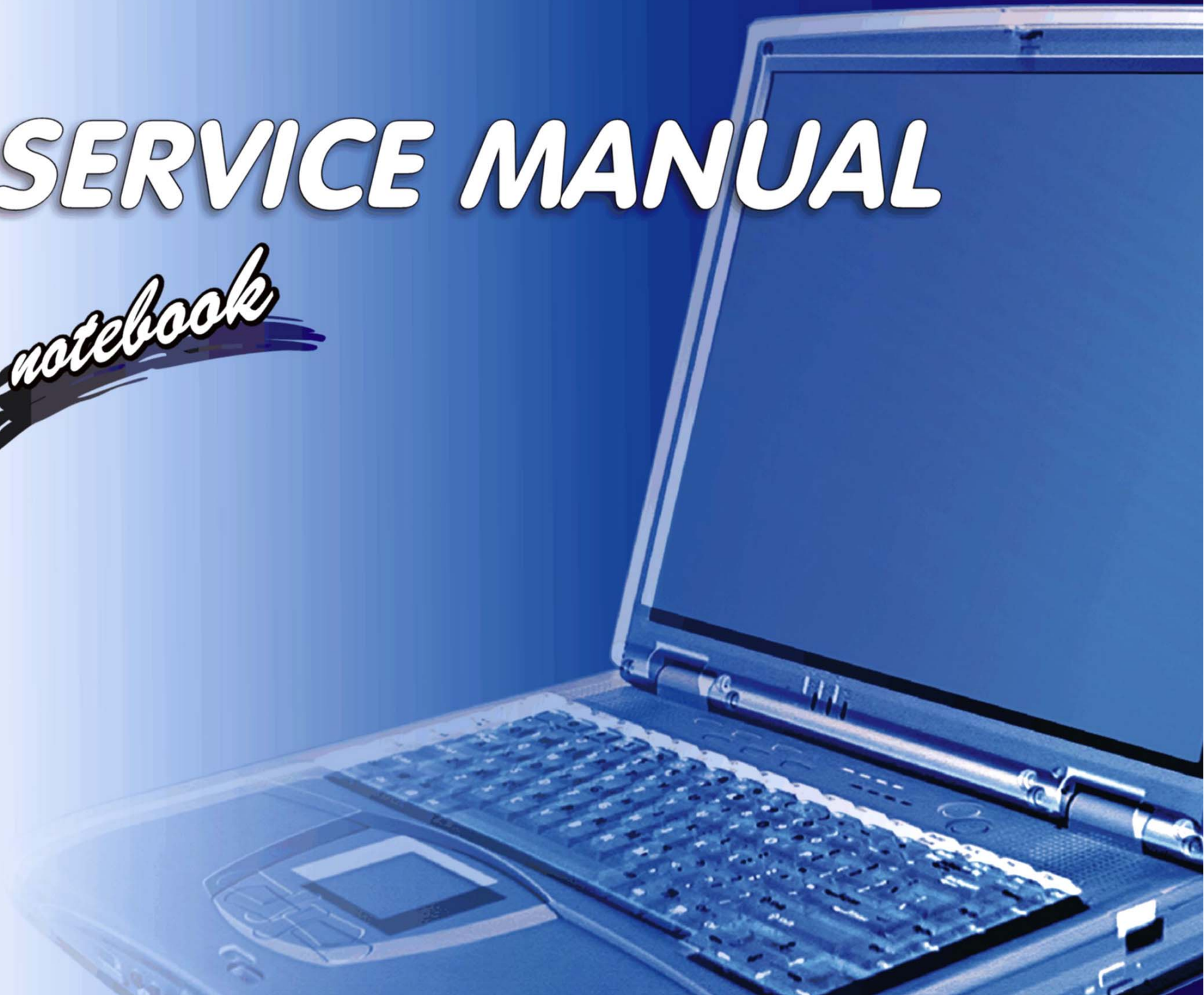# SERVICE MANUAL

notebook

Notebook Computer

8880

Service Manual

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July 2002

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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 notebook PC.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.
Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.
Appendix A, Part Lists
Appendix B, Schematic Diagrams

Related Documents

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

<u>User's Manual on CD</u>
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

1: Introduction

Overview

This manual covers the information you need to service or upgrade the 8880 series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *DOS, Windows 9x, Windows NT 4.0, Windows 2000, Windows XP, OS/2 Warp, UNIX,* etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The 8880 series notebook is designed to be upgradeable. See **"Disassembly" on page 2 - 1** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the "⚠" symbol.

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

System Specifications

Processor

- Intel Pentium 4 Processor - (478-pin) FC-PGA2 package
  1.5/ 1.6 / 1.7/ 1.8/ 1.9/ 2.0/ 2.1/ 2.2/ 2.3/ 2.4 GHz

Core Logic

- Intel® 845 + ICH3

Structure

- Fully PC99 Compliant
- ACPI 1.0B Compliant
- PC2001 Compliant

Security

- Kensington® Lock

Memory

- 64 bit data bus system memory
- Two 200-pin DDR SODIMM sockets, supporting DDR SDRAM SODIMM (2.5V) - DDR200 or DDR266 compliant
- Expandable memory up to 1GB (128/256/512MB SODIMM Modules)

BIOS

- One 256KB Flash ROM
- Insyde BIOS with smart battery
- Plug and Play (1.0a), ACPI 1.0B

LCD

- 15.0" **OR** 15.7" 1280 x 1024 SXGA TFT
- 15.0" 1600 x1200 UXGA TFT

Display

- 4 * UltraAGP™
- 64MB DDR graphic memory on board
- 128-bit 2D/3D graphics engine
- Motion compensation and IDCT for DVD content playback accelerator
- Fully DirectX 6 compliant graphics engine
- CRT resolution up to 1920*1200 * 16M

Storage

- One fixed FDD

- One changeable 2.5" 9.5mm primary HDD

- Changeable primary drive (Bay One) for one of the following:
    DVD-ROM (12.7mmH)
    24 * CD-ROM
    24 * CD-RW
    Combo Drive (DVD-ROM + CD-RW)

- Built-in modular drive (Bay Two) for one of the following:
    DVD-ROM (12.7mmH)
    24 * CD-ROM
    24 * CD-RW
    Combo Drive (DVD-ROM + CD-RW
    3rd HDD
    IP sharing module

- Changeable drive (Bay Three) for one of the following:
    2nd HDD (optional)
    TV-Tuner (optional)

- One portable MP3 player (optional)

Audio

- AC'97 2.2 compliant interface
- Compatible with Sound-Blaster PRO™ 16
- S/PDIF Digital output (5.1 CH) for DVD content and Stereo Audio
- Built-in microphone
- Audio DJ
- Advanced Wavetable Synthesizer
- 2 built-in speakers
- Virtual AC3
- Full Duplex
- Direct Sound™ 3D Accelerator

Keyboard

- "Win Key" keyboard including a numeric keyboard
- Built-in 3 instant keys, www, email, and player

PC Card

- Two type II PCMCIA 3.3V/5V sockets, OR one type III PCMCIA 3.3V/5V socket (no Zoomed Video support)

Interface

- Built-in TouchPad (PS/2)
- Four USB ports
- One IEEE 1394 port
- One S-Video-Out jack for TV output
- One S-Video-In jack
- One parallel port (LPT1), supporting ECP / EPP 1.7 and 1.9
- One COM port
- Fast Infrared (FIR) file transfer IrDA 1.1
- One external CRT monitor
- One external keyboard/mouse (through Y cable) PS/2 port
- One line-in jack
- One microphone jack
- One Sony Memory Stick™ socket
- One RJ-11 jack for 56k MDC modem
- One RJ-45 jack for 100M/10M LAN
- One S/PDIF out port
- DC-in jack

