

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 20V, 11A).

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

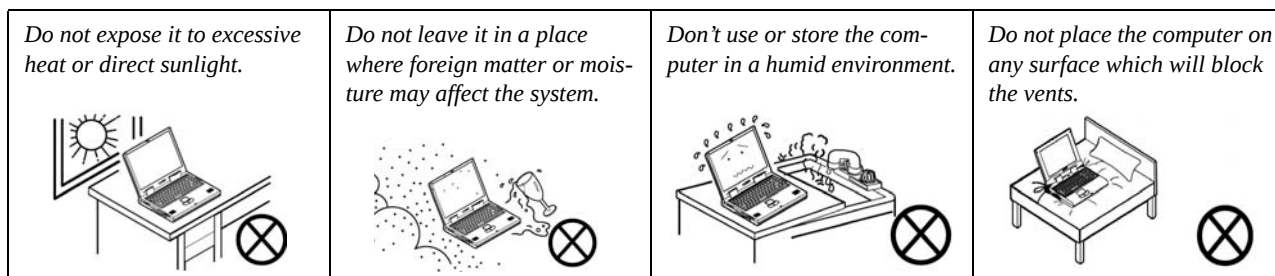
Instructions for Care and Operation

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

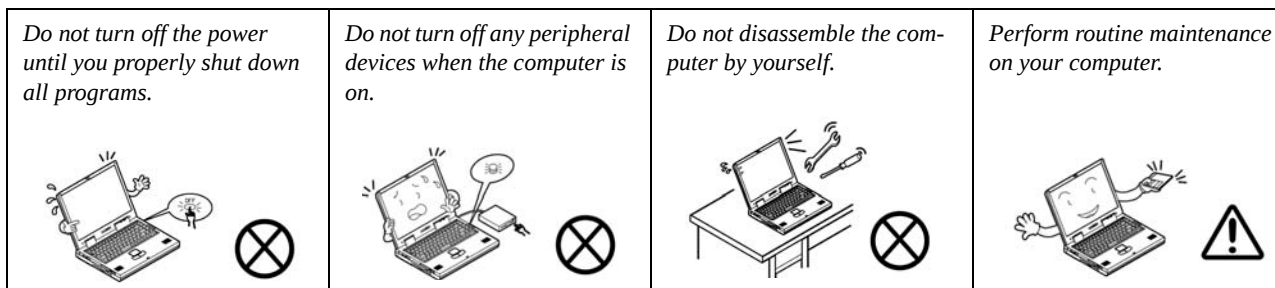
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



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.

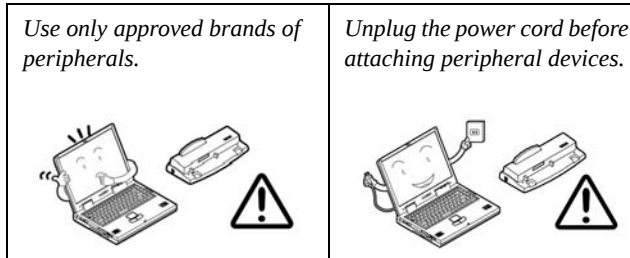


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



Preface

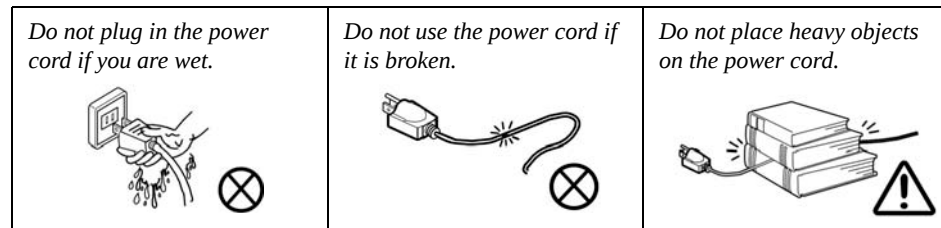
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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 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 Guidelines

The following can also apply to any backup batteries you may have.

- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- Before removing the battery for storage charge it to 60% - 70%.
- Check stored batteries at least every 3 months and charge them to 60% - 70%.



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.

Battery Level

Click the battery icon  in the taskbar to see the current battery level and charge status. A battery that drops below a level of 10% will not allow the computer to boot up. Make sure that any battery that drops below 10% is recharged within one week.

Preface

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

Storage
Up to three (Option) Changeable 2.5" 9.5 mm (h) SATA (Serial) Hard Disk Drives supporting RAID level 0/1/5 One 12.7 mm Super Multi/Blu-Ray SATA Optical Device Drive (Option)
Pointing Device
Built-in TouchPad (scrolling key functionality integrated)
Keyboard
"WinKey" keyboard (with embedded numeric keypad) Three Instant Keys (WWW, e-mail, Application)
Audio
High Definition Audio Compliant Interface Compliant with Microsoft UAA (Universal Audio Architecture) S/PDIF Digital Output Supports 5.1 Channel Analog Outputs 4 * Built-In Speakers Built-In Microphone
Slots
One ExpressCard/34/54 Slot Three Mini Card Slots: • Slot 1 for PCIe WLAN Module • Slot 2 for USB TV Tuner Module
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

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)

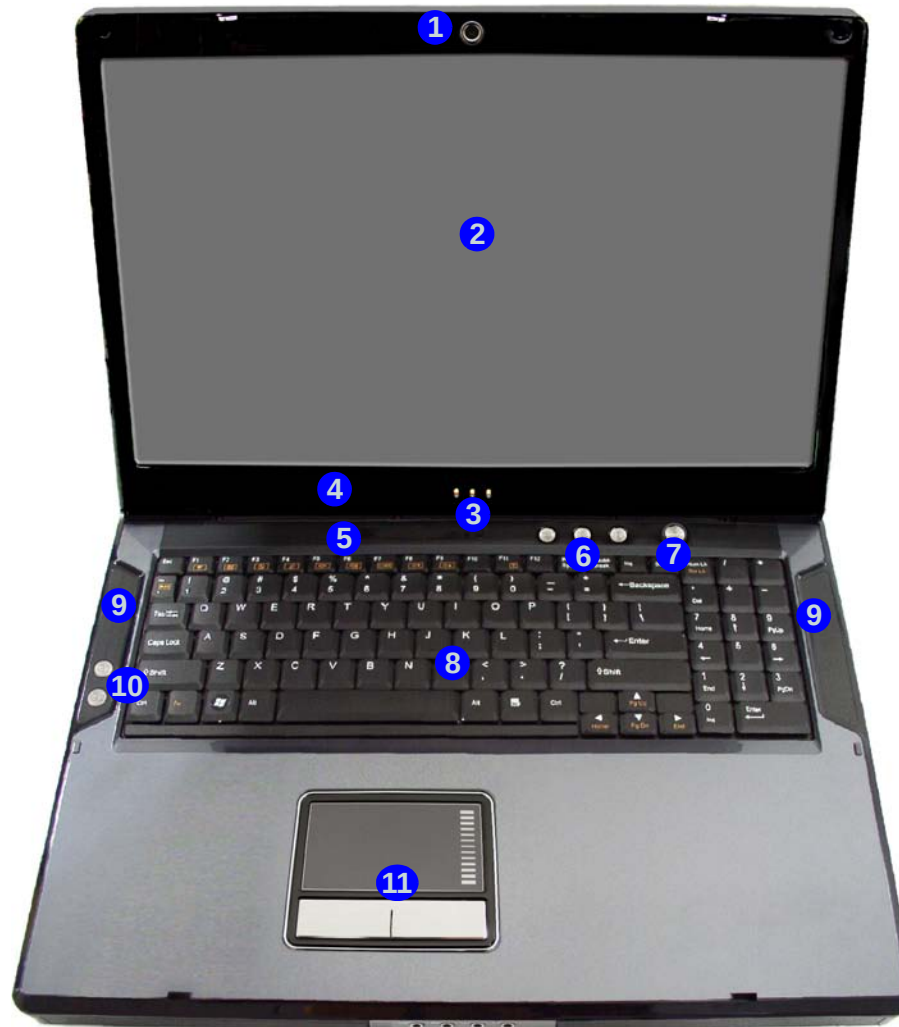
Operating System
Windows Vista Home Premium/ Business/ Enterprise/ Ultimate Note that the TV Tuner module (factory) option in Windows Vista is supported by the Windows Media Center software which comes built-in to the Windows Vista Home Premium and Ultimate Editions only .
Power
Full Range AC/DC Adapter 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

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 - Top View with LCD Panel Open



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

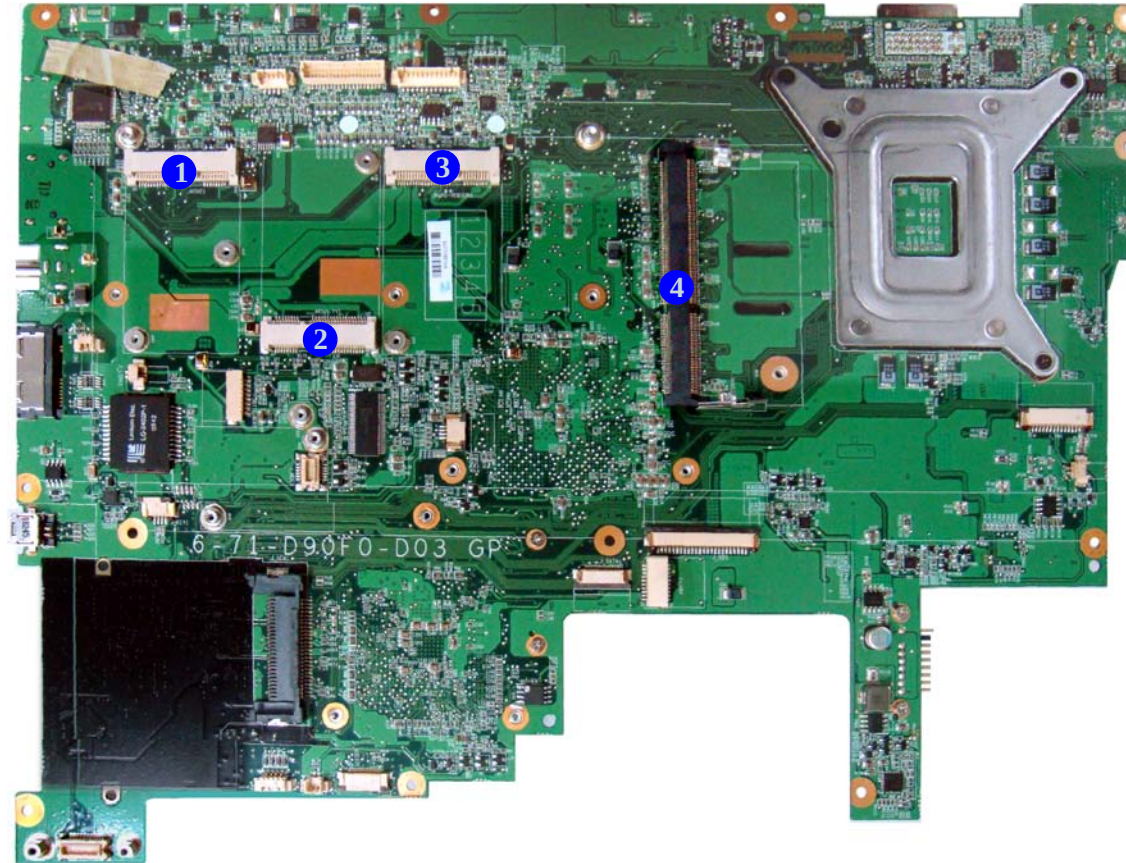
To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

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)
4. Memory Slots
DDR3 So-DIMM

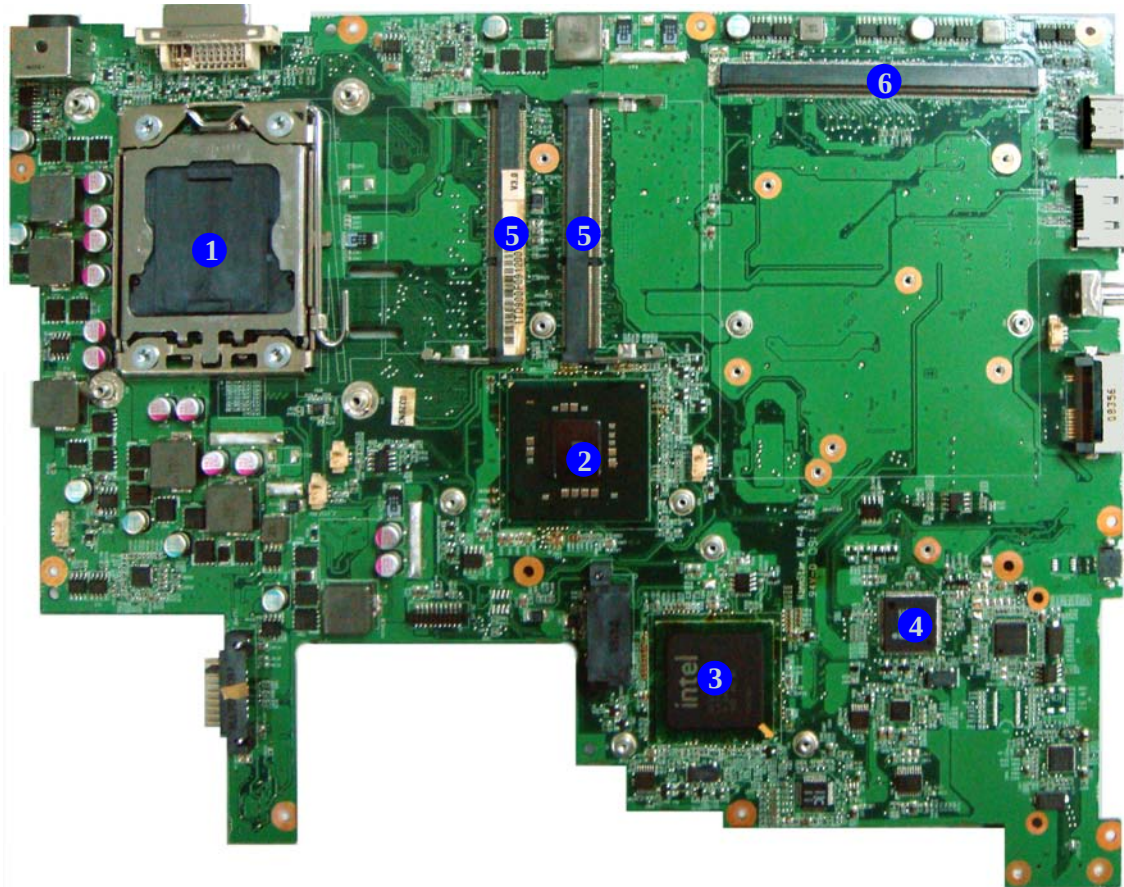
Mainboard Overview - Top (Key Parts)



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
DDR3 So-DIMM
6. VGA Socket

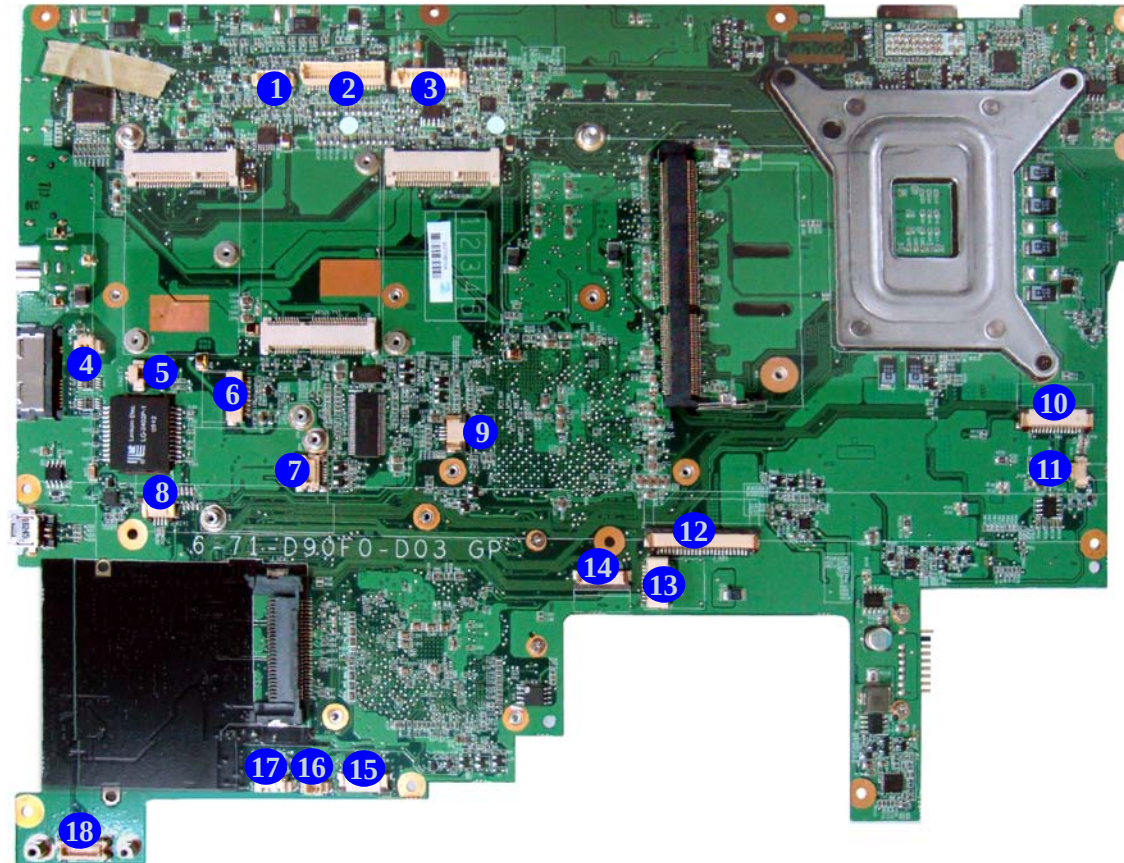


Introduction

Figure 9
**Mainboard Top
Connectors**

Mainboard Overview - Top (Connectors)

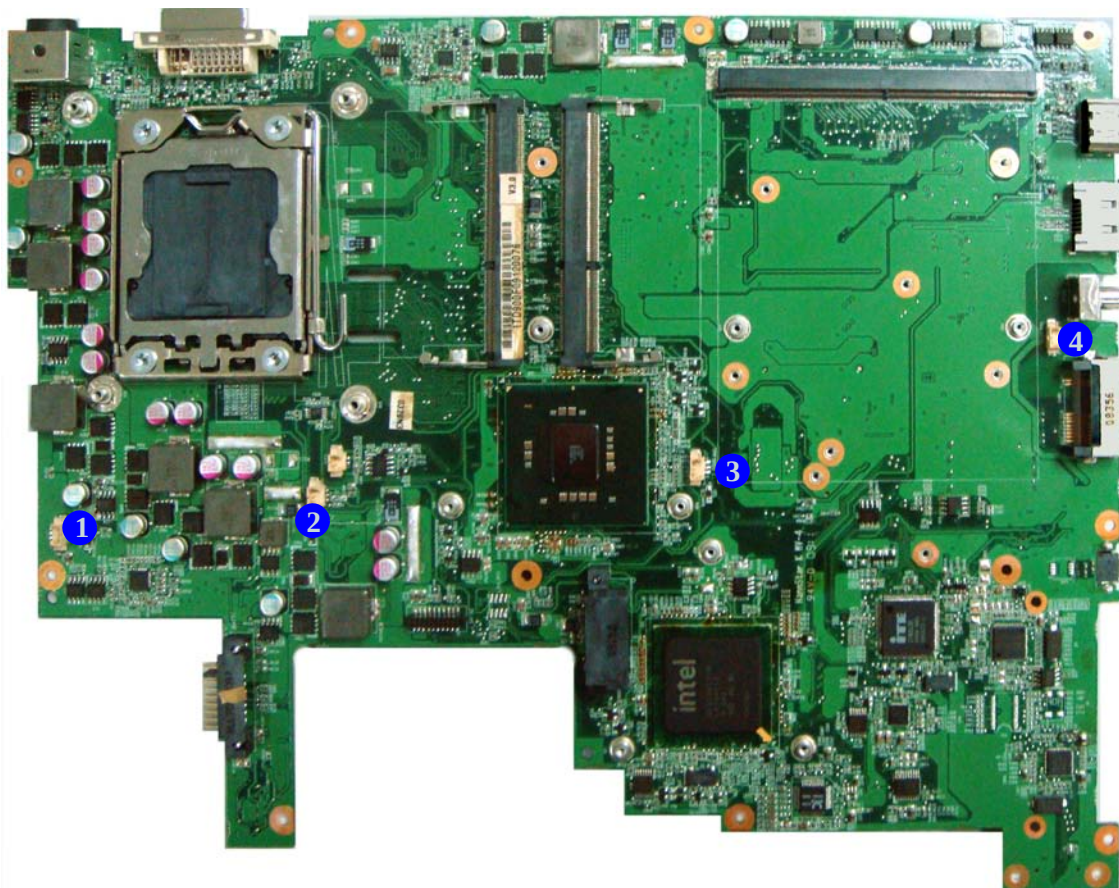
1. CCD Cable Connector
2. LCD Cable Connector
3. Inverter Connector
4. Modem Cable Connector
5. Left SPK Connector
6. Bluetooth Module Connector
7. MDC Module Connector
8. Game Key Cable Connector
9. Touch Pad Connector
10. Power Button Connector
11. Right SPK Connector
12. Keyboard Cable Connector
13. USB Cable Connector
14. Secondary HDD Connector
15. Audio Cable Connector
16. RTC Battery Connector
17. SPK Sub Cable Connector
18. 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.


Information
Warning

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-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.

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](#)

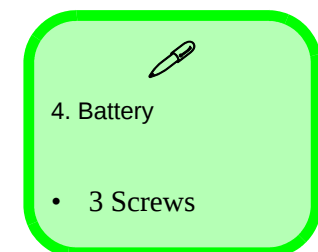
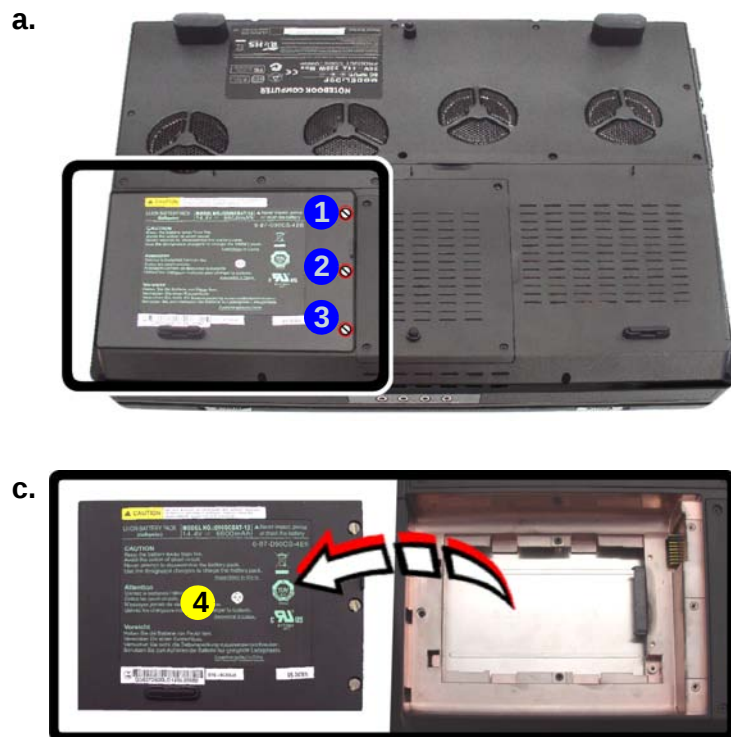
Removing the Battery

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

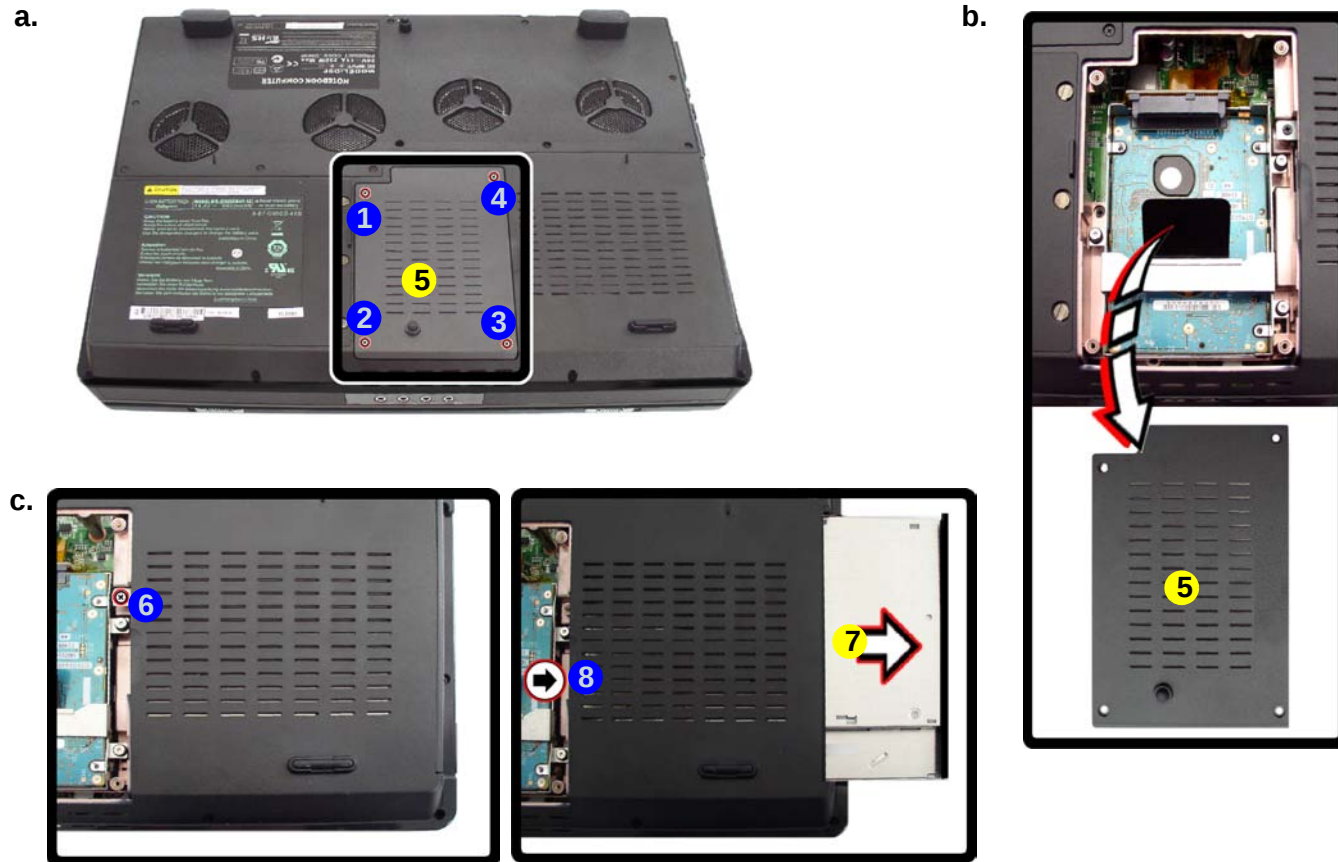
Disassembly

Figure 2
**Optical Device
Removal**

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

Removing the Optical (CD/DVD) Device

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, and remove the bay cover ⑤.
3. Remove screw ⑥.
4. Use the screwdriver to push the optical device ⑦ out of the computer at point ⑧.
5. Reverse the process to install the new device.



