

SERVICE MANUAL

L390T



LCD Computer

L390T

Service Manual

Preface

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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 **L390T** series LCD 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

Appendix C, Wall Mounting Information

Appendix D, CPU Dip Switch Settings

Preface

FCC Statement (Federal Communications Commission)

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the service representative or an experienced radio/TV technician for help.

Operation is subject to the following two conditions:

1. This device may not cause interference.
And
2. This device must accept any interference, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.



Warning

Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the manufacturer for compliance with the above standards could void your authority to operate the equipment.

Preface

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 this equipment with a telephone line (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, 4.74A).

CAUTION

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

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

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

Instructions for Care and Operation

The 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. **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.
4. **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.
5. **Take care when using peripheral devices.**

Preface



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).

Power Safety

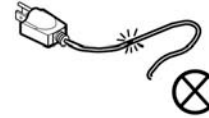
The computer has specific power requirements:

- 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.

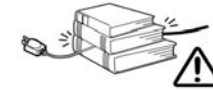
Do not plug in the power cord if you are wet.



Do not use the power cord if it is broken.



Do not place heavy objects on the power cord.



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.

Servicing

Do not attempt to service the computer yourself. Doing so may violate your warranty and expose you and the computer to electric shock. Refer all servicing to authorized service personnel. Unplug the computer from the power supply. Then refer servicing to qualified service personnel under any of the following conditions:

- When the power cord is damaged or frayed.
- If the computer has been exposed to any liquids.
- If the computer does not work normally when you follow the operating instructions.
- If the computer has been dropped or damaged (do not touch the poisonous liquid if the LCD panel breaks).
- If there is an unusual odor, heat or smoke coming from your computer.



Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before turning the computer on.

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.

Contents

Notice	1-II	Removing the Fan Module	2-12
About this Manual	1-III	Removing the Ion Thermal Module	2-13
FCC Statement	1-IV	Removing the Optical (CD/DVD) Device	2-15
FCC RF Radiation Exposure Statement:	1-V	Removing the Wireless LAN Module	2-16
Instructions for Care and Operation	1-VII	Removing the Bluetooth Module	2-17
Power Safety	1-VIII	Removing the Modem Module	2-18
Cleaning	1-IX	Removing the CPU	2-19
Servicing	1-IX	Removing the Inverter	2-22
Introduction	1-1	Part Lists	A-1
Overview	1-1	Part List Illustration Location	A-2
System Specifications	1-2	LCD (L390T)	A-3
Tilting the LCD Screen	1-5	Stand (L390T)	A-4
External Locator - Front View	1-6	Back Fan-1 (L390T)	A-5
External Locator - Left & Right Side Views	1-7	Back Fan-2 (L390T)	A-6
External Locator - Rear View	1-8	DVD (L390T)	A-7
Mainboard Overview - Top (Key Parts)	1-9	Combo (L390T)	A-8
Mainboard Overview - Bottom (Key Parts)	1-10	Schematic Diagrams.....	B-1
Mainboard Overview - Top (Connectors & Switches)	1-11	System Block Diagram	B-2
Disassembly	2-1	Clock Generator	B-3
Overview	2-1	Penryn (Socket-P) CPU 1/2	B-4
Maintenance Tools	2-2	Penryn (Socket-P) CPU 2/2	B-5
Connections	2-2	Cantiga 1/7 Host	B-6
Maintenance Precautions	2-3	Cantiga 2/7 Graphics	B-7
Disassembly Steps	2-4	Cantiga 3/7	B-8
Removing the Rear Top Cover	2-6	Cantiga 4/7	B-9
Removing the Hard Disk Drive	2-7	Cantiga 5/7	B-10
Upgrading the System Memory (RAM)	2-8	Cantiga 6/7	B-11
Removing the Stand	2-10	Cantiga 7/7	B-12
Removing the Rear Bottom Cover	2-11	DDRII SO-DIMM_0	B-13

Preface

DDRII SO-DIMM_1	B-14
Panel, Inverter, CRT	B-15
ICH9M 1/4	B-16
ICH9M 2/4, PCI, USB, SPI	B-17
ICH9M 3/4	B-18
ICH9M 4/4	B-19
New Card, Mini PCIE	B-20
Mini, PW Conn, Fan	B-21
USB Port Con	B-22
CardReader, IEEE 1394	B-23
SATA ODD, Audio	B-24
PCI-E LAN RTL8111C	B-25
Audio Codec ALC888	B-26
Audio AMP2056	B-27
KBC-ITE IT8513E	B-28
5VS, 3, 3VS, VIN	B-29
Power VDD3/VDD5	B-30
Power 1.5V/1.05V	B-31
POWER 1.8V/0.9V	B-32
GFX_VCORE	B-33
VCORE	B-34
BT, CCD, MDC, AC-IN CONN	B-35
TOUCH PANEL CONN	B-36
HDMI CONN	B-37
COM PORT	B-38
USB, AUDIO, BOARD	B-39
POWER, SW, BOARD	B-40
LED BOARD	B-41

Wall Mounting Guide C-1

Removing the Stand	C-2
Mounting Systems	C-3
General Guidelines for Wall Mounting	C-4
Mounted System Example	C-5


CPU Type DIP Switch SettingsD-1

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **L390T** series LCD 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 **L390T** series notebook is designed to be upgradeable. See ***“Disassembly” on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the “” symbol.

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

System Specifications

Feature	Specification
Processor	Intel® Core™2 Duo Processor (478-pin) Micro-FC-PGA Package, Socket P TDP: 35W T9400/ T9600 45nm (45 Nanometer) Process Technology 6MB On-die L2 Cache & 1066MHz FSB 2.53/ 2.8 GHz
	Intel® Core™2 Duo Processor (478-pin) Micro-FC-PGA Package, Socket P TDP: 25W P9500 45nm (45 Nanometer) Process Technology 6MB On-die L2 Cache & 1066MHz FSB 2.53 GHz
	Intel® Core™2 Duo Processor (478-pin) Micro-FC-PGA Package, Socket P TDP: 25W P8400/ P8600 45nm (45 Nanometer) Process Technology 3MB On-die L2 Cache & 1066MHz FSB 2.26/ 2.40 GHz
Core Logic	Intel GM45 + ICH9M Chipset
LCD	19" WXGA+ (1440*900) Flat Panel TFT Hard Glass (Factory Option) Touch Panel (Factory Option)
Memory	Two 200 Pin SO-DIMM Sockets Supporting DDRII (DDR2) 667 MHz/ 800 MHz 64-bit Wide DDRII (DDR2) Data Channel Memory Expandable up to 4GB (1024/ 2048 MB DDRII Modules)
Video Adapter	Intel GM45 Integrated Video High Preference 2D/3D Graphic Accelerator Shared Memory Architecture (up to 256MB dynamically allocated from system memory where needed) MS DirectX® 10.0 Compatible
BIOS	One 32Mb Flash ROM Phoenix™ BIOS
Storage	One Changeable 12.7mm(h) Optical Device (CD/DVD) Type Drive (see page 1 - 4 for drive options) with SATA (Serial) Interface Changeable 2.5" 9.5 mm (h) HDD with SATA (Serial) Interface

Feature	Specification	
Audio	Intel High Definition Audio Interface (HDA) 3D Stereo Enhanced Sound System Sound-Blaster PRO™ Compatible	S/PDIF Digital Output 2 * Built-In Speakers
Security	Security (Kensington® Type) Lock Slot	BIOS Password
Keyboard	Standard USB Keyboard (Option) or RF Keyboard with Receiver (Option)	
Interface	Five USB 2.0 Ports (Three for VESA Support) One HDMI-Out Port Two Headphone-Out Jacks Two Microphone-In Jacks One S/PDIF Output Jack One eSATA Port (IDE mode only and does not support	One RJ-11 Jack for Plug & Play Fax/Modem One RJ-45 Jack for 10Mb/ 100Mb Fast Ethernet One DC-in Jack One External Monitor Port One Mini-IEEE 1394a Port One Line-In Jack Two (Serial) COM Ports
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	
ExpressCard Slot	ExpressCard/34/54 Slot	
Mini-Card Slots	One Mini-Card Slot for Wireless LAN Module	
Communication	Built-In 56K Fax/Modem Built-In Gigabit Ethernet LAN Bluetooth 2.0 + EDR (Enhanced Data Rate) Module (Factory Option) 1.3M or 2.0M Pixel USB PC Camera Module (Factory Option) <u>Wireless LAN Module Options:</u> 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) 3rd Party 802.11b/g Wireless LAN MiniCard Module with USB Interface (Option)	
Power Management	Supports ACPI 3.0	Supports Wake on LAN Supports Resume from Modem Ring
Power	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19V, 4.74A (90 Watts)	

Introduction

Feature	Specification	
Environmental Spec	Temperature Operating: 5°C ~ 35°C Non-Operating: -20°C ~ 60°C	Relative Humidity Operating: 20% ~ 80% Non-Operating: 10% ~ 90%
Dimensions & Weight	450mm (w) * 312mm (d) * 66.5mm (h)	11kg with ODD
Optional	<u>SATA Optical Drive Module Options:</u> Combo Drive Module DVD Dual (Super Multi) Drive Module <u>Wireless LAN Module:</u> 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) 3rd Party 802.11b/g Wireless LAN MiniCard Module with USB Interface (Option)	1.3M or 2.0M Pixel USB PC Camera Module (Factory Option) Bluetooth 2.0 + EDR (Enhanced Data Rate) Module (Factory Option) Ion Thermal Module (Factory Option) - Note that the Ion Thermal Module is compatible only with the Intel® Core™2 Duo Processor P8400/ P8600 (2.26/ 2.40 GHz)

Tilting the LCD Screen

It is possible to tilt the LCD screen in order to get the best possible viewing angle of the screen without glare etc. Apply pressure with one hand at the base of the computer, while carefully pushing the LCD screen to tilt it to the appropriate viewing angle.



Moving the Computer

We strongly recommend using both hands to move the computer. You can use one hand to grip the computer by the stand, and the other to hold the top of the LCD screen.

It is recommended that you carry the computer with the LCD facing your body to avoid scratching the surface against other objects. However take care not to scratch the LCD with any personal items, belt fittings or jewelry etc.(one hand gripping the stand and the other gripping the top of the computer to avoid accidentally dropping it).

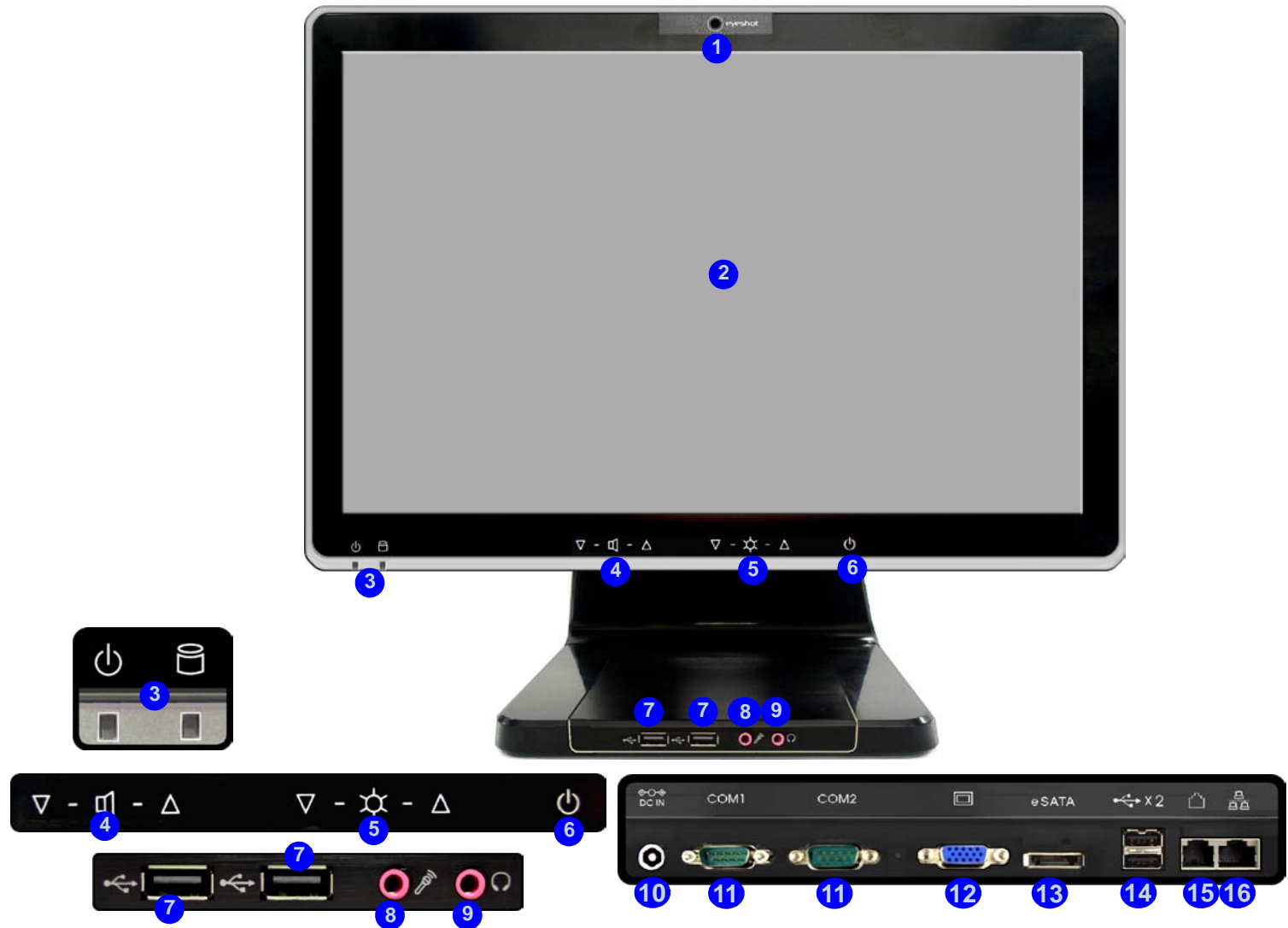
Figure 1
Tilting the LCD Screen

Introduction

Figure 2
Front View

External Locator - Front View

1. Optional Built-In PC Camera
2. LCD (With **Optional** Touch Panel)
3. Power & System Activity LED Indicators
4. Volume Buttons (under the LCD)
5. Brightness Buttons (under the LCD)
6. Power Button (under the LCD)
7. USB Ports
8. Microphone-In Jack
9. Headphone/ Speaker-Out Jack
10. DC-In Jack (under the LCD)
11. 2 * COM Ports (under the LCD)
12. External Monitor Port (under the LCD)
13. eSATA Port (under the LCD)
14. 2 * USB Ports (under the LCD)
15. RJ-11 Phone Jack (under the LCD)
16. RJ-45 LAN Jack (under the LCD)



External Locator - Left & Right Side Views



Figure 3
Left & Right Side Views

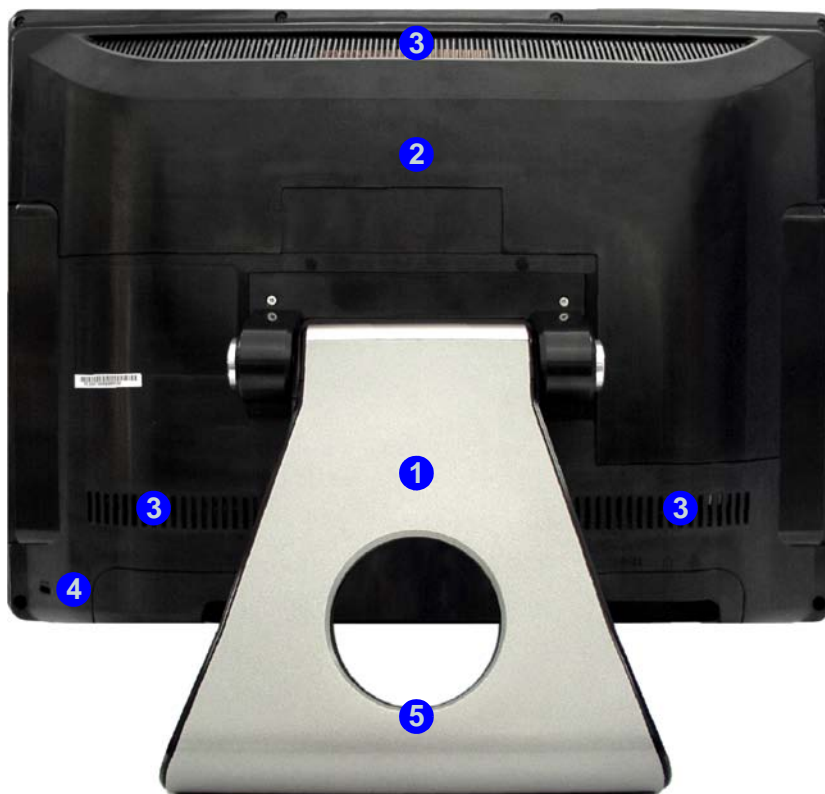
1. Stand
2. S/PDIF-Out Jack
3. Headphone-Out Jack
4. Microphone-In Jack
5. Line-In Jack
6. Mini-IEEE 1394 Port
7. HDMI-Out Port
8. 1 * USB 2.0 Port
9. 7-in-1 Card Reader
10. ExpressCard Slot
11. Optical Device Drive Bay

Introduction

Figure 4
Rear View

1. Stand
2. Rear Component Cover
3. Vent/Fan Intake
4. Security Lock Slot
5. Carrying Handle Area

External Locator - Rear View



Overheating

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



Carrying the Computer

We strongly recommend using both hands to move the computer (one hand gripping the handle area and the other gripping the computer) to avoid accidentally dropping it. Be careful that objects such as belt buckles etc. do not scratch the screen while it is being carried.

Mainboard Overview - Top (Key Parts)

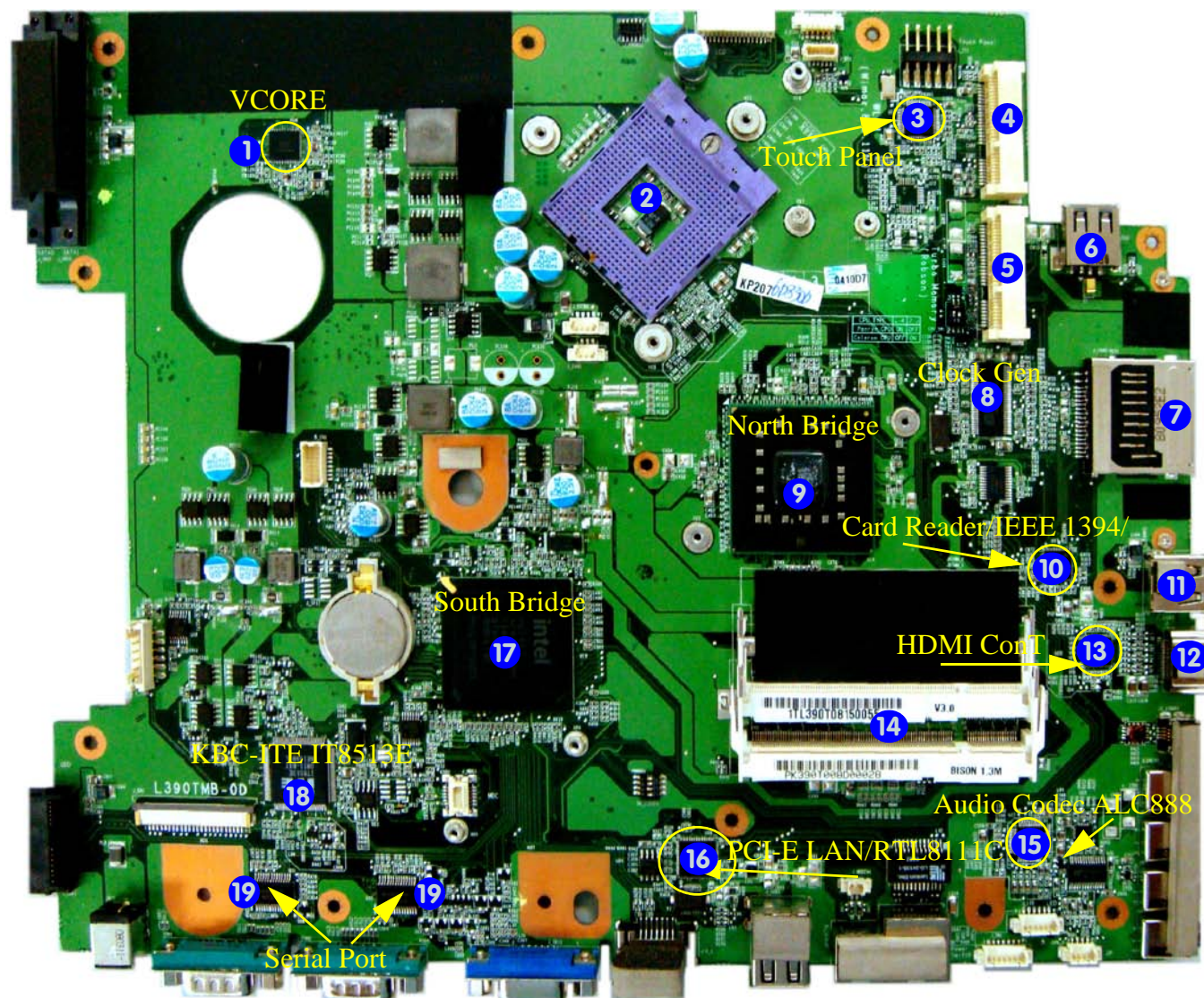


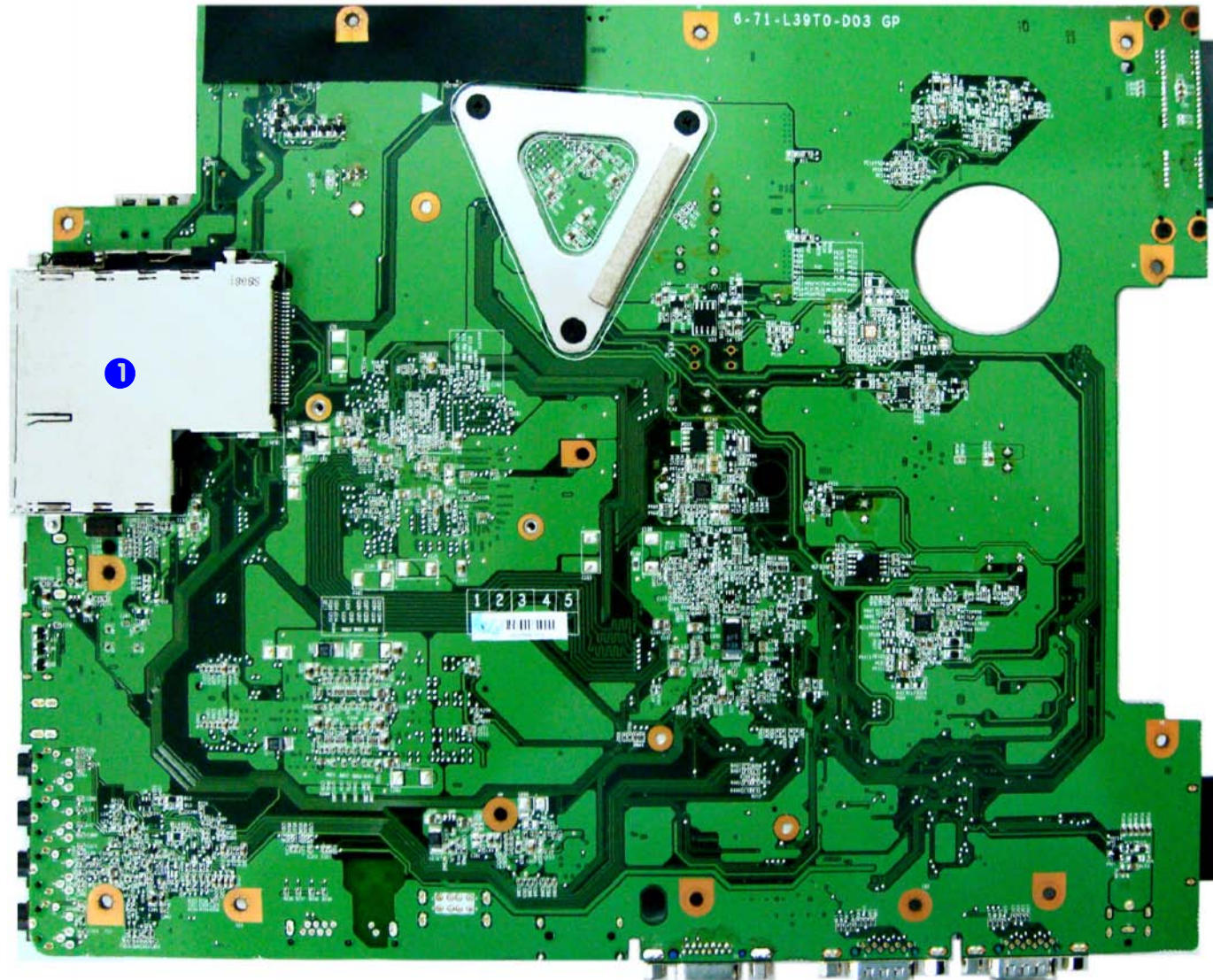
Figure 5
Mainboard Top
Key Parts

1. VCORE
2. CPU Socket
3. Touch Panel
4. WLAN Socket
5. Turbo Memory Socket
6. USB Port (Internal for USB Wireless & Keyboard)
7. 7-in-1 Card Reader
8. Clock Generator
9. North Bridge
10. Card Reader/IEEE 1394
11. USB Ports
12. HDMI-Out Port
13. HDMI Cont
14. RAM Sockets
15. Audio Codec ALC888
16. PCI-E LAN/RTL8111C
17. South Bridge
18. KBC-ITE IT8513E
19. Serial Port

Figure 6
**Mainboard Bottom
Key Parts**

1. Express Card Slot

Mainboard Overview - Bottom (Key Parts)



Mainboard Overview - Top (Connectors & Switches)

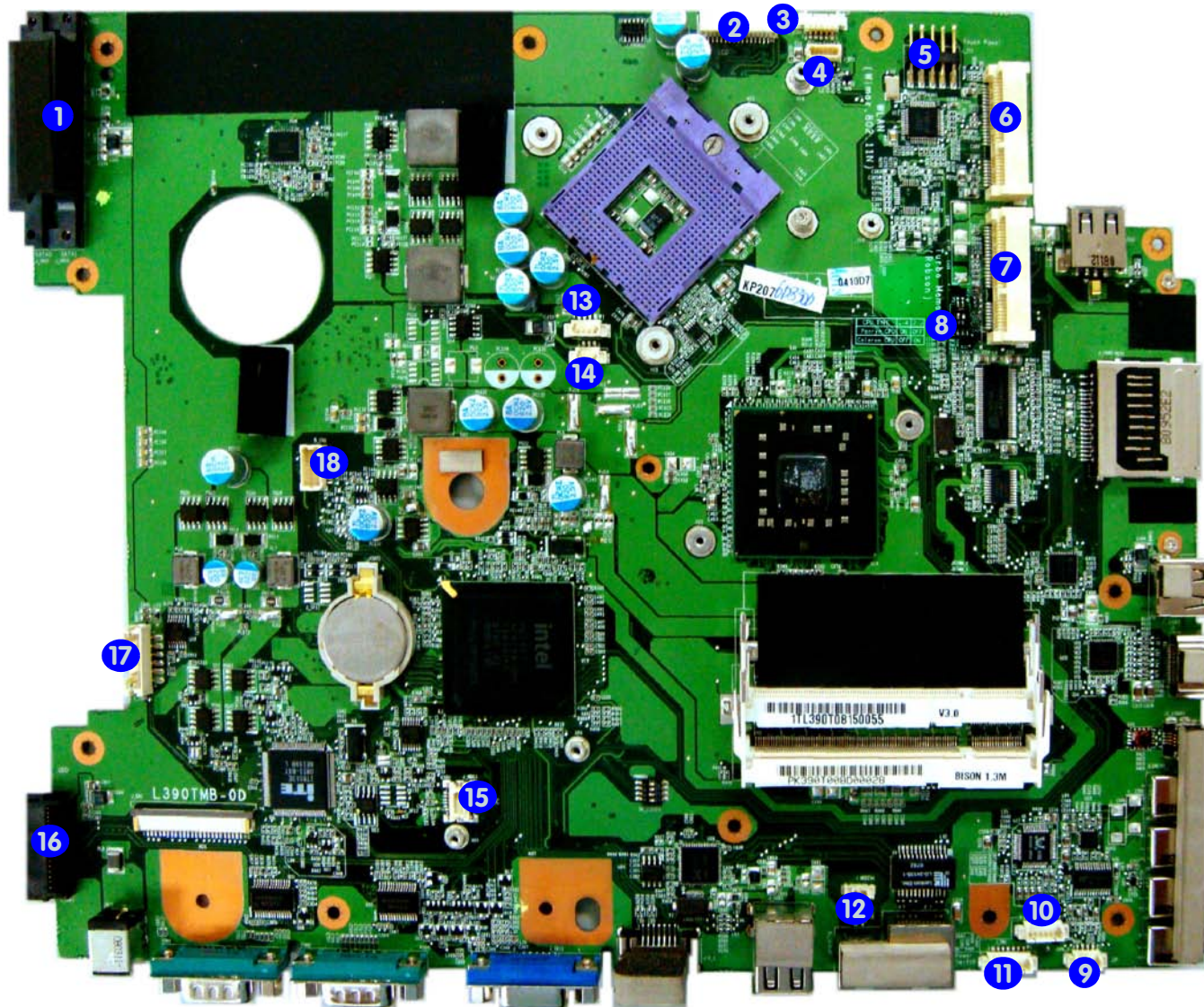


Figure 7
**Mainboard Top
Connectors**

1. HDD (J_HDD1/2)
2. LCD (LCD1)
3. Camera (J_CCD1)
4. Bluetooth Cable (J_BT1)
5. Touch Panel (J_TP1)
6. WLAN Socket (J_Mini1)
7. Turbo Memory Socket (J_Robson1)
8. CPU DIP Switch (CPU_SW1)
9. Speaker (JSPK_1)
10. LED (J_LED)
11. Power Switch (J_PW1)
12. Modem Cable (J_MODEM1)
13. Ionizer (J_OZONE)
14. Fan (J_FAN1)
15. Modem (J_MDC1)
16. Optical Device (J_ODD1)
17. Inverter (J_INV1)
18. Base (B-CN1)


Chapter 2: Disassembly



Overview

This chapter provides step-by-step instructions for disassembling the *L390T* series LCD computer's parts and sub-systems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

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

Procedures such as upgrading/replacing the RAM, 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.



