
27	LOGO BASE	6-42-D90T1-030	
28	GASKET (40x10x1.5) D900C	6-47-00190-400	
29	WIRE CABLE W/ 2 LG LPTNME FOR PROX	6-23-D90C1-030	
30	WIRE CABLE W/ 2 LG LPTNME FOR PROX	6-40-00150-404	

Figure A - 3
LCD

A.Part Lists

Blu-Ray Combo

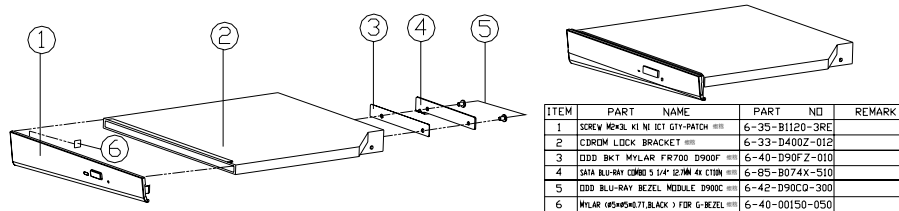
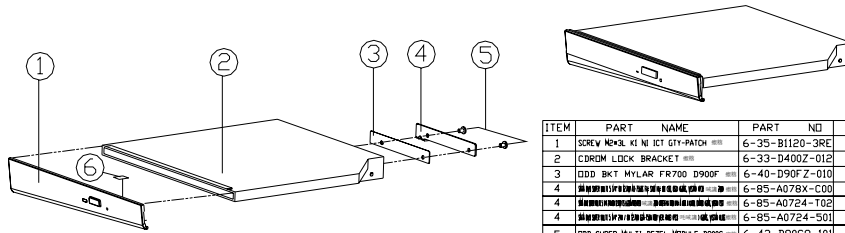


Figure A - 5
Blu-Ray Combo

A.Part Lists

DVD Super Multi

Figure A - 6
DVD Super Multi



ITEM	PART NAME	PART NO	REMARK
1	SCREW M4xL KI NI ICT GTY-PATCH	6-35-B1120-3RE	
2	CDROM L DCK BRACKET	6-33-D400Z-012	
3	DDD BKT MYLAR FR700 D900F	6-40-D90FZ-010	
4	MYLAR FR700 D900F	6-85-A078X-C00	
4	MYLAR FR700 D900F	6-85-A0724-T02	
4	MYLAR FR700 D900F	6-85-A0724-S01	
5	DDD SUPER MULTI BEZEL MIDDLE D900C	6-42-D90CQ-101	
6	MYLAR 7x4x0.5T.870x3M94468 D900C	6-40-00150-707	

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *D900F* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>Intel Debug Card & Fan Control - Page B - 19</i>	<i>Click Board - Page B - 36</i>
<i>LGA1366 Part A DDR3 1/2 - Page B - 3</i>	<i>Clock Generator CV193 - Page B - 20</i>	<i>Hotkey Board - Page B - 37</i>
<i>LGA1366 Part B DDR3 2/2 - Page B - 4</i>	<i>MXM3.0 PCI-E - Page B - 21</i>	<i>Switch Board - Page B - 38</i>
<i>LGA1366 Part C QPI - Page B - 5</i>	<i>MXM PWR, SATA ODD - Page B - 22</i>	<i>USB Board - Page B - 39</i>
<i>LGA1366 Part C Power - Page B - 6</i>	<i>HDMI & e-SATA - Page B - 23</i>	<i>Power CPU_VTT - Page B - 40</i>
<i>LGA1366 Part E GND, Thermal - Page B - 7</i>	<i>DVI-I - Page B - 24</i>	<i>Power 1.5V, 0.75VS, 12V - Page B - 41</i>
<i>DDR3 Channel A SO-DIMM_0 - Page B - 8</i>	<i>LCD, INT - Page B - 25</i>	<i>Power 1.8VS, 1.1VS - Page B - 42</i>
<i>DDR3 Channel B SO-DIMM_1 - Page B - 9</i>	<i>Card Reader/1394 - Page B - 26</i>	<i>Power AC_In, Charge - Page B - 43</i>
<i>DDR3 Channel C SO-DIMM_2 - Page B - 10</i>	<i>RTL8111C - Page B - 27</i>	<i>Power Switch, ICH_1.1VS - Page B - 44</i>
<i>X58 QPI Interface - Page B - 11</i>	<i>ALC662 / AMP TP6047A-4 - Page B - 28</i>	<i>Power VCORE - Page B - 45</i>
<i>X58 PCIEX16, PCIEX4, DMI - Page B - 12</i>	<i>KBC-ITE IT8512E - Page B - 29</i>	<i>Power VDD3, VDD5 - Page B - 46</i>
<i>X58 Misc - Page B - 13</i>	<i>Mini WLAN/ TMP/ TPA6017A2 - Page B - 30</i>	<i>Power Delivery Chart - Page B - 47</i>
<i>X58 PWR - Page B - 14</i>	<i>Daughter CONN - Page B - 31</i>	<i>Power Sequence Diagram - Page B - 48</i>
<i>X58 GND - Page B - 15</i>	<i>SATA HDD/ CCD/ BT/ PC BEEP - Page B - 32</i>	
<i>ICH10 DMI/PCIE/USB/SATA - Page B - 16</i>	<i>New Card/ MDC/ TV/ Robson - Page B - 33</i>	
<i>ICH10 PCI/SPI/Other - Page B - 17</i>	<i>Audio Board - Page B - 34</i>	
<i>ICH10 Power/GND - Page B - 18</i>	<i>Card Reader Board - Page B - 35</i>	

Table B - 1
**Schematic
Diagrams**

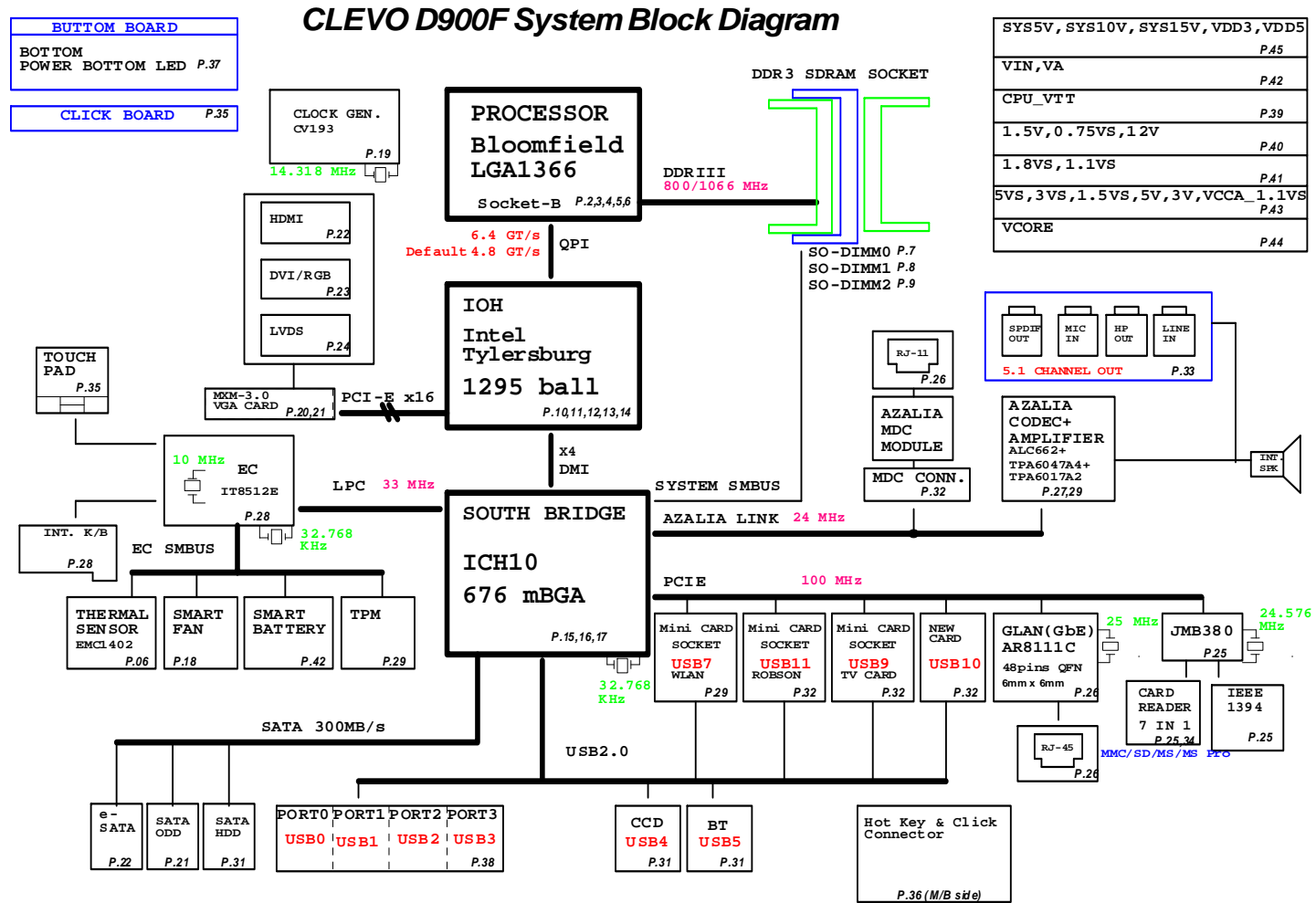


Version Note

The schematic diagrams in this chapter are based upon version 6-7P-M8103-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