5. Hard Disk Bay Cover
7. Optical Device

- 5 Screws

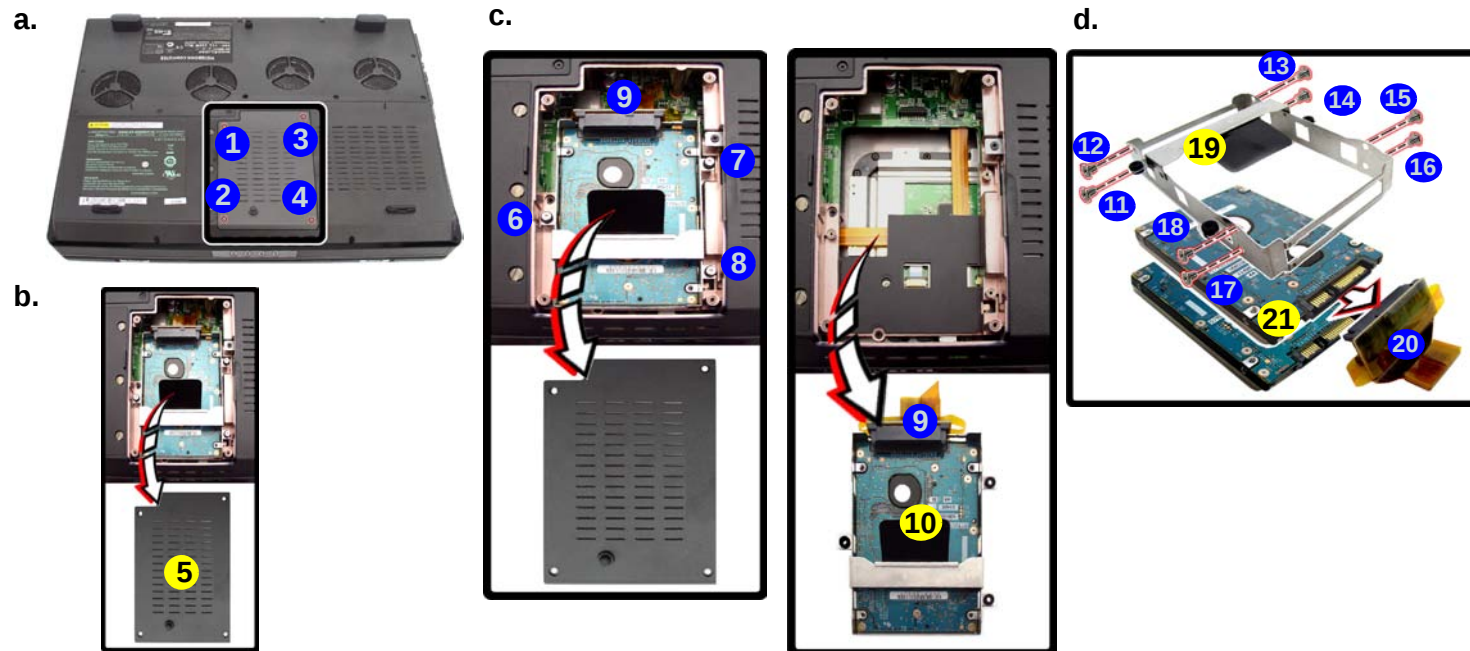
Removing the Hard Disk Drive

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).

- a. Remove the screws.
- b. Remove the cover
- c. Release the cable and lift the hard disk assembly up out off 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

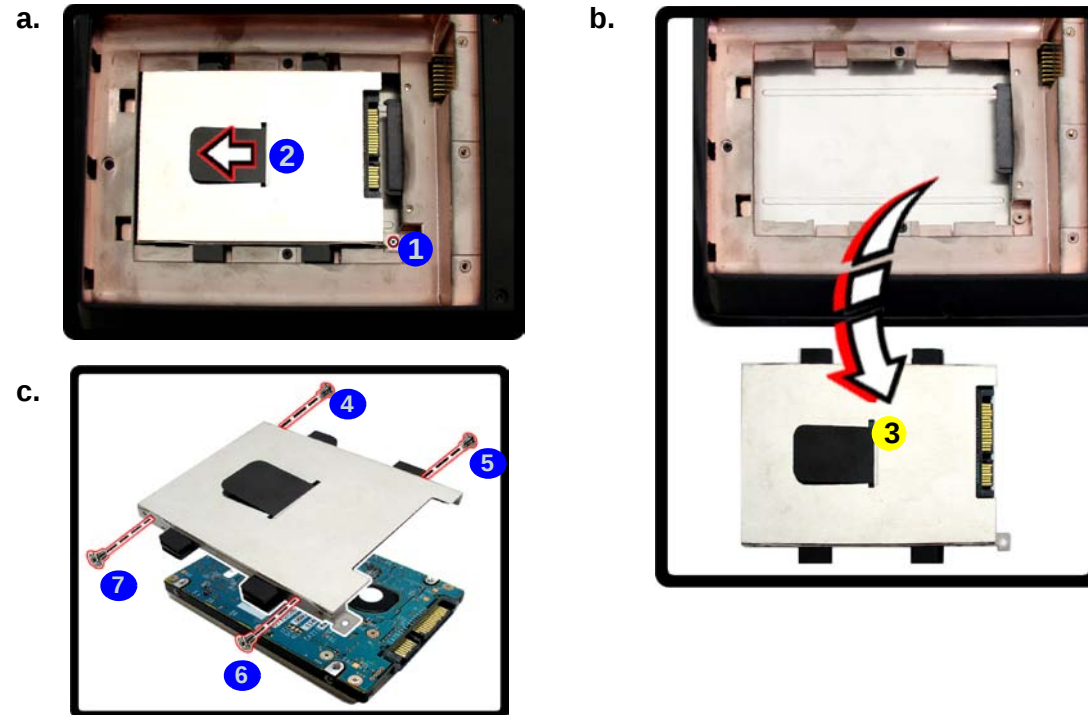
Disassembly

Figure 4 Secondary HDD Assembly Removal

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

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

1. Turn **off** the computer, and turn it over and remove the battery.
2. The secondary hard disk bay is located under the battery compartment.
3. Remove screw ①.
4. Slide the hard disk assembly in the direction of the arrow ②.
5. Lift the hard disk assembly ③ out of the compartment.
6. 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.

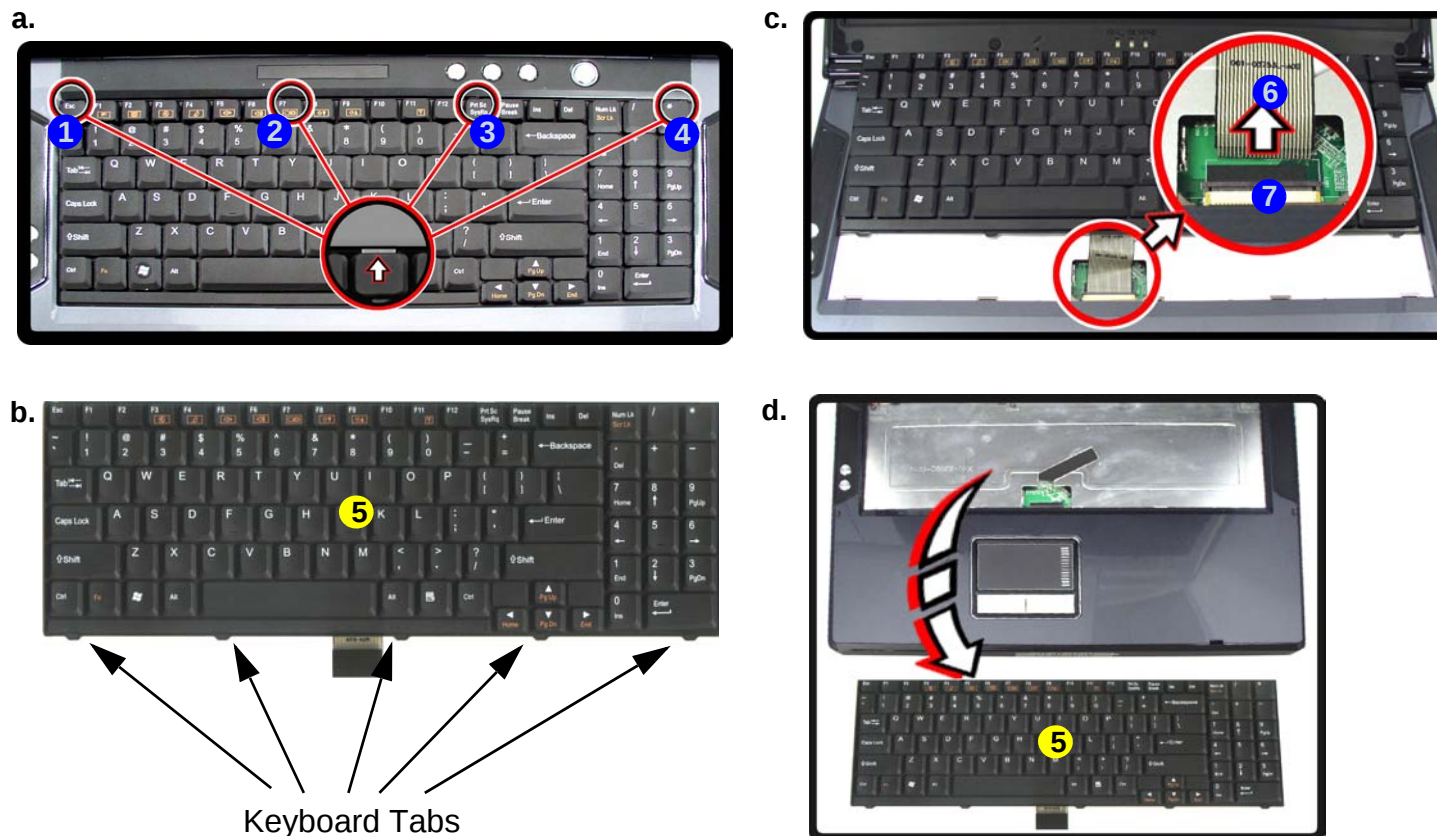


Figure 5
Keyboard Removal

- 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.



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

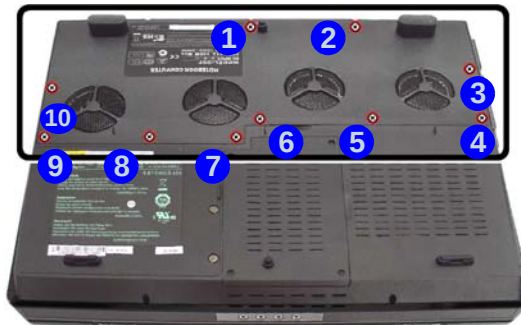
Removing the System Memory (RAM)

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) DDR III (DDR3) supporting 1066/1333 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.

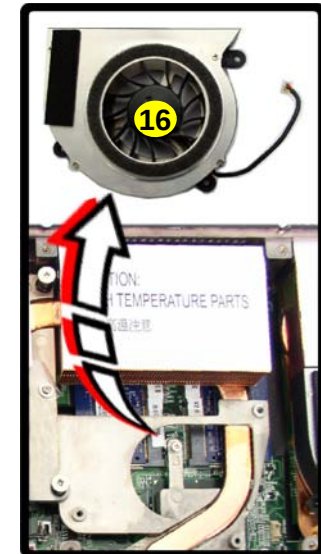
a.



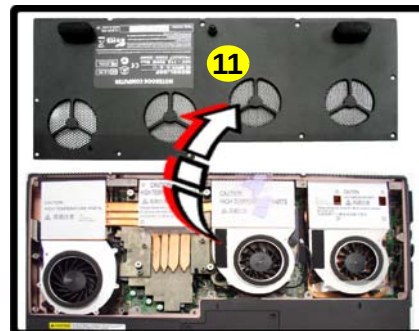
c.



d.



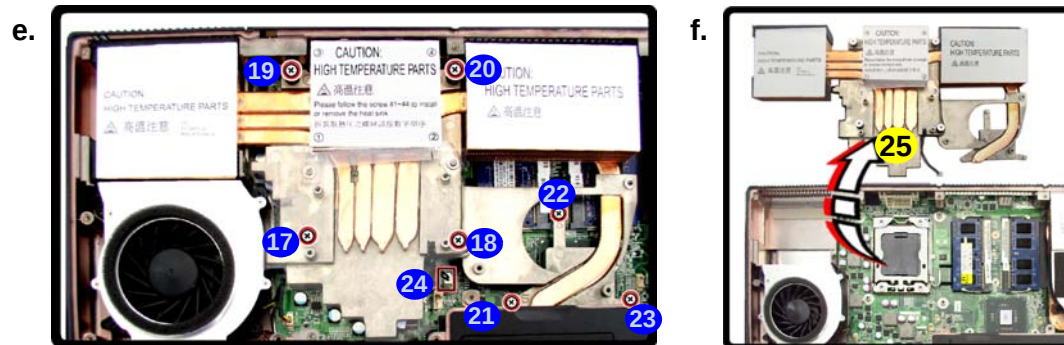
B.



RAM Module Speeds

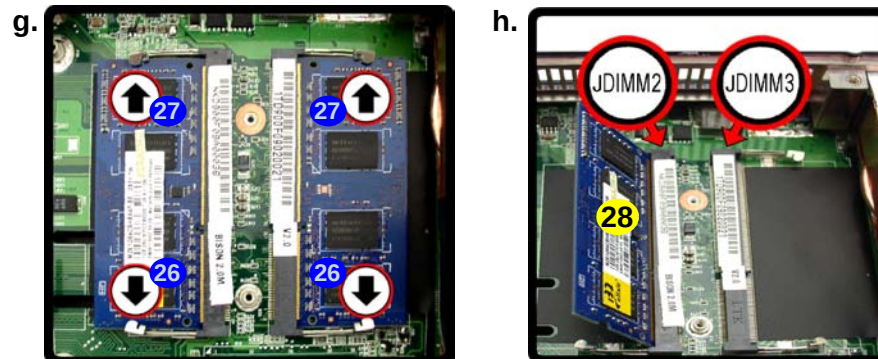
Use either 1066MHz **OR** 1333MHz DDRIII (DDR3) modules of the same brand. Do not mix DRAM speeds/brands in order to prevent unexpected system behavior.

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**.



- 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).

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.

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.

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.

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.



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.



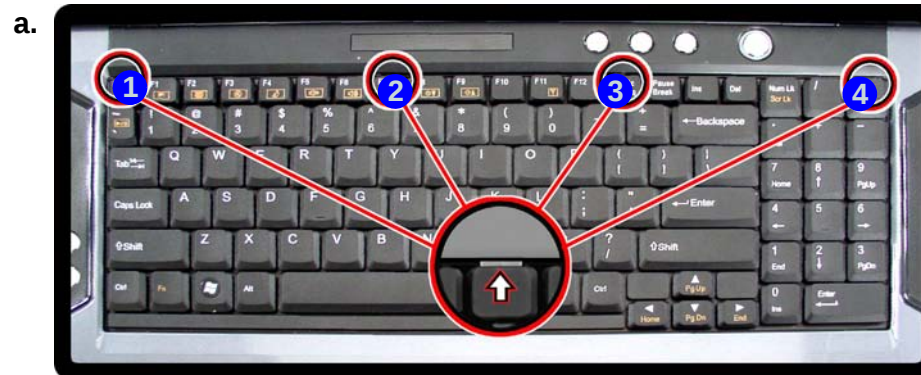
8. Keyboard Plate

- 2 Screws

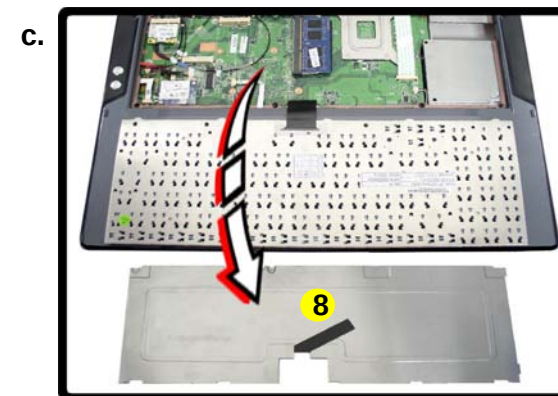
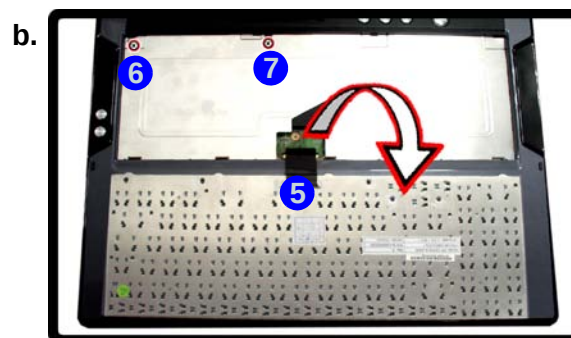
Upgrading a Third System Memory (RAM) Module

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

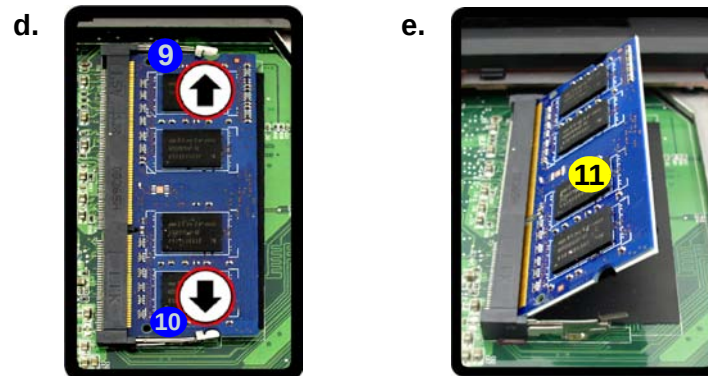
- Turn **off** the computer, and turn it over and remove the battery.
- Turn the computer back over to access the keyboard.
- Press the **four** keyboard latches **1** - **4** at the top of the keyboard to elevate the keyboard from its normal position (you may need to use a small screwdriver or pair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



6. 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**
7. The RAM module 11 will pop-up, and you can remove it.



8. Pull the latches to release the second module if necessary.
9. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory socket.
10. 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.
11. Press the module in and down towards the mainboard until the socket levers click into place to secure the module.
12. Replace the keyboard plate, screws and keyboard.
13. 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.)

- d. Pull the release latch(es).
- e. 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

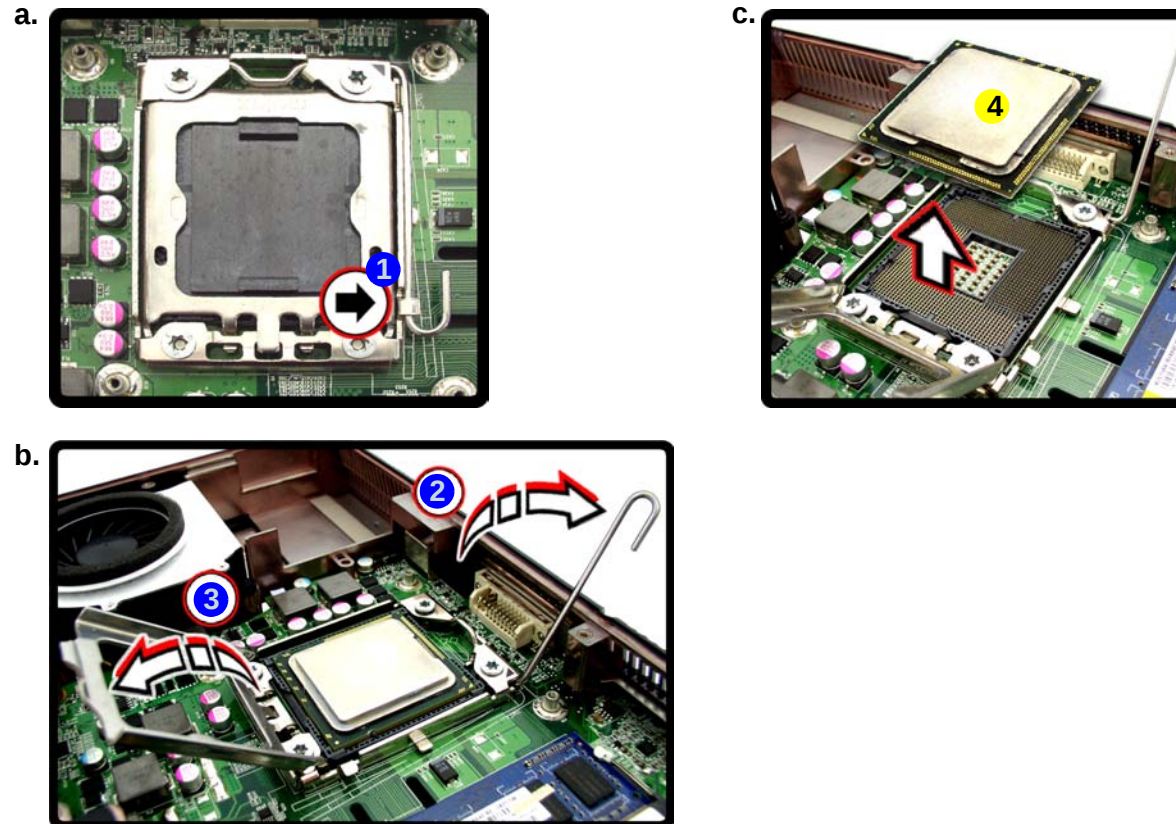
Figure 10

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

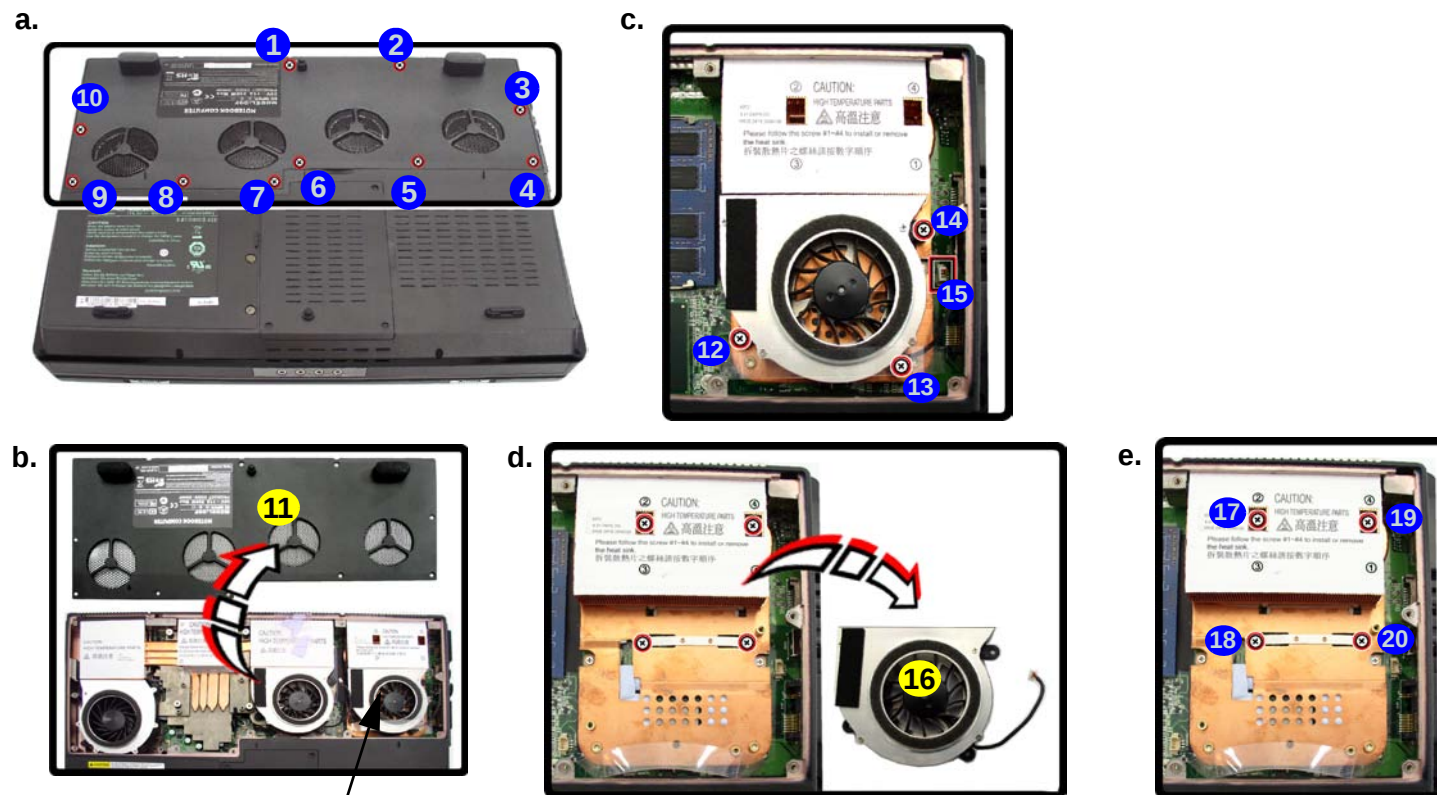
The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.



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.



VGA Card Fans

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.