Communication

- Wireless Infrared transfer IrDA 1.1, 1cm~1M operating distance, 4Mbps FIR
- 10/100Mb Ethernet LAN built-in
- 802.11b Wireless LAN, Mini-PCI interface (optional)
- 56K MDC modem V.90 compliant (V.92 software driver upgradeable)
- IP sharing module for xDSL or Cable Modem (optional)

Power Management

- Supports ACPI v1.0B
- Supports APM v1.2
- Soft Off by system power button
- Supports suspend to disk
- Battery low suspend
- Resume from alarm
- Close-cover switch

1.Introduction

Power

- Full Range 120 watts AC adapter - AC in 100~240V, 47~63Hz
- Supports Smart Lithium-Ion battery 12 cells

Indicators

- LED indicator (HDD, power status, Num Lock, Caps Lock, Scroll Lock, AC-In, battery charging, e-mail)
- Audio DJ control display (power, MP3, Audio, Play/Pause, FWD, RWD, Stop, Volume+, Volume-, EQ)

Environmental Spec

- Temperature   Relative Humidity
- Operating: 5°C~ 35°C   Operating: 20% ~ 80%
- Non-Operating: -20°C ~ 60°C   Non-Operating: 10% ~ 90%

Physical Dimensions

- 329 (w) x 299 (d) x 54.5 (h) mm

Weight

- 4.9 kg with 12-cell Lithium-Ion battery

Optional

- DVD-ROM Drive (12.7mmH)
- CD-RW Drive (12.7mmH)
- Combo Drive (DVD-ROM and CD-RW, 12.7mmH)
- Portable MP3 player
- Mini PCI Wireless LAN module
- Software DVD player
- IP sharing module
- TV-Tuner module
- Fingerprint ID

External Locator - Top Views

Figure 1
Top Views
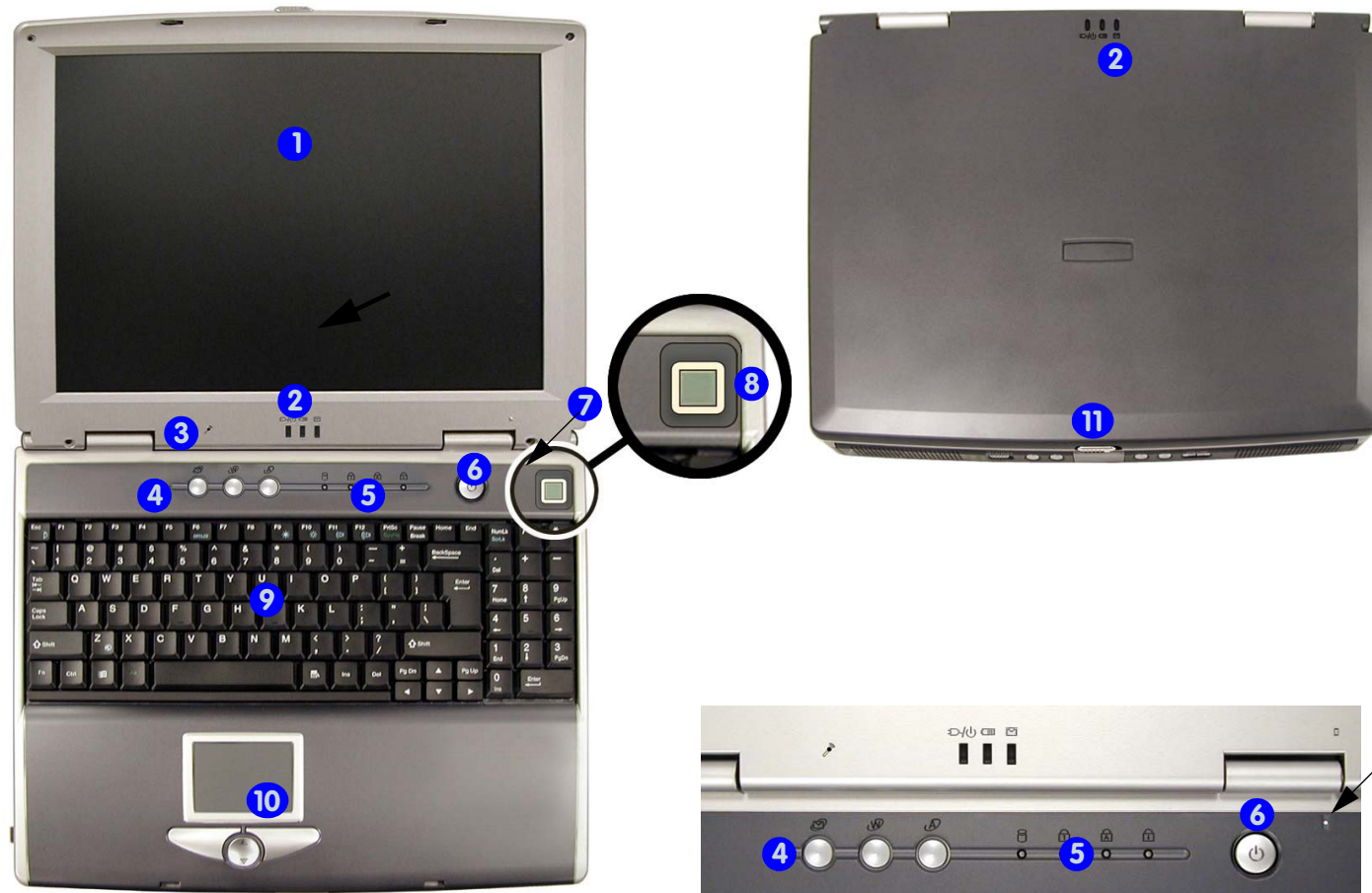
1. LCD
2. LED Power, Battery & E-Mail Status Indicators
3. Built-In Microphone
4. Hot-Key buttons
5. LED Status Indicators
6. Power Button
7. Close Cover Switch
8. Fingerprint ID (optional)
9. Keyboard
10. TouchPad and Buttons
11. LCD Latch

1.Introduction

External Locator - Front View & Left Side View

Figure 2
Front View

1. LCD Latch
2. Audio "DJ" CD Player Control Panel On/Off Switch
3. Previous Track
4. Next Track
5. LCD
6. Play/Pause
7. Stop
8. Volume Down
9. Volume Up
10. Speakers
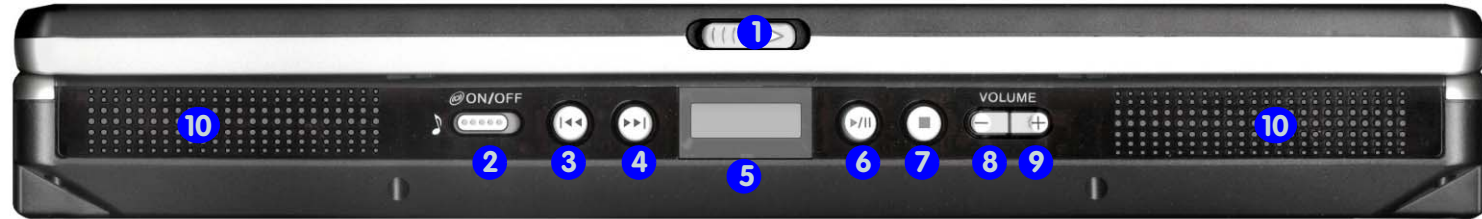
Figure 3
Left Side View

1. S/PDIF Out Port/ Microphone-In Jack
2. Line-In Jack
3. Headphone-Out Jack
4. Infrared Transceiver
5. Sony Memory Stick™ Port
6. PC Card Slot Eject Buttons
7. PC Card Slot
8. Floppy Disk Drive
9. Primary Drive Bay (1)
10. Modular Drive Bay (2)