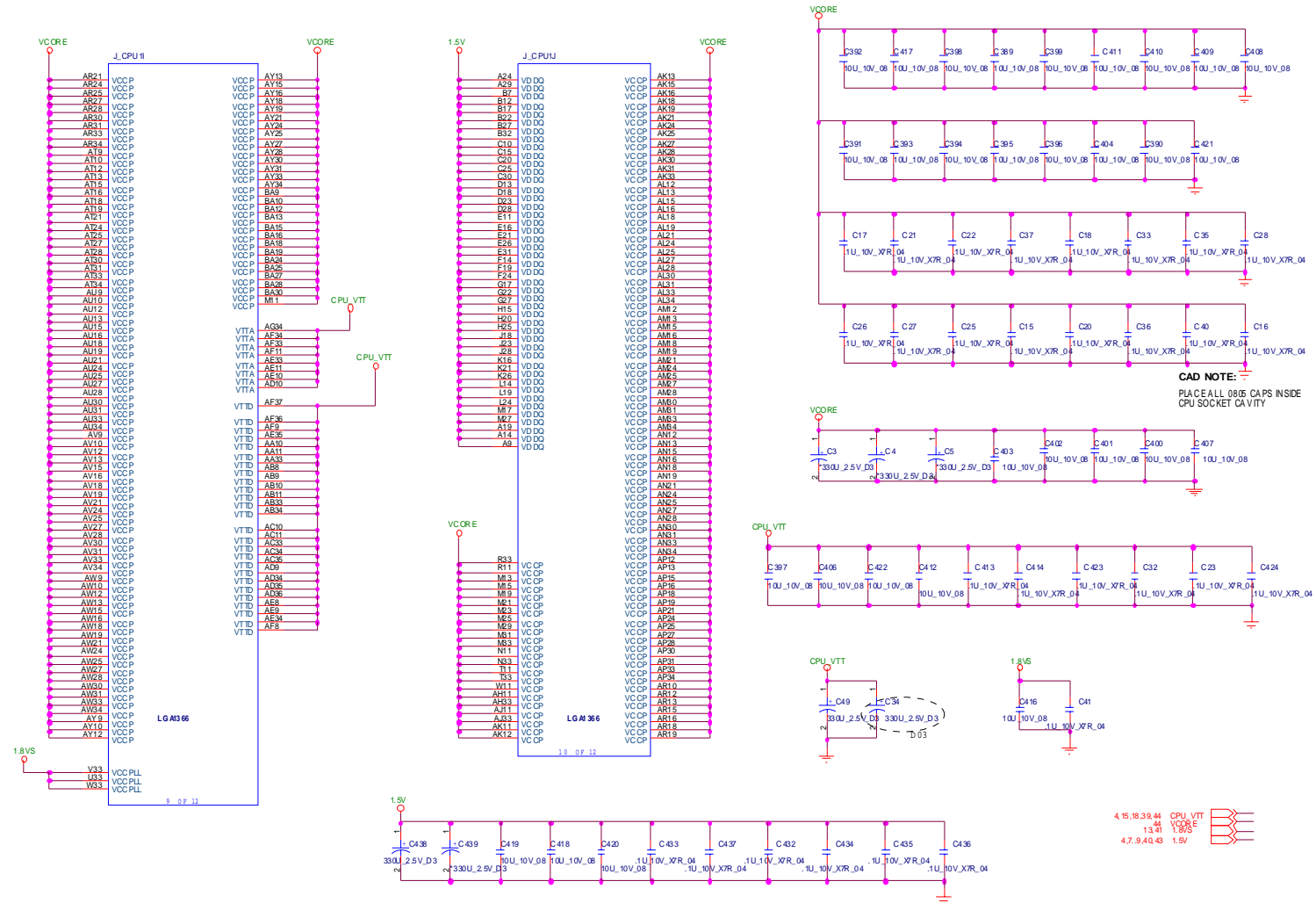
System Block Diagram

Sheet 1 of 47
System Block
Diagram



LGA1366 Part C Power

Sheet 5 of 47
LGA1366 Part C
Power



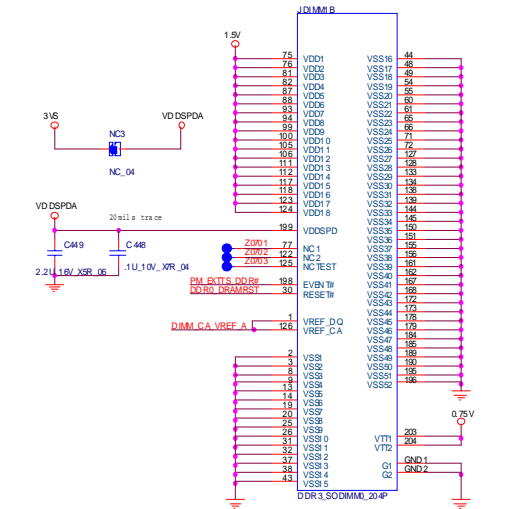
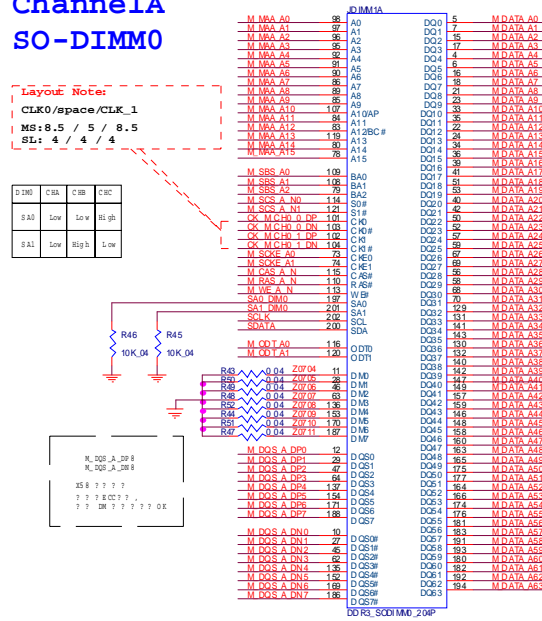
DDR3 Channel A SO-DIMM_0

Sheet 7 of 47
DDR3 Channel A
SO-DIMM_0

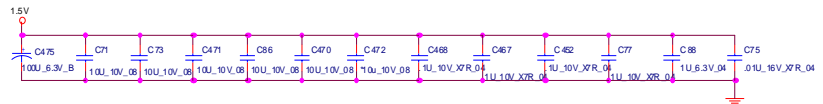
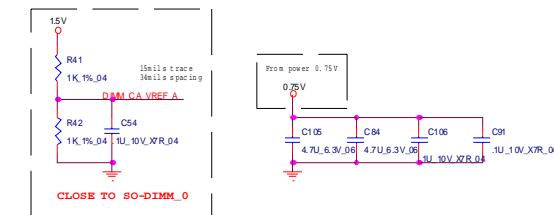
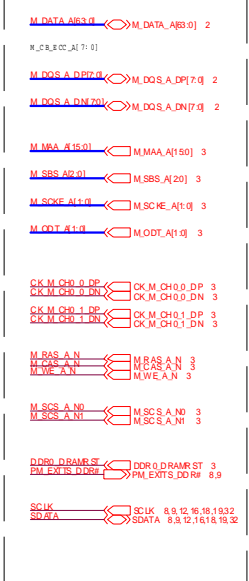
ChannelA SO-DIMM0

Layout Note:
CLK0/space/CLK_1
MS: 8.5 / 5 / 8.5
SL: 4 / 4 / 4

DIM0	C5A	C5B	C5C
S#0	LoV	LoV	HiZ
S#1	LoV	HiZ	LoV



ChannelA

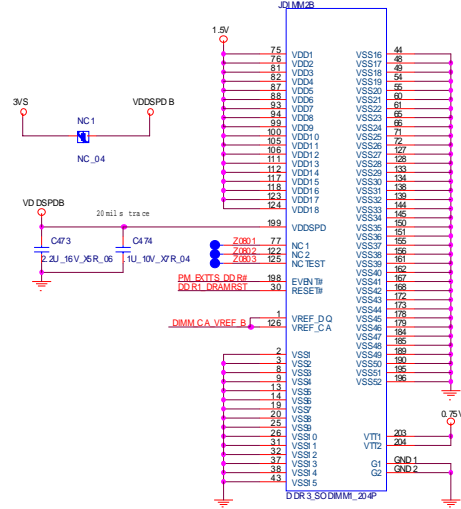
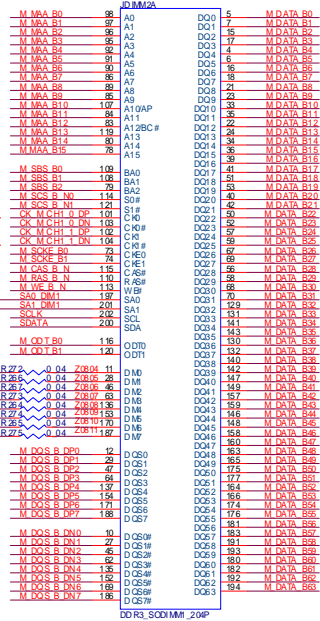


DDR3 Channel B SO-DIMM_1

Channel B SO-DIMM1

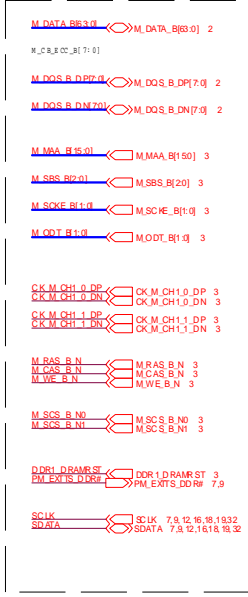
Layout Note:
CLK0/space/CLK_1
MS: 8.5 / 5 / 8.5
SL: 4 / 4 / 4

DIM	C00	C08	C16
S10	Low	Low	High
S11	Low	High	Low



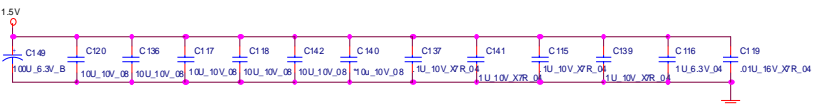
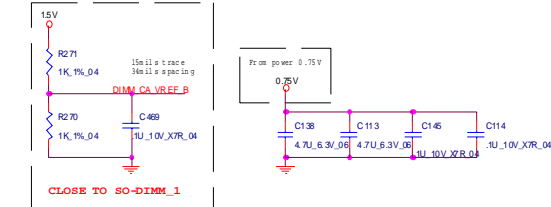
Layout note:
SO-DIMM_1 is placed farther from the CPU than SO-DIMM_0

Channel B

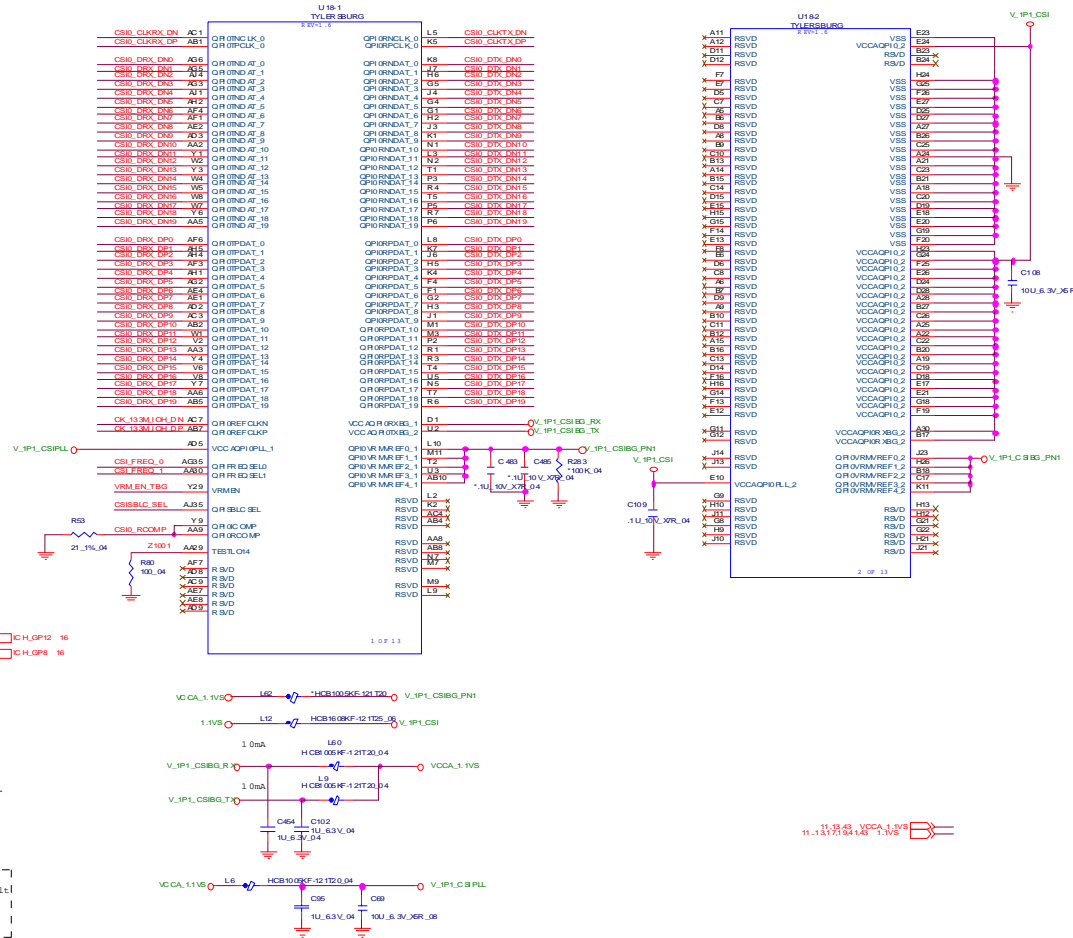
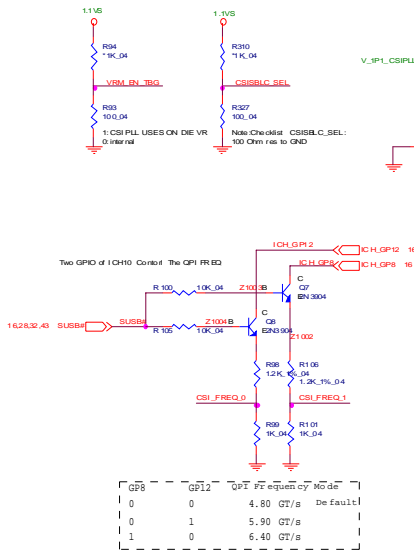
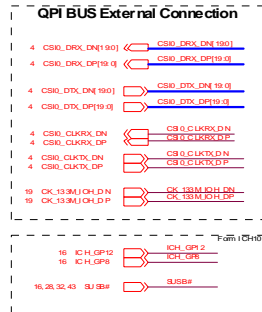


Sheet 8 of 47
DDR3 Channel B
SO-DIMM_1

B. Schematic Diagrams



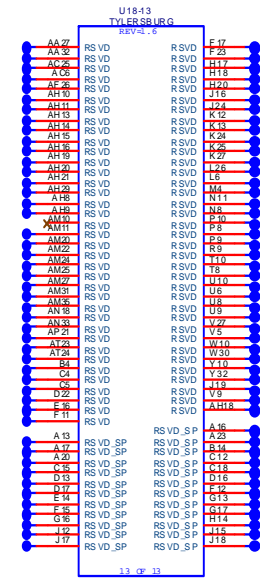
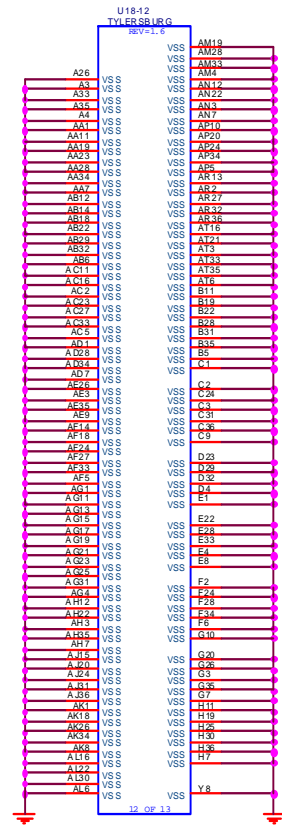
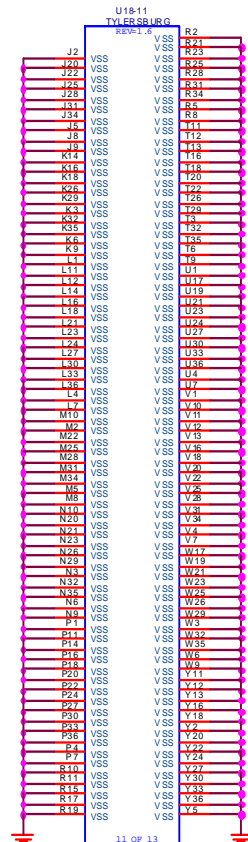
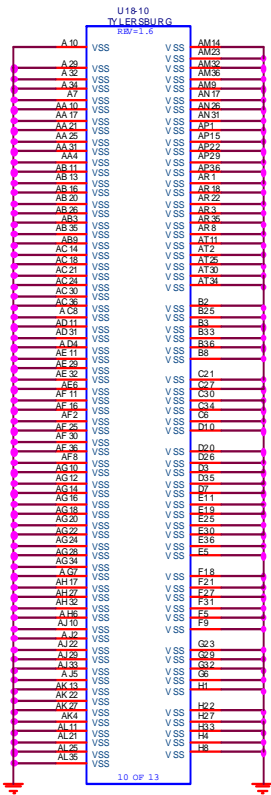
X58 QPI Interface



