

SERVICE MANUAL

LV22C / LV22N / LV19C / LV19N

Multimedia PC



LCD Computer
LV22C/LV22N/LV19C/LV19N Series
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 **LV22C/LV22N/LV19C/LV19N** computer.

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

Preface

Related Documents

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

User's Manual on CD

This describes the computer'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 computer.

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1: Introduction

Overview

This manual covers the information you need to service or upgrade the **LV22C/LV22N/LV19C/LV19N** 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 LV22C/LV22N/LV19C/LV19N LCD computer is designed to be upgradeable. See ***“Disassembly” on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the “” symbol.

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

System Specifications



Latest Specification Information

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

Table 1 - 1
System Specifications

Feature	Specification	
Processor	Intel® Core™ 2 Duo Desktop Processor LGA775 Package (775-pin) E6300/ E6400	65nm (65 Nanometer) Process Technology 2MB On-die L2 Cache & 1066MHz FSB 1.86/ 2.13 GHz
	Intel® Core™ 2 Duo Desktop Processor LGA775 Package (775-pin) E6600/ E6700	65nm (65 Nanometer) Process Technology 4MB On-die L2 Cache & 1066MHz FSB 2.40/ 2.67 GHz
Core Logic	Intel G965 +ICH8-DH Chipset	
Memory	64-bit Wide DDR2 Data Channel Two 200 Pin SO-DIMM Sockets Supporting DDR2 533 / 667 MHz Memory Expandable up to 4GB (256/ 512/ 1024/ 2048 MB DDR2 Modules)	
Security	Security (Kensington® Type) Lock Slot	BIOS Password
BIOS	One 1024KB Flash ROM	Phoenix™ BIOS, Plug and Play
LCD	Model A Computers	Model B Computers
	19" Wide Screen WXGA+ (1440*900) 16:10 Wide Screen Flat Panel TFT	22" Wide Screen WSXGA+ (1680*1050) 16:10 Wide Screen Flat Panel TFT

Feature	Specification	
Video Adapter Options	Integrated Video Option Intel G965 Integrated Video Shared Memory Architecture of up to 376MB of Dynamically Allocated Video Memory Fully Supports DirectX 9.0	Discrete Video Option NVIDIA GF-GO7600-N-B1 (w/o HDMI) PCI-E MXM II Video Card 256MB DDR2 Video RAM on Board PCI-Express X16 Fully Supports DirectX 9.0 MXM Modular Design
Storage	One Changeable 12.7mm(h) Optical Device (CD/DVD) Type Drive (see "Optional" on page 1 - 4 for drive options) Two Changeable Bays for 3.5" 26mm (h) Serial-ATA (SATA) Hard Disk Drives Supports RAID 0, RAID 1 , HDD Fault Tolerance System in SATA Configuration	
Audio	Supports 7.1 CH Audio Output Via S/PDIF Port Integrated AZALIA Compliant Interface (HDA) 3D Stereo Enhanced Sound System Sound-Blaster PRO™ Compatible	S/PDIF Output 2 * Built-In 3W Speakers Built-In 6W Sub Woofer Built-In Microphone
Keyboard & Pointing Device	RF Winkey Keyboard (Option) RF Mouse (Option)	USB I/F Receiver Dongle (Option)
ExpressCard Slot	ExpressCard/34/54 Slot	
Interface	Four USB 2.0 Ports One USB 2.0 Port (for RF KB & Mouse) One E-SATA Port One Mini-IEEE1394 Port One Headphone-Out Jack One Microphone-In Jack One Line-In Jack One S/PDIF Output Jack (5.1CH) One S-Video-In Jack One Composite Video-In Jack	Two CATV-In Jacks (for TV Tuner Cards) One RJ-11 Jack for Plug & Play Fax/Modem One RJ-45 Jack for 10Mb/ 100Mb/ 1000Mb Fast Ethernet One DC-in Jack One Brightness Button One Power Switch One A.P. Key (For Media Center) One CIR Port (Optional for TV Tuner)
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	

Introduction

Feature	Specification	
Communication	AZALIA MDC 56K Plug & Play Fax/Modem v.90/92 Compliant 1GB PCI Fast Ethernet Intel PRO/Wireless 3945ABG PCIe Wireless LAN Module (Option) USB 2.0 Bluetooth + EDR (Enhanced Data Rate) Module - Version 2.0 (Factory Option) 1.3M PC Camera with USB Interface (Factory Option) 11 Hot Keys for Internet & Multimedia via RF KB (Factory Option)	
Power Management	Supports ACPI 2.0 Power Button as Sleep/Resume Key Supports Hibernate Mode Supports Sleep/Stand by Mode	Supports Resume from Modem Ring Supports Resume from Alarm
Power	Full Range AC/DC Adapter - AC Input 100 - 240V, 50 - 60Hz / DC Output 20V, 9.0A (180 Watts)	
Environmental Spec	Temperature Operating: 5°C ~ 35°C Non-Operating: -20°C ~ 60°C	Relative Humidity Operating: 20% ~ 80% Non-Operating: 10% ~ 90%
Physical Dimensions & Weight	625.5mm (w) * 396.9mm (d) * 110mm (h) including hinge assembly 11kg Approximately	
Optional	Optical Drive Module Options: DVD/CD-RW Combo Drive Module (Factory Option) DVD Super Multi Drive Module (Factory Option) USB Floppy Disk Drive Module Intel PRO/Wireless 3945ABG PCIe Wireless LAN Module Hybrid TV Tuner Card Module with Remote Control Unit RF Keyboard & RF Mouse with USB Receiver	1.3M PC Camera with USB Interface (Factory Option) USB 2.0 Bluetooth + EDR (Enhanced Data Rate) Module - Version 2.0 (Factory Option) 802.11b/g USB (Mini Card) Wireless LAN Module 2nd SATA RAID Hard Disk Drive

1 - 4 System Specifications

External Locator - Front View & Top View

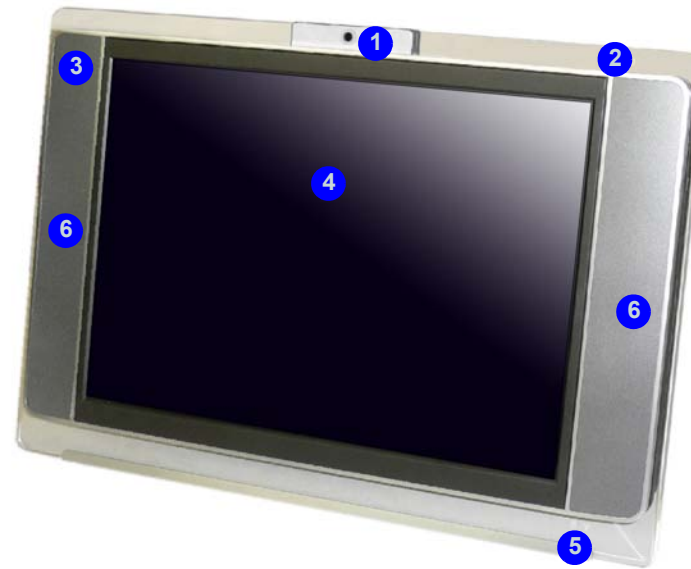
Figure 1 - 1
Front View

1. Optional Built-In PC Camera
2. Power LED
3. Consumer Infrared Transceiver (Communicates with Optional TV Remote)
4. LCD
5. LED Indicators
6. Speakers
7. Power Button
8. Brightness Hot Key Button
9. Application Hot Key Button

1. Introduction



LV19C/LV19N



LV22C/LV22N



Introduction

Figure 1 - 2
Left & Right Views

External Location - Left & Right Side Views

1. ExpressCard Slot 54/34
2. 7-in-1 Card Reader
3. 1 * USB 2.0 Port
4. Mini-IEEE 1394 Port
5. Line-In Jack (Blue)
6. Microphone-In Jack (Pink)
7. Headphone-Out Jack (Green)
8. S/PDIF-Out Jack (Black)
9. Vent/Fan Intake/Outlet
10. Security Lock Slot
11. Optical (CD/DVD) Device
12. CD Emergency Eject



1 - 6 External Location - Left & Right Side Views

External Locator - Rear View



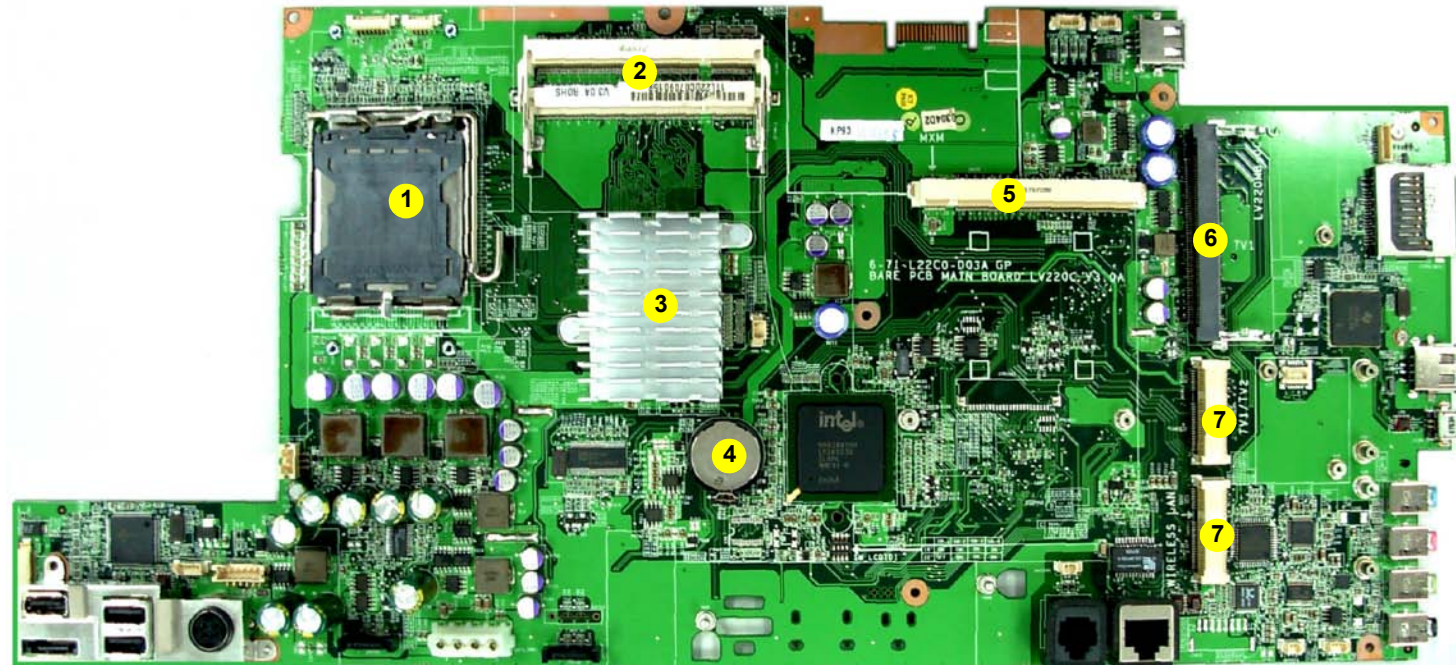
Figure 1 - 3
Rear View

1. Camera Angle Switch
2. USB Port Cover
3. Module Cover
4. Rear Component Cover
5. 3 * USB 2.0 Ports
6. 1 External SATA Port
7. DC-In Jack
8. S-Video-In Jack
9. Audio-In Jacks
10. Composite Video-In Jack
11. CATV-In Jacks
12. RJ-11 Phone Jack
13. RJ-45 LAN Jack
14. Stand
15. Vent/Fan Intake/Outlet
16. Hard Disk Covers
17. Cable Holders (To Secure Audio/Video/USB Cables etc.)

Introduction

Figure 1 - 4
**Mainboard Overview - Top
Key Parts**

1. CPU Socket (no CPU Installed)
2. RAM Sockets
3. Intel 965 (North Bridge)
4. CMOS Battery
5. Video Card Socket
6. Mini PCI Socket for TV
7. Mini PCI Ext. Socket for WLAN and TV

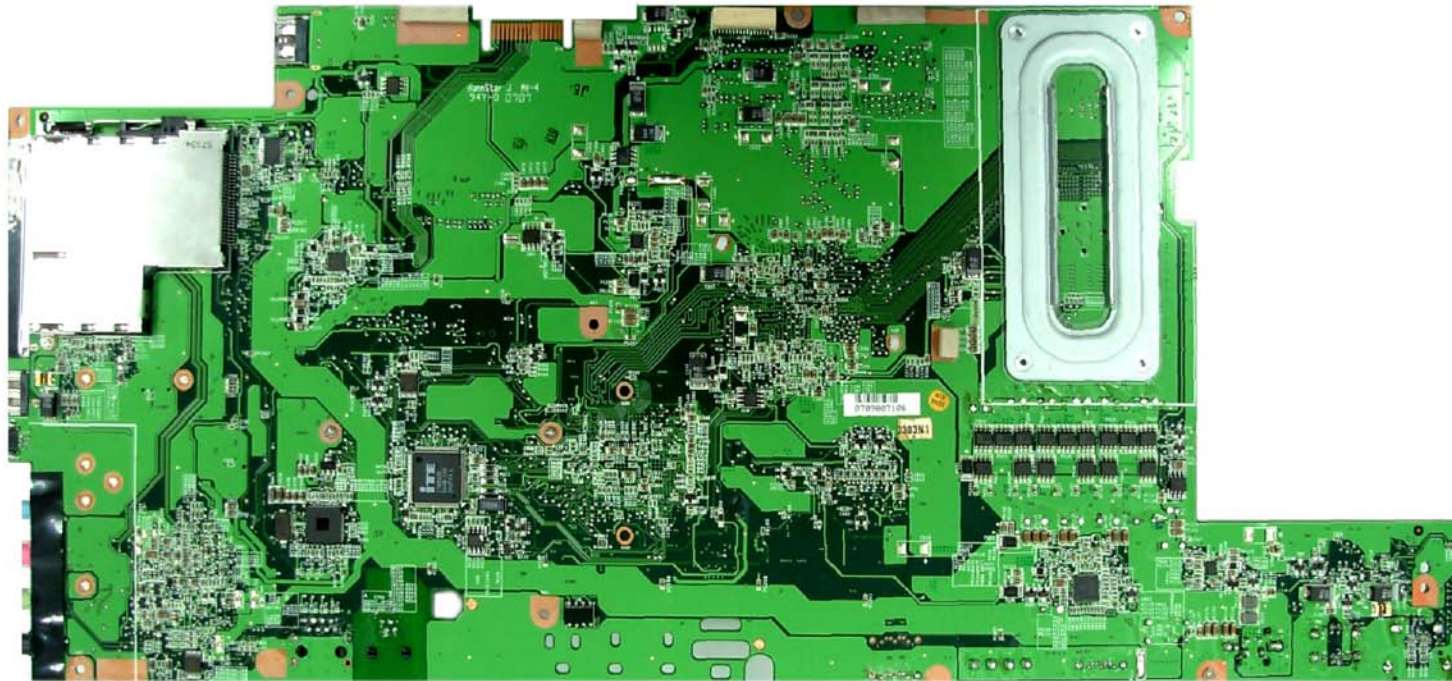


Mainboard Overview - Top (Key Parts)

1 - 8 Mainboard Overview - Top (Key Parts)

Mainboard Overview - Bottom (Key Parts)

Figure 1 - 5
Mainboard Overview - Bottom Key Parts



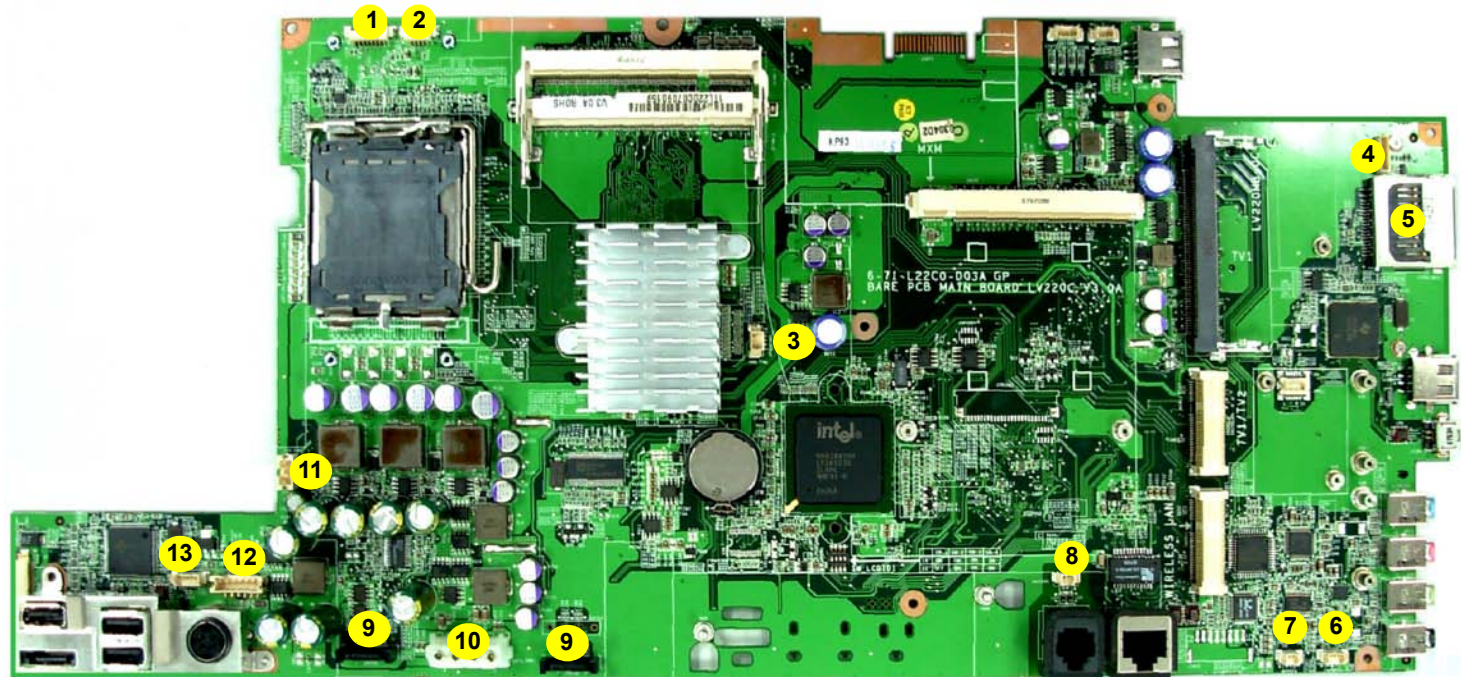
1. Introduction

Introduction

Figure 1 - 6
**Mainboard Top
Cable Connectors &
Switches**

1. Power
2. CCD Connector
3. VGA Fan
4. Bluetooth
5. Card Reader
6. Microphone
7. Woofer
8. Modem Module
9. SATA HDD
10. SATA Power
11. CPU Fan
12. Inverter
13. LED

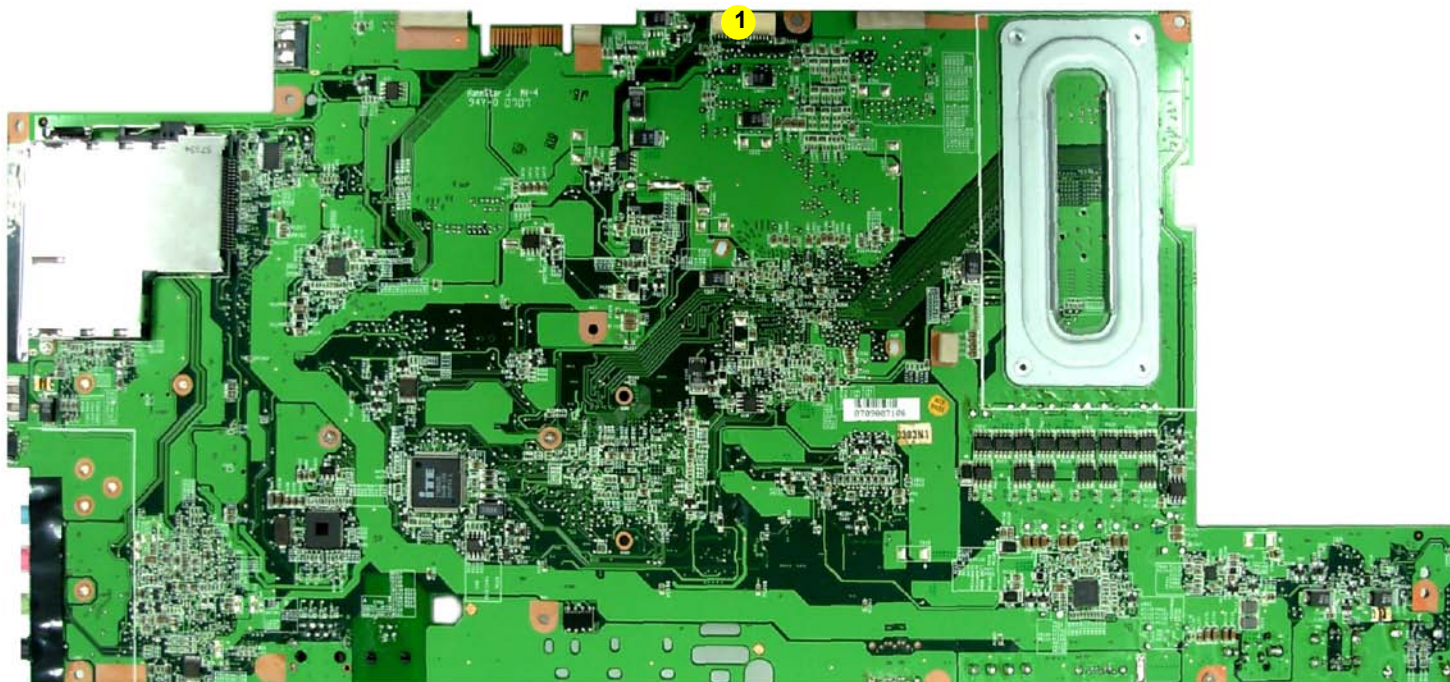
Mainboard Overview - Top (Cable Connectors & Switches)



Mainboard Overview - Bottom (Cable Connectors & Switches)

Figure 1 - 7
**Mainboard Bottom
Cable Connectors &
Switches**

1. LCD




2: Disassembly



Overview

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

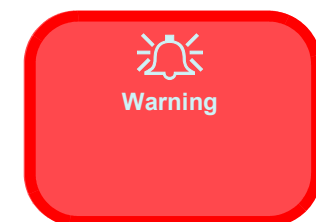
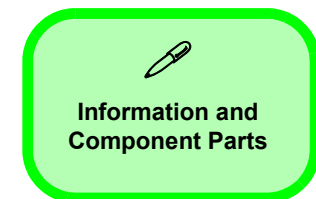
We suggest you completely review any procedure before you take the computer apart.

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

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

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

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



Disassembly

NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply, and that all peripheral cables are disconnected (including telephone lines and network cables).

Maintenance Tools

The following tools are recommended when working on the computer:

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

Connections

Connections within the computer are one of four types:

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

Maintenance Precautions

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

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

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.



Power Safety Warning

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

Disassembly Steps

The following 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 hard disk drive assembly:

1. Remove the hard disk drive assembly [page 2 - 5](#)

To remove the system memory:

1. Remove the system memory [page 2 - 7](#)

To remove the processor:

1. Remove the system memory [page 2 - 7](#)
2. Remove the processor [page 2 - 9](#)

To remove the modem:

1. Remove the modem [page 2 - 11](#)

To remove the WLAN module:

1. Remove the modem [page 2 - 11](#)
2. Remove the WLAN module [page 2 - 12](#)

To remove the TV Tuner module:

1. Remove the modem [page 2 - 11](#)
2. Remove the TV Tuner module [page 2 - 13](#)

To remove the Bluetooth module:

1. Remove the modem [page 2 - 11](#)
2. Remove the TV Tuner module [page 2 - 13](#)
3. Remove the bluetooth module [page 2 - 14](#)

To remove the LCD back cover:

1. Remove the system memory [page 2 - 7](#)
2. Remove the modem [page 2 - 11](#)
1. Remove the LCD back cover [page 2 - 15](#)

To remove the Optical Device:

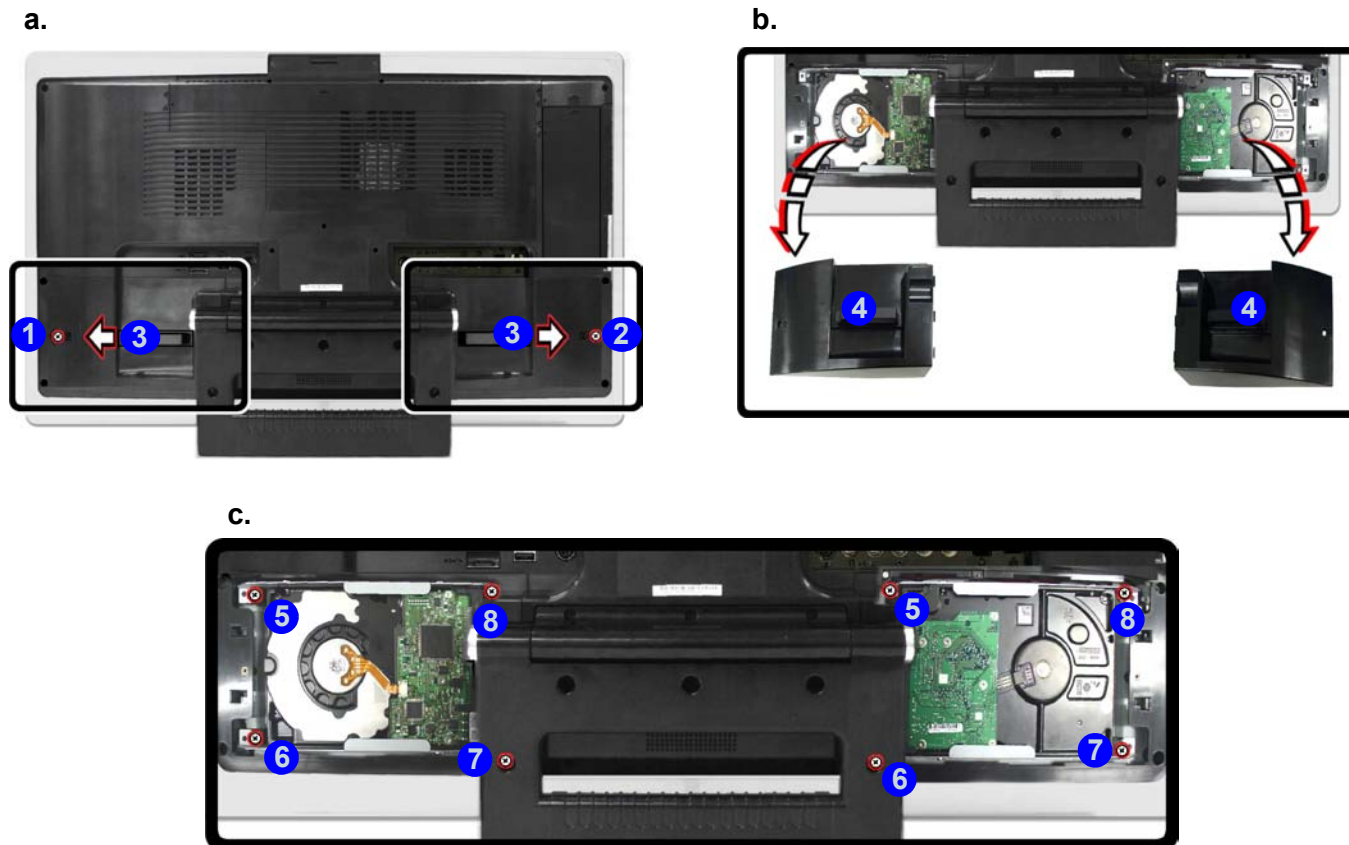
1. Remove the system memory [page 2 - 7](#)
2. Remove the modem [page 2 - 11](#)
3. Remove the LCD back cover [page 2 - 15](#)
4. Remove the optical device [page 2 - 17](#)

Removing the Hard Disk Drive Assembly

1. Turn the computer off and disconnect all peripherals and cables (including telephone lines).
2. Place the computer on a flat stable surface, preferably on a protective covering to avoid damage to the LCD screen.
3. Locate the hard disk bay cover and remove screw ①/②, depending on which hard disk you want to replace.
4. Remove the hard disk cover(s) by sliding it(them) in the direction of arrow ③.
5. Remove the hard disk cover(s) ④.
6. Remove the hard disk screws ⑤ - ⑧ from the hard disk(s) you want to replace.