External Locator - Right Side & Rear Views
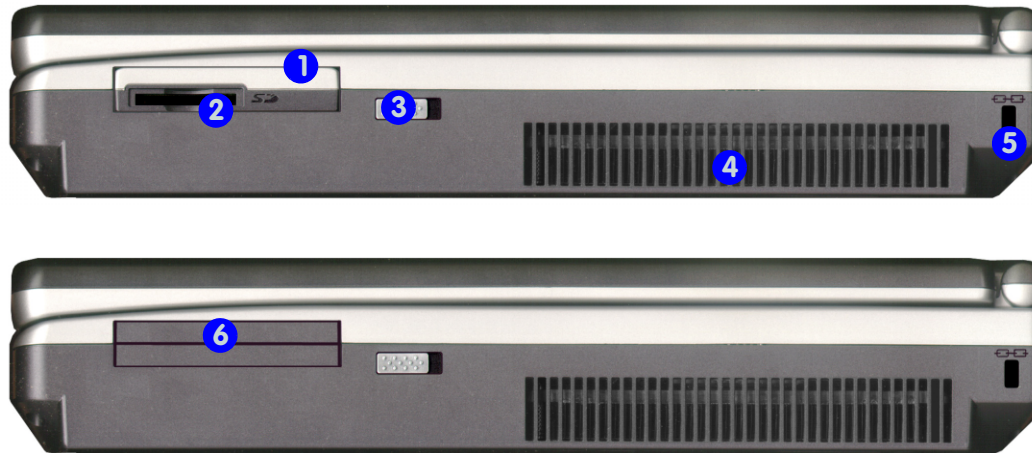
Figure 4
Right Side View

1. MP3 Player (Optional)
2. MP3 Player SD/ MMC Slot
3. MP3 Player Release Switch
4. Vent
5. Kensington Lock
6. MP3 Player Slot (no MP3 Player installed)

Figure 5
Rear View

1. DC-In Jack
2. 4 * USB Ports
3. S-Video-In Port (Optional)
4. S-Video-Out Port
5. External Monitor (CRT) Port
6. Coaxial TV Antenna Input (Optional)
7. Serial Port
8. IEEE 1394 Port
9. Parallel Port
10. PS/2 Type Port
11. RJ-45 LAN Jack
12. RJ-11 Phone Jack

1.Introduction

Figure 6
Bottom View

1. Vent/Fan Outlets
2. CPU Cover
3. Battery (the primary HDD is located under the battery)
4. Primary Hard Disk
5. Changeable Drive Bay 3 (for TV Tuner or HDD)
6. Modular Drive - Bay 2
7. Primary Drive - Bay 1

External Locator - Bottom View

1.Introduction
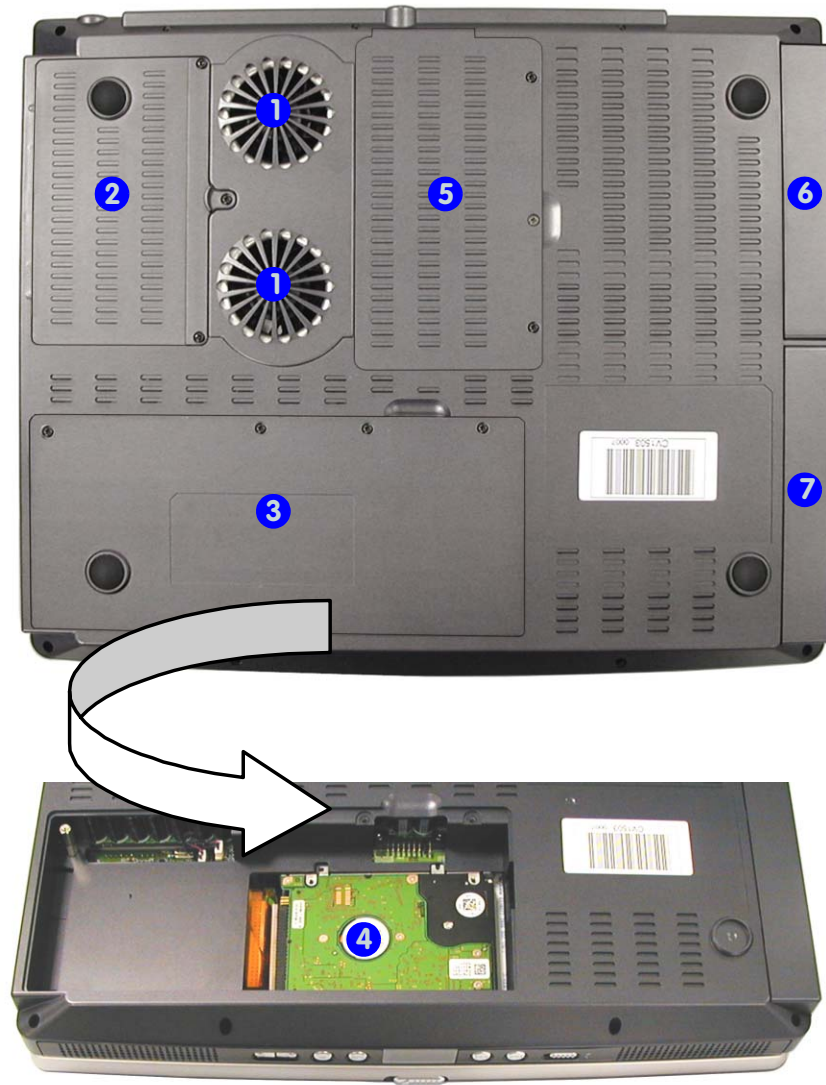
2: Disassembly

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.

Component Parts

Information

Warning
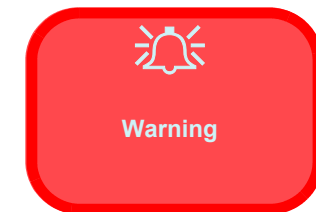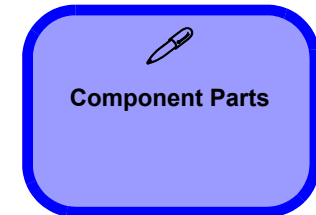
2.Disassembly

NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

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

Connections

Connections within the computer are one of four types:

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

Maintenance Precautions

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

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

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.
Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Power Safety Warning

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

2.Disassembly

Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

To remove the Battery:

1. Remove the battery   page 2 - 5

To remove the Bay One Device:

1. Remove the battery   page 2 - 5
2. Remove the Bay One device   page 2 - 6

To remove the Bay Two Device:

1. Remove the battery   page 2 - 5
2. Remove the Bay Two device   page 2 - 7

To remove the Primary HDD:

1. Remove the battery   page 2 - 5
2. Remove the primary HDD   page 2 - 8

To remove the HDD in Bay Two:

1. Remove the battery   page 2 - 5
2. Remove the HDD in Bay Two   page 2 - 9

To remove the HDD in Bay Three:

1. Remove the battery   page 2 - 5
2. Remove the HDD in Bay Three   page 2 - 10

To remove the TV Tuner Module:

1. Remove the battery   page 2 - 5
2. Remove the TV Tuner Module   page 2 - 11

To remove the Keyboard:

1. Remove the battery   page 2 - 5
2. Remove the keyboard   page 2 - 12

To remove the System Memory:

1. Remove the battery   page 2 - 5
2. Remove the keyboard   page 2 - 12
3. Remove the memory   page 2 - 13
4.

To remove the CPU:

1. Remove the battery   page 2 - 5
2. Remove the CPU   page 2 - 14

Removing the Battery

1. Turn the computer **OFF** and turn it over.
2. Remove screws **1** - **4** in **Figure 2 - 1a**.
3. Apply gentle pressure at point **5** to push the battery up and out of the computer.

a.