11. Bay Cover
20. VGA card fan

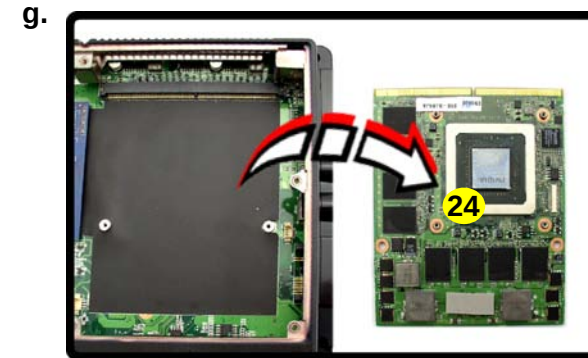
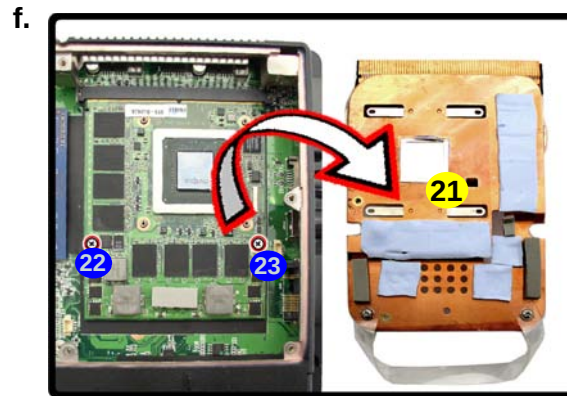
- 17 Screws

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

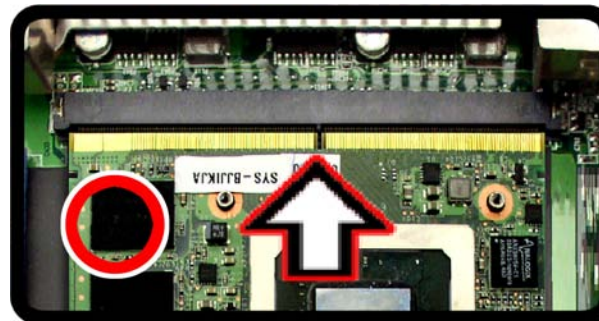
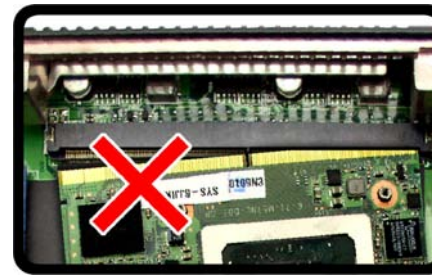
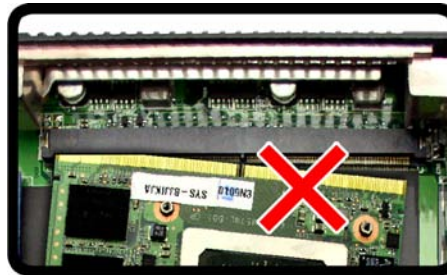
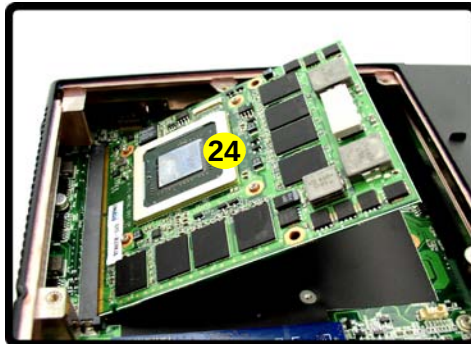
Installing the VGA Card

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 screws **22** & **23** (*Figure 12f on page 2 - 16*).
7. Place the heatsink **21** 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.



24. VGA card Module

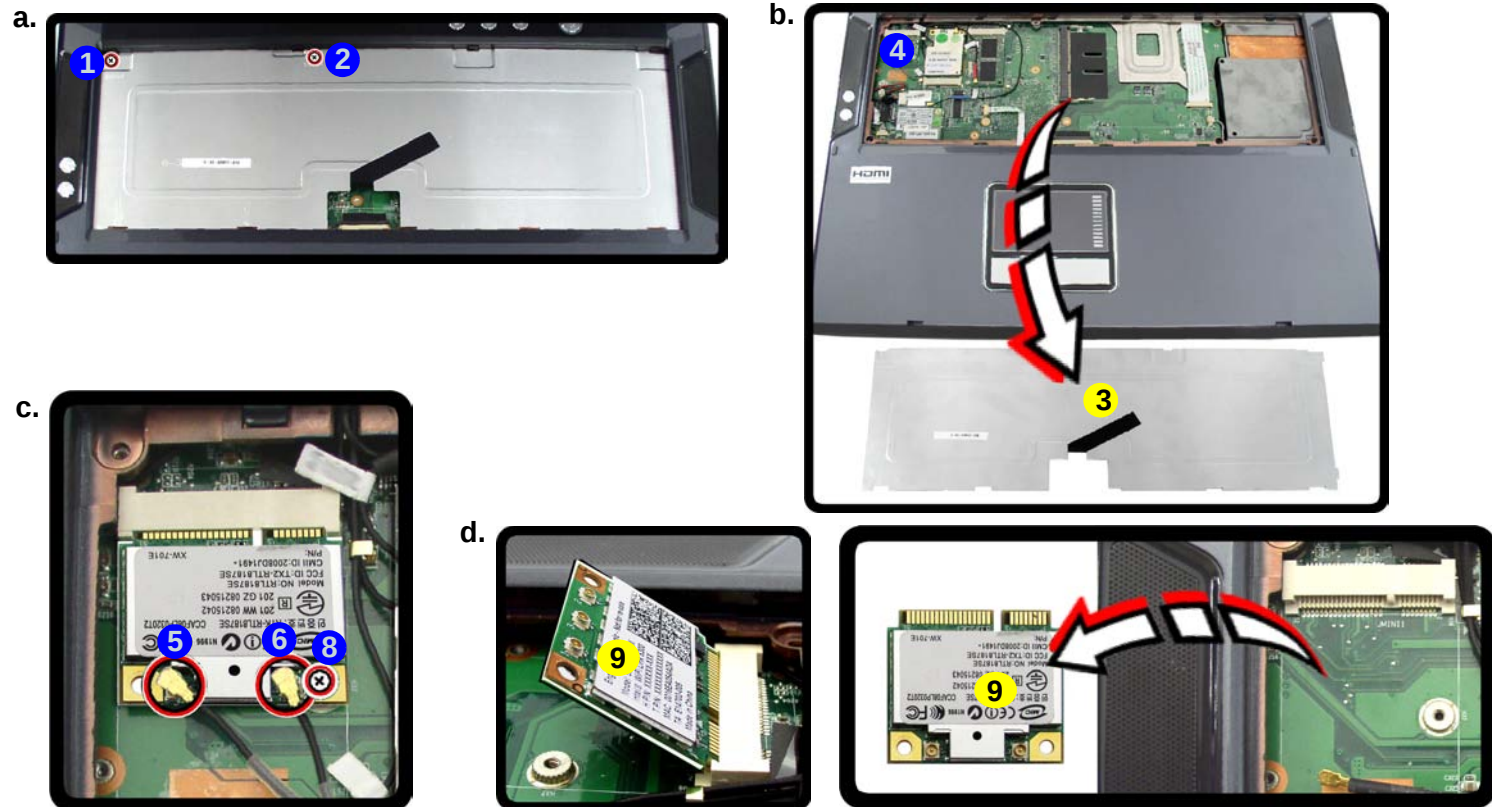
Disassembly

Figure 14
Wireless LAN
Module Removal

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

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 the cables ⑤ - ⑥ () ⑥ - ⑦ () accordingly and remove the screw ⑧.
- The Wireless LAN Module ⑨ ([Figure c](#)) will pop-up, and you can remove it.



- Keyboard Shielding
- 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.

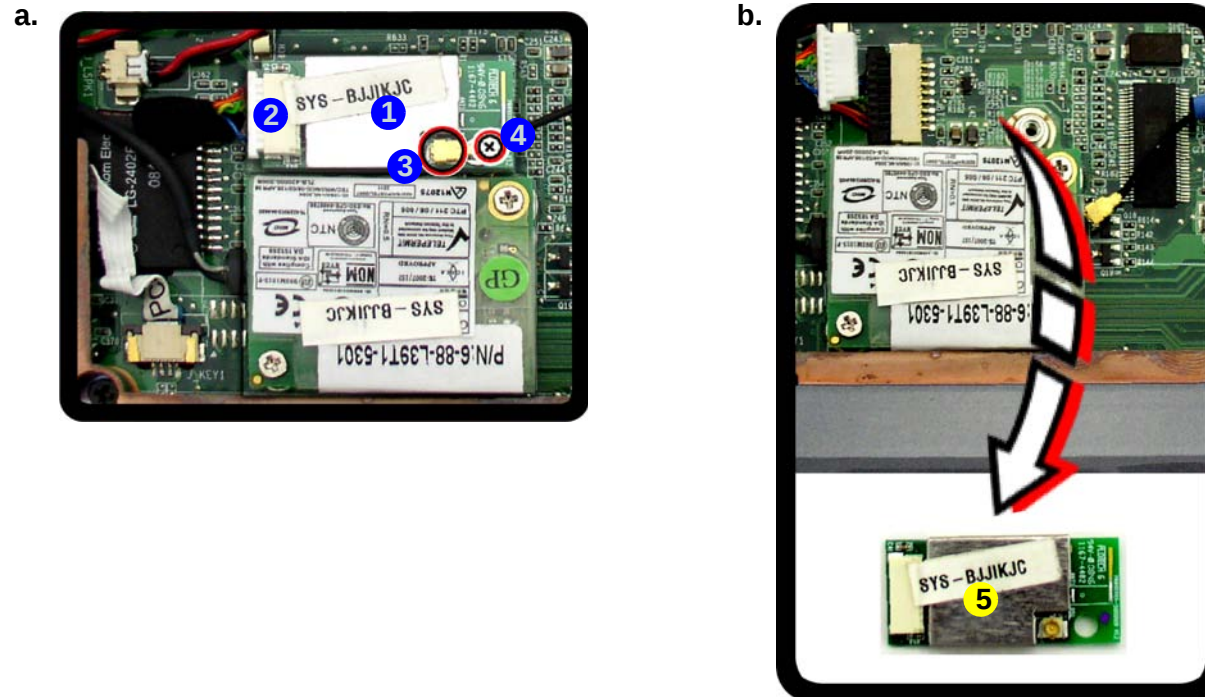


Figure 15
Bluetooth Module Removal

- 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

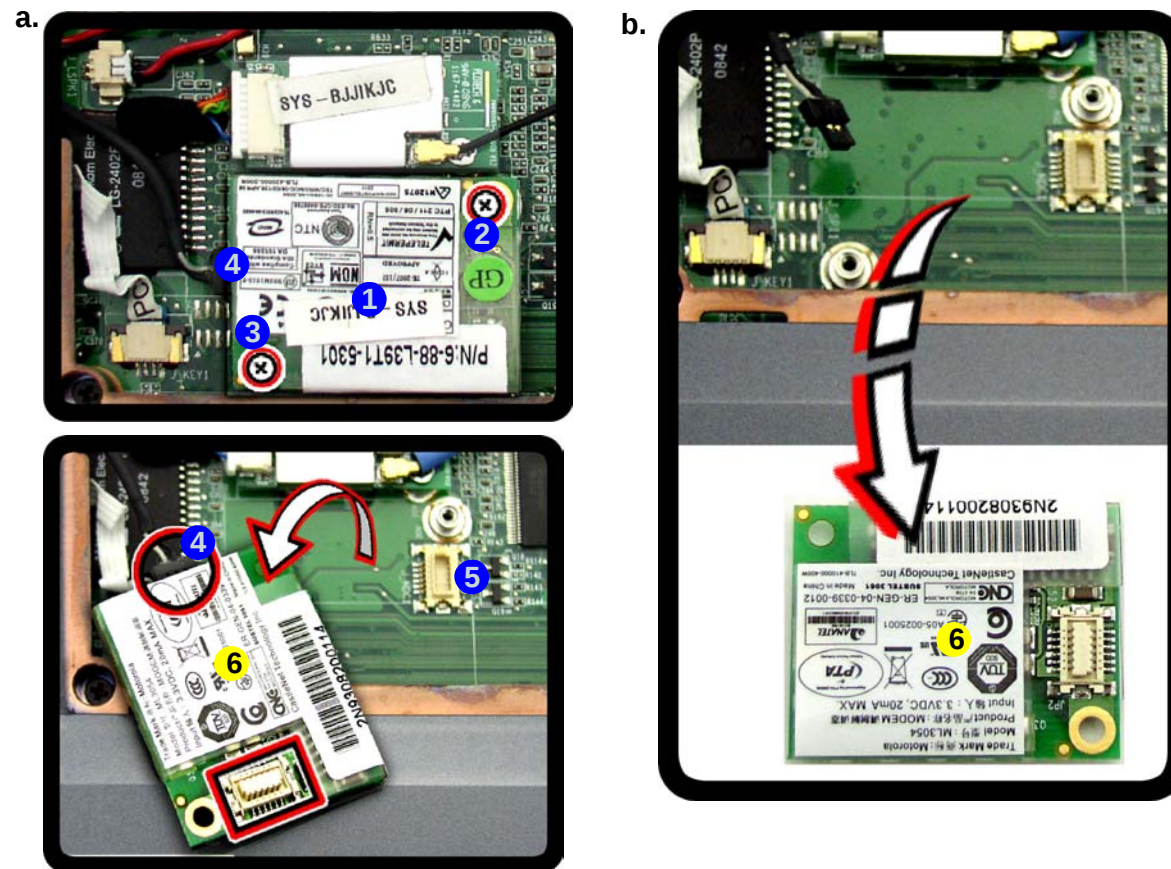
Disassembly

Figure 16
Modem Removal

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

Removing the Modem

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



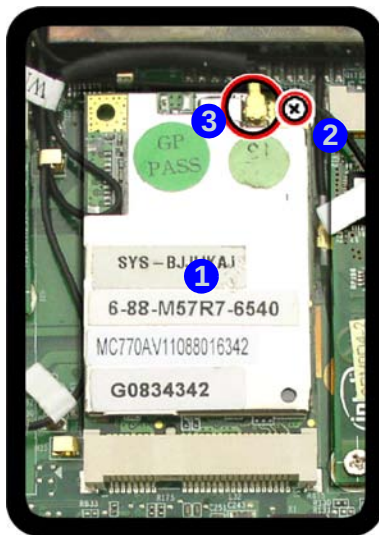
Removing the TV Tuner Card

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 screw ② from the TV tuner module and disconnect the cable ③.
4. The TV tuner card ④ will pop-up and you can remove it.

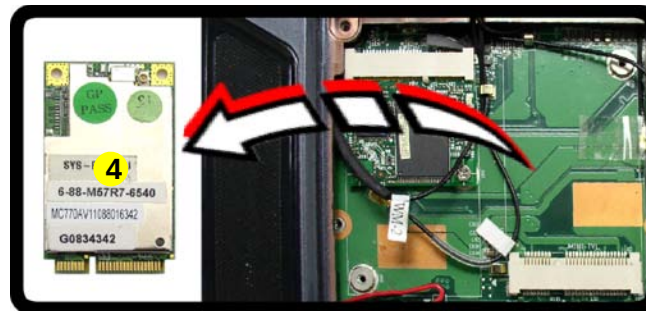
Figure 17
TV Tuner Card
Removal

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

a.



b.



- ④. TV tuner card
- 1 Screw

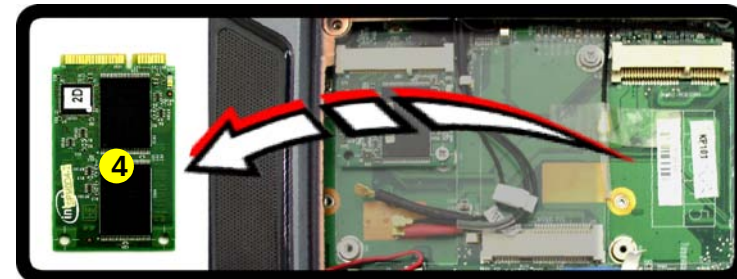
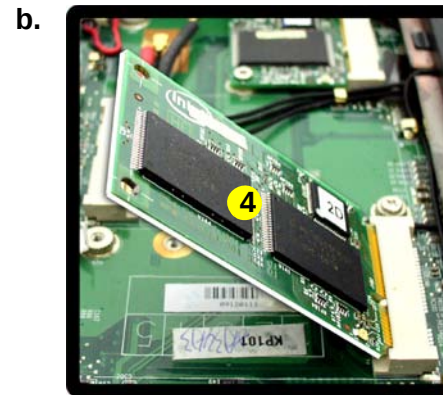
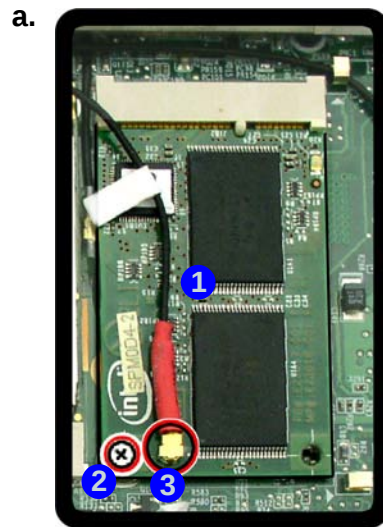
Disassembly

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 screw ② from the module and disconnect the 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

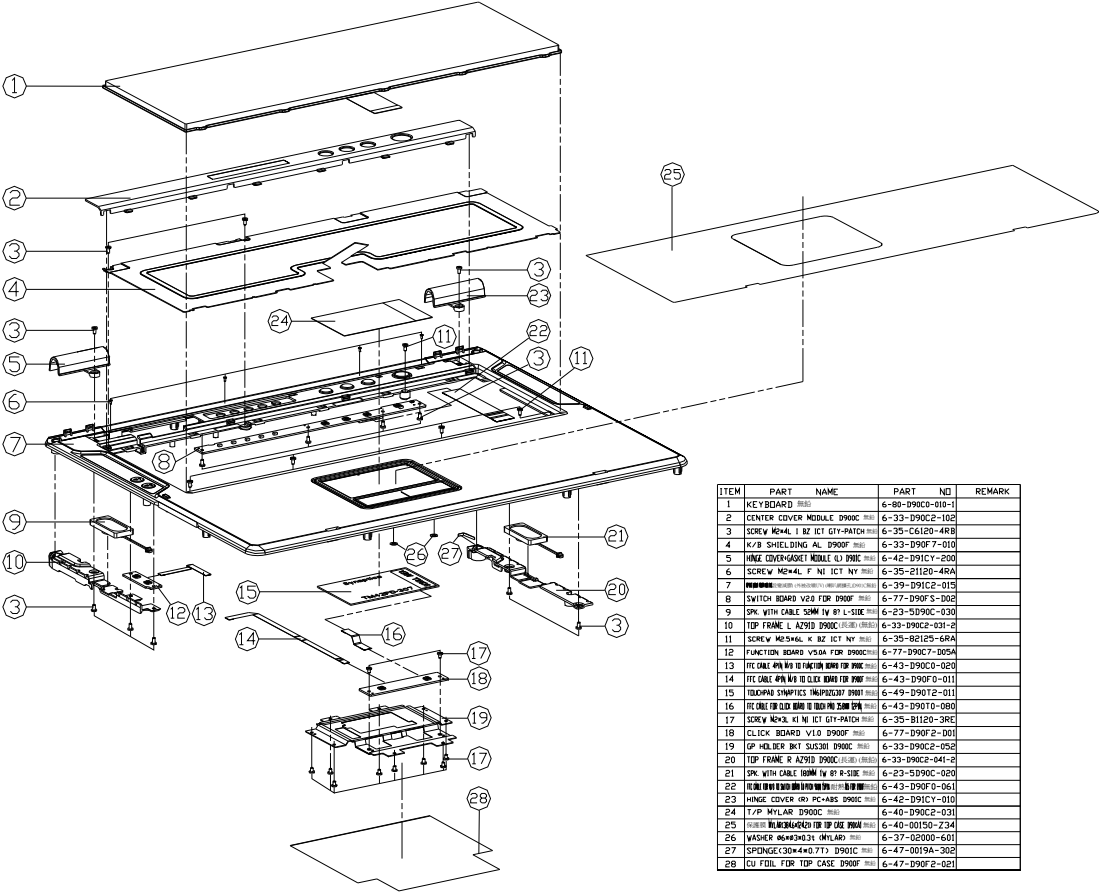


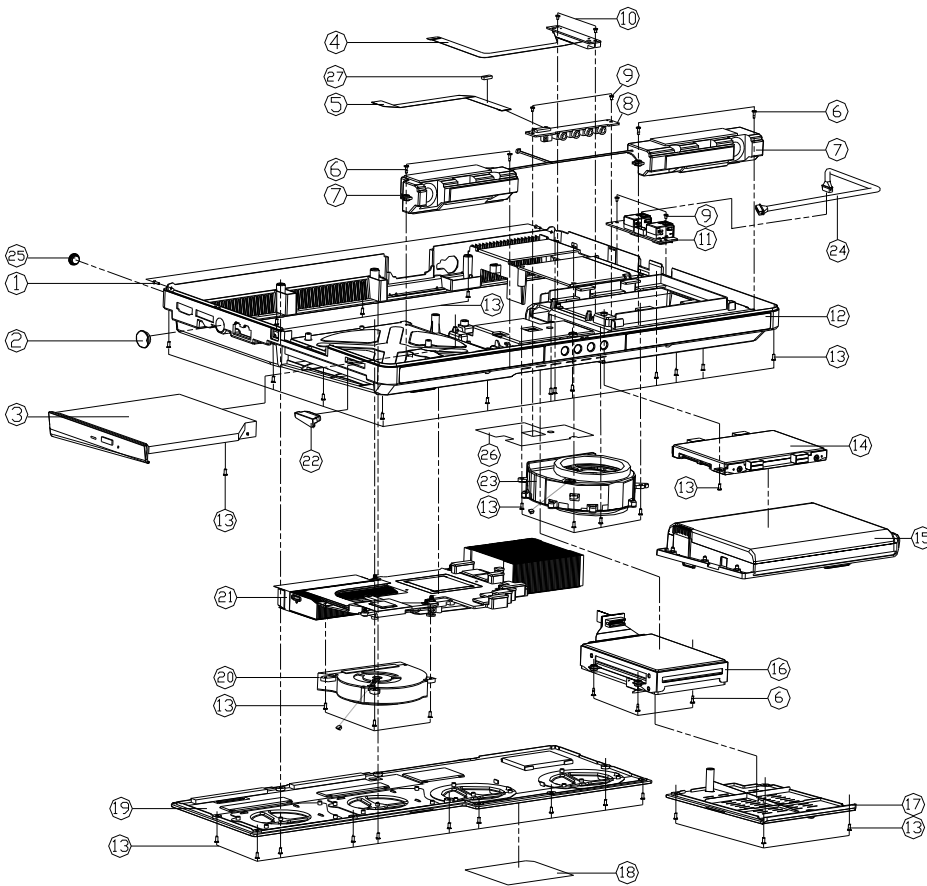
Figure A - 1
Top

ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD	6-80-D90C0-010-1	
2	CENTER COVER MODULE	6-33-D90C2-102	
3	SCREW M4x1.6 L2 ICT DTY-PATCH	6-35-C6100-4R0	
4	K/D SHIELDING AL	6-33-D90F7-010	
5	HINGE COVER/GASKET MODULE	6-42-D91C1-200	
6	SCREW M4x1.6 L2 ICT NY	6-35-21120-4RA	
7	SWITCH BOARD V20 FOR D90F	6-39-D91C2-015	
8	SPK WITH CABLE 18MM	6-77-D90F3-002	
9	TOP FRAME L	6-23-D90C0-030	
10	TOP FRAME R	6-33-D90C2-031-2	
11	SCREW M4x1.6 L2 ICT NY	6-35-82125-6RA	
12	FUNCTION BOARD V50A FOR D90C0	6-77-D90C7-005A	
13	FPC CABLE 4P/16 TO CLIX BOARD FOR D90C	6-43-D90C0-020	
14	FPC CABLE 4P/16 TO CLIX BOARD FOR D90F	6-43-D90F0-011	
15	TOP FRAME R	6-49-D90T2-011	
16	TOP FRAME L	6-43-D90T0-080	
17	SPK WITH CABLE 18MM	6-35-D1120-3RC	
18	CLICK BOARD V1.0	6-77-D90F2-001	
19	GP HOLDER	6-33-D90C2-052	
20	TOP FRAME R	6-33-D90C2-041-2	
21	SPK WITH CABLE 18MM	6-23-D90C0-020	
22	HINGE COVER	6-42-D90F0-061	
23	T/P MYLAR	6-42-D91C1-010	
24	SPONGE	6-40-D90C2-031	
25	CU FOIL	6-40-00150-Z34	
26	WASHER	6-37-02000-601	
27	SPONGE	6-47-0019A-302	
28	CU FOIL	6-47-D90F2-021	

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	6-47-D90FE-010	
3	SATA BLU-RAY COMBO 5.25" AL ASSY	6-79-D900F00W-010	
4	SATA DVD SUPER MULTI 16X ASSY	6-79-D900F000-000	
5	Y/C CABLE APPN W/ 10 TO 300 DATA HUB FOR D90C	6-43-D90CJ-011	
6	Y/C CABLE APPN W/ 10 TO 300 DATA HUB FOR D90C	6-43-D90CJ-040	
7	SCREW M2*BL K BZ ICT NY	6-35-21120-750	
8	SPK WITH CABLE 2W 4W/6-2500M D90C	6-23-5D90C-010	
9	AUDIO I/O BOARD V.I.D D900F	6-77-D90F0-001	
10	SCREW M2*BL 1 BZ ICT NY	6-35-C6120-4RB	
11	SCREW M2*BL K1 NI ICT NY	6-35-B1120-7RA	
12	USB BOARD V.I.D D900F	6-77-D90F3-001	
13	BOTTOM CASE MODULE D900F	6-39-D90F3-010	
14	SCREW M2*BL K BZ ICT NY	6-35-B2125-6RA	
15	W/D 2ND HDD ASSY D900F	6-79-D900F00J-000	
16	W/D 1ST HDD ASSY D900F	6-79-D900F00J-001	
17	W/D 1ST HDD ASSY D900F	6-79-D900F00J-002	
18	W/D 1ST HDD ASSY D900F	6-79-D900F00J-003	
19	W/D 1ST HDD ASSY D900F	6-79-D900F00J-004	
20	W/D 1ST HDD ASSY D900F	6-79-D900F00J-005	
21	W/D 1ST HDD ASSY D900F	6-79-D900F00J-006	
22	W/D 1ST HDD ASSY D900F	6-79-D900F00J-007	
23	W/D 1ST HDD ASSY D900F	6-79-D900F00J-008	
24	W/D 1ST HDD ASSY D900F	6-79-D900F00J-009	
25	W/D 1ST HDD ASSY D900F	6-79-D900F00J-010	
26	W/D 1ST HDD ASSY D900F	6-79-D900F00J-011	
27	W/D 1ST HDD ASSY D900F	6-79-D900F00J-012	