Figure 2 - 1
Hard Disk Removal
Sequence (con'td)

- a. Remove the screw(s) from the HDD Bay Cover.
- b. Remove the HDD Cover.
- c. Remove the screws from the HDD.

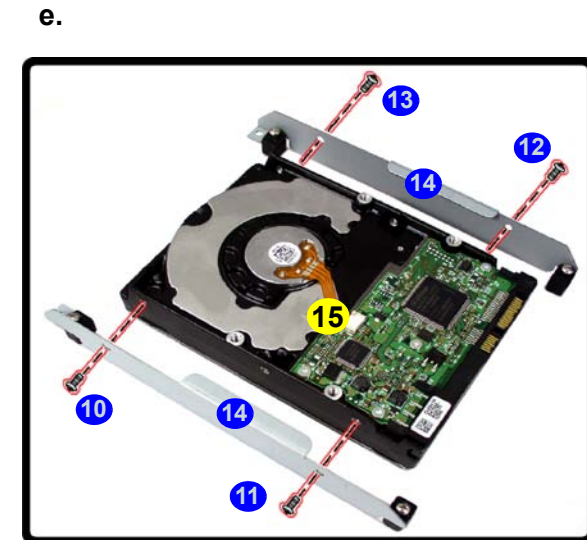
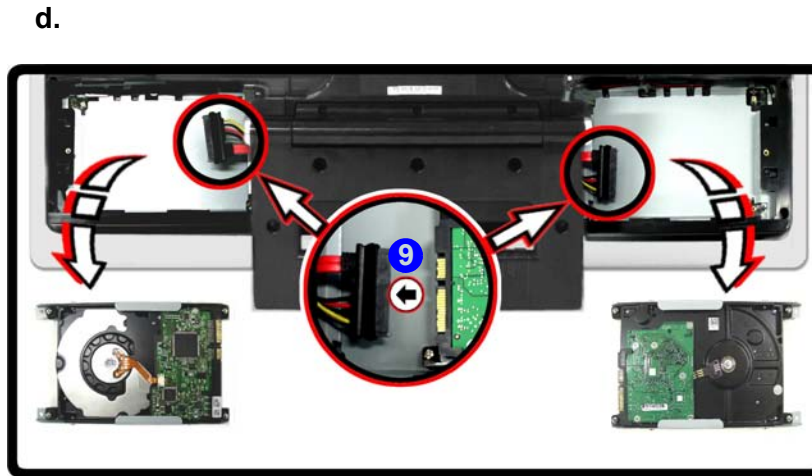


Disassembly

Figure 2 - 1 Hard Disk Removal Sequence

- d. Disconnect the cables from the HDD.
e. Remove the screws and separate the HDD from the bracket.

7. Carefully disconnect the cable(s) 9 from the hard disk(s) you want to replace.
8. Remove screws 10 - 13, and brackets 14 from the hard disk 15 .
9. Reverse the removal procedure to install any new hard disk.



14. HDD Bracket
15. HDD

- 4 Screws

2 - 6 Removing the Hard Disk Drive Assembly

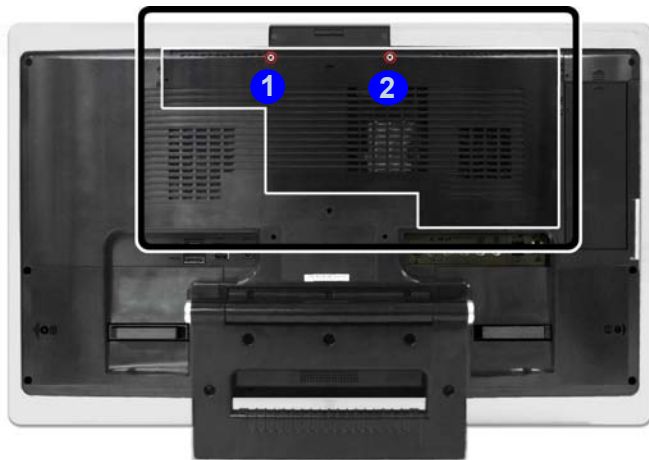
Removing the System Memory

1. Turn the computer off and disconnect all peripherals and cables (including telephone lines).
2. Place the computer on a flat stable surface, preferably on a protective covering to avoid damage to the LCD screen.
3. Remove screws ① & ② from the rear component cover.
4. Carefully (a fan and cable are attached to the under side of the cover) slide the component cover in the direction of arrow ③, until the arrow ④ aligns with the unlock symbol.
5. Carefully disconnect the fan cable ⑤ from point ⑥ on the mainboard.
6. Remove the rear component cover ⑦ and locate the memory socket ⑧.

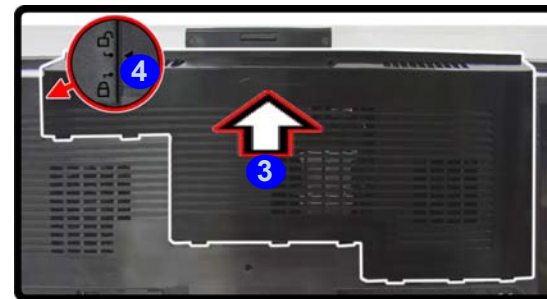
Figure 2 - 2
Memory Removal
Sequence (cont'd)

- a. Remove the screws.
- b. Slide the cover as indicated by the arrow.
- c. Disconnect the cable and remove the component cover from the computer.

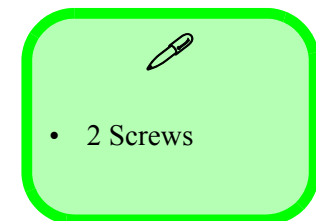
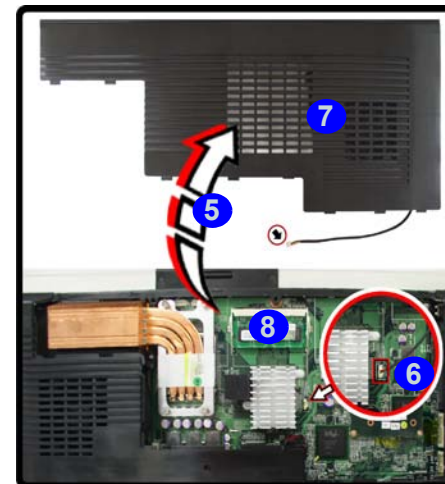
a.



b.



c.



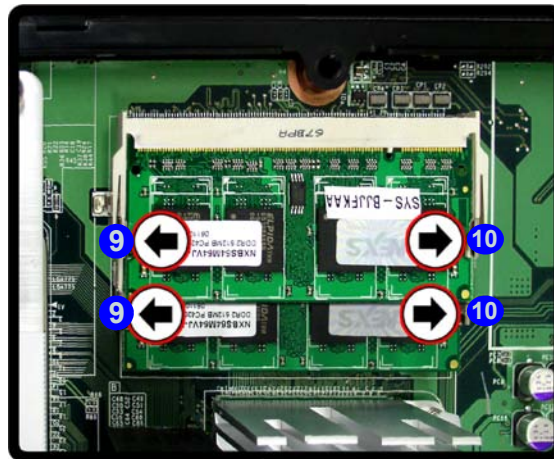
Disassembly

Figure 2 - 3 Memory Removal Sequence

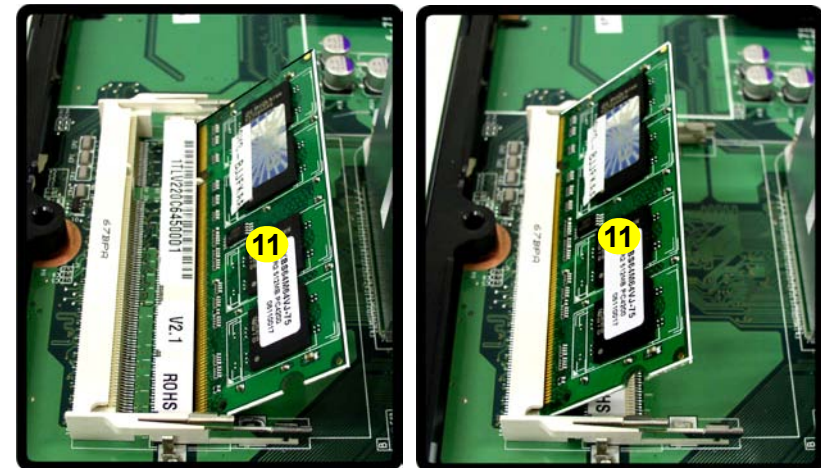
- d. Pull the latch(es) on the memory sockets to release the module(s).
- e. The module will pop-up, and you can remove the module.

7. For each module you want to replace, gently push the latches **9** and **10** toward the sides of the socket to release the module. Push the latches to release the second module if necessary.
8. The module **11** will pop-up, and you can remove it.
9. Insert the new module. The module will only fit one way as defined by the pin alignment.
10. Make sure the module is seated as far into the slot as it will go (DO NOT FORCE IT). The latches will click into place on the sides of the module. Make sure they are secure.
11. Reverse the procedures to put the computer back together (**don't forget to reconnect the fan cable**), and do not forget all the screws. When you restart the computer the new memory configuration should be registered.
12. If the system doesn't properly detect the new memory, **and you are sure they are properly "seated"**, you may need to run the *Setup* utility.

d.



e.



Contact Warning

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



14. Memory Module(s)

2 - 8 Removing the System Memory

Removing and Installing the Processor

1. Remove the rear component cover ([page 2 - 7](#)).
2. Remove screws ① - ④ from the CPU heat sink unit (in the order indicated in [Figure 2 - 5a](#)).
3. Lift out the CPU heat sink unit ⑤ from the mainboard.

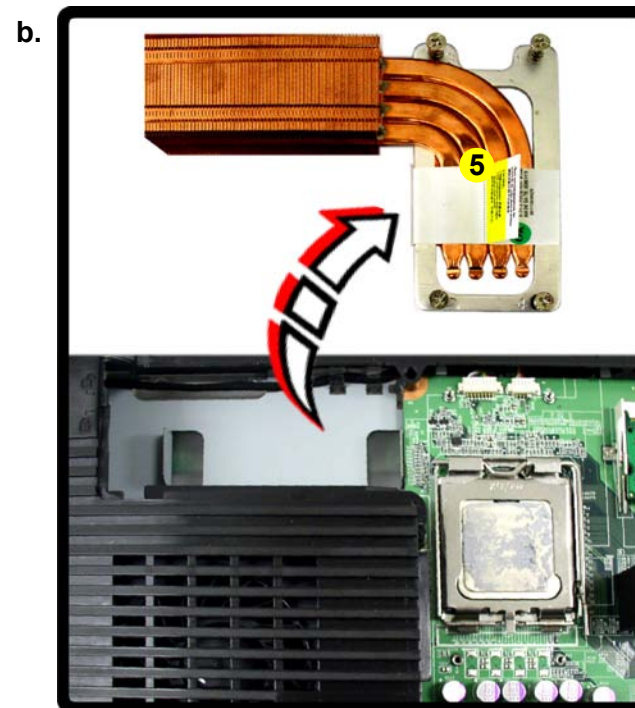
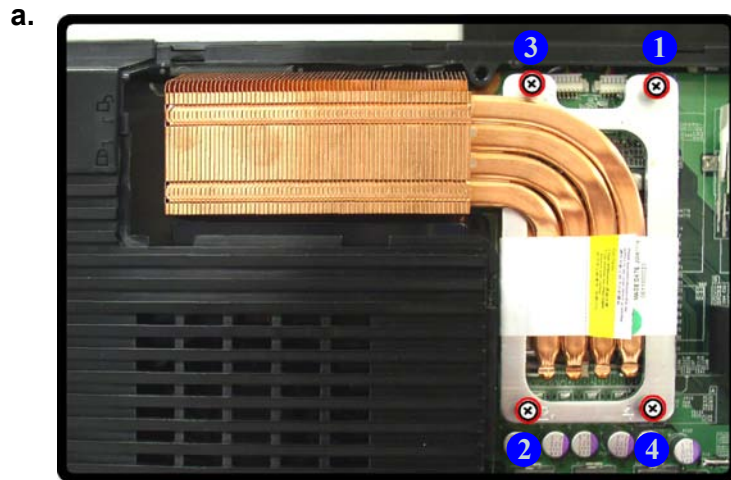


Figure 2 - 4
**Processor
Removal
Sequence**

- a. Remove the screws from the CPU heat sink unit.
- b. Lift the heat sink unit out.



Caution

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



5. Heat Sink

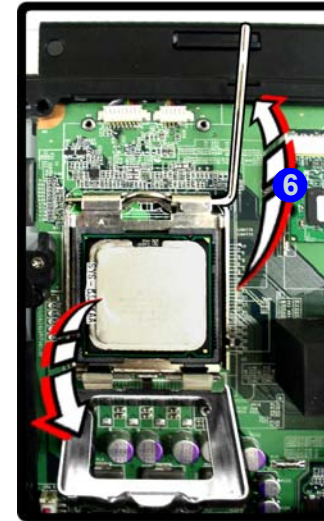
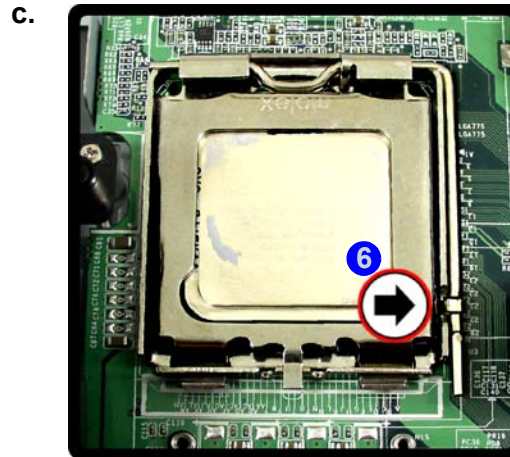
- 4 Screws

Disassembly

Figure 2 - 5 Processor Removal Sequence (cont'd)

- c. Lift the release latch to unlock the CPU.
d. Lift the CPU out of the socket.

4. Lift the release latch **6** to release the CPU (*Figure 2 - 5c*).
5. Carefully (it may be hot) lift the CPU **7** up out of the socket (*Figure 2 - 5d*).
6. 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.

7. CPU

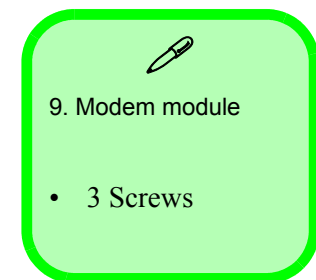
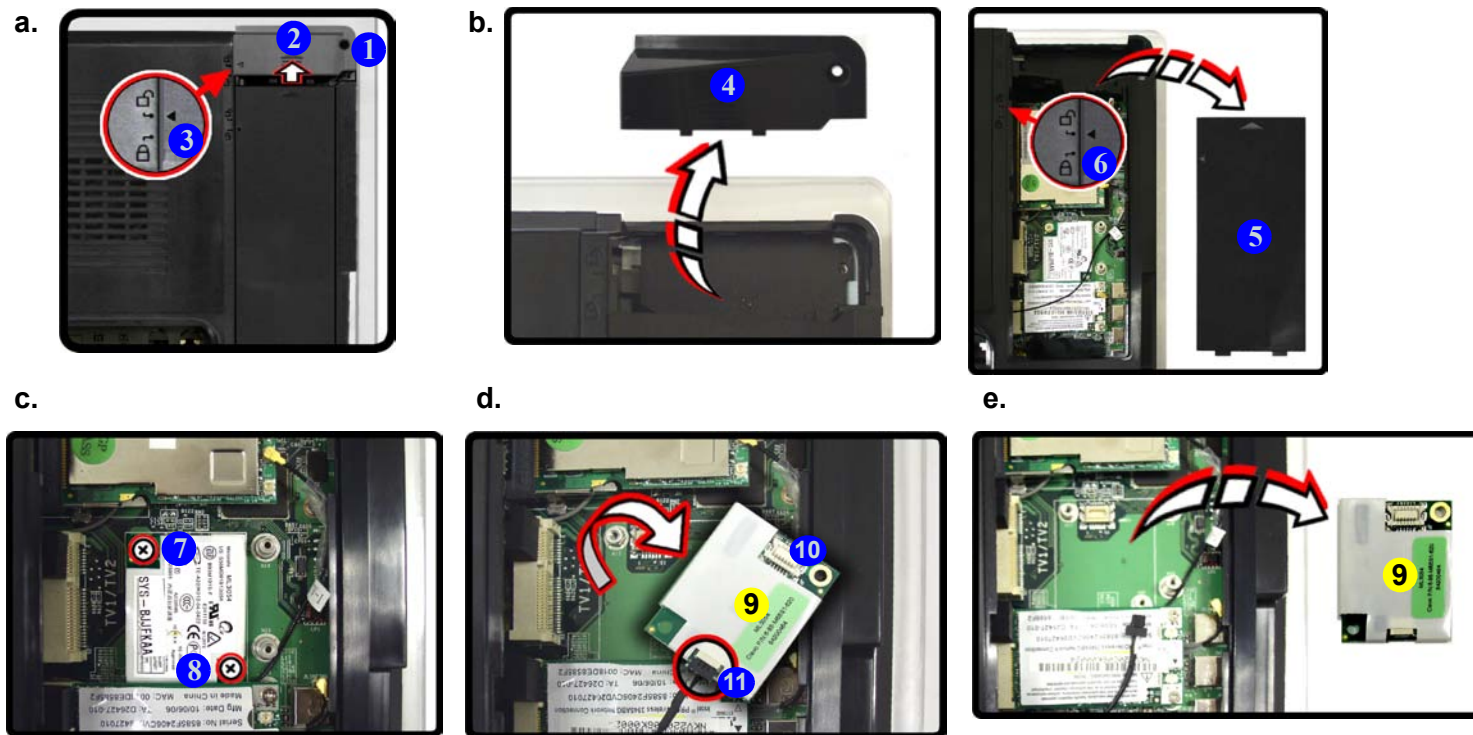
2 - 10 Removing and Installing the Processor

Removing the Modem

1. Turn the computer off and disconnect all peripherals and cables (including telephone lines).
2. Place the computer on a flat stable surface, preferably on a protective covering to avoid damage to the LCD screen.
3. Remove screw 1 from the USB port component cover and slide the cover in the direction of arrow 2, until the arrow 3 aligns with the unlock symbol.
4. Remove the USB port component cover 4 and then slide the module cover 5 until the arrow 6 aligns with the unlock symbol.
5. Remove the module cover 5.
6. Remove screws 7 and 8 from the modem module.
7. Remove the modem module 9 from the connector socket 10, and disconnect the modem cable at point 11.
8. Lift the modem off the mainboard.

Figure 2 - 6
Modem Removal
Sequence

- a. Remove the screw.
- b. Remove the covers.
- c. Remove the screws from the modem module.
- d. Remove the modem from the connector and disconnect the cable.
- e. Lift the modem off the mainboard.



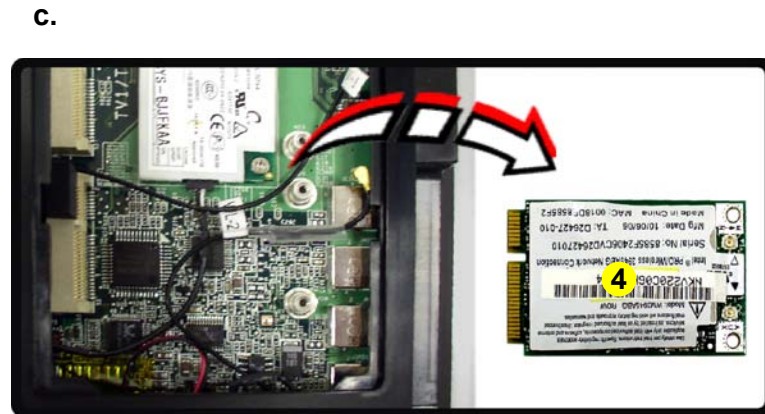
Disassembly

Figure 2 - 7 Wireless LAN Module Removal Sequence

- Disconnect the cable and remove the 2 screws.
- The WLAN module will pop-up.
- Remove the WLAN module.

Removing the Wireless LAN Module

- Remove the modem module ([page 2 - 11](#)).
- Carefully disconnect cable **1**, then remove screws **2** & **3** from the module socket.
- The wireless LAN module **4** will pop-up.
- Lift the wireless LAN module **4** up and off the computer.



4. WLAN Module

- 2 Screws

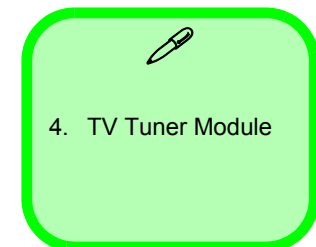
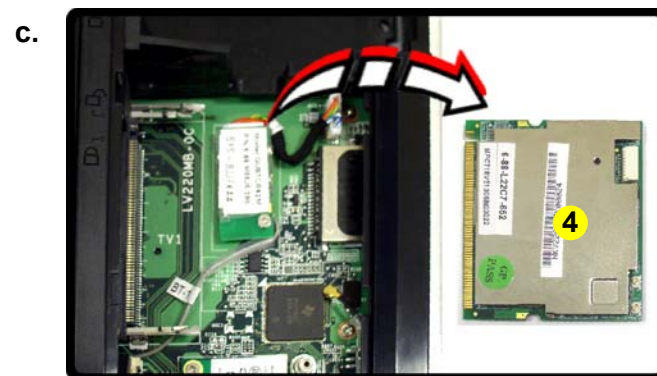
2 - 12 Removing the Wireless LAN Module

Removing the TV Tuner Module

1. Remove the USB port & module covers ([page 2 - 11](#)).
2. Carefully disconnect cable **1**, then gently push the latches **2** and **3** toward the sides of the socket to release the module.
3. The TV Tuner module **4** will pop-up.
4. Lift the TV Tuner module **4** up and off the computer.

Figure 2 - 8
TV Tuner Module Removal Sequence

- a. Pull the latch(es) on the module socket to release the module.
- b. The module will pop-up.
- c. Lift the module off the mainboard.



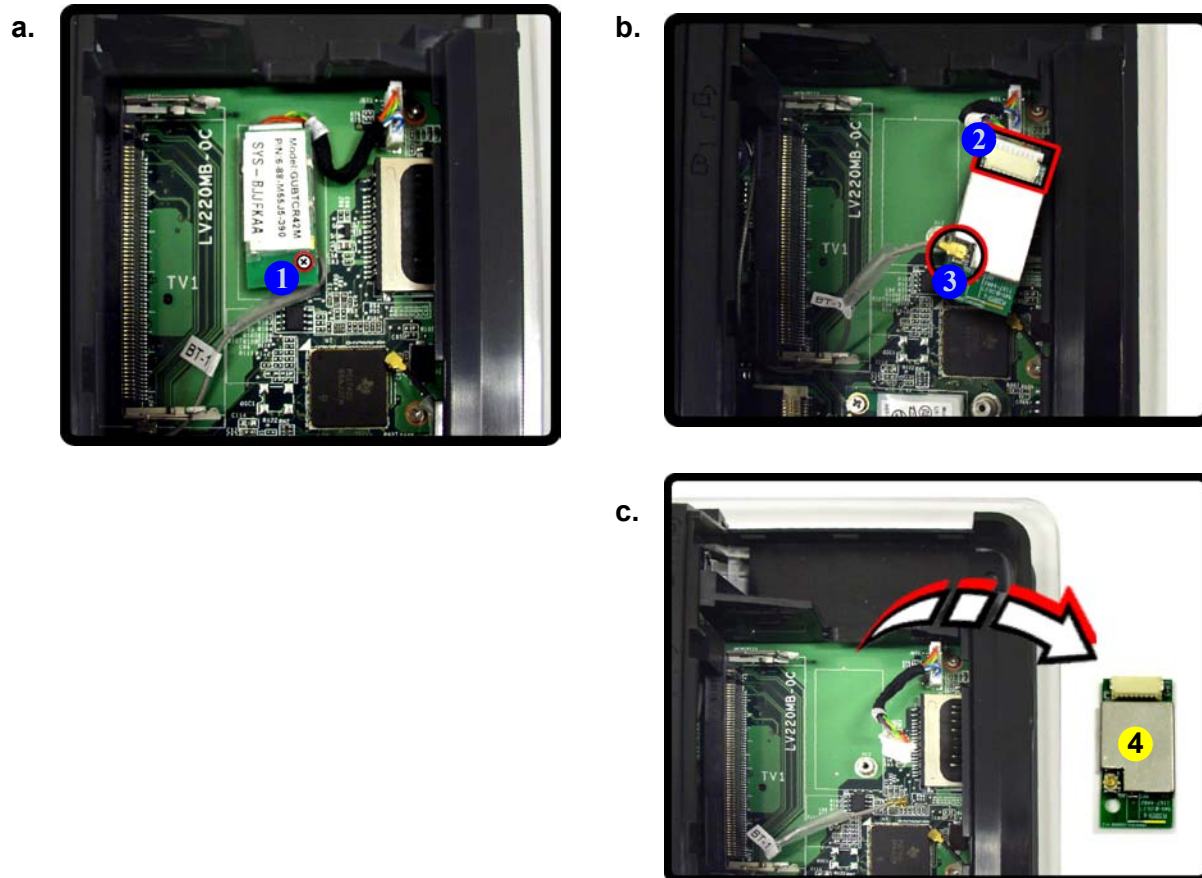
Disassembly

Figure 2 - 9 Bluetooth Module Removal Sequence

- Remove the screw.
- Disconnect the cable.
- Lift the Bluetooth module off the mainboard.

Removing the Bluetooth Module

- Remove the USB port & module covers ([page 2 - 11](#)) and TV Tuner module ([page 2 - 13](#)).
- Remove screw **1** and then carefully disconnect the connector **2** & cable **3** from the module socket.
- Lift the Bluetooth module **4** up and off the computer.



4. Bluetooth Module

- 1 Screw

2 - 14 Removing the Bluetooth Module

Removing the LCD Back Cover

1. Remove the 3 component covers ([page 2 - 7](#) and [page 2 - 11](#)).
2. Set the hinge support to its transport position.
3. Remove screws **2** - **7** from the hinge support.
4. Lift the hinge support **8** from the main unit and set it aside.