b.
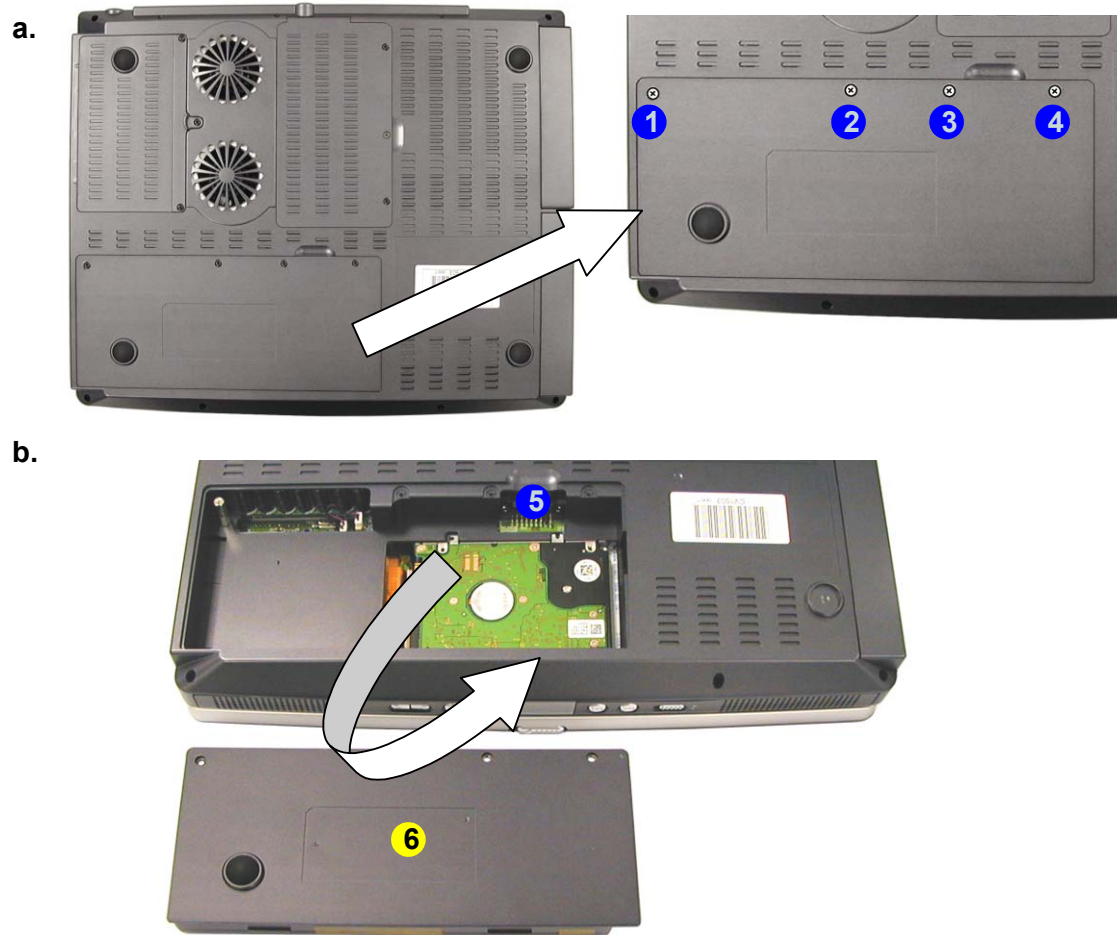
Figure 2 - 1
Battery Removal Sequence

a. Remove the 4 screws.
b. Apply pressure at point 5 to push the battery out.

2.Disassembly

🖉

6. Battery
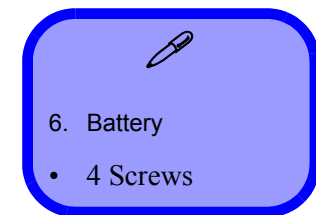
• 4 Screws

Figure 2 - 2
Primary Drive (Bay One) CD Device Removal Sequence

a. Remove the screws from the changeable drive bay cover.
b. Remove screw 5.
c. Push the device out of the computer.

Removing the Primary Drive Bay (Bay One) CD Device

1. Turn the computer **OFF**, remove the battery () and turn it over.
2. Remove screws ❶ - ❸ in (**Figure 2 - 2a**), then lift the cover off the changeable drive bay ④ and set it aside.
3. Remove screw ❺ (**Figure 2 - 2b**), then gently push the device out of the bay (you may need to use a screwdriver to do this).

a.

b.

c.

5. Drive bay cover
6. CD device
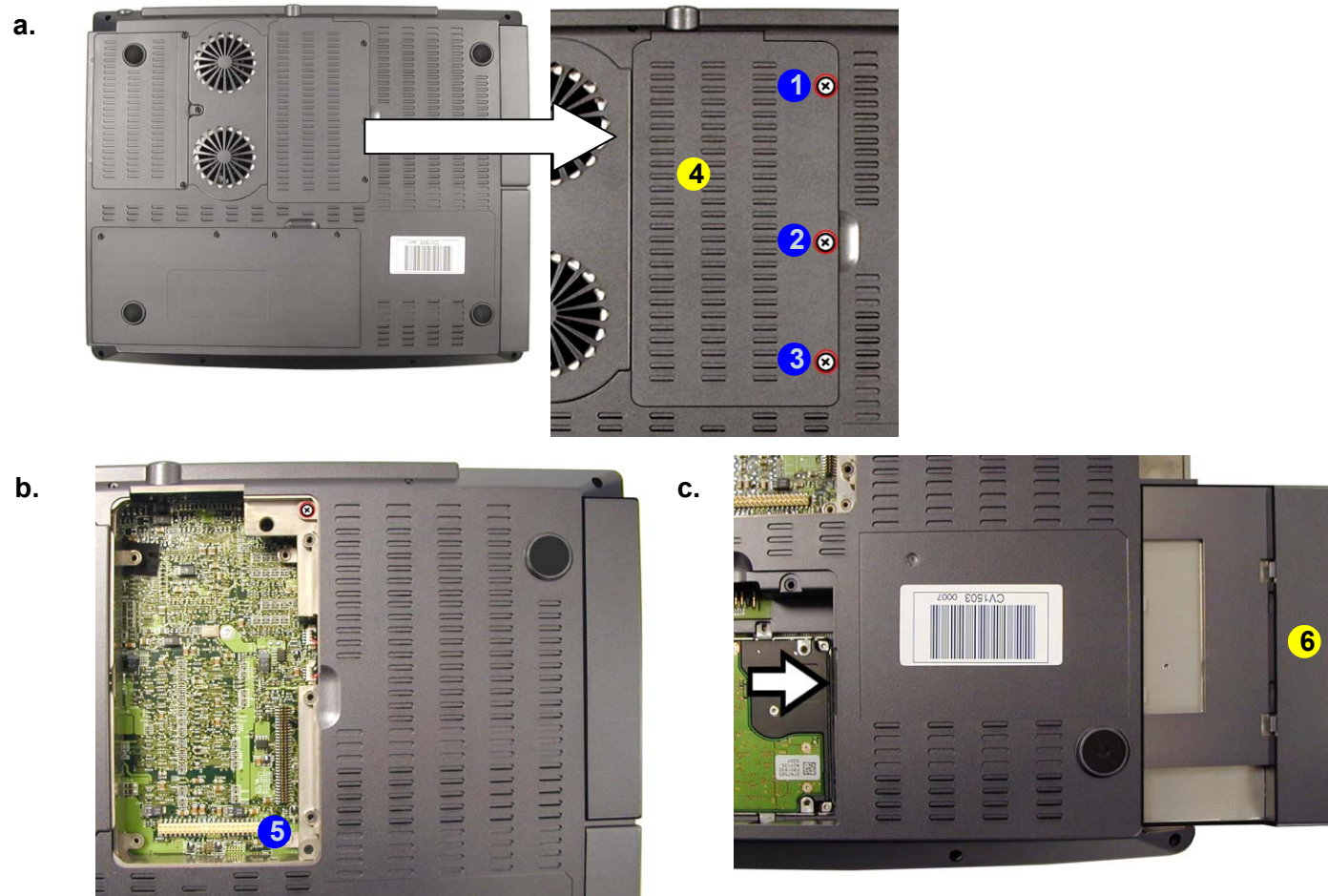
• 4 Screws

Removing the Modular Drive Bay (Bay Two) Device

1. Turn the computer **OFF**, remove the battery (page 2 - 5) and turn it over.
2. Remove screws **1** - **3** in (**Figure 2 - 3a**), then lift the cover off the changeable drive bay **4** and set it aside.
3. Remove screw **5** (**Figure 2 - 3b**), then gently push the device out of the bay (you may need to use a screwdriver).

a.

b.

c.