Sheet 10 of 47
X58 QPI Interface

B.Schematic Diagrams

X58 GND

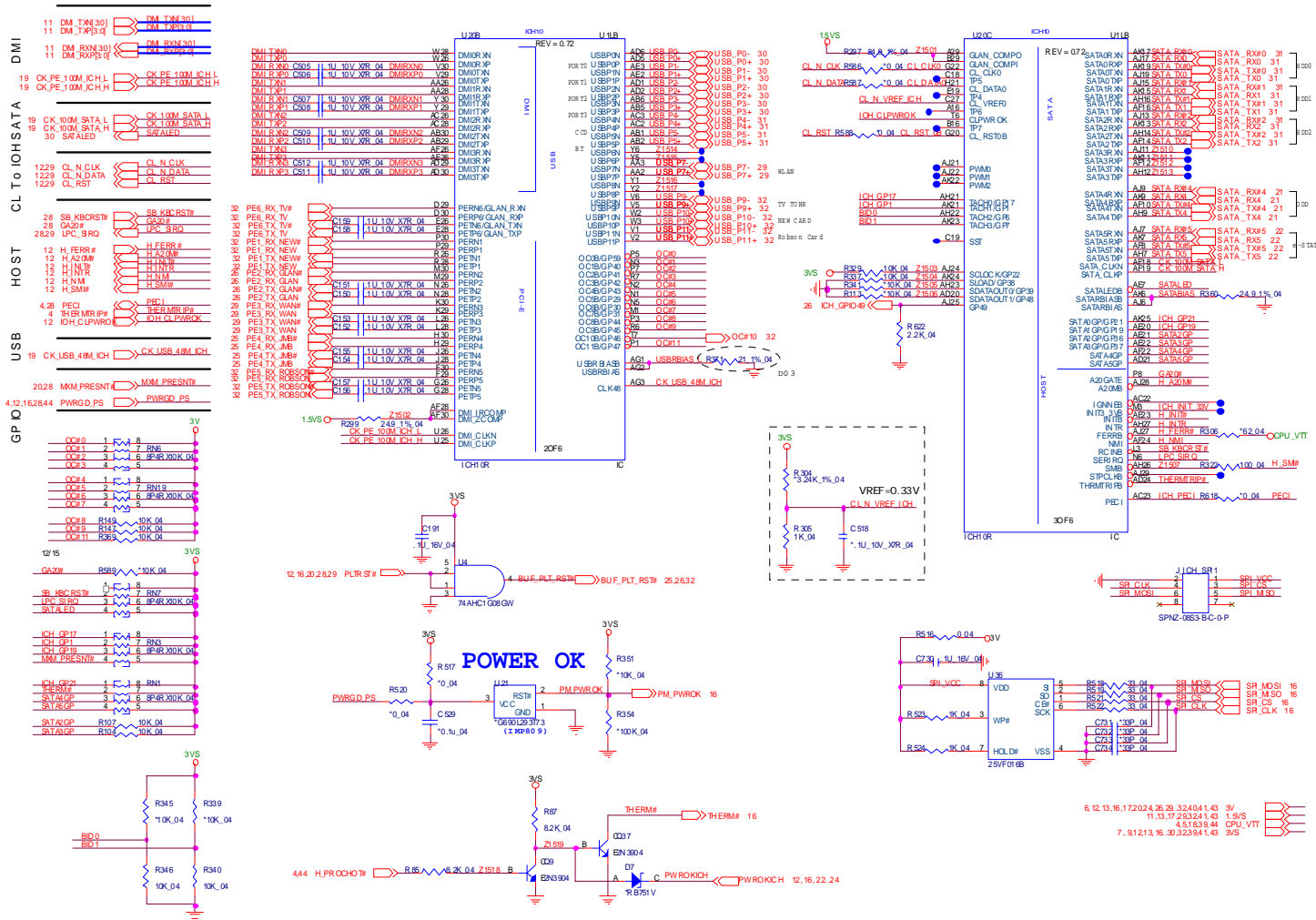


Sheet 14 of 47
X58 GND

B. Schematic Diagrams

ICH10 DMI/PCIE/USB/SATA

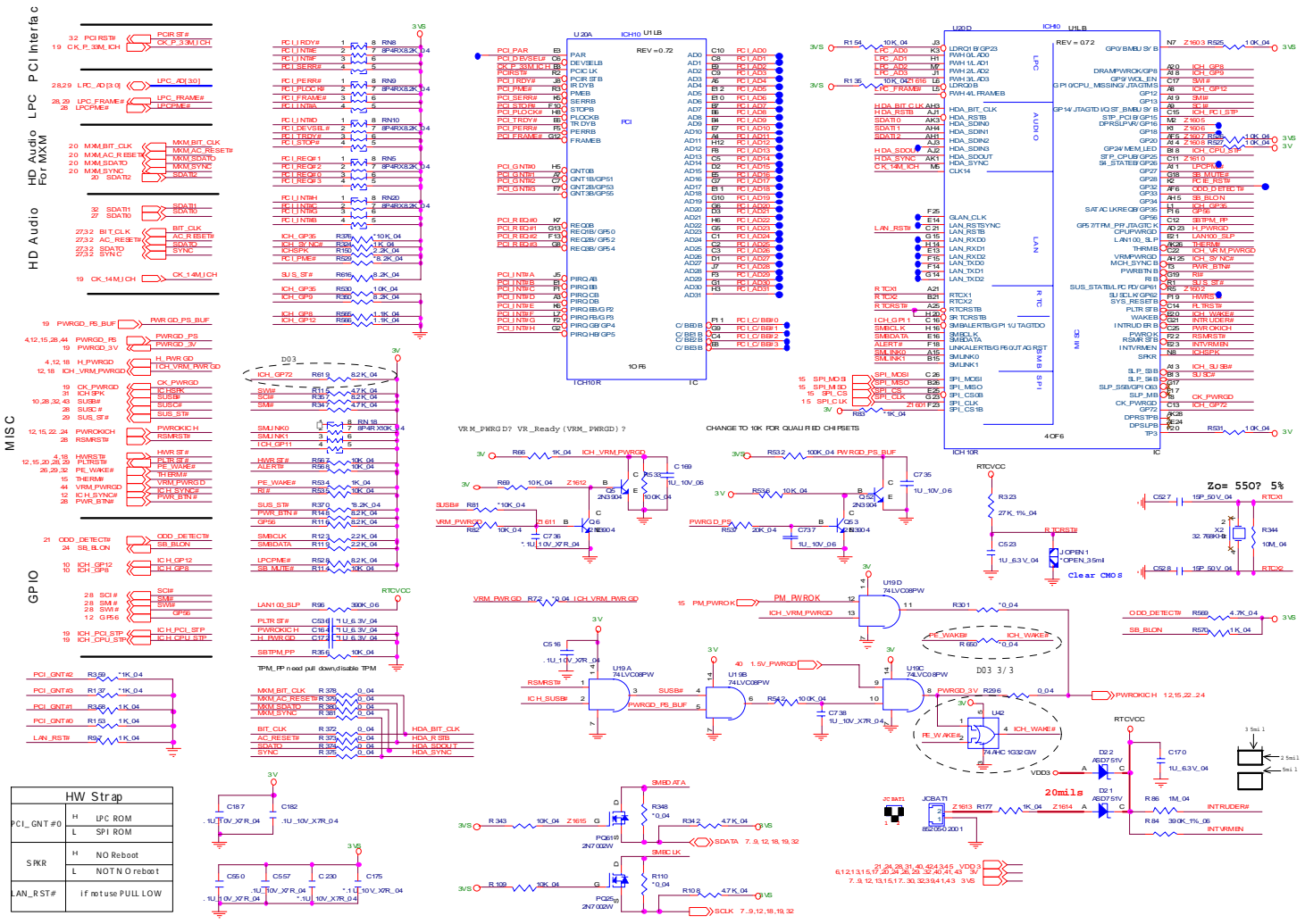
Sheet 15 of 47
ICH10 DMI/PCIE/
USB/SATA



ICH10 PCI/SPI/Other

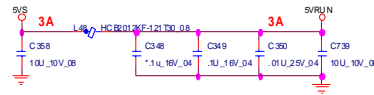
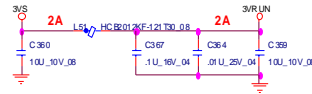
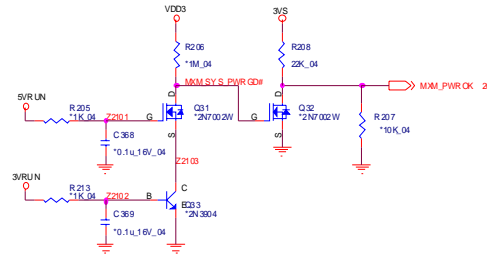
B. Schematic Diagrams

Sheet 16 of 47
ICH10 PCI/SPI/
Other

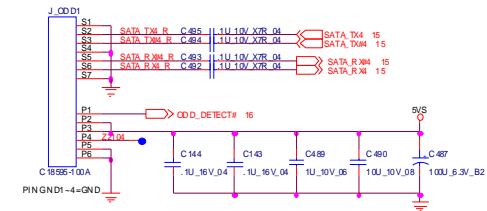


MXM PWR, SATA ODD

MXM PWR



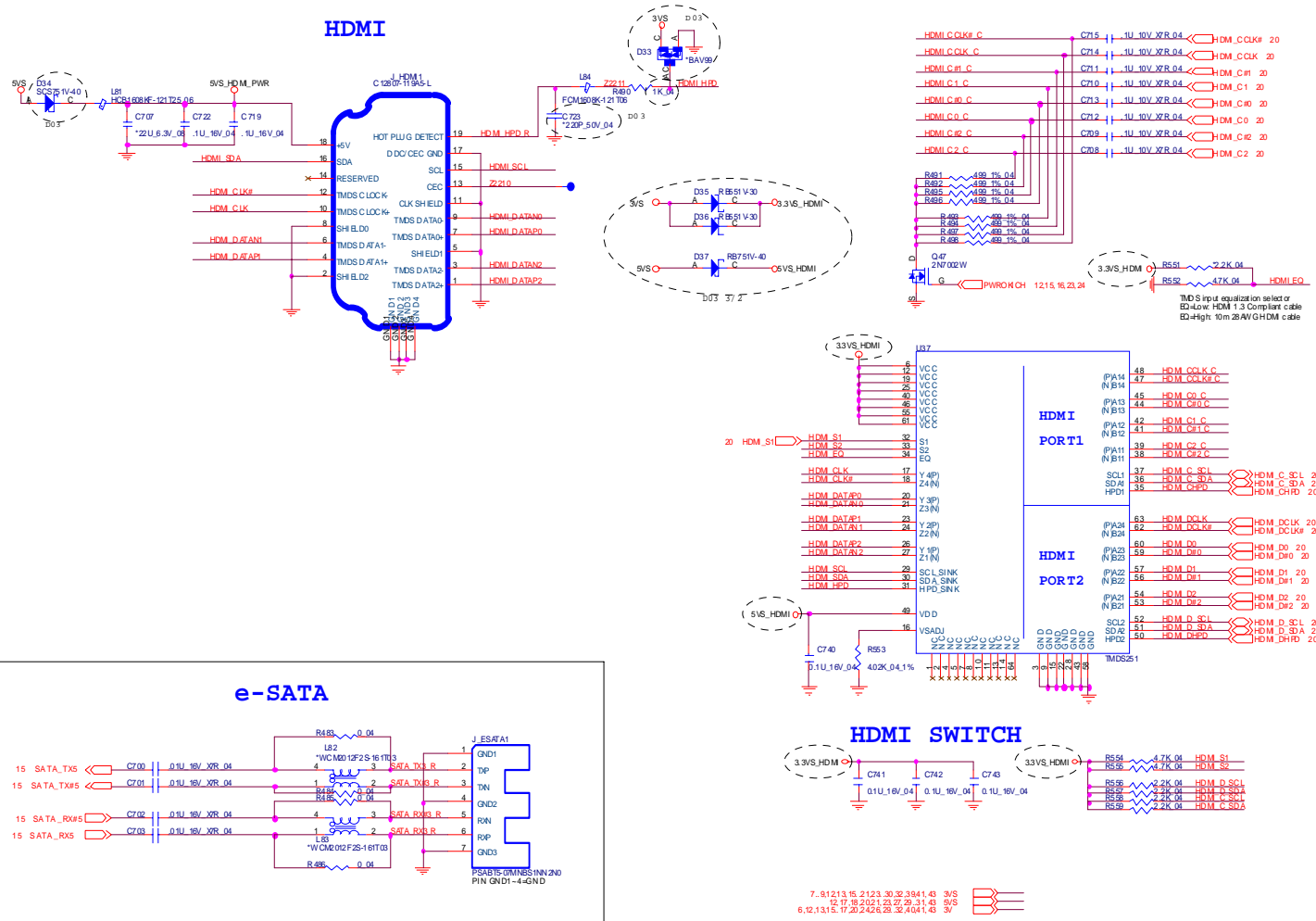
SATA ODD



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6,12,13,15,17,20,24,26,28,32,40,41,43	3V
7,9,12,13,15,20,22,30,32,38,41,43	3V/S
20	5V/RUN
12,17,18,20,22,23,27,28,31,43	5V/S
20	5V/RUN