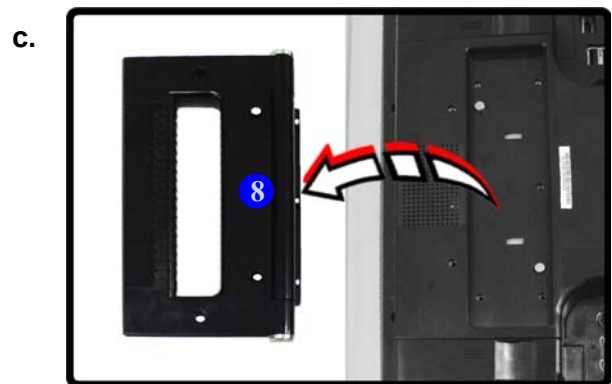
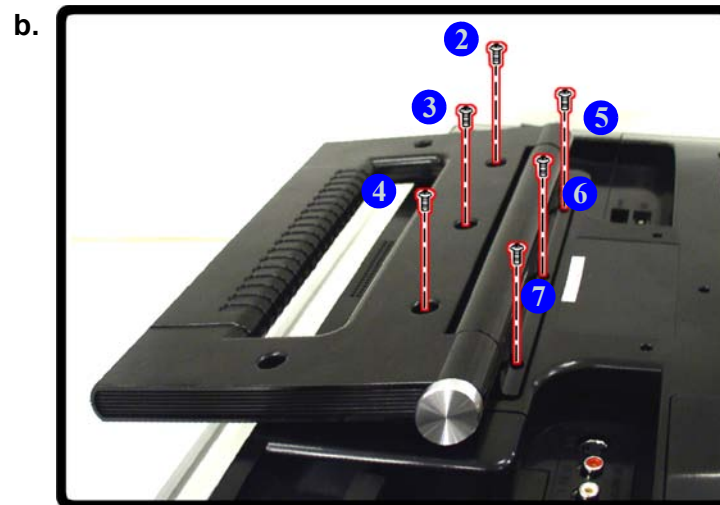
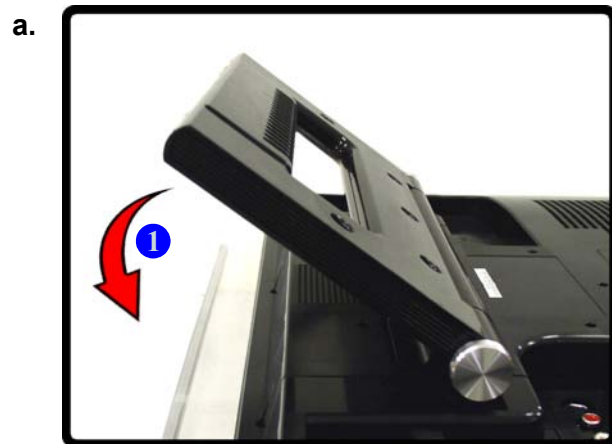
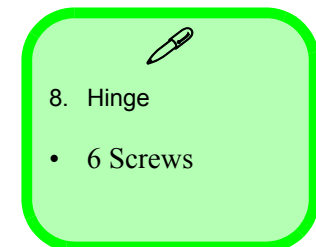


Figure 2 - 10
LCD Back Cover
Removal
Sequence

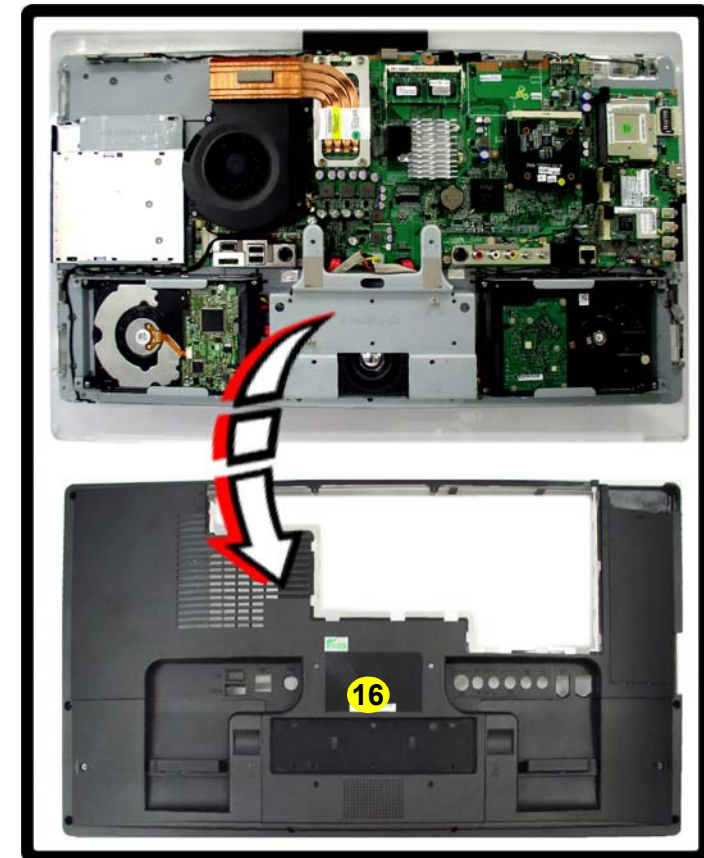
- a. Set the hinge support to its transport position.
- a. Remove the screws from the hinge support.
- b. Lift the hinge support and set it aside.



Disassembly

Figure 2 - 11 LCD Back Cover Removal Sequence (cont'd)

- d. Remove the screws from the LCD back cover.
- e. Lift the cover out and set it aside.



Card Reader/PC Card Slots

Make sure you remove any cards or covers in the 7-in-1 Card Reader and PC Card slot before removing the rear case cover.



16. LCD back cover

- 8 Screws

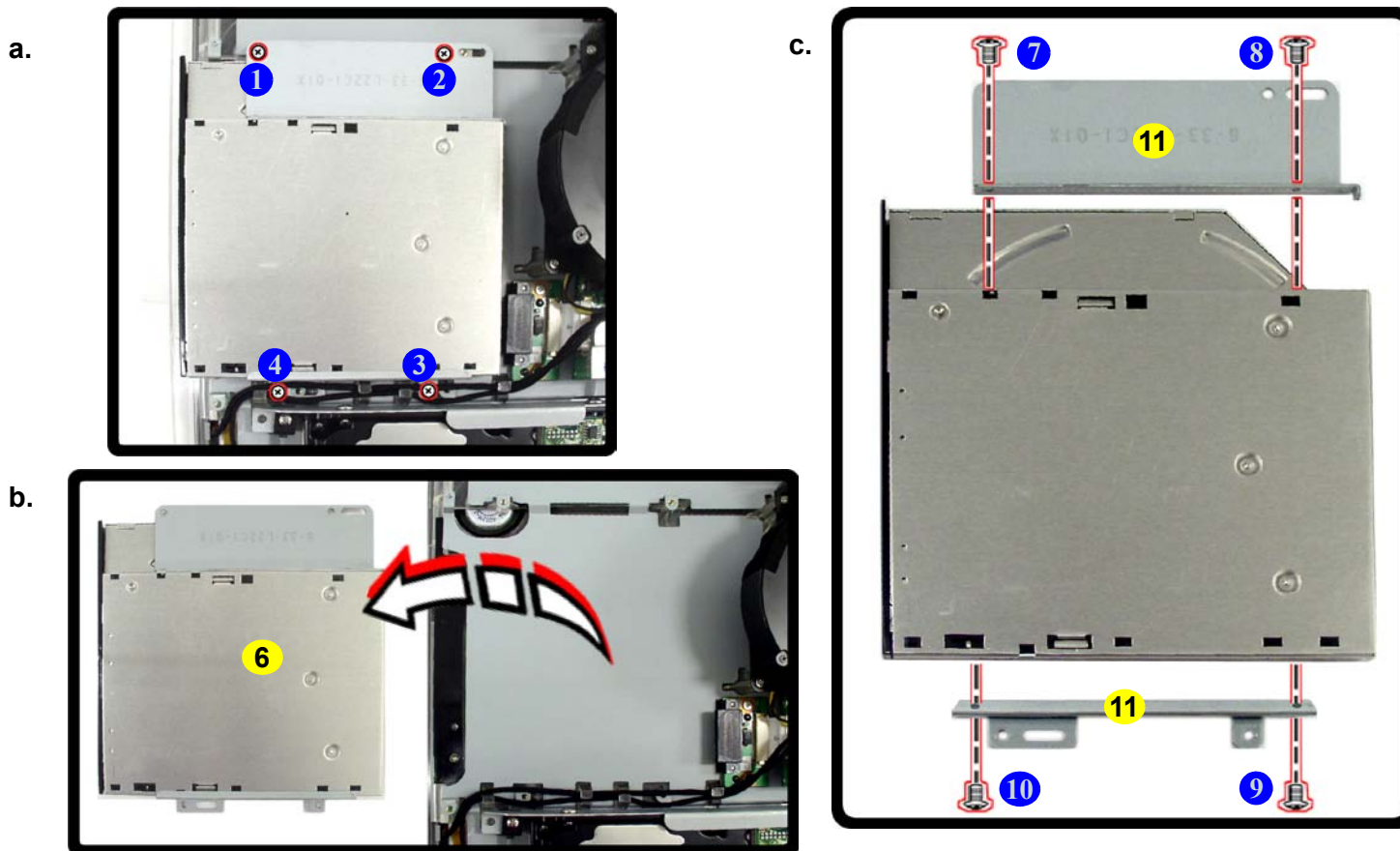
2 - 16 Removing the LCD Back Cover

Removing the Optical Device Assembly

1. Remove the rear component cover ([page 2 - 7](#)) USB port and module cover ([page 2 - 11](#)) and LCD back cover ([page 2 - 15](#)).
2. Remove screws ① - ④, and disconnect connector ⑤, from the optical device.
3. Remove the optical device ⑥, and remove the screws (⑦ - ⑩) in order to separate the optical device from the bracket ⑪.
4. Reverse the removal procedures to install the new optical device.

Figure 2 - 12
Optical Device
Assembly
Removal
Sequence

- a. Remove the screws and disconnect the cable.
- b. Remove the Optical Device.
- c. Remove the screws and separate the bracket from the optical device.



Appendix A: Part Lists

This appendix breaks down the LV22C/LV22N/LV19C/LV19N 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.

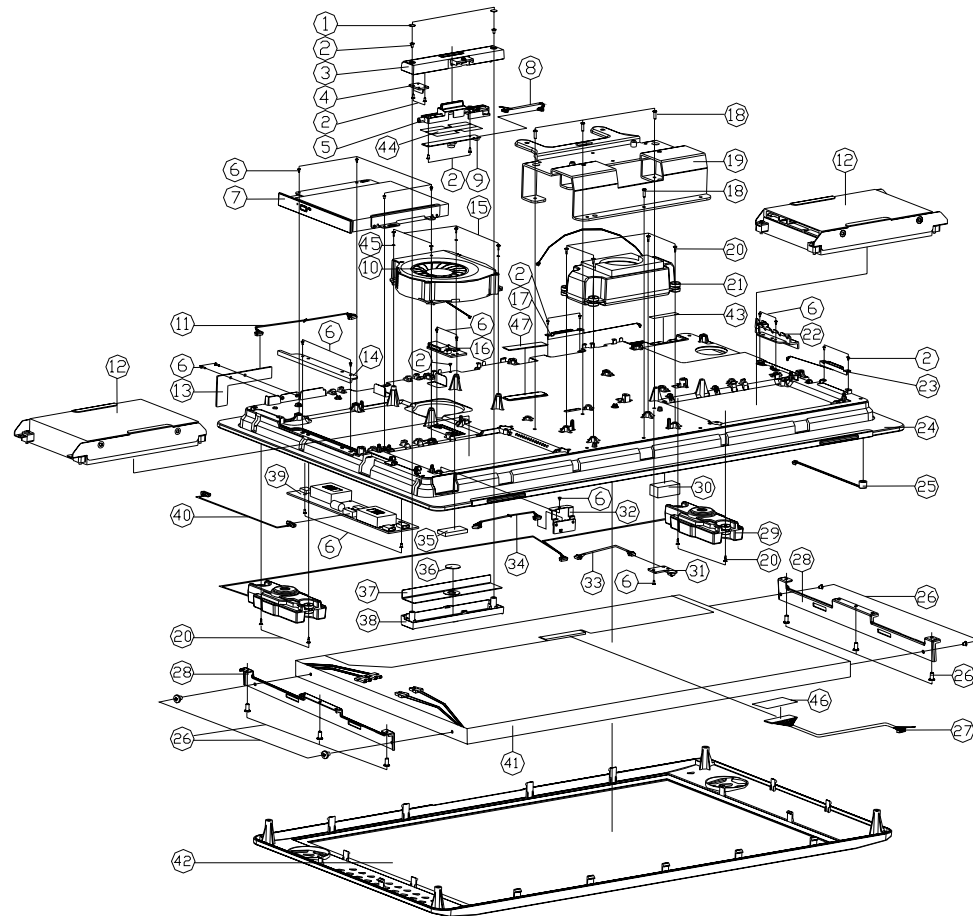
Part List Illustration Location

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

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

Part	LV22C/LV22N	LV19C/LV19N
Front Cover	<i>page A - 3</i>	<i>page A - 10</i>
Back	<i>page A - 4</i>	<i>page A - 11</i>
Combo	<i>page A - 5</i>	<i>page A - 12</i>
DVD-Dual	<i>page A - 6</i>	<i>page A - 13</i>
HDD	<i>page A - 7</i>	<i>page A - 14</i>
MB (LV22C/LV19C)	<i>page A - 8</i>	<i>page A - 15</i>
MB (LV22N/LV19N)	<i>page A - 9</i>	<i>page A - 16</i>

LV22C/LV22N - Front Cover



ITEM	PART NAME	PART NO	REMARK
1	CCD BACK COVER NYLARFR700 LV22C	6-40-L22C1-030	
2	SCREW M2X4 KI NI ICT 01-PA04 00-4431-000	6-35-B1120-3RD	
3	CCD BACK COVER.PC+ABS LV22C	6-42-L22CT-021	
4	CCD ROTATE BASE.PC+ABS LV22C	6-42-L22CT-041	
5	CCD HANDLE.PC+ABS LV22C	6-42-L22CT-031	
6	SCREW M2.5X5L KI NI ICT NY	6-35-B1125-5RA	
7	DVD/DUAL RW ASS'Y (OPTIO)	6-79-L22C0-000	
7	COMBO ASS'Y (OPTIO)	6-79-L22C0-010	
8	WIRE CABLE FOR CCD TO M/B SP LV22C	6-43-L22C0-031	
9	CMOS VIDEO CAMERA BGA-DV900-0-50G 1.3M	6-88-M55GC-612	
10	FAN REV 0.3A (CF 8000RPM) LV22C	6-23-AL22C-010	
11	WIRE CABLE FOR POWER SWITCH BOARD TO M/B LV22C	6-43-L22C0-042	
12	W/O HDD ASS'Y LV22C/N	6-79-L22CJ-010	
13	POWER SWITCH BOARD V3.0A LV22C	6-77-L22C5-D03A	
14	DDD HOUSING.PC+ABS LV22C	6-42-L22CZ-012	
15	SCREW M2X5L KI NI ICT NY	6-35-B1120-5R0	
16	CD-ROM TRANSFER BOARD V2.0A LV22C	6-77-L22CN-D02A	
17	MEMO BATTERY PACK P/B 020 700mAh	6-23-L22C0-041	
18	SCREW M2X4 KI NI ICT NY 01-PA04 00-4431-000	6-35-B6130-7R0	
19	VESA BRACKET.SEC LV22C	6-33-L22C0-022	
20	SCREW M2.5X4PHSLA 0-0-0245 0-0-0245	6-35-41125-130	
21	SUBVIFER MODULE	6-23-5L22C-101	
22	AUDIO HOUSING.PC+ABS LV22C	6-42-L22CI-042	
23	MEMO BATTERY PACK P/B 020 700mAh	6-23-7L22C-021	
24	LCD HOUSING MODULE LV22C	6-39-L22C0-013	
25	RE-ALIGNMENT BL-D VICAL 0 20M LV22C	6-23-EL22C-010	
26	SCREW M2X4 KI NI ICT NY 01-PA04 00-4431-000	6-35-B6130-4RB	
27	WIRE CABLE FOR AUDIO/VIDEO V3.0A LV22C	6-43-L22C1-011	
28	LCD BRACKET.SEC LV22C	6-33-L22C1-031	
29	SPEAKER MODULE	6-23-5L22C-202	
30	REPAIR LCD RUBBER/SILICONE LV22C	6-47-L22C1-040	
31	CIR BOARD V3.0A LV22C	6-77-L22C0-D03A	
32	LED BOARD V2.0A LV22C	6-77-L22C4-D02A	
33	WIRE CABLE FOR CIR BOARD TO M/B SP LV22C	6-43-L22C0-020	
34	WIRE CABLE FOR LED BOARD TO M/B SP LV22C	6-43-L22C0-051	
35	REPAIR LCD RUBBER/SILICONE LV22C	6-47-L22C1-030	
36	CCD PROTECT.PC LV22C	6-40-L22C1-041	
37	CCD PLATE MODULE.AL LV22C	6-33-L22C1-101	
38	CCD FRONT COVER MODULE LV22C	6-42-L22CT-101	
39	INVERTER MODULE MPT 0620 LV22C/N	6-76-L22CR-021	
40	WIRE CABLE FOR SP INVERTER TO M/B SP LV22C	6-43-L22CR-010	
41	LED 1 AN RED/RED V8 32' V850-000 000 000	6-50-SA205-G00	
41	LED 1 AN RED/RED V8 32' V850-000 000 000	6-50-SA217-D00	
42	LED FRONT COVER MODULE LV22C	6-39-L22C1-012	
43	TAPE NYLAR (AS)NYLAR M550J	6-40-M55J2-010	
44	CCD NYLAR T60 LV22C	6-40-L22C1-0A0	
45	FAN WASHER NYLAR FR700 LV22C	6-40-L22C1-090	
46	REPAIR WASHERS FOR LCD CABLE LV22C	6-47-L22C1-0C0	
47	THERMAL PAD T60-1003 (0.5X0.5) LV22C	6-47-L22C1-050	

Figure A - 1
LV22C/LV22N - Front

A. Part Lists

LV22C/LV22N - Back

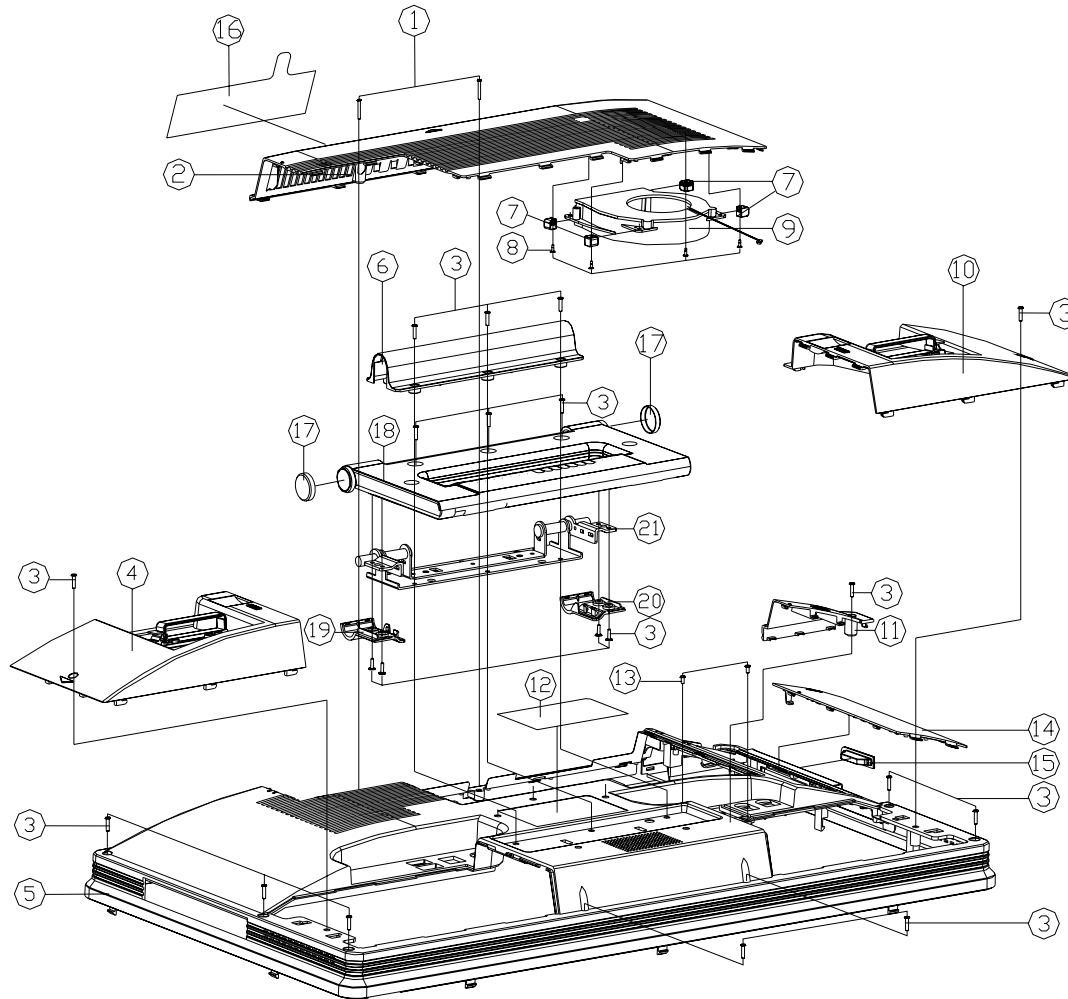


Figure A - 2
LV22C/LV22N -
Back

ITEM	PART NAME	PART NO	REMARK
1	SOEY RESIN KI BRZ IKT NMD (F-55 1430) (R)	6-35-B6125-190	
2	CPU COVER MODULE LV220C (R)	6-42-L22CS-102	
3	SOEY MOUL KI BRZ IKT NMD (F-6 1430) (R)	6-35-B6130-100	
4	HDD COVER MODULE (L) LV220C (R)	6-42-L22CJ-202	
5	LCD BACK COVER MODULE LV220C (R)	6-39-L22CJ-022	
6	HINGE BASE HOUSING PC+ABS LV220C (R)	6-42-L22CY-031	
7	FAN RUBBER,SILICONE LV220C (R)	6-47-L22CJ-020	
8	SOEY RESIN+MPCV. B (F-626) S-MS45 (R)	6-35-41125-130	
9	VIA FIL SYNTHET SY 626 (S-MS45) LV220C (R)	6-23-41122C-020	
10	HDD COVER MODULE (R) LV220C (R)	6-42-L22CJ-102	
11	RF COVER,PC+ABS LV220C (R)	6-42-L22CJ-022	
12	PRODUCT LABEL LV220C (R)	6-45-L22C3-010	
12	PRODUCT LABEL LV220N (R)	6-45-L22N3-010	
12	PRODUCT LABEL LV190C (R)	6-45-L19C3-010	
12	PRODUCT LABEL LV190N (R)	6-45-L19N3-010	
13	SOEY RESIN KI N IKT (F-55) (F-55) (R)	6-35-B1120-3R0	
14	OPTION COVER MODULE LV220C (R)	6-42-L22CJ-101	
15	CARD READER RUBBER,SILICON M500G (R)	6-47-M55CG-011	
16	CPU COVER PROTECT MILAR PE LV220C (R)	6-40-L22C8-011	
17	HINGE RING,AL LV220C (R)	6-33-L22CY-010	
18	HINGE SUPPORT MODULE LV220C (R)	6-42-L22CY-101	
19	HINGE COVER (R) PC+ABS LV220C (R)	6-42-L22CY-011	
20	HINGE COVER (L) PC+ABS LV220C (R)	6-42-L22CY-021	
21	HINGE MODULE LV220C (R)	6-33-L22CY-102	

LV22C/LV22N - Combo Drive

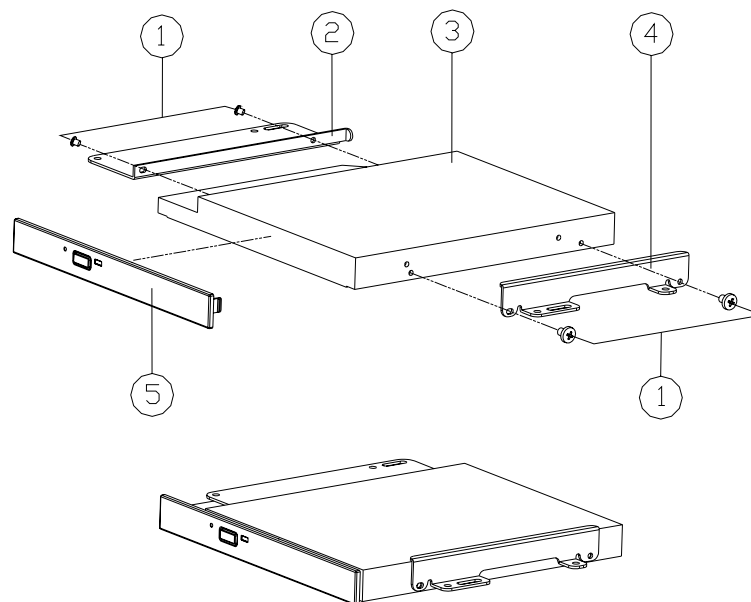


Figure A - 3
LV22C/LV22N -
Combo Drive

ITEM	PART NAME	PART NO	REMARK
1	SCREW M2.5L K1 BK/2 ICT NY#35 T+0.3 無鉛	6-35-B6120-2RB	
2	DDD BRACKET (R),SECC LV220C 無鉛	6-33-L22C1-011	
3	COMBO BEZEL MODULE (BKIA382) L295N 無鉛	6-85-907PX-C03	
4	DDD BRACKET (L),SECC LV220C 無鉛	6-33-L22C1-021	
5	COMBO BEZEL MODULE (BKIA382) L295N 無鉛	6-42-L25NX-100	

A.Part Lists

LV22C/LV22N - HDD

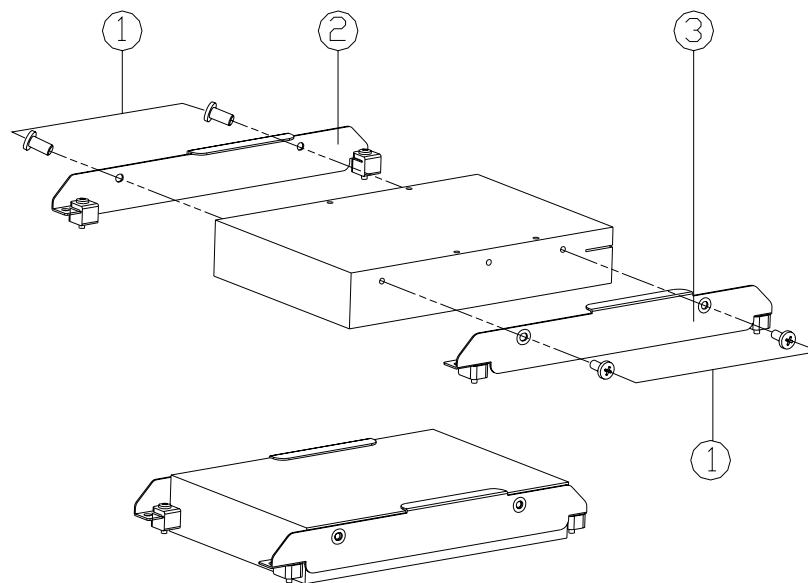


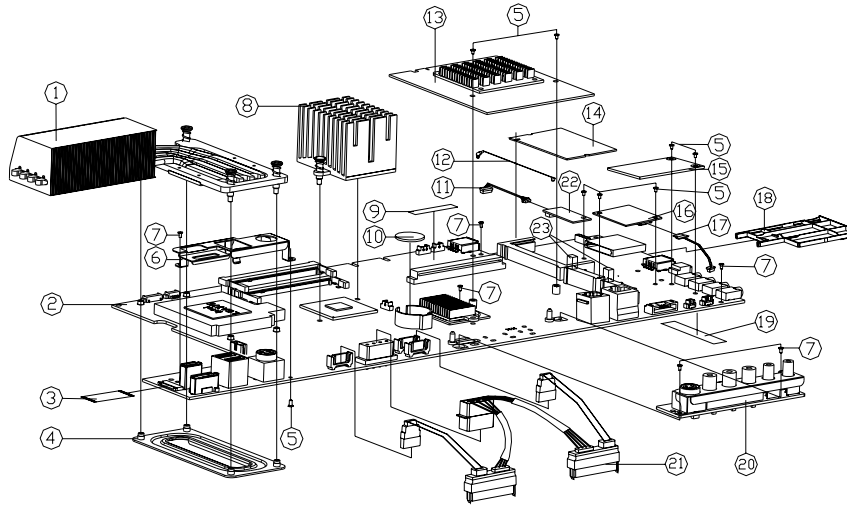
Figure A - 5
LV22C/LV22N -
HDD

ITEM	PART	NAME	PART NO	REMARK
1	SCREW	#6-32*5L B NI ACT 無鉛	6-35-41306-5R0	
2	HDD BRACKET MODULE (L)	LV220C 無鉛	6-33-L22CJ-201	
3	HDD BRACKET MODULE (R)	LV220C 無鉛	6-33-L22CJ-101	