Warning



Information

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).

Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before turning the computer 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 Rear Top Cover:

1. Remove the rear top cover [page 2 - 6](#)

To remove the Hard Disk Drive:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the HDD [page 2 - 7](#)

To remove the System Memory:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the system memory [page 2 - 8](#)

To remove the Stand:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the stand [page 2 - 10](#)

To remove the Rear Bottom Cover:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the stand [page 2 - 10](#)
3. Remove the rear bottom cover [page 2 - 11](#)

To remove the Fan Module:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the stand [page 2 - 10](#)
3. Remove the rear bottom cover [page 2 - 11](#)
4. Remove the fan module [page 2 - 12](#)

To remove the Ion Thermal Module:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the stand [page 2 - 10](#)
3. Remove the rear bottom cover [page 2 - 11](#)
4. Remove the ion thermal module [page 2 - 13](#)

To remove the Optical Device:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the stand [page 2 - 10](#)
3. Remove the rear bottom cover [page 2 - 11](#)
4. Remove the optical device [page 2 - 15](#)

To remove the WLAN Module:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the WLAN module [page 2 - 16](#)

To remove the Bluetooth Module:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the Bluetooth module [page 2 - 17](#)

To remove the Modem Module:

1. Remove the rear top cover [page 2 - 6](#)
2. Remove the stand [page 2 - 10](#)
3. Remove the rear bottom cover [page 2 - 11](#)
4. Remove the modem module [page 2 - 18](#)

To remove the CPU:

1. Remove the rear top cover
2. Remove the CPU

page 2 - 6

page 2 - 19

To remove the Inverter:

1. Remove the rear top cover
2. Remove the inverter

page 2 - 6

page 2 - 22

Disassembly

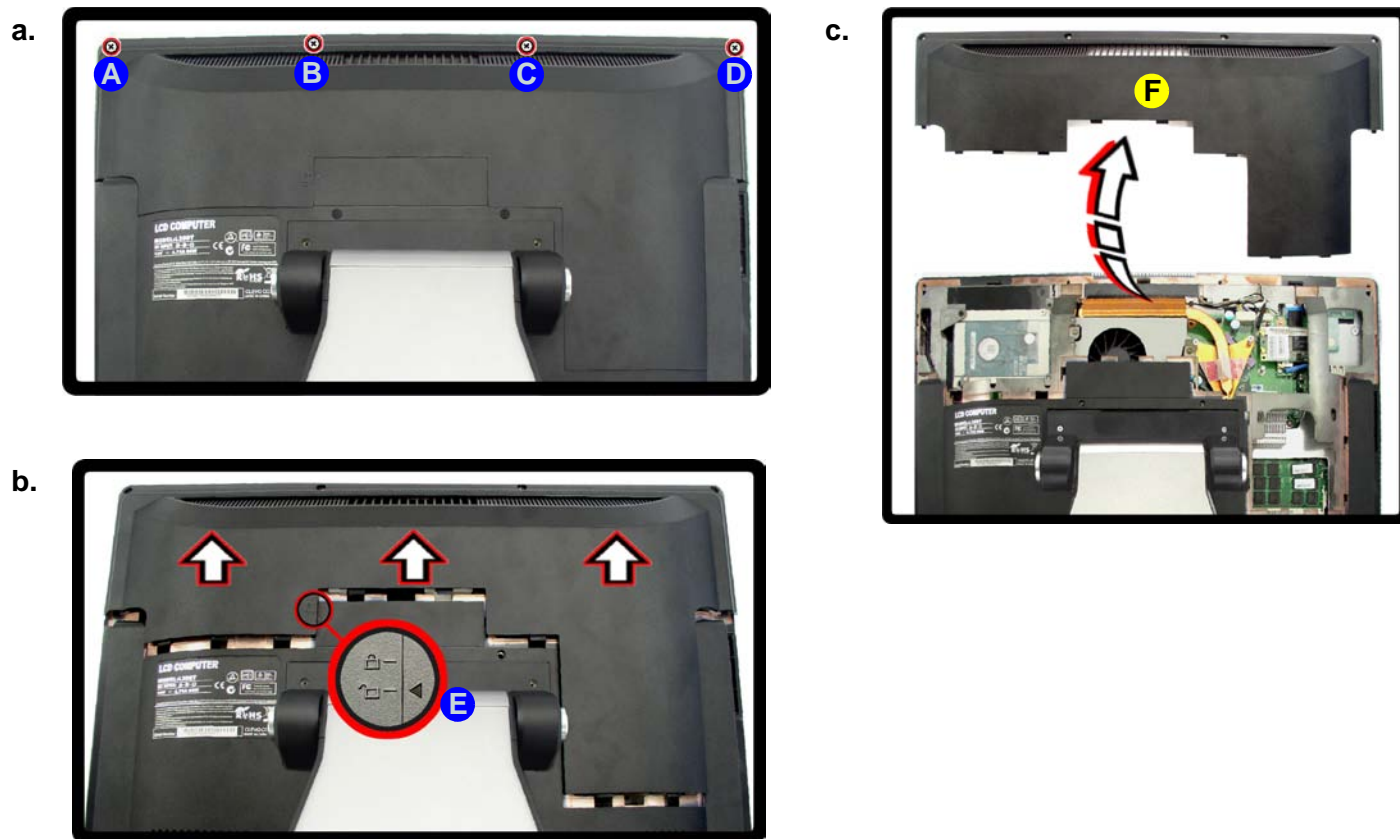
Figure 1
Rear Top Cover Removal

- Remove the screws.
- Slide the top cover to unlock.
- Remove the rear top cover.

Removing the Rear Top Cover

Before undertaking any upgrade procedure it is necessary to remove the rear top cover to access the components.

1. Turn **off** the computer and disconnect all cables and peripherals.
2. Carefully place the computer flat with the LCD facing down (make sure you cover the LCD to avoid scratches) so that you may access the rear cover.
3. Remove screws **A** - **D**.
4. Slide the rear top cover until the arrow is aligned with the unlock icon **E**.
5. When the arrow is aligned with the unlock icon you can remove the rear top cover **F**.



F. Rear Top Cover

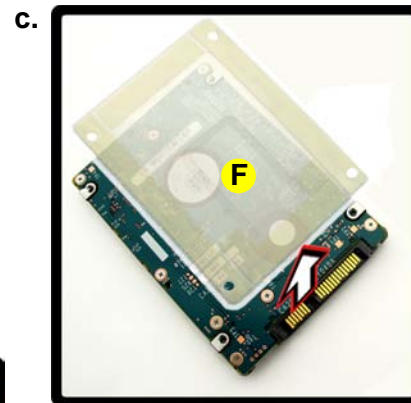
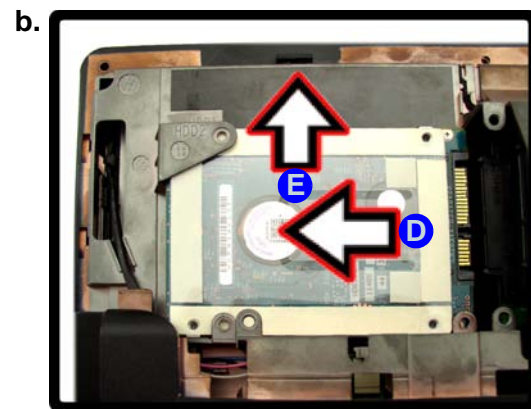
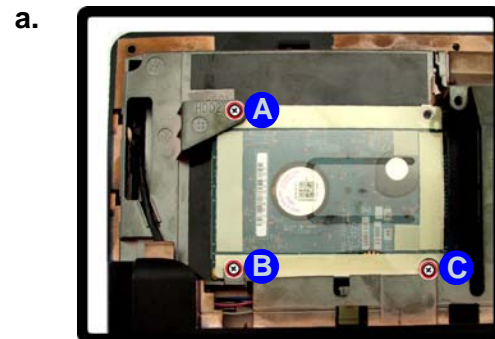
- 4 Screws

Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (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. Remove the rear top cover ([page 2 - 6](#)).
2. Remove screws **A** - **C**.
3. Firstly slide the hard disk in the direction of arrow **D**, and then slide it in the direction of arrow **E** to remove it.
4. Remove the adhesive hard disk cover **F**.
5. Reverse the process to install a new hard disk.



Hard Disk Slot

Make sure you install the hard disk into the lower slot on the mainboard.

HDD System Warning

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

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

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

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

F. Adhesive Hard Disk Cover

- 3 Screws

Figure 2
Hard Disk Drive Removal

- a. Remove the screws.
- b. Slide the hard disk in the direction of the arrows.
- c. Remove the adhesive hard disk cover top cover.

Disassembly

Figure 3
RAM Module Removal

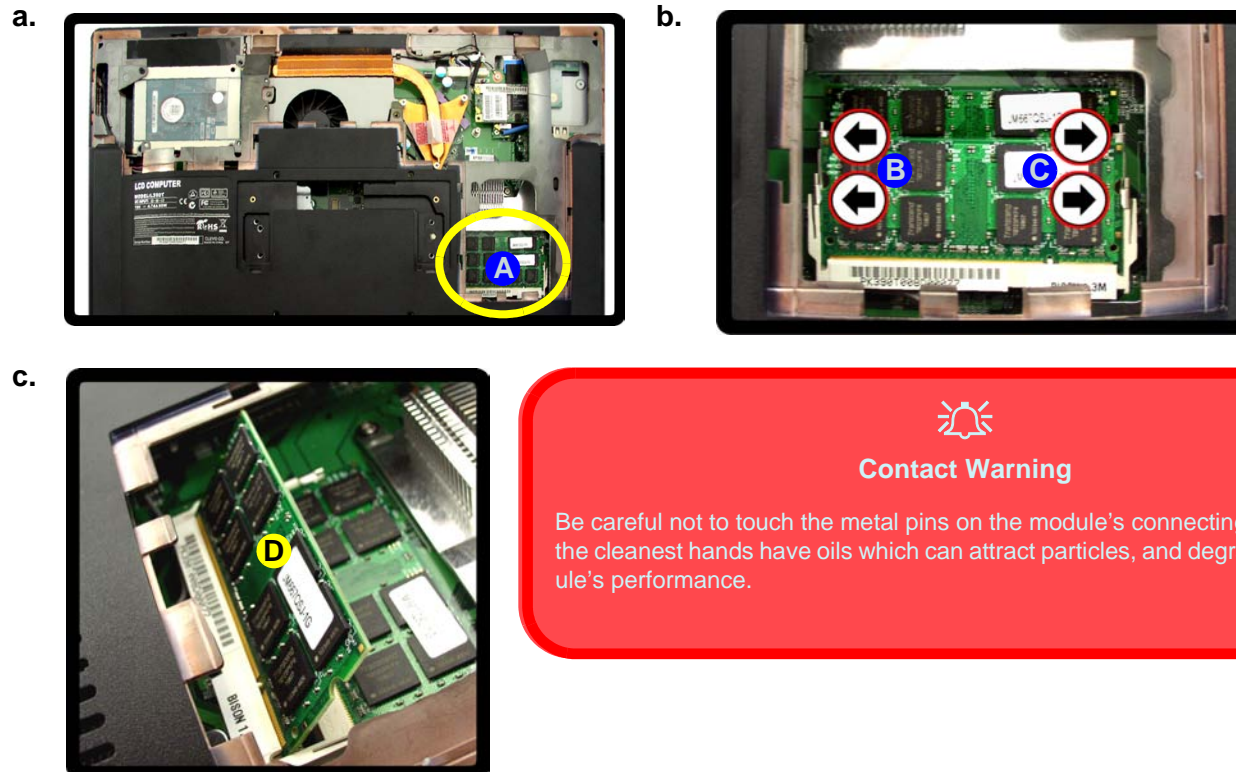
- a. Locate the RAM.
- b. Pull the latches to release the RAM module(s).
- c. Remove the RAM module(s).

Upgrading the System Memory (RAM)

The computer has **two** memory sockets for 200 pin Small Outline Dual In-line (SO-DIMM) **DDRII (DDR2)** type memory modules (see *“Memory” on page 1 - 2* for details of supported module types).

The total memory size is automatically detected by the POST routine once you turn on your computer.

1. Remove the rear top cover (*page 2 - 6*).
2. The RAM is located at point **A**.
3. Gently pull the two release latches on the sides of the memory socket in the direction indicated by the arrows (**B** & **C**) in *Figure 3b*.
4. The RAM module **D** will pop-up, and you can remove it (see over).



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.



D. RAM Module

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

Disassembly

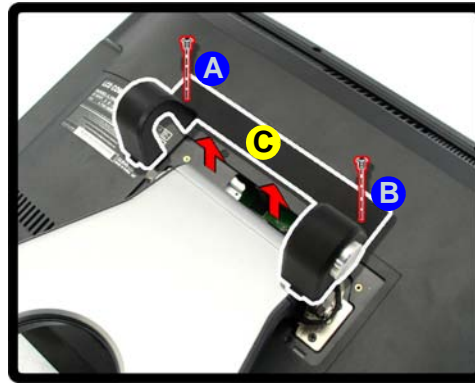
Figure 4
Stand Removal

- Remove the screws and stand cover.
- Disconnect the cable and remove the screws.
- Remove the stand.

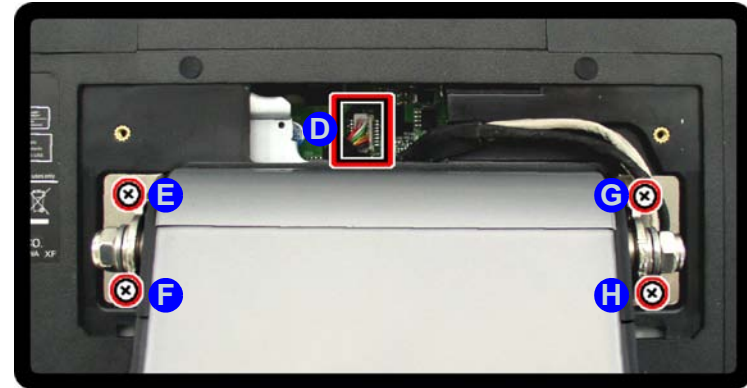
Removing the Stand

- Turn **off** the computer and disconnect all cables and peripherals.
- Carefully place the computer flat with the LCD facing down (make sure you cover the LCD to avoid scratches) so that you may access the rear cover.
- Remove screws **A** & **B** from the stand cover, and then remove the stand cover **C**.
- Carefully release cable **D**, and remove screws **E** - **H**.
- Remove the stand **I**.

a.




b.



c.



- 
- C. Stand Cover
I. Stand
- 6 Screws

Removing the Rear Bottom Cover

1. Remove the rear top cover ([page 2 - 6](#)) and stand ([page 2 - 10](#)).
2. Remove screws **A**.- **C**.
3. Carefully remove the rear bottom cover **D** (a fan cable is attached at point **E** and this will need to be disconnected) .

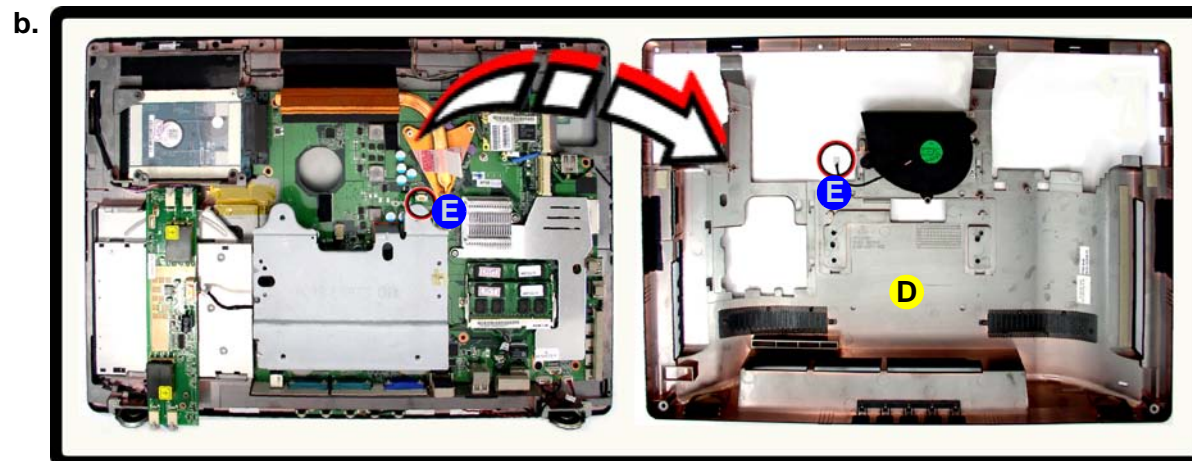


Figure 5
**Rear Bottom
Cover Removal**

- a. Remove the screws.
- b. Carefully remove the rear bottom cover and disconnect the fan cable as you lift up the cover.



D. Rear Bottom Cover

- 3 Screws

Disassembly

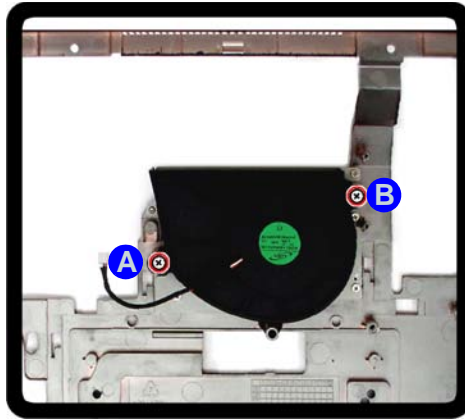
Figure 6
Fan Module Removal

- a. Remove the screws.
- b. Remove the Fan unit.
- c. Remove the bracket if required,

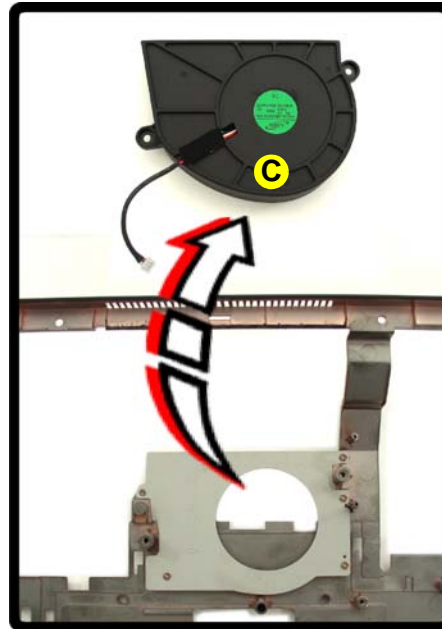
Removing the Fan Module

1. Remove the rear top cover ([page 2 - 6](#)), stand ([page 2 - 10](#)) and rear bottom cover ([page 2 - 11](#)).
2. Turn over the rear bottom cover and remove screws **A** & **B**.
3. Carefully remove the fan module **C**.
4. Remove the fan bracket **D** (if required).

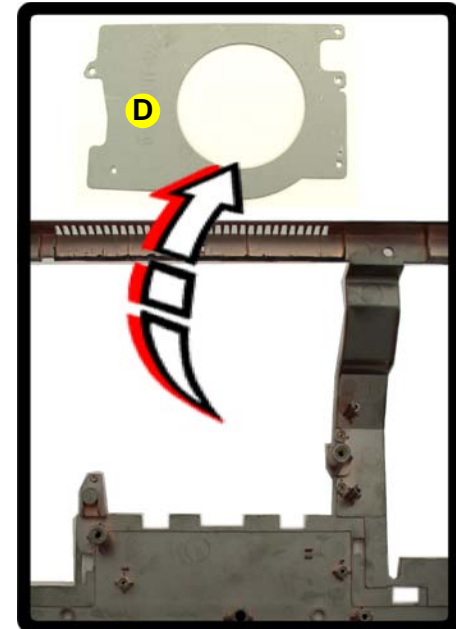
a.



b.



c.



- C. Fan Module
- D. Fan Bracket

- 2 Screws

Removing the Ion Thermal Module

1. Remove the rear top cover ([page 2 - 6](#)).
2. Remove screws **A** & **B** from the ion thermal module.
3. Carefully (cables are attached to the module) remove the ion thermal module **C**.

a.



b.



Processors Supported

Note that the Ion Thermal Module is compatible only with the Intel® Core™2 Duo Processor **P8400/ P8600** (2.26/ 2.40 GHz).



Ion Thermal Module Rear Cover

Note that the ion thermal module rear cover must be re-inserted with the warning sign on the rear of the cover facing upwards (the point of the lightning arrow must point upwards) as illustrated above.

Figure 7

Ion Thermal Module Removal

- a. Remove the screws.
- b. Carefully remove the ion thermal module.



Ion Thermal Module Service Personnel Note

Note that user's will send the computer for service if they hear a buzzing sound emanating from the area of the ion thermal module (after they have tried to re-start the computer to resolve the problem).

If the sound persists, then the module has reached the end of its life cycle and will require replacing.



C. Ion Thermal Module

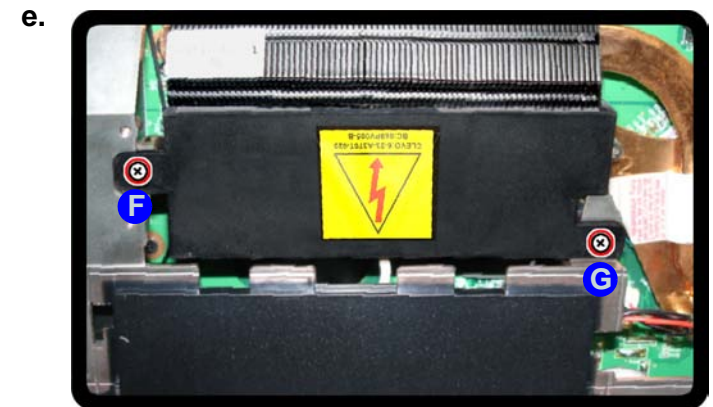
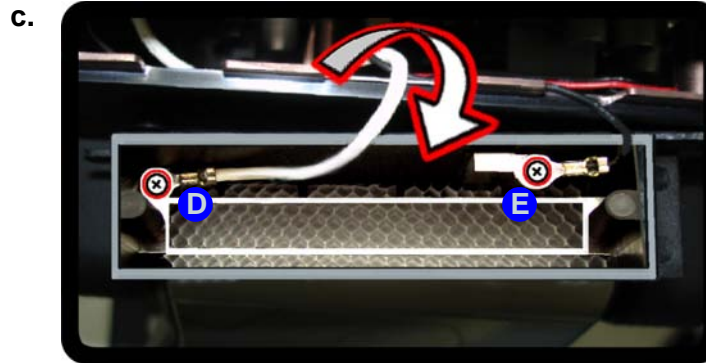
- 2 Screws

Disassembly

Figure 8
**Ion Thermal
Module Cables**

- c. Remove the screws and connect the new module to the appropriate cables.
- d. DO NOT touch the mesh.
- e. Reconnect the module in the correct orientation.

- 4. Turn the module over to access the bottom as illustrated (in *Figure 8c*).
- 5. **DO NOT touch the mesh** at the top of the module as this will affect the module's performance.
- 6. Remove screws **D** & **E** in order to disconnect the cables
- 7. Remove the module and connect the cables to the new module.
- 8. Make sure that the **white** (positive) cable is connected to the PCB to point **D**, and the **black** (negative) cable is connected to point **E** on the right as illustrated (in *Figure 8c*).
- 9. Carefully replace screws **F** & **G** to reconnect the module and make sure the warning sign is orientated correctly (in *Figure 8e*).



Ion Thermal Module Rear Cover

Note that the ion thermal module rear cover must be re-inserted with the warning sign on the rear of the cover facing upwards (the point of the lightning arrow must point upwards) as illustrated right (in *Figure 8e*).

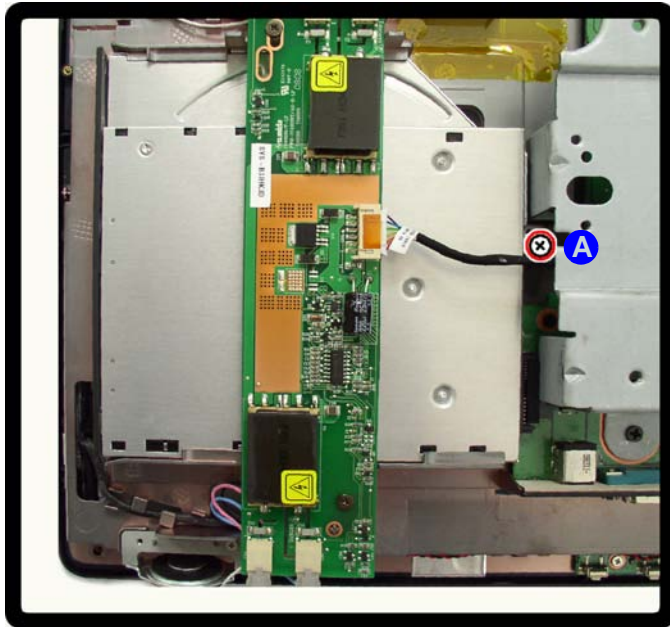


- 2 Screws

Removing the Optical (CD/DVD) Device

1. Remove the rear top cover ([page 2 - 6](#)), stand ([page 2 - 10](#)) and rear bottom cover ([page 2 - 11](#)).
2. Remove screws **A** from the optical device.
3. Push the optical device **B** out in the direction of arrow **C**.

a.



b.