Figure 2 - 3
Modular Drive (Bay Two) Device Removal Sequence

a. Remove the screws from the changeable drive bay cover.
b. Remove screw 5.
c. Push the device out of the computer.

2.Disassembly

🖉

4. Drive bay cover
6. CD device
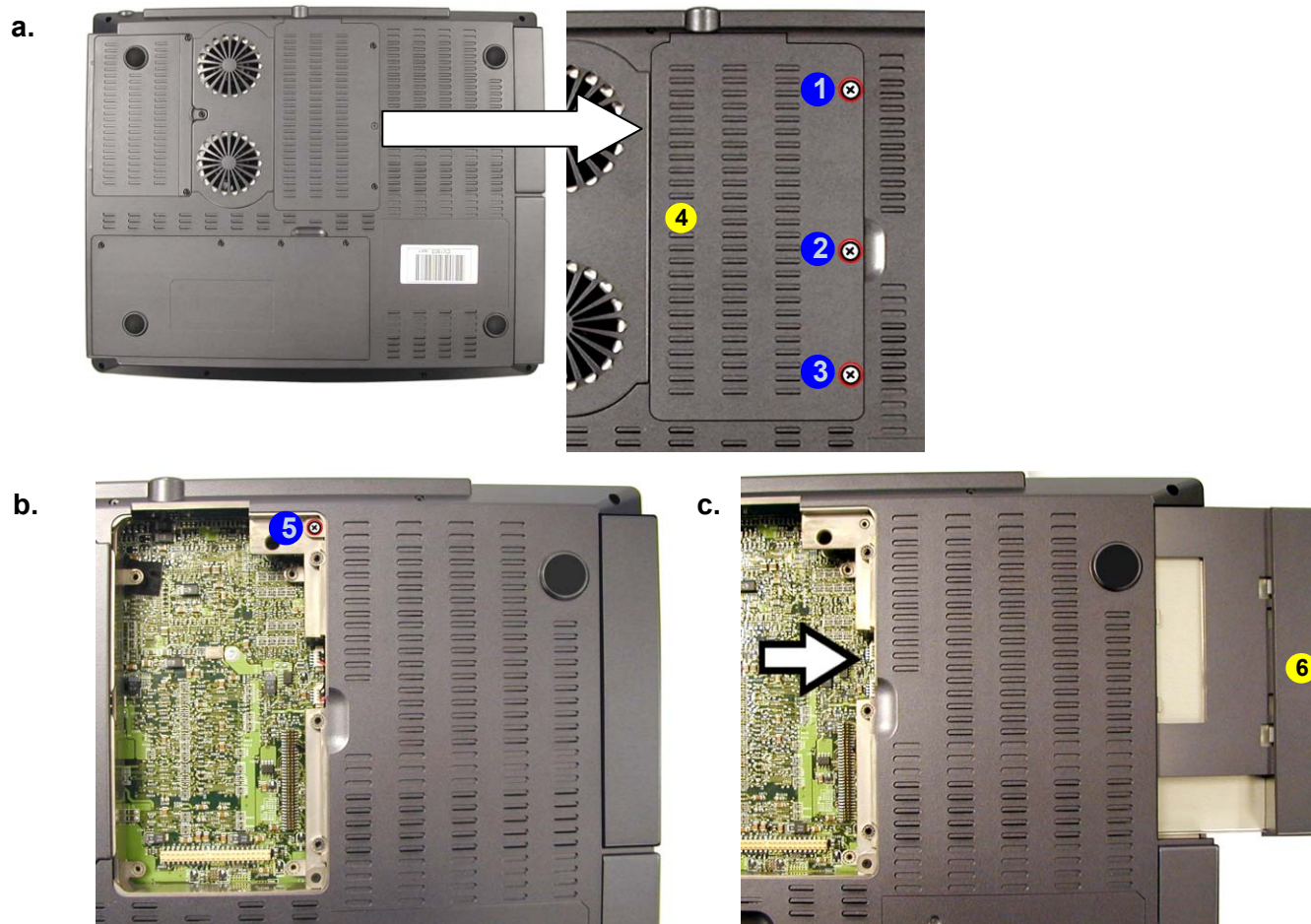
•   4 Screws

Figure 2 - 4

Primary Hard Disk Removal Sequence

a. Remove the 2 screws and release the HDD cable
b. Remove the HDD assembly.
c. Remove the 4 screws and HDD cable.

Removing the Primary Hard Disk

1. Turn the computer **OFF**, remove the battery (page 2 - 5) and turn it over.
2. Remove screws **1** and **2** (**Figure 2 - 4a**) and release the HDD connector cable **3**.
3. Remove the HDD assembly from the bay.
4. Remove screws **5** and **8** (**Figure 2 - 4c**) and the HDD connector cable **3**.

a.

b.

c.
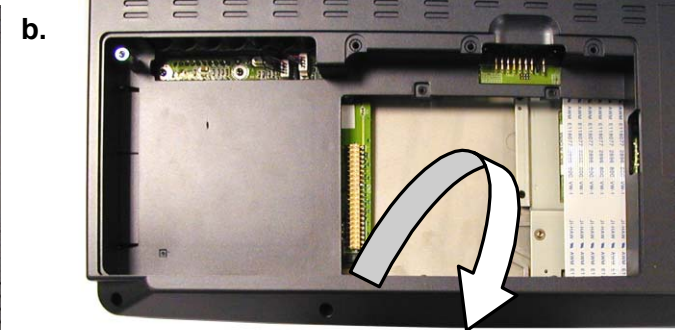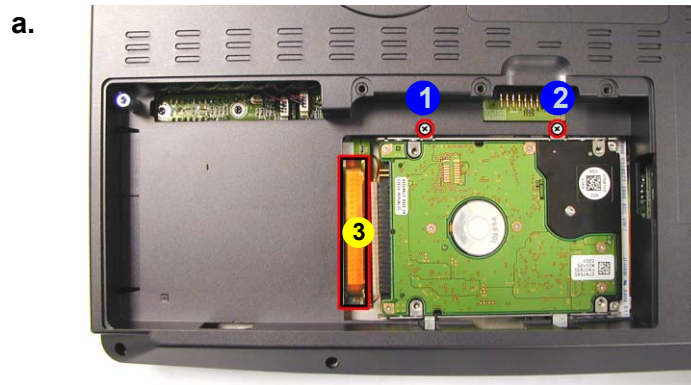
3. HDD cable
4. HDD
9. HDD case

• 6 Screws

HDD Cables

The illustrated HDD cable may differ from the one in your model depending on the configuration purchased.

Be careful not to bend the pins on the hard disk when removing the cable.