A.Part Lists

LV22C - MB

Figure A - 6
LV22C - MB



ITEM	PART NAME	PART NO	REMARK
1	CPU THERMAL MODULE LV22C	6-31-L22CS-100	
2	MAIN BOARD V3.0A LV22C	6-77-L22C0-D03A	
3	FTC CABLE CPU BOARD TO MB LV22C	6-43-L22C0-D80	
4	CPU SUPPORT BRACKET LV22C	6-33-L22CS-040	
5	DRIVE BAY KIT 5.25 INCH 3-BAY	6-35-B1120-3R0	
6	USB BRACKET SPICE LV22C	6-33-L22CS-011	
7	SCREW M2.5X6, K1 NI ZET NY	6-35-B1125-SRA	
8	GRAS NORTH BRIDGE HEAT SINK LV22C	6-31-L22CS-020	
9	TAPE WHLAR (AU) WHLAR M502	6-40-M55J2-010	
10	WIRE TIE BY 2MM (2MM) 400MM	6-23-62015-607	
11	WIRE CABLE FOR SLEEVES TO MB LV22C	6-43-M55G0-071	
12	DRIVE CABLE TO MB LV22C	6-43-L22C1-010	
13	VIA HUB II (4) 2X 2MM-2X 2MM LV22C	6-79-L22CL-001	
13	MAIN-11 VGA BOARD V1.0 LV22C	6-77-L22CL-011	
14	WIRE CABLE FOR SLEEVES TO MB LV22C	6-88-L22C7-651	
14	WIRE CABLE FOR SLEEVES TO MB LV22C	6-88-L22C7-652	
15	VIA M2.5X6 (4) 2X 2MM-2X 2MM	6-88-M62N2-424	
15	WIRE TIE (2) 2MM (2MM) 400MM	6-88-M7702-701	
16	WIRE TIE (2) 2MM (2MM) 400MM	6-88-M6651-620	
16	WIRE TIE (2) 2MM (2MM) 400MM	6-88-M5551-531	
17	WIRE CABLE FOR MB TO MAIN LV22C	6-43-L22C0-070	
18	NEW CARD SLIMLINE FOR M550N	6-42-M55NP-010	
19	PHONE JACK WHLAR T60 LV22C	6-40-L22CS-010	
20	AVC BOARD V3.0A LV22C	6-77-L22CS-D03A	
21	DATA BUS SLEEVES CABLE TO MB LV22C	6-43-L22C0-012	
22	WIRE CABLE FOR SLEEVES TO MB LV22C	6-88-M6655-590	
23	MINI CARD (4) 2X 2MM-2X 2MM LV22C	6-47-L22CS-021	

LV22N - MB

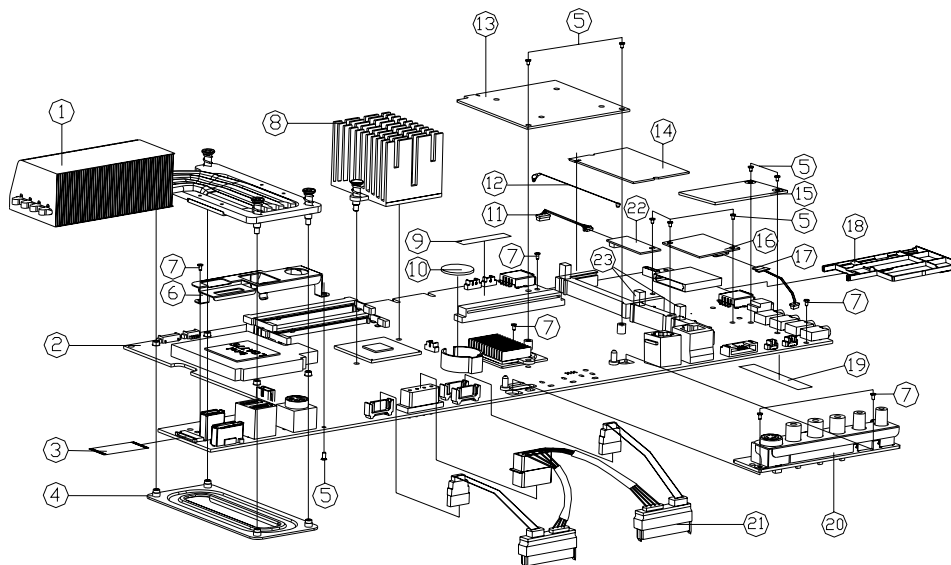


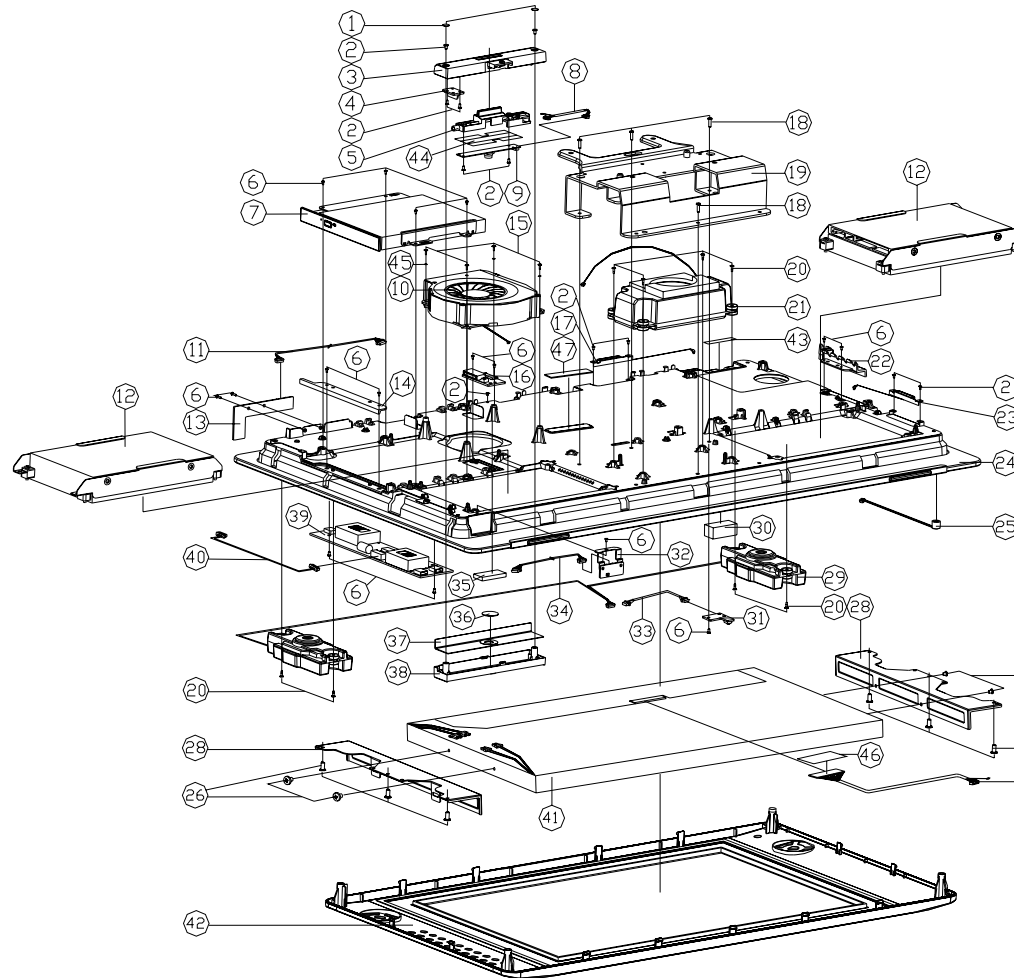
Figure A - 7
LV22N - MB

ITEM	PART NAME	PART NO	REMARK
1	CPU THERMAL MODULE LV220C	6-31-L22CS-100	
2	MAIN BOARD V3.0A LV220C	6-77-L22CC-D03A	
3	PTC CABLE COIL WEDGE TO MB LV220C	6-43-L22CC-080	
4	CPU SUPPORT BRACKET SECC LV220C	6-33-L22CS-040	
5	STEEL BOX CLW SET ON FRONT (88-4424)	6-35-B1120-3RD	
6	USER BRACKET SPITE LV220C	6-33-L22CS-011	
7	SCREW M2.5X4L K1 NI ICT NY	6-35-B1125-5RA	
8	CROSS NORTH BRIDGE HEAT SINK LV220C	6-31-L22CS-020	
9	TAPE MYLAR (4X)MYLAR M550J	6-40-M55J2-010	
10	BATTERY 3V 200MA CR2032 (01)S0500	6-23-62015-607	
11	WIRE CABLE FOR BLUE TOOTH TO MB LV220C	6-43-M55G0-071	
12	SHIELD CASE FOR MB CPU FAN LV220C	6-43-L22CT-010	
13	SHIELD LV220C BOARD VIDEO LV220C	6-77-L22CL-D02	
14	HEAT SINK FOR MB CPU FAN LV220C	6-88-L22C7-651	
14	HEAT SINK FOR MB CPU FAN LV220C	6-88-L22C7-652	
15	HEAT SINK FOR MB CPU FAN LV220C	6-88-M66N2-424	
15	HEAT SINK FOR MB CPU FAN LV220C	6-88-M7702-701	
16	HEAT SINK FOR MB CPU FAN LV220C	6-88-M66S1-620	
16	HEAT SINK SOLUTION LV220C ADD TUV	6-88-M55S1-531	
17	WIRE CABLE FOR MB TO MOEM LV220C	6-43-L22CC-070	
18	NEW CARD DUMMY FOR M550N	6-42-M55NP-010	
19	PHONE JACK MYLAR160 LV220C	6-40-L22CS-010	
20	KEY REPAIR V3.0A LV220C	6-77-L22CS-03A	
21	DATA AND MASS STORAGE CABLE TO MB LV220C	6-43-L22CC-012	
22	KEYBOARD CABLE TO MB LV220C	6-88-M62C5-390	
23	MINI CARD RUBBERPADDED SILICONE LV220C	6-47-L22CS-021	

A.Part Lists

LV19C/LV19N - Front Cover

Figure A - 8
LV19C/LV19N -
Front Cover



ITEM	PART NAME	PART NO
1	CCD BACK COVER MYLAR FR700 LV220C	6-40-L22C1-03
2	SCREW NYLON KI NI ICT (1)-PATCH (10-M4L01-H0)	6-35-B1120-3R
3	CCD BACK COVER.PC+ABS LV220C	6-42-L22CT-02
4	CCD ROTATE BASE.PC+ABS LV220C	6-42-L22CT-04
5	CCD HANDLE.PC+ABS LV220C	6-42-L22CT-03
6	SCREW M2.5*SL KI NI ICT NY	6-35-B1125-5R
7	DVD/DUAL RW ASS'Y (OPTION)	6-79-L22C0-00
7	CD/MD ASS'Y (OPTION)	6-79-L22CX-01
8	WIRE CABLE FOR CCD TO W/B SP LV220C	6-43-L22C0-03
9	CMOS VIDEO CAMERA (800-109650-P-505 1.3M)	6-B8-M55GC-61
10	FAN REV 33A (FOR BROTHER/HP)	6-23-AL22C-01
11	WIRE CABLE FOR POWER SWITCH BOARD TO W/B LV220C	6-43-L22C0-04
12	W/O HDD ASS'Y LV220C/N	6-79-L22CJ-01
13	POWER SWITCH BOARD V3.0A LV220C	6-77-L22CS-D03
14	DDD HOUSING.PC+ABS LV220C	6-42-L22CZ-01
15	SCREW M2*SL KI NI ICT NY	6-35-B1120-5R
16	CD-RM TRANSFER BOARD V2.0A LV220C	6-77-L22CN-D02
17	MYLAR AL2450 PFA H2 GRAY 25mm	6-23-7L22C-04
18	SCREW NYLON KI BZ/2 ICT (M4)T+0.2 T+0	6-35-B6130-7R
19	VESA BRACKET SECC LV220C	6-33-L22C2-02
20	SCREW M2.5*SP/SL B (10-0264) S(M2.5*4)	6-35-41125-13
21	SUBINVERTER MODULE (8000) LV220C	6-23-5L22C-10
22	AUDIO HOUSING.PC+ABS LV220C	6-42-L22C1-04
23	MYLAR AL2450 PFA H2 GRAY 25mm	6-23-7L22C-02
24	LCD HOUSING MODULE LV220C	6-39-L22C2-01
25	NYLON AL2450 PFA H2 GRAY 25mm	6-23-EL22C-01
26	SCREW M2*SL KI BZ ICT NY (10-048 T+0.2)	6-35-B6130-4R
27	WIRE CABLE FOR AUDIO/VIDEO SIGNAL LV220C	6-43-L22C1-01
28	LCD BRACKET SECC LV190C	6-33-L19C1-01
29	SPEAKER MODULE (800) LV220C	6-23-5L22C-20
30	22" AU LCD RUBBER/VAS SILICONE LV220C	6-47-L22C1-04
31	CIR BOARD V3.0A LV220C	6-77-L22C4-D03
32	LED BOARD V2.0A LV220C	6-77-L22C4-D02
33	WIRE CABLE FOR CR BOARD TO W/B SP LV220C	6-43-L22C0-02
34	WIRE CABLE FOR LED BOARD TO W/B SP LV220C	6-43-L22C0-05
35	22" AU LCD RUBBER/VAS SILICONE LV220C	6-47-L22C1-03
36	CCD PROTECT.PC LV220C	6-40-L22C1-04
37	CCD PLATE MODULE.AL LV220C	6-33-L22C1-10
38	CCD FRONT COVER MODULE LV220C	6-42-L22CT-10
39	INVERTER MODULE MPT (672) LV220C/N	6-76-L22CR-02
40	WIRE CABLE FOR 22" INVERTER TO W/B SP LV220C	6-43-L22CR-01
41	LCD T AU M90 PWH V9 19" VEGA+ 185MM	6-50-072J5-G0
42	LCD FRONT COVER MODULE LV190C	6-39-L19C1-01
43	TAPE MYLAR (A) MYLAR M550J	6-40-M55J2-01
44	CCD MYLAR T60 LV220C	6-40-L22C1-0A
45	FAN WASHER MYLAR FR700 LV220C	6-40-L22C1-09
46	MYLAR AL2450 PFA H2 GRAY 25mm	6-47-L22C1-0C
47	THERMAL PAD TSL-10P3 (1003)S10 LV220C	6-47-L22C1-05

LV19C/LV19N - Back

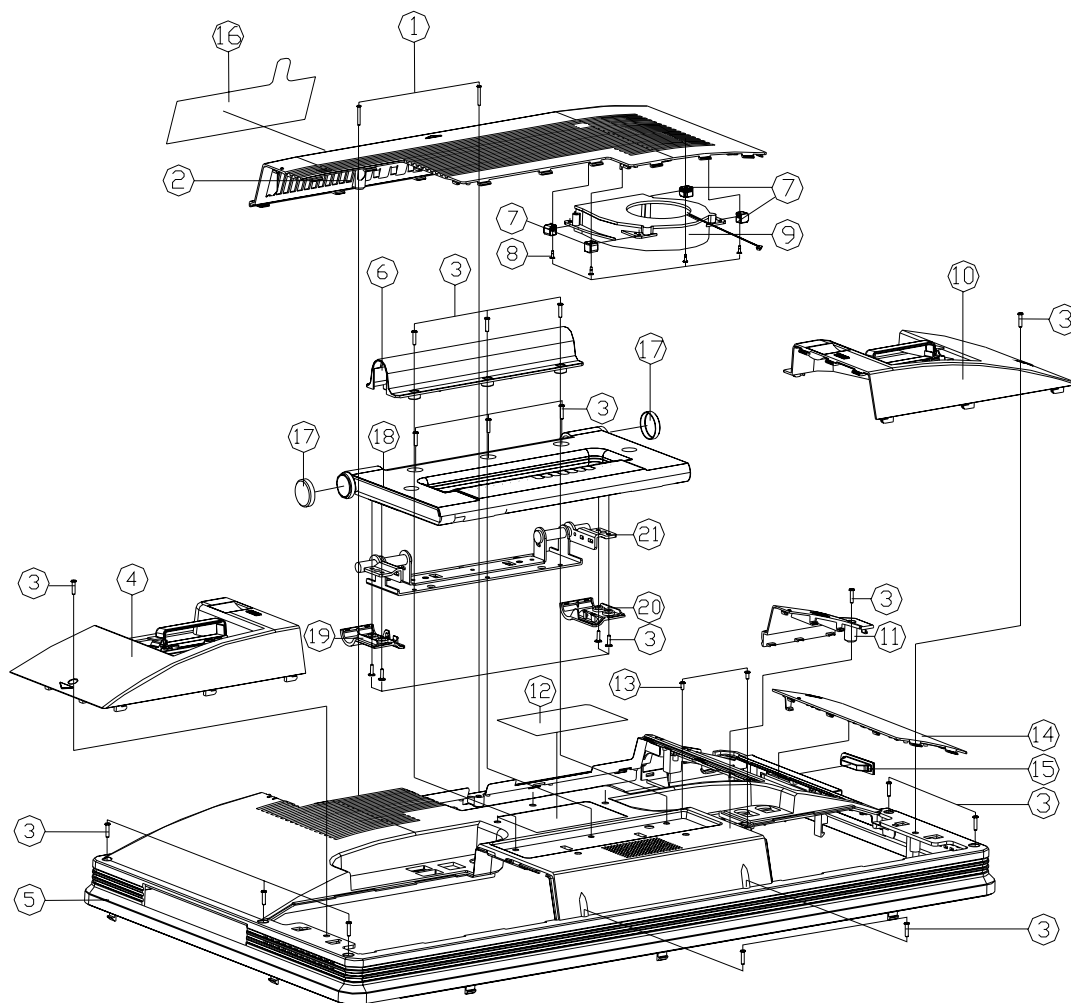


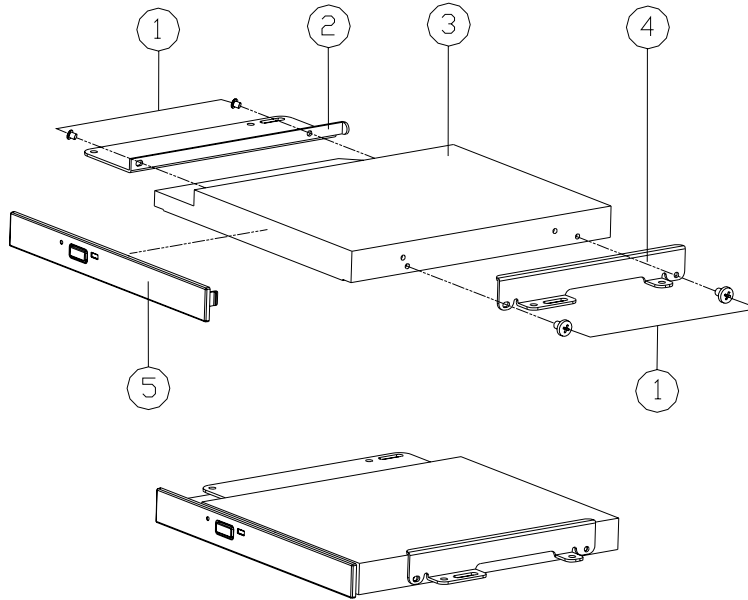
Figure A - 9
LV19C/LV19N -
Back

ITEM	PART NAME	PART NO	REMARK
1	SOVEY MESH/PC KI BR/2 ICT WMB 0P55 1xL200000	6-35-B6125-190	
2	CPU COVER MODULE LV220C	6-42-L22CS-102	
3	SOVEY MESH/PC KI BR/2 ICT WMB 0P55 1xL200000	6-35-B6130-100	
4	HDD COVER MODULE (L) LV220C	6-42-L22CJ-202	
5	LCD BACK COVER MODULE LV220C	6-39-L22C1-022	
6	HINGE BASE HOUSING PC+ABS LV220C	6-42-L22CY-031	
7	FAN RUBBER,SILICONE LV220C	6-47-L22C1-020	
8	SOVEY MESH/PC+ABS 0 00-02049 540540	6-35-41125-130	
9	MATERIAL MOUNT BY K20 0000001-0 LV220C	6-23-AL22C-020	
10	HDD COVER MODULE (R) LV220C	6-42-L22CJ-102	
11	RF COVER PC+ABS LV220C	6-42-L22C1-022	
12	PRODUCT LABEL LV220C	6-45-L22C3-010	
12	PRODUCT LABEL LV220N	6-45-L22N3-010	
12	PRODUCT LABEL LV190C	6-45-L19C3-010	
12	PRODUCT LABEL LV190N	6-45-L19N3-010	
13	SOVEY MESH/PC KI N ICT 01-PA00 00-0001-000000	6-35-B1120-3R0	
14	OPTION COVER MODULE LV220C	6-42-L22C1-101	
15	CARD READER RUBBER,SILICON M550G	6-47-M55GE-011	
16	CPU COVER PROTECT MULAR PE LV220C	6-40-L22C8-011	
17	HINGE RING,AL LV220C	6-33-L22CY-010	
18	HINGE SUPPORT MODULE LV220C	6-42-L22CY-101	
19	HINGE COVER (R) PC+ABS LV220C	6-42-L22CY-011	
20	HINGE COVER (L) PC+ABS LV220C	6-42-L22CY-021	
21	HINGE MODULE LV220C	6-33-L22CY-102	

A.Part Lists

LV19C/LV19N - Combo Drive

Figure A - 10
LV19C/LV19N -
Combo Drive



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*2.5L KI BK/Z ICT NY#35 T=0.3	6-35-B6120-2RB	
2	ODD BRACKET (R),SECC LV220C	6-33-L22C1-011	
3	ODD MODULE (R),SECC LV220C	6-85-907PX-C03	
4	ODD BRACKET (L),SECC LV220C	6-33-L22C1-021	
5	COMBO BEZEL MODULE (BK1A382) L295N	6-42-L25NX-100	

A - 12 LV19C/LV19N - Combo Drive

LV19C/LV19N - DVD-Dual Drive

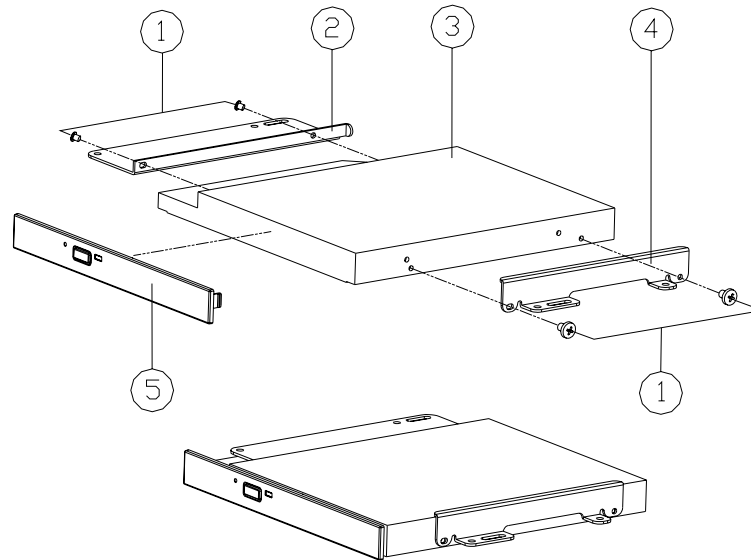
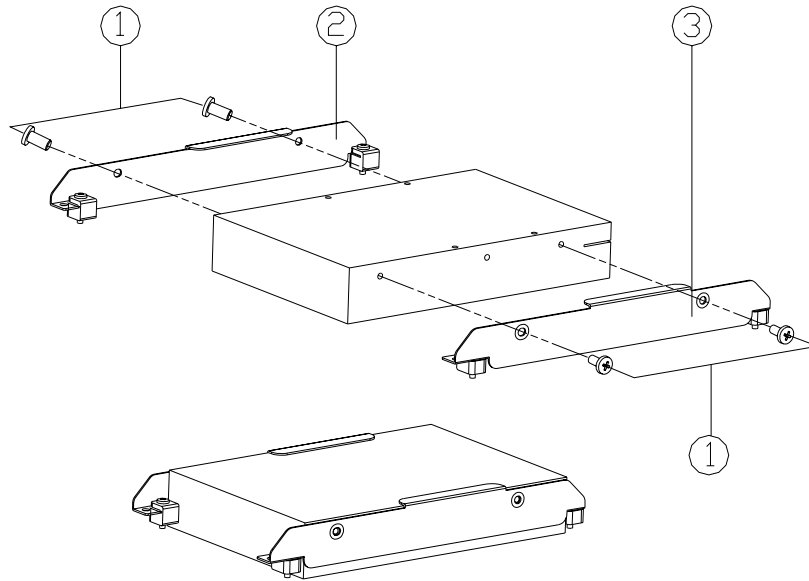


Figure A - 11
LV19C/LV19N -
DVD-Dual Drive

ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*2.5L K1 BK/Z ICT NY#3.5 T+0.3 無鉛	6-35-B6120-2RB	
2	DDD BRACKET (R),SECC LV220C 無鉛	6-33-L22C1-011	
3	FRONT BEZEL (UP) IN EXHAUST (FOR DVD) (FOR DVD) (FOR DVD) (FOR DVD) (FOR DVD) 無鉛	6-85-A078X-C08	
3	FRONT BEZEL (UP) IN EXHAUST (FOR DVD) (FOR DVD) (FOR DVD) (FOR DVD) (FOR DVD) 無鉛	6-85-A078X-T02	
4	DDD BRACKET (L),SECC LV220C 無鉛	6-33-L22C1-021	
5	TOSHIBA DUAL DVD/RW/SUPER MULTI BEZEL MODULE 無鉛	6-42-L25N0-200	

LV19C/LV19N - HDD

Figure A - 12
LV19C/LV19N -
HDD



ITEM	PART NAME	PART NO	REMARK
1	SCREW #6-32*5L B NI ACT 無鉛	6-35-41306-5R0	
2	HDD BRACKET MODULE (L) LV220C 無鉛	6-33-L22CJ-201	
3	HDD BRACKET MODULE (R) LV220C 無鉛	6-33-L22CJ-101	