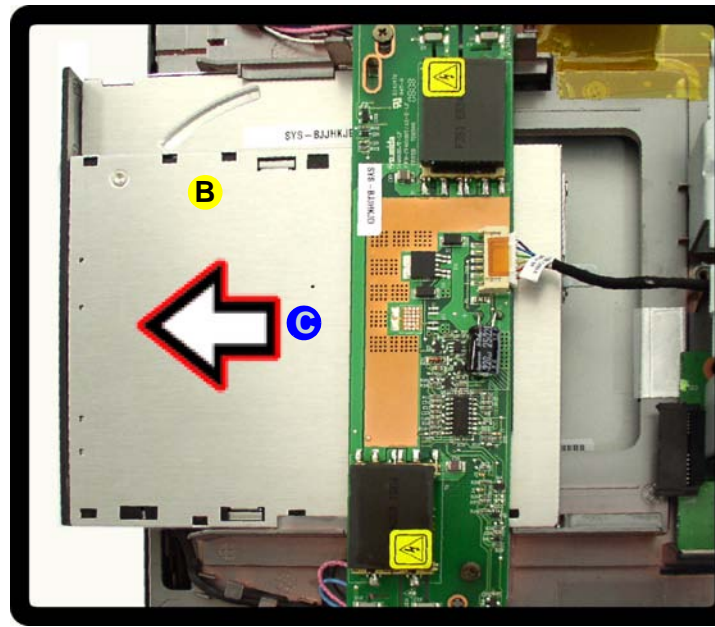


Figure 9
**Optical Device
Module Removal**

- a. Remove the screw.
- b. Push out the optical device module.



B. Optical Device Module

- 1 Screw

Disassembly

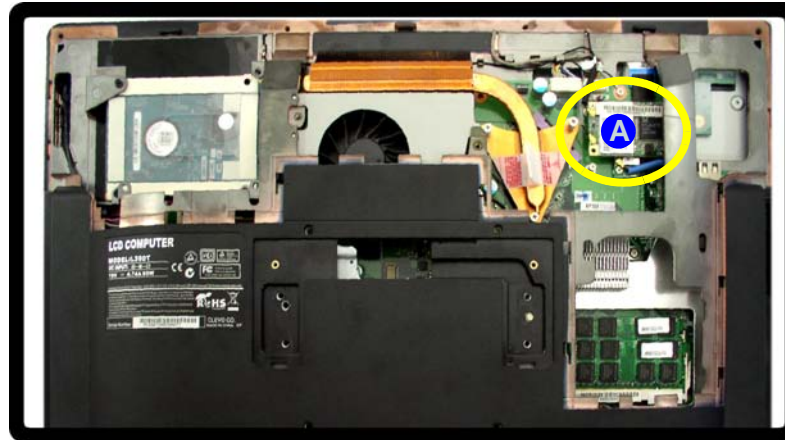
Figure 10
WLAN Module
Module Removal

- Locate the WLAN module.
- Remove the screw and disconnect the antenna cables.
- The module will pop up.
- You can then remove the module.

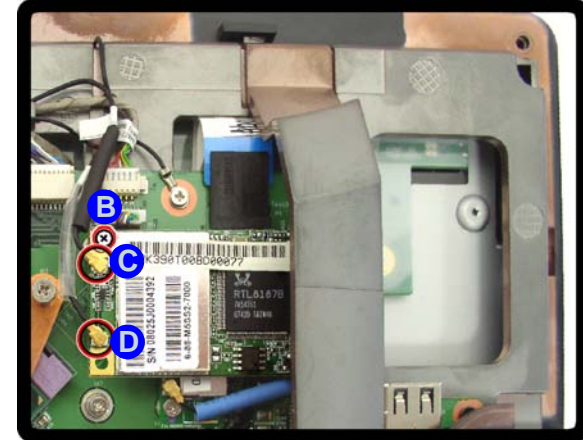
Removing the Wireless LAN Module

- Remove the rear top cover ([page 2 - 6](#)).
- The WLAN module is located at point **A**.
- Remove screw **B**, and disconnect antenna cables **C** & **D**.
- When the screw and cables have been removed/disconnected the WLAN module **E** will pop up and can be removed.

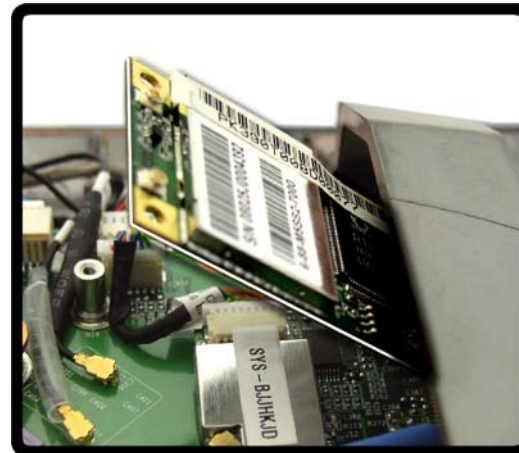
a.



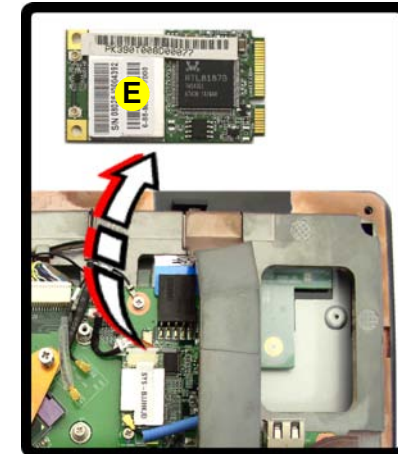
b.



c.



d.



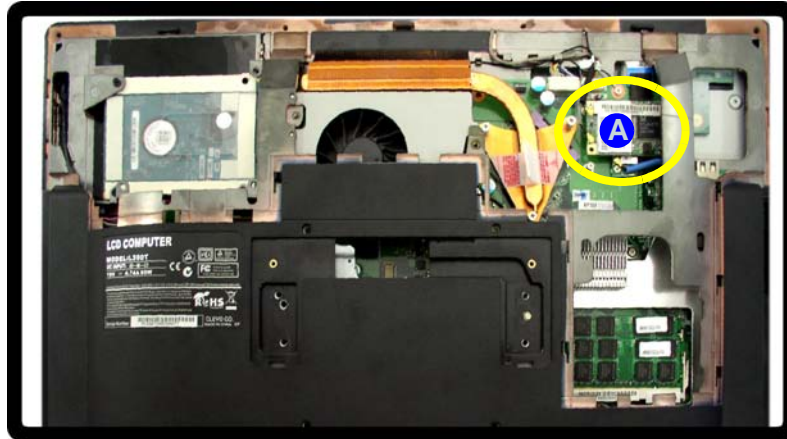
E. WLAN Module

- 1 Screw

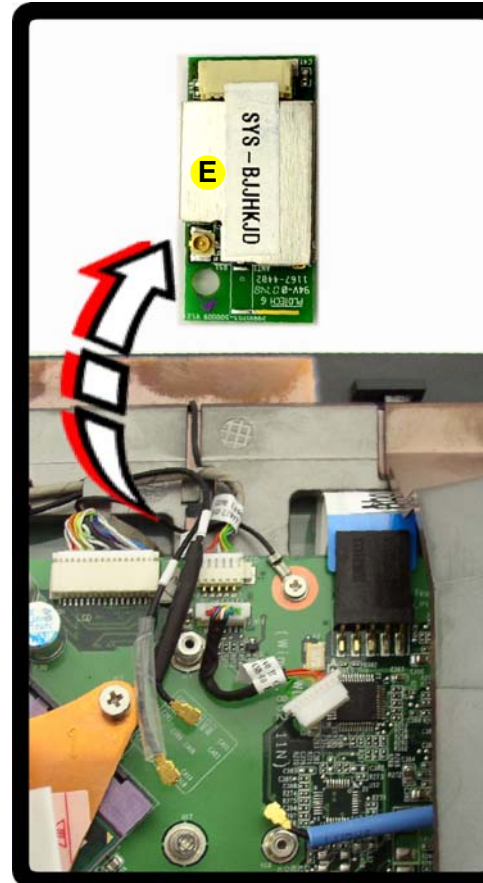
Removing the Bluetooth Module

1. Remove the rear top cover ([page 2 - 6](#)) and Wireless LAN module ([page 2 - 16](#)).
2. The Bluetooth module is located under the WLAN module (if the WLAN option is installed) at point **A**.
3. Remove screw **B**, disconnect antenna cable **C**.
4. Disconnect the connector cable **D** and remove the Bluetooth module **E**.

a.



c.



b.

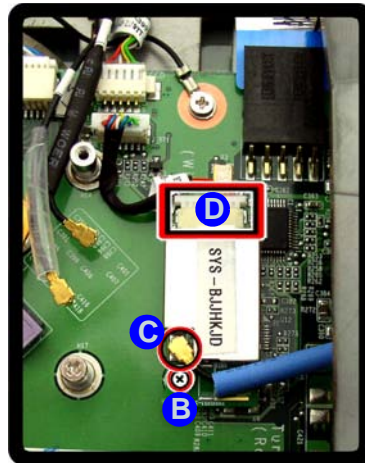


Figure 11
**Bluetooth Module
Module Removal**

- a. Locate the Bluetooth module.
- b. Remove the screw and disconnect the cables.
- c. You can then remove the module.



E. Bluetooth Module

- 1 Screw

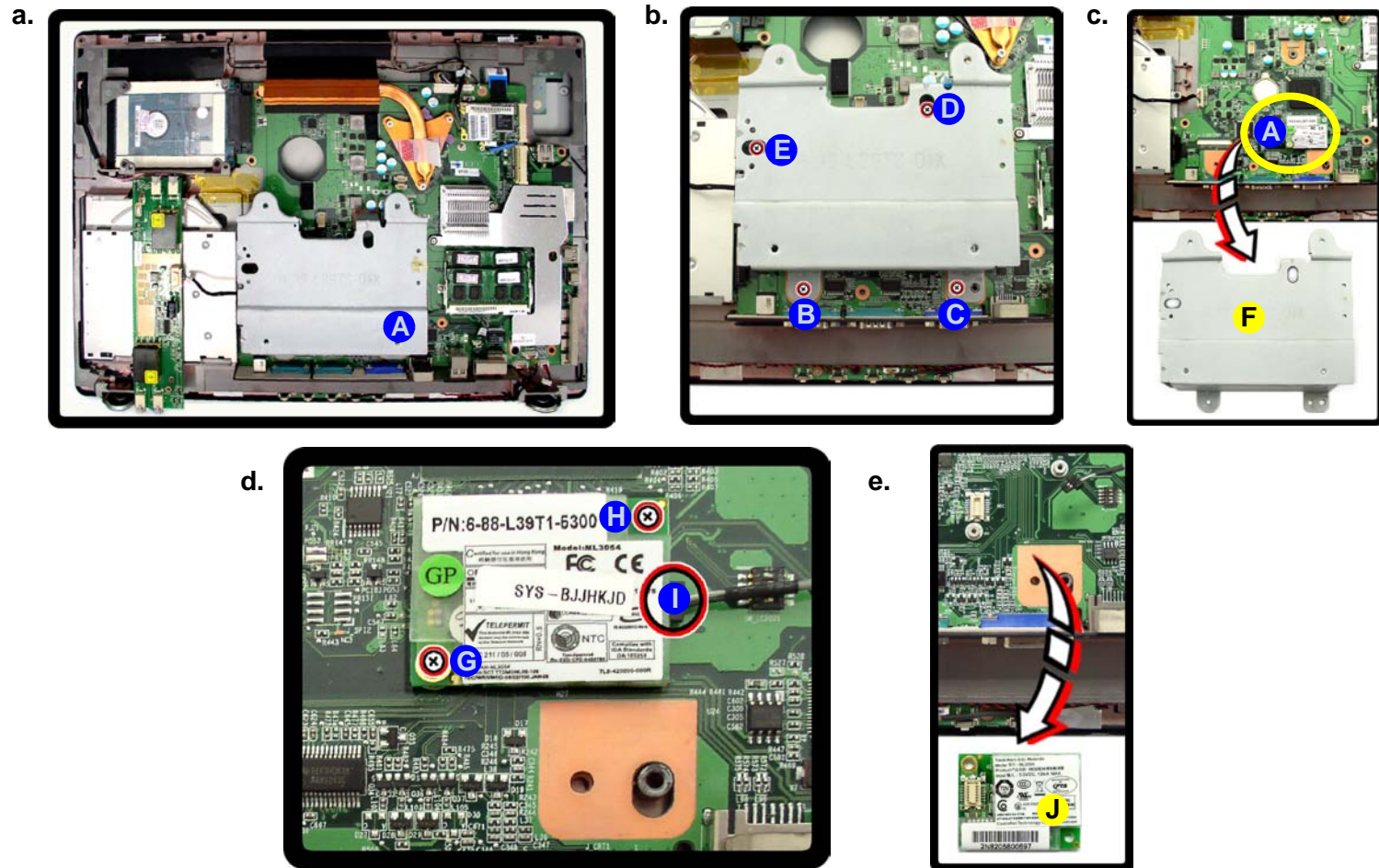
Disassembly

Figure 12
Modem Module Removal

- a. Locate the bracket which covers the modem module.
- b. Remove the screws.
- c. Remove the bracket.
- d. Remove the screws and disconnect the cable.
- e. You can then remove the module.

Removing the Modem Module

1. Remove the rear top cover ([page 2 - 6](#)), stand ([page 2 - 10](#)) and rear bottom cover ([page 2 - 11](#)).
2. The modem module is located at point **A** (under the bracket).
3. Remove screws **B** - **E** and remove the bracket **F**.
4. Remove screws **G** & **H** and disconnect antenna cable **I**.
5. You can then remove the modem module **J**.

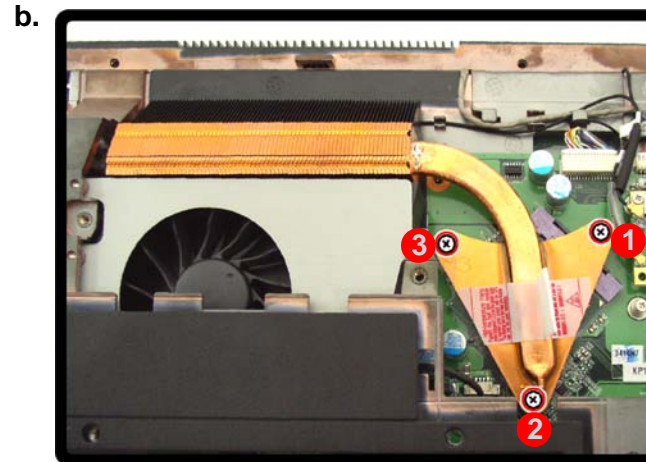
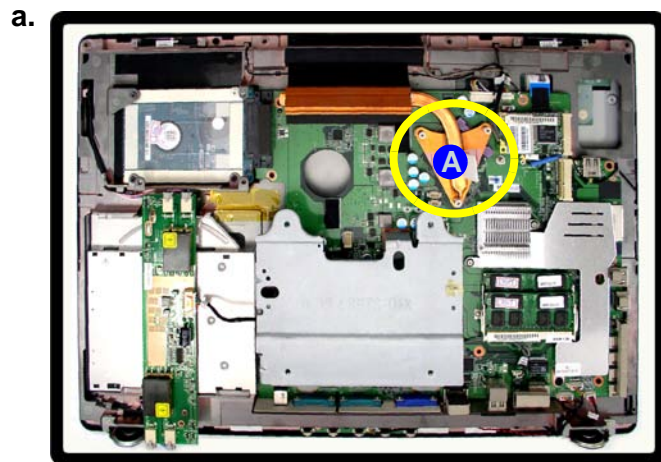


F. Bracket
J. Modem Module

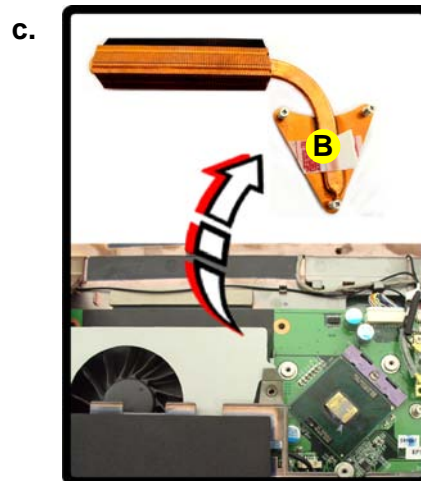
- 6 Screws

Removing the CPU

1. Remove the rear top cover ([page 2 - 6](#)).
2. The CPU heat sink unit is located at point **A**.
3. Loosen the heat sink unit screws in the order **3**, **2**, **1**.
4. You can then remove the heat sink unit **B**.



To remove the heat sink unit loosen the screws in the order **3**, **2**, **1** (there are numbers on the heat sink unit itself).



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.



B. Heat Sink Unit

Figure 13
CPU Removal

- a. Locate the heat sink.
- b. Loosen the screws in the order indicated.
- c. Remove the heat sink unit

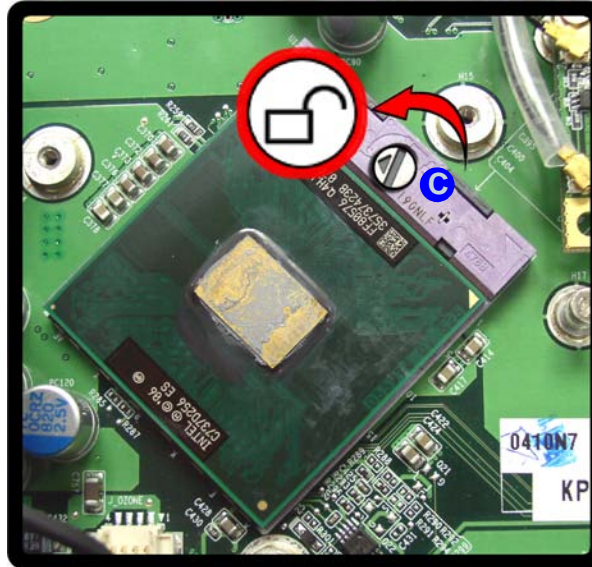
Disassembly

Figure 14
CPU Removal
(cont'd)

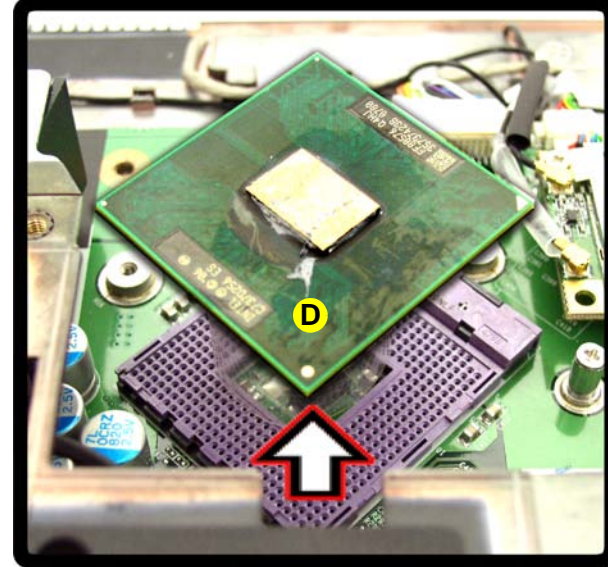
- d. Unlock the cpu.
e. Remove the cpu.

5. Turn the release latch towards the unlock symbol **C**, to release the CPU.
6. Carefully (it may be hot) lift the CPU **D** up out of the socket.
7. See overleaf for information on inserting a new CPU.
8. When inserting a CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

d.



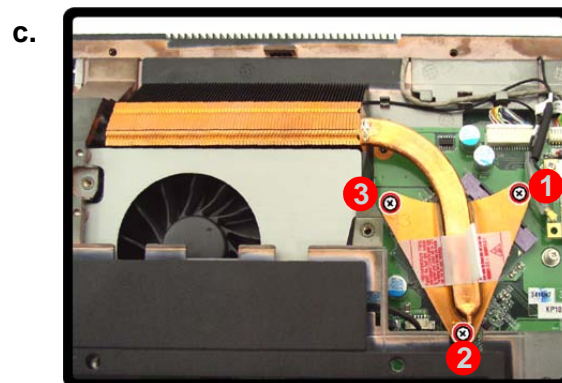
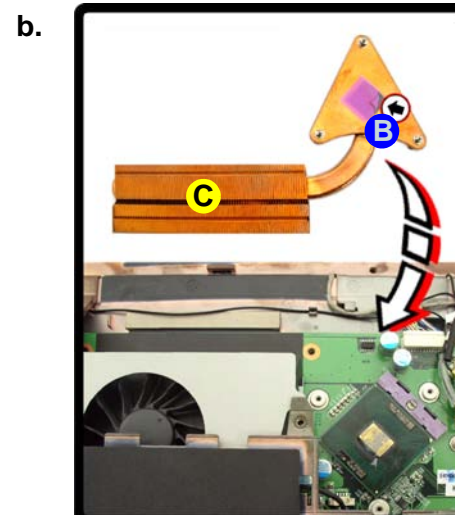
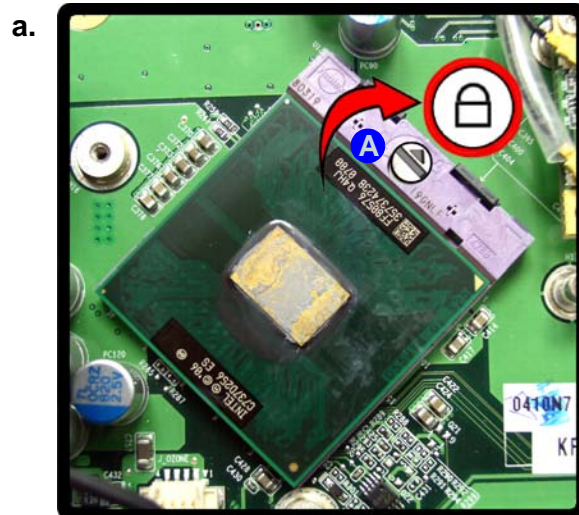
e.



D. CPU

Processor Installation Procedure

1. Insert the CPU paying careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).
2. Turn the release latch towards the lock symbol **A**.
3. Remove the sticker **B** from the heat sink.
4. Insert the heat sink **C** as indicated.
5. Tighten screws in the order **1**, **2**, **3**.
6. Replace the rear top cover and tighten all the screws.



To remove the heat sink unit loosen the screws in the order **1**, **2**, **3** (there are numbers on the heat sink unit itself).

Figure 15
**Processor
Installation**

- a. Lock the cpu.
- b. Insert the heat sink (remember to remove any sticker on a new heat sink unit).
- c. Tighten the screws in the order indicated.



C. Heat Sink Unit

Disassembly

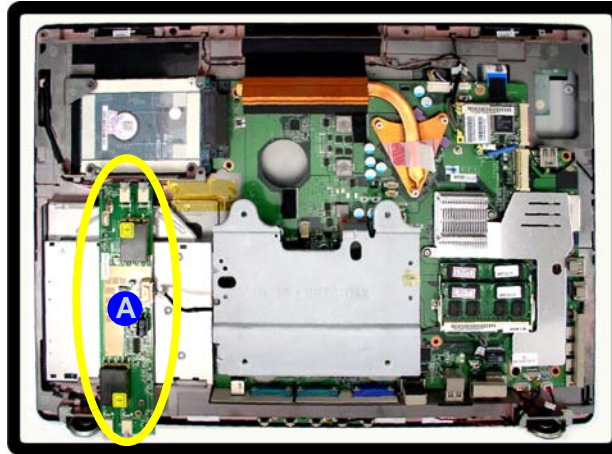
Figure 16
inverter Removal

- Locate the inverter.
- Remove the screws and disconnect the cables.
- You can then remove the inverter.

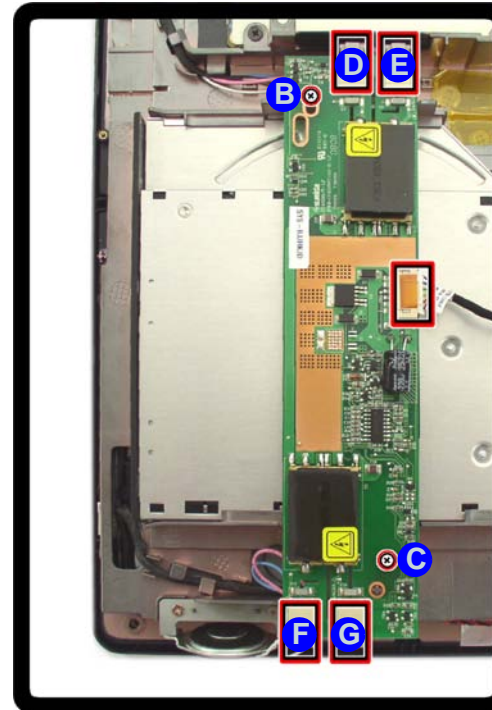
Removing the Inverter

- Remove the rear top cover ([page 2 - 6](#)), stand ([page 2 - 10](#)) and rear bottom cover ([page 2 - 11](#)).
- The inverter is located at point **A**.
- Remove screws **B** & **C** and disconnect cables **D** - **G**.
- You can then remove the inverter **H**.

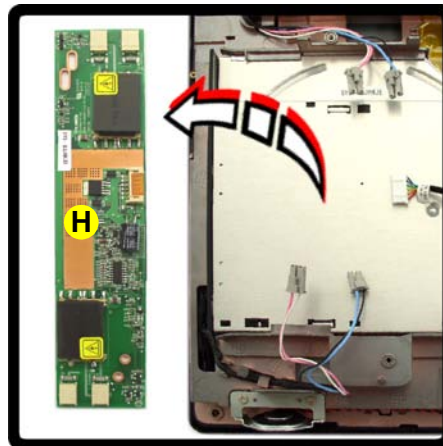
a.



b.



c.



H. Inverter

- 2 Screws



Inverter Removal Warning

Note that if you have the rear cover removed and are testing the inverter, wait **until at least 5 seconds after the system has been POWERED OFF** before removing the inverter. Failure to do so may result in damage to the inverter.

Appendix A: Part Lists

This appendix breaks down the *L390T* series LCD computer'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.