Removing the Hard Disk Drive in Bay Two

1. Turn the computer **OFF**, remove the battery (page 2 - 5) and turn it over.
2. Remove screws **1** - **3** (**Figure 2 - 5a**), then lift the cover off the changeable drive bay **4** and set it aside.
3. Remove screw **5** (**Figure 2 - 5b**), then gently push the device out of the bay (you may need to use a screwdriver to do this).
4. Remove screws **6** - **9** (**Figure 2 - 5c**), and disconnect cable **10** (**Figure 2 - 5d**), then take the HDD assembly out of the case.
5. Remove screws **12** - **15** (**Figure 2 - 5e**) from the HDD assembly (note the disk orientation within the brackets).
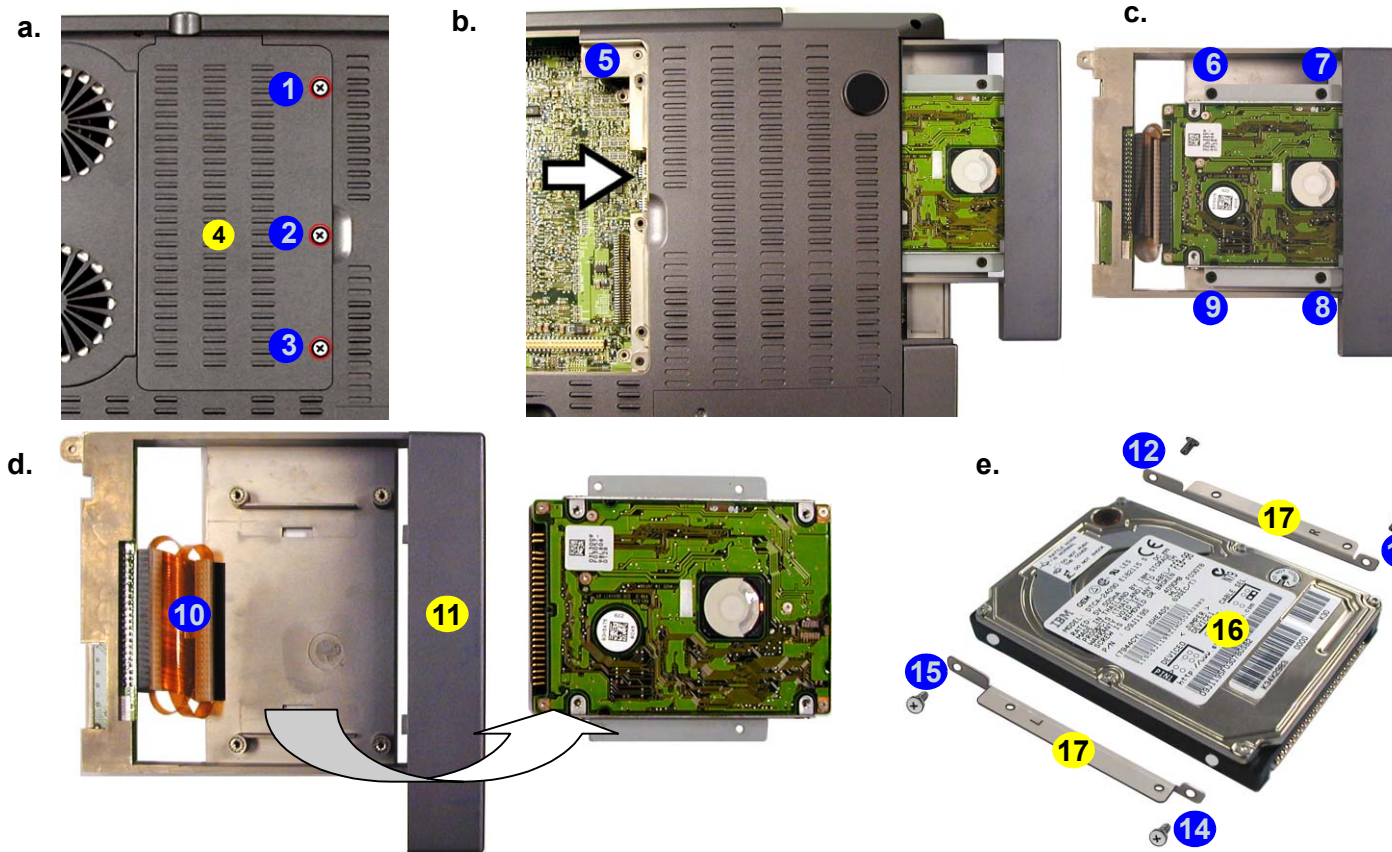
Figure 2 - 5
Bay Two HDD Removal Sequence

a. Remove the screws from the changeable drive bay cover.
b. Remove screw 5 and push the device out of the computer.
c. Remove the 4 screws from the HDD case.
d. Disconnect the cable and remove the HDD assembly.
e. Remove the screws from the assembly brackets.

4. Drive bay cover
11. Drive case
16. HDD
17. Assembly brackets

• 9 Screws

2.Disassembly

Bay Three HDD Removal Sequence

a. Remove the screws from the changeable drive bay cover.
b. Remove the 4 screws.
c. Lift the HDD assembly out of the bay.
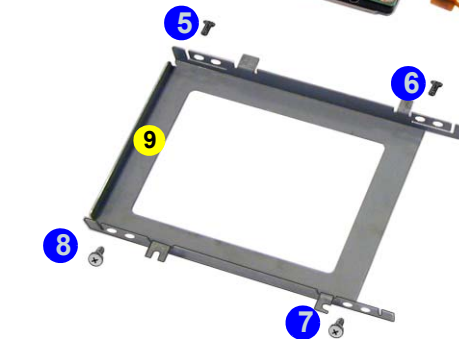d. Remove the 4 screws from the HDD case, and disconnect the cable.

Removing the Hard Disk Drive in Bay Three

1. Turn the computer **OFF**, remove the battery (page 2 - 5) and turn it over.
2. Remove screws **1** - **3** (**Figure 2 - 6a**), then lift the cover off the changeable drive bay **4** and set it aside.
3. Remove screws **5** - **8** (**Figure 2 - 6b**), then lift the HDD assembly out of the bay.
4. Remove screws **9** - **12** (**Figure 2 - 6d**) to separate the HDD from the case, and disconnect cable **13**.

a.   **b.**   **c.**   **d.**

✎
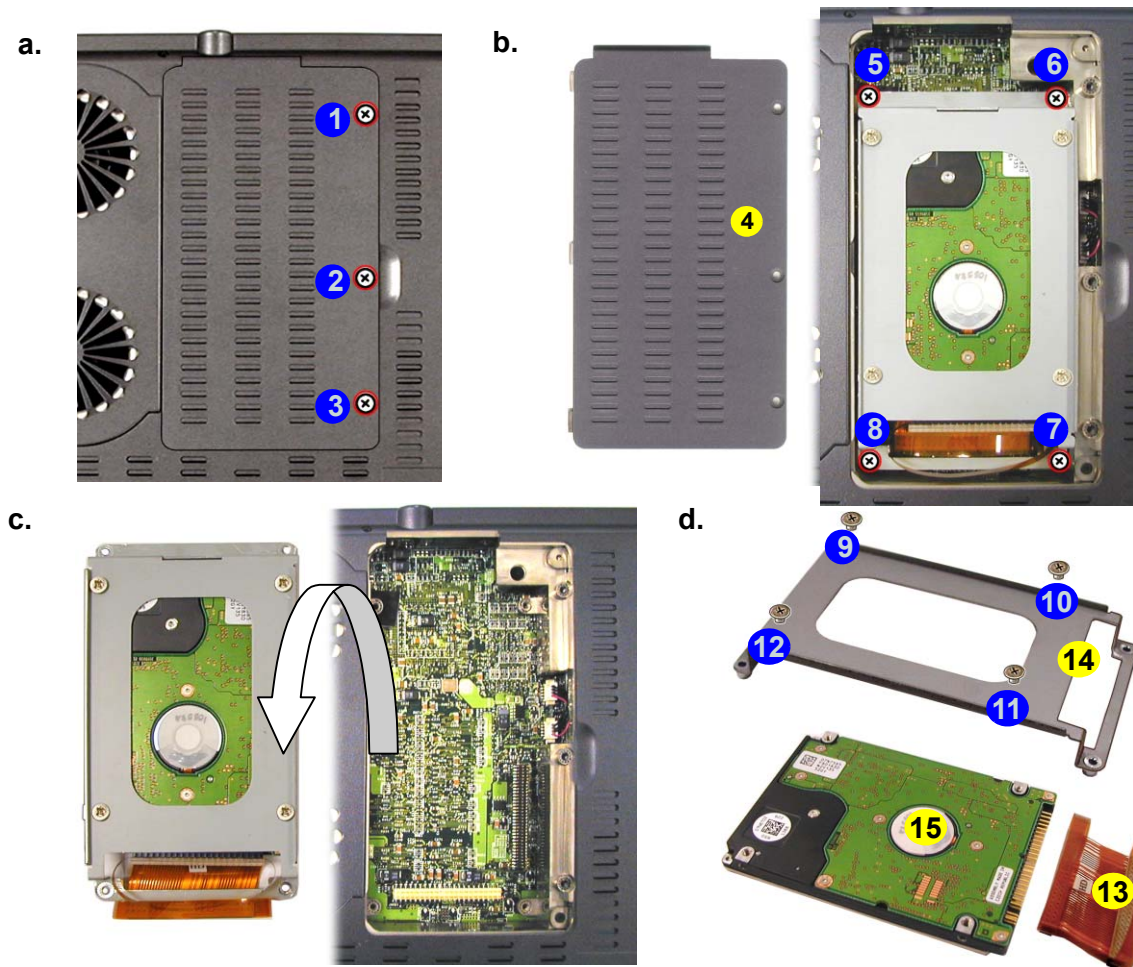
4. Drive bay cover
13. HDD cable
14. Drive case
15. HDD