LV19C - MB

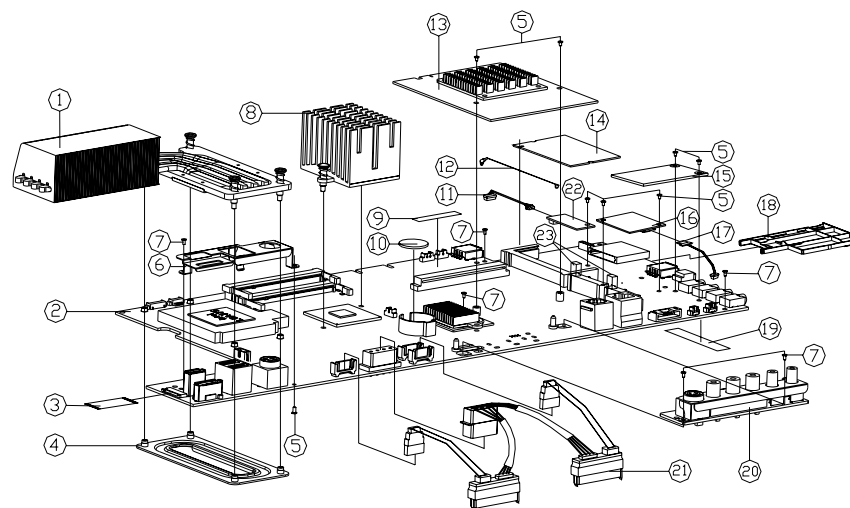


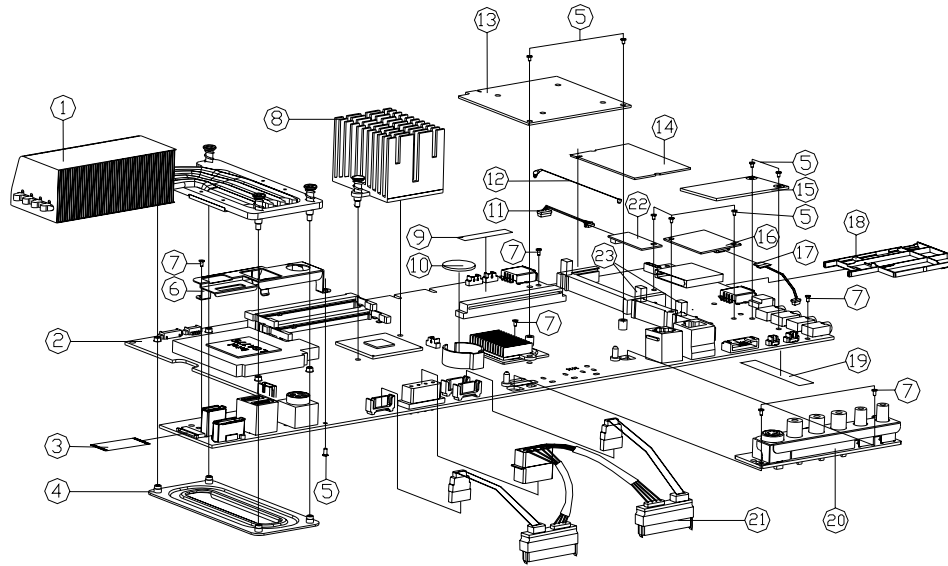
Figure A - 13
LV19C - MB

ITEM	PART NAME	PART NO	REMARK
1	CPU THERMAL MODUL. LV22CC	6-31-L22CS-100	
2	MAIN BOARD V30A LV22CC	6-77-L22CS-003A	
3	PTC CABLE COB BOARD TO MB LV22CC	6-43-L22CC-080	
4	CPU SUPPORT BRACKET LV22CC	6-33-L22CS-040	
5	COOL FAN V30 80 010-0100-0000	6-35-B1120-5R0	
6	USER BRACKET SPTE LV22CC	6-33-L22CS-011	
7	SCREW M2.5X5L KI NI 1CT NY	6-35-B1125-5RA	
8	ONG NORTH BRIDGE HEAT SINKAL LV22CC	6-31-L22CS-020	
9	TAPE NYLON 40X12LAP M250J	6-40-M55J2-010	
10	BATTERY 3V 2000 CAPACITANCE	6-23-62015-607	
11	PTC CABLE FOR BATTERY TO MB LV22CC	6-43-M55CC-071	
12	NON-11 VISA BOARD V18 LV22CC	6-43-L22CT-010	
13	VIA MB II OF 40 TAP-40 HI ASST LV22CC	6-79-L22CL-001	
13	NON-11 VISA BOARD V18 LV22CC	6-77-L22CL-011	
14	POWER SUPPLY UNIT 180W 5V 0.15A	6-88-L22CT-650	
14	POWER SUPPLY UNIT 180W 5V 0.15A	6-88-L22CT-652	
15	PTC CABLE FOR BATTERY TO MB LV22CC	6-88-M66N2-424	
15	PTC CABLE FOR BATTERY TO MB LV22CC	6-88-M7702-701	
16	PTC CABLE FOR BATTERY TO MB LV22CC	6-88-M66S1-620	
16	PTC CABLE FOR BATTERY TO MB LV22CC	6-88-M65S1-531	
17	PTC CABLE FOR MB TO MB LV22CC	6-43-L22CC-070	
18	NEW CARD DUMMY FOR M550N	6-42-M55NP-010	
19	PHONE JACK W/LAR.166 LV22CC	6-40-L22CS-010	
20	KV BOARD V30A LV22CC	6-77-L22CS-003A	
21	DATA AND SHARED CABLE TO MB LV22CC	6-43-L22CC-010	
22	DATA AND SHARED CABLE TO MB LV22CC	6-88-M62ES-390	
23	MB CARD REVERSE/NOTI SLICING LV22CC	6-47-L22CS-021	

A.Part Lists

LV19N - MB

Figure A - 14
LV19N - MB



ITEM	PART NAME	PART NO	REMARK
1	CPU THERMAL MODULE LV220C	6-31-L22CS-100	
2	MAIN BOARD V3.0A LV220C	6-77-L22CO-D03A	
3	PTC CABLE COIL WOUND TO MB LV220C	6-43-L22CO-080	
4	CPU SUPPORT BRACKET SECC LV220C	6-33-L22CS-040	
5	SCREEN BRACKET TO MB LV220C	6-35-B1120-3R0	
6	USER BRACKET SPICE LV220C	6-33-L22CS-011	
7	SCREW M2.5X5L KI NI ICT NY	6-35-B1125-5RA	
8	CORO NORTH BRIDGE HEAT SPREADER LV220C	6-31-L22CS-020	
9	TAPE MYLAR (A)MYLAR M550J	6-40-M55J2-010	
10	BATTERY 3V ZIRCONIUM OXIDE	6-23-62015-607	
11	WIRE CABLE FOR ALLIUMETER TO MB LV220C	6-43-M55G0-071	
12	PHONE CABLE FOR TV HEAD SET LV220C	6-43-L22CT-010	
13	SECTOR LV220C BOARD V2.0 LV220C	6-77-L22CL-D02	
14	MAIN BOARD V3.0A LV220C	6-88-L22C7-651	
14	MAIN BOARD V3.0A LV220C	6-88-L22C7-652	
15	MAIN BOARD V3.0A LV220C	6-88-M66N2-424	
15	MAIN BOARD V3.0A LV220C	6-88-M7702-701	
16	MAIN BOARD V3.0A LV220C	6-88-M66S1-620	
16	MAIN BOARD V3.0A LV220C	6-88-M55S1-531	
17	WIRE CABLE FOR MB TO MODEM LV220C	6-43-L22CO-070	
18	NEW CARD DUMMY FOR M550N	6-42-M55NP-010	
19	PHONE JACK MYLAR160 LV220C	6-40-L22CS-010	
20	MAIN BOARD V3.0A LV220C	6-77-L22CS-D03A	
21	DATA AND PHONE CABLE TO MB LV220C	6-43-L22CO-012	
22	MAIN BOARD V3.0A LV220C	6-88-M62PS-390	
23	MAIN BOARD V3.0A LV220C	6-47-L22CS-021	


Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the LV22C/LV22N/LV19C/LV19N computer's PCB's. The following table indicates where to find the appropriate schematic diagram.

Table B - 1

Schematic Diagram

Diagram - Page	Diagram - Page	Diagram - Page
System Block Diagram - Page B - 2	ICH8 1/3 (PCI, DMI, CPU, IRQ) - Page B - 17	System Power - Page B - 32
Clock Generator - Page B - 3	ICH8 2/3 (LPC, ATA, USB, GPIO) - Page B - 18	3.3V/5V - Page B - 33
CPU - 1 of 3 - Page B - 4	ICH8 3/3 (Power) - Page B - 19	12VS, AC-In - Page B - 34
CPU - 2 of 3 - Page B - 5	JM361 PCI-E TO PATA, eSATA - Page B - 20	1.8V/0.9V - Page B - 35
CPU - 3 of 3 - Page B - 6	CD-ROM, SATA, PC-Beep, LED - Page B - 21	1.5VS,1.05VS - Page B - 36
Intel P965 1/5 CPU Interface - Page B - 7	VGA Fan, CCD, Power OK - Page B - 22	1.2VS/1.25VS - Page B - 37
Intel P965 2/5 PCI-E I/F - Page B - 8	LAN 82566 - Page B - 23	VCORE - Page B - 38
Intel P965 3/5 Memory I/F - Page B - 9	PCI7402 - Page B - 24	LED Board - Page B - 39
Intel P965 4/5 GND - Page B - 10	TV Tuner, CardReader, CIR - Page B - 25	Power Board - Page B - 40
Intel P965 5/5 Power - Page B - 11	ITE IT8512 - Page B - 26	CIR Board - Page B - 41
DDRII SO-DIMM 1/2 - Page B - 12	Mini Card, New Card - Page B - 27	CD-ROM Board - Page B - 42
DDRII SO-DIMM 2/2 - Page B - 13	USB 2.0 - Page B - 28	Video Connector Board - Page B - 43
MXM PCI-E CONN - Page B - 14	AZALIA Codec ALC883/ALC888 - Page B - 29	CRT Connector Board - Page B - 44
BIOS, USB K/B, TPM - Page B - 15	Audio AMP, SRS, Woofer - Page B - 30	
Panel, CPU Fan - Page B - 16	MDC, BT, PWRGD, Inverter Connector - Page B - 31	



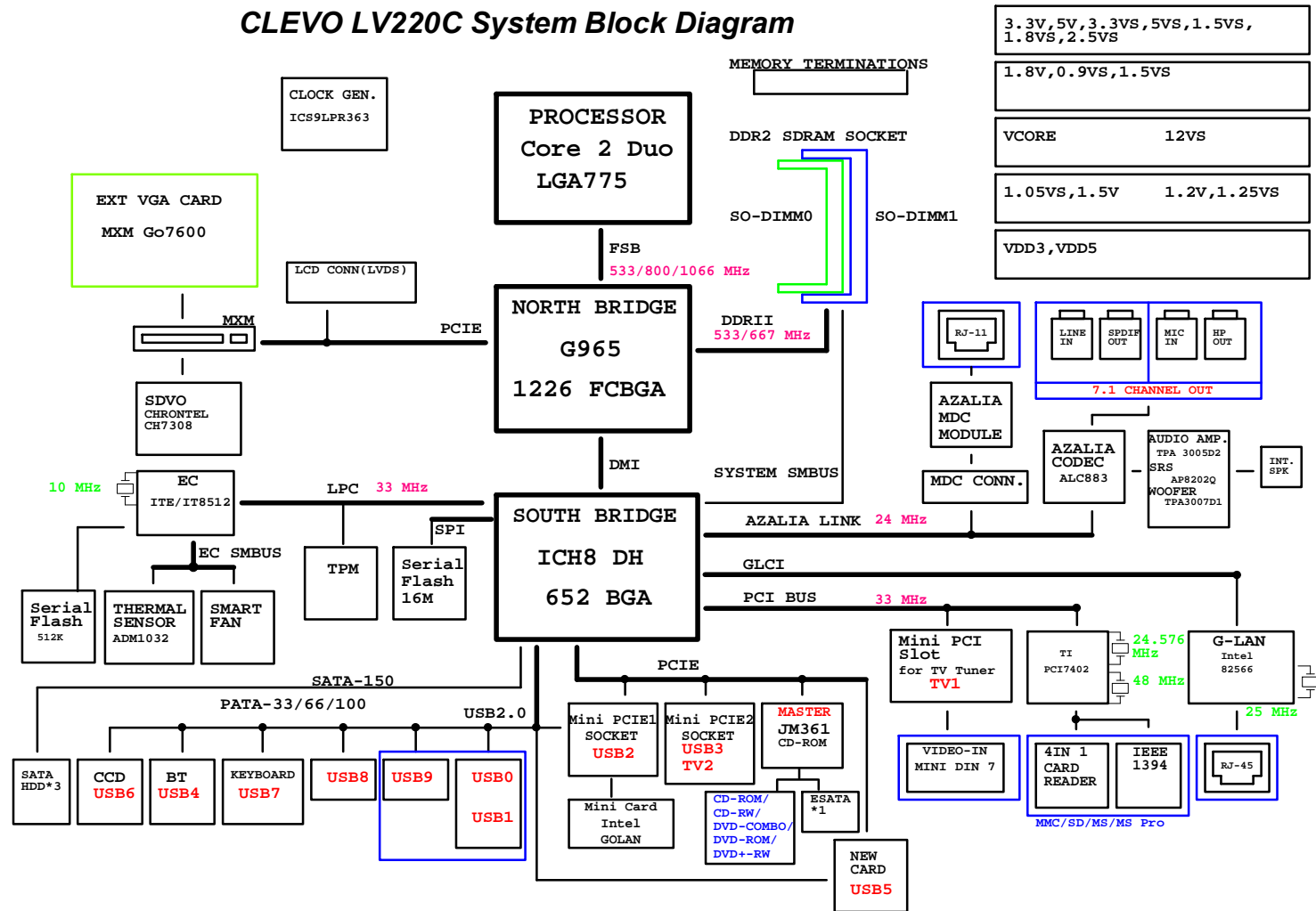
Version Note

The schematic diagrams in this chapter are based upon version **6-71-LV220C-D03A**. If your main-board (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram

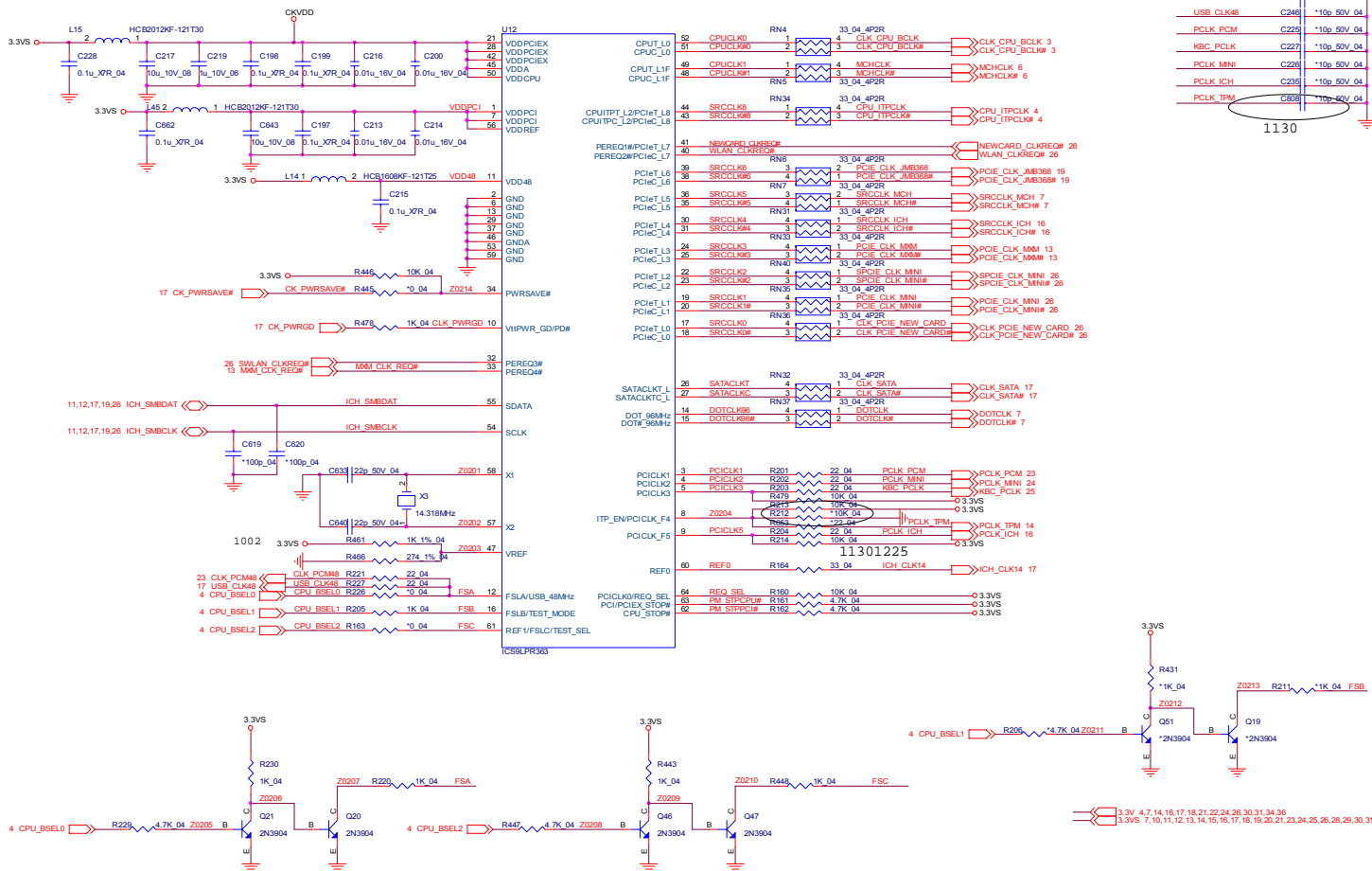
Sheet 1 of 43
Schematic Diagram

CLEVO LV220C System Block Diagram



Clock Generator

Sheet 2 of 43
Clock Generator



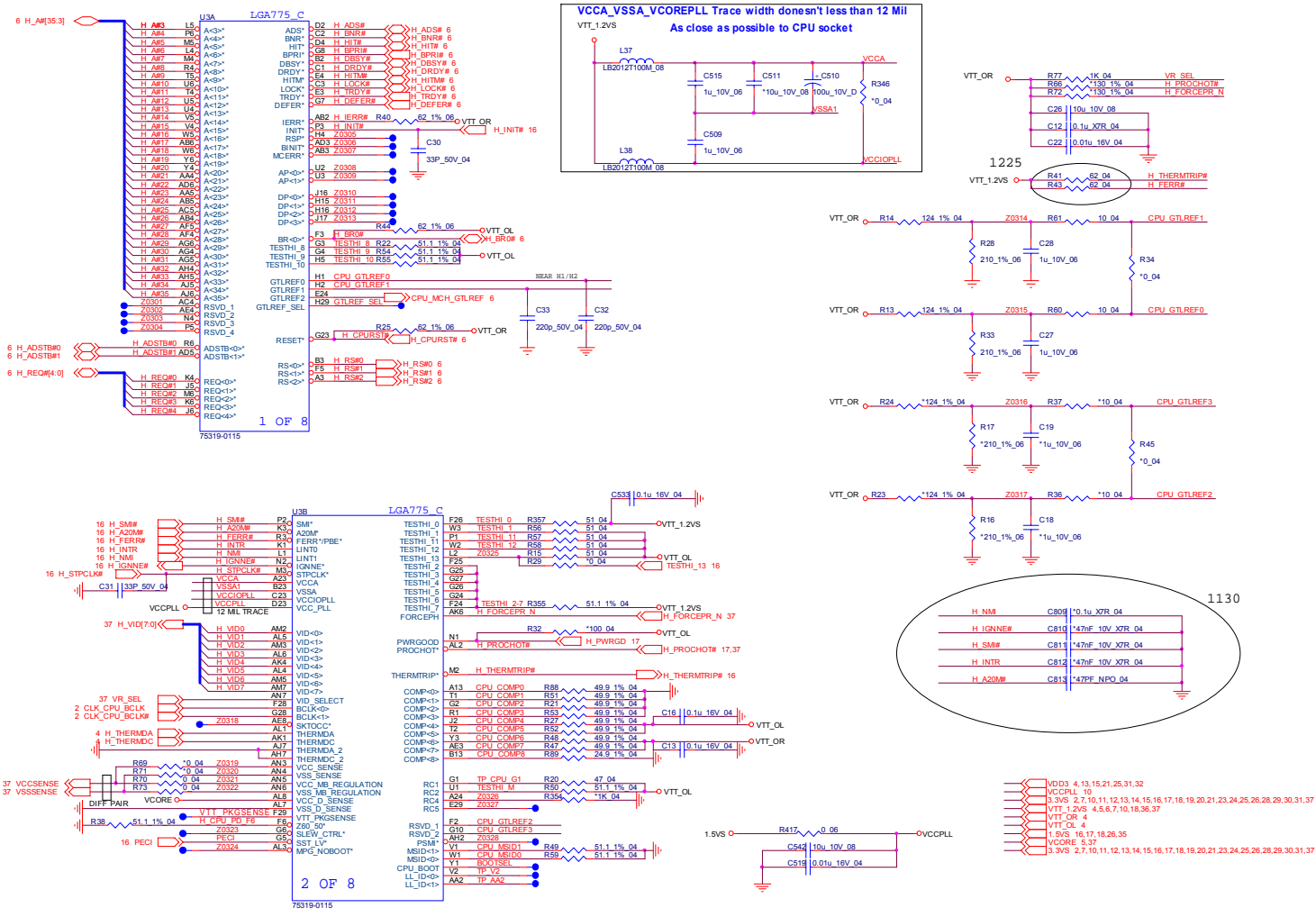
B. Schematic Diagrams

Schematic Diagrams

CPU - 1 of 3

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CPU 1 of 3

B.Schematic Diagrams

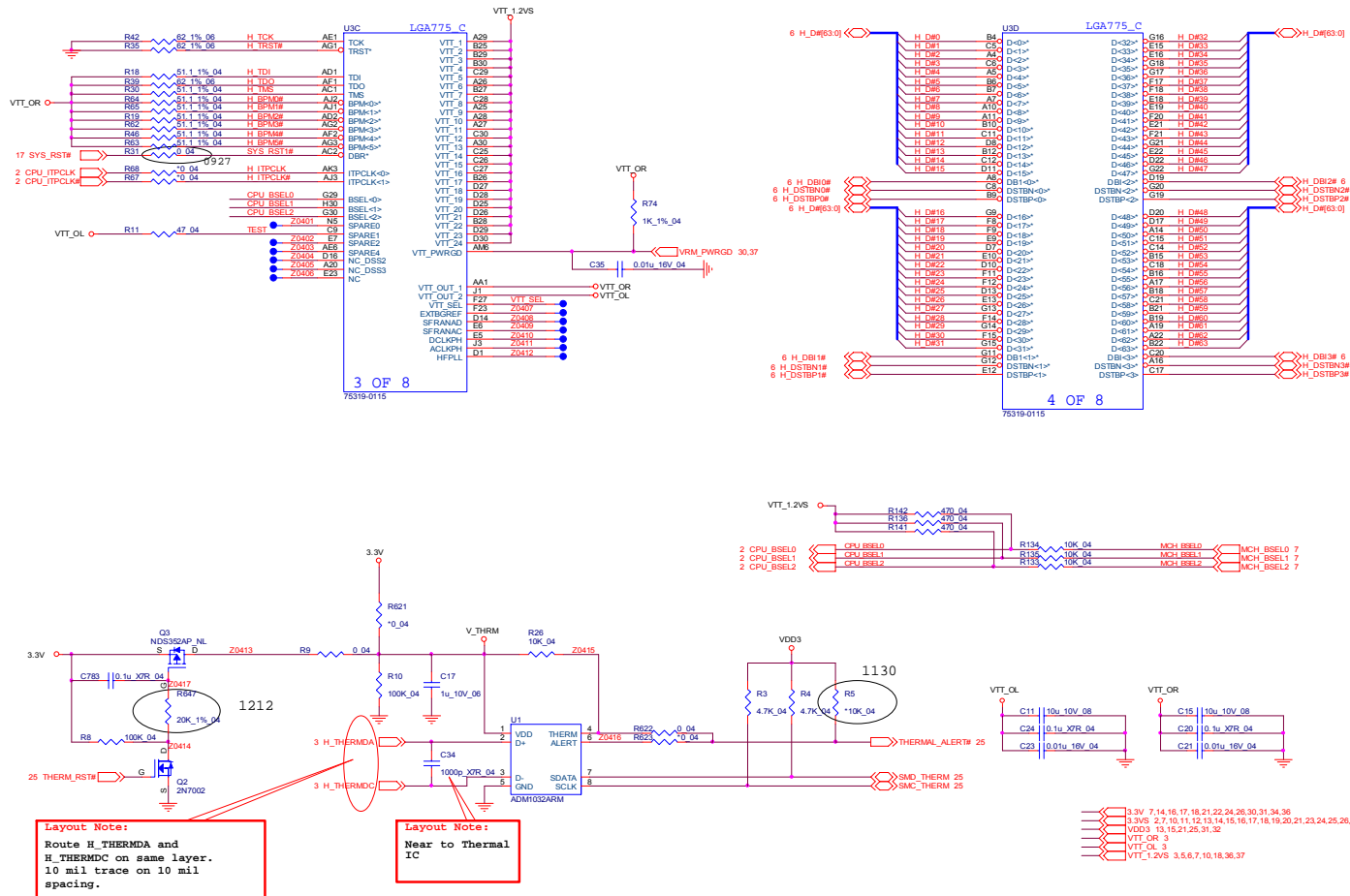


B - 4 CPU - 1 of 3

CPU - 2 of 3

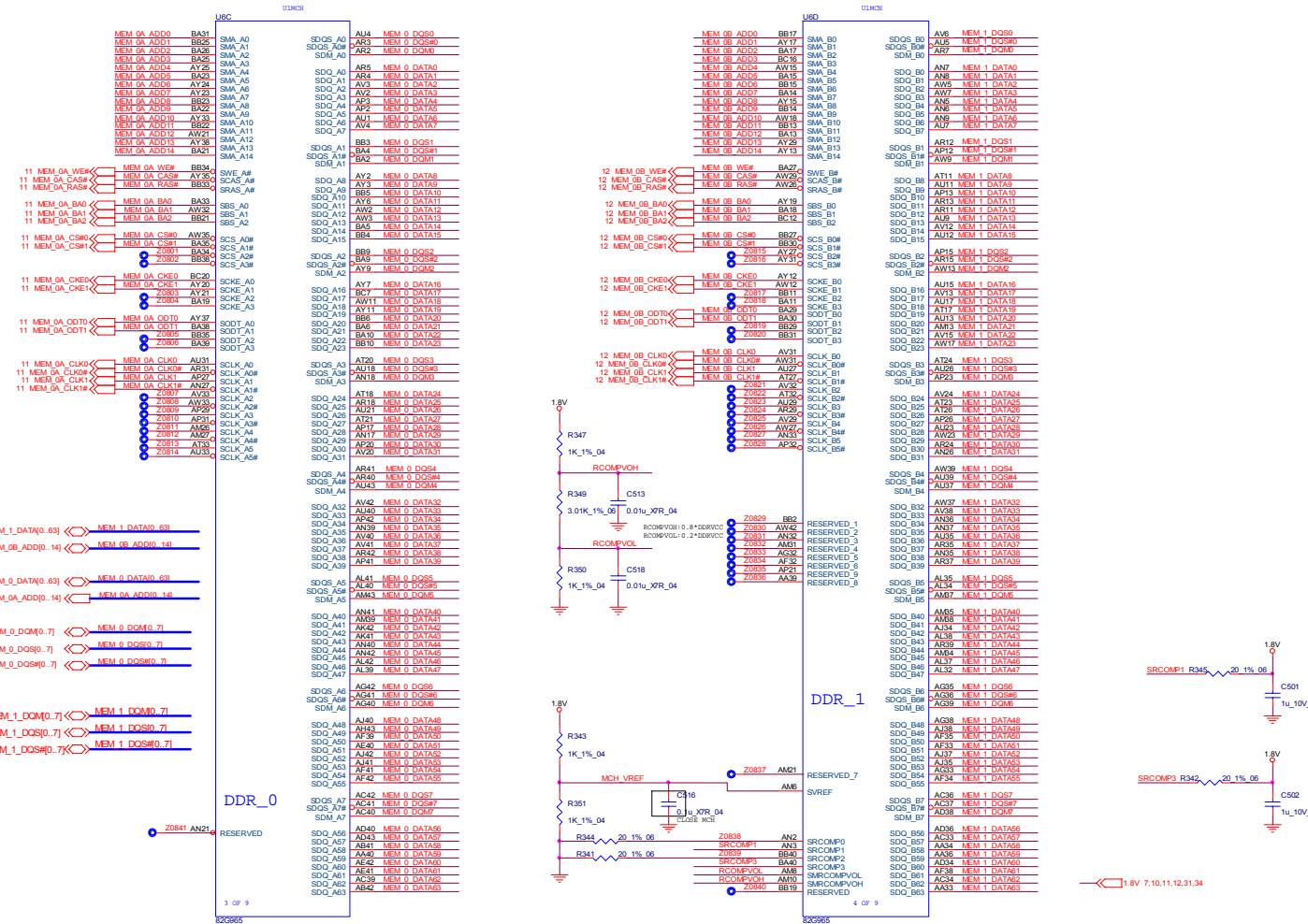
Sheet 4 of 43
Yonah CPU 2 of 3

B. Schematic Diagrams



Intel P965 3/5 Memory I/F

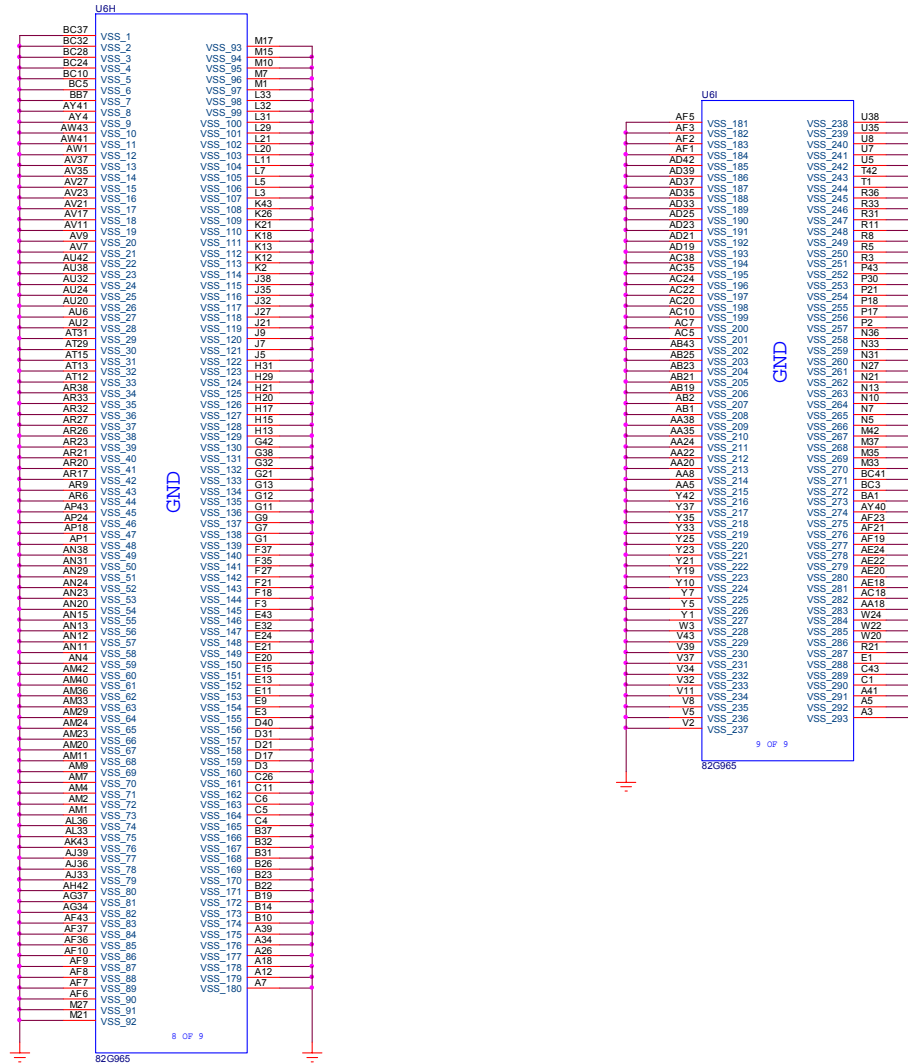
Sheet 8 of 43
Intel P965 3/5
Memory I/F



B. Schematic Diagrams

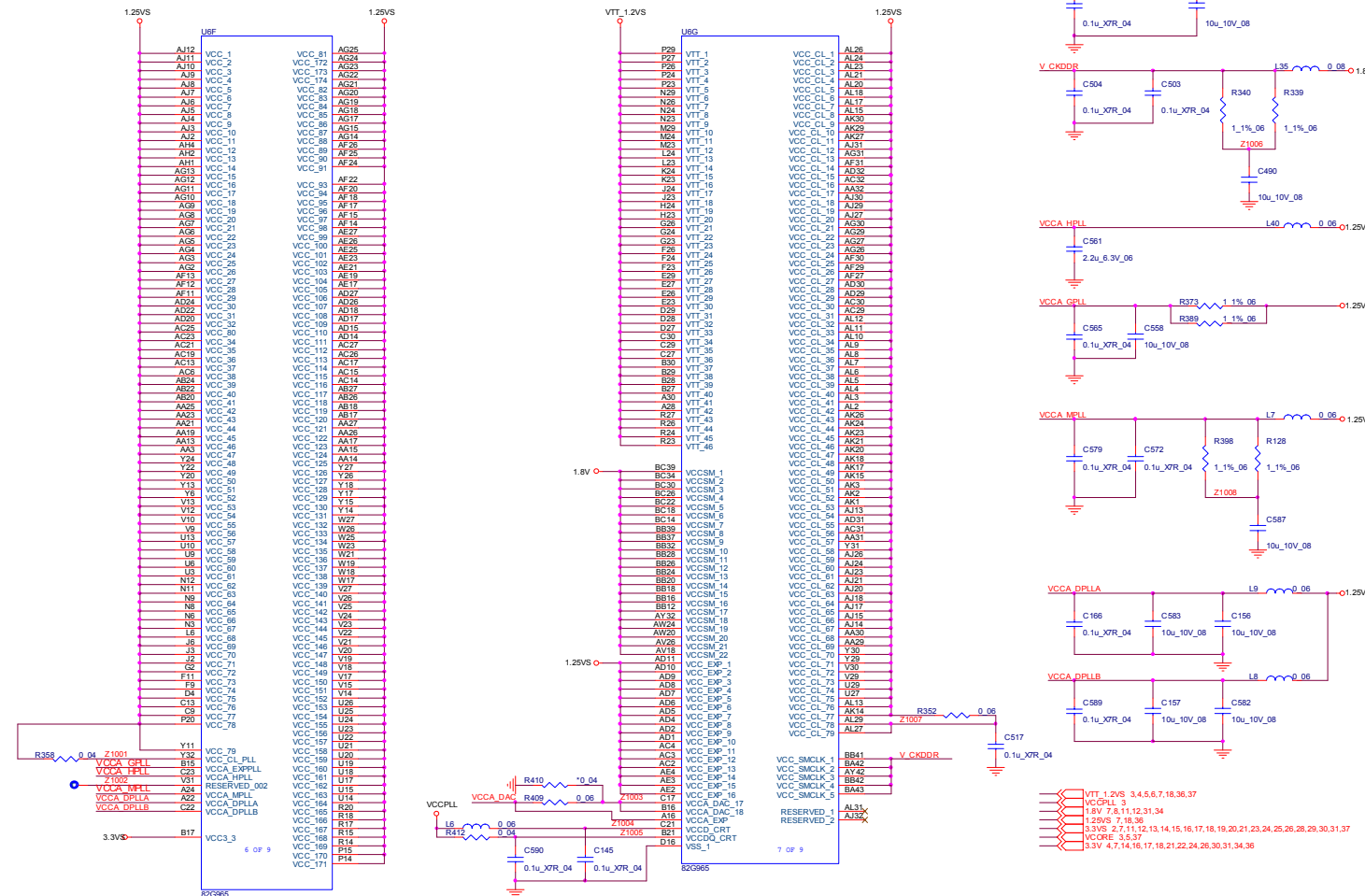
Intel P965 4/5 GND

Sheet 9 of 43
Intel P965 4/5 GND



Intel P965 5/5 Power

Sheet 10 of 43
Intel P965 5/5 Power



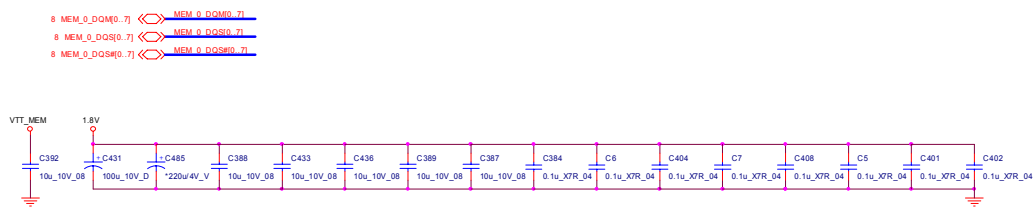
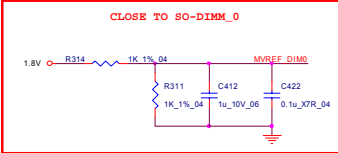
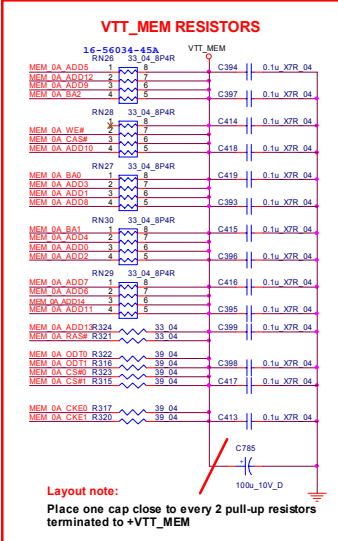
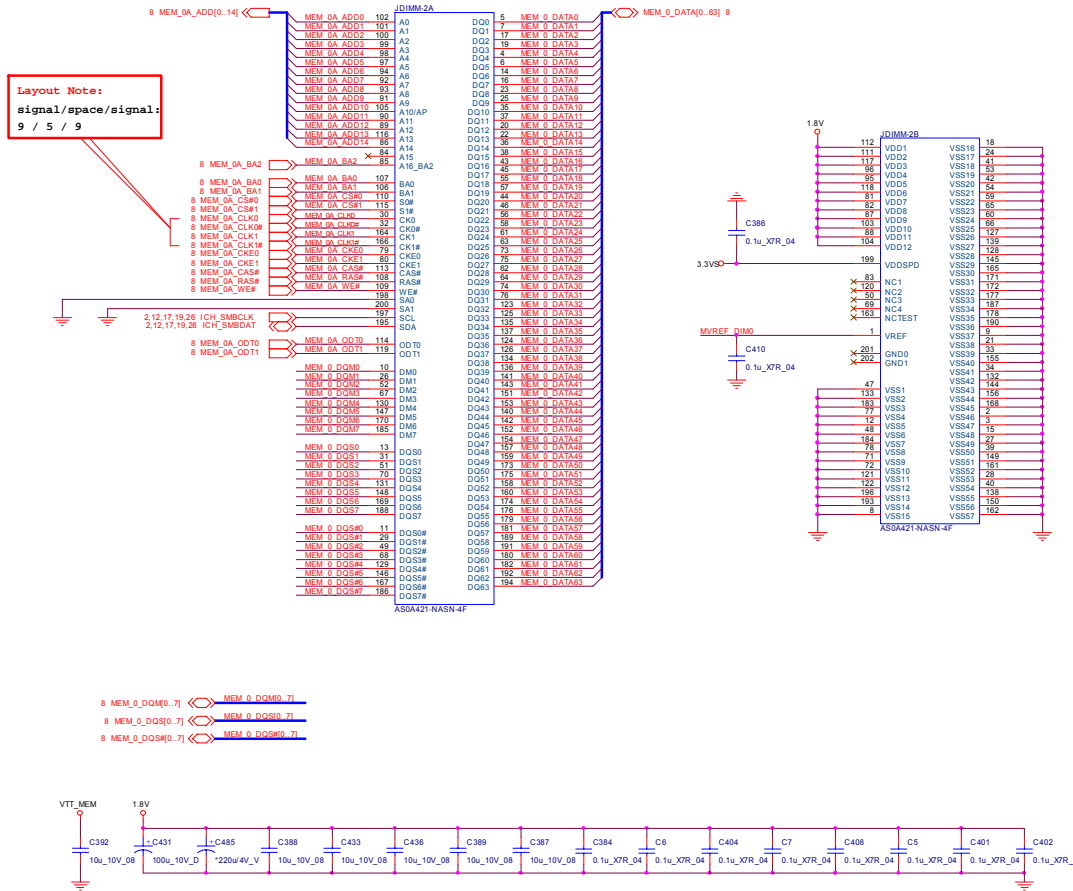
B. Schematic Diagrams

DDRII SO-DIMM 1/2

Sheet 11 of 43
DDRII SO-DIMM 1/2

SO-DIMM 0

B.Schematic Diagrams



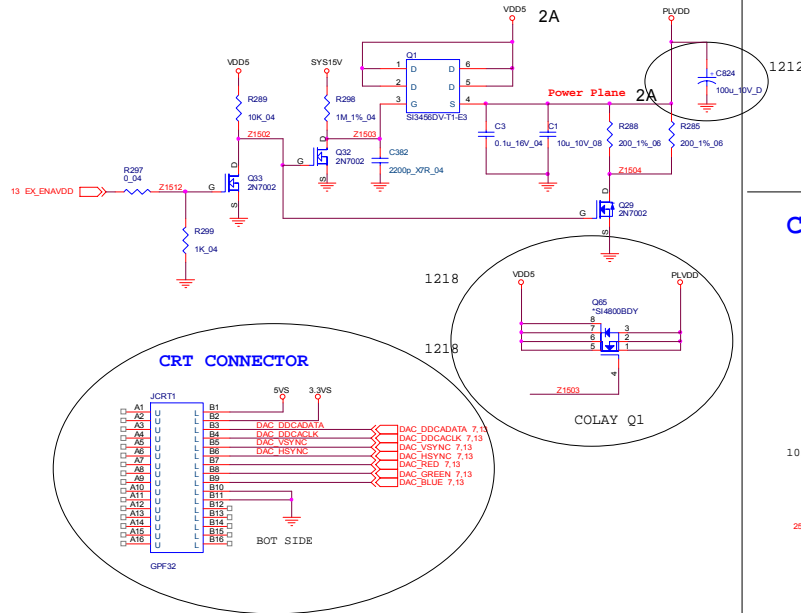
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3.3V 2,7,10,12,14,15,16,17,18,19,20,21,23,34,25,26,28,29,30,31,37
VTT_MEM 12,34

Schematic Diagrams

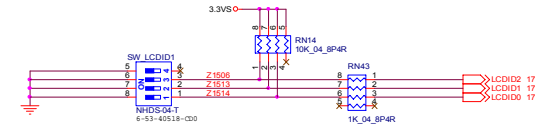
Panel, CPU Fan

Sheet 15 of 43
Panel, CPU Fan

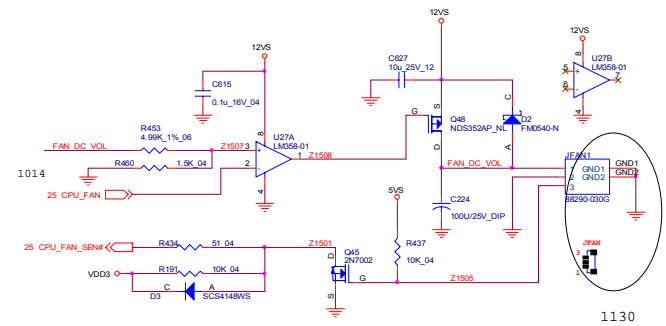
PANEL



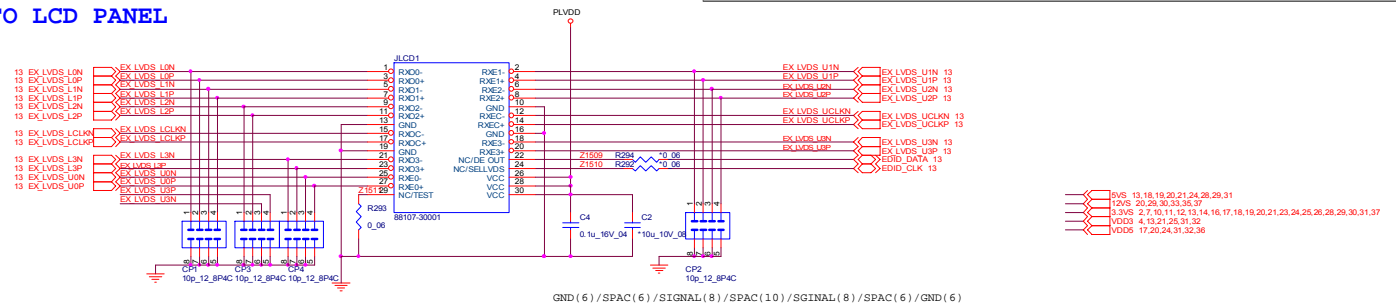
PANEL ID SELECTOR



CPU FAN CONTROL

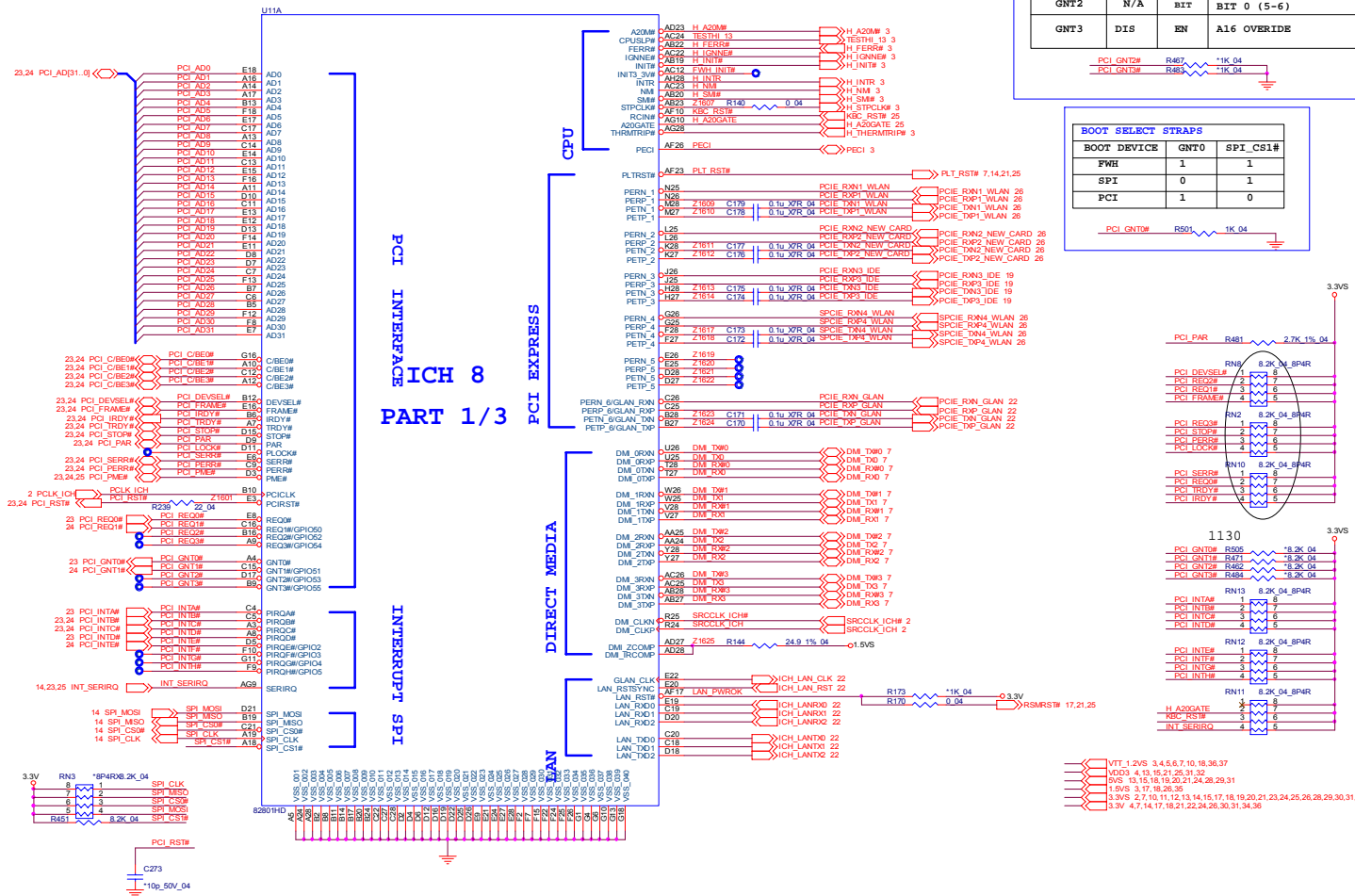


TO LCD PANEL



B.Schematic Diagrams

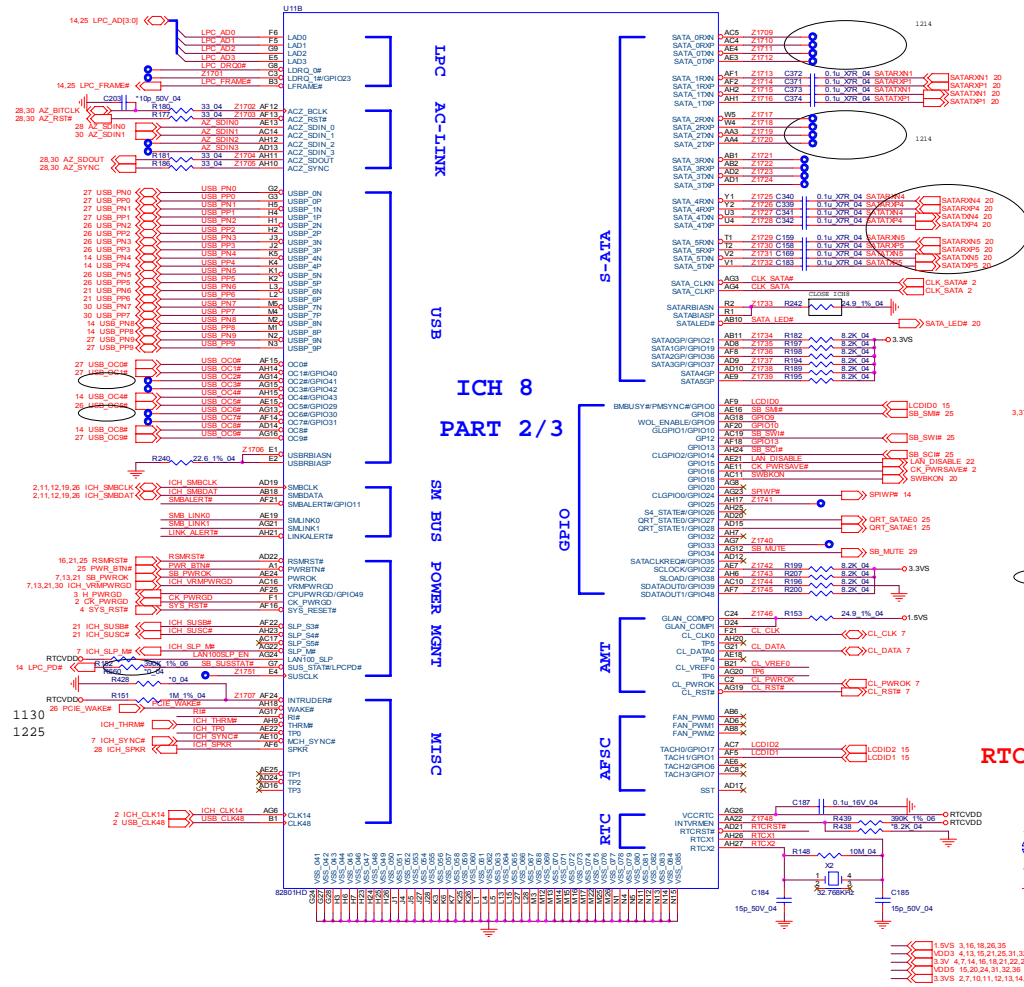
ICH8 1/3 (PCI, DMI, CPU, IRQ)



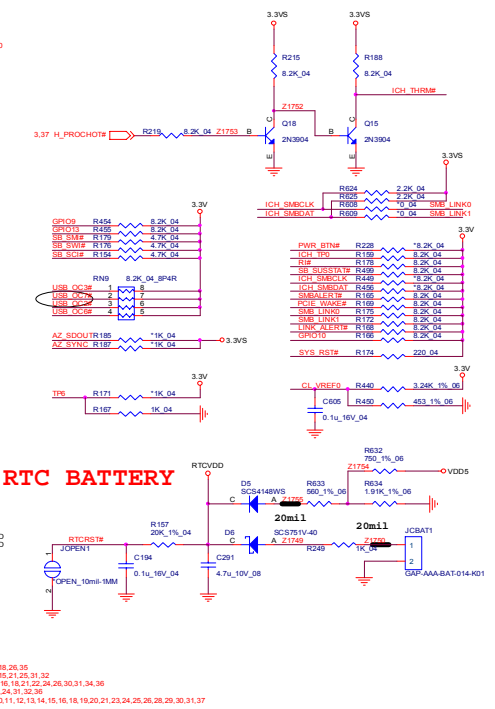
ICH8 2/3 (LPC, ATA, USB, GPIO)

Sheet 17 of 43
ICH8 2/3
 (LPC, ATA, USB,
 GPIO)

B.Schematic Diagrams



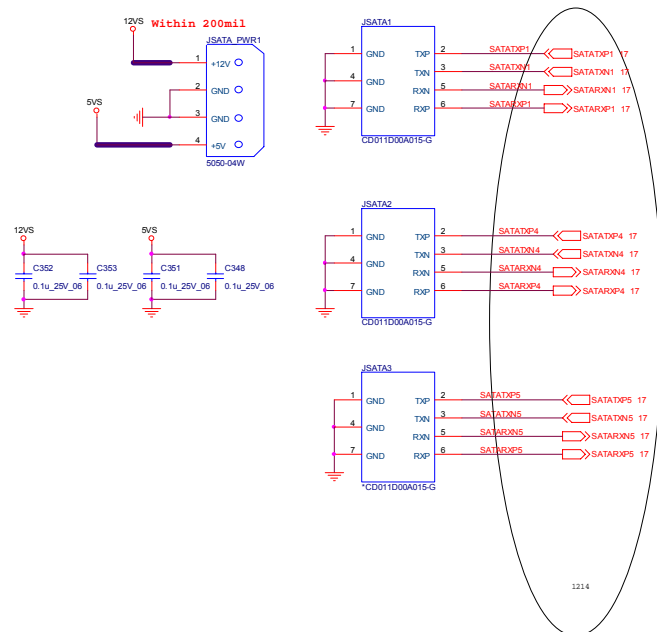
ICH8 H/W STRAPS			
SIGNAL	H	L	DES.
SPKR	DIS	EN	REBOOT
INTVREN/ LAN100_SLP	EN	DIS	PORT VBE (VccPul1_05_1_5_VccCl1_5) (VccPul1_05_VccCl1_5)
SATALED	NORM	REVERSE	PCIE 0-3 ORDER
HDA_SDOUT	DFX/ PCIE	N/A	XOR MODE/PCIE PORT CONFIG BIT 1
HDA_SYNC	BET	N/A	PCIE PORT CONFIG BIT 0 (1-4)



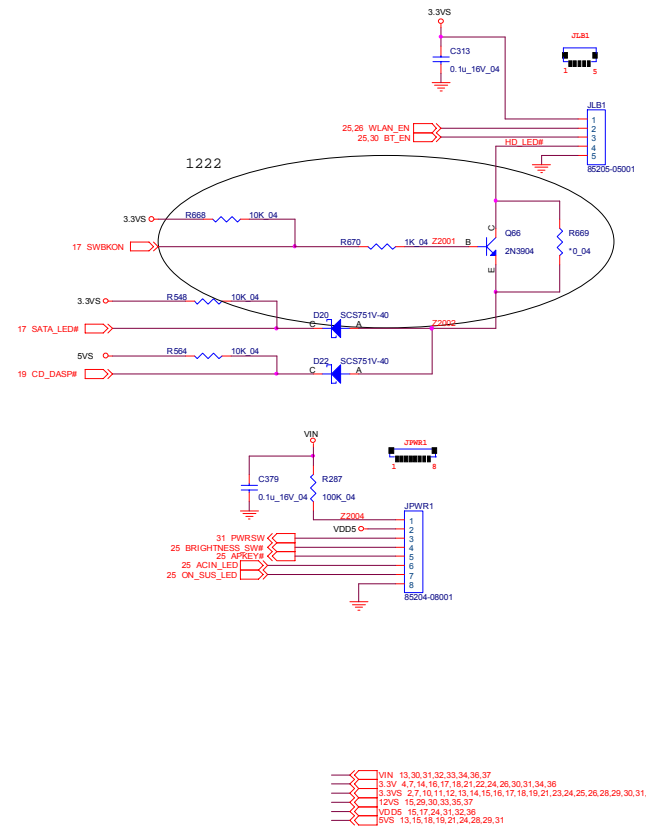
CD-ROM, SATA, PC-Beep, LED

Sheet 20 of 43
CD-ROM, SATA,
PC-Beep, LED

SATA HDD



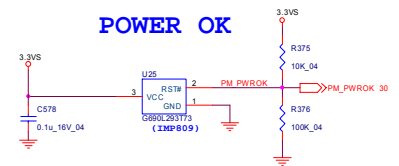
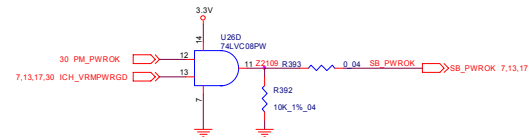
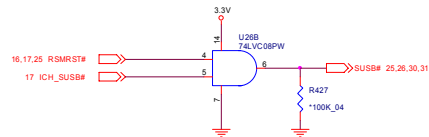
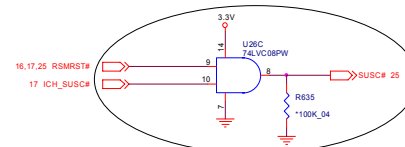
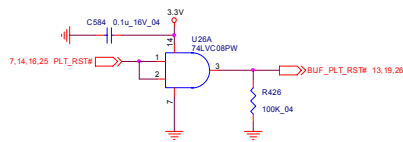
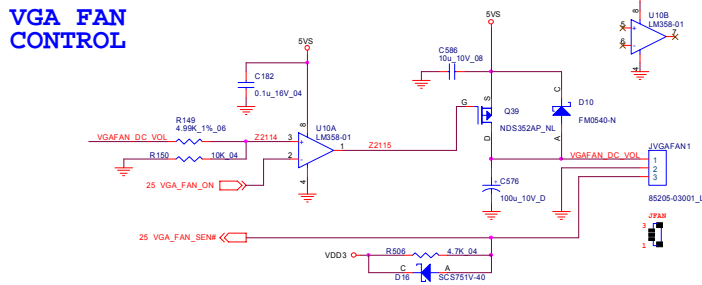
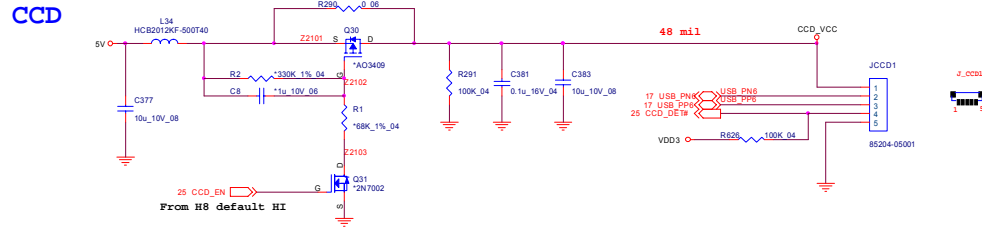
LED