LCD

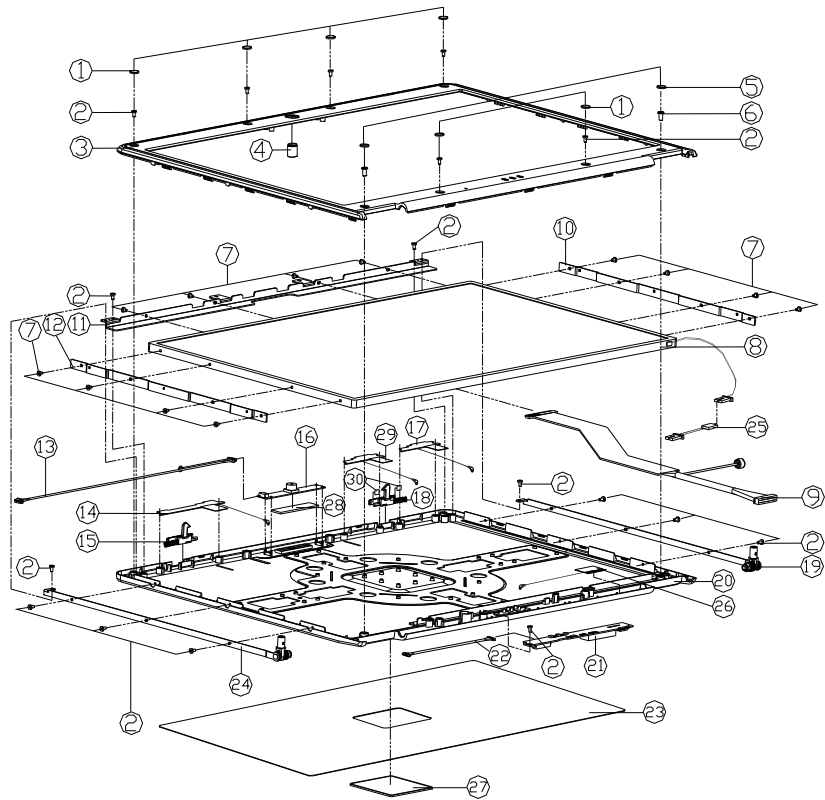
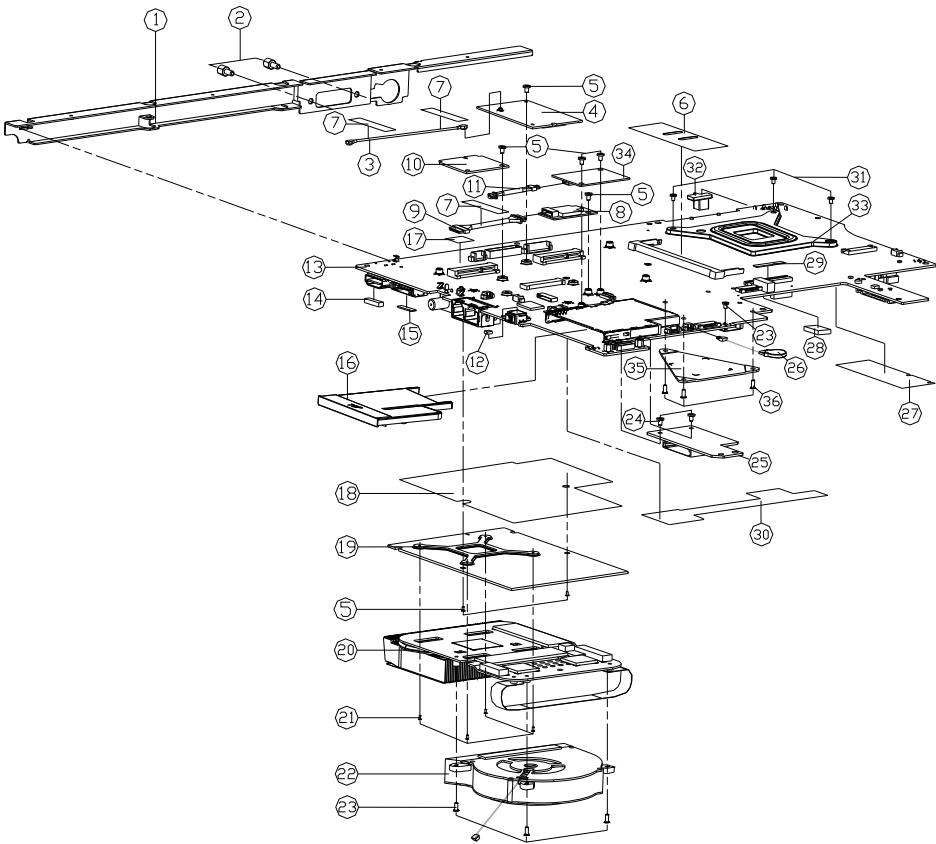


Figure A - 3
LCD

ITEM	PART NAME	PART NO	REMARK
1	LCD RUBBER (UP) 1-1.5MM	6-47-D90T1-012	
2	SCREW M4X1.6 L100-01-01	6-35-C6120-4RB	
3	DISPLAY FRONT COVER MODULE (D90C)	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 M4X1.6 L100-01-01	6-35-B1130-6RA	
7	SCREW M4X1.6 L100-01-01	6-35-B1120-3RA	
8	LCD 17" WIDE ANGLE VIEWER V1.0	6-50-NB266-C00	
9	LCD 17" WIDE ANGLE VIEWER V1.0	6-50-NB266-C01	
10	LCD 17" WIDE ANGLE VIEWER V1.0	6-50-NB266-L07	
11	LCD 17" WIDE ANGLE VIEWER V1.0	6-50-NB266-L02	
12	LCD 17" WIDE ANGLE VIEWER V1.0	6-43-D90C1-011	
13	LCD 17" WIDE ANGLE VIEWER V1.0	6-33-D90T1-061	
14	TOP BRACKET OF LG LCD17	6-33-D90T1-143	
15	LG LCD17 BRACKET (L)	6-33-D90T1-071	
16	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-43-D90C1-010	
17	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-23-D90C1-010	
18	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-42-D90T1-804	
19	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-88-M5C4C-4915	OPTION
20	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-88-D90C1-4980	OPTION
21	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-23-D90C1-020	
22	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-42-D90T1-704	
23	HINGE (CR)	6-33-D90T1-012	
24	DISPLAY BOX COVER MODULE (D90C)	6-39-D91C1-022-1	
25	DISPLAY BOX COVER MODULE (D90C)	6-76-D90CR-022	
26	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-43-D90T1-053	
27	BACK PANEL COUPLER PLATE AL (D90C)	6-33-D91C1-011	
28	HINGE (L)	6-33-D90T1-022	
29	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-43-D4701-031	
30	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-23-D90C1-040	
	LOGO BASE	6-42-D90T1-030	
	GASKET (40X10X1.5) D900C	6-47-00190-400	
	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-23-D90C1-030	
	WIRE CABLE FOR W/CCD MODULE FOR D90C	6-40-00150-404	

Mainboard

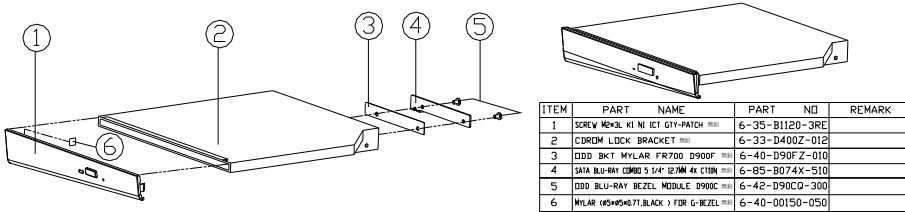
Figure A - 4
Mainboard



ITEM	PART NAME	PART NO	REMARK
1	ID BRACKET SUS D900C	6-33-D90CS-010	
2	HEX STUD GARD W-R1 10MM G1/4-10MM	6-34-07009-012	
3	TV TUNER CABLE FOR D900C	6-43-D90C-T-050	
4	HEX TV TUNER CABLE FOR D900C	6-88-M5787-6544	(OPTION)
5	SCREW M2X3L K1 NI ICT NY	6-35-B1120-3RA	
6	MYLAR FOR D900F	6-40-D90F-S-011	
7	TAPE MYLAR (C)MYLAR M550J	6-40-M55J2-030	
8	SPONGE FINGER RUBBER SILICON D900C	6-88-M7315-3900	(OPTION)
9	MYLOR ONLY FOR D900C	6-43-D90C-B-010	
10	SPONGE FINGER RUBBER SILICON D900C	6-88-M7352-4200	(OPTION)
10	SPONGE FINGER RUBBER SILICON D900C	6-88-M7272-4240	(OPTION)
10	SPONGE FINGER RUBBER SILICON D900C	6-88-M6102-7001	(OPTION)
11	MYLOR ONLY FOR D900C	6-43-D90C-010	
12	GASKET 4.5*7*4.5T	6-47-D0190-074	
13	MAIN BOARD V3.0 D900F	6-77-D90F-0-003	
14	GASKET - BLACK (5*7*1T) FOR HDD	6-47-00190-152	
15	GASKET - BLACK (5*7*1T) FOR E-SATA	6-47-00190-184	
16	NEW CARD DUMMY FOR M550N	6-42-M55NP-013	
17	MYLAR FOR MB 15*15	6-40-D901S-040	
18	VGA MYLAR (FR-03) D900F	6-40-D90F-S-031	
19	VGA BOARD RUBBER GASKET FOR D900C	6-77-M57NL-001-B	
20	VGA RUBBER GASKET RUBBER D900C	6-31-D90F-N-200	
21	SCREW M2X3L K1-100 B-1450 K1 ICT NY	6-35-B2116-3RD5	
22	TAPE MYLAR FOR D900C	6-40-D90C-032	
23	SCREW M2.5*6L K BZ ICT NY	6-35-B2125-6RA	
24	SCREW M2X3L K1 NI ICT NY	6-35-B1120-3RE	
25	CARD RUBBER BOARD VLD D900F	6-77-D90F-V-001	
26	HEX STUD GARD W-R1 10MM G1/4-10MM	6-33-07009-012	
27	MYLAR FOR D900C	6-40-D90F-S-021	
28	SPONGE FINGER RUBBER SILICON D900C	6-47-D019A-152	
29	M520G K/B CONN MYLAR	6-40-M52GS-060	
30	MB MYLAR (FRB3) D900F	6-40-D90F-S-042	
31	SCREW M2X3L K1 NI ICT NY	6-35-B6125-5R0	
32	POWER FINGER RUBBER SILICON D900C	6-47-D90C4-010	
33	CPU SUPPORTER SUS304 D900F	6-33-D90F-S-011	
34	HEX STUD GARD W-R1 10MM G1/4-10MM	6-88-L3911-5301	
34	HEX STUD GARD W-R1 10MM G1/4-10MM	6-88-M7651-8111	
35	S.B AL PLATE D900F	6-33-D90F-S-030	
36	HEX STUD GARD W-R1 10MM G1/4-10MM	6-35-C6120-4RB	

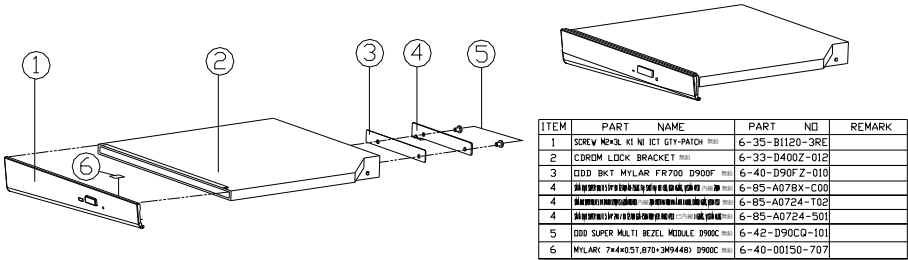
Blu-Ray Combo

Figure A - 5
Blu-Ray Combo



DVD Super Multi

Figure A - 6
DVD Super Multi



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

Table B - 1
Schematic
Diagrams

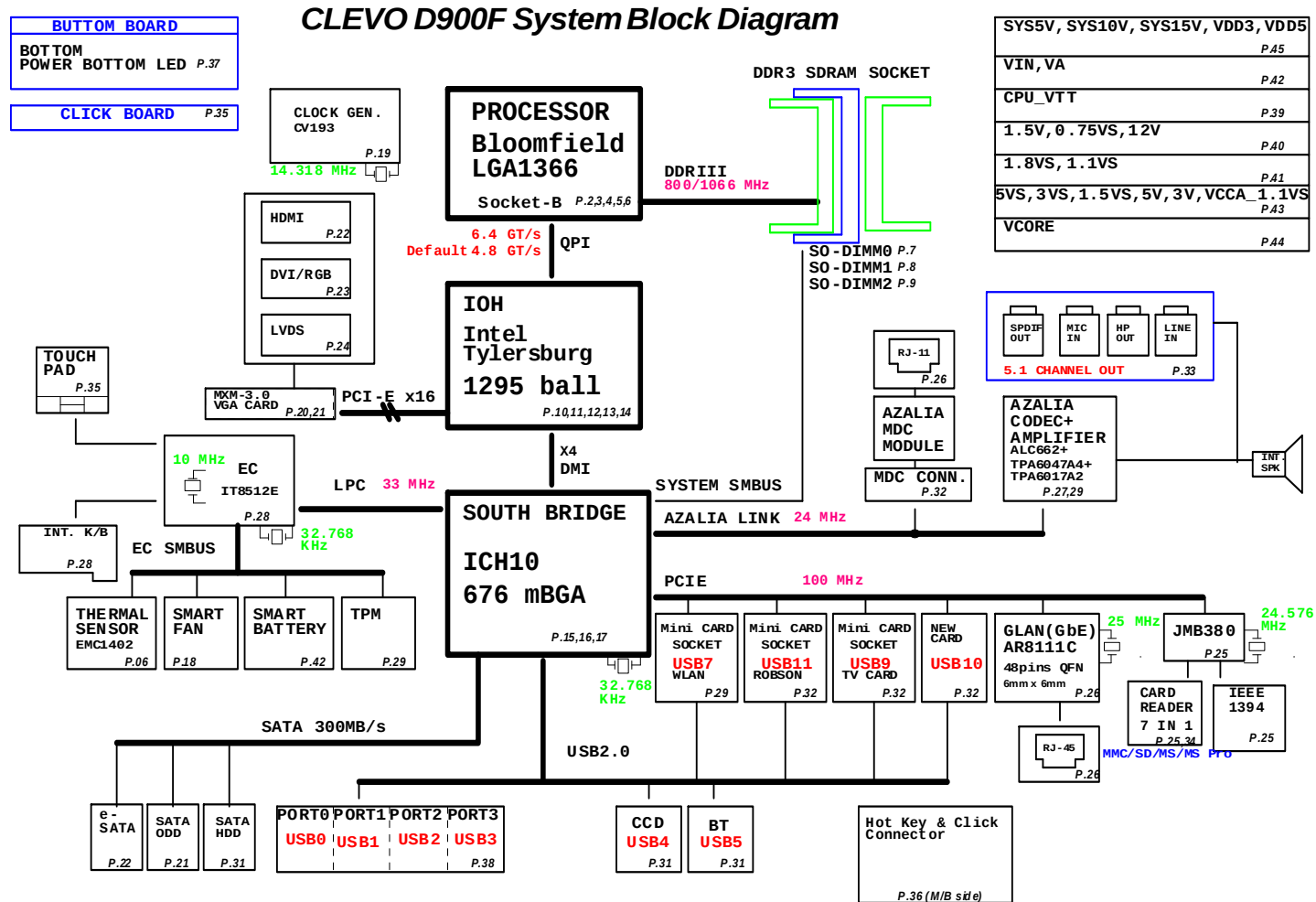


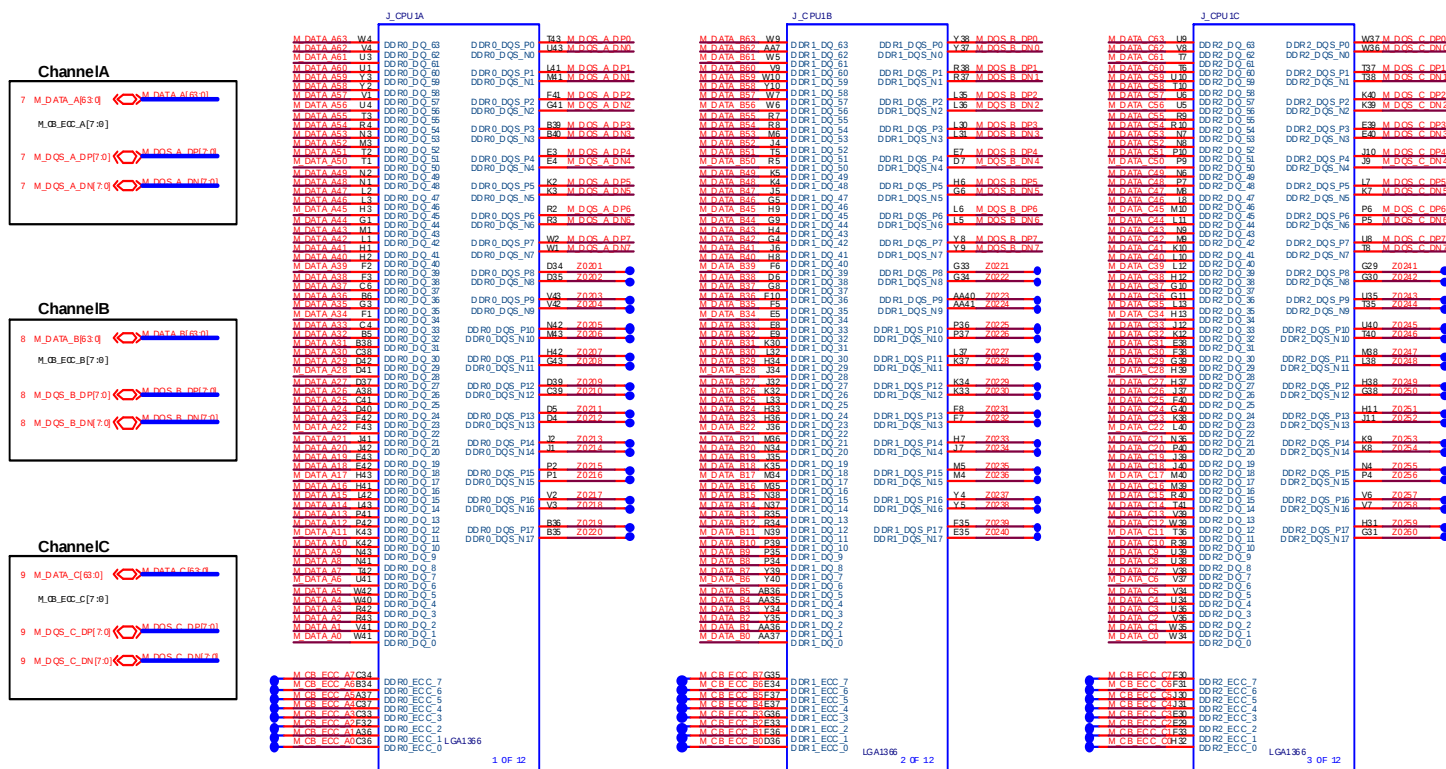
Version Note

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



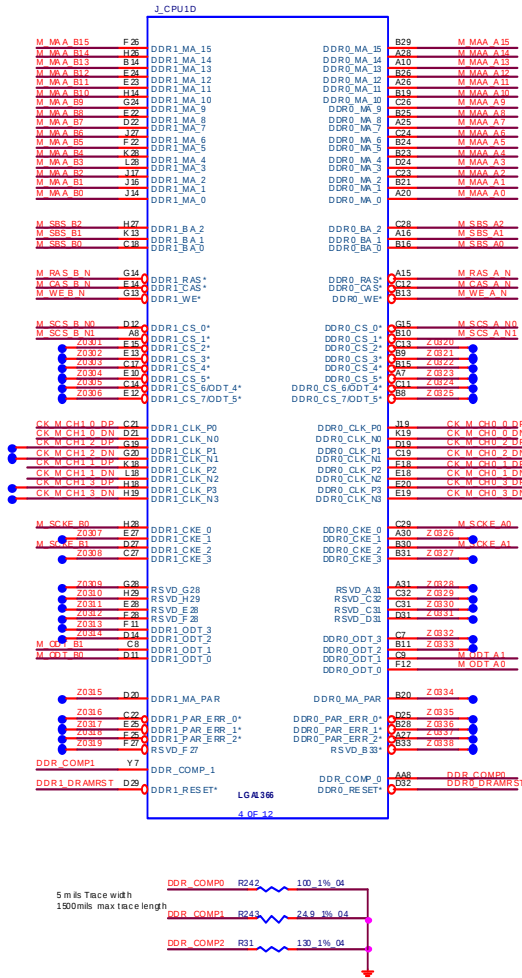
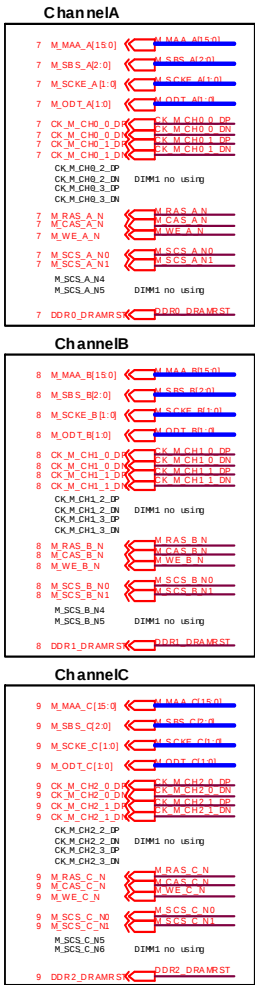


Sheet 2 of 47
LGA1366 Part A
DDR3
1/2

Schematic Diagrams

LGA1366 Part B DDR3 2/2

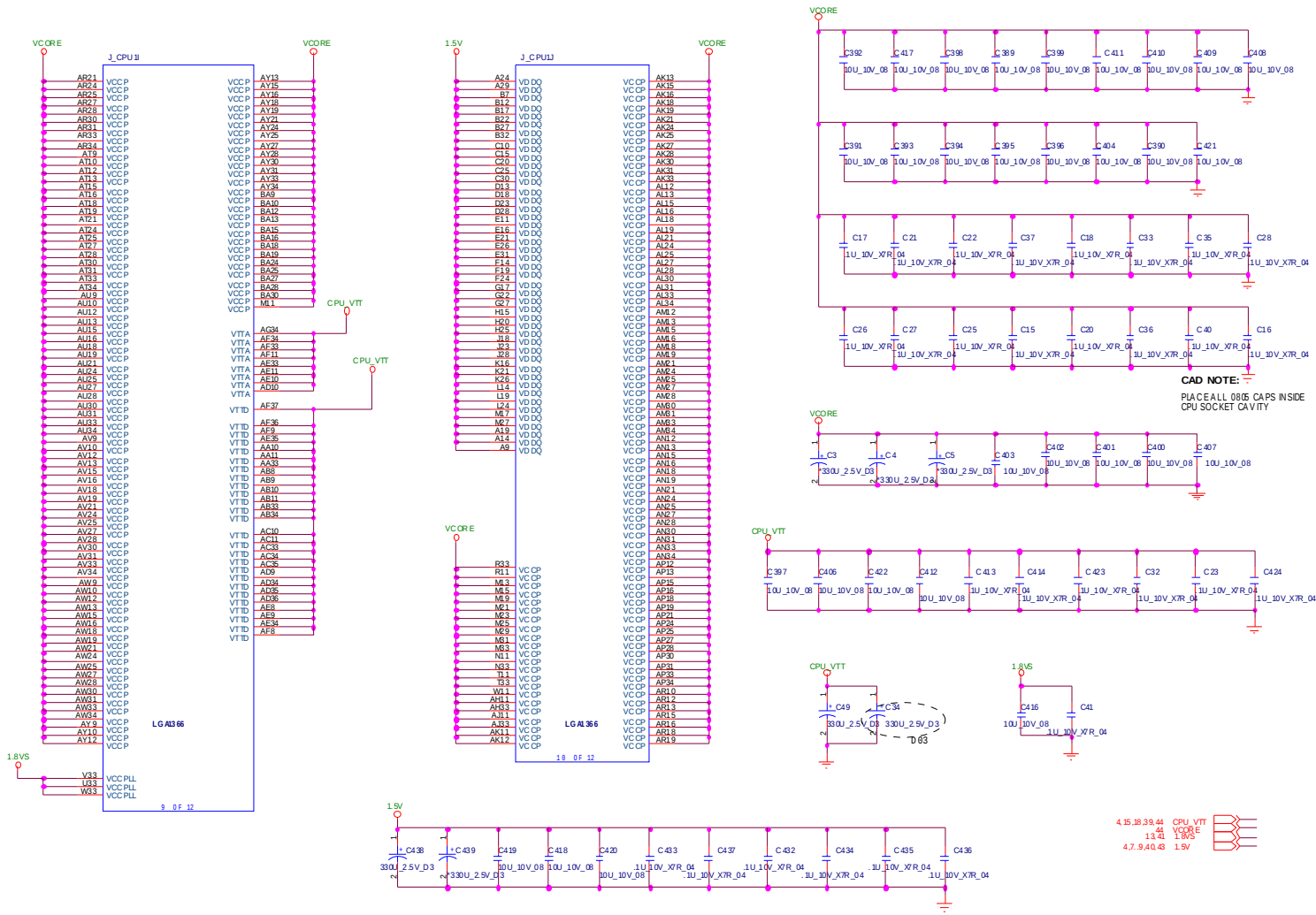
Sheet 3 of 47
LGA1366 Part B
DDR3
2/2



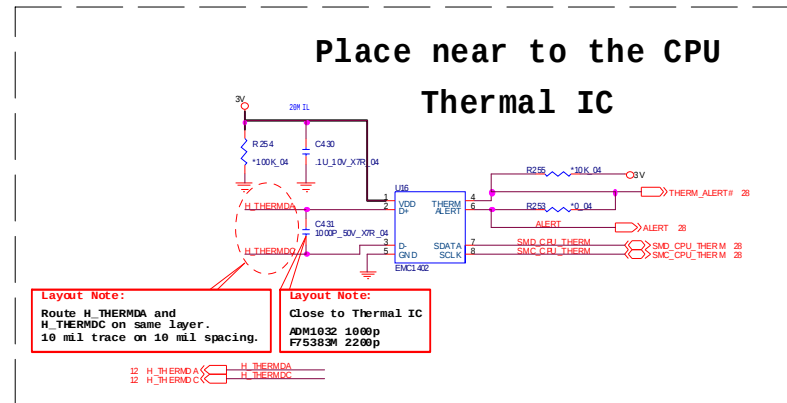
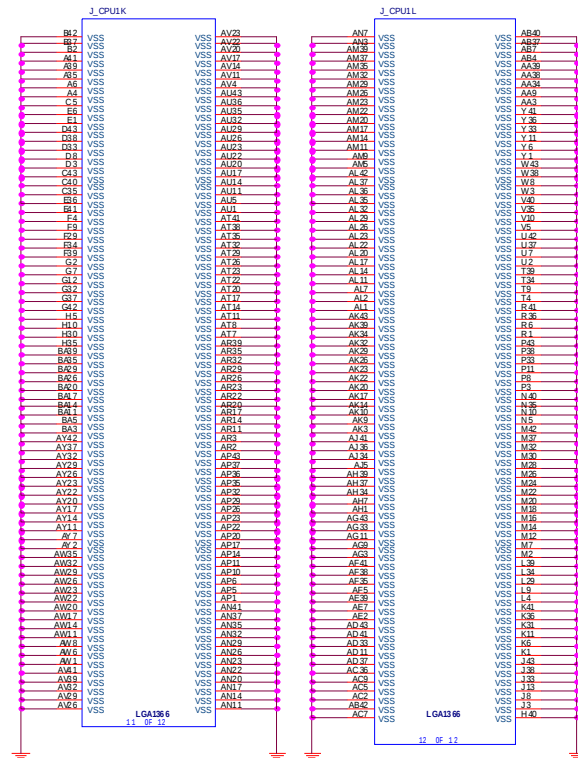
Schematic Diagrams