Sheet 21 of 47
MXM PWR,
SATA ODD

HDMI & e-SATA

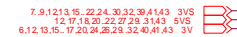
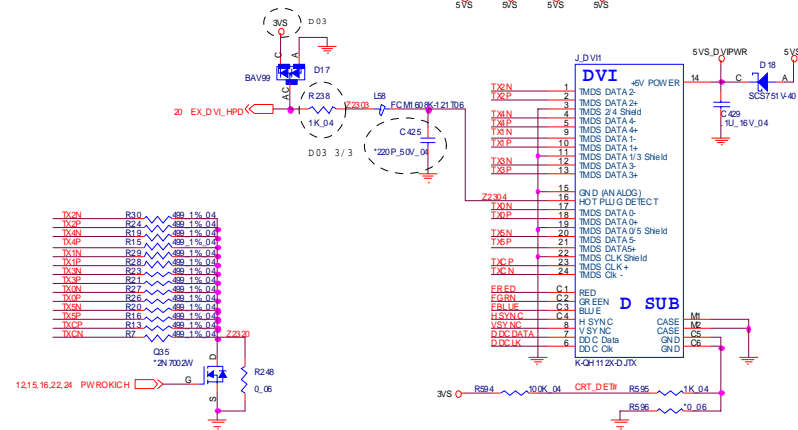
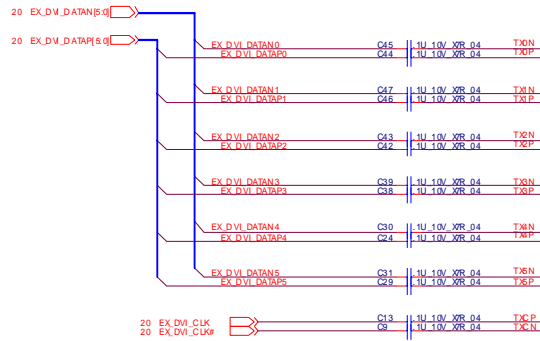
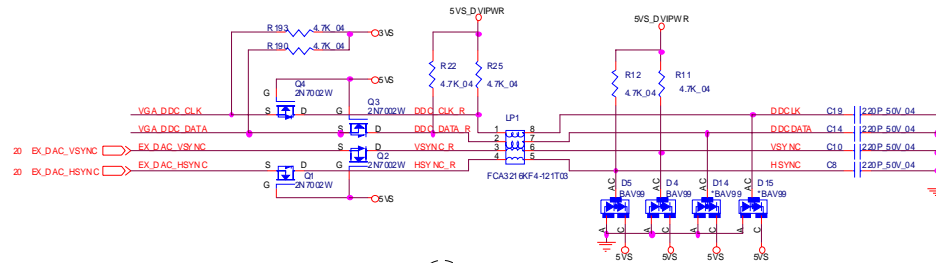
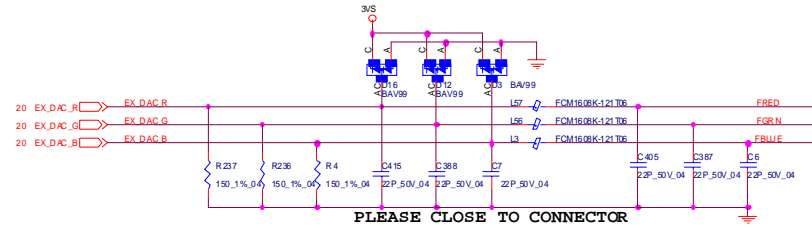
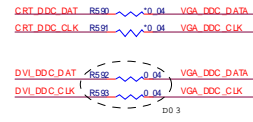
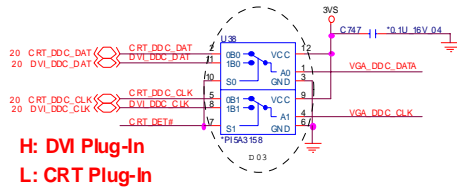


Sheet 22 of 47
HDMI & e-SATA

B.Schematic Diagrams

Schematic Diagrams

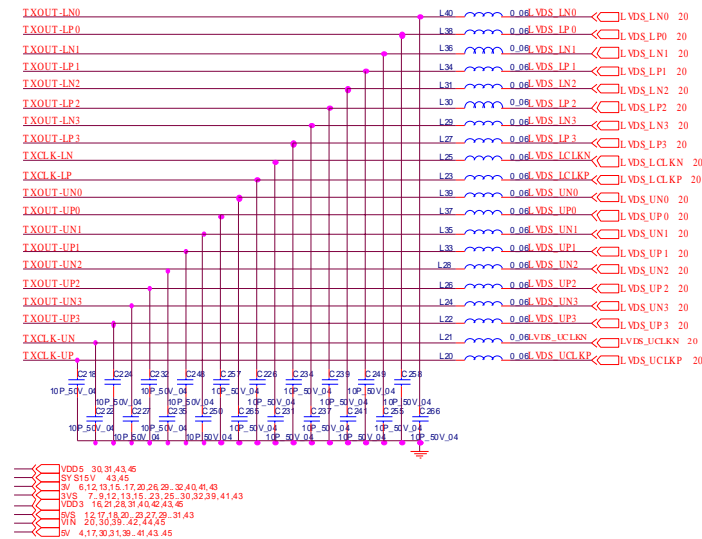
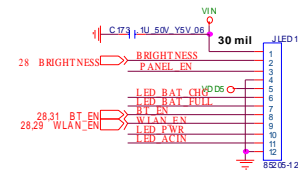
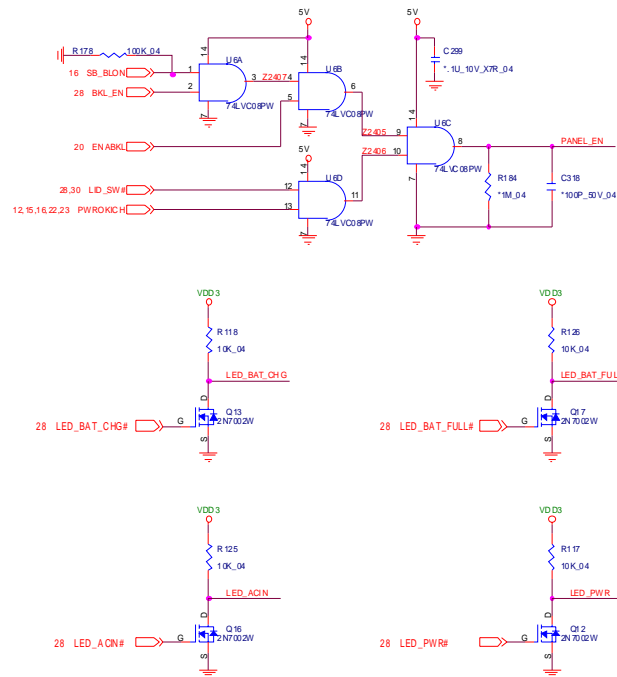
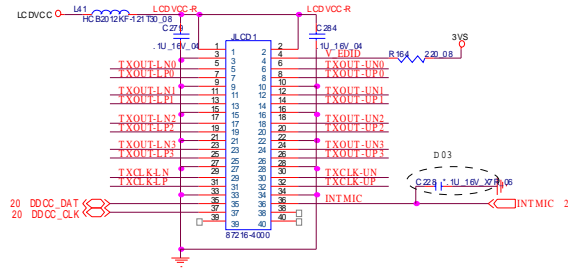
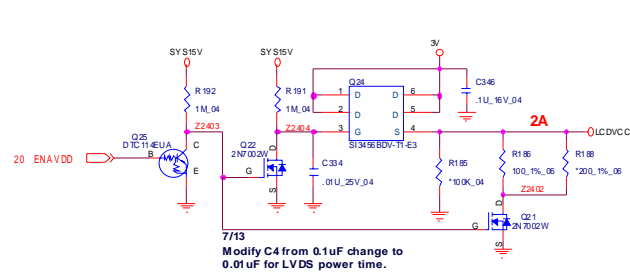
DVI-I



Sheet 23 of 47
DVI-I

B.Schematic Diagrams

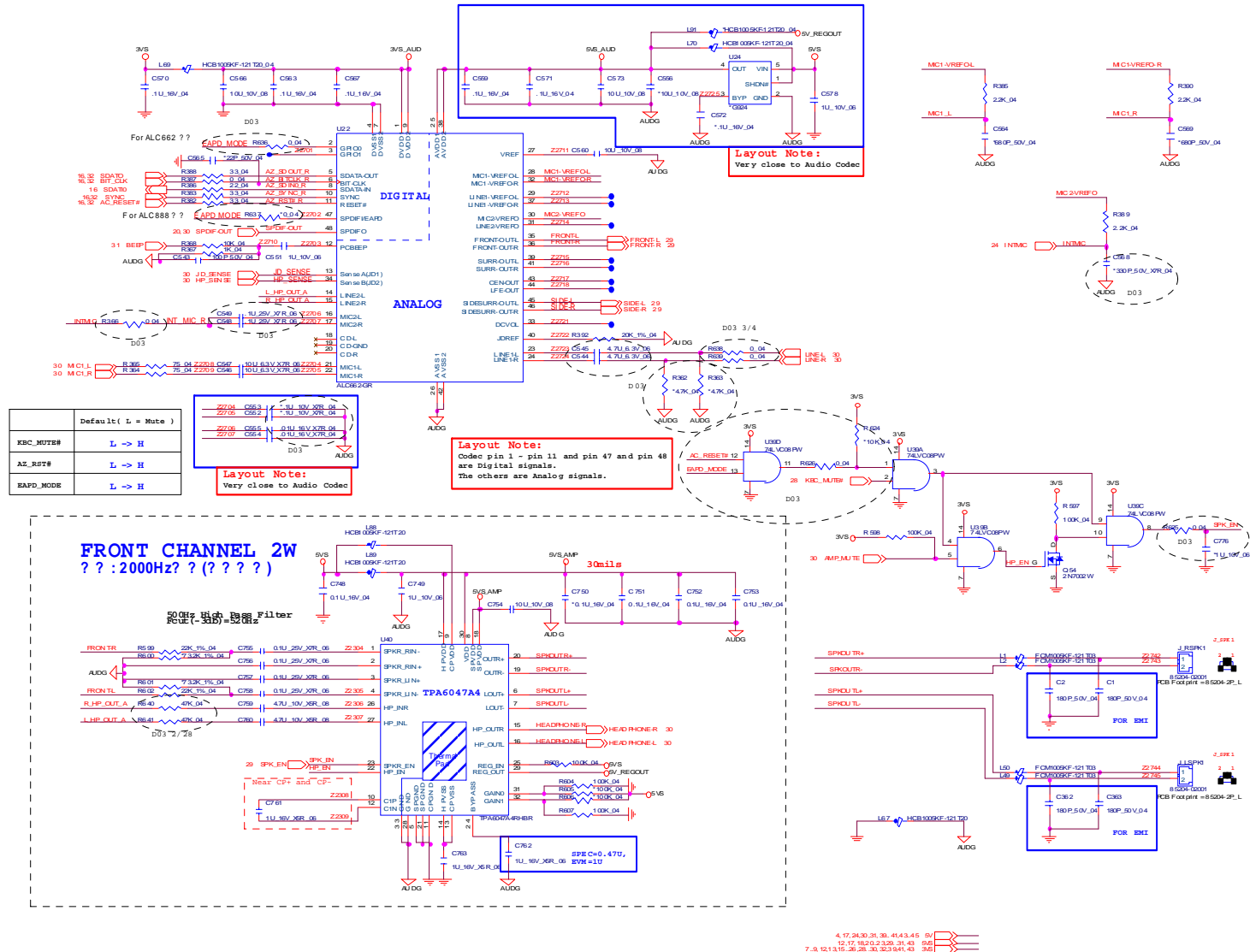
LCD, INT



Sheet 24 of 47
LCD, INT

ALC662 / AMP TP6047A-4

Sheet 27 of 47
ALC662 / AMP
TPA6047A4



	Default (L = Mute)
MUTE_MOTER	L -> H
AZ_RST#	L -> H
EAPD_MODE	L -> H

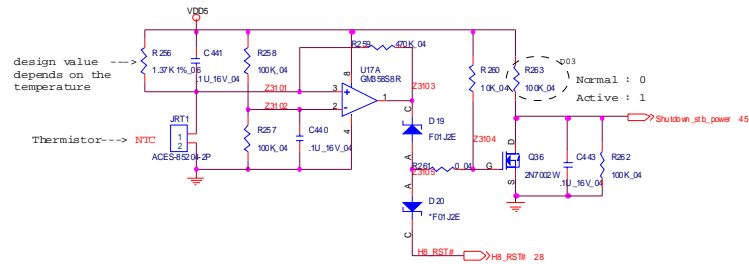
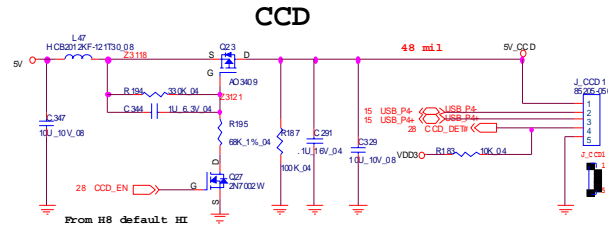
Layout Note:
Very close to Audio Codec

Layout Note:
Codes pin 11 pin 11 and pin 47 and pin 48 are Digital signals. The others are Analog signals.