B. Schematic Diagrams

VGA Fan, CCD, Power OK

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VGA Fan, CCD,
Power OK



- 5V 7,13,14,16,24,27,28,31,32,34,35,37
- 3.3V 4,7,14,16,17,18,22,24,26,30,31,34,36
- VDD5 15,17,20,24,31,32,36
- VDD3 4,13,15,28,31,32
- 3.3VS 2,7,10,11,12,13,14,15,16,17,18,19,20,23,24,25,26,28,30,31,37
- 5VS 10,15,16,19,20,24,26,29,31

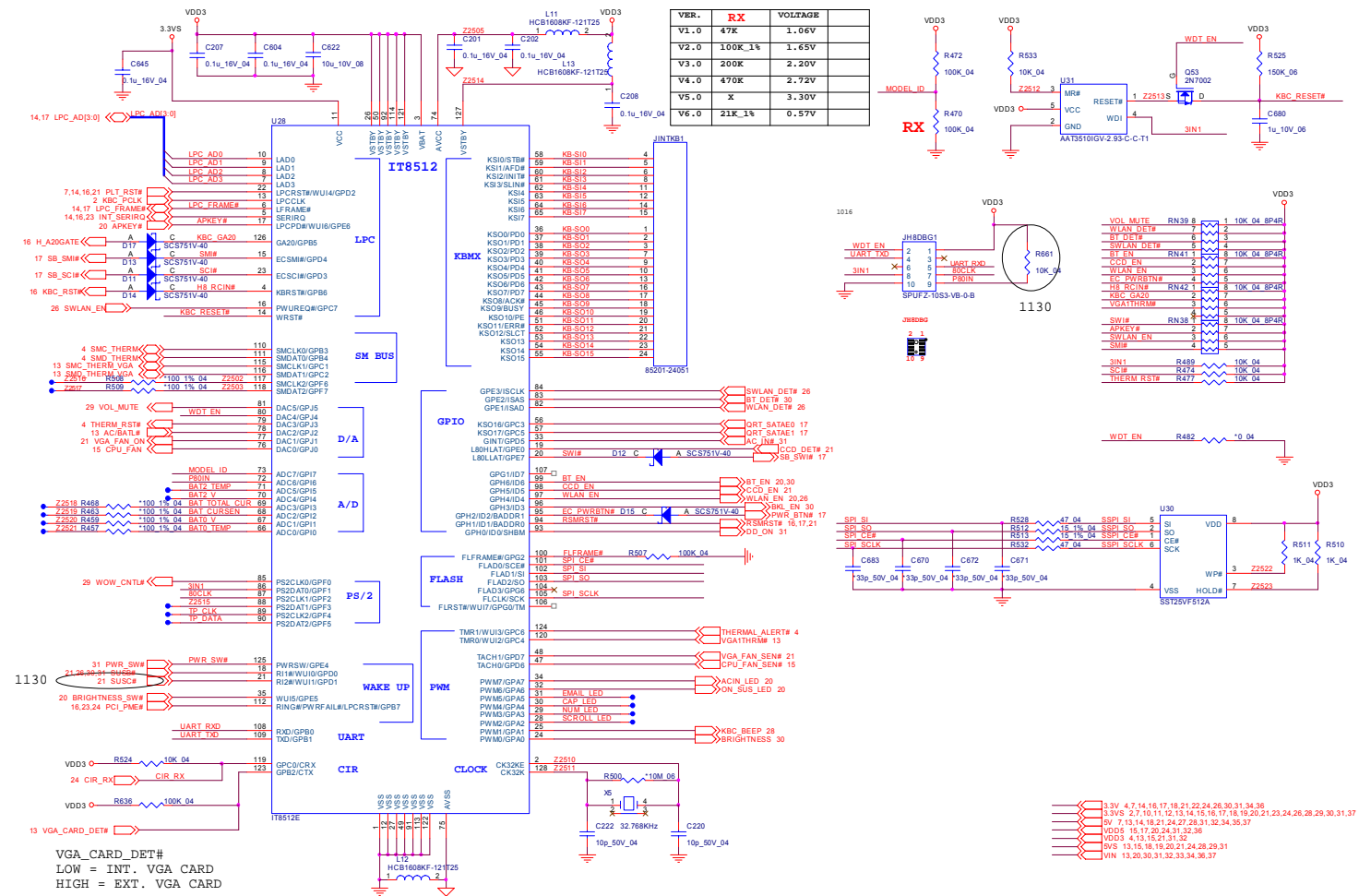
B.Schematic Diagrams

Schematic Diagrams

ITE IT8512

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ITE IT8512

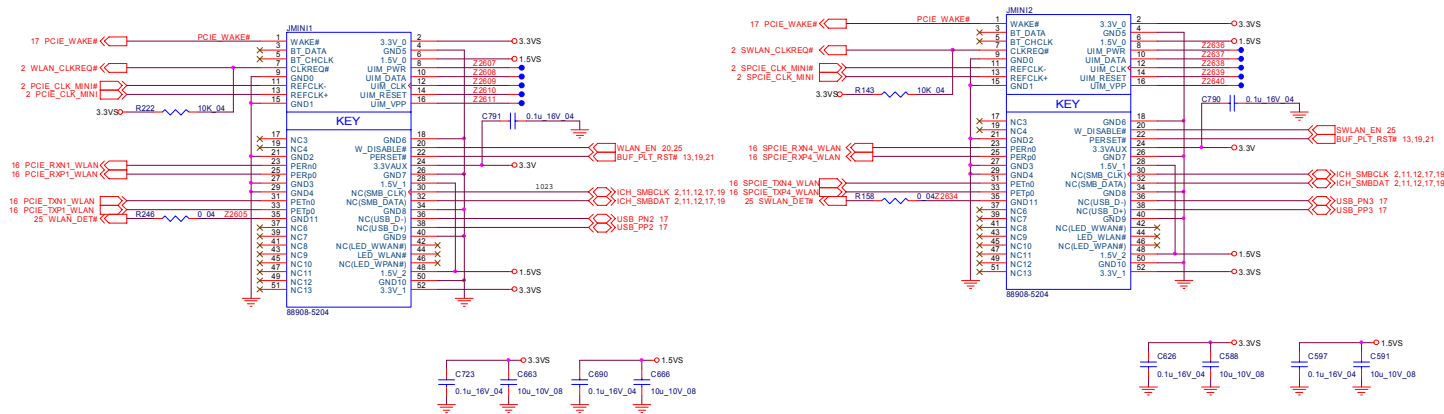
B.Schematic Diagrams



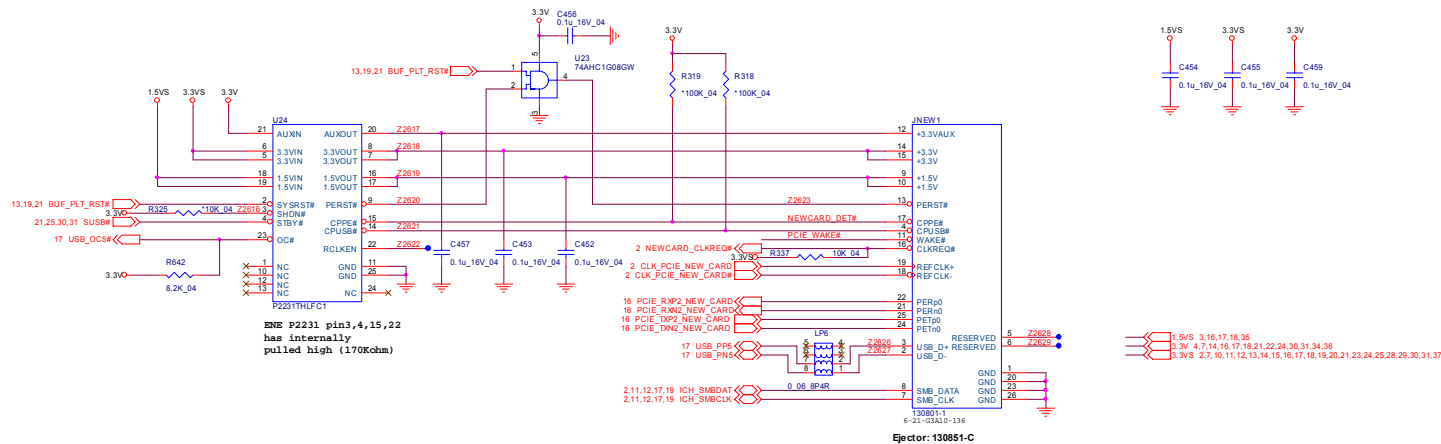
Mini Card, New Card

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Mini Card,
New Card

MINI CARD



NEW CARD

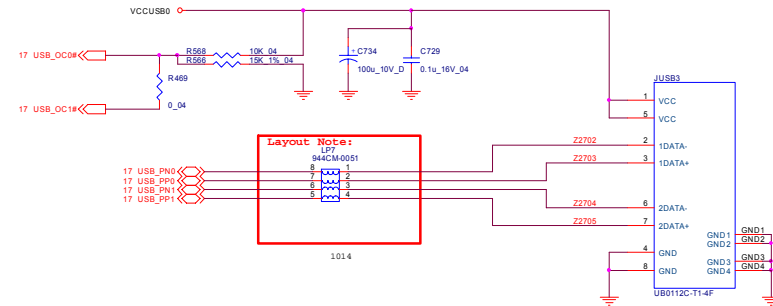
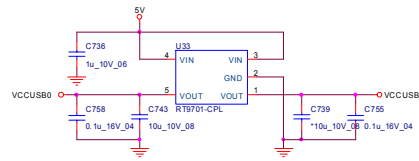


B. Schematic Diagrams

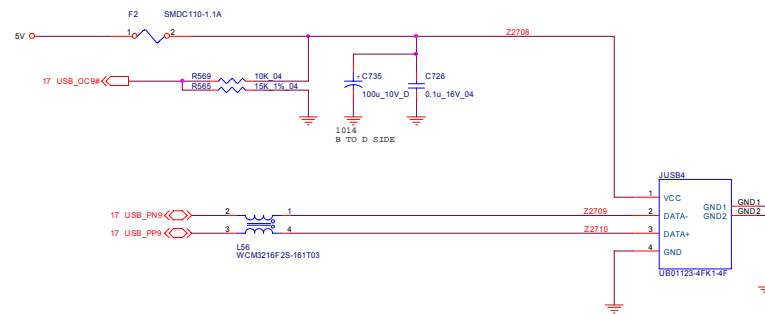
USB 2.0

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USB 2.0

USB 2.0 0,1



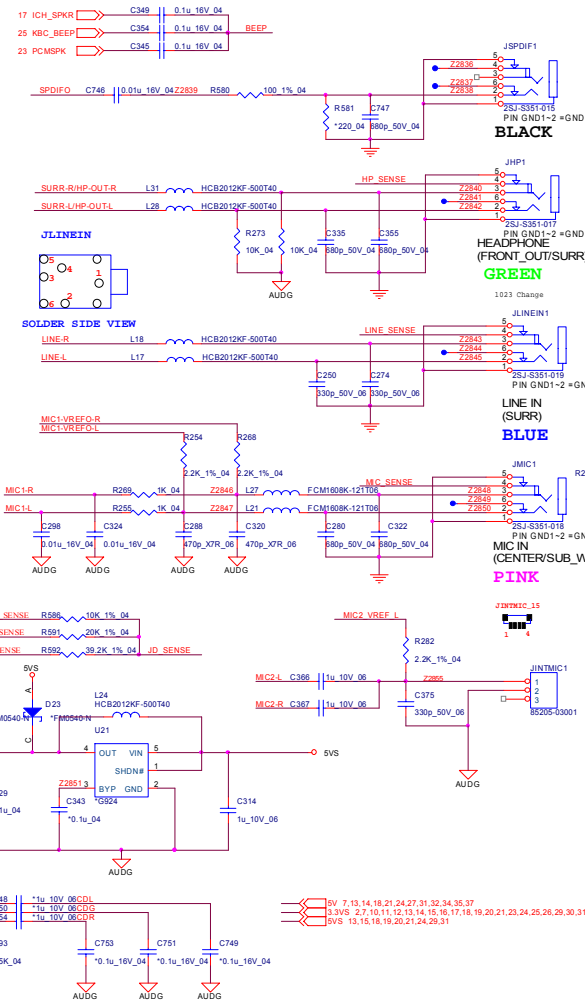
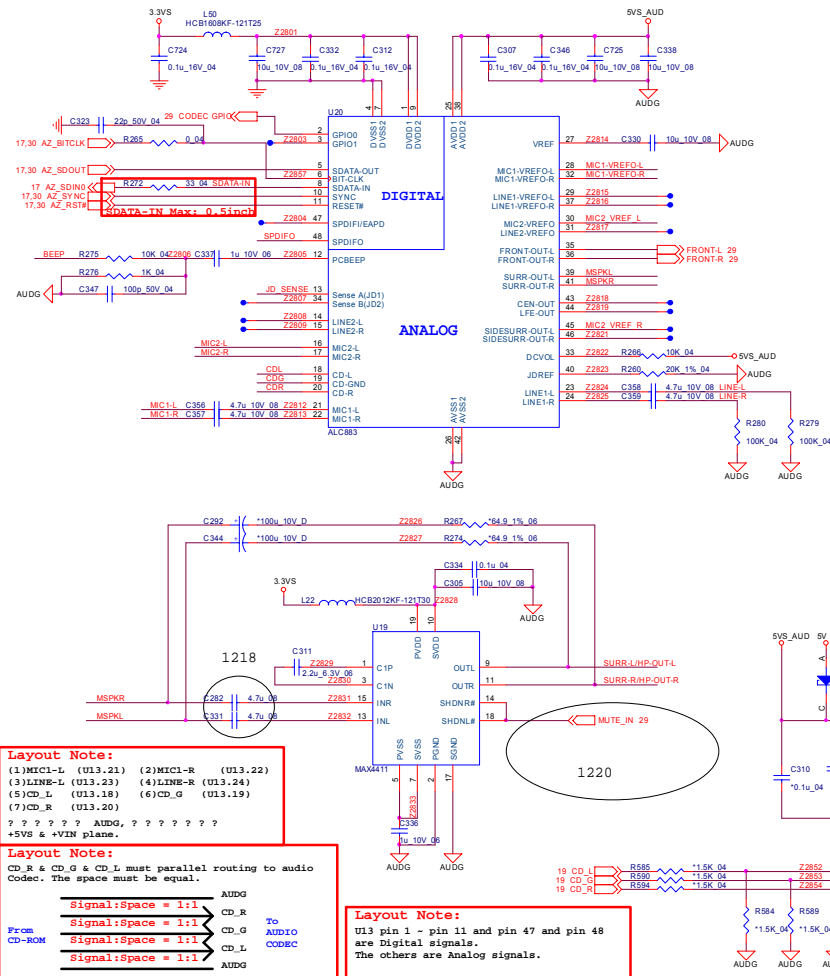
USB 2.0 9