LGA1366 Part C Power

Sheet 5 of 47
LGA1366 Part C
Power



LGA1366 Part E GND, Thermal



Sheet 6 of 47
LGA1366 Part E
GND, Thermal

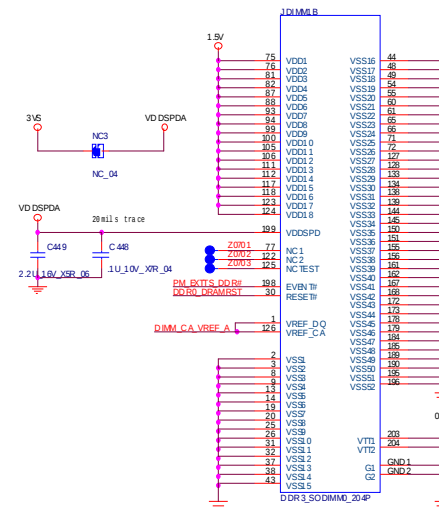
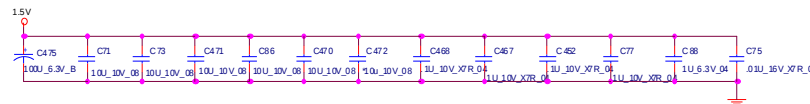
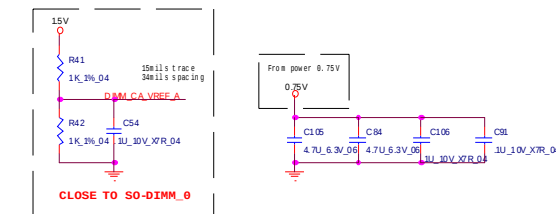
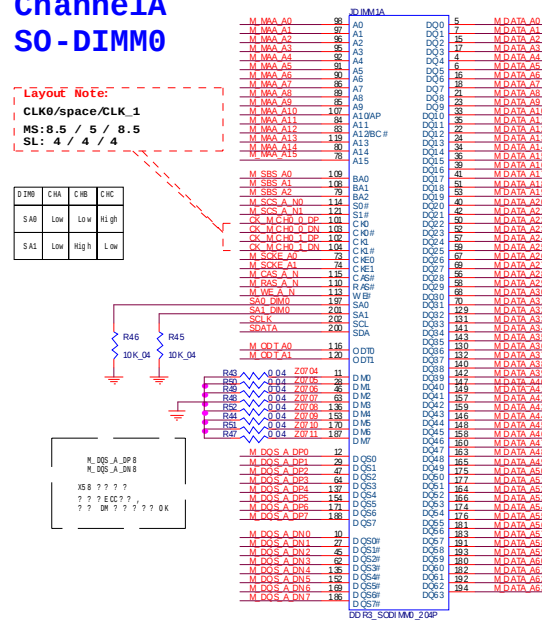
DDR3 Channel A SO-DIMM_0

ChannelA
SO-DIMM0

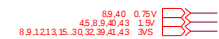
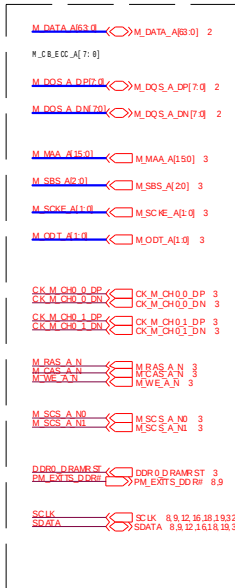
Layout Note:
CLK0/space/CLK_1
MS: 8.5 / 5 / 8.5
SL: 4 / 4 / 4

DIMB	CHA	CHB	CHC
SAB	Low	Low	High
SA1	Low	High	Low

Sheet 7 of 47
DDR3 Channel A
SO-DIMM_0



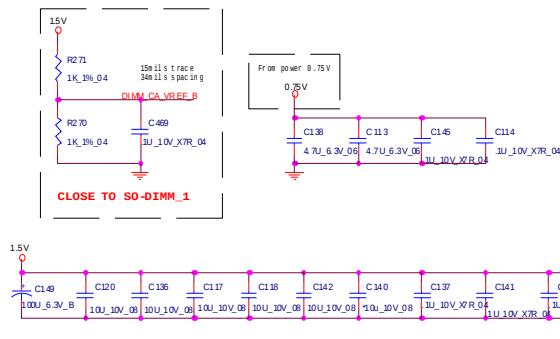
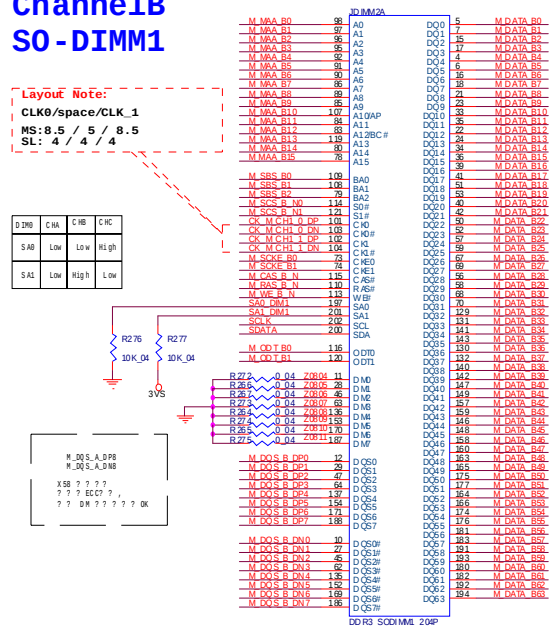
ChannelA



ChannelB
S0 - DIMM1

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

DIMD	CHA	CHB	CHC
SAB	Low	Low	High
SA1	Low	High	Low



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

<u>M_DATA_B0[3]</u>	→	M_DATA_B0[0] 2
M_CAS_E[7:0]		
<u>M_DQS_B0_DP[7]</u>	→	M_DQS_B0_DP[7] 2
<u>M_DQS_B0_DM[7]</u>	→	M_DQS_B0_DM[7] 2
<u>M_MAA_B[15:0]</u>	→	M_MAA_B[15:0] 3
<u>M_SBS_B[20]</u>	→	M_SBS_B[20] 3
<u>M_SCWE_B[1:0]</u>	→	M_SCWE_B[1:0] 3
<u>M_ODT_B[1:0]</u>	→	M_ODT_B[1:0] 3
<u>CK_M_CH1_0_DP</u>	→	CK_M_CH1_0_DP 3
<u>CK_M_CH1_0_DN</u>	→	CK_M_CH1_0_DN 3
<u>CK_M_CH1_1_DP</u>	→	CK_M_CH1_1_DP 3
<u>CK_M_CH1_1_DN</u>	→	CK_M_CH1_1_DN 3
<u>M_PAS_B_N</u>	→	M_PAS_B_N 3
<u>M_CAS_B_N</u>	→	M_CAS_B_N 3
<u>M_WE_B_N</u>	→	M_WE_B_N 3
<u>M_SCBS_B_N0</u>	→	M_SCBS_B_N0 3
<u>M_SCBS_B_N1</u>	→	M_SCBS_B_N1 3
<u>DOR1_DRAMST</u>	→	DOR1_DRAMST 3
<u>PM_EXTS_DDR1</u>	→	PM_EXTS_DDR1 7, 9
<u>SC_LK</u>	→	SC_LK 7, 9, 12, 16, 18, 19
<u>SD_AFA</u>	→	SD_AFA 7, 9, 11, 13, 14