• 11 Screws

Removing the TV Tuner Module

1. Turn the computer **OFF**, remove the battery (page 2 - 5) and turn it over.
2. Remove screws **1** - **3** (**Figure 2 - 7a**), then lift the cover off the changeable drive bay **4** and set it aside.
3. Remove the cable connector **5** (**Figure 2 - 7b**).
4. Remove screws **6** - **8** (**Figure 2 - 7b**), and carefully lift the TV tuner module out of the computer.
5. When re-inserting the TV tuner, the module should align with the connecting pins at point **11** (push firmly down to make sure the module is secure).

2.Disassembly

a.

b.

c.
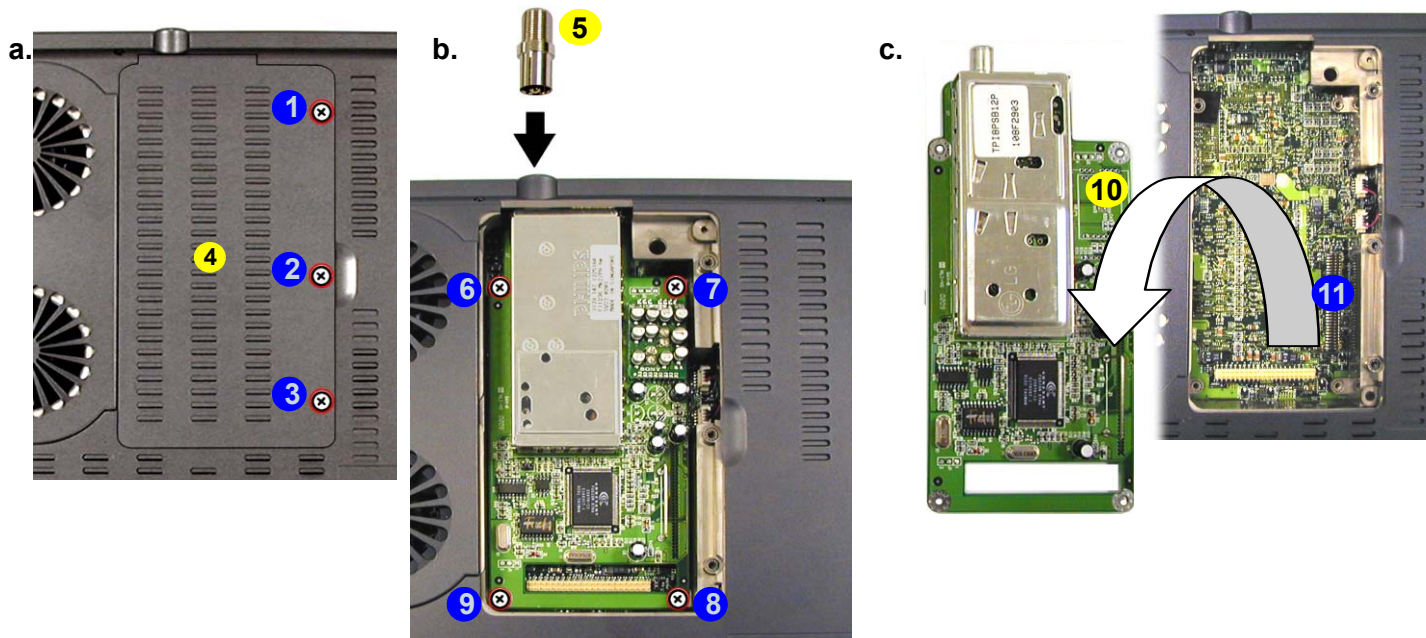
4. Drive bay cover
5. Cable connector
10. TV tuner module

• 7 Screws

Figure 2 - 8
Keyboard Removal Sequence

a. Press the two latches to release the keyboard.
b. Lift the keyboard out and disconnect the cable from the locking collar.

Removing the Keyboard

1. Turn the computer **OFF** and remove the battery (page 2 - 5).
2. Press the **two** keyboard latches at the top of the keyboard to elevate the keyboard from its normal position (you may need to use a small screwdriver to do this).
3. Carefully lift the keyboard up and out, being careful not to bend the keyboard ribbon cable ❸ (**Figure 2 - 8b)**.
4. Disconnect the keyboard ribbon cable from the locking collar socket ❹ (**Figure 2 - 8b**).

a.

b.

☑
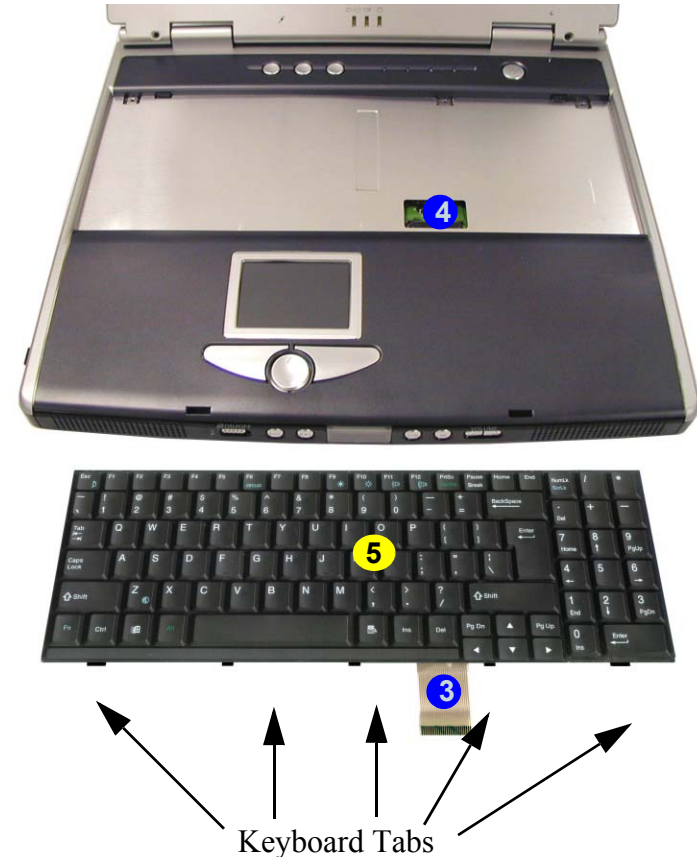
Re-Inserting the Keyboard

When re-inserting the keyboard firstly align the **five** keyboard tabs (**Figure 2 - 5b**) at the bottom of the keyboard with the slots in the case.