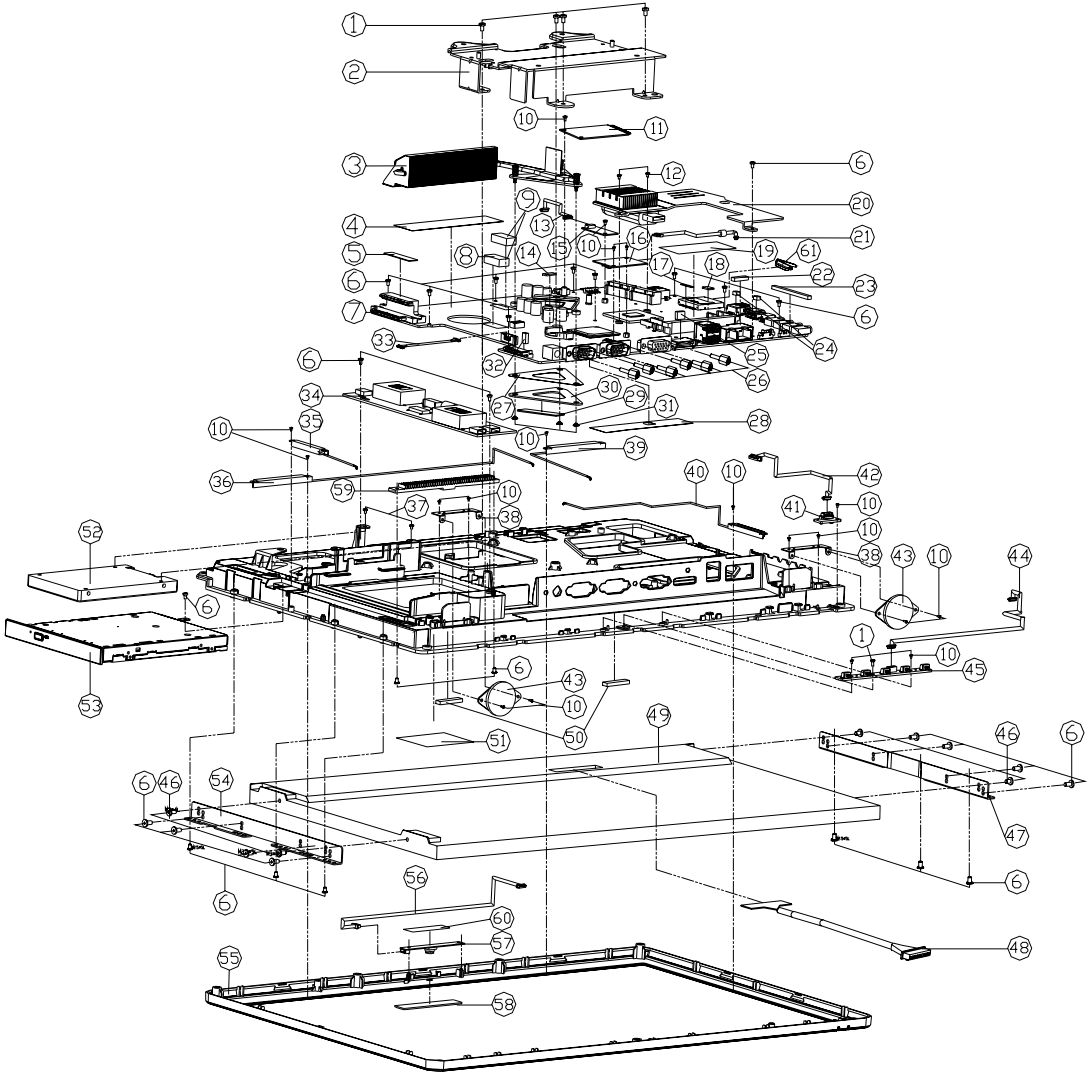
Part List Illustration Location

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

Table A- 1
**Part List Illustration
Location**

Parts	L390T
LCD	<i>page A - 3</i>
Stand	<i>page A - 4</i>
Back Fan-1	<i>page A - 5</i>
Back Fan-2	<i>page A - 6</i>
DVD	<i>page A - 7</i>
COMBO	<i>page A - 8</i>

LCD (L390T)

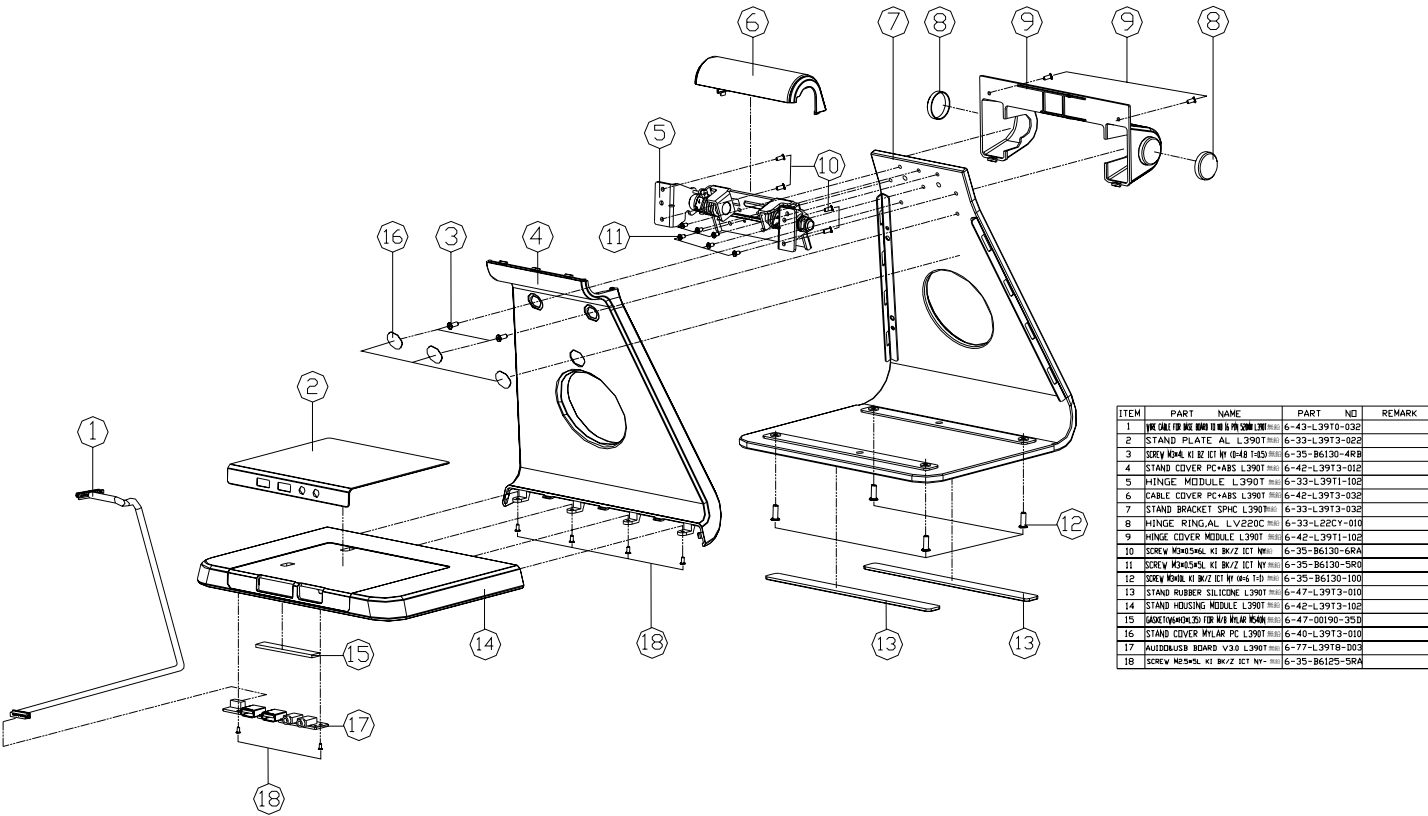


ITEM	PART NAME	PART NO	REMARK
1	SCREW M2.5X4.0 KI B7.2 ICT NY	6-35-B6130-6RA	
2	VESA BRACKET SECC L390T	6-33-L39TS-012	
3	CPU THERMAL MODULE CU L390T	6-31-L39TS-102	
4	HEATSINK MYLAR FRB3 L390T	6-40-L39TN-010	
5	HDD CONN SPONGE ML22 L390T	6-47-L39TJ-020	
6	SCREW M2.5X4.0 KI B7.2 ICT NY	6-35-B6125-5RA	
7	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03	
8	FAN SUPPORT RUBBER SILICONE L390T	6-47-L39T1-0FD	FOR FAN
9	FAN SUPPORT RUBBER SILICONE L390T	6-47-L39T1-0FD	FOR FAN
10	SCREW M2.5X4.0 KI NI ICT NY	6-35-B1120-3RA	
11	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
12	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
13	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
14	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
15	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
16	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
17	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
18	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
19	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
20	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
21	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
22	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
23	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
24	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
25	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
26	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
27	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
28	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
29	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
30	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
31	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
32	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
33	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
34	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
35	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
36	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
37	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
38	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
39	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
40	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
41	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
42	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
43	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
44	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
45	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
46	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
47	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
48	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
49	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
50	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
51	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
52	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
53	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
54	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
55	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
56	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
57	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
58	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
59	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
60	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	
61	MAIN BOARD V30 CW/TP-L390T	6-77-L39T0-D03-1	

Figure A - 1
LCD (L390T)

Stand (L390T)

Figure A - 2
Stand (L390T)



ITEM	PART NAME	PART NO	REMARK
1	WIRE UNIT FOR THE STAND (L390T)	6-43-L3910-030	
2	STAND PLATE AL L390T	6-33-L3913-020	
3	SCREW M4X4 KI BZ ICT W Ø4.8 T-45	6-35-B6130-4R0	
4	STAND COVER PC+ABS L390T	6-42-L3913-010	
5	HINGE MODULE L390T	6-33-L3911-100	
6	CABLE COVER PC+ABS L390T	6-42-L3913-030	
7	STAND BRACKET SPHC L390T	6-33-L3913-030	
8	HINGE RING AL L390T	6-33-L3913-010	
9	HINGE COVER MODULE L390T	6-42-L3911-100	
10	SCREW M4X4 KI BZ ICT W	6-35-B6130-SR0	
11	SCREW M4X4 KI BZ ICT W	6-35-B6130-SR0	
12	SCREW M4X4 KI BZ ICT W Ø4.8 T-45	6-35-B6130-100	
13	STAND RUBBER SILICONE L390T	6-47-L3913-010	
14	STAND HOUSING MODULE L390T	6-42-L3913-100	
15	BACK INJECTION FOR THE STAND	6-47-00190-010	
16	STAND COVER MYLAR PC L390T	6-40-L3913-010	
17	AUTOLAUNCH BOARD V3.0 L390T	6-77-L3918-000	
18	SCREW M4X4 KI BZ ICT W	6-35-B6125-SR0	

Back Fan-1 (L390T)

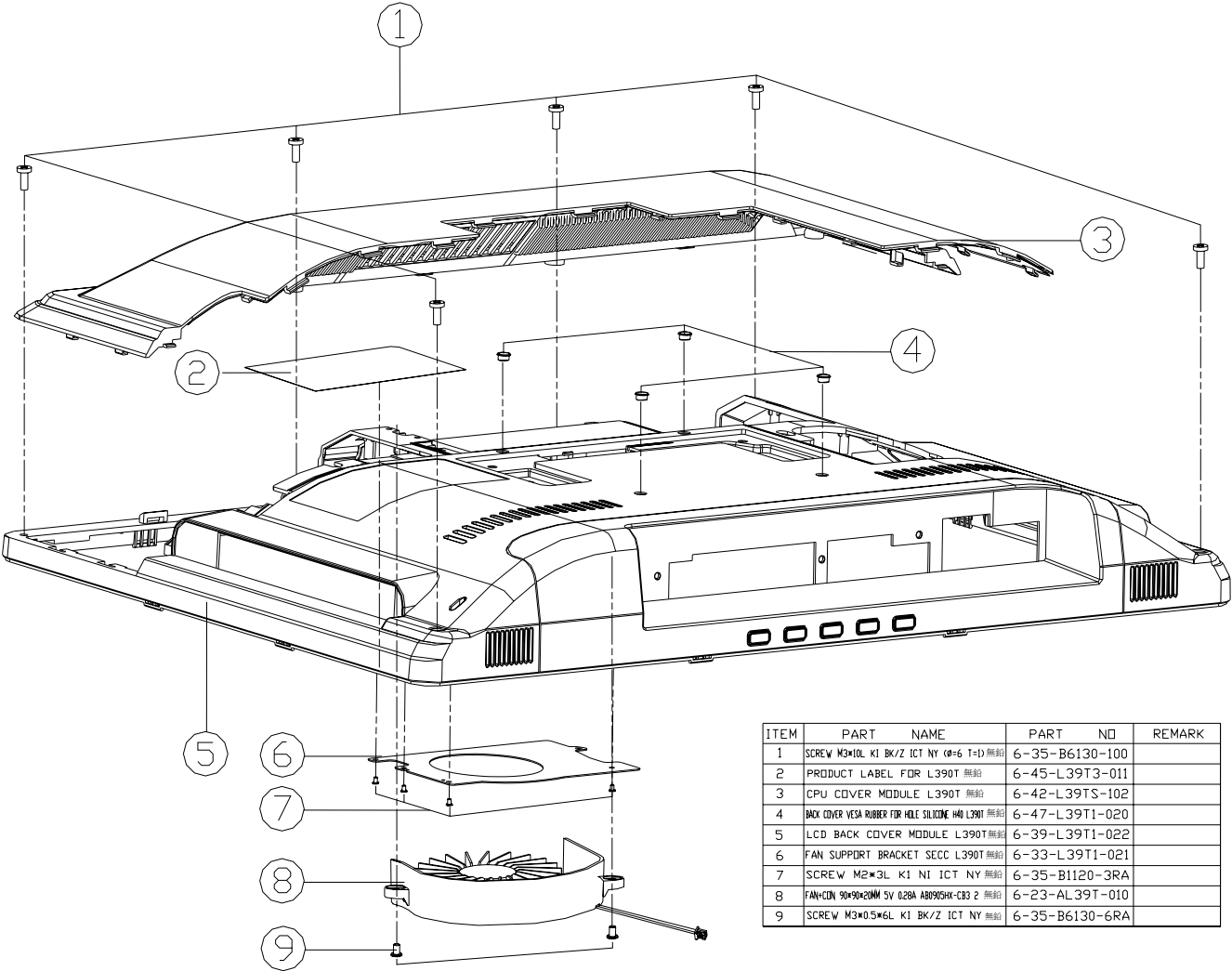


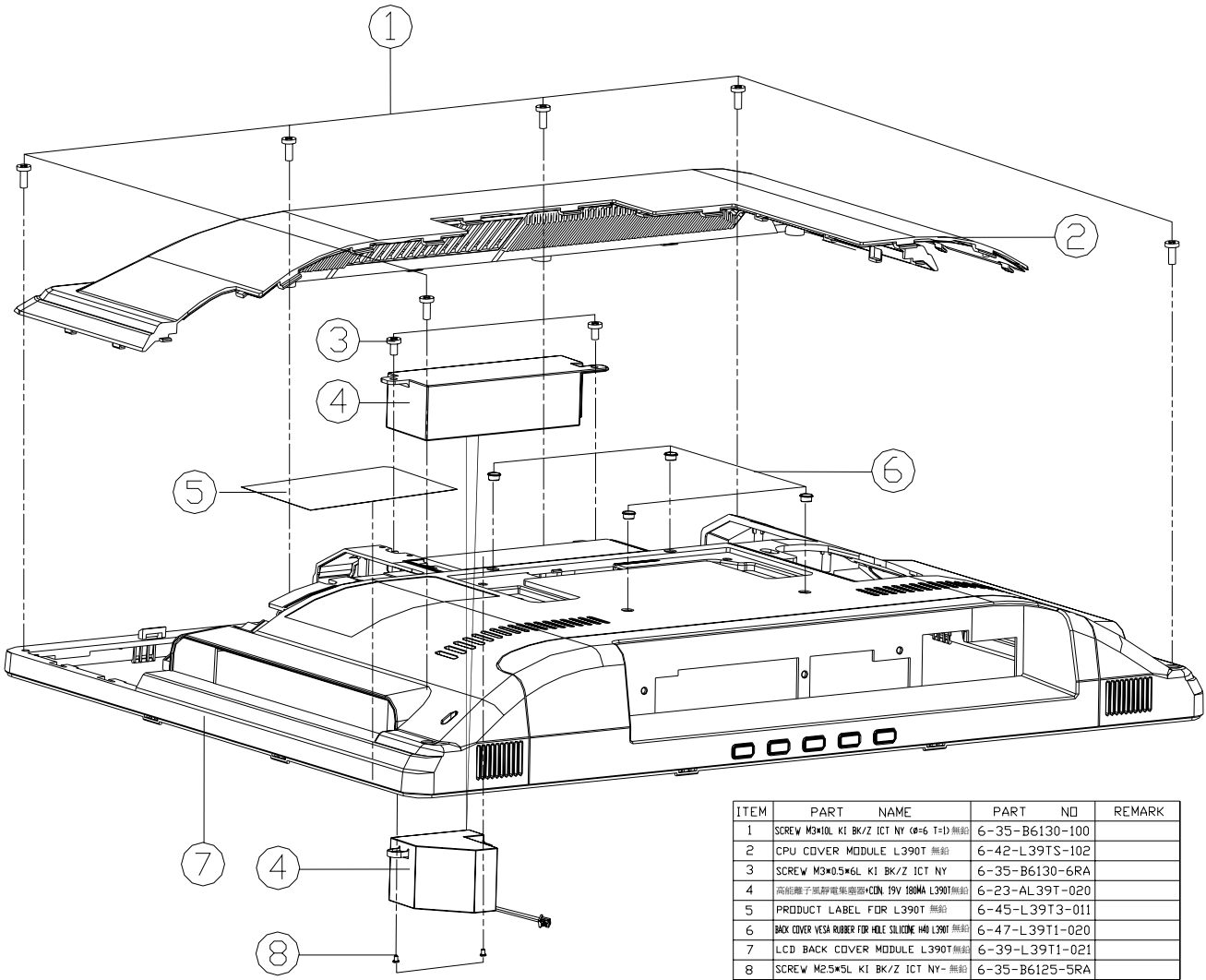
Figure A - 3
Back Fan-1
(L390T)

A.Part Lists

Part Lists

Back Fan-2 (L390T)

Figure A - 4
Back Fan-2
(L390T)



DVD (L390T)

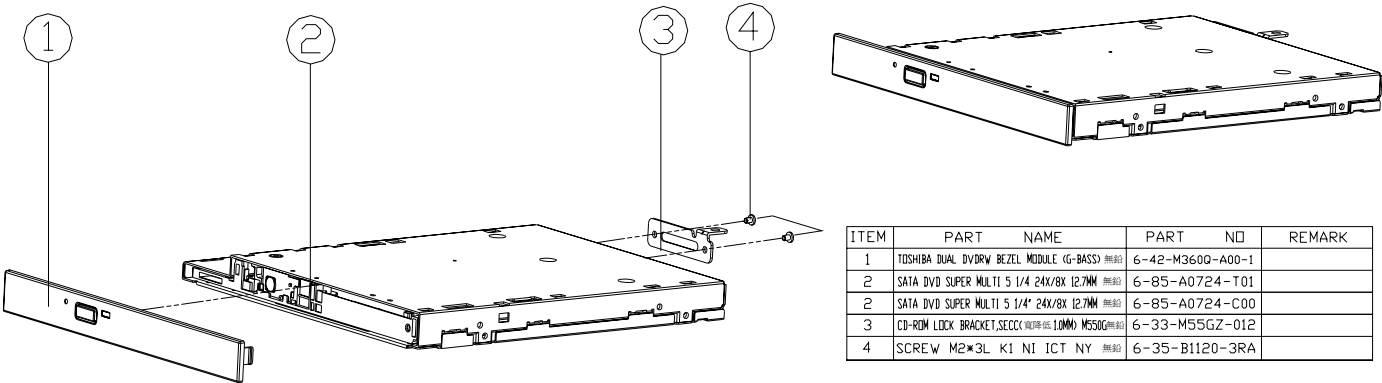
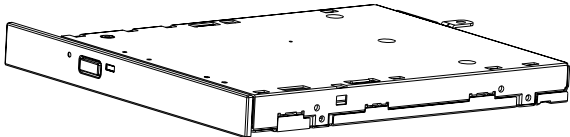
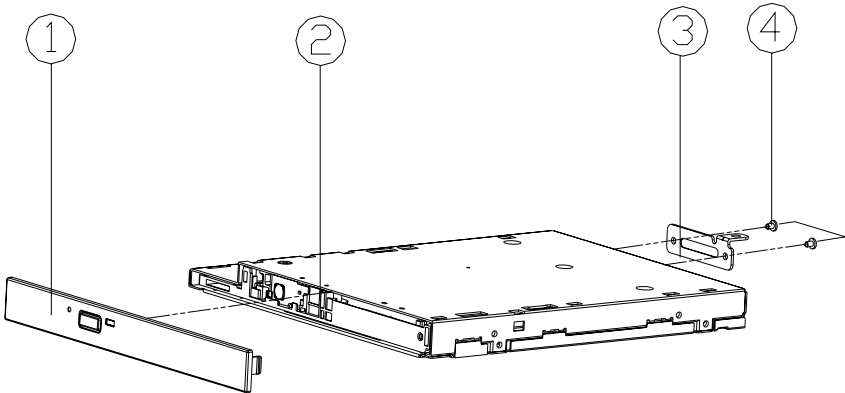


Figure A - 5
DVD
(L390T)

Part Lists

Combo (L390T)

Figure A - 6
Combo
(L390T)



ITEM	PART NAME	PART NO	REMARK
1	COMBO BEZEL MODULE TOSHIBA (G-BASS) 無鉛	6-42-M360X-500-2	
2	SATA DVD COMBO 5 1/4" 24X/BX 12.7MM CR0890 無鉛	6-85-90724-C00	
3	CD-ROM LOCK BRACKET,SECC(耐腐蝕10MM) M550G 無鉛	6-33-M55GZ-012	
4	SCREW M2*3L K1 NI ICT NY 無鉛	6-35-B1120-3RA	

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the **L390T** series LCD computer's PCBs. 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>ICH9M 3/4 - Page B - 18</i>	<i>VCORE - Page B - 34</i>
<i>Clock Generator - Page B - 3</i>	<i>ICH9M 4/4 - Page B - 19</i>	<i>BT, CCD, MDC, AC-IN CONN - Page B - 35</i>
<i>Penryn (Socket-P) CPU 1/2 - Page B - 4</i>	<i>New Card, Mini PCIE - Page B - 20</i>	<i>TOUCH PANEL CONN - Page B - 36</i>
<i>Penryn (Socket-P) CPU 2/2 - Page B - 5</i>	<i>Mini, PW Conn, Fan - Page B - 21</i>	<i>HDMI CONN - Page B - 37</i>
<i>Cantiga 1/7 Host - Page B - 6</i>	<i>USB Port Con - Page B - 22</i>	<i>COM PORT - Page B - 38</i>
<i>Cantiga 2/7 Graphics - Page B - 7</i>	<i>CardReader, IEEE 1394 - Page B - 23</i>	<i>USB, AUDIO, BOARD - Page B - 39</i>
<i>Cantiga 3/7 - Page B - 8</i>	<i>SATA ODD, Audio - Page B - 24</i>	<i>POWER, SW, BOARD - Page B - 40</i>
<i>Cantiga 4/7 - Page B - 9</i>	<i>PCI-E LAN RTL8111C - Page B - 25</i>	<i>LED BOARD - Page B - 41</i>
<i>Cantiga 5/7 - Page B - 10</i>	<i>Audio Codec ALC888 - Page B - 26</i>	
<i>Cantiga 6/7 - Page B - 11</i>	<i>Audio AMP2056 - Page B - 27</i>	
<i>Cantiga 7/7 - Page B - 12</i>	<i>KBC-ITE IT8513E - Page B - 28</i>	
<i>DDRII SO-DIMM_0 - Page B - 13</i>	<i>5VS, 3, 3VS, VIN - Page B - 29</i>	
<i>DDRII SO-DIMM_1 - Page B - 14</i>	<i>Power VDD3/VDD5 - Page B - 30</i>	
<i>Panel, Inverter, CRT - Page B - 15</i>	<i>Power 1.5V/1.05V - Page B - 31</i>	
<i>ICH9M 1/4 - Page B - 16</i>	<i>POWER 1.8V/0.9V - Page B - 32</i>	
<i>ICH9M 2/4, PCI, USB, SPI - Page B - 17</i>	<i>GFX_VCORE - Page B - 33</i>	

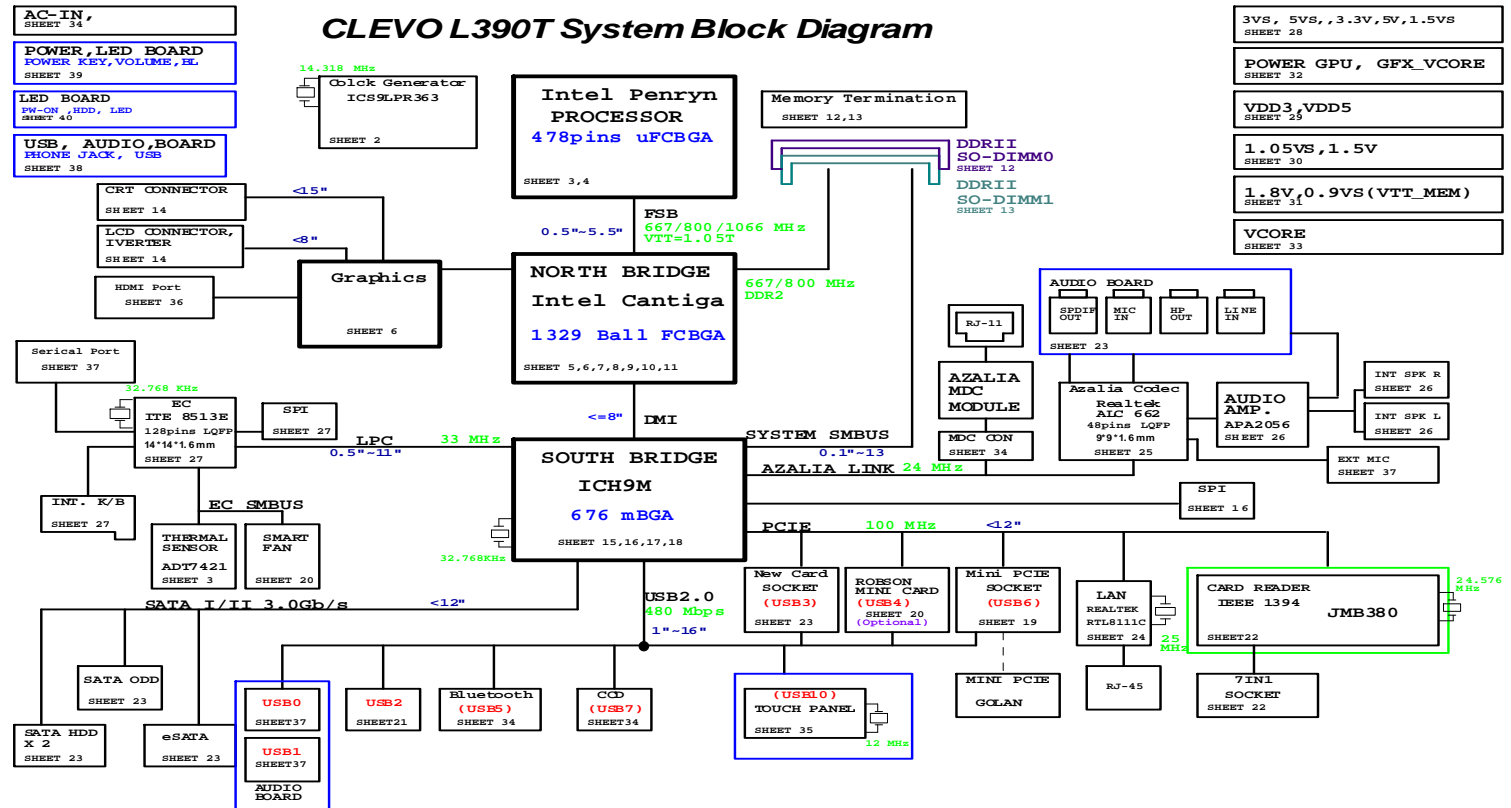
Table B - 1
**Schematic
Diagrams**



Version Note

The schematic diagrams in this chapter are based upon version 6-71-L39T0-D03. 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 48
System Block
Diagram

CLOCK GENERATOR

Layout note:
PLACE CRYSTAL WITHIN 500 MILS OF IC9LPR363

Insatilled: differential clock level is higher

CPU TYPE	1-4	2-3
Renryn CPU	ON	OFF
Celeron CPU	OFF	ON

Legend:
—○—○—○— 3.3VS
—●—●—●— 1.05VS
—□—□—□— 3.4,5,7,10,15,18,28,29

CLK IC14 C54 *10P 50V 04

CLK IC48 C62 *10P 50V 04

CLK KBC C51 *10P 50V 04

PCLK IC1 C56 *10P 50V 04

1220

PEREQ1#: PCIECLK 0, 6
PEREQ2#: PCIECLK 1, 8
PEREQ3#: PCIECLK 2, 4
PEREQ4#: PCIECLK 3, 5, 7
PEREQ[1..4]# have
internal pull up