Sheet 8 of 47
DDR3 Channel B
SO-DIMM_1

B.Schematic Diagrams

ChannelC
S0-DIMM2

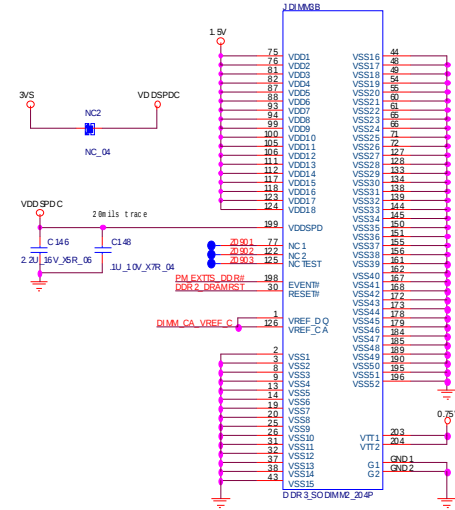
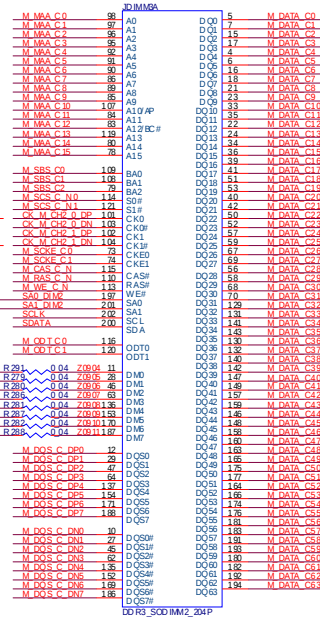
DIM 0	CHA	CHB	CHC
SAB	Low	Low	High
SAL	Low	High	Low

```

M_DS_A_DP8
M_DS_A_DN8

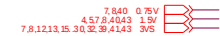
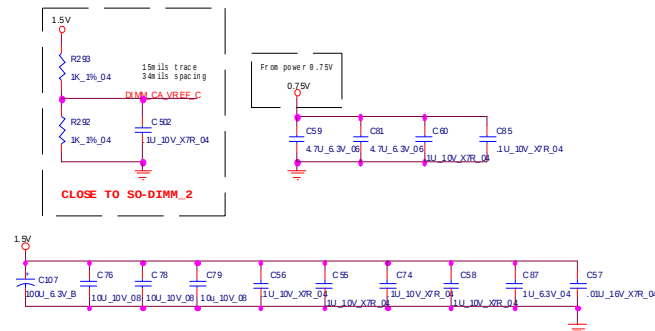
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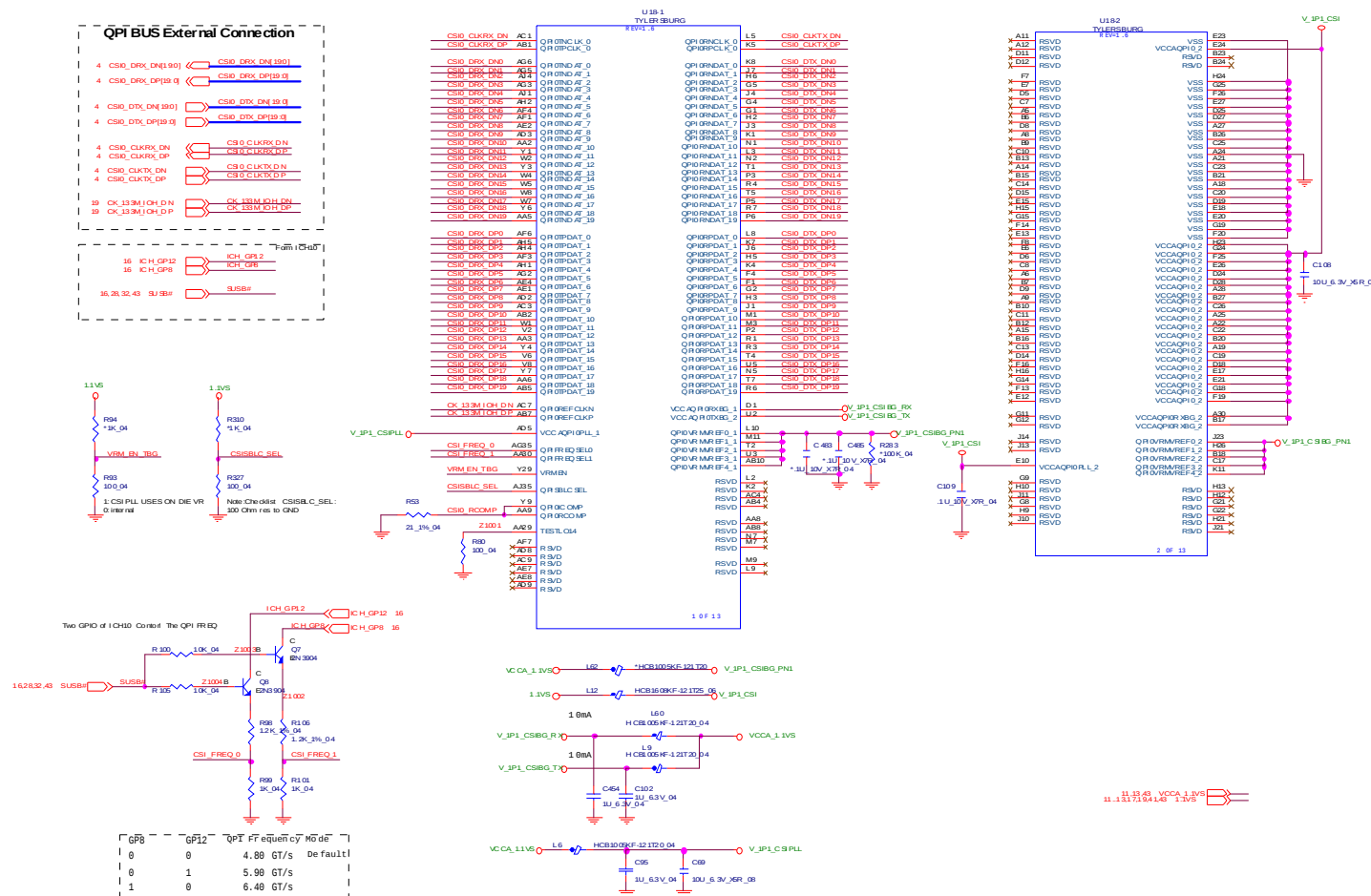


Layout note:
SO-DIMM_2 is placed farther from the CPU than SO-DIMM_1

<u>M_DATA_C[3:0]</u>	→	<u>MDATA_C[3:0]</u>	2
M_CS_EC.C[7:0]			
<u>M_DQS_C_DP[7:0]</u>	→	<u>MDQS_C_DP[7:0]</u>	2
<u>M_DQS_C_DN[7:0]</u>	→	<u>MDQS_C_DN[7:0]</u>	2
<u>M_MAA_C[15:0]</u>	→	<u>M_MAA_C[15:0]</u>	3
<u>M_SBS_C[2:0]</u>	→	<u>M_SBS_C[2:0]</u>	3
<u>M_SCK_C[1:0]</u>	→	<u>M_SCK_C[1:0]</u>	3
<u>M_ODT_C[1:0]</u>	→	<u>M_ODT_C[1:0]</u>	3
<u>CK_M_CH2_0_DP</u>	→	<u>CK_M_CH2_0_DP</u>	3
<u>CK_M_CH2_0_DN</u>	→	<u>CK_M_CH2_0_DN</u>	3
<u>CK_M_CH2_1_DP</u>	→	<u>CK_M_CH2_1_DP</u>	3
<u>CK_M_CH2_1_DN</u>	→	<u>CK_M_CH2_1_DN</u>	3
<u>M_RAS_C_N</u>	→	<u>M_RAS_C_N</u>	3
<u>M_WE_C_N</u>	→	<u>M_WE_C_N</u>	3
<u>M_CS_C_N</u>	→	<u>M_CS_C_N</u>	3
<u>M_SCK_C_N0</u>	→	<u>M_SCK_C_N0</u>	3
<u>M_SCK_C_N1</u>	→	<u>M_SCK_C_N1</u>	3
<u>DDR2_DRAMST</u>	→	<u>IDR2_DRAMST</u>	3
<u>PHELEXT_N_DDRB</u>	→	<u>PHELEXT_DDRB</u>	7,8
<u>SDKA</u>	→	<u>SD_KA</u>	7,8,11,16,18,22

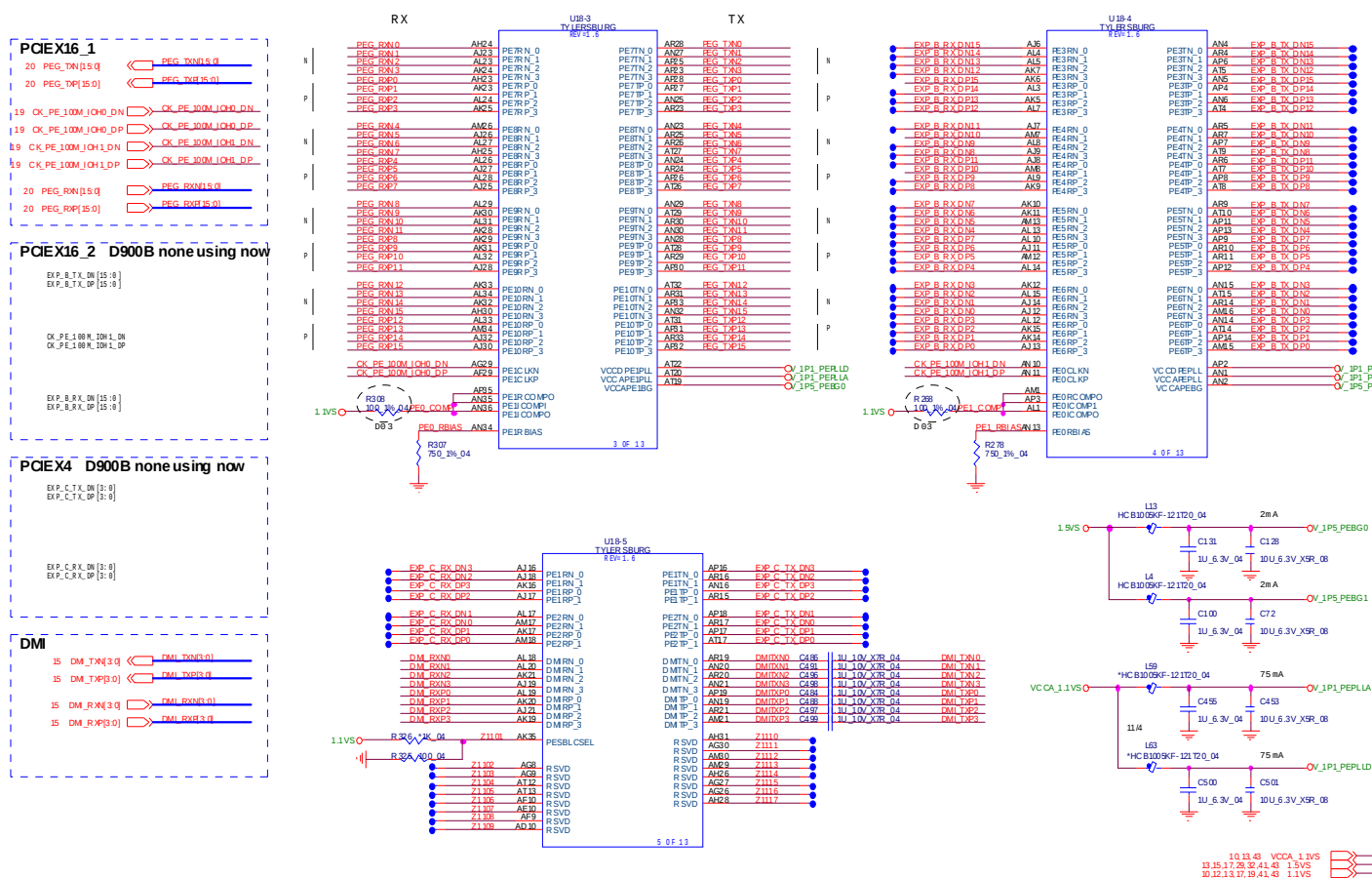


X58 QPI Interface B - 11

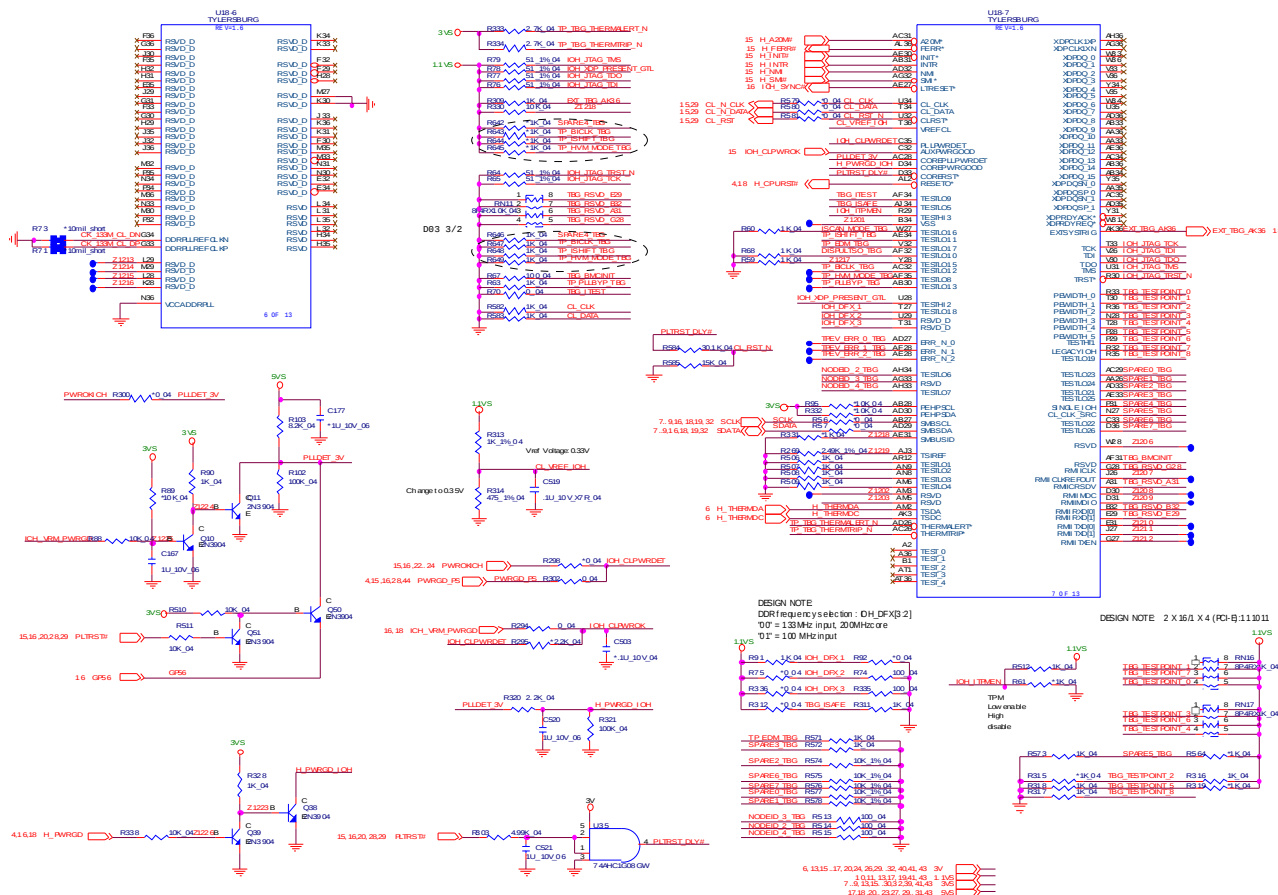


X58 PCIEX16, PCIEX4, DMI

Sheet 11 of 47
X58 PCIEX16,
PCIEX4, DMI

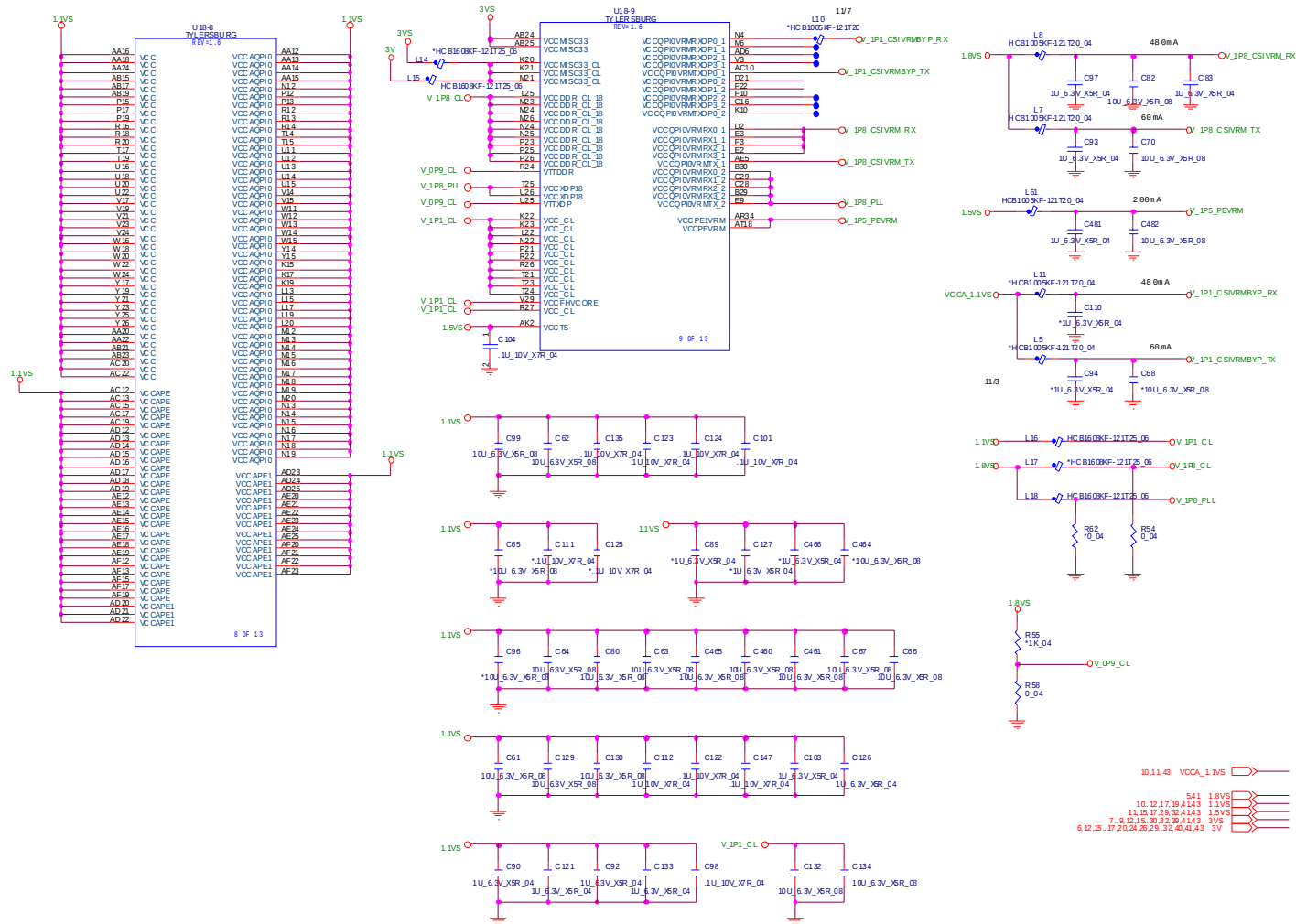


X58 Misc

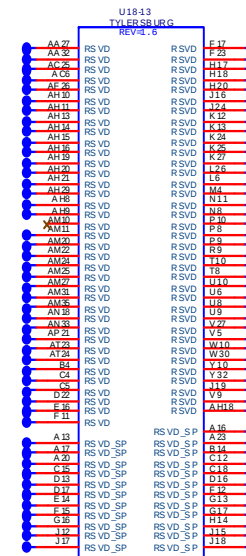
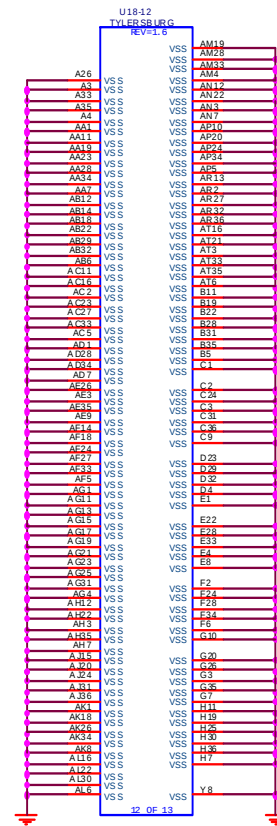
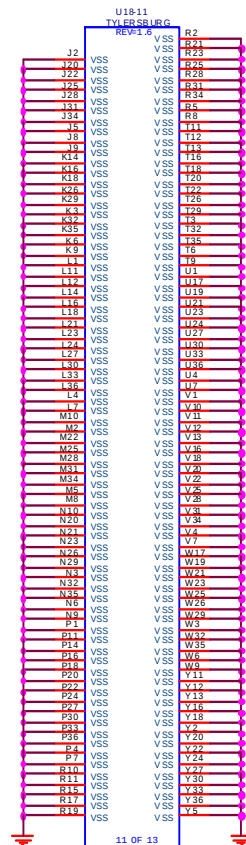
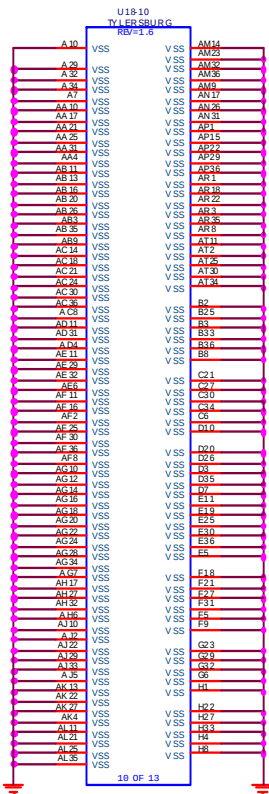


X58 PWR

Sheet 13 of 47
X58 PWR

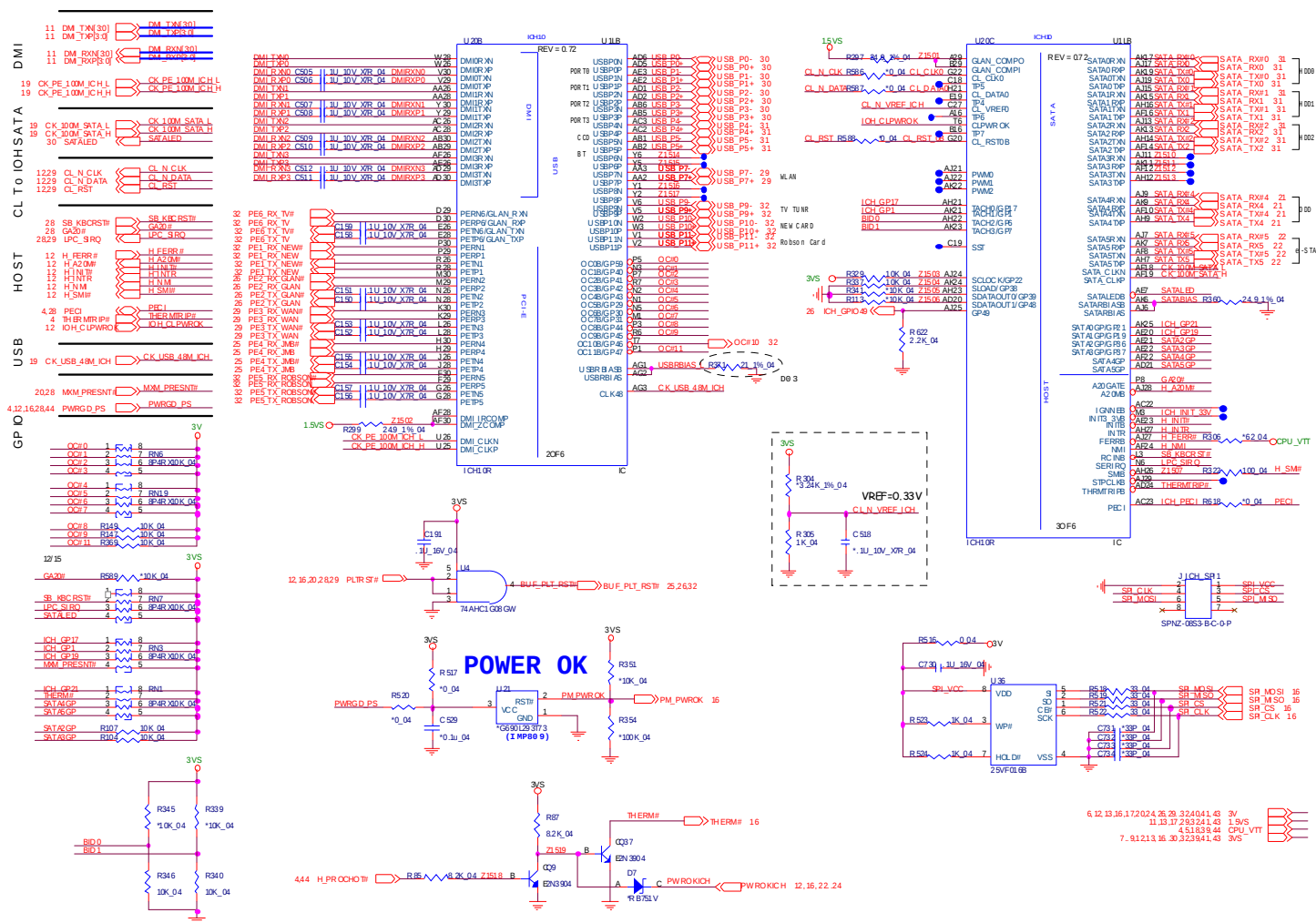


X58 GND

Sheet 14 of 47
X58 GND

B.Schematic Diagrams

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



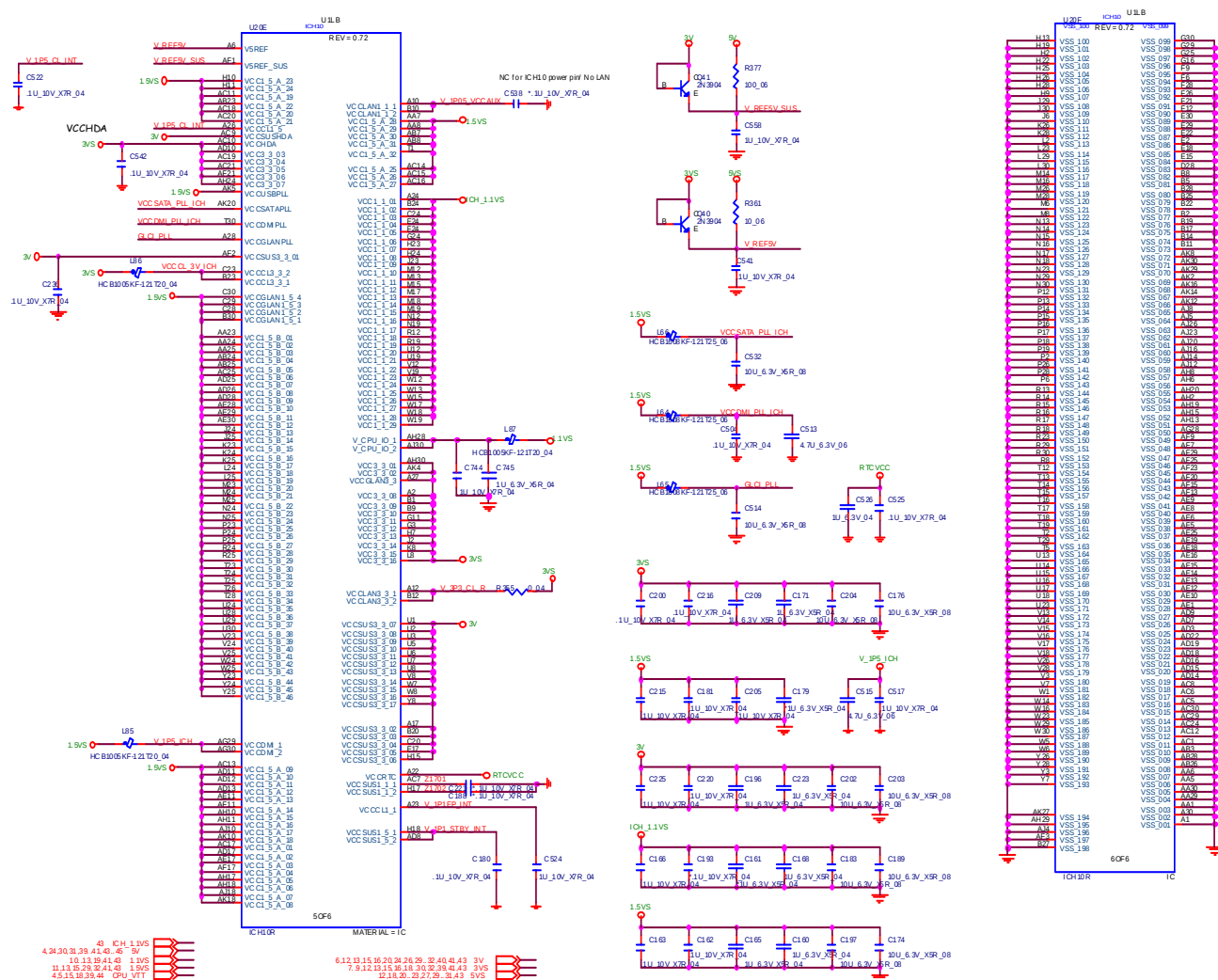
Sheet 16 of 47
ICH10 PCI/SPI/
Other



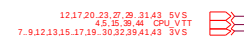
Schematic Diagrams

ICH10 Power/GND

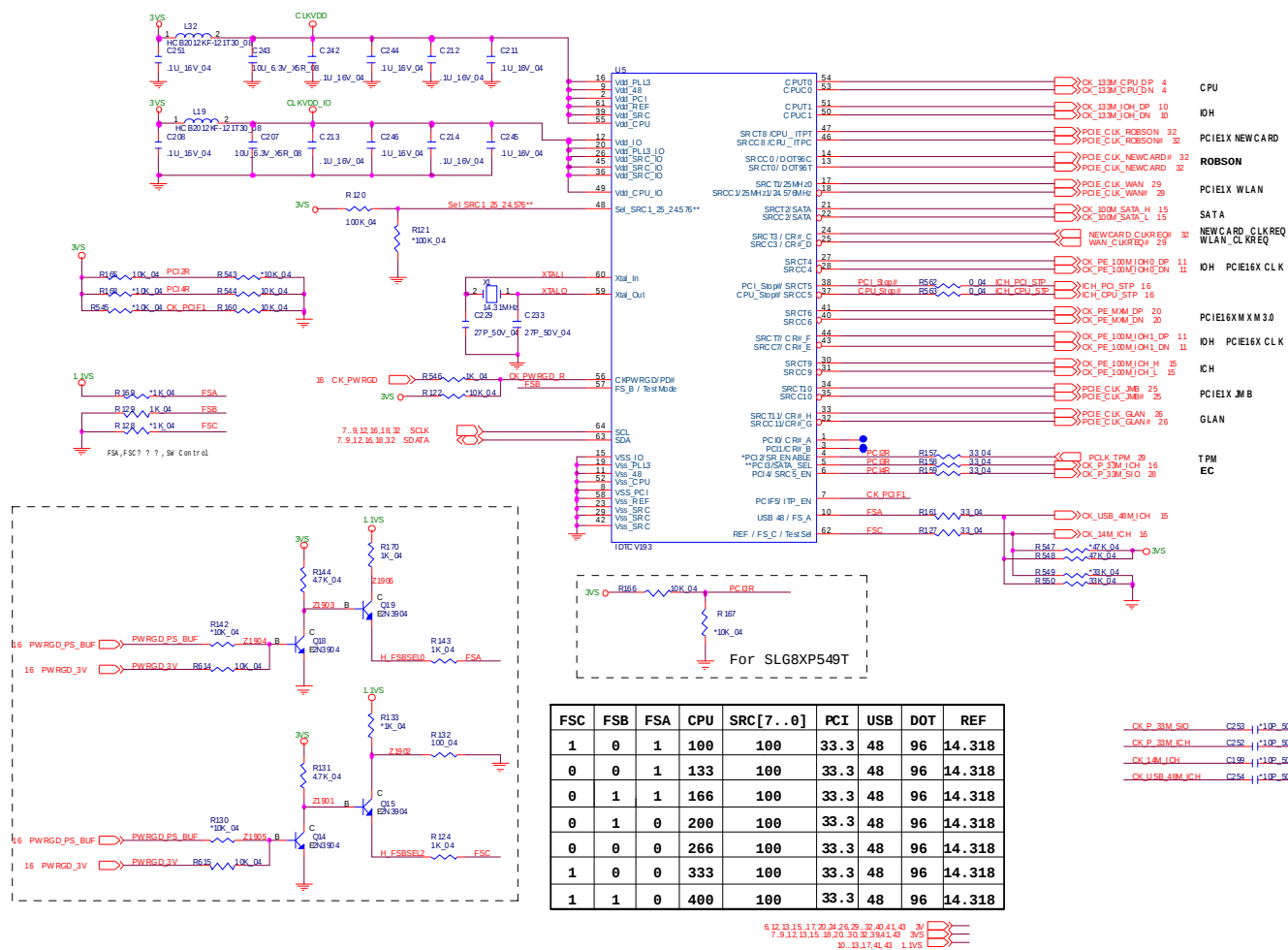
Sheet 17 of 47
ICH10 Power/GND

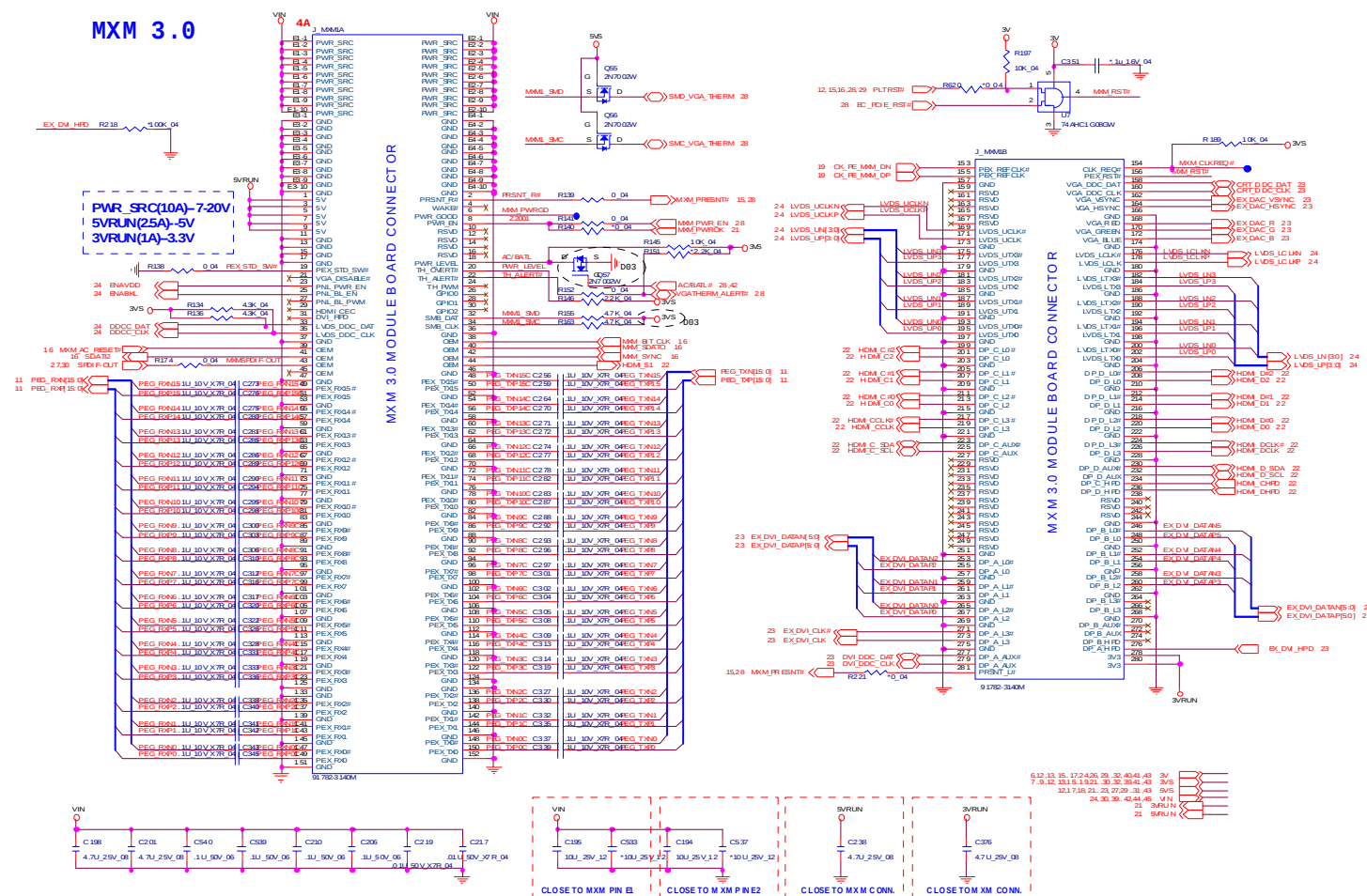


Intel Debug Card



Sheet 19 of 47
Clock Generator
CV193

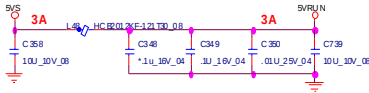
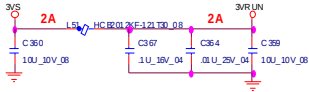
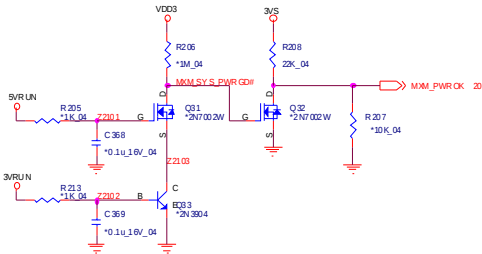




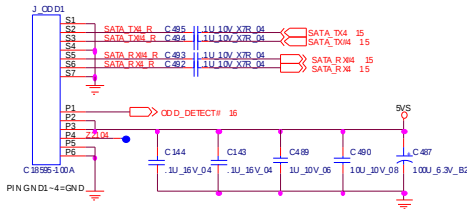
Schematic Diagrams

MXM PWR, SATA ODD

MXM PWR



SATA ODD



16,24,28,31,40,42,43,45	VDD3
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	3V5
20	3V5RUN
12,17,19,20,22,23,27,29,31,43	3V5
20	3V5RUN

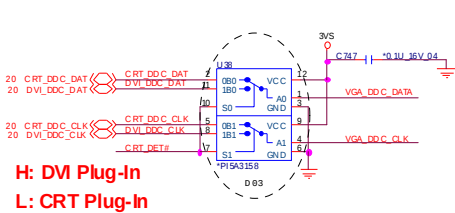
B.Schematic Diagrams