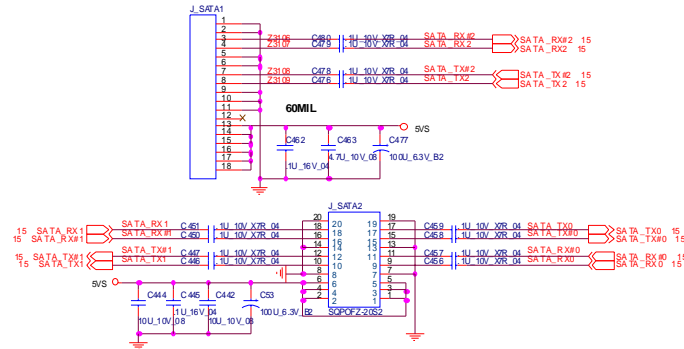
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SATA HDD/ CCD/ BT/ PC BEEP

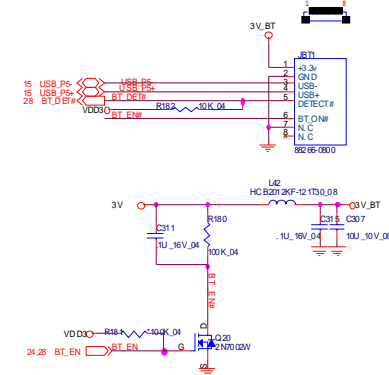
Sheet 31 of 47
SATA HDD/ CCD/
BT/ PC BEEP



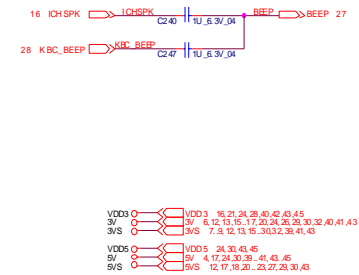
SATA HDD CON



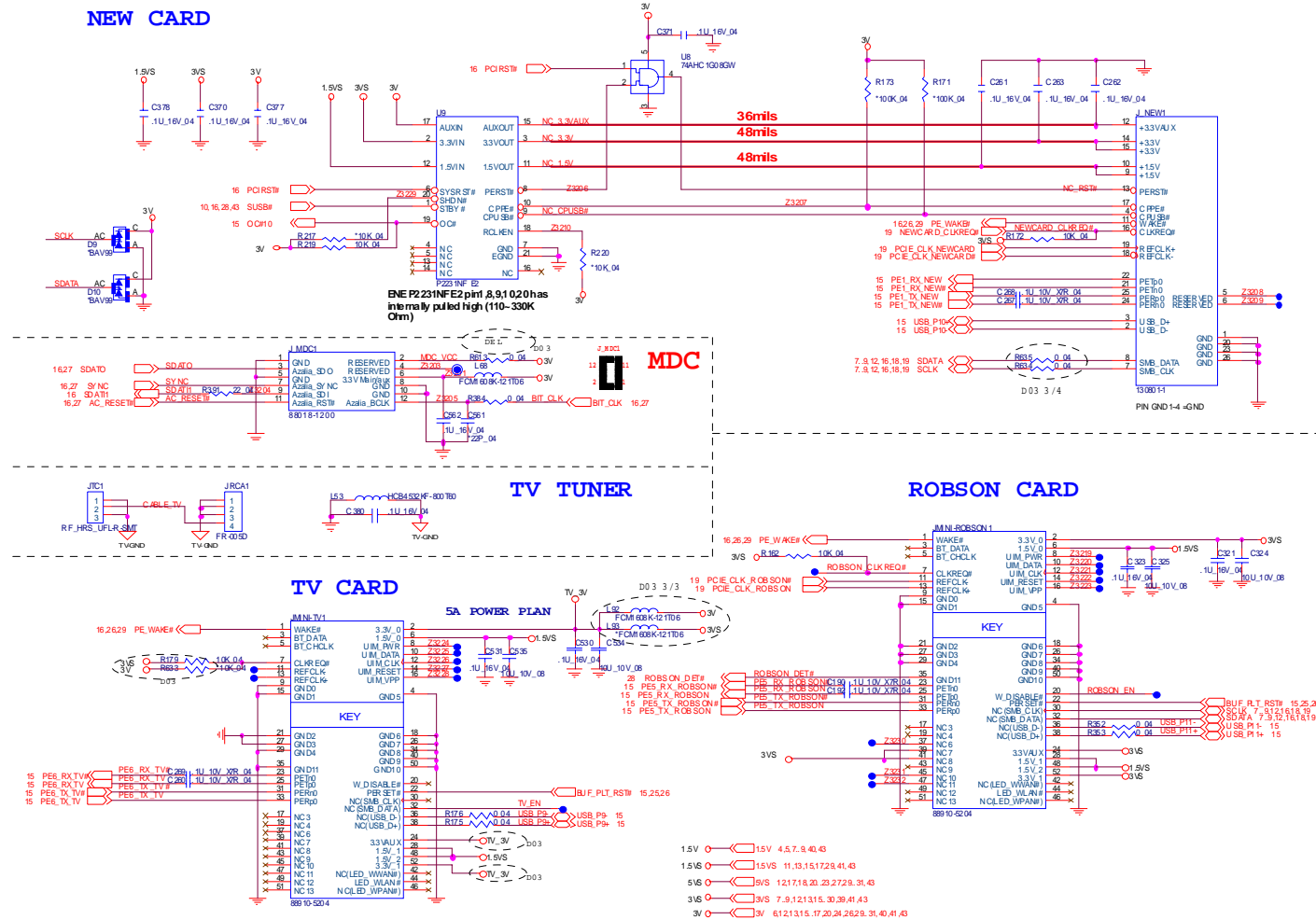
Bluetooth



PC BEEP



New Card/ MDC/ TV/ Robson

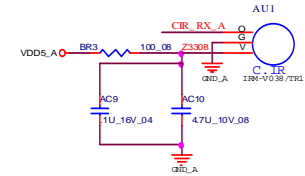
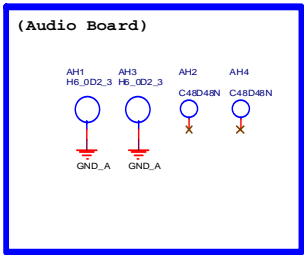
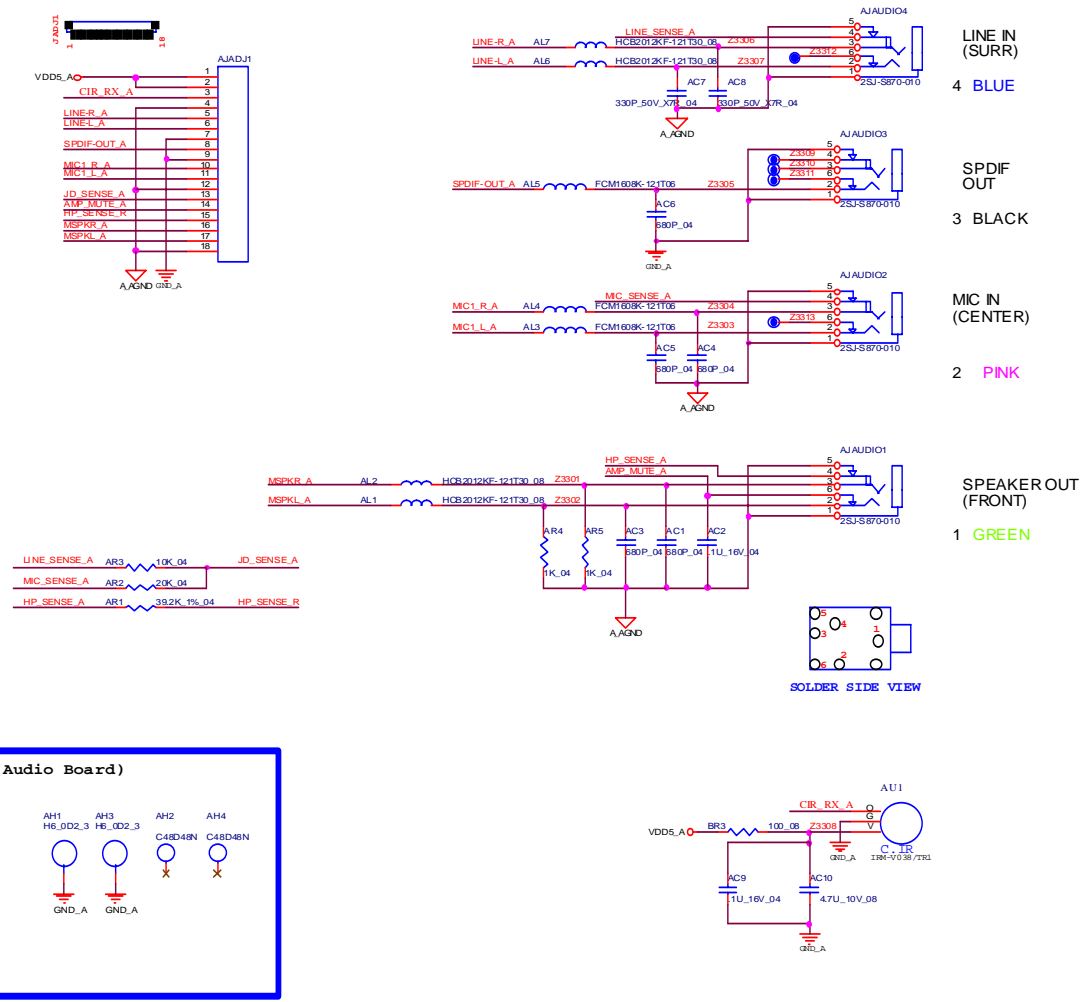


Sheet 32 of 47
New Card/ mDC/
TV/ Robson

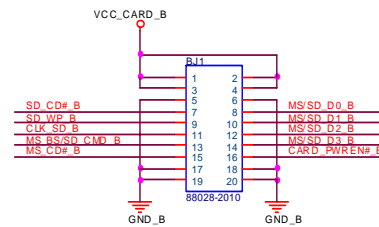
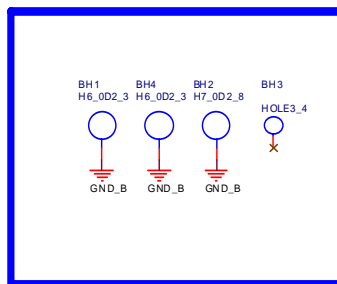
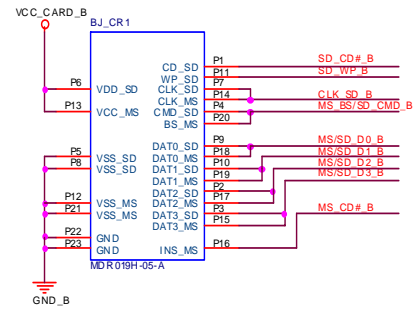
B. Schematic Diagrams

Audio Board

Sheet 33 of 47
Audio Board



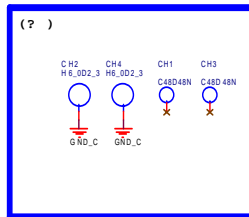
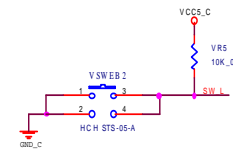
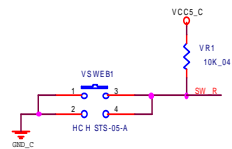
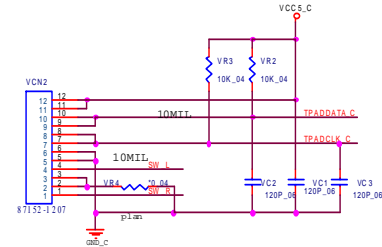
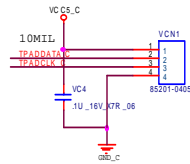
Card Reader Board