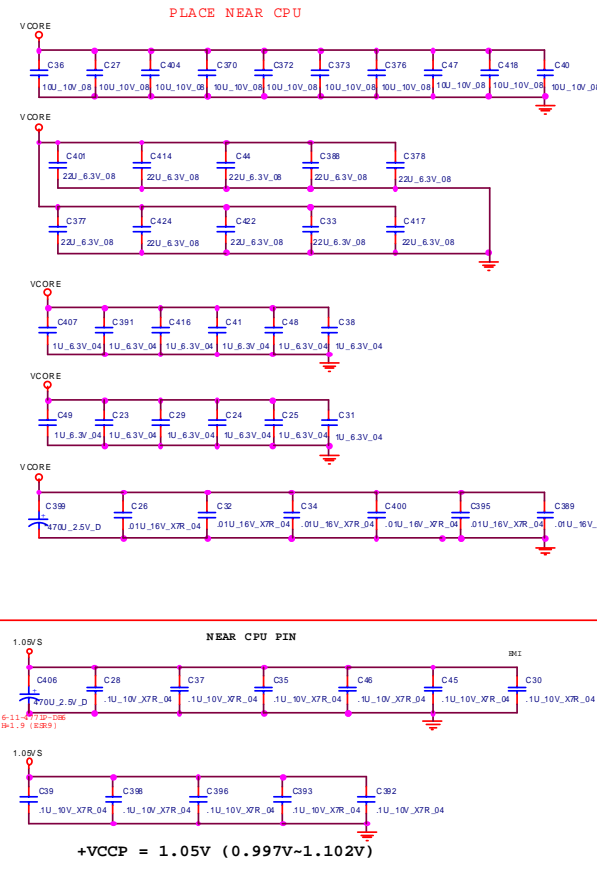
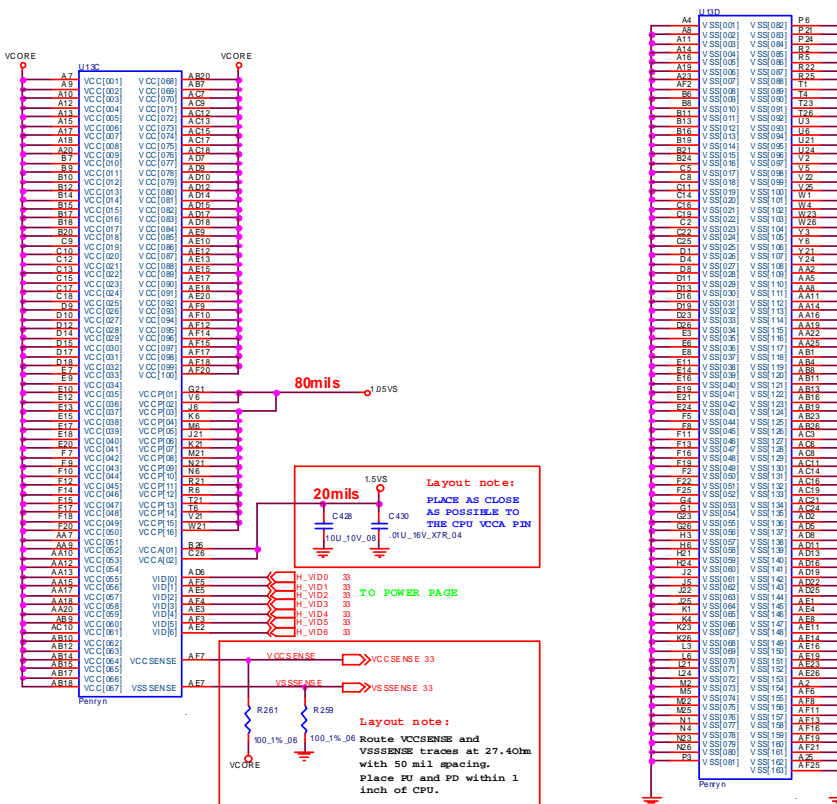
FSC	FSB	FSA	CK505	
BSEL2	BSEL1	BSEL0	Host Clock Frequency	
0	0	1	133 MHz	533 MHz
0	1	1	166 MHz	666 MHz
0	1	0	200 MHz	800 MHz
1	1	1	Reserved	

B.Schematic Diagrams

Sheet 4 of 48
Penryn (Socket-P)
CPU 1/2



Penryn (Socket-P) CPU 2/2

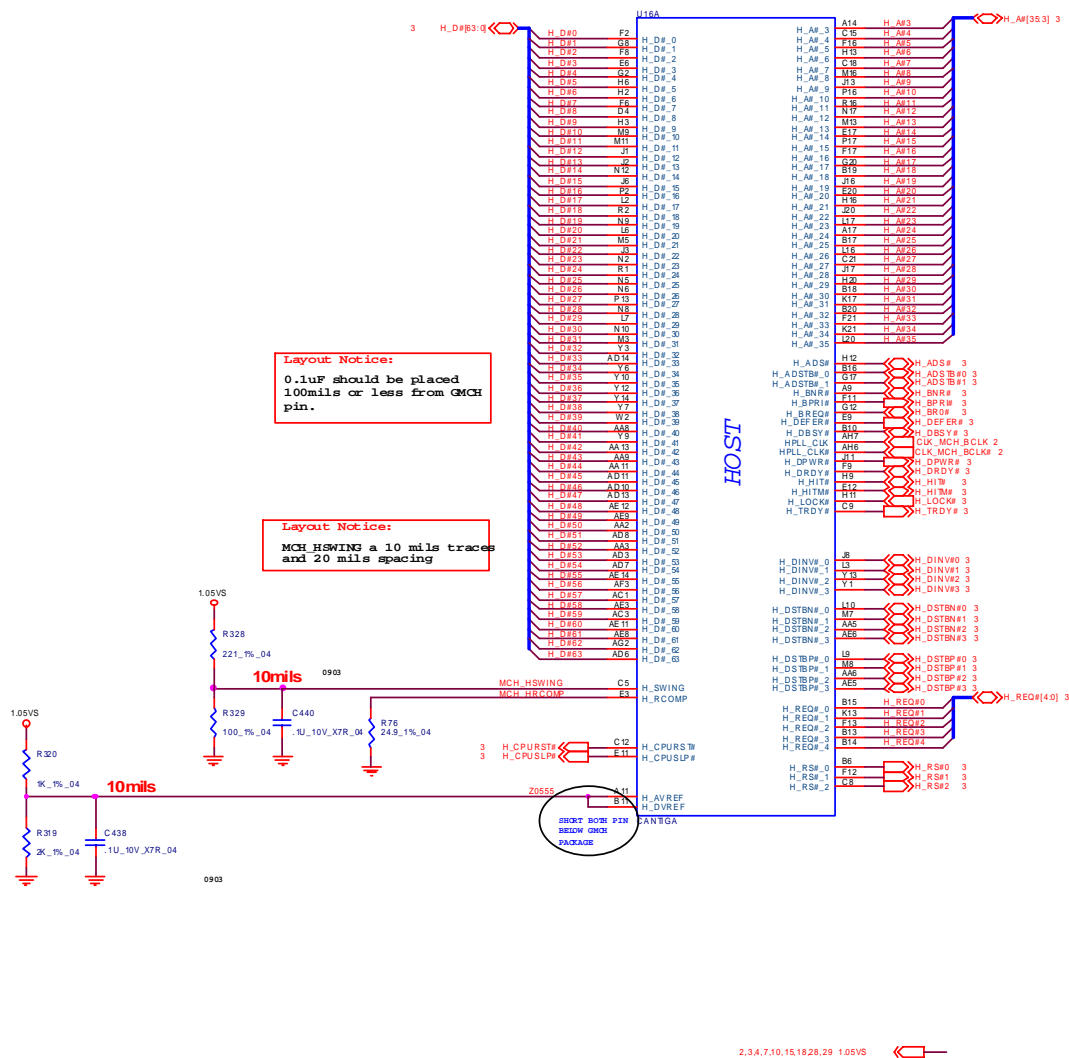


10, 15, 16, 18, 19, 20, 25, 28 1.5V
 2, 3, 5, 7, 10, 15, 16, 20, 21, 1.0V
 29, 33 VCORE

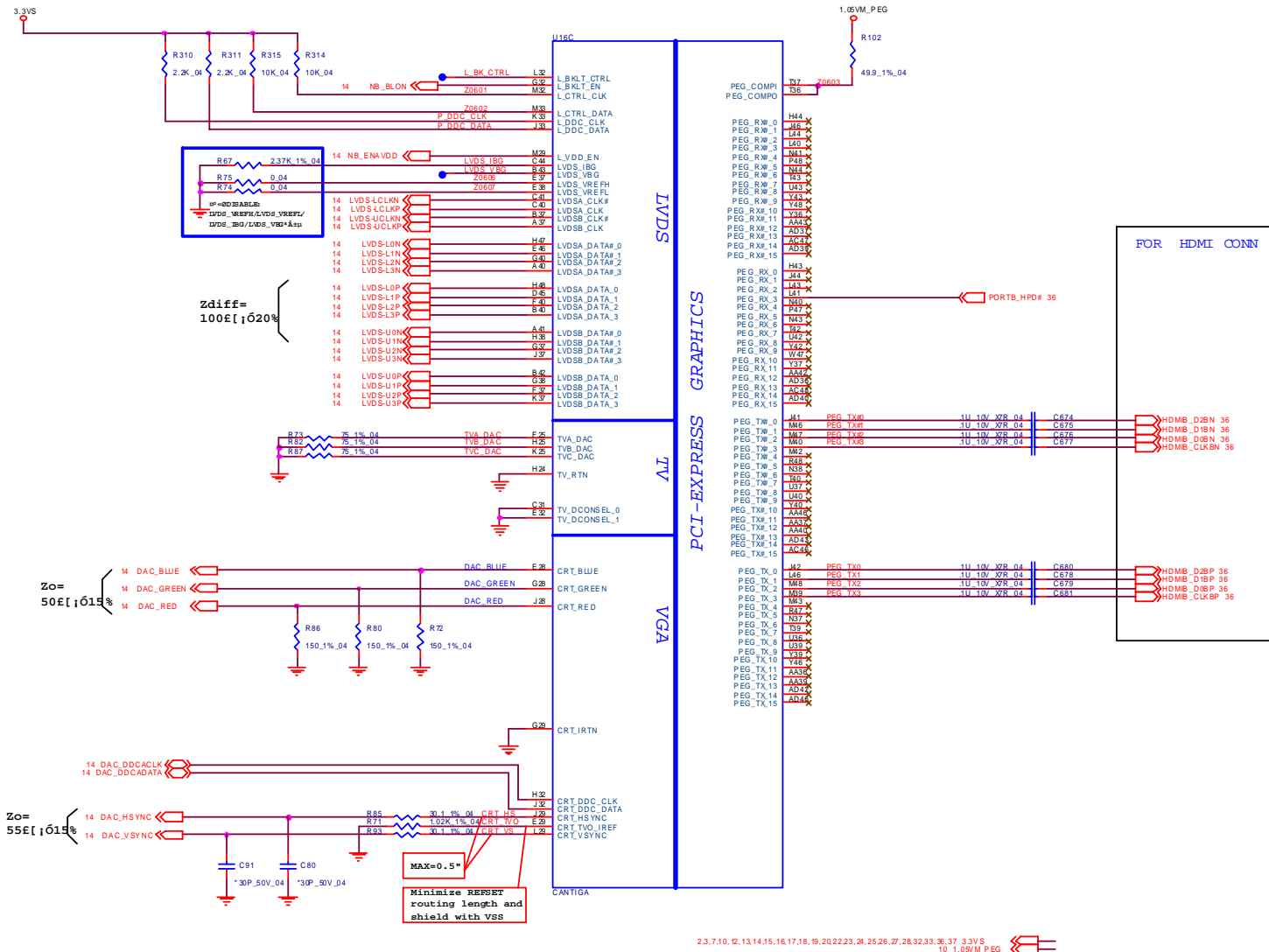
Sheet 5 of 48
 Penryn (Socket-P)
 CPU 2/2

Cantiga 1/7 Host

Sheet 6 of 48
Cantiga 1/7 Host



Cantiga 2/7 Graphics

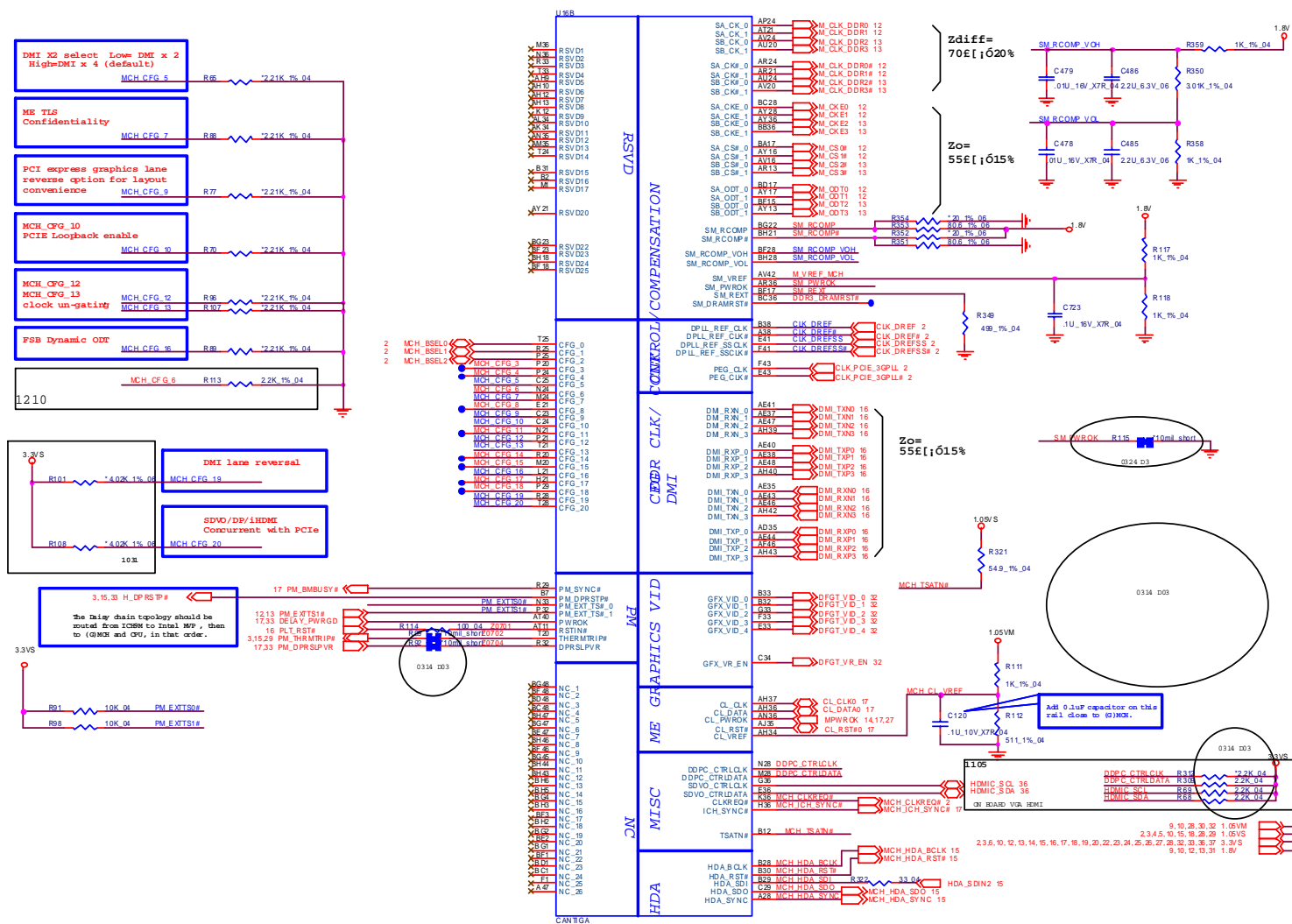


Sheet 7 of 48
Cantiga 2/7
Graphics

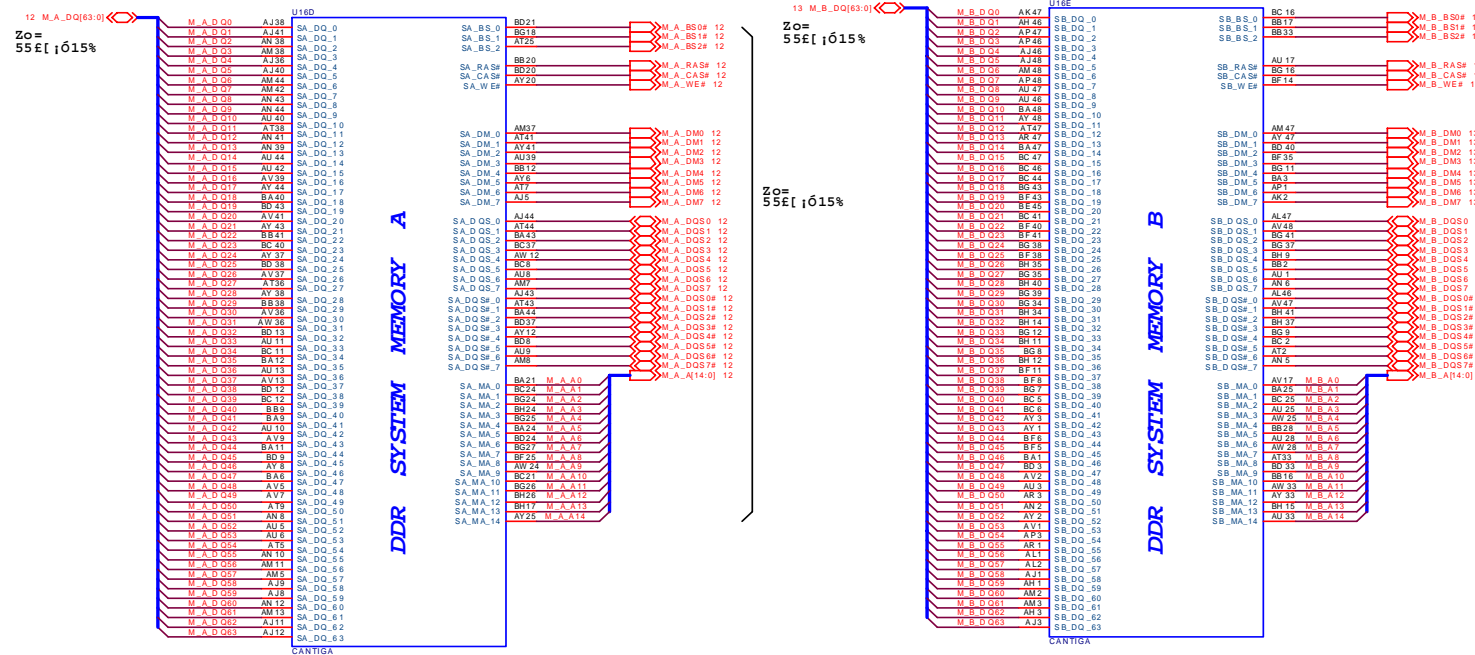
B.Schematic Diagrams

Cantiga 3/7

B.Schematic Diagrams



Cantiga 4/7



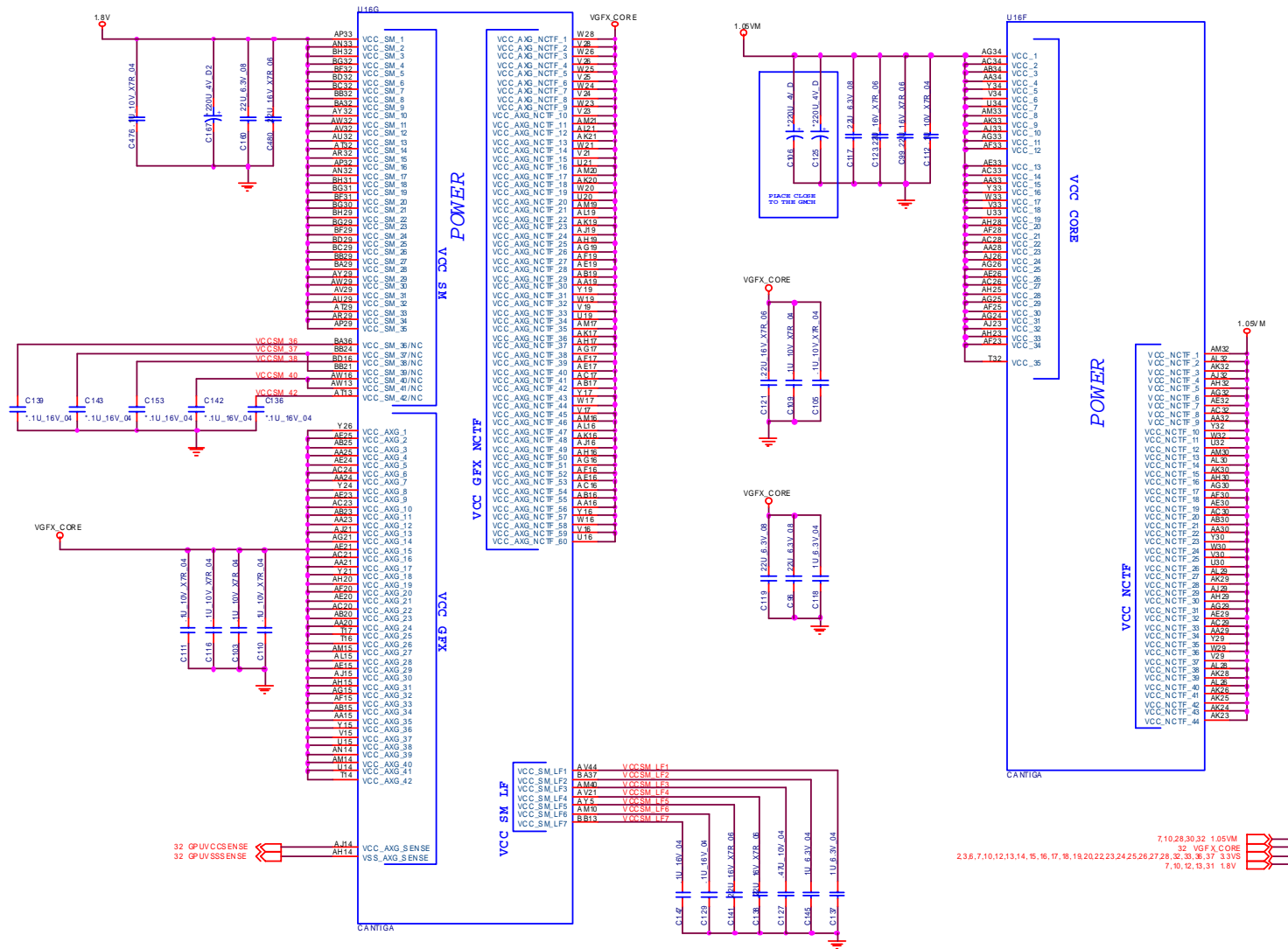
Sheet 9 of 48
Cantiga 4/7

B.Schematic Diagrams

Schematic Diagrams

Cantiga 5/7

Sheet 10 of 48
Cantiga 5/7



Cantiga 6/7 B - 11

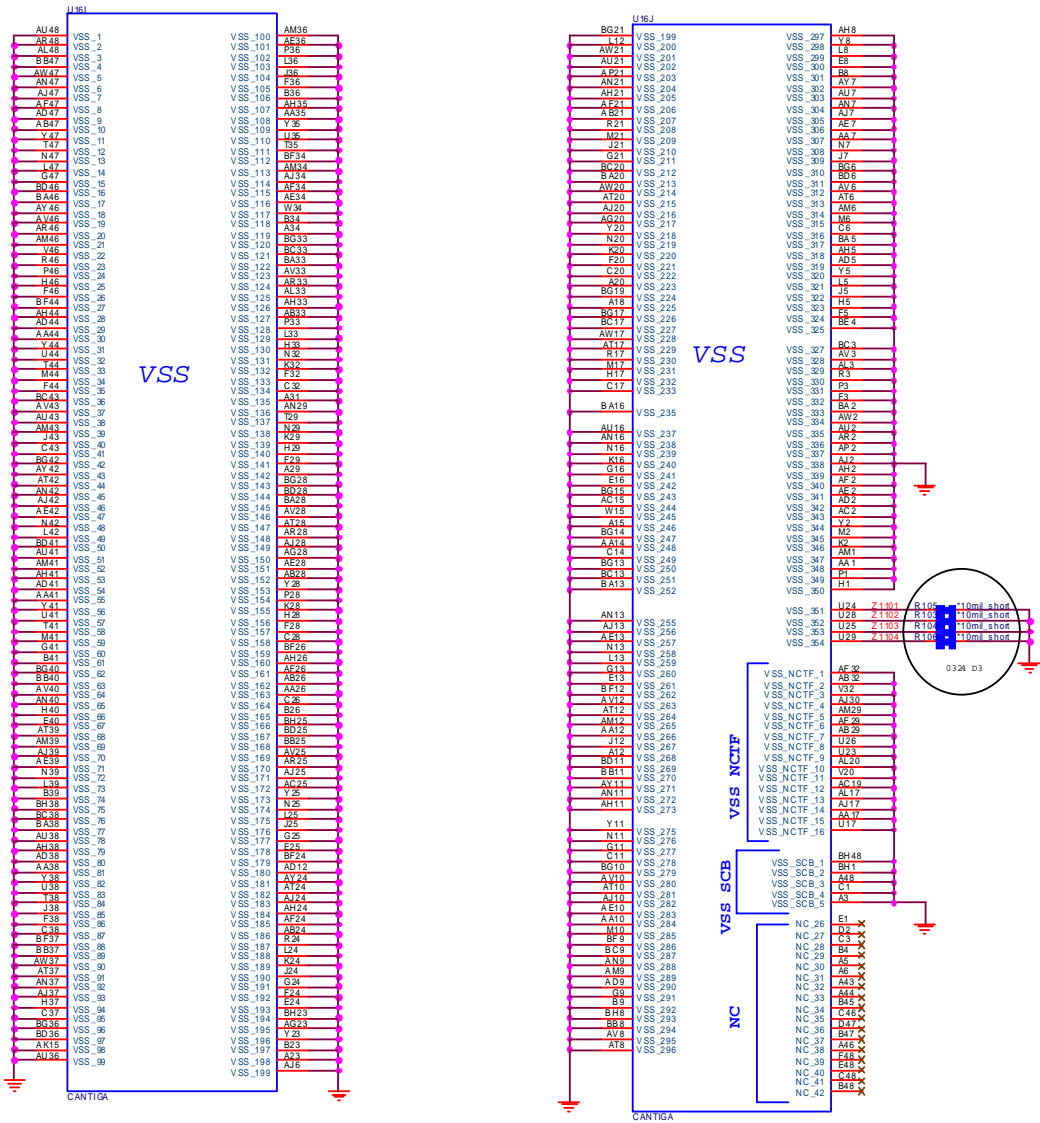


B.Schematic Diagrams

Schematic Diagrams

Cantiga 7/7

Sheet 12 of 48
Cantiga 7/7



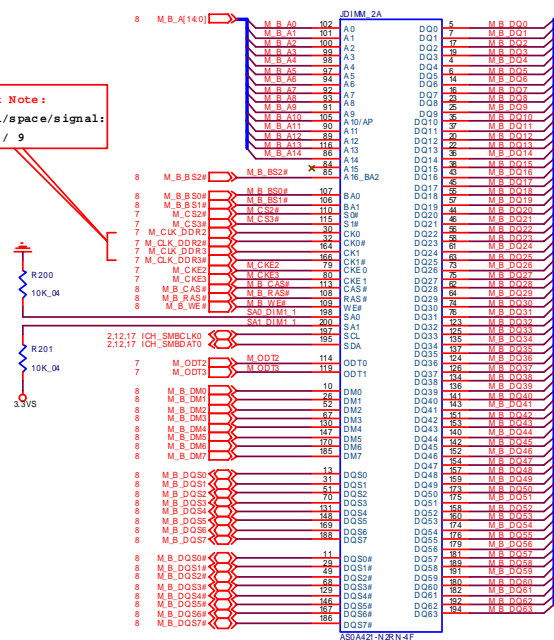
B.Schematic Diagrams

SO-DIMM 0

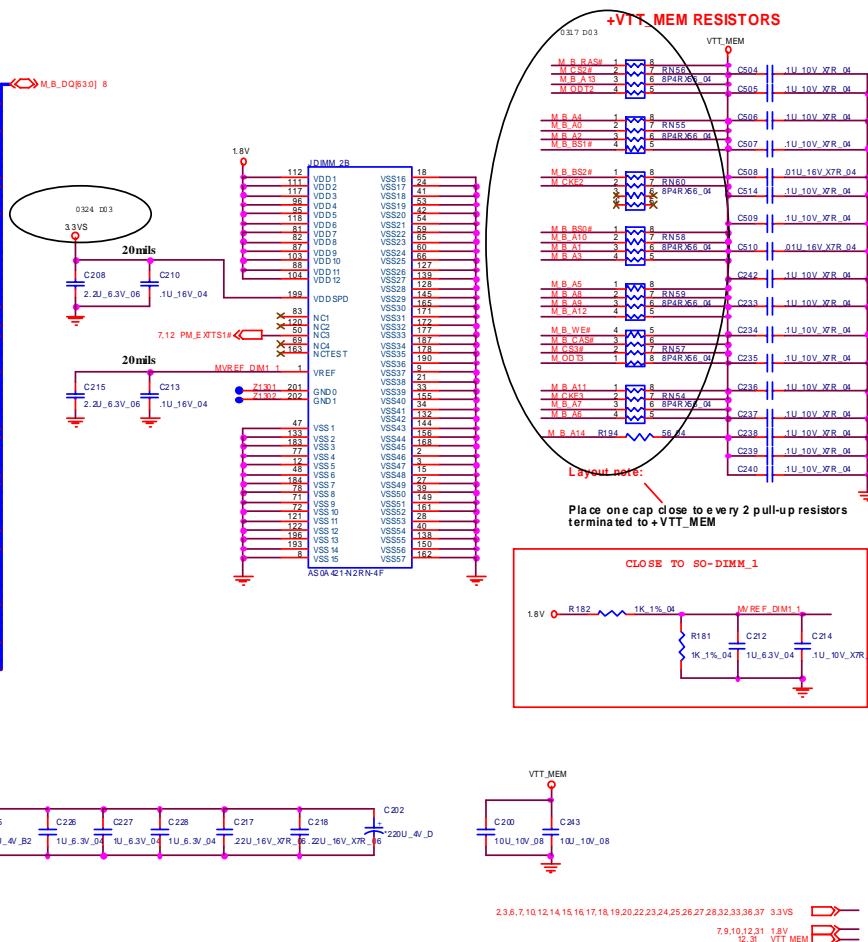


SO-DIMM 1

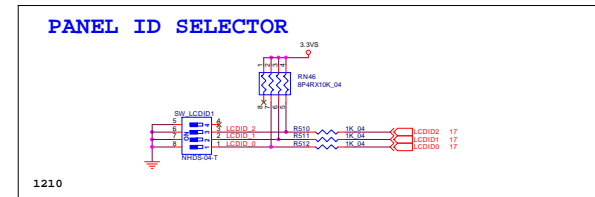
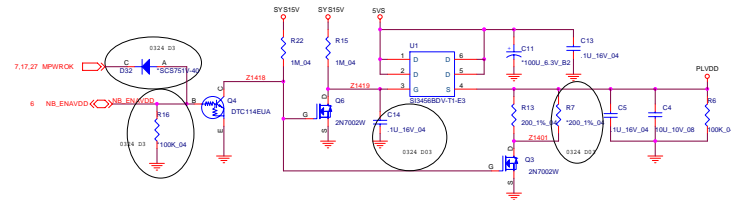
Sheet 14 of 48
DDRII SO-DIMM_1