HDMI & e-SATA B - 23

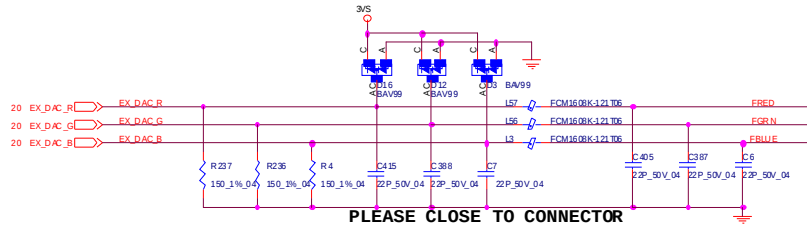
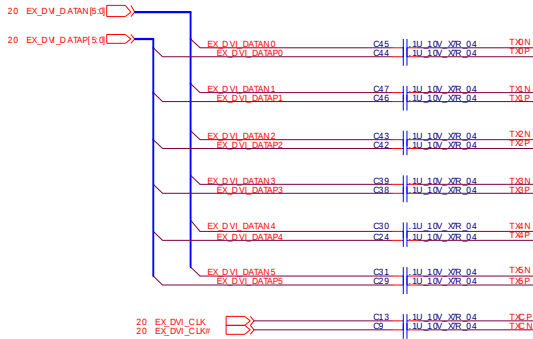
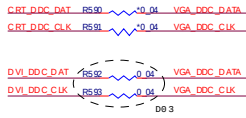
Schematic Diagrams

DVI-I

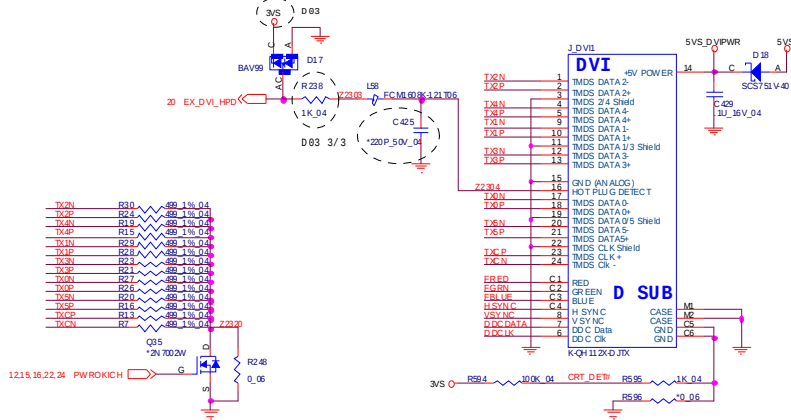
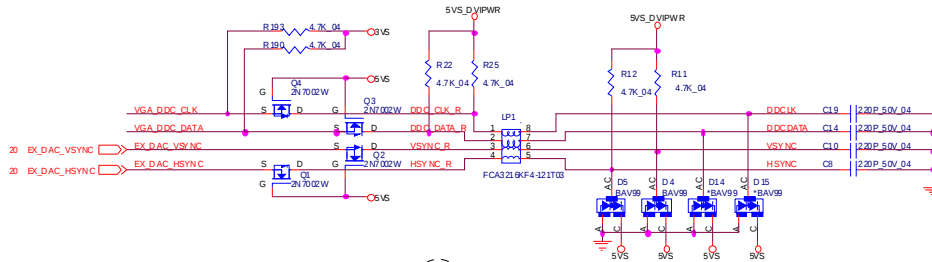
Sheet 23 of 47
DVI-I



H: DVI Plug-In
L: CRT Plug-In



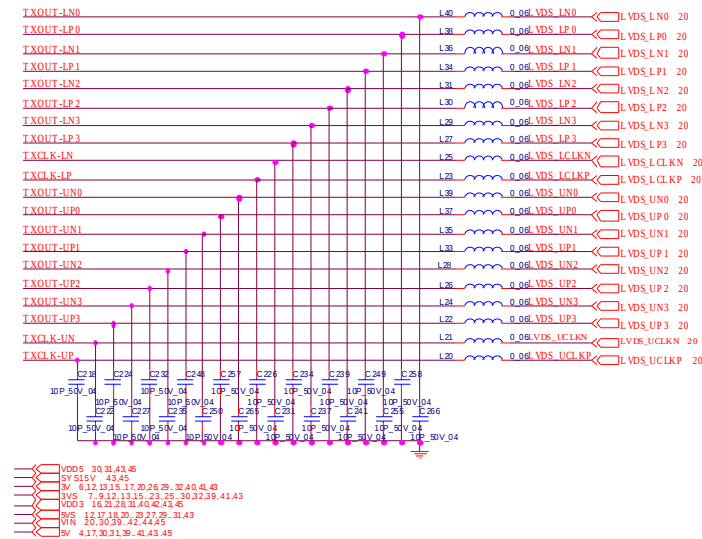
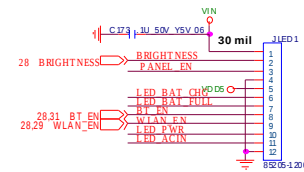
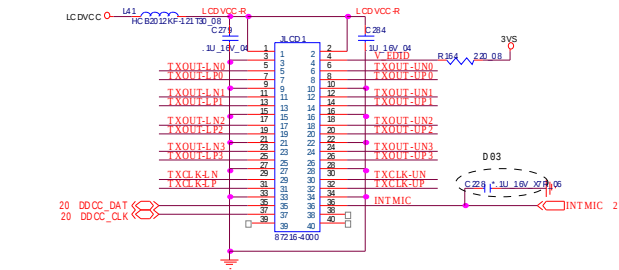
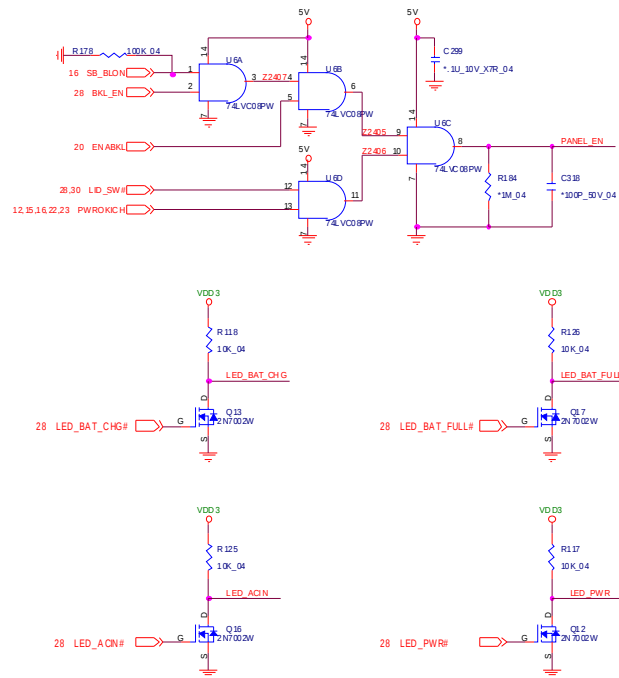
PLEASE CLOSE TO CONNECTOR



7, 9, 12, 13, 15, 22, 24, 30, 32, 39, 41, 43 3V5
12, 17, 18, 20, 22, 27, 29, 31, 43 5V5
6, 12, 13, 15, 17, 20, 24, 25, 29, 32, 40, 41, 43 3V

The diagram shows a circuit section labeled "7/13". It features two SY51SV input signals connected through resistors R392 (1M_04) and R391 (1M_04) to a differential pair of transistors Q26 and Q27 (2N7000). The gates of Q26 and Q27 are driven by a common source signal labeled "2A ENAVDD" which passes through a resistor network (R382, R383, R384, R385) and a capacitor C34 (0.1U_25V_04). The drains of Q26 and Q27 are connected to a 3V supply through resistors R186 (10K_04) and R185 (10K_04), respectively. A capacitor C46 (1U_16V_04) is connected between the 3V supply and ground. The sources of Q26 and Q27 are connected to ground through a common resistor network (R188, R189, R190, R191) and a capacitor C47 (2N7000W). The output of the circuit is labeled "LVDCVC".

Modify C4 from 0.1µF change to 0.01µF for LVDS power time.



LCD, INT B - 25

B.Schematic Diagrams

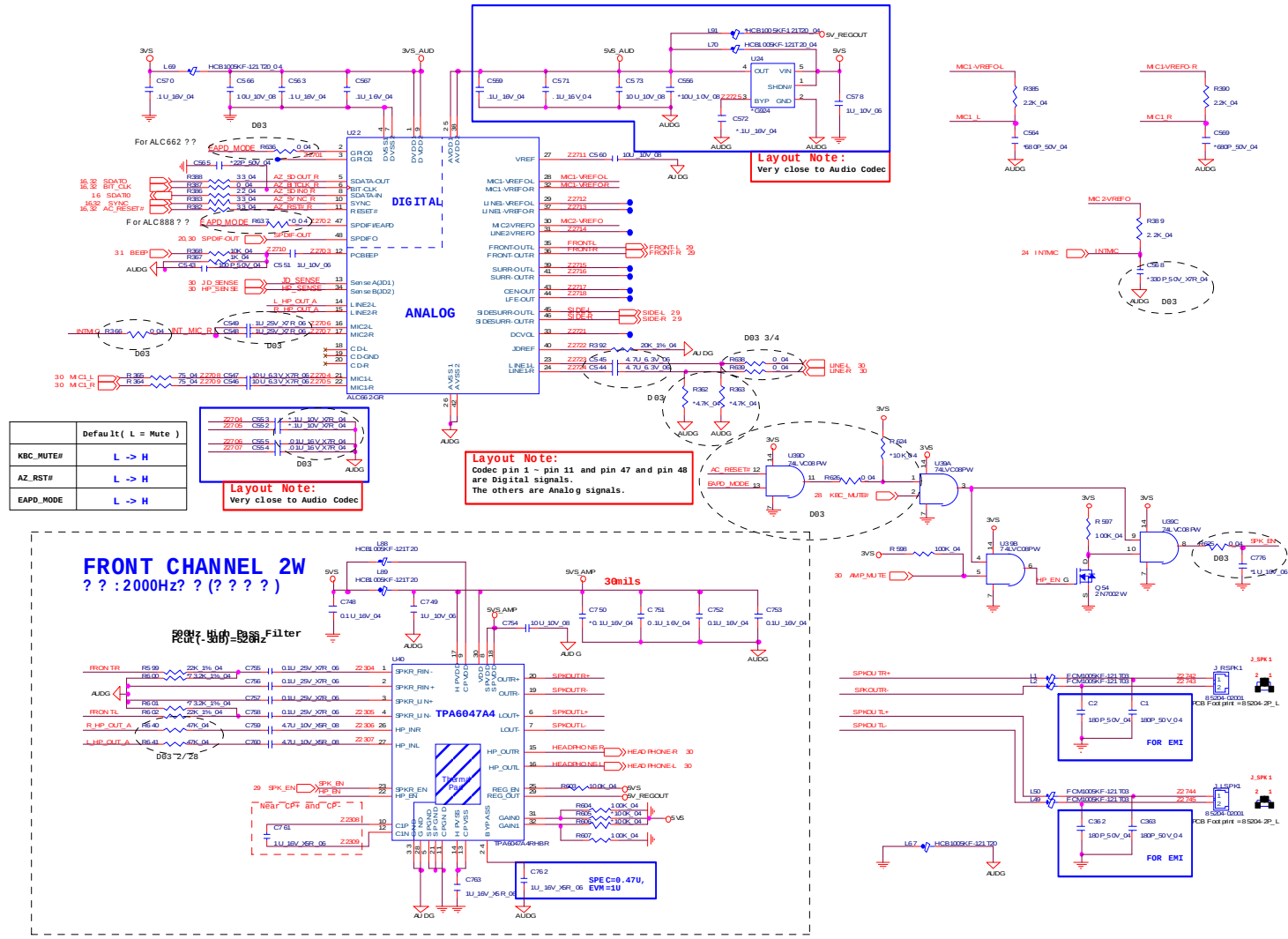
Sheet 25 of 47
Card Reader/1394



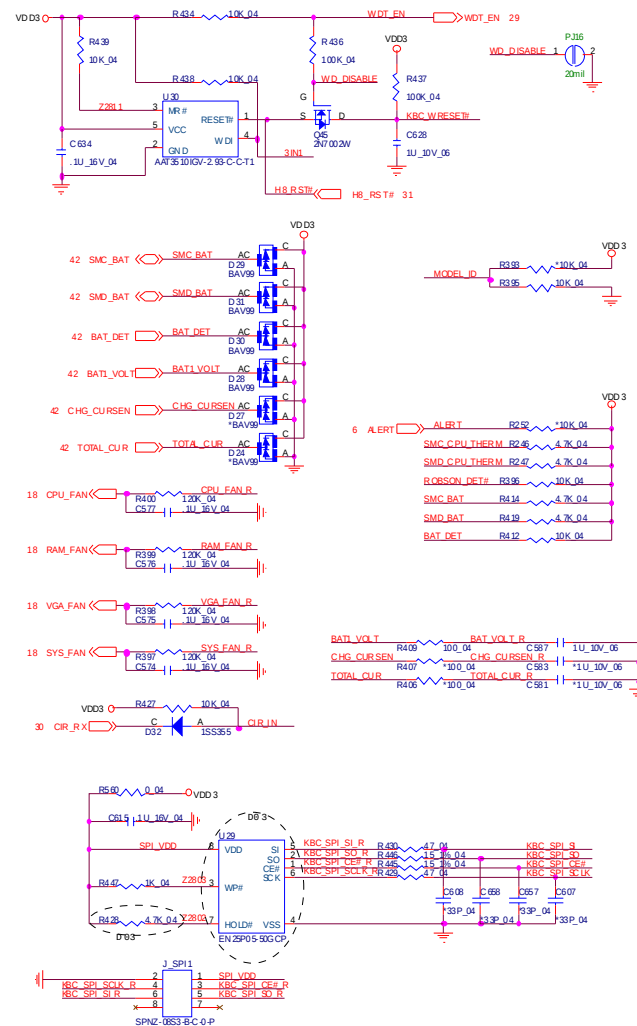
Schematic Diagrams

ALC662 / AMP TP6047A-4

Sheet 27 of 47
ALC662 / AMP
TPA6047A4



7/13
ITB512E pin4 and pin16 swap
for LED driver circuit

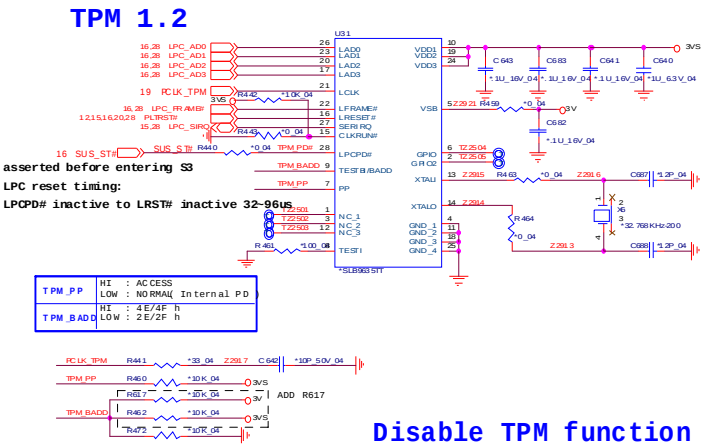
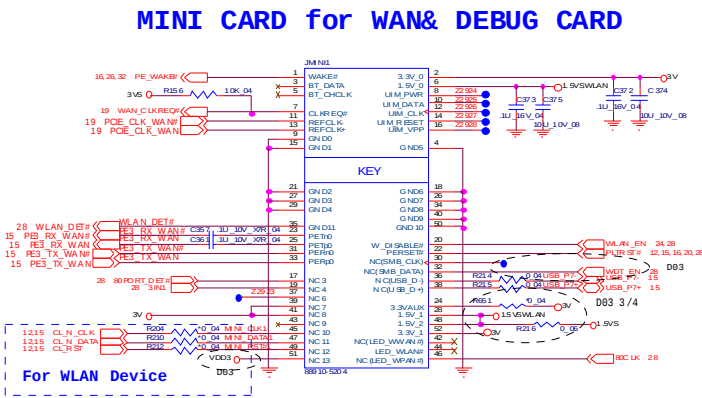


KBC-ITE IT8512E B - 29

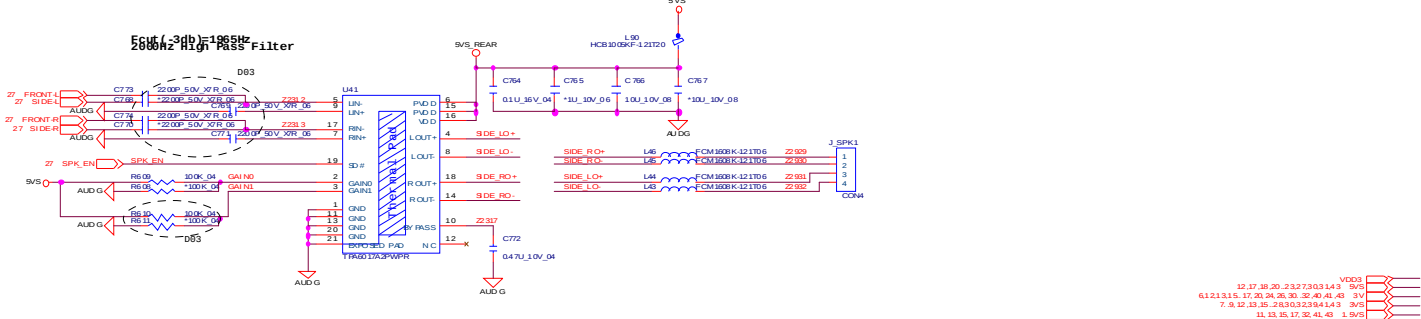
Schematic Diagrams

Mini WLAN/ TMP/ TPA6017A2

Sheet 29 of 47
Mini WLAN / TPM/
TPA6017A2

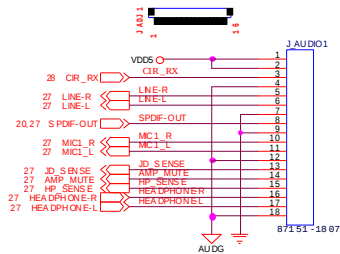


REAR CHANNEL 2W
?? : 500-1000Hz (? ? ? ?)

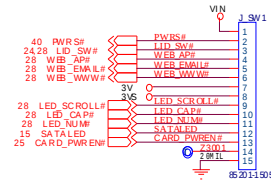


Daughter CONN

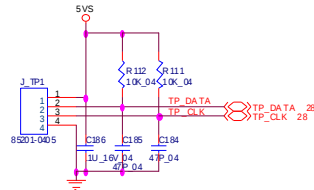
PHONE JACK BOARD



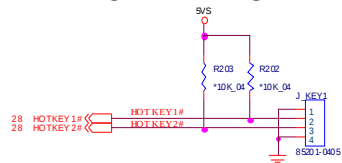
SWITCH BOARD



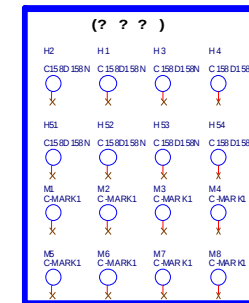
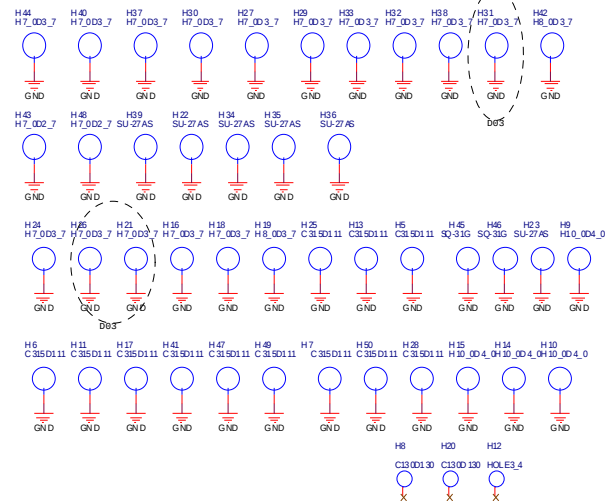
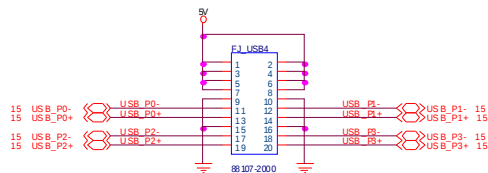
CLICK BOARD



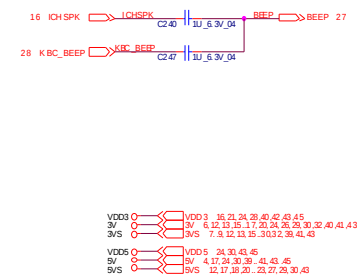
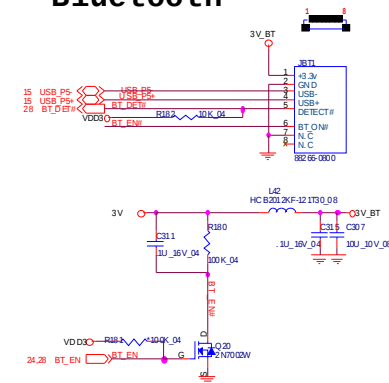
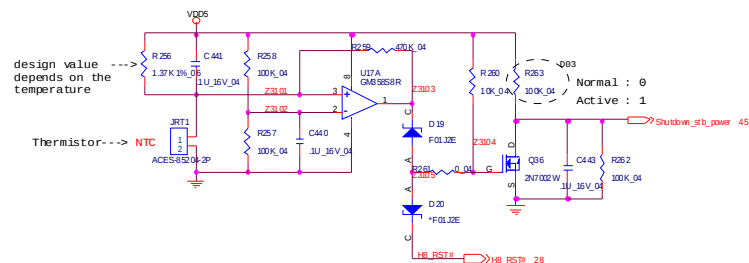
HOTKEY BOARD



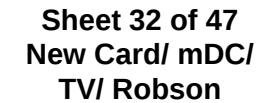
USB BOARD



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