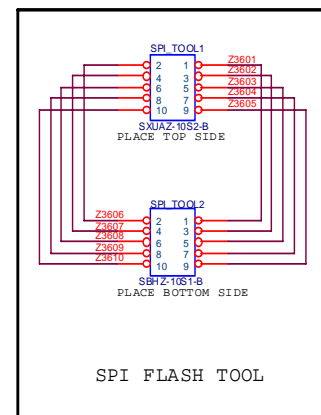
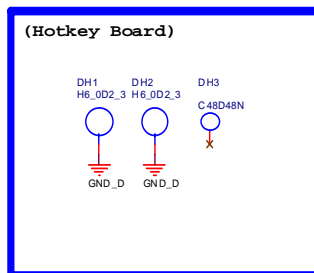
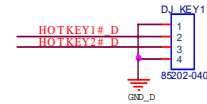
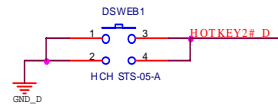
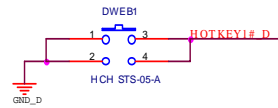
Sheet 34 of 47
Card Reader Board

Click Board

Sheet 35 of 47
Click Board



Hotkey Board



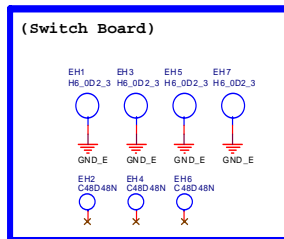
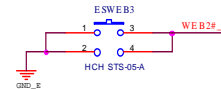
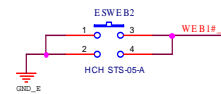
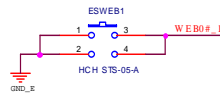
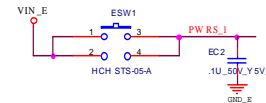
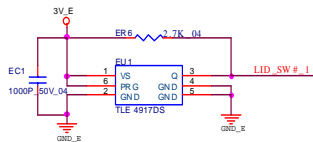
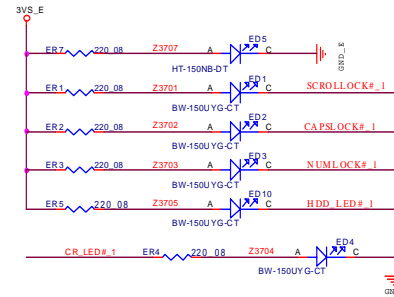
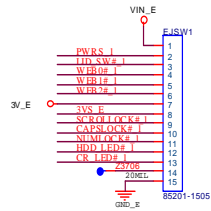
Sheet 36 of 47
Hotkey Board

Schematic Diagrams

Switch Board

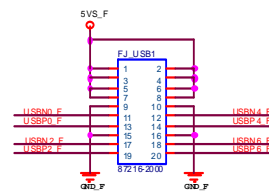
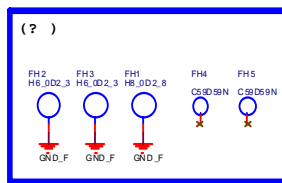
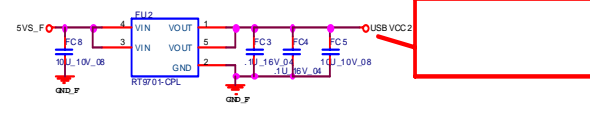
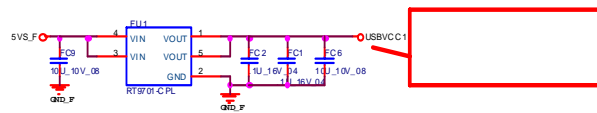
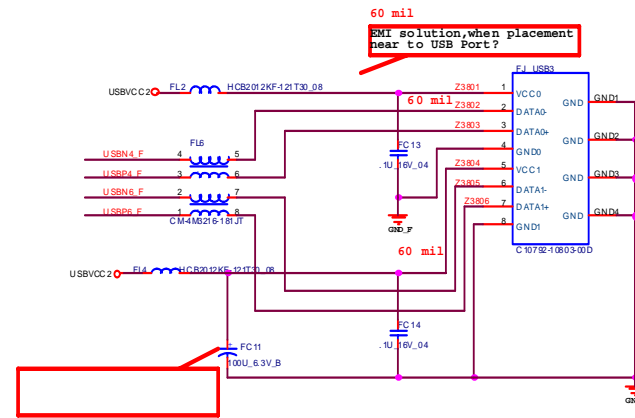
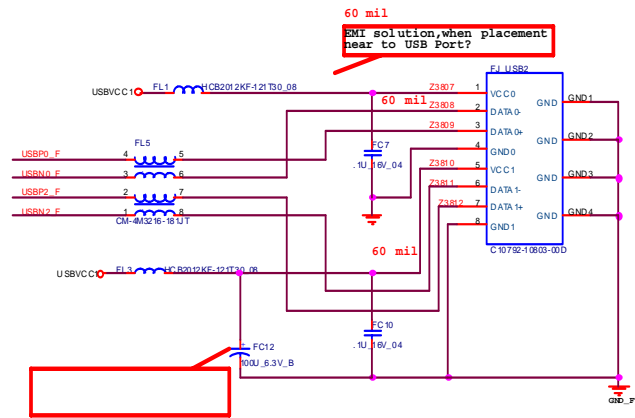
B.Schematic Diagrams