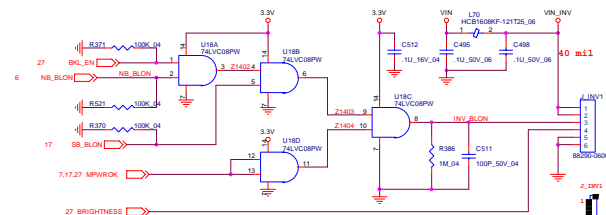
Layout note:
SO-DIMM_1 is placed farther from the GMCH than SO-DIMM 0



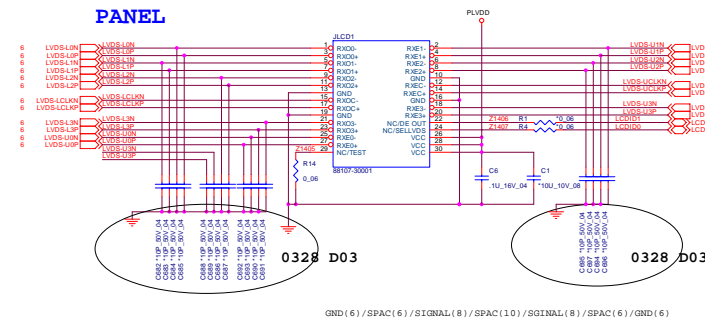
Panel, Inverter, CRT



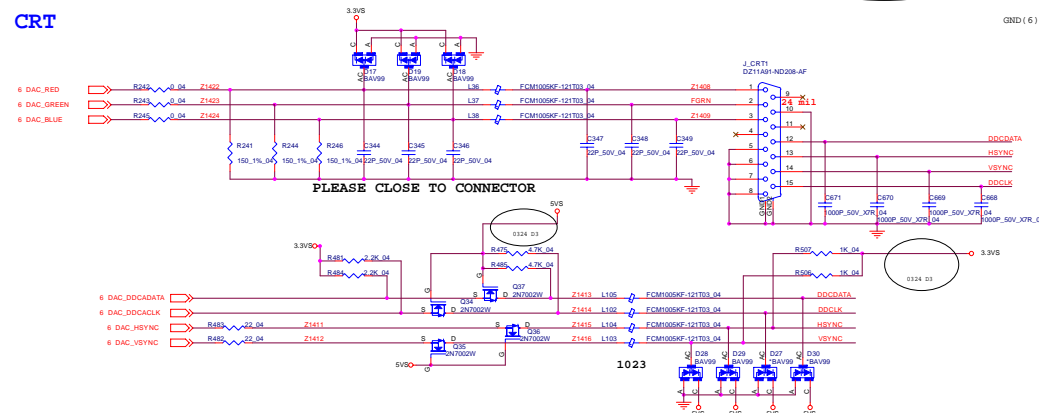
INVERTER CONNECTOR



PANEL



CRT



3.3V	3, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
5V	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
5V	18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
5V	18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
5V	18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
5V	18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
5V	18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
5V	18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
5V	18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37
5V	18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37

AA ON 1q, E CLEVO CO.	
[14]PANEL,INVERTER,CRT	
Document Number	6-71-L39T0-D03
Sheet	14 of 34

B.Schematic Diagrams

Sheet 16 of 48
ICH9M 1/4

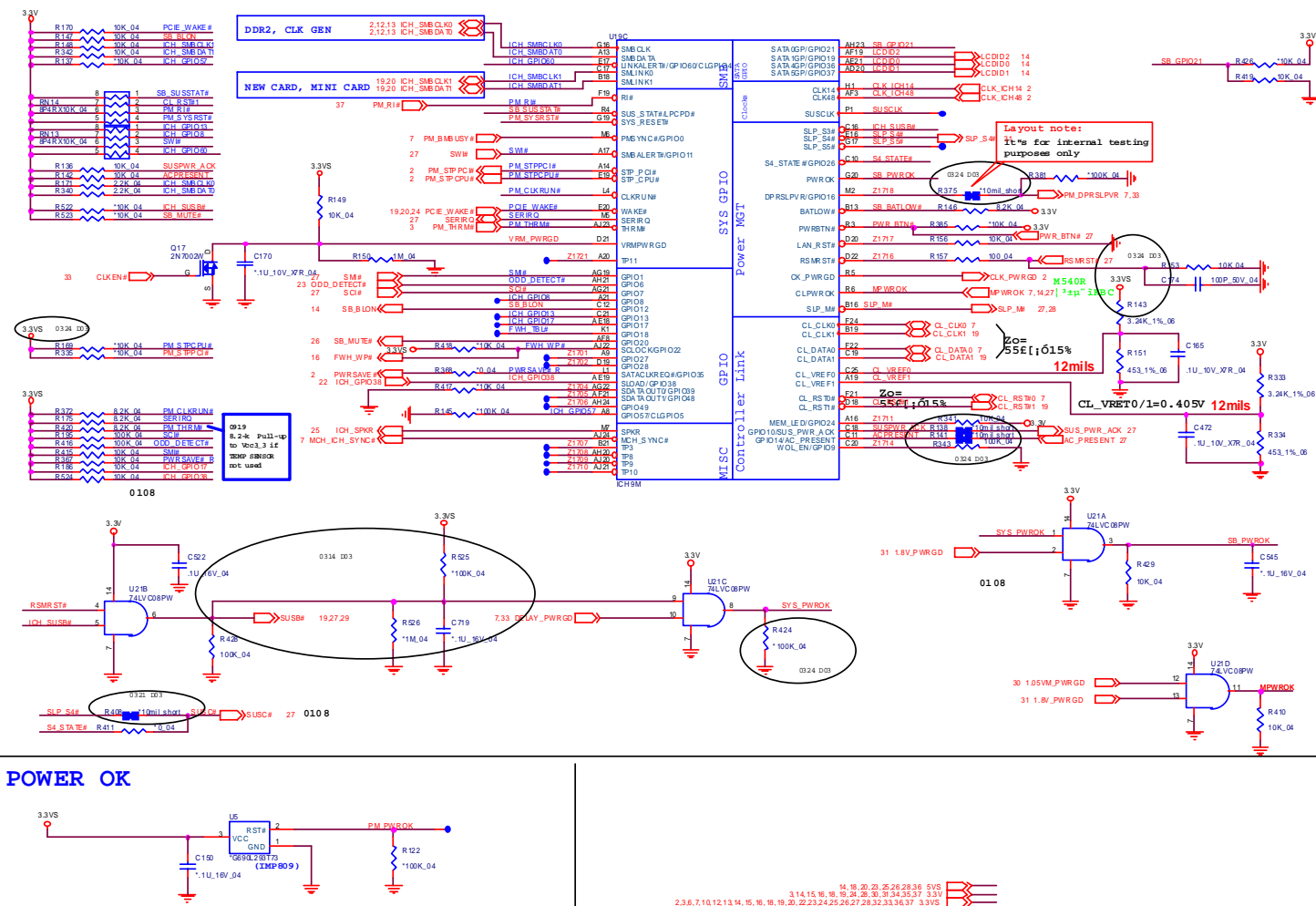


Schematic Diagrams

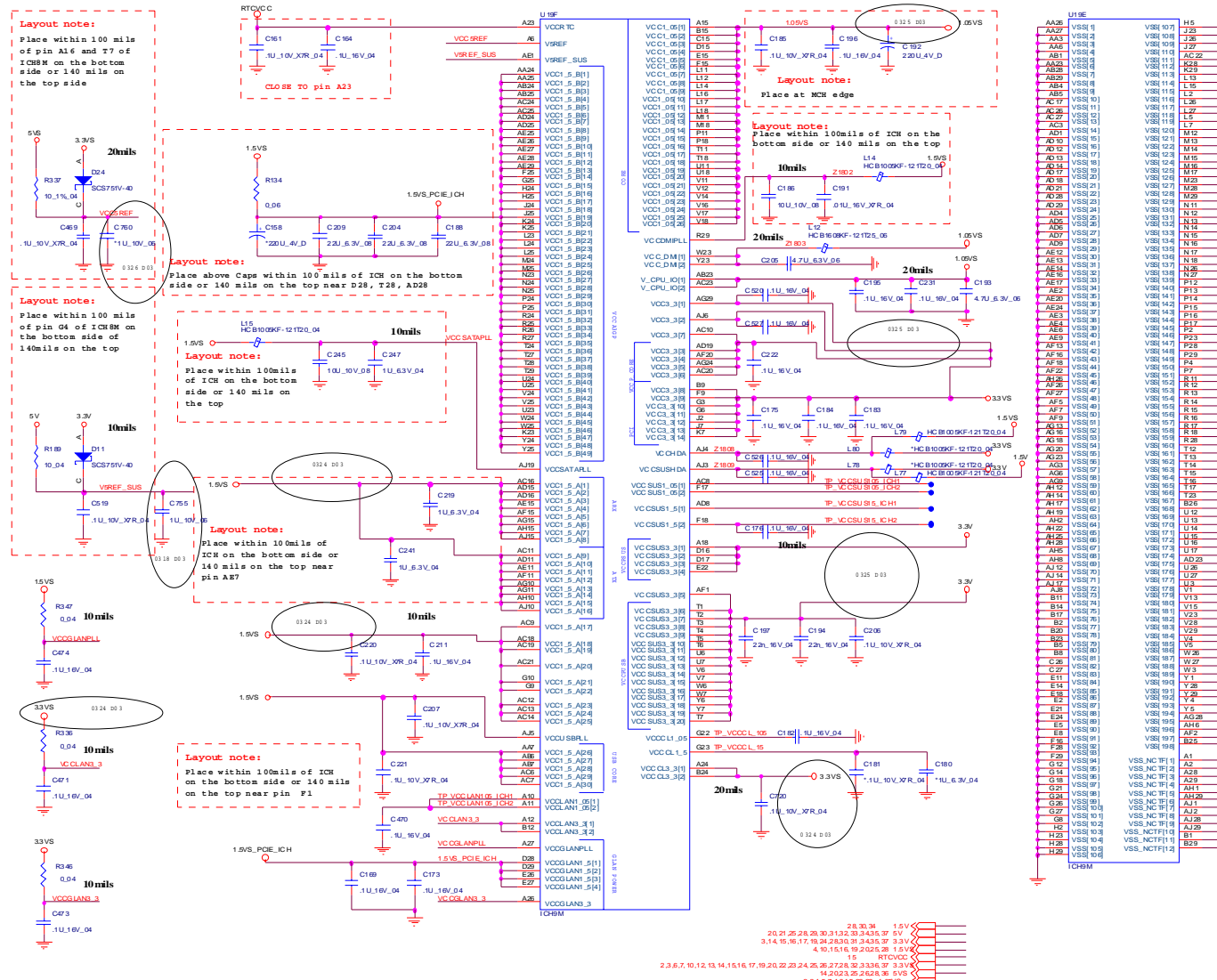


ICH9M 3/4

Sheet 18 of 48
ICH9M 3/4



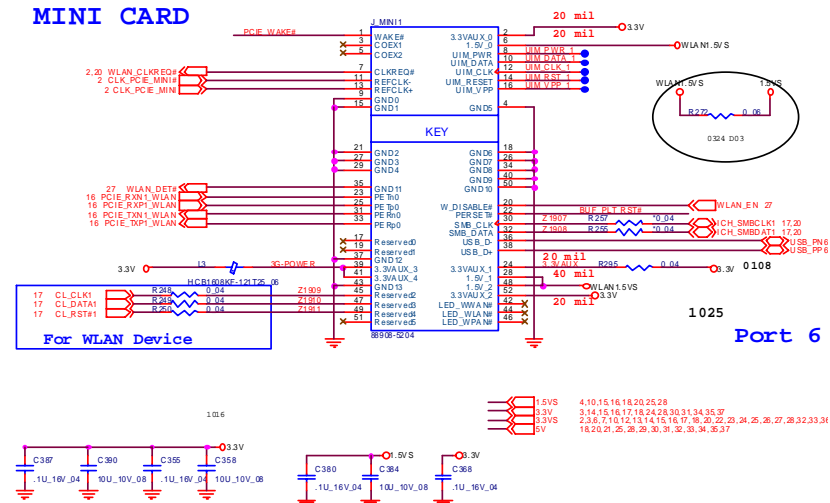
ICH9M 4/4

Sheet 19 of 48
ICH9M 4/4

NEW CARD



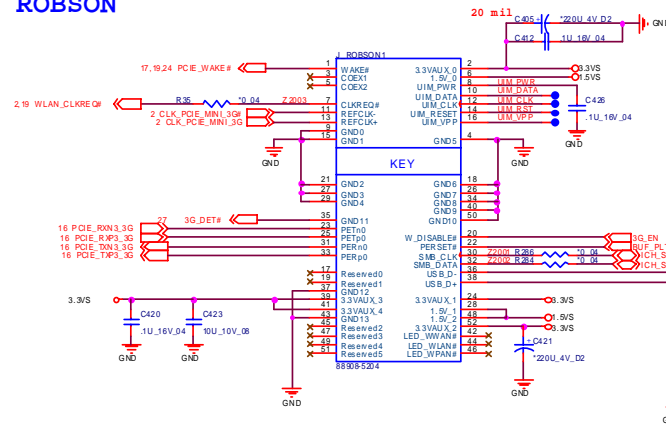
Sheet 20 of 48
New Card, Mini
PCIE



Port 6

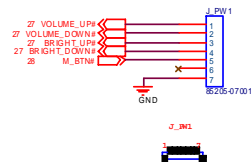
WLAN_PWR Signal default HI for WLAN
1.BIOS Setup HI for Intel PCIE WLAN
2.USB WLAN BIOS Setup LOW for
Fn+F10

ROBSON

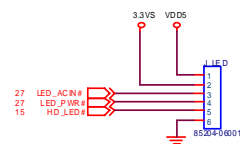
[illegible]

Sheet 21 of 48
Mini, PW Conn, Fan

POWER SW CONN



LED CONN

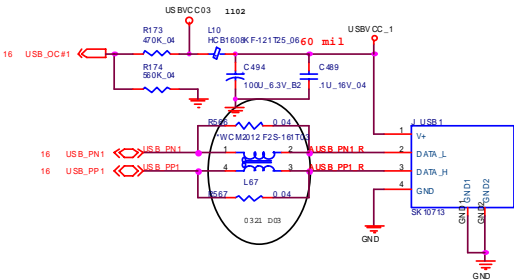
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Schematic Diagrams

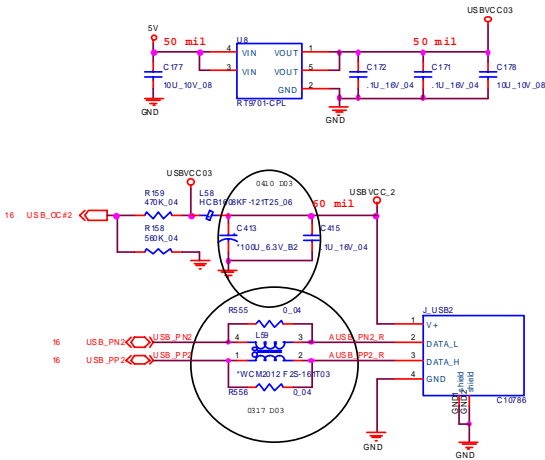
USB Port Con

Sheet 22 of 48
USB Port Con

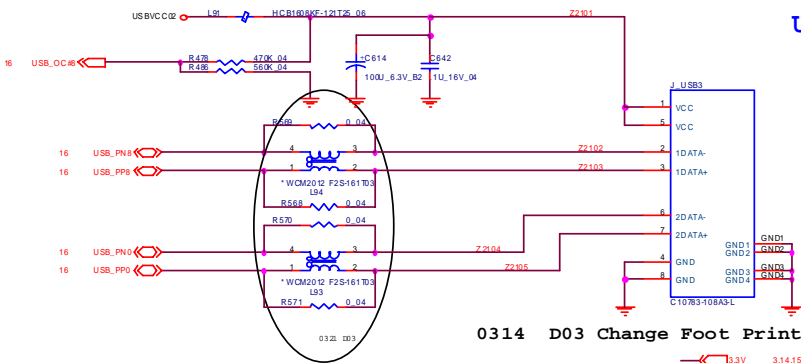
USB PORT6



USB PORT 3



USB PORT 4,5

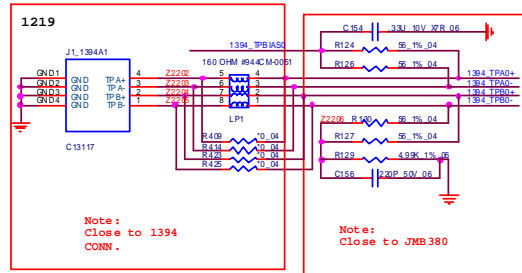


0314 D03 Change Foot Print "c10783-108A3-R"

3.3V	3,14,15,16,17,18,19,24,28,30,31,34,35,37
3.3VS	2,3,6,7,10,12,13,14,15,16,17,18,19,20,22,23,24,25,26,27,28,32,33,36,37
5V	18,20,25,28,29,30,31,32,33,34,35,37
5VS	14,18,20,23,25,26,28,36

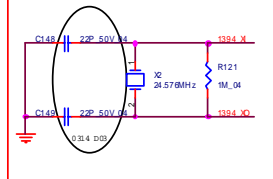
CardReader, IEEE 1394

IEEE1394 (JMB380 ONLY)

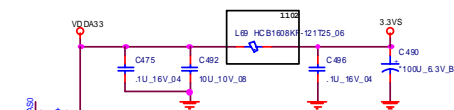
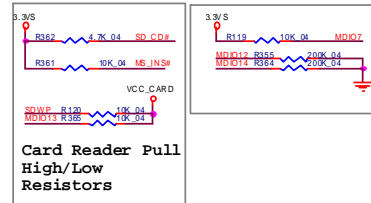
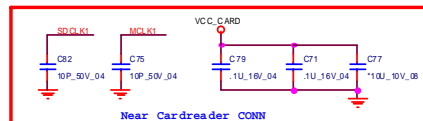
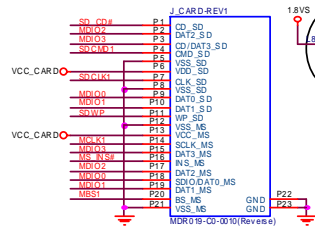


Crystal Placement

Crystal must be placed as close as possible to the Chip. Keep traces all on one PCB layer.

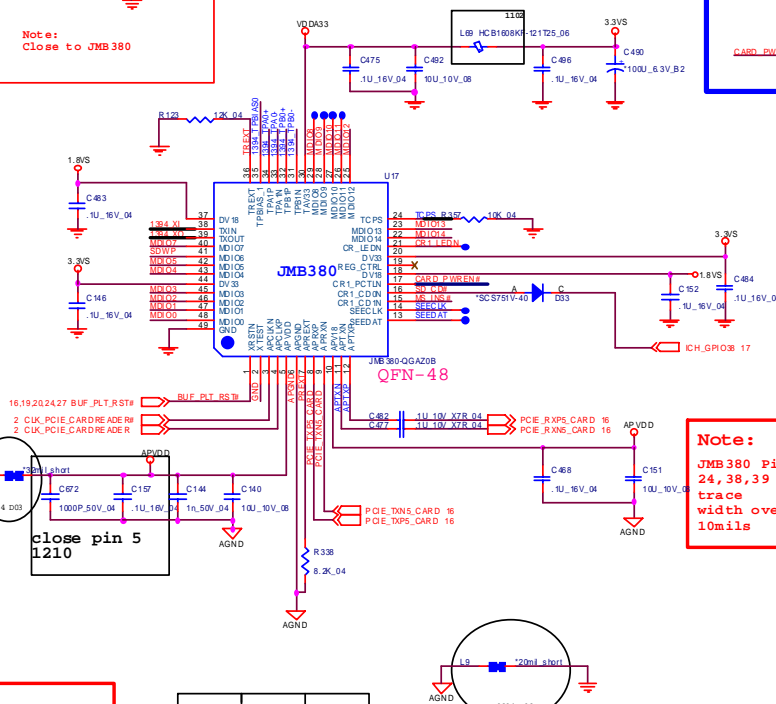
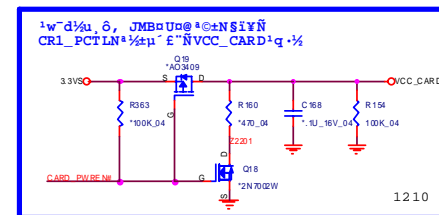


Card Reader Connector



Card Reader Power

Use 0805 type and over 20 mils trace width on both side



Note:
JMB380 Pin
24,38,39
trace
width over
10mils

MDIO5	SDCLK1	MCLK1
MDIO4	SDCMD1	MBs1

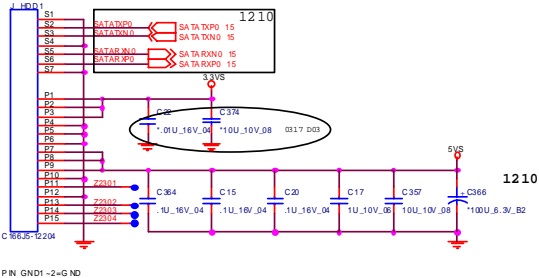
MDIO5 R126 22.0K SDCLK1 MCLK1
MDIO4 SDCMD1 MBs1

Schematic Diagrams

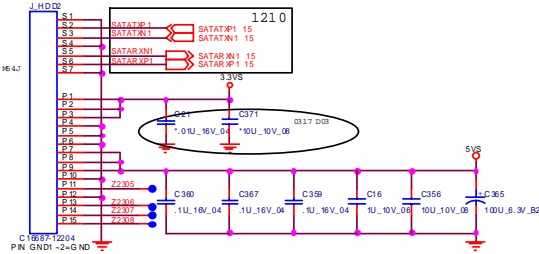
SATA ODD, Audio

Sheet 24 of 48
SATA ODD, Audio

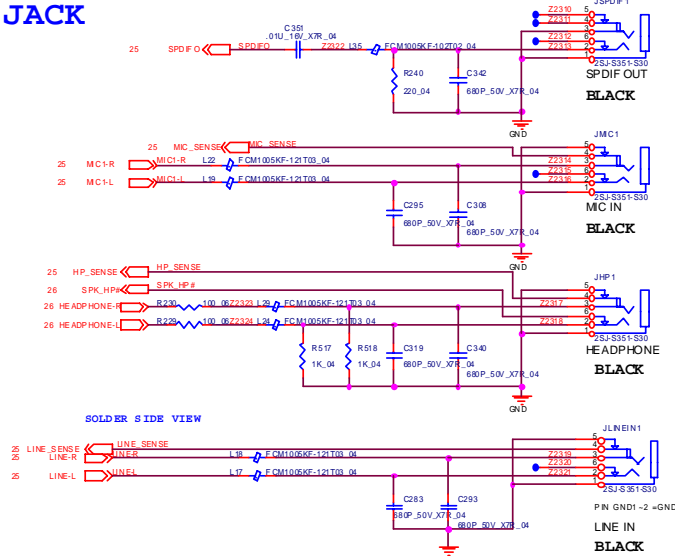
SATA HDD 0



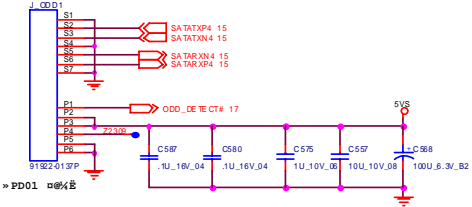
SATA HDD 1



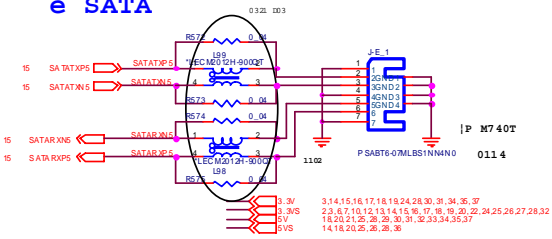
AUDIO JACK



SATA ODD



e SATA



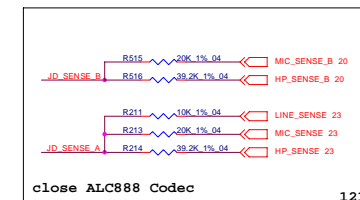
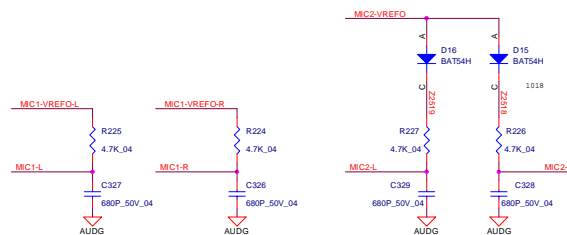
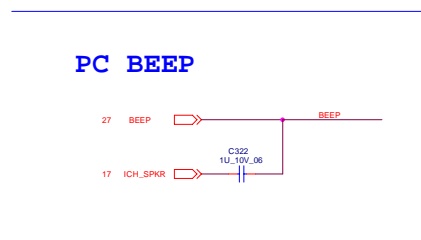
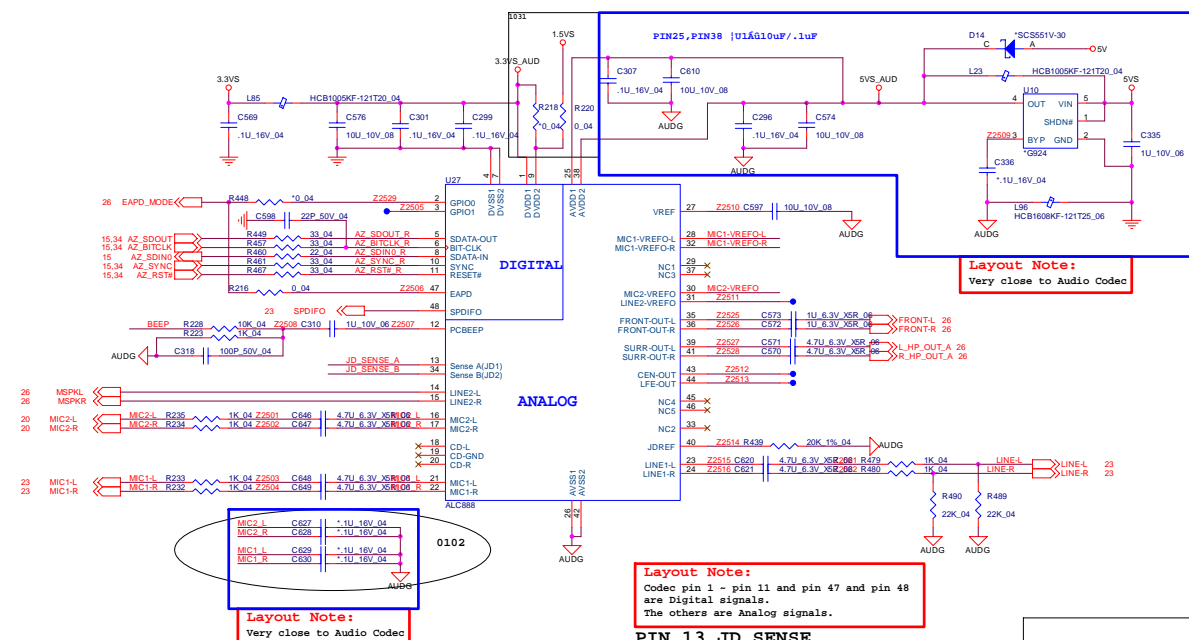
B.Schematic Diagrams