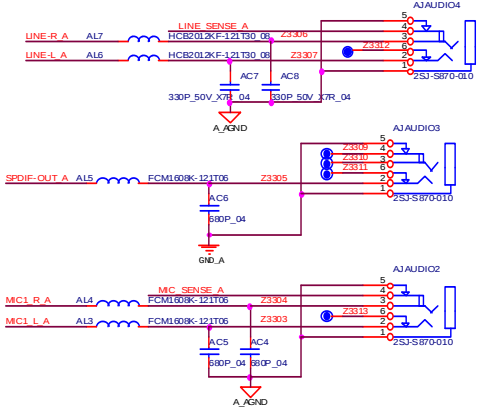
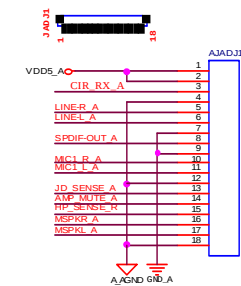
NEW CARD



Schematic Diagrams

Audio Board

Sheet 33 of 47
Audio Board



LINE IN
(SURR)

4 BLUE

SPDIF
OUT

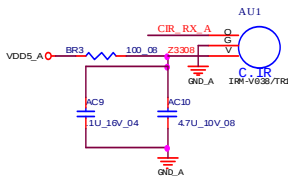
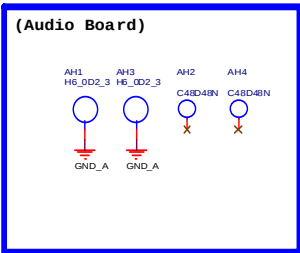
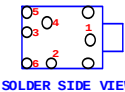
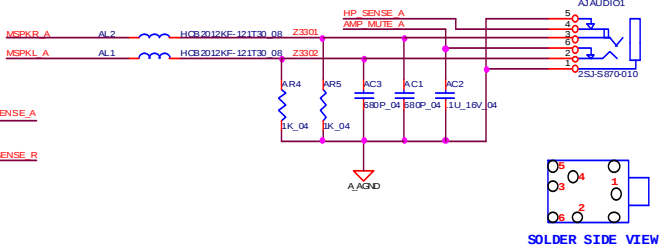
3 BLACK

MIC IN
(CENTER)

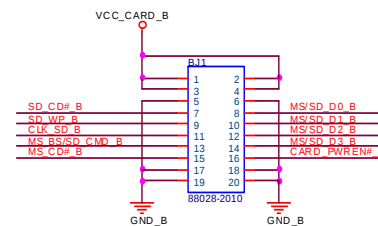
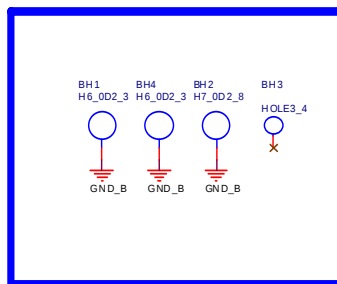
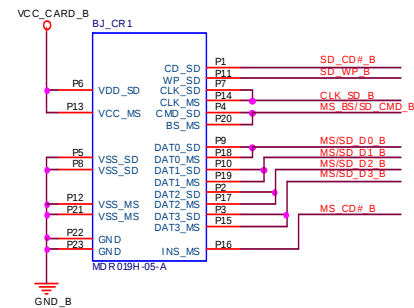
2 PINK

SPEAKER OUT
(FRONT)

1 GREEN



Card Reader Board

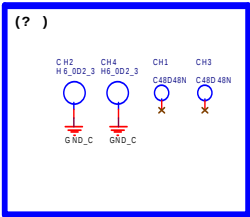
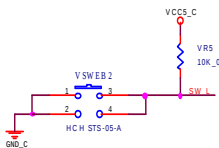
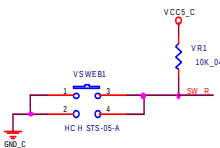
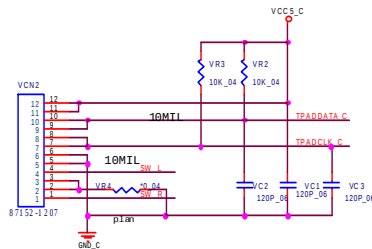
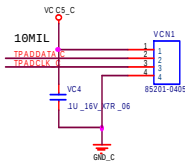


Sheet 34 of 47
Card Reader Board

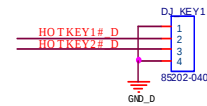
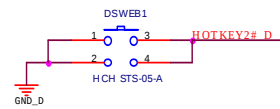
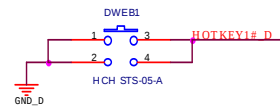
Schematic Diagrams

Click Board

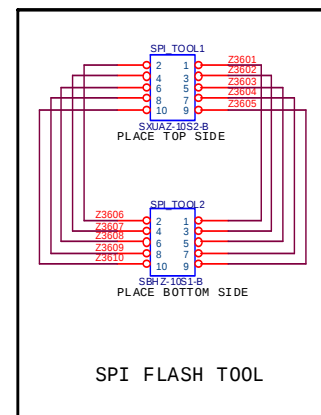
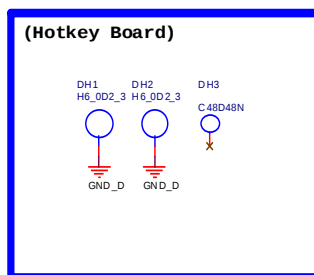
Sheet 35 of 47
Click Board



Hotkey Board



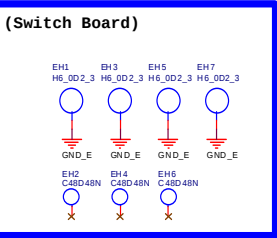
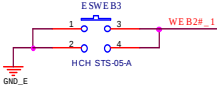
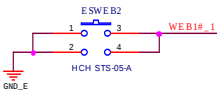
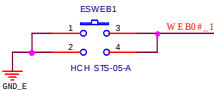
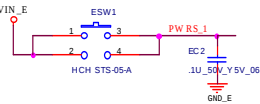
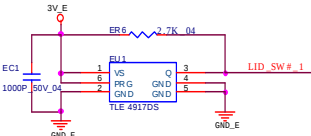
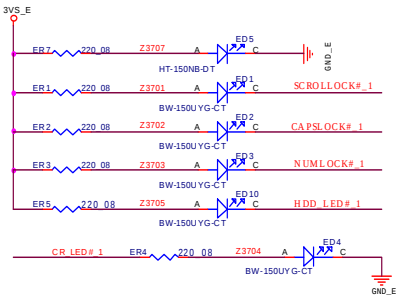
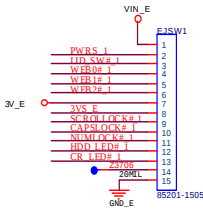
Sheet 36 of 47
Hotkey Board



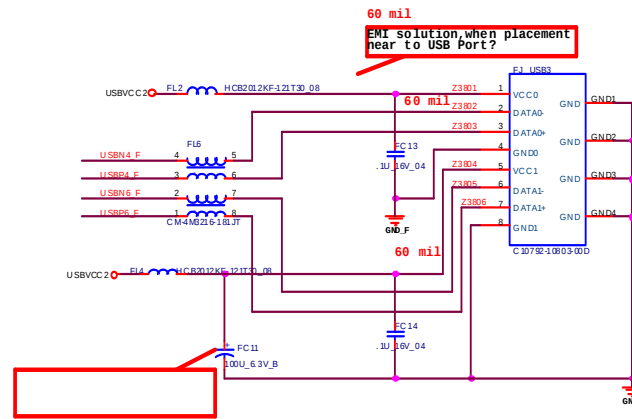
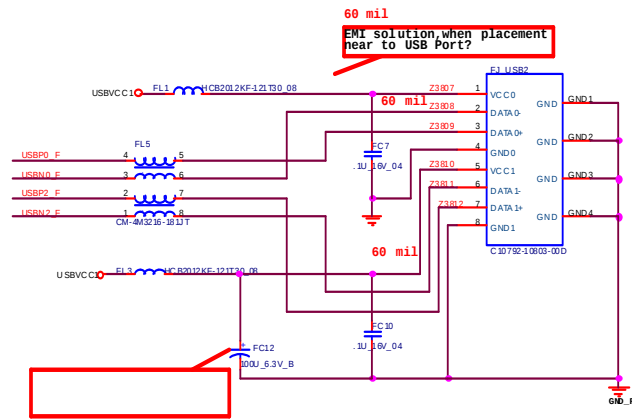
Schematic Diagrams

Switch Board

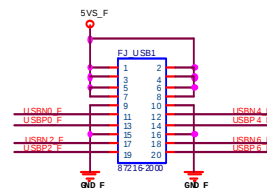
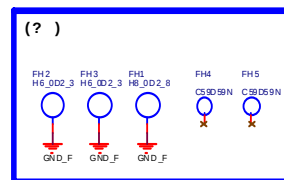
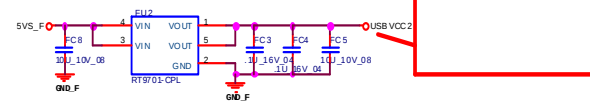
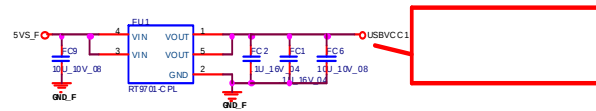
Sheet 37 of 47
Switch Board



USB Board



Sheet 38 of 47
USB Board

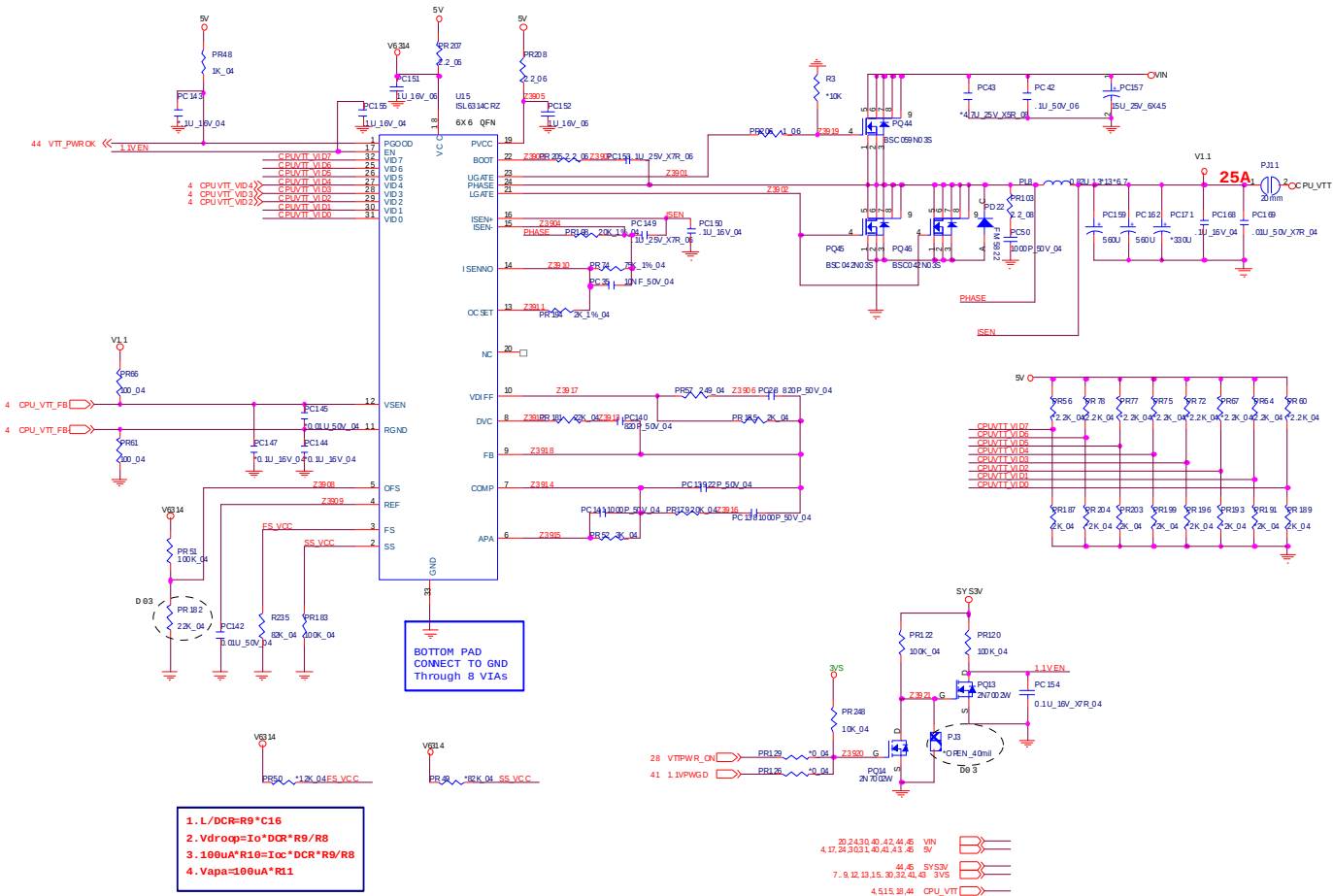


Schematic Diagrams

Power CPU_VTT

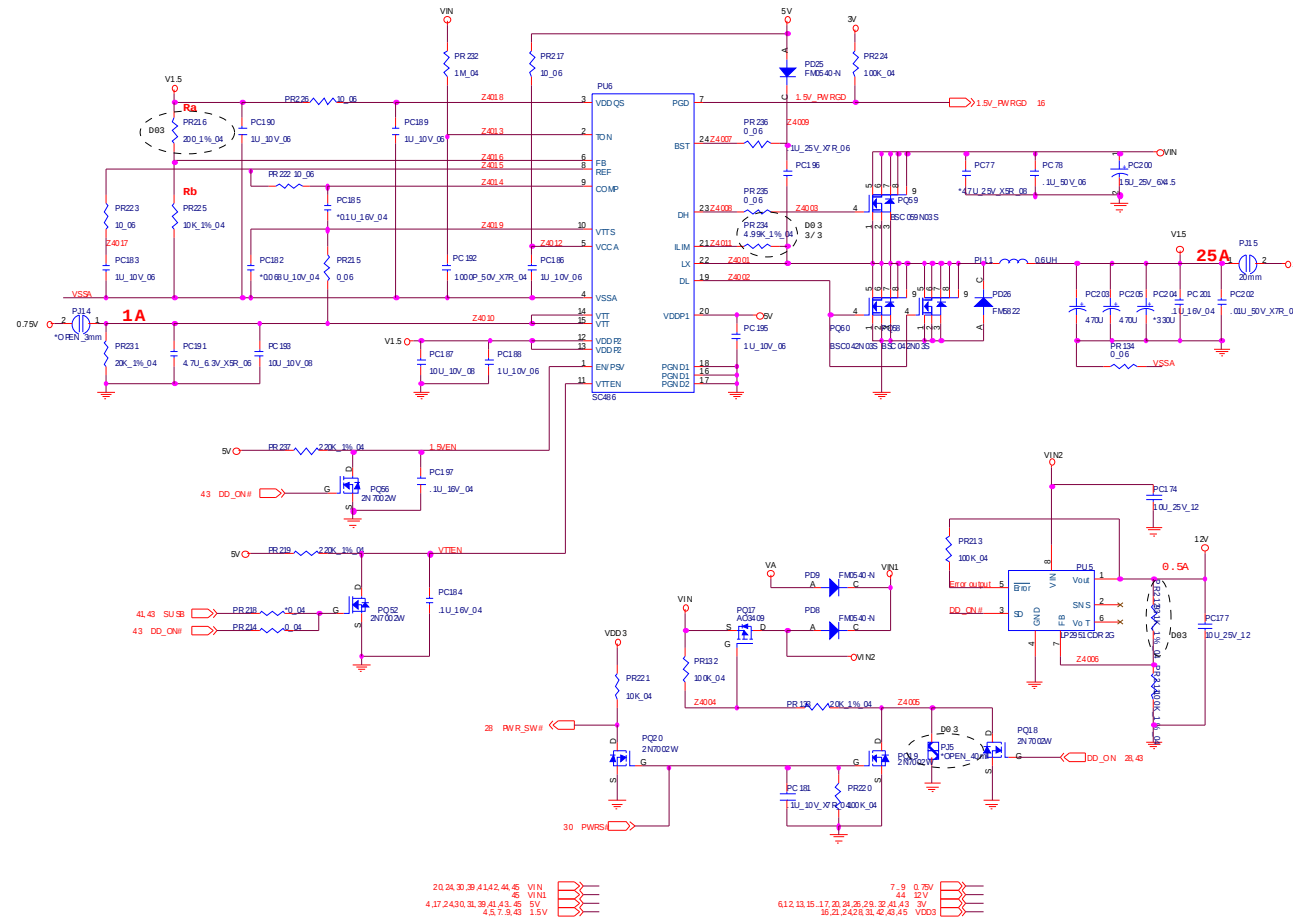
Sheet 39 of 47
Power CPU_VTT

ISL6314CR POWER CKT



Power 1.5V, 0.75VS, 12V

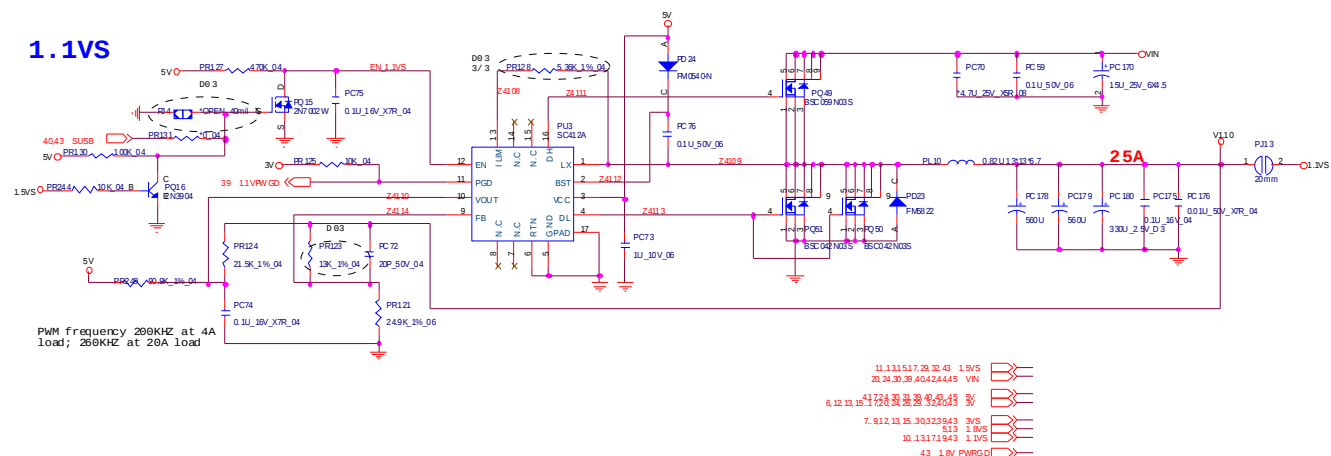
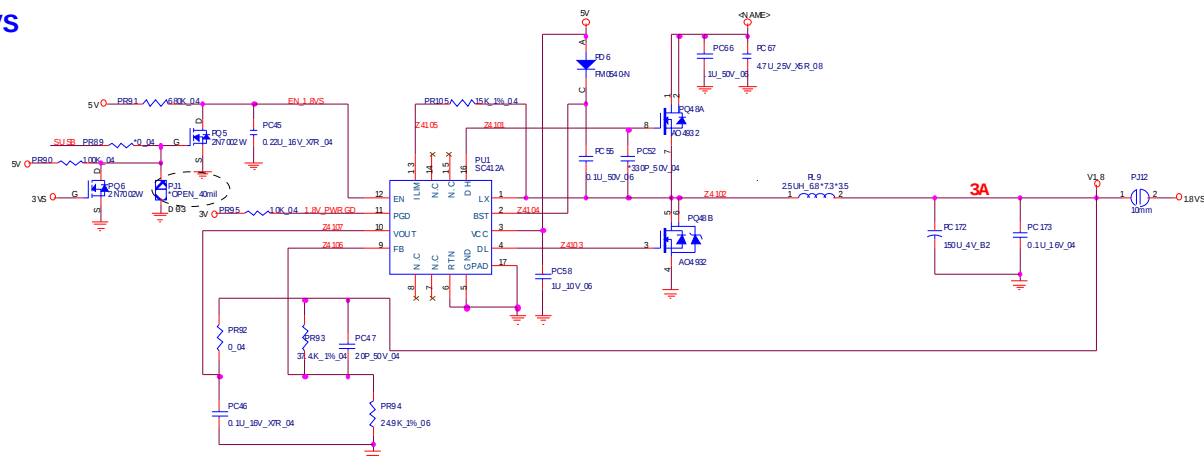
1.5V, 0.75VSM

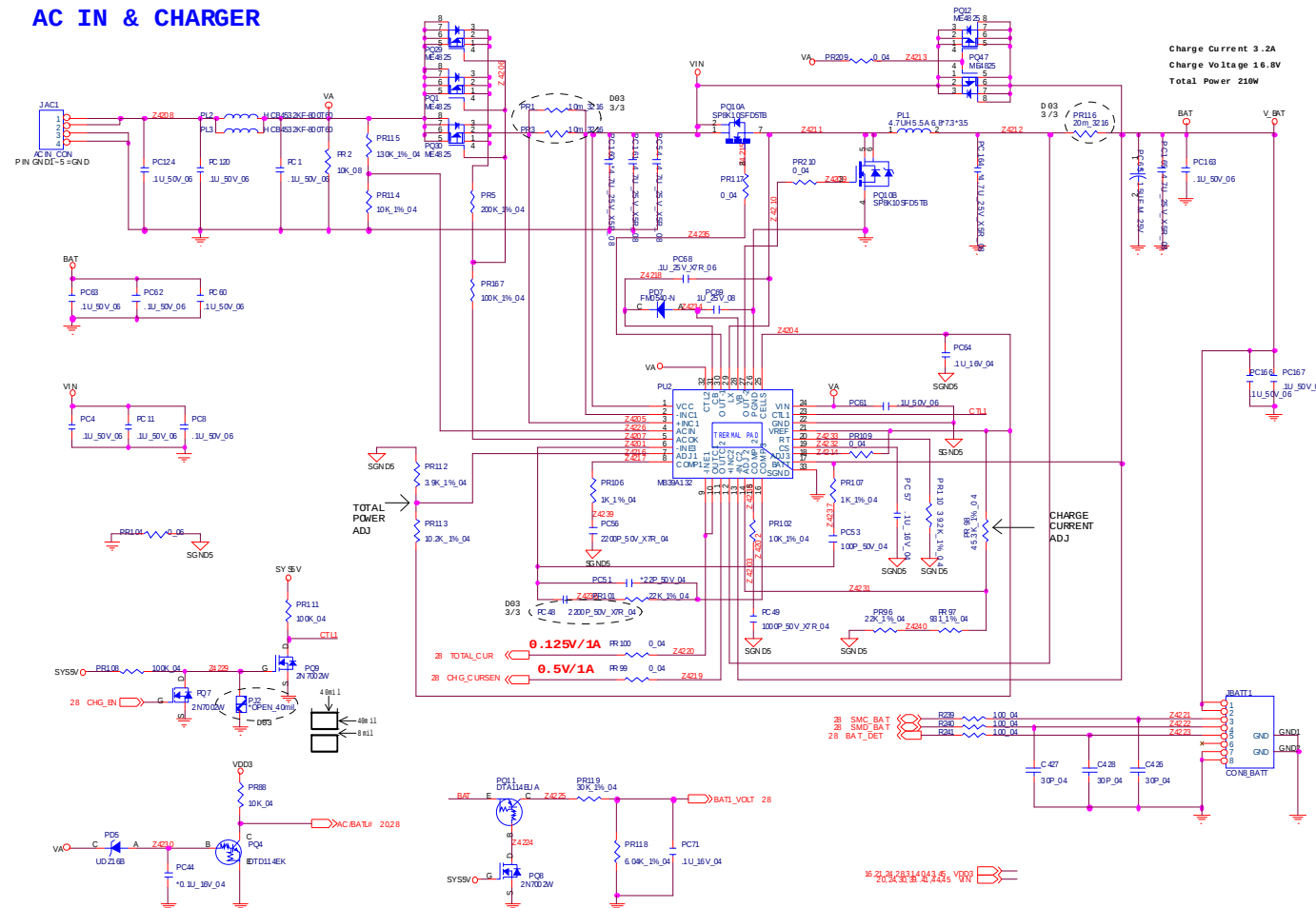


Sheet 40 of 47
Power 1.5V,
0.75VS, 12V

B.Schematic Diagrams

Sheet 41 of 47
Power 1.8VS, 1.1VS

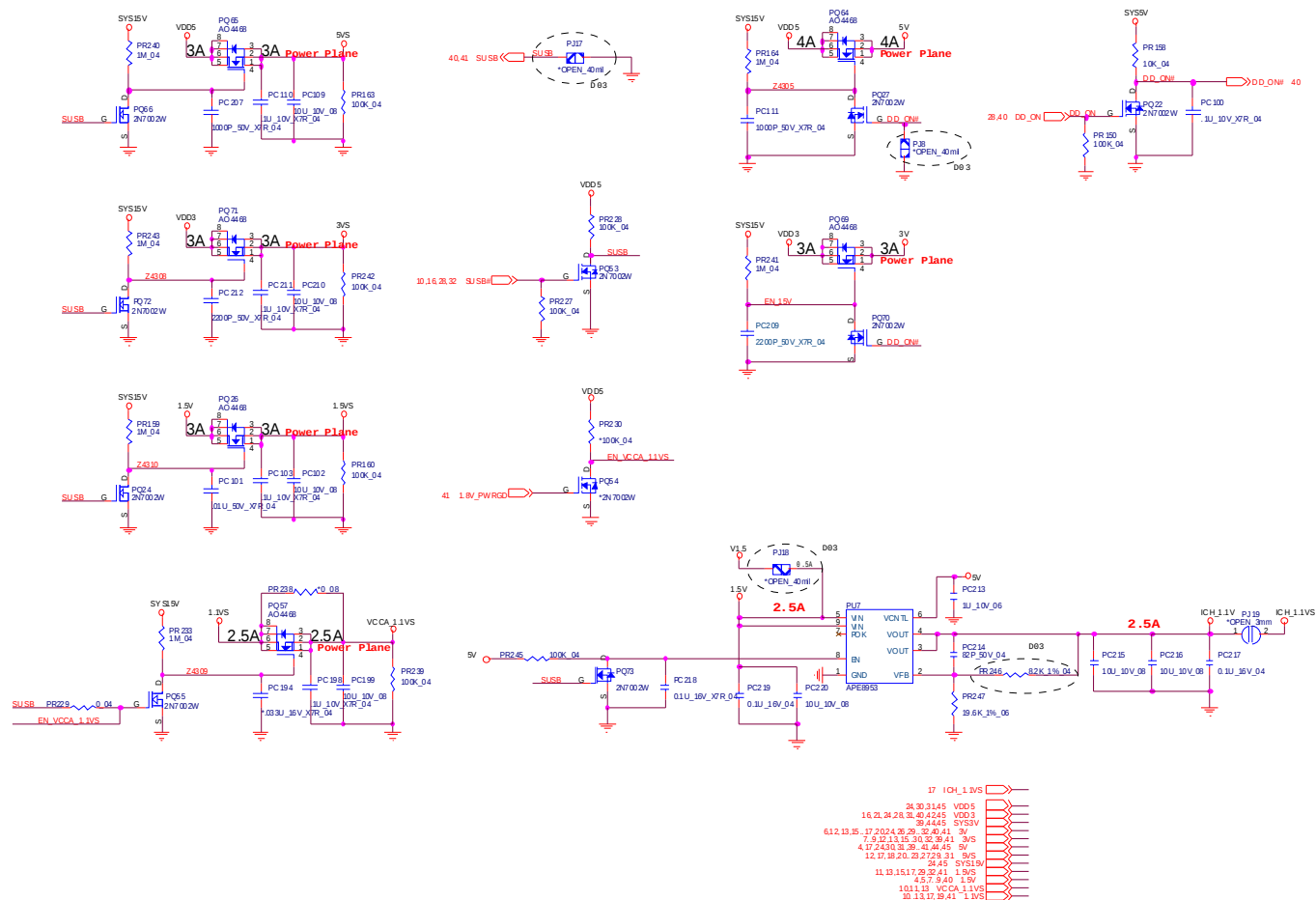




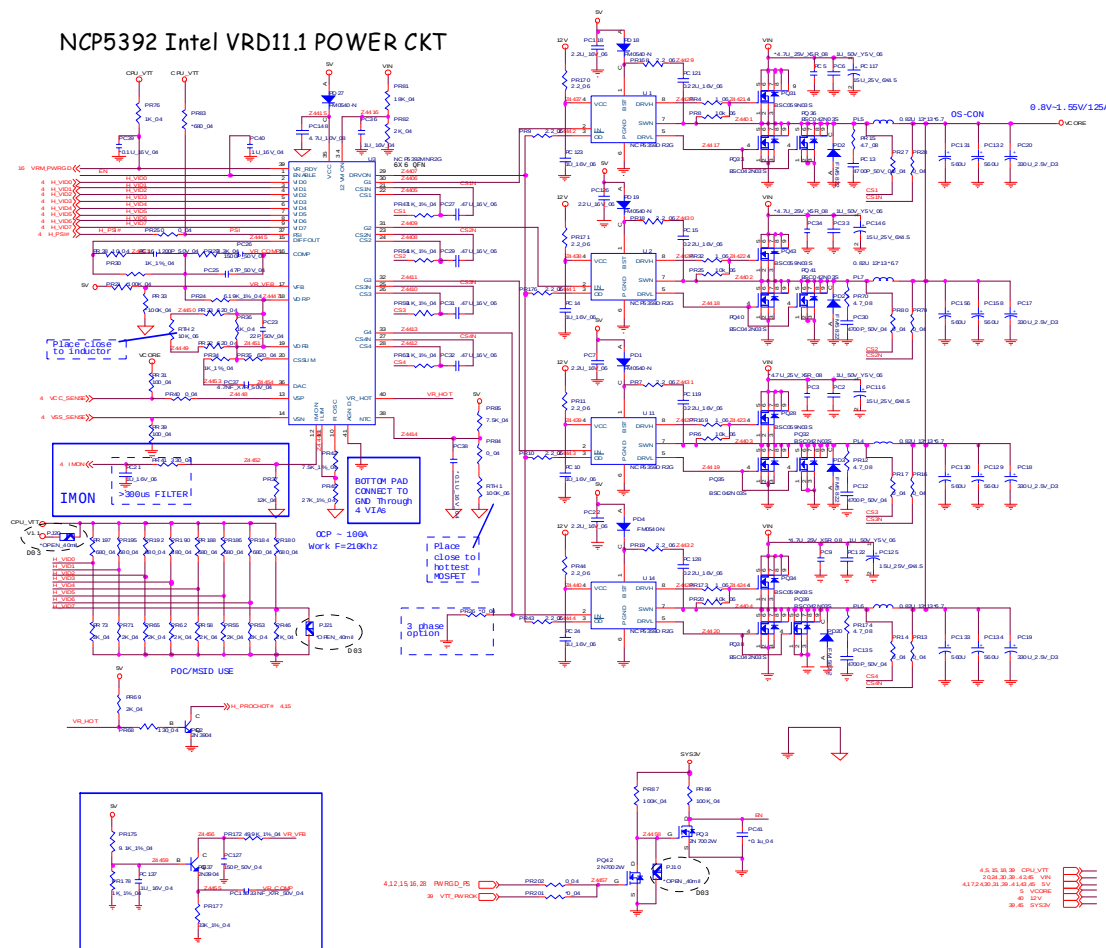
Sheet 42 of 47
Power AC_In,
Charge

B.Schematic Diagrams

Sheet 43 of 47
Power Switch,
ICH_1.1VS



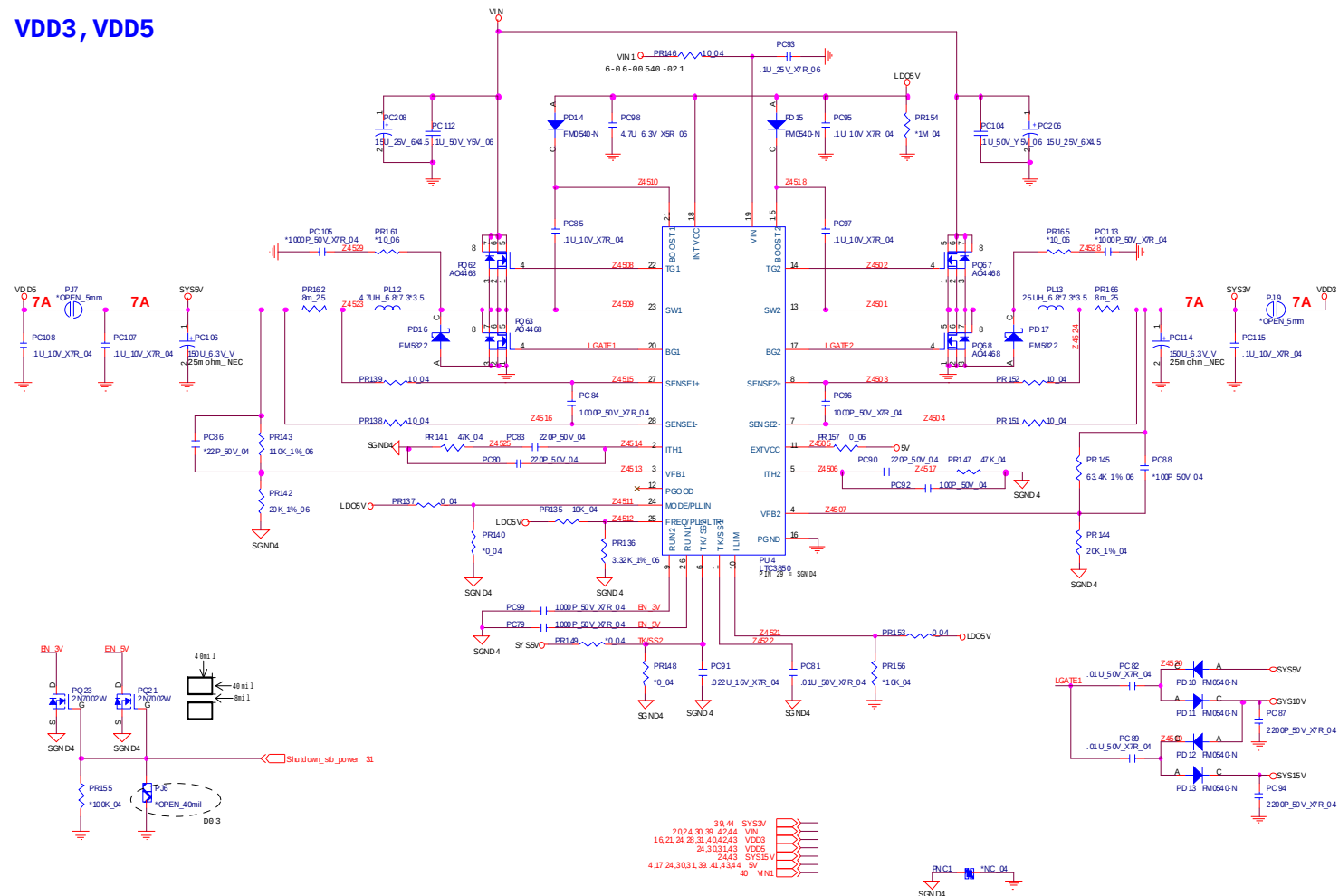
B.Schematic Diagrams



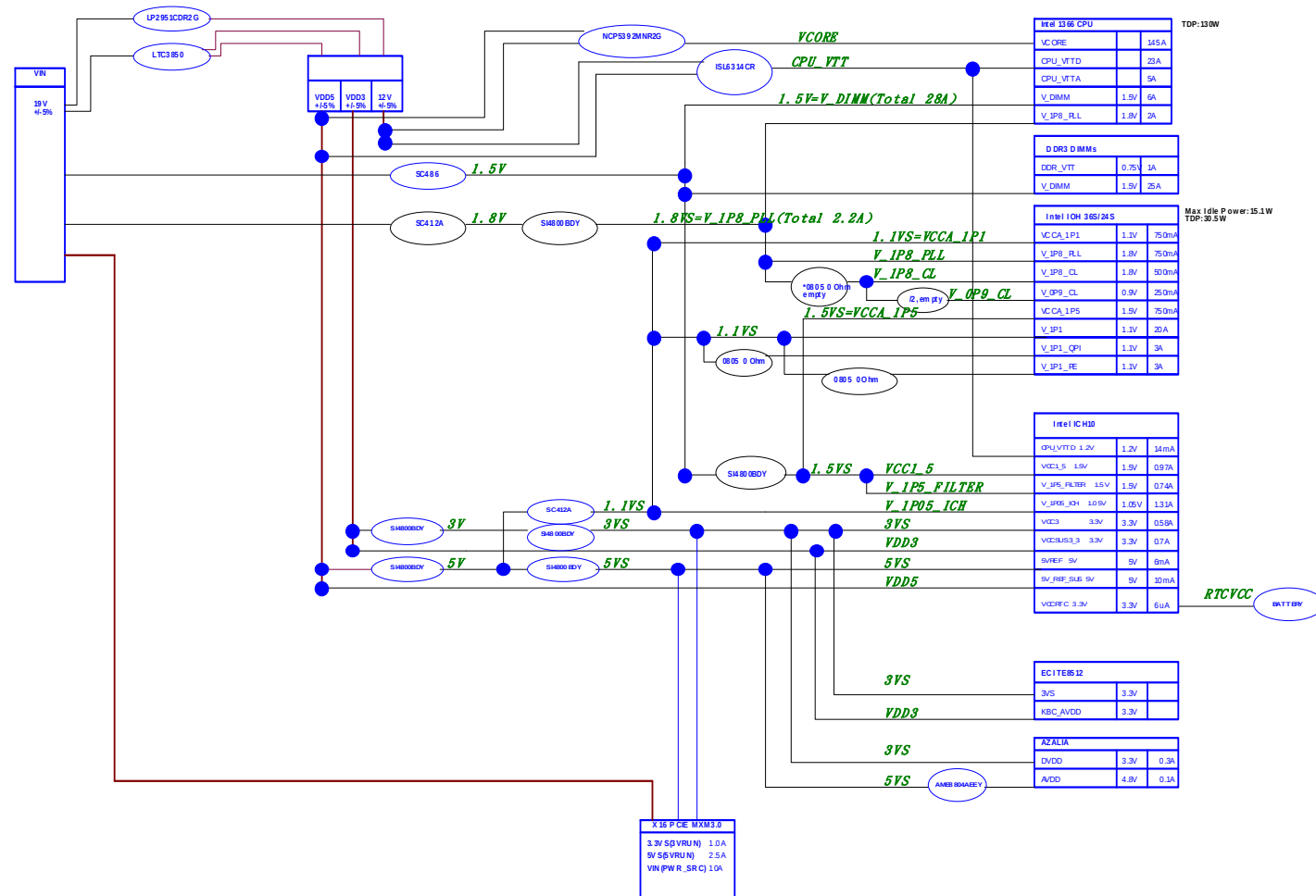
Schematic Diagrams

Power VDD3, VDD5

Sheet 45 of 47
Power VDD3, VDD5



Sheet 46 of 47
Power Delivery
Chart



Power Sequence Diagram

Sheet 47 of 47
Power Sequence
Diagram