5V 7,13,14,18,21,24,28,31,32,34,35,37

AZALIA Codec ALC883/ALC888

Sheet 28 of 43
AZALIA Codec
ALC883/ALC888

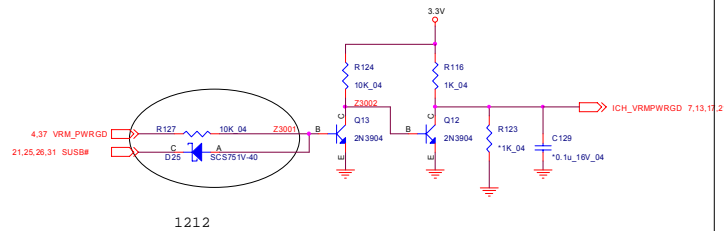


B.Schematic Diagrams

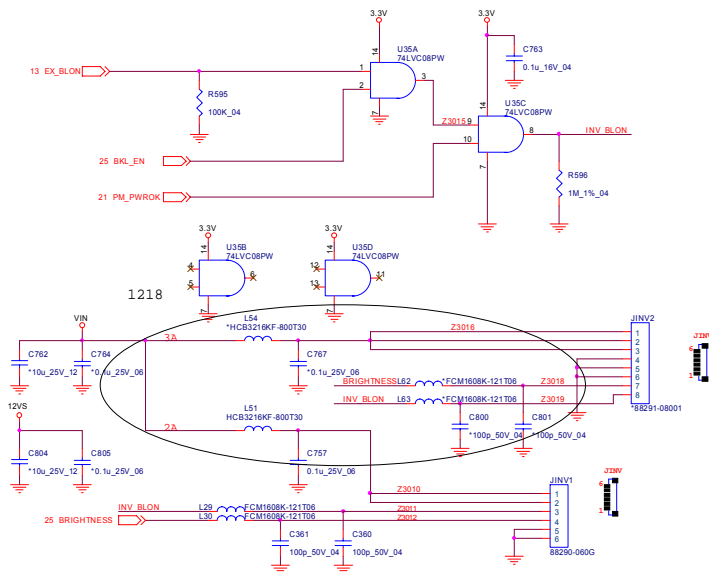
MDC, BT, PWRGD, Inverter Connector

Sheet 30 of 43
MDC, BT, PWRGD,
Inverter Connector

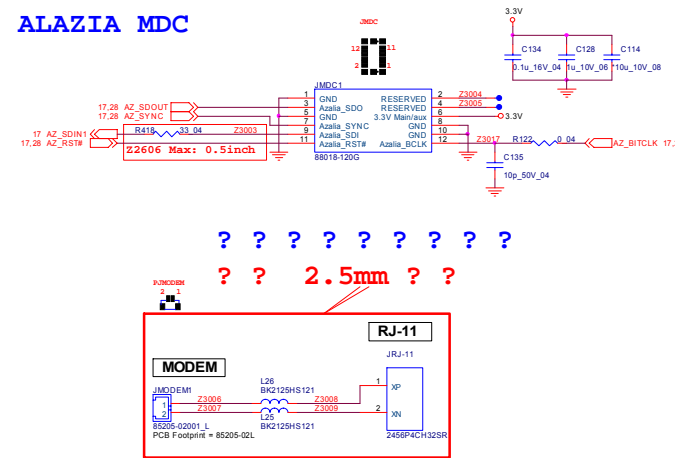
VCORE PWRGD



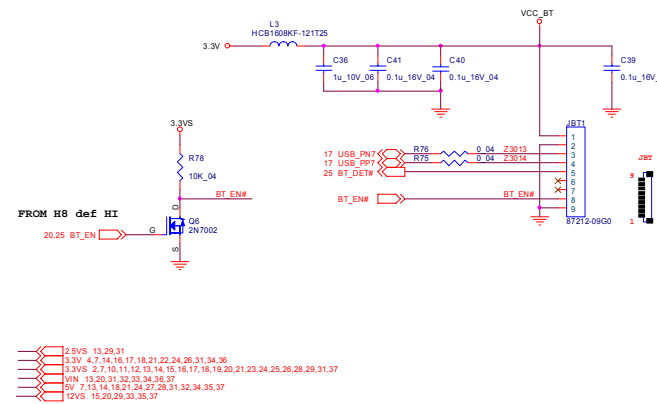
INVERTER CONNECTOR



ALAZIA MDC



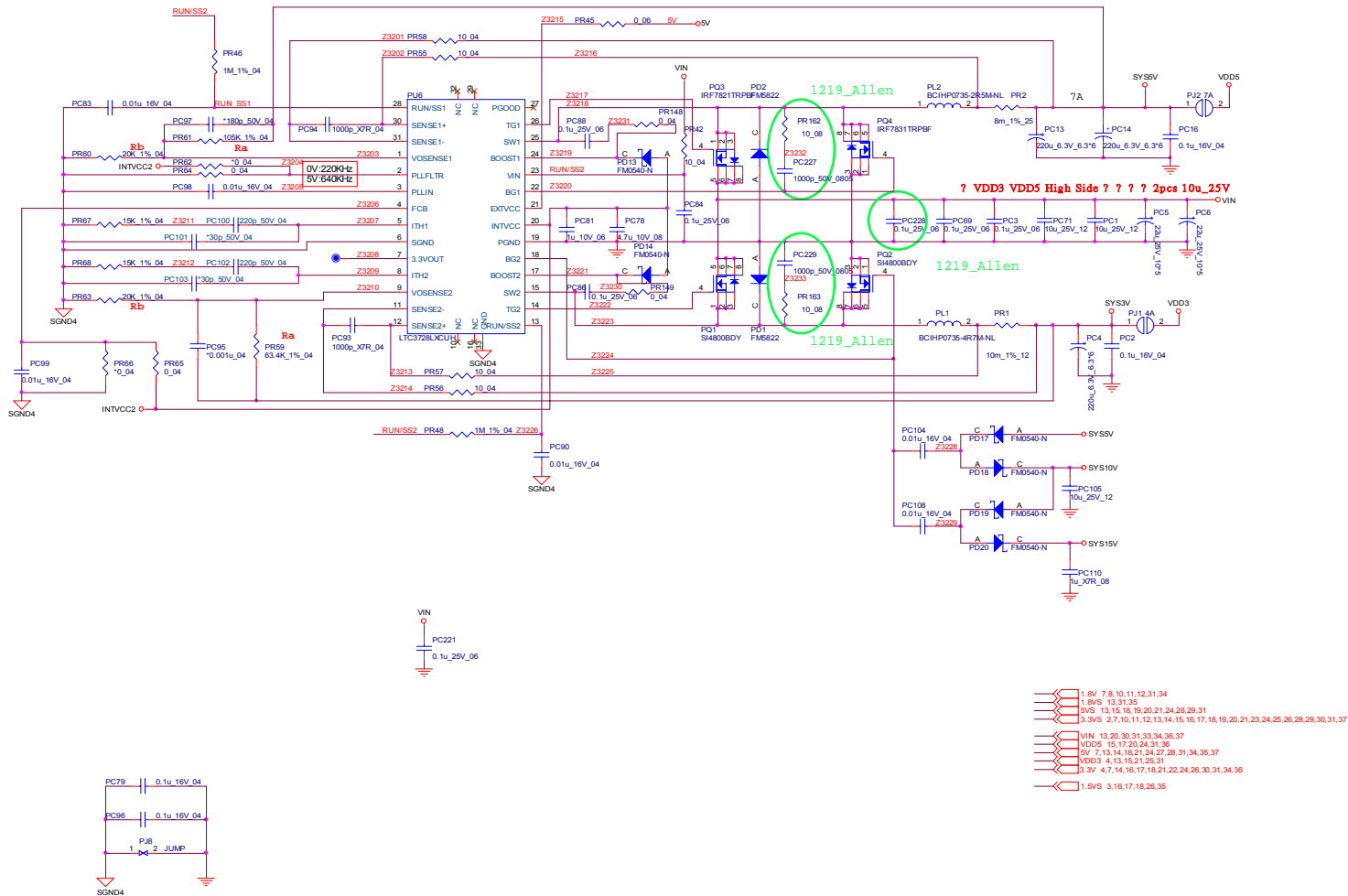
USB BLUETOOTH



3.3V/5V

1130

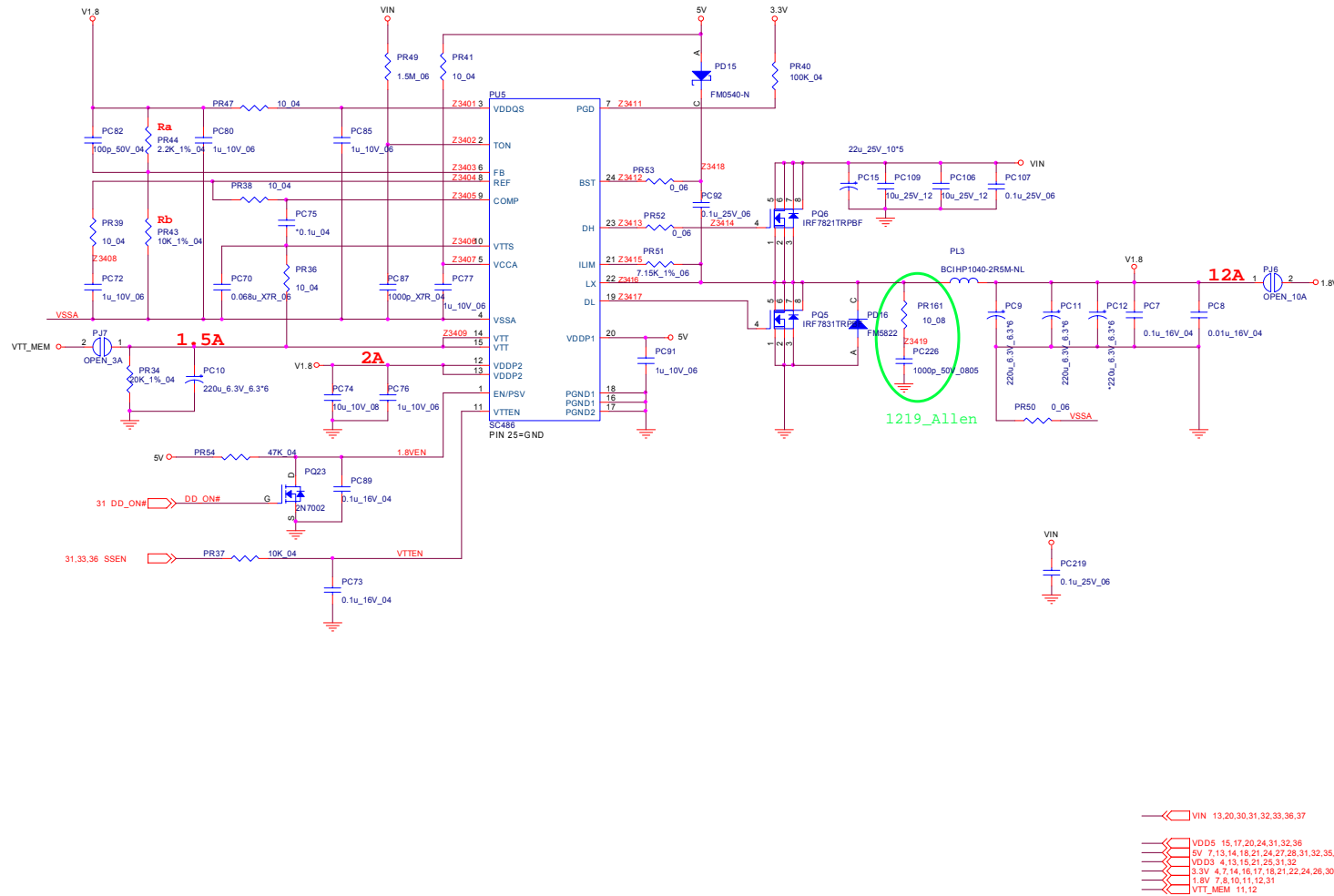
Sheet 32 of 43
3.3V/5V



B. Schematic Diagrams

1.8V/0.9V

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1.8V/0.9V



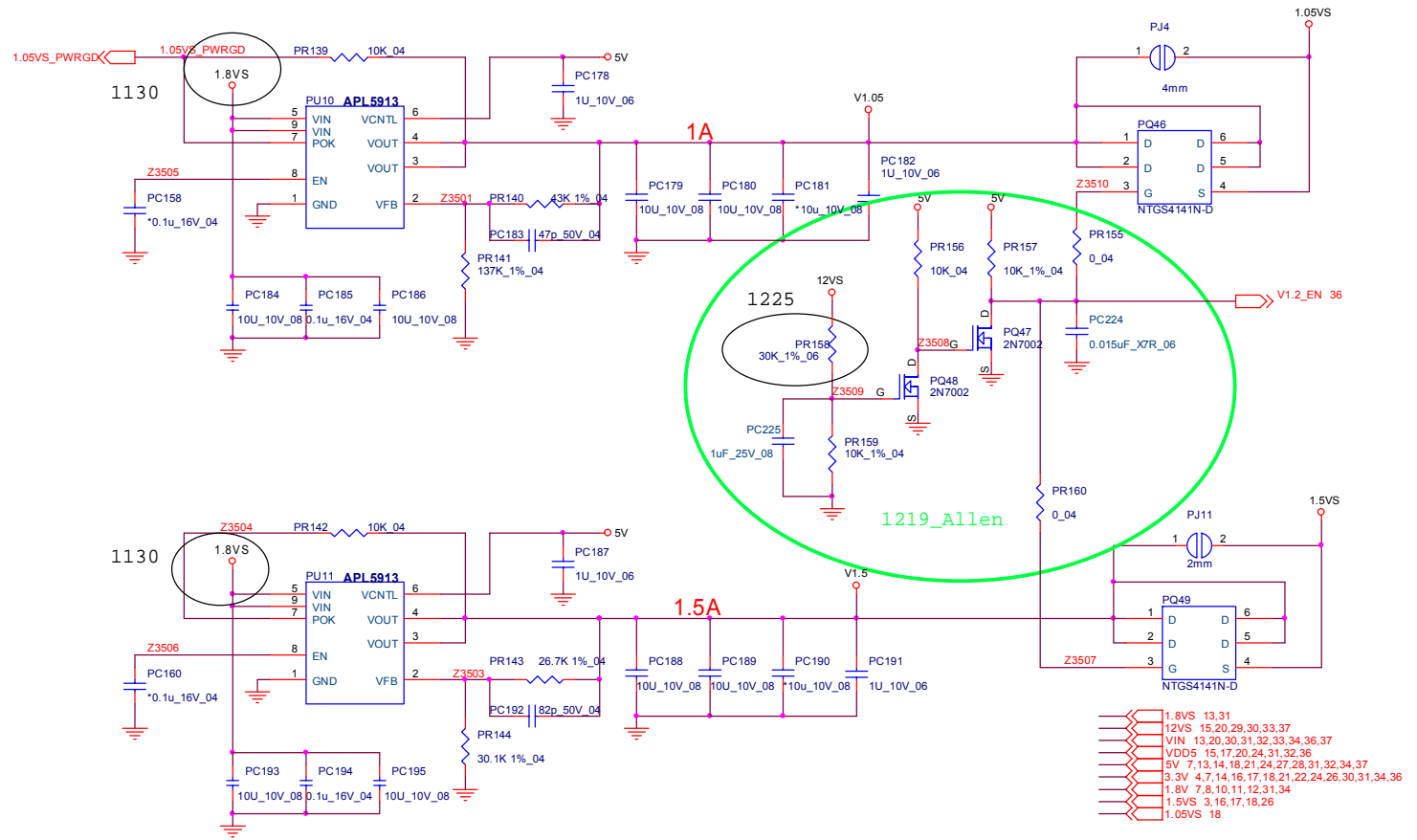
B. Schematic Diagrams

Schematic Diagrams

1.5VS,1.05VS

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1.5VS/1.05VS

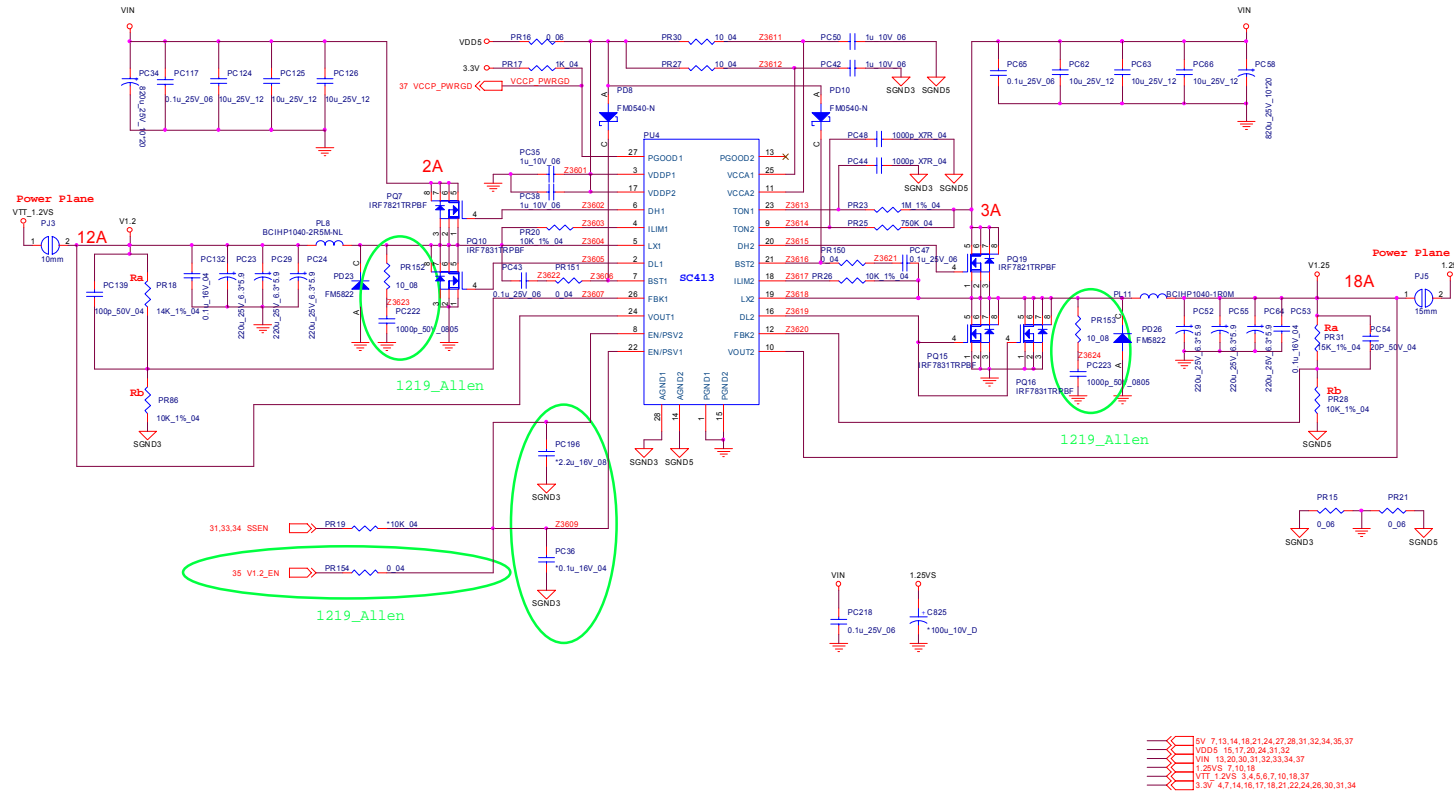
B.Schematic Diagrams



1.2VS/1.25VS

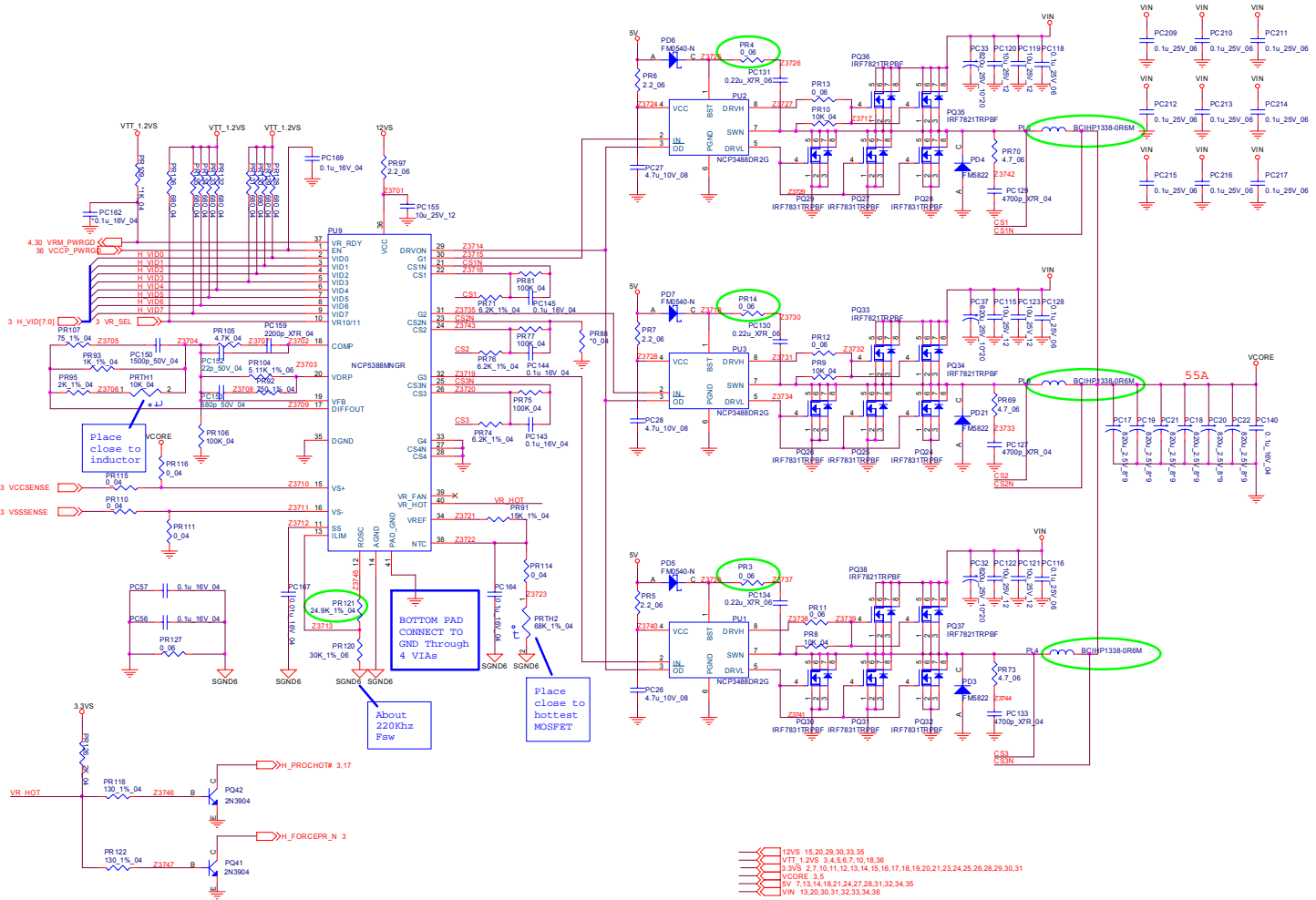
Sheet 36 of 43
1.2VS/1.25VS

B. Schematic Diagrams



VCORE

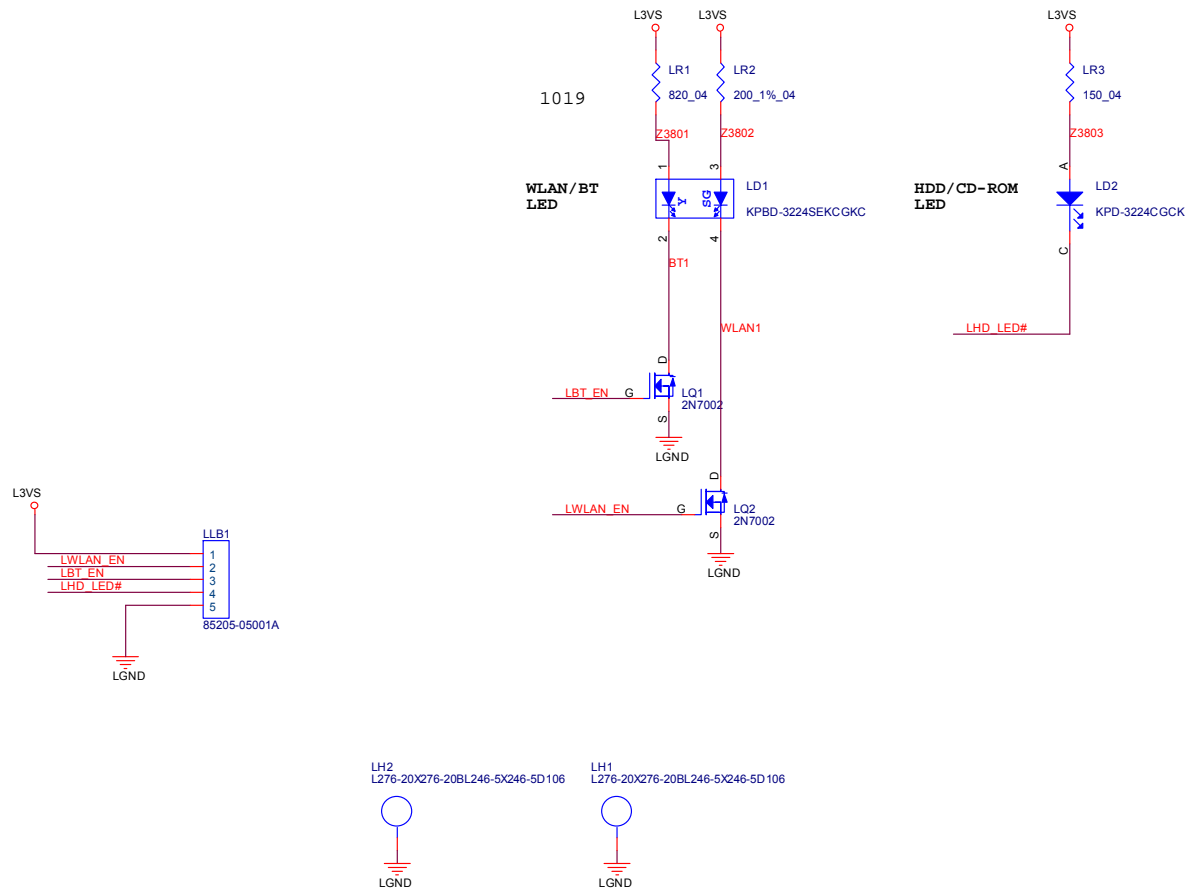
Sheet 37 of 43
VCORE



LED Board

LED BOARD

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LED Board

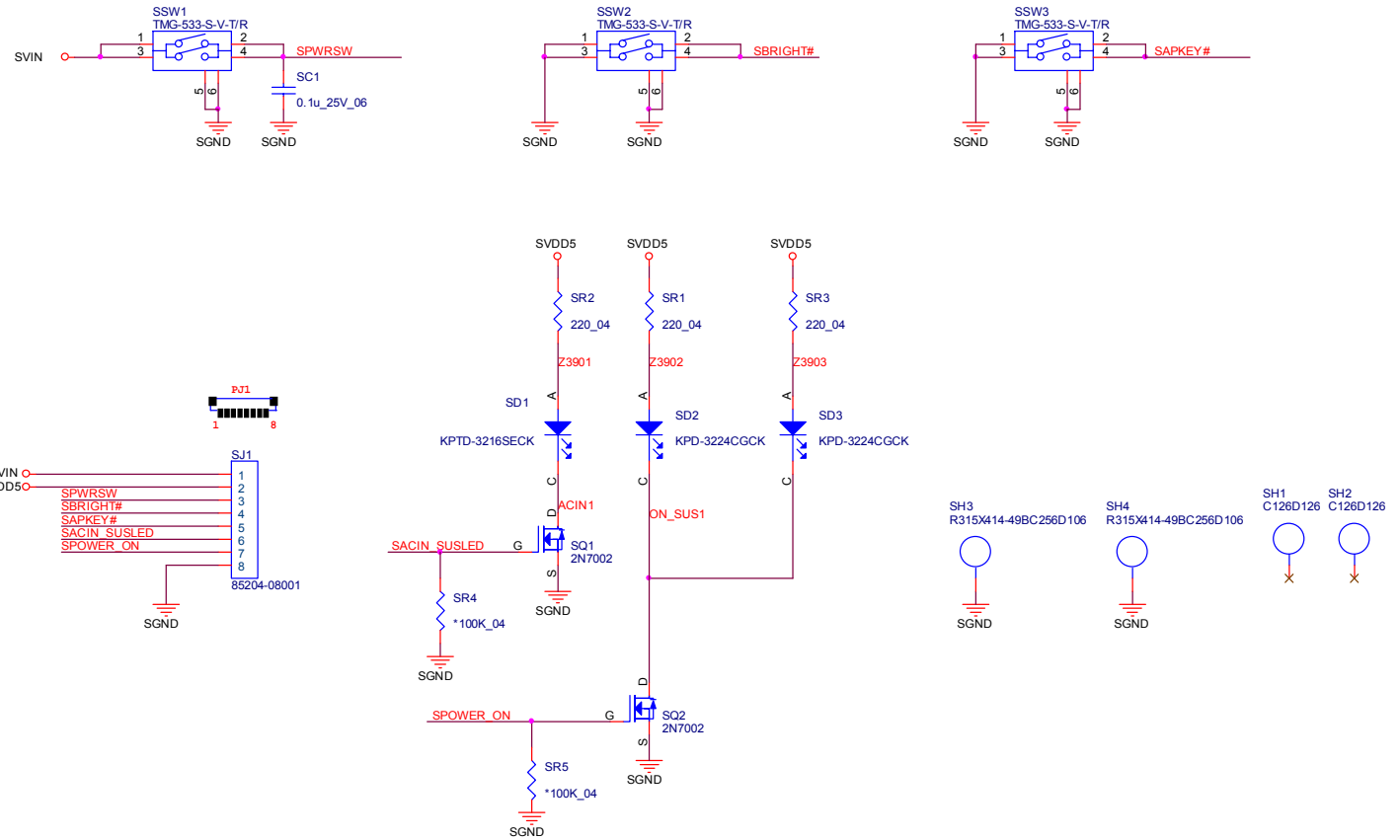


Schematic Diagrams

Power Board

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Power Board

POWER BOARD

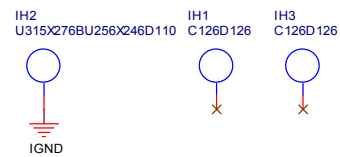
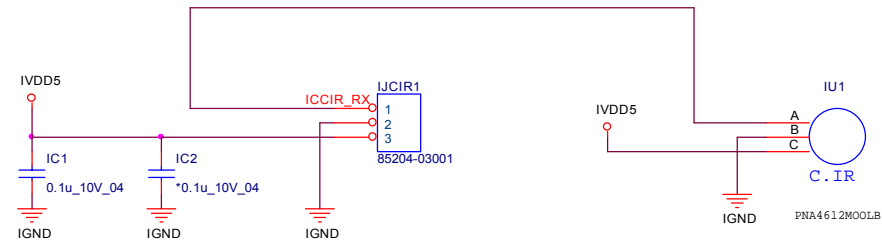


B.Schematic Diagrams

CIR Board

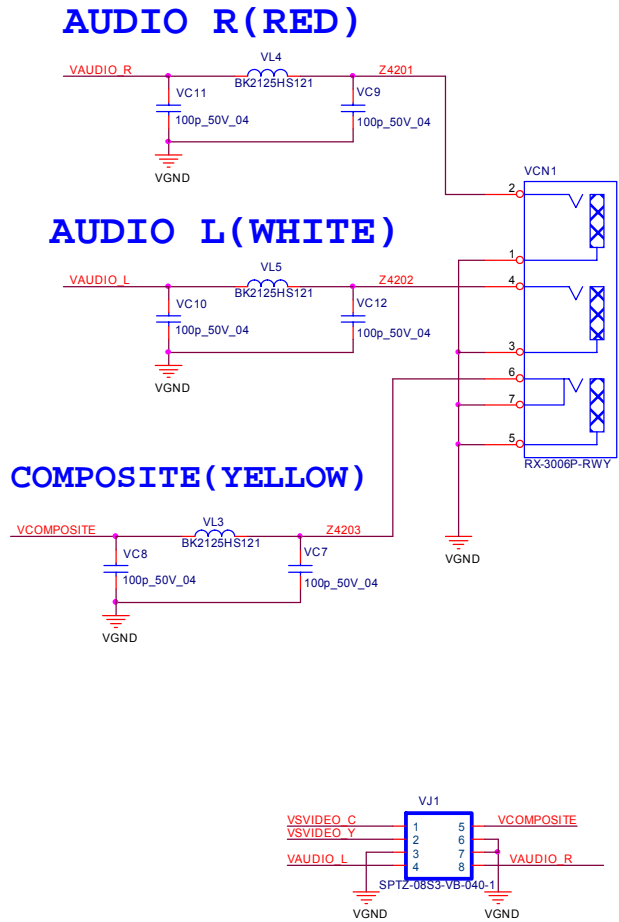
Sheet 40 of 43
CIR Board

CIR BOARD

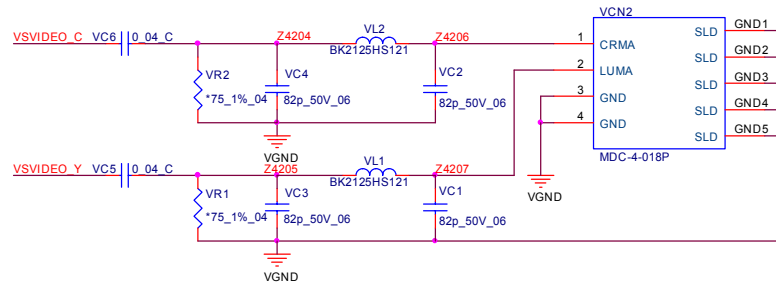


Video Connector Board

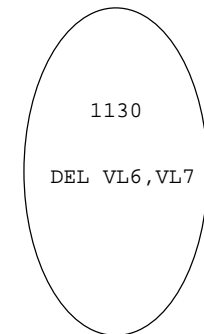
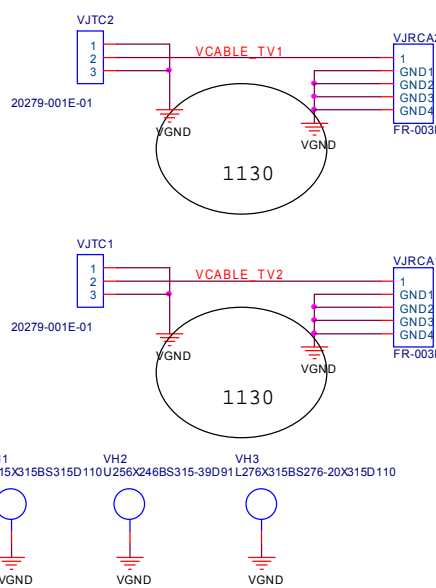
Sheet 42 of 43
Video Connector Board



VIDEO IN



TV ANTENNA

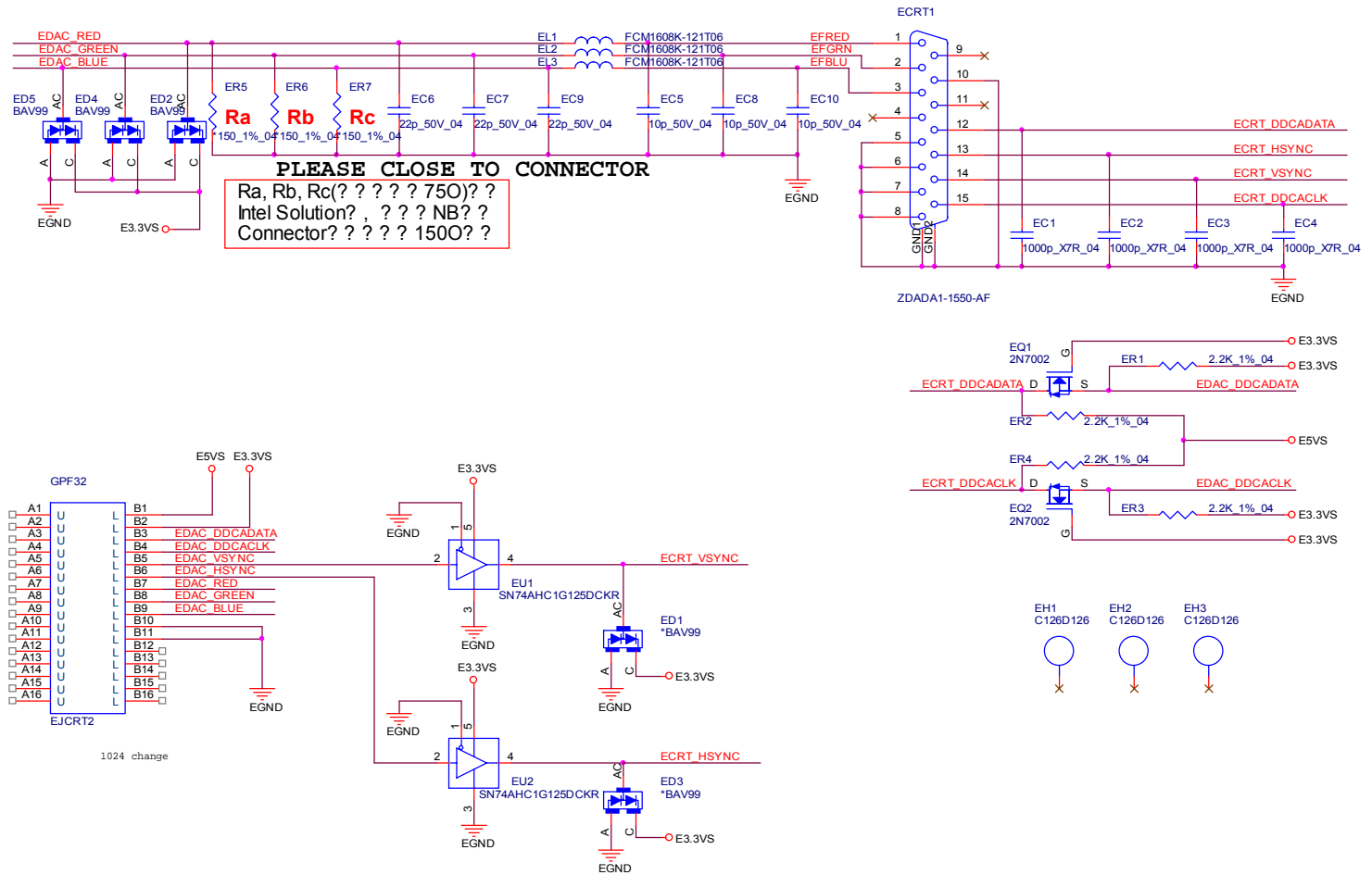


B. Schematic Diagrams

CRT Connector Board

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CRT Connector
Board

CRT



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