[illegible]

PCI-E LAN RTL8111C B - 25

Audio Codec ALC888

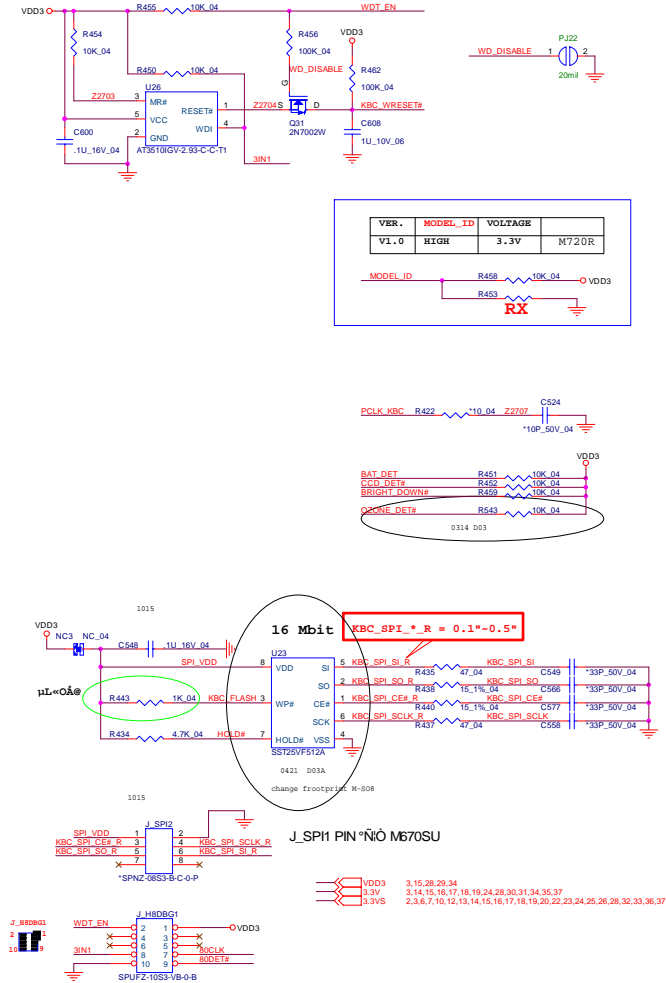
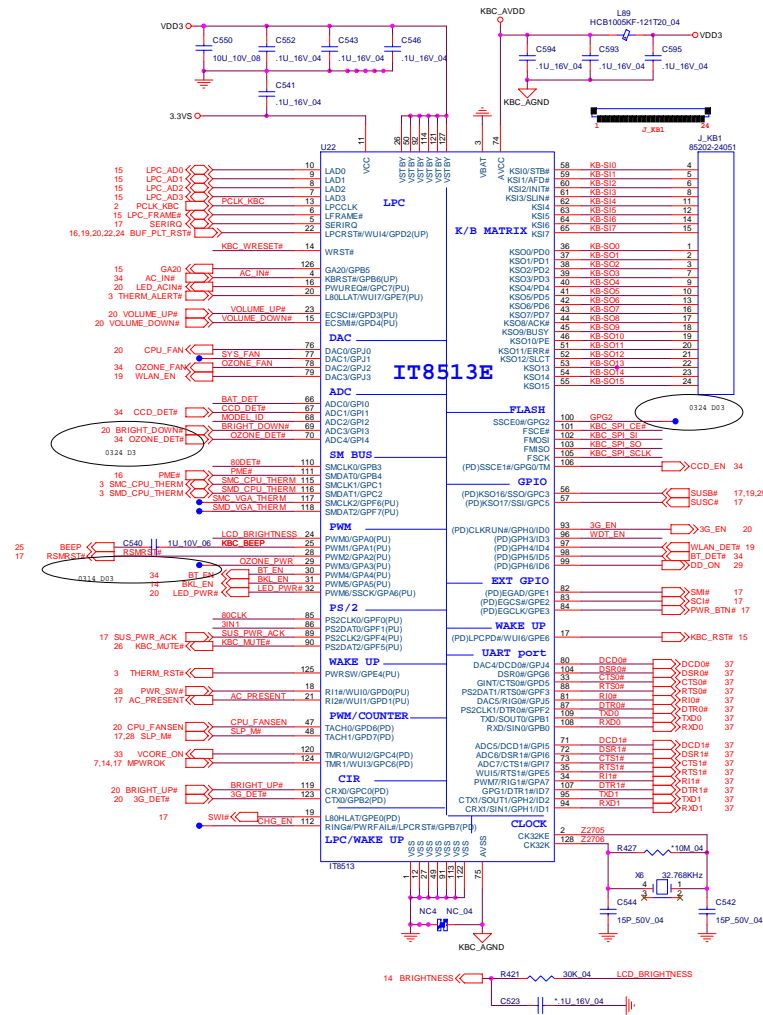
Sheet 26 of 48
Audio Codec
ALC888



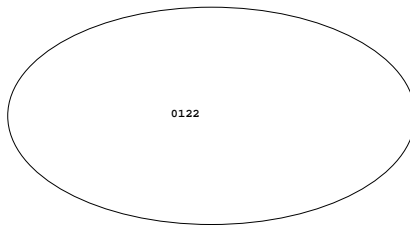
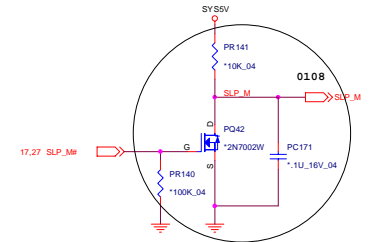
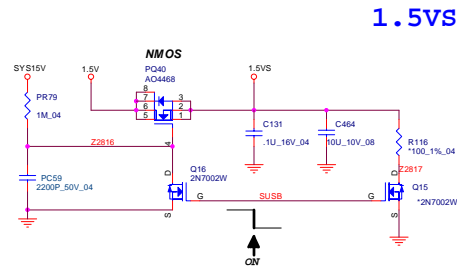
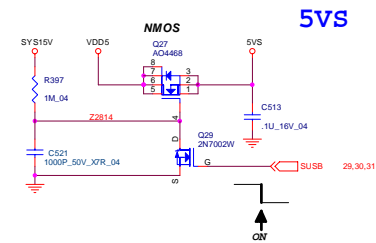
Audio AMP2056 B - 27

KBC-ITE IT8513E

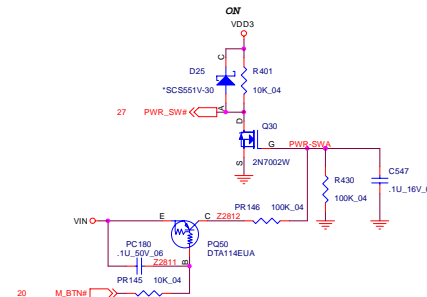
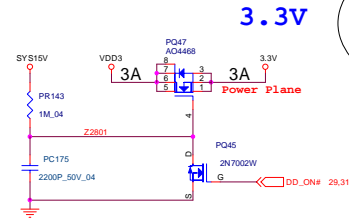
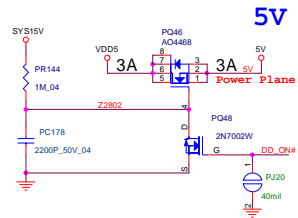
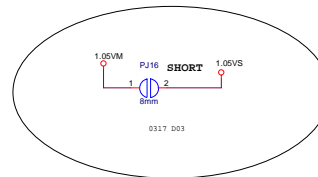
Sheet 28 of 48
KBC-ITE IT8513E



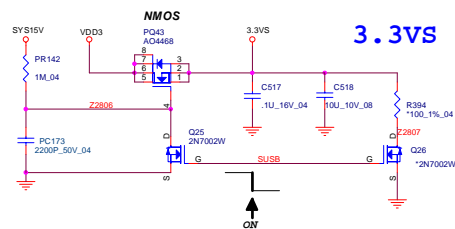
5VS, 3, 3VS, VIN



1.05VM TO 1.05VS



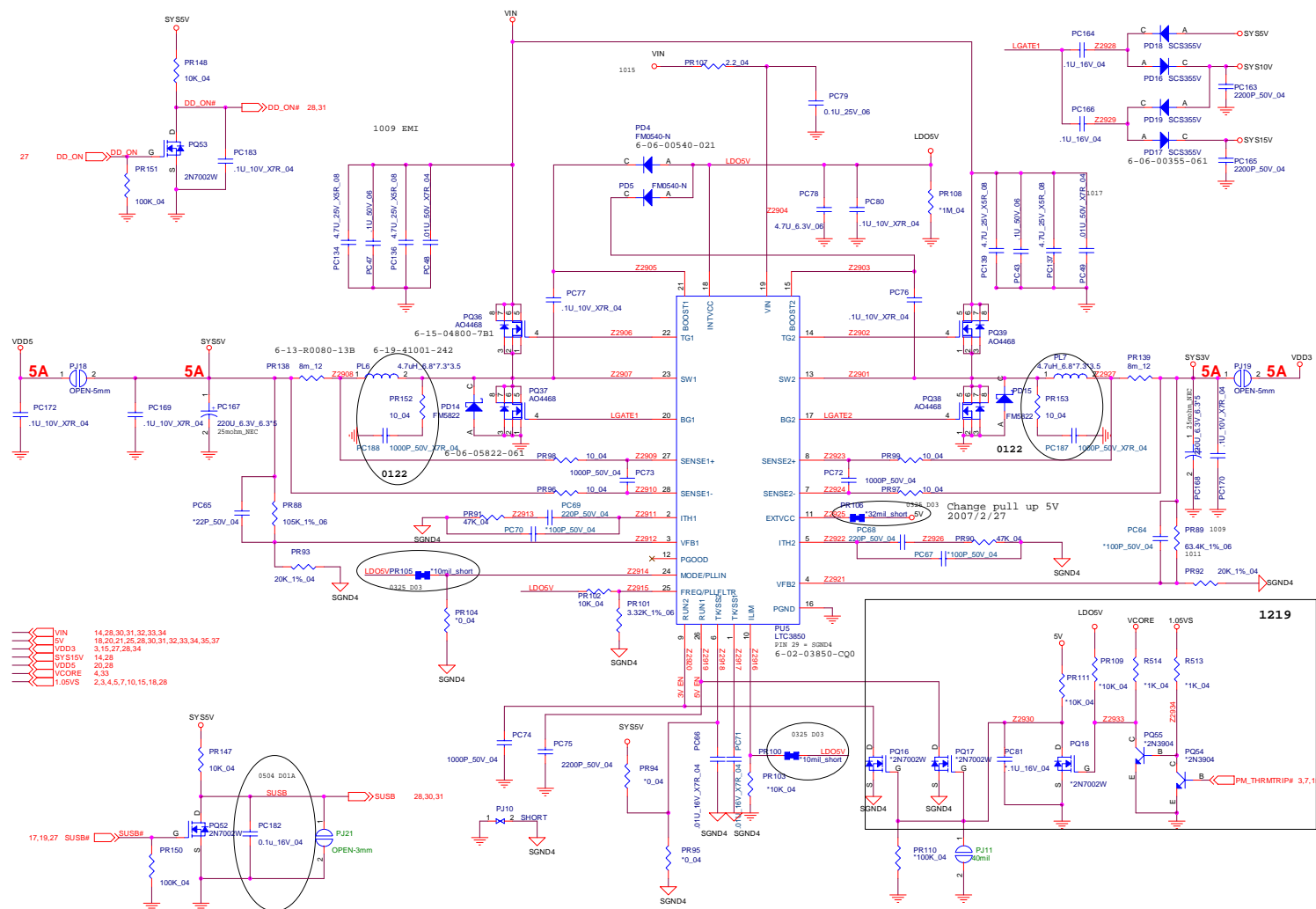
Sheet 29 of 48
5VS, 3, 3VS, VIN

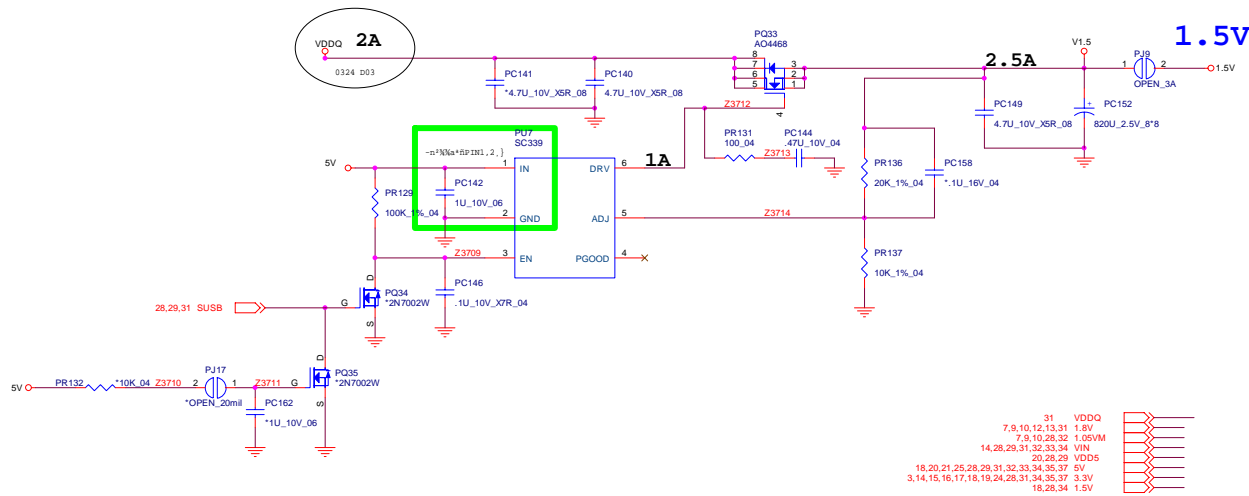


1.5V	18,30,34
1.5VS	4,10,15,16,18,19,20,25
1.8V	7,9,10,12,13,31
1.05VS	2,3,4,5,7,10,15,18,29
1.05VM	7,9,10,30,32
5V	10,20,21,25,29,30,31,32,33,34,35,37
3V	3,14,15,16,17,18,19,24,30,31,34,35,37
VIN	14,29,30,31,32,33,34
VDD5	20,29
VDD3	3,15,27,29,34
3VS	14,18,20,23,25,26,36
3VS	2,3,6,7,10,12,13,14,15,16,17,18,19,20,22,23,24,25,26,27,32,33,36,37
5VS	14,29

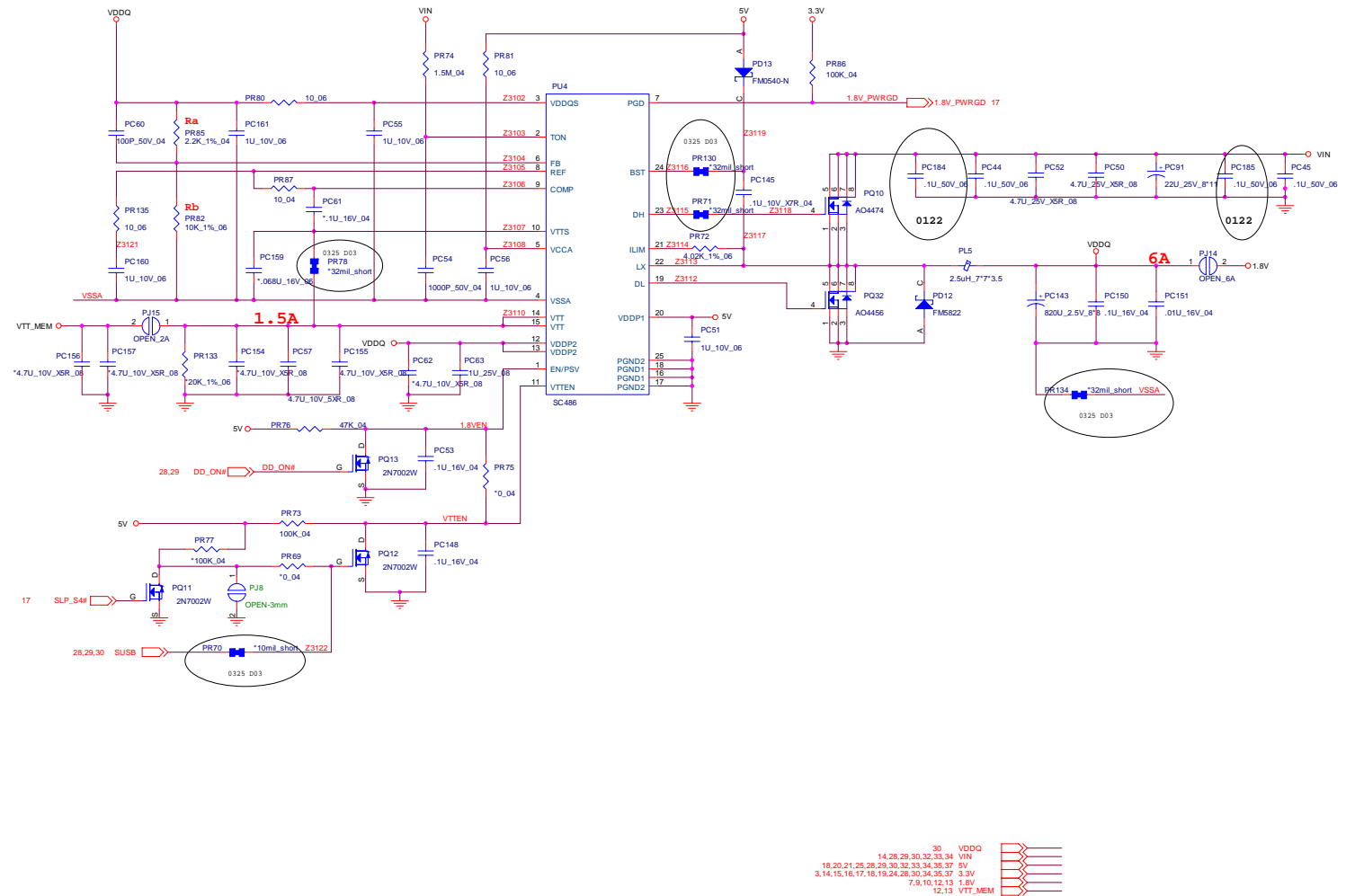
Power VDD3/VDD5

Sheet 30 of 48
Power VDD3/VDD5

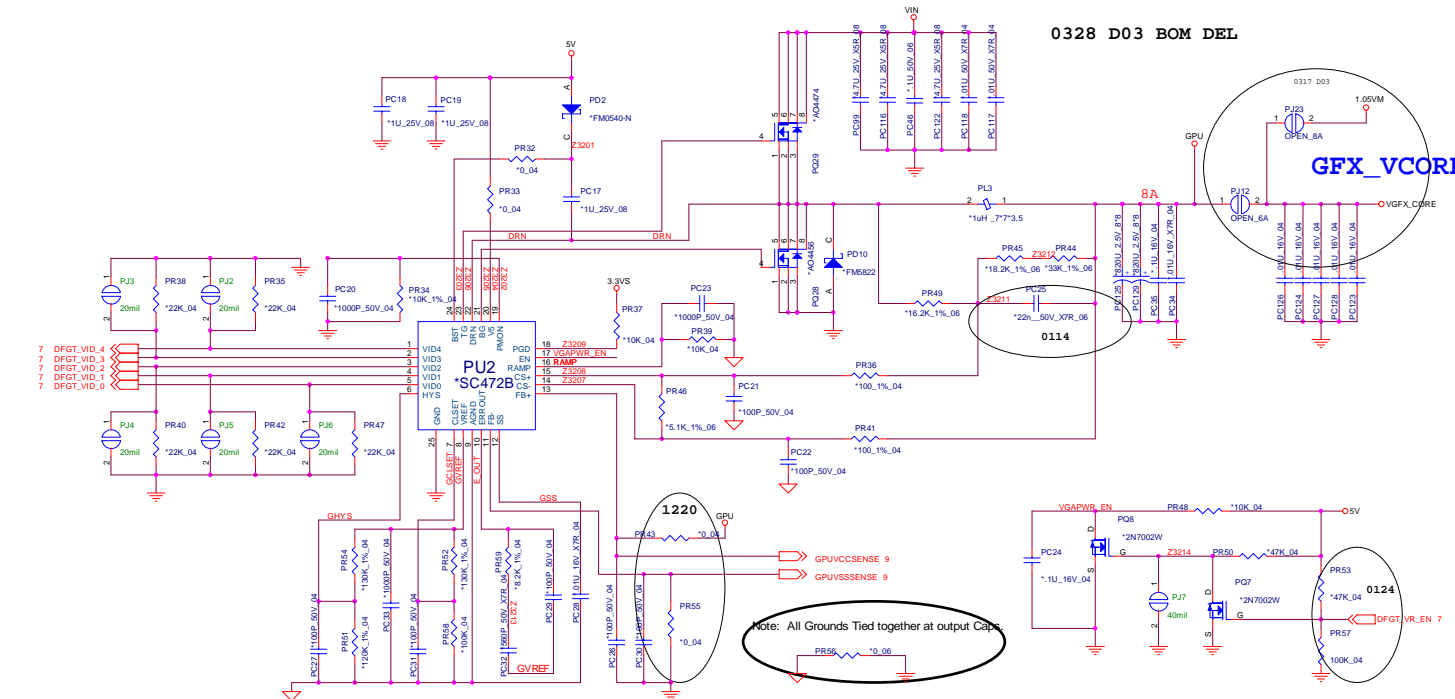




POWER 1.8V/0.9V



GFX_VCORE



0328 D03 BOM DEL

GFX_VCORE

Sheet 33 of 48
GFX-VCORE

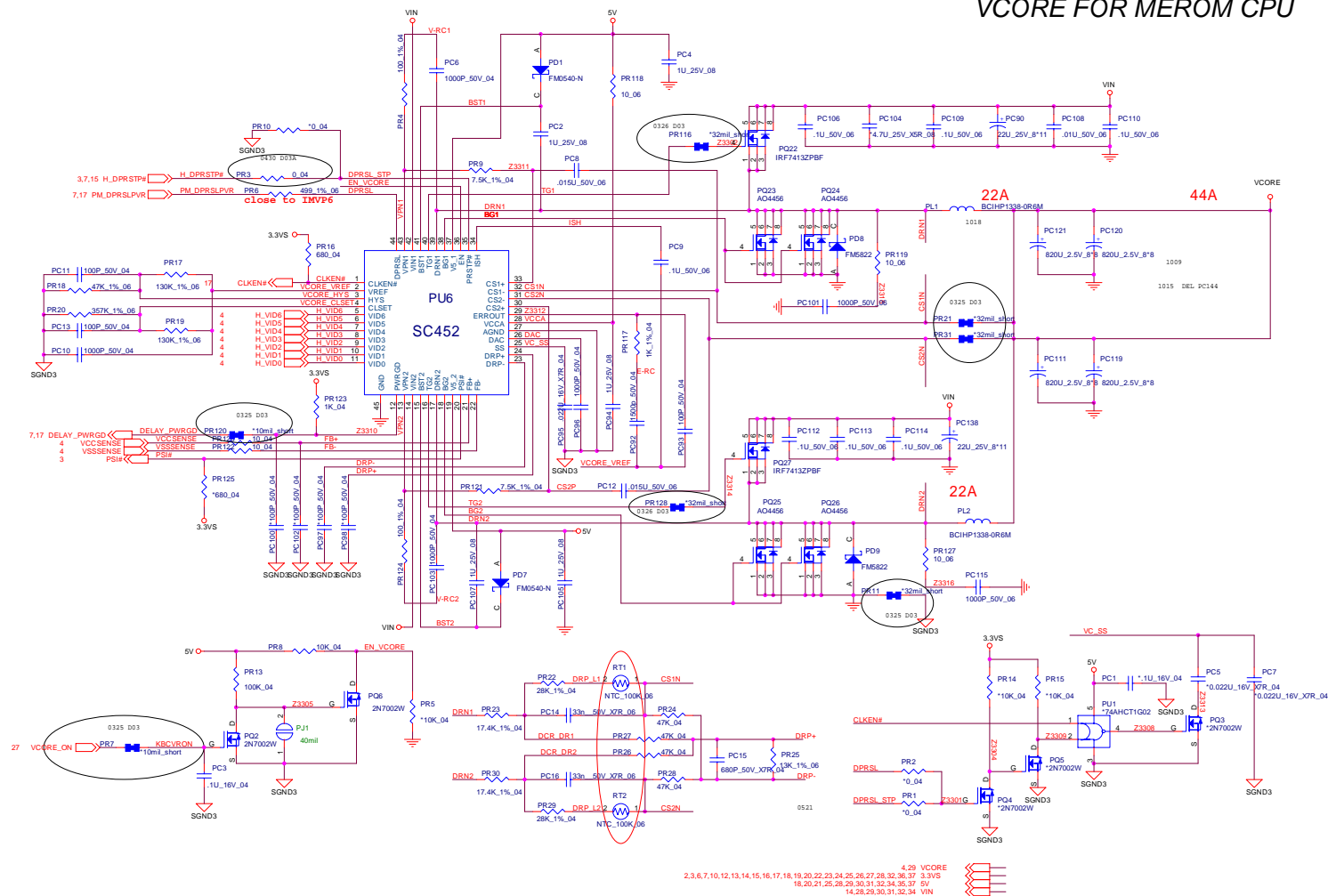
DEL 2.5VS

Vout = 1.24V (1 + Ra / Rb)	1.05VM	7,9,10,28,30
	3.3VS	2,3,6,7,10,12,13,14,15,16,17,18,19,20,22,23,24,25,26,27,28,33,36,37
	VIN	14,28,29,30,31,33,34
	5V	18,20,21,25,28,29,30,31,33,34,35,37
	VDD5	20,26,29
	VDD3	3,15,27,28,29,34
	3.3V	3,14,15,16,17,18,19,24,28,30,31,34,35,37
	VGFX_CORE	9