Sheet 37 of 47
Switch Board



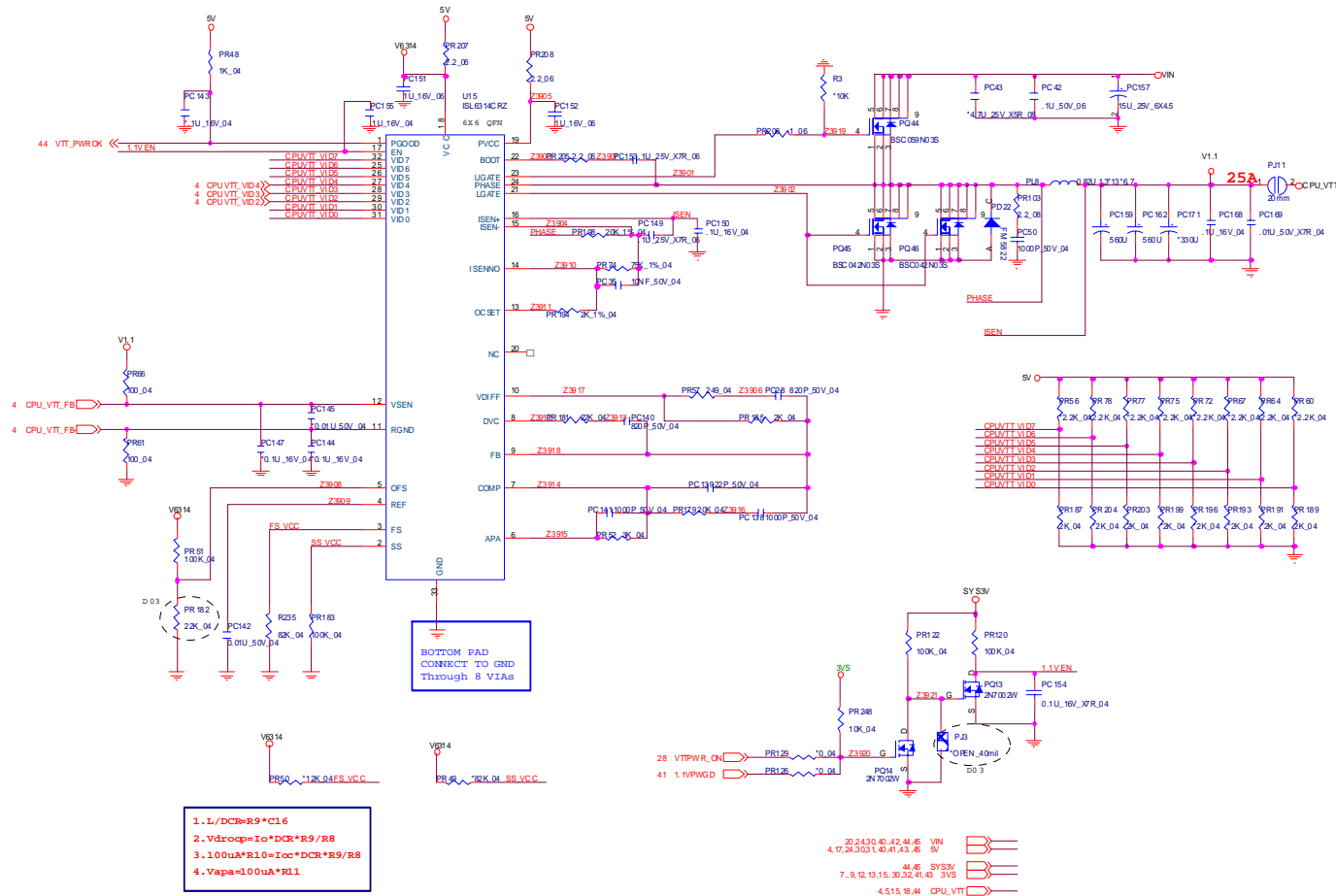
USB Board

Sheet 38 of 47
USB Board



Power CPU_VTT

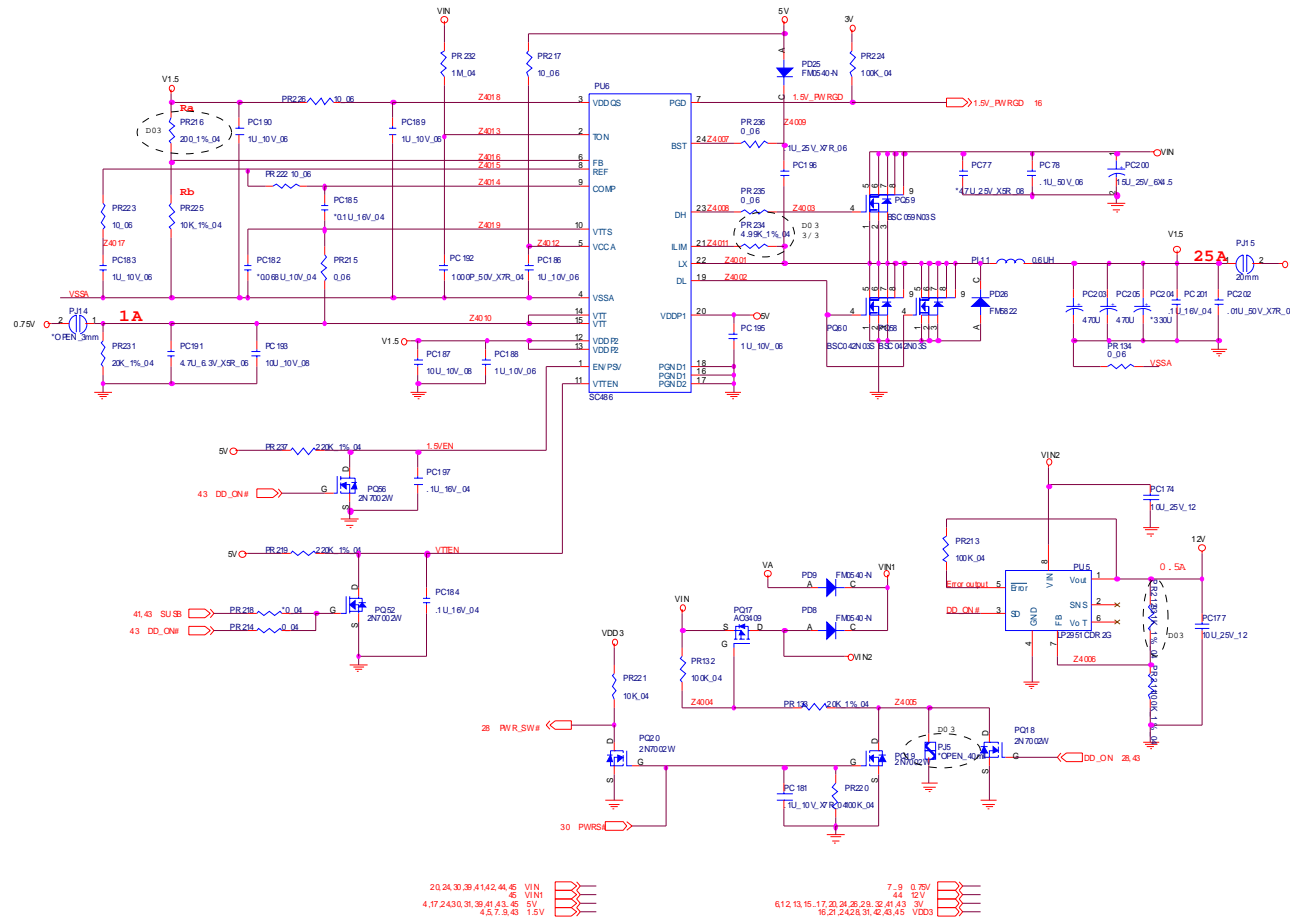
I SL6314CR POWER CKT



Sheet 39 of 47
Power CPU_VTT

Power 1.5V, 0.75VS, 12V

1.5V, 0.75VSM



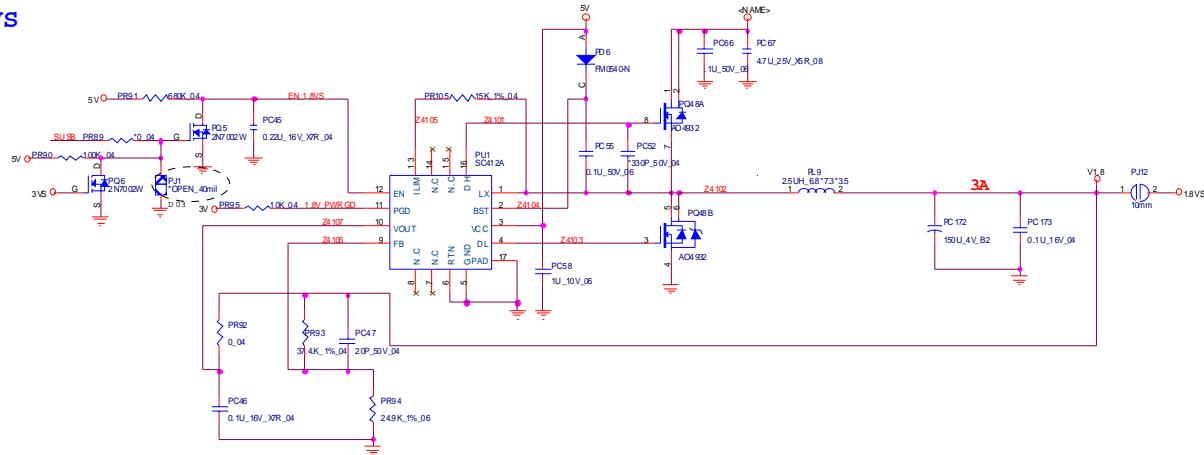
Sheet 40 of 47
Power 1.5V,
0.75VS, 12V

B. Schematic Diagrams

Schematic Diagrams

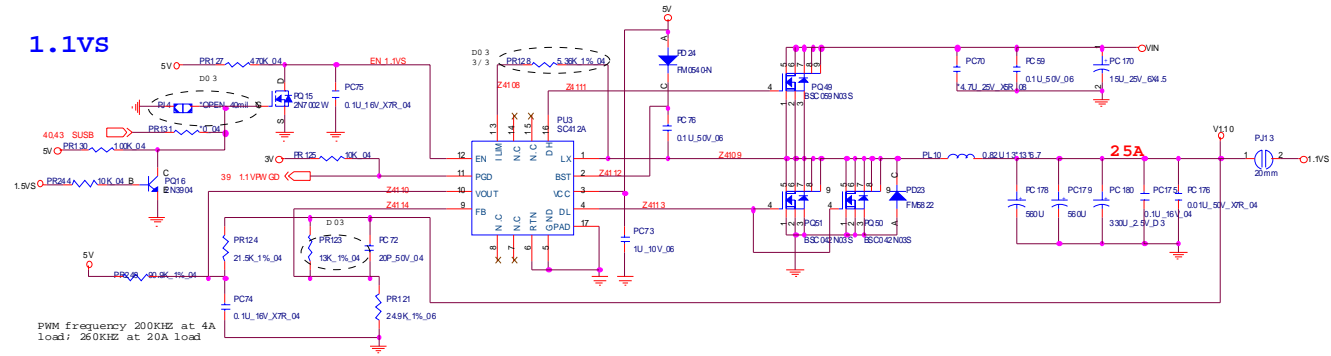
Power 1.8VS, 1.1VS

1.8VS



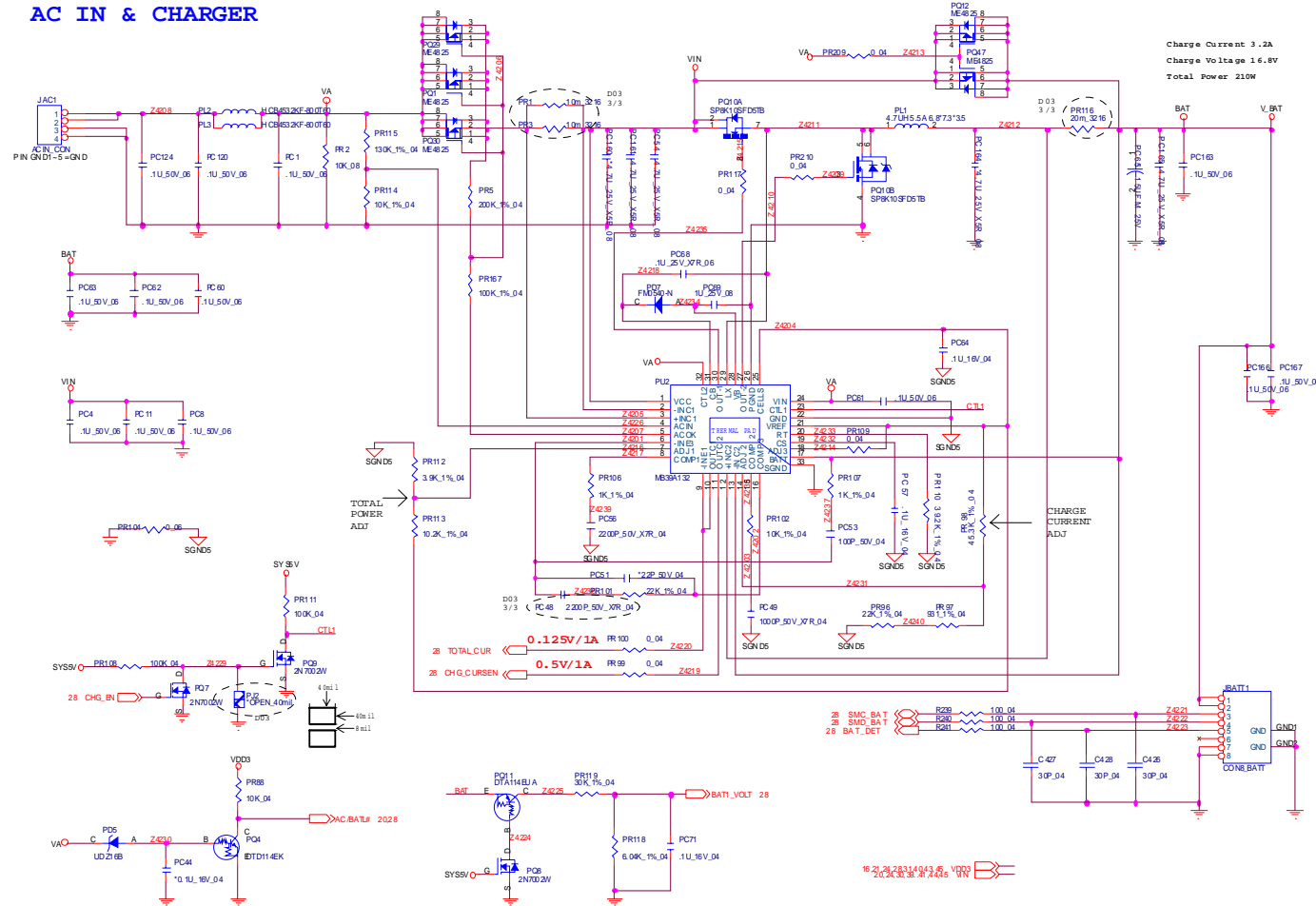
Sheet 41 of 47
Power 1.8VS, 1.1VS

1.1VS



- 11:131517,29,32,43 1.8VS
- 20,28,30,39,40,42,44,45 VN
- 6,12,13,15,17,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,115,116,117,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,134,135,136,137,138,139,140,141,142,143,144,145,146,147,148,149,150,151,152,153,154,155,156,157,158,159,160,161,162,163,164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,188,189,190,191,192,193,194,195,196,197,198,199,200,201,202,203,204,205,206,207,208,209,210,211,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,228,229,230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246,247,248,249,250,251,252,253,254,255,256,257,258,259,260,261,262,263,264,265,266,267,268,269,270,271,272,273,274,275,276,277,278,279,280,281,282,283,284,285,286,287,288,289,290,291,292,293,294,295,296,297,298,299,300,301,302,303,304,305,306,307,308,309,310,311,312,313,314,315,316,317,318,319,320,321,322,323,324,325,326,327,328,329,330,331,332,333,334,335,336,337,338,339,340,341,342,343,344,345,346,347,348,349,350,351,352,353,354,355,356,357,358,359,360,361,362,363,364,365,366,367,368,369,370,371,372,373,374,375,376,377,378,379,380,381,382,383,384,385,386,387,388,389,390,391,392,393,394,395,396,397,398,399,400,401,402,403,404,405,406,407,408,409,410,411,412,413,414,415,416,417,418,419,420,421,422,423,424,425,426,427,428,429,430,431,432,433,434,435,436,437,438,439,440,441,442,443,444,445,446,447,448,449,450,451,452,453,454,455,456,457,458,459,460,461,462,463,464,465,466,467,468,469,470,471,472,473,474,475,476,477,478,479,480,481,482,483,484,485,486,487,488,489,490,491,492,493,494,495,496,497,498,499,500,501,502,503,504,505,506,507,508,509,510,511,512,513,514,515,516,517,518,519,520,521,522,523,524,525,526,527,528,529,530,531,532,533,534,535,536,537,538,539,540,541,542,543,544,545,546,547,548,549,550,551,552,553,554,555,556,557,558,559,560,561,562,563,564,565,566,567,568,569,570,571,572,573,574,575,576,577,578,579,580,581,582,583,584,585,586,587,588,589,590,591,592,593,594,595,596,597,598,599,600,601,602,603,604,605,606,607,608,609,610,611,612,613,614,615,616,617,618,619,620,621,622,623,624,625,626,627,628,629,630,631,632,633,634,635,636,637,638,639,640,641,642,643,644,645,646,647,648,649,650,651,652,653,654,655,656,657,658,659,660,661,662,663,664,665,666,667,668,669,670,671,672,673,674,675,676,677,678,679,680,681,682,683,684,685,686,687,688,689,690,691,692,693,694,695,696,697,698,699,700,701,702,703,704,705,706,707,708,709,710,711,712,713,714,715,716,717,718,719,720,721,722,723,724,725,726,727,728,729,730,731,732,733,734,735,736,737,738,739,740,741,742,743,744,745,746,747,748,749,750,751,752,753,754,755,756,757,758,759,760,761,762,763,764,765,766,767,768,769,770,771,772,773,774,775,776,777,778,779,780,781,782,783,784,785,786,787,788,789,790,791,792,793,794,795,796,797,798,799,800,801,802,803,804,805,806,807,808,809,810,811,812,813,814,815,816,817,818,819,820,821,822,823,824,825,826,827,828,829,830,831,832,833,834,835,836,837,838,839,840,841,842,843,844,845,846,847,848,849,850,851,852,853,854,855,856,857,858,859,860,861,862,863,864,865,866,867,868,869,870,871,872,873,874,875,876,877,878,879,880,881,882,883,884,885,886,887,888,889,890,891,892,893,894,895,896,897,898,899,900,901,902,903,904,905,906,907,908,909,910,911,912,913,914,915,916,917,918,919,920,921,922,923,924,925,926,927,928,929,930,931,932,933,934,935,936,937,938,939,940,941,942,943,944,945,946,947,948,949,950,951,952,953,954,955,956,957,958,959,960,961,962,963,964,965,966,967,968,969,970,971,972,973,974,975,976,977,978,979,980,981,982,983,984,985,986,987,988,989,990,991,992,993,994,995,996,997,998,999,1000
- 7,8,12,13,15,30,32,39,43 3VS
- 513 1.8VS
- 10,13,17,18,43 1.1VS
- 43 1.8V_PVRGD