VCORE

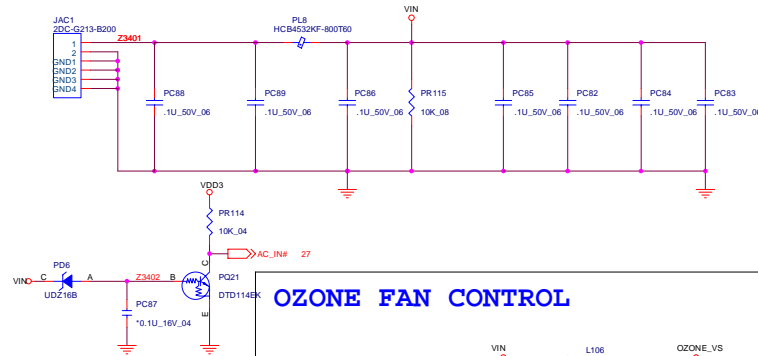
B.Schematic Diagrams

B - 34 VCORE

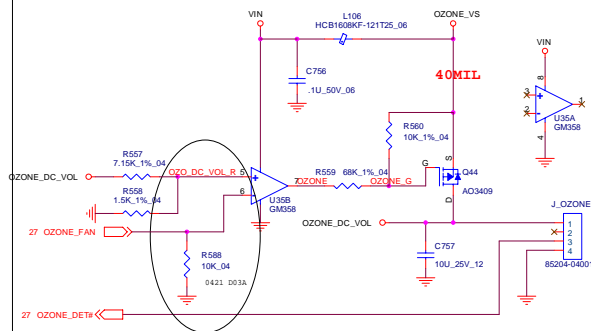


BT, CCD, MDC, AC-IN CONN

AC-IN

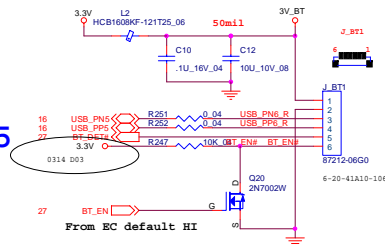


OZONE FAN CONTROL

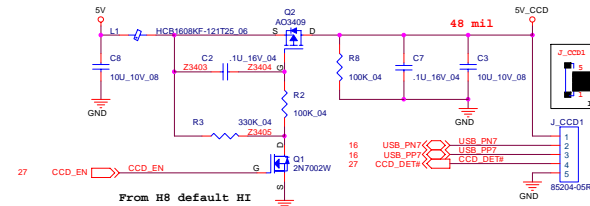


Bluetooth

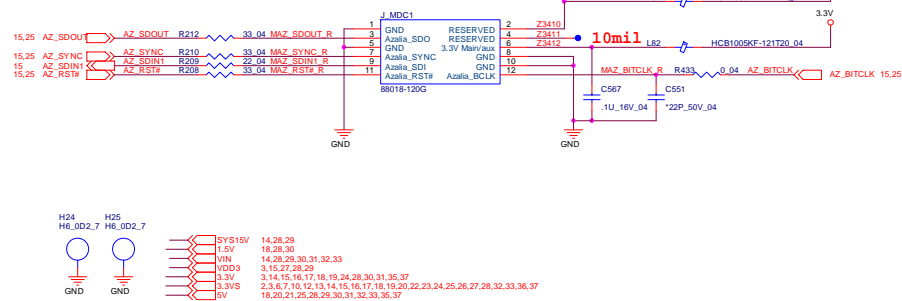
Port 5



CCD



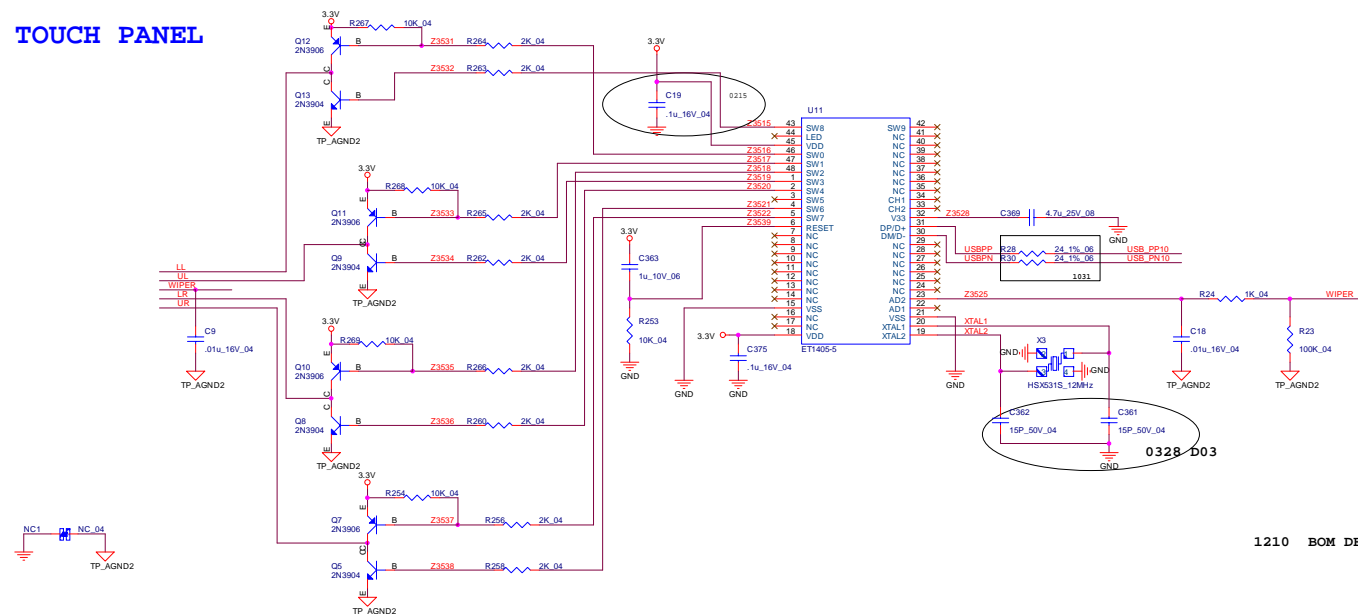
MDC MODULE



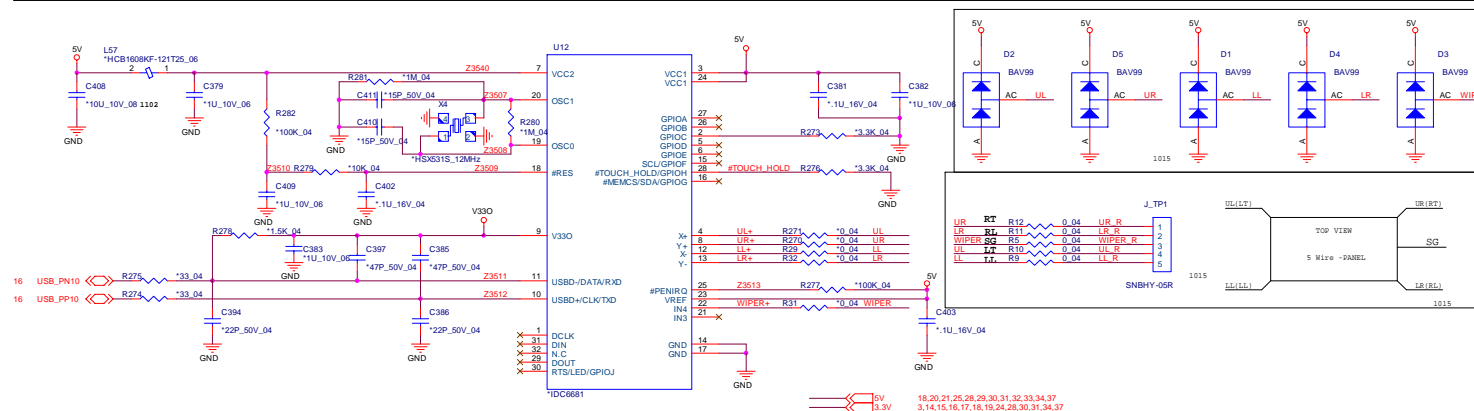
Sheet 35 of 48
BT, CCD, MDC, AC-IN CONN

TOUCH PANEL CONN

TOUCH PANEL



1210 BOM DEL



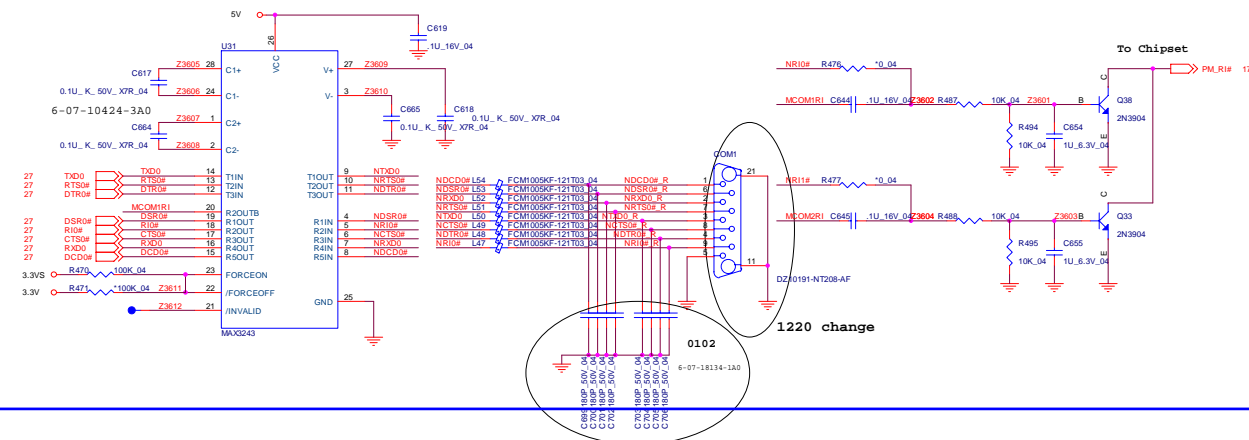
B.Schematic Diagrams

HDMI CONNECTOR

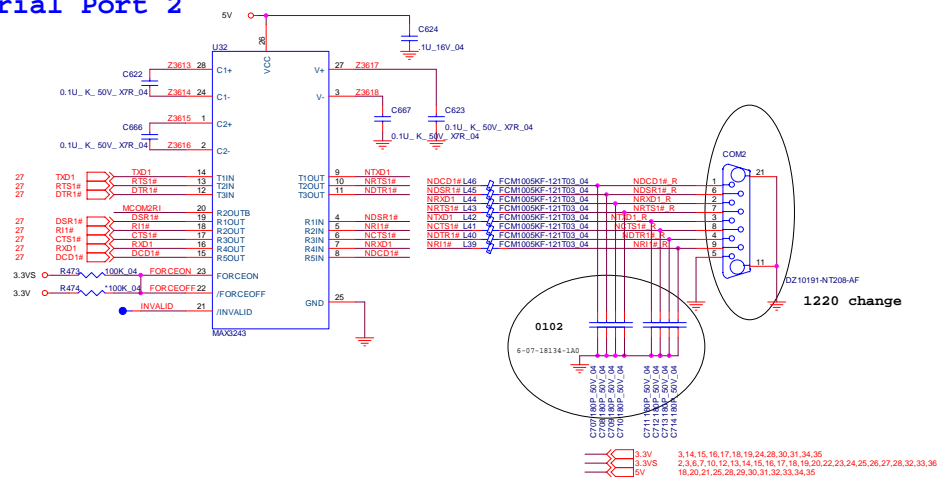


HDMI CONN B - 37

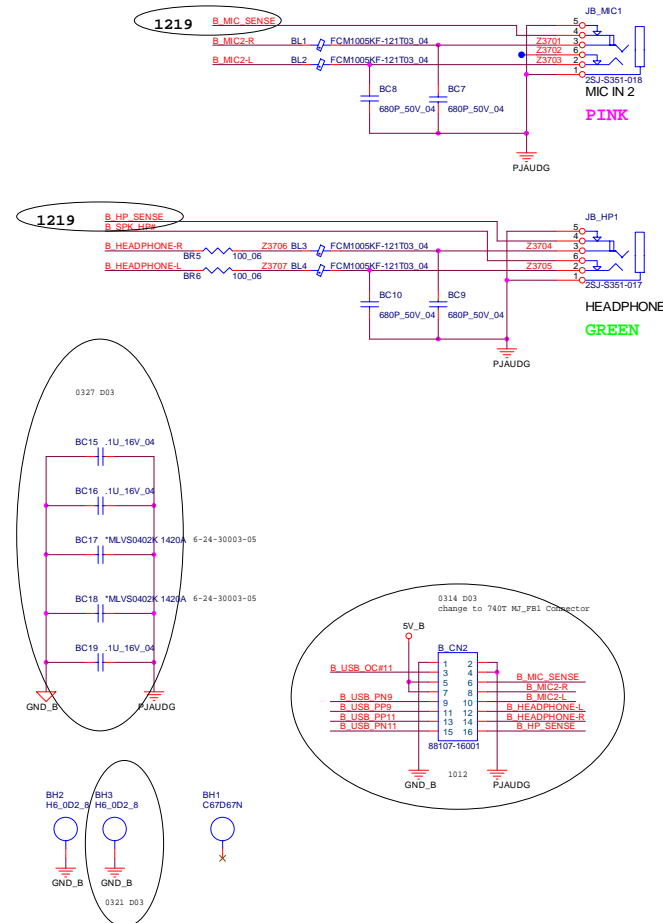
Serial Port 1



Serial Port 2



AUDIO JACK

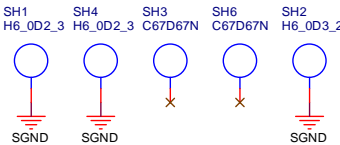
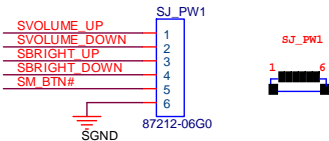
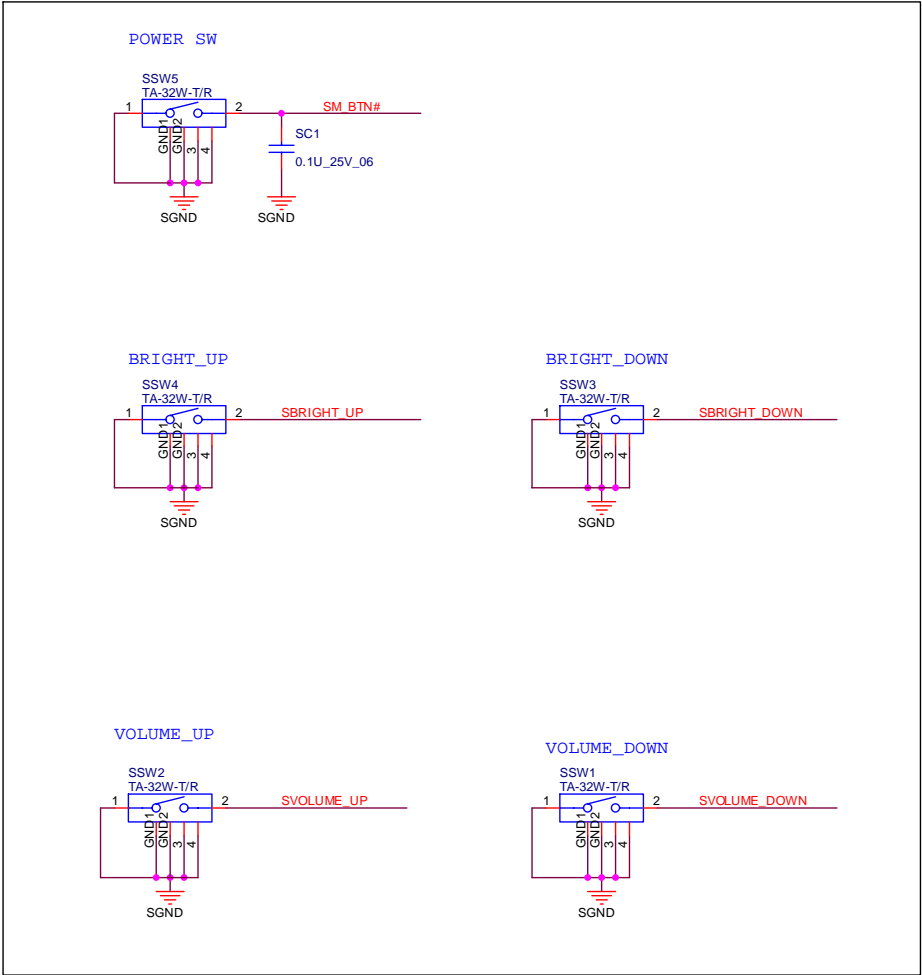


USB, AUDIO, BOARD B - 39

POWER, SW, BOARD

POWER BOARD

Sheet 40 of 48
POWER, SW,
BOARD



LED



Appendix C: Wall Mounting Guide

The computer may be mounted on a wall for display, however in order to avoid personal injury or damage to the computer make note of the standards, warnings and precautions listed in this chapter:

The system meets VESA (FDMI) Standard (**100mm * 100mm**), however before attaching any display bracket it is necessary to remove the stand.

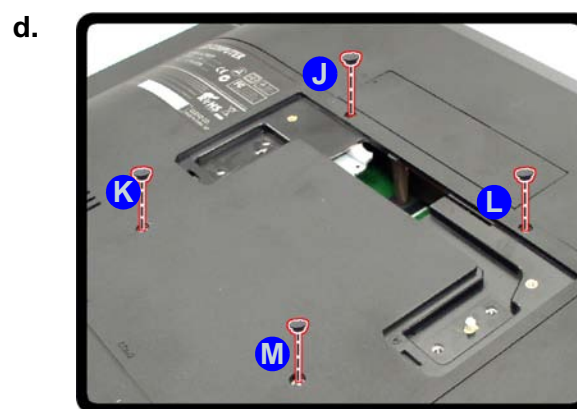
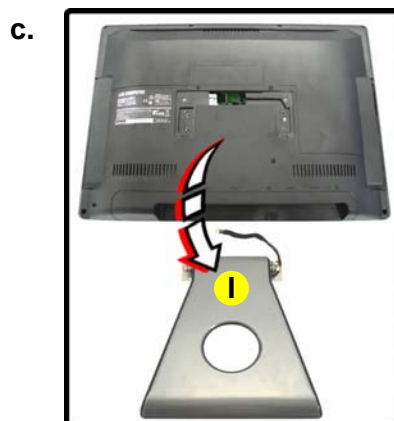
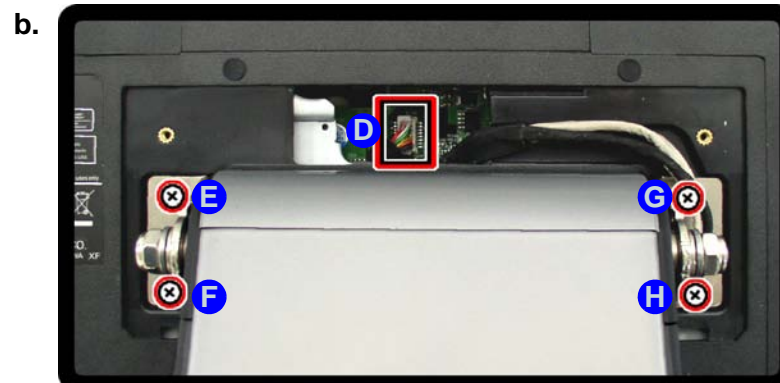
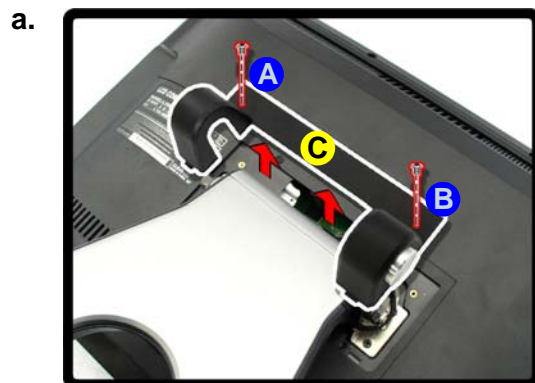
Wall Mounting Info

Figure 1
Stand Removal

- Remove the screws and stand cover.
- Disconnect the cable and remove the screws.
- Remove the stand.
- Remove the rubber covers.

Removing the Stand

- Turn **off** the computer and disconnect all cables and peripherals.
- Carefully place the computer flat with the LCD facing down (make sure you cover the LCD to avoid scratches) so that you may access the rear cover.
- Remove screws **A** & **B** from the stand cover, and then remove the stand cover **C**.
- Carefully release cable **D**, and remove screws **E** - **H**.
- Remove the stand **I**.
- Remove the rubber covers **J** - **M**.



C. Stand Cover
I. Stand

- 6 Screws & 4 Rubber Covers



Stand & Screws

Make sure you keep the stand and removed screws in a safe place in case you need to re-attach the stand at a later date.

Mounting Systems

This computer complies to the VESA FDMI (Flat Display Mounting Interface) 100mm * 100mm standard. Make sure that any mounting system you want to use meets the same standard.

It is imperative that you consult appropriate professional installers (i.e. qualified engineering, construction or architectural personnel) to install, move or service any mounting system. This is especially so as vertical surfaces vary widely and thus the actual mounting of any screen is beyond the scope of what can be outlined in written manual form. Some surfaces require significant reinforcement before any mount and display can function safely. Professional installers can determine if any vertical surface can bear the weight of the whole system.



Warning

If non-qualified installers are used to install any mounting system the system may fall and cause a serious injury if:

- The wall bracket does not support the weight of the system.
- The wall bracket is not securely (or is unevenly) fastened to the wall.
- The wall itself is not sturdy enough to support the system.
- An earthquake occurs.

Wall Mounting Info

General Guidelines for Wall Mounting

- Only use professional installers to install, move or service any mounting system.
- The system must only be mounted on a wall which can support the whole system's weight (including the weight of any arm or bracket).
- Make sure any wall is perpendicular and flat.
- Any mounting system used must support a minimum of **30kg** weight and be VESA compliant.
- Only use the screws and fittings supplied with the mounting system.
- Only use **M4 screws of a length of 12mm** to attach any bracket to the computer.
- Drill any holes to a depth of **30mm** (minimum), and only use the screws supplied with any bracket to attach it to the wall.
- Bear in mind that sufficient space must be left between the rear of the computer and the wall in order to allow:
 - access to the ports & jacks
 - the screen to be tilted (if the mounting system supports this)
 - ventilation space
- It usually requires two people to mount the display on the wall (i.e. when joining the display bracket to the wall bracket).
- Make sure that any cables are firmly secured and do not cause an obstruction.
- Do not make any alterations or adjustments to any wall bracket yourself.
- Do not hang anything from (or add any other items to) the system.
- Do not expose the system to moisture or liquid.
- Do not mount the system in a location where it may excessively protrude or cause an obstruction.
- Do not mount the system too close to an air conditioning unit.
- Take care, and do not lean your weight on the system when cleaning it.
- Keep flammable objects and/or open flames away from the mounted system.
- Do not spill or spray liquid on the system.

Mounted System Example

The following pictures show some examples of how a system can be mounted on to a wall. These pictures are intended for guideline purposes only, and are not specific instructions. Professional installers will determine the exact installation procedure for your specific bracket and mounting conditions.

Installation Example

1. After removing the stand, the display bracket (which must be VESA 100mm * 100mm compliant - weight rating of 30kg minimum) is attached firmly to the rear of the computer using **M4 screws** (of a length of 12mm) provided with the bracket.

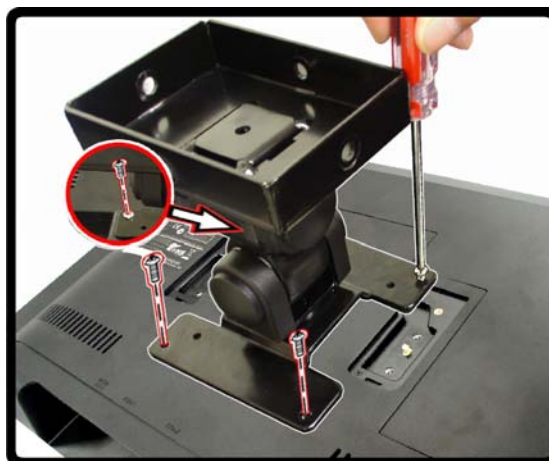


Figure 2
**Display Bracket
Attached**

2. The (VESA compliant) wall bracket can then be attached to the wall using the screws provided with the system (holes in the flat, perpendicular wall should be drilled to a minimum depth of 30mm).

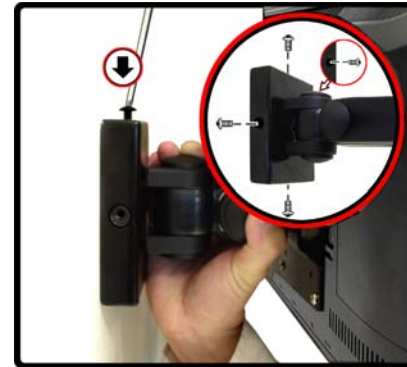


Figure 3
Wall Bracket

Wall Mounting Info

3. The display can now be mounted by lowering the display bracket (**in this example**) over the wall bracket and attaching the screws. Note that this procedure usually requires **two people**, as one person will need to hold the computer while the other inserts and tightens the screws.

Figure 4
Mounting the
Display



4. The cables may now be attached, and firmly secured, to the system's ports and jacks.

Figure 5
Wall Bracket



Rotation

Once mounted the screen may be rotated through 180 degrees up/down and left/right, and through 270 degrees clockwise/counterclockwise.

Appendix D: CPU Type DIP Switch Settings

This appendix is about the system's CPU type (**Penryn** or **Celeron** CPU) switch settings.

The following figure shows the location of the CPU Type DIP Switch. You can access the DIP Switch after you remove the Rear Top Cover. Be sure to turn OFF the system before you perform any part removal procedure.

1. Remove the rear top cover (see [“Removing the Rear Top Cover” on page 2 - 6](#)).
2. Locate the **Dip Switch** at point **A**.
3. Set the switch as per the setting in [Table D - 1 on page 2](#)

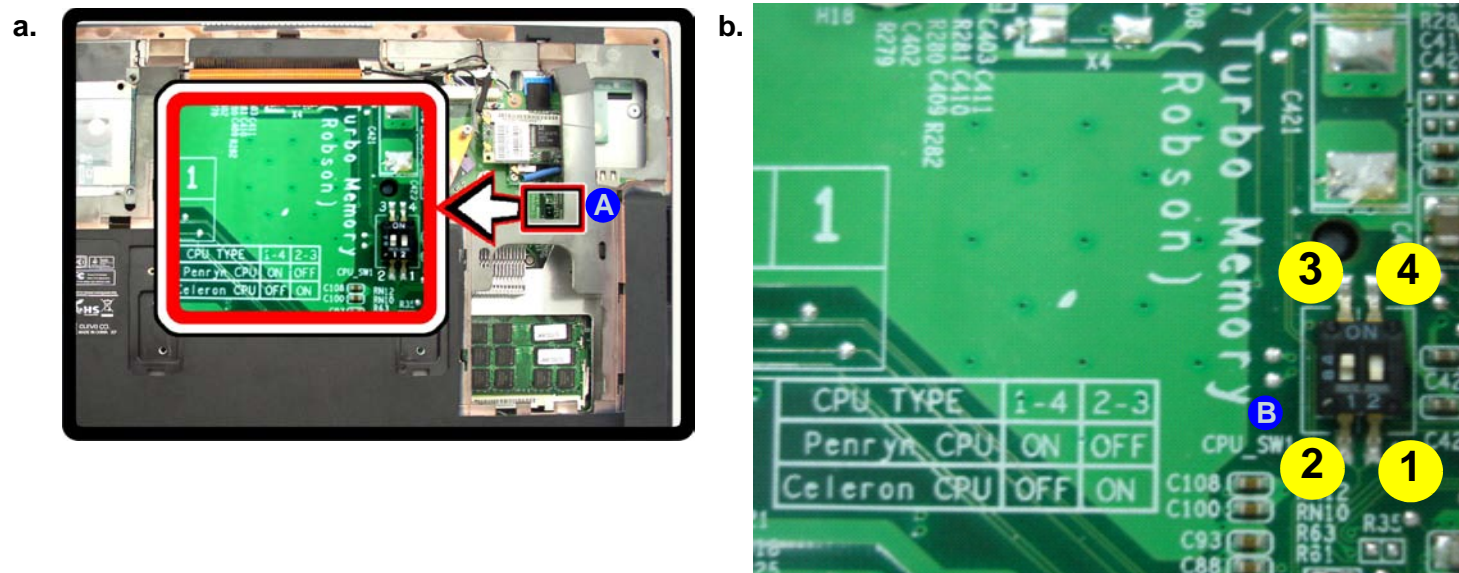


Figure 1
CPU Type Switch

- a. Locate the Dip Switch CPU_SW1.
- b. Adjust the settings for the CPU as per the instructions.

B. CPU Type Switch (CPU_SW1)

Dip Switch

CPU Type Switch Settings (CPU_SW1)

CPU Type	1 - 4	2 - 3
Penryn CPU	ON	OFF
Celeron CPU	OFF	ON

Table D - 1 - CPU Type Switch