Power AC_In, Charge

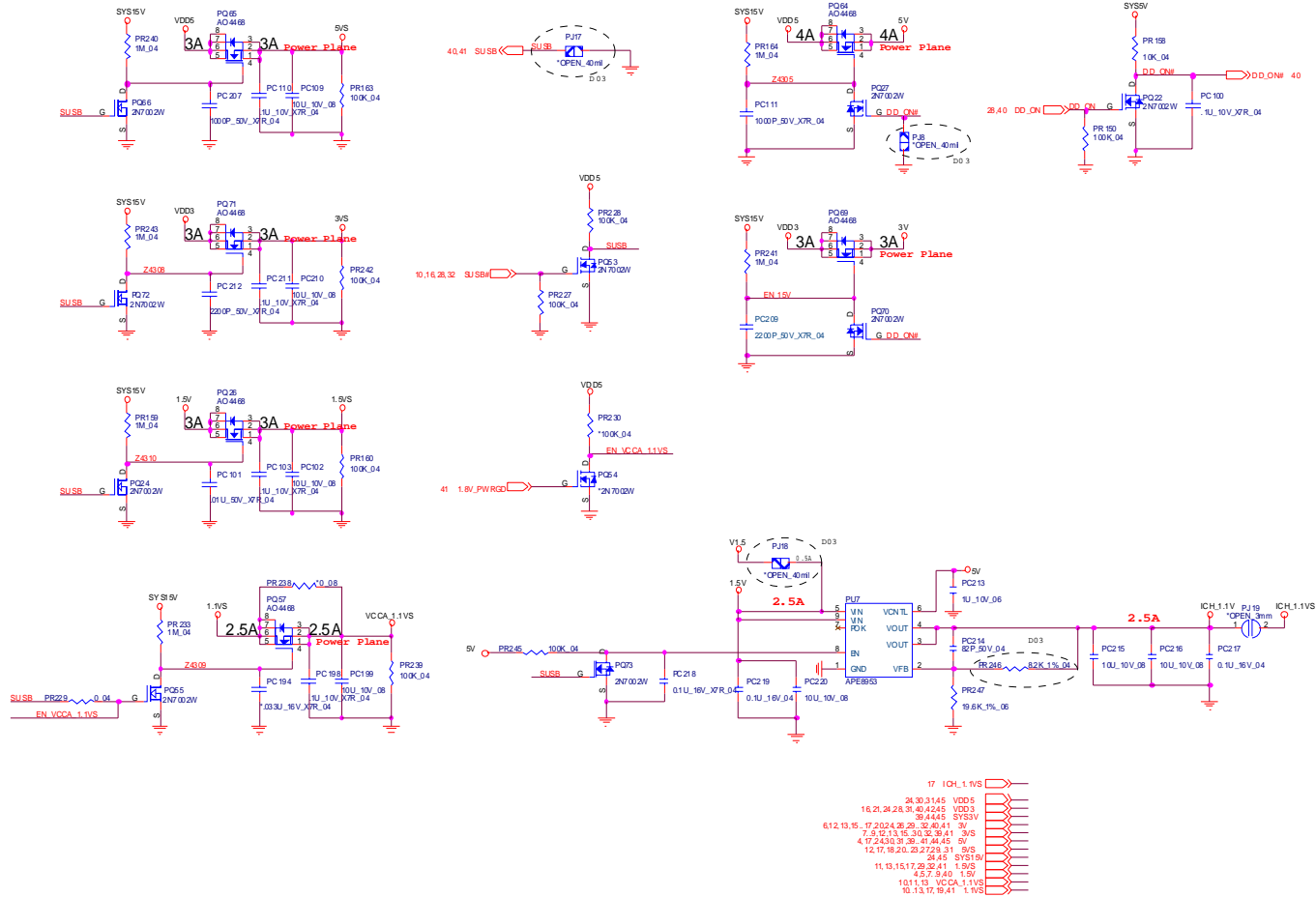


Sheet 42 of 47
Power AC_In,
Charge

B.Schematic Diagrams

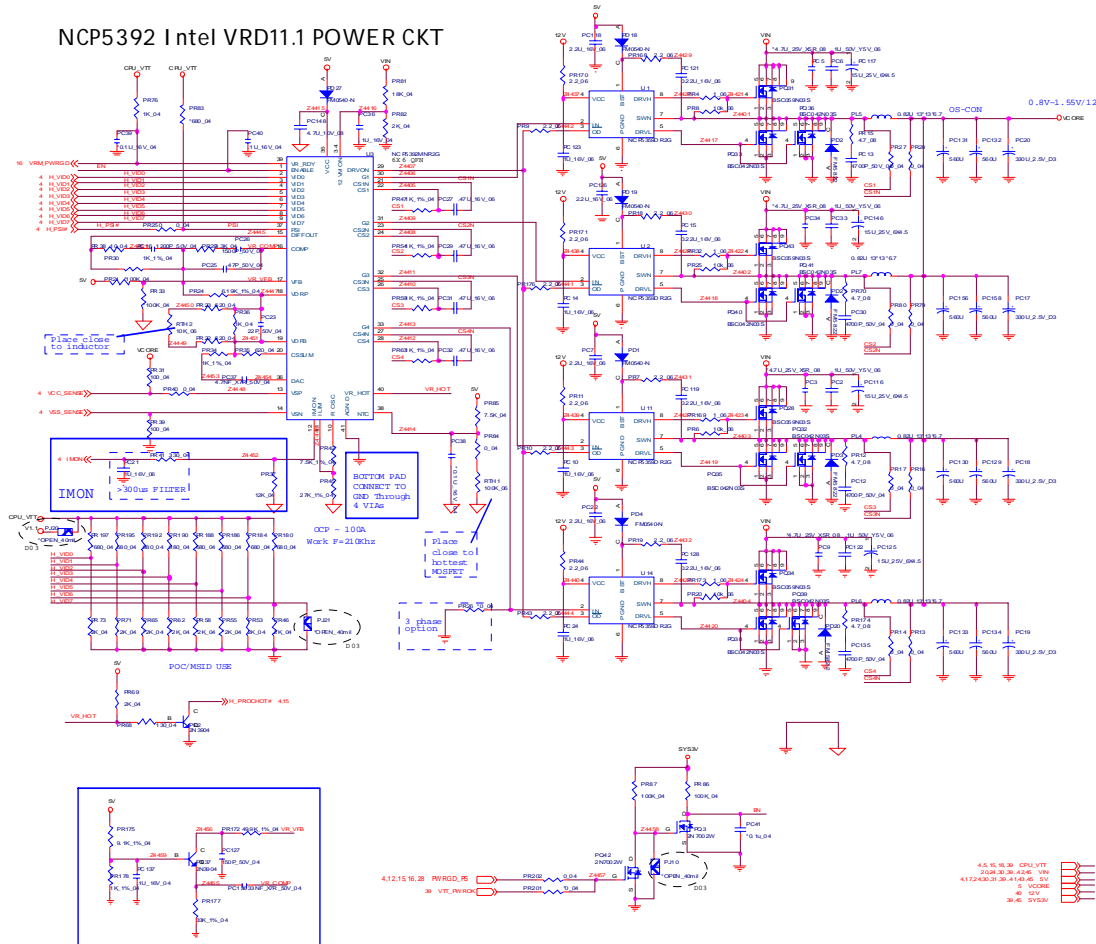
Power Switch, ICH_1.1VS

Sheet 43 of 47
Power Switch,
ICH_1.1VS



Power VCORE

NCP5392 Intel VRD11.1 POWER CKT

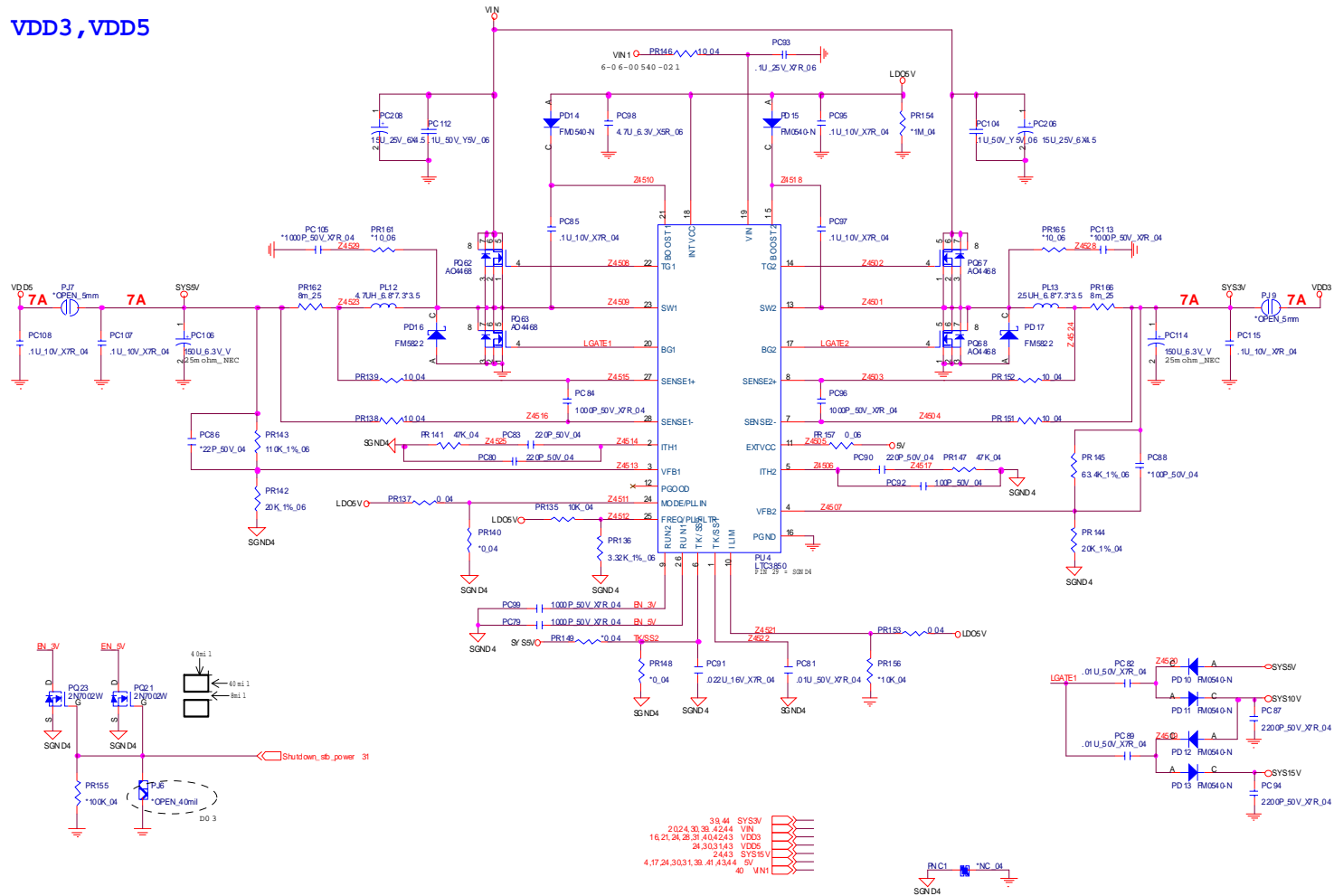


Sheet 44 of 47
Power VCORE

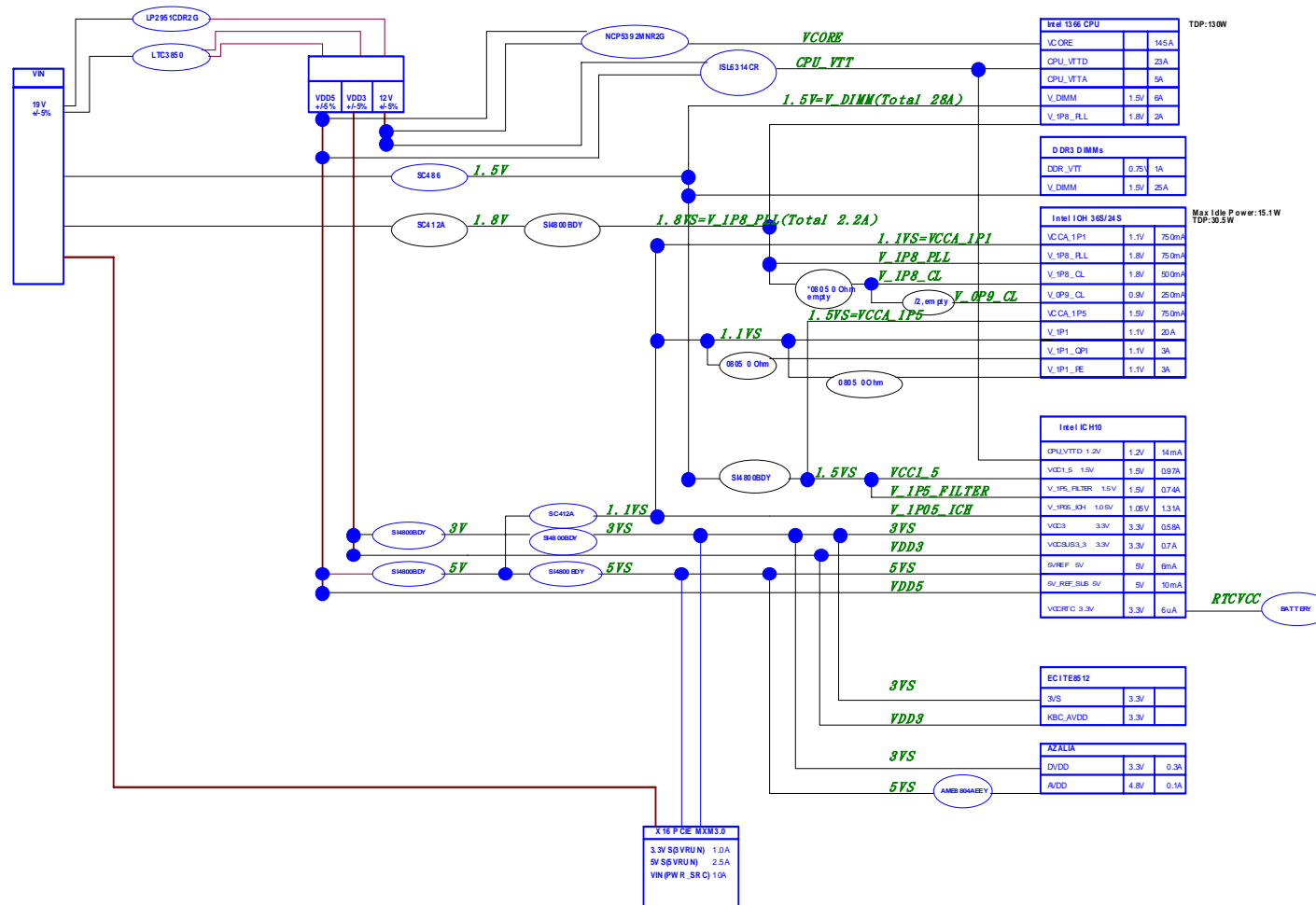
B. Schematic Diagrams

Power VDD3, VDD5

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Power VDD3, VDD5



Power Delivery Chart



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Power Delivery
Chart