Keyboard Tabs

5. Keyboard

Removing the System Memory

1. Turn the computer **OFF**, remove the battery (page 2 - 5) and keyboard (page 2 - 12).
2. Remove screws **1** - **3** (**Figure 2 - 9a**) from the shielding plate **4** (**Figure 2 - 9b**), and lift the plate up off the computer.
3. Locate the memory sockets **5** & **6** (**Figure 2 - 9c**), and gently pull the latches **8** & **11** on the memory socket toward the front and rear of the computer as indicated.
4. The module **7** (**Figure 2 - 9c**) will pop-up, and you can remove it.
5. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
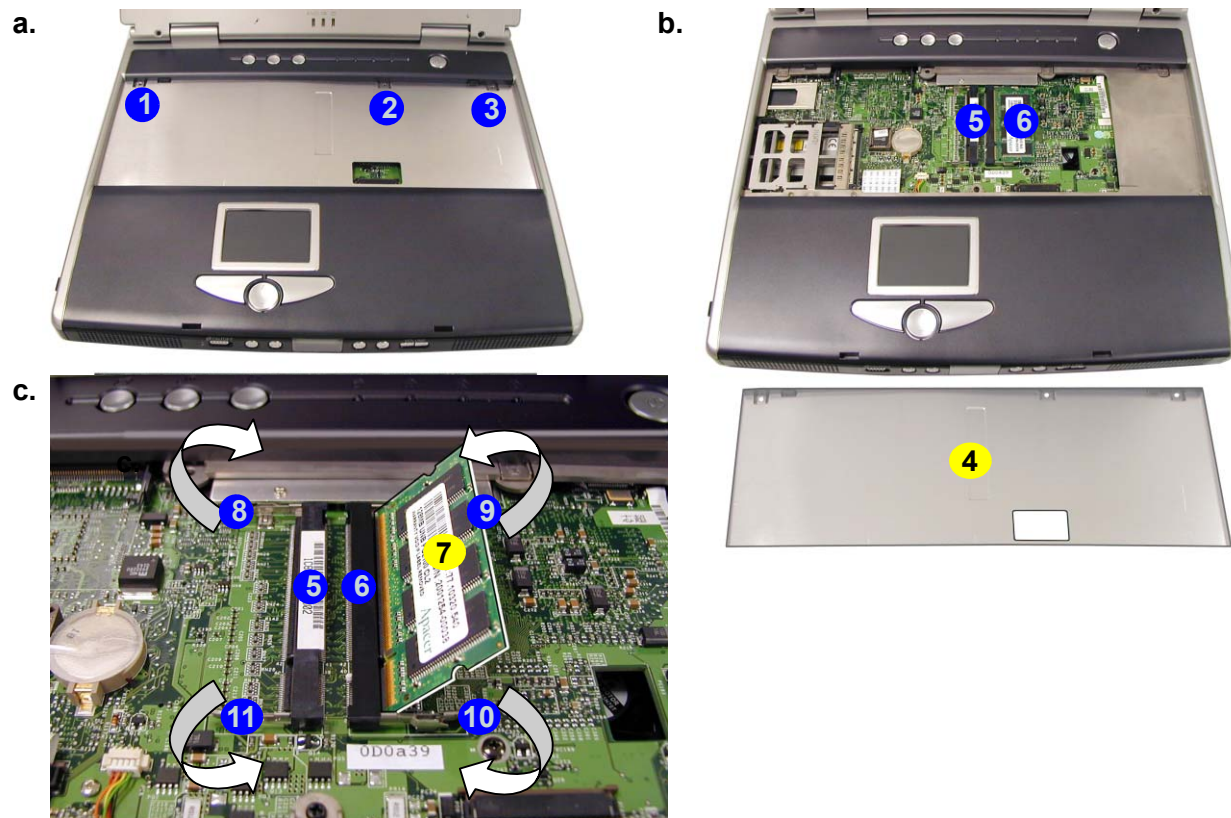
Figure 2 - 9
Memory Removal Sequence

a. Remove the screws from the shielding plate.
b. Remove the shielding plate.
c. Pull the latch(es) on the memory sockets to release the module(s). When the module pops up, lift it out.

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.

4. Shielding plate
7. Memory module(s)

• 3 Screws

Figure 2 - 10
Processor Removal Sequence

a. Remove the three screws from the CPU cover.
b. Remove the CPU cover.

Removing the CPU

1. Turn the computer **OFF**, remove the battery () and turn it over.
2. Remove screws **1** - **3** (**Figure 2 - 10a**), and lift the cover **4** (**Figure 2 - 10b**) up off the computer.

a.

b.
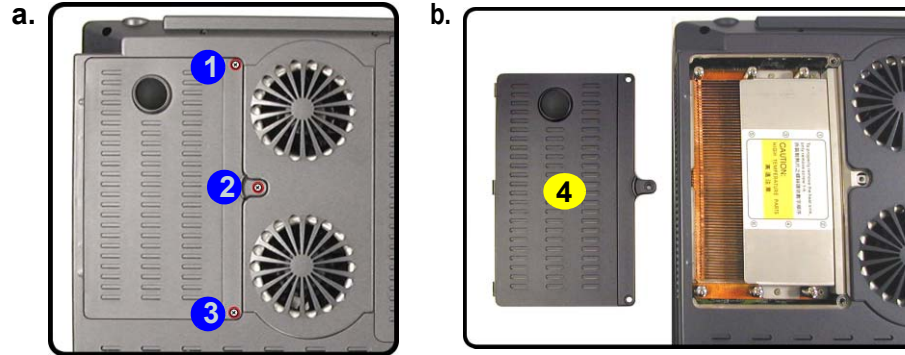
Figure 2 - 11
Processor Removal Sequence (cont'd)

Remove the four screws from the heat sink in **the order indicated**.

3. Remove the **four** screws from the heat sink in order **1** - **4** (**Figure 2 - 11**)as indicated and lift out the heat sink **5**.

⚠️
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.

To properly remove the heat sink, only remove screw 1-4.
拆裝散熱片之螺絲請依數字順序.

CAUTION:
HIGH TEMPERATURE PARTS
高溫注意
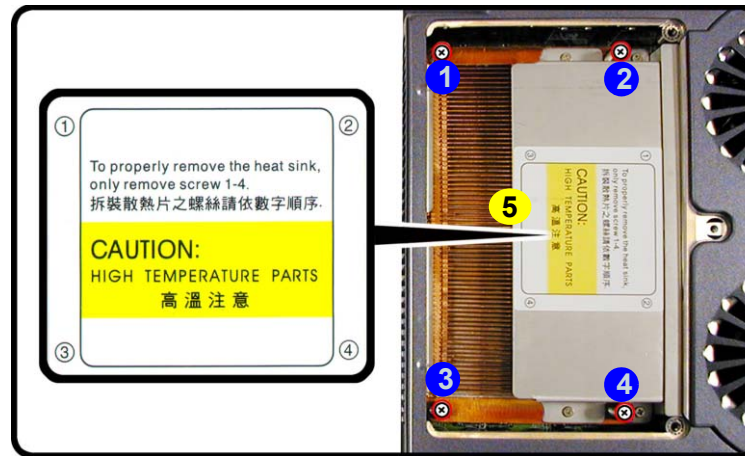
⚠️
Reassembly Screw Order

When replacing the heat sink, make sure you insert the screws in the same order indicated in Figure 2 - 11.

🖊
4.CPU Cover
5.Heat Sink

• 7 Screws

4. Remove screws **1** & **2** (**Figure 2 - 12a**) from the CPU bracket, then lift the bracket **3** off the CPU (**Figure 2 - 12b**).
5. Fully raise latch **4** in the direction indicated in **Figure 2 - 12c** to unlock the CPU.
6. Carefully (it may be hot) lift the CPU **5** up out of the socket. (**Figure 2 - 12d**).
7. When re-inserting the CPU pay careful attention to the pin alignment, it will fit only one way (don't force it!).

Figure 2 - 12
Processor Removal Sequence (Cont.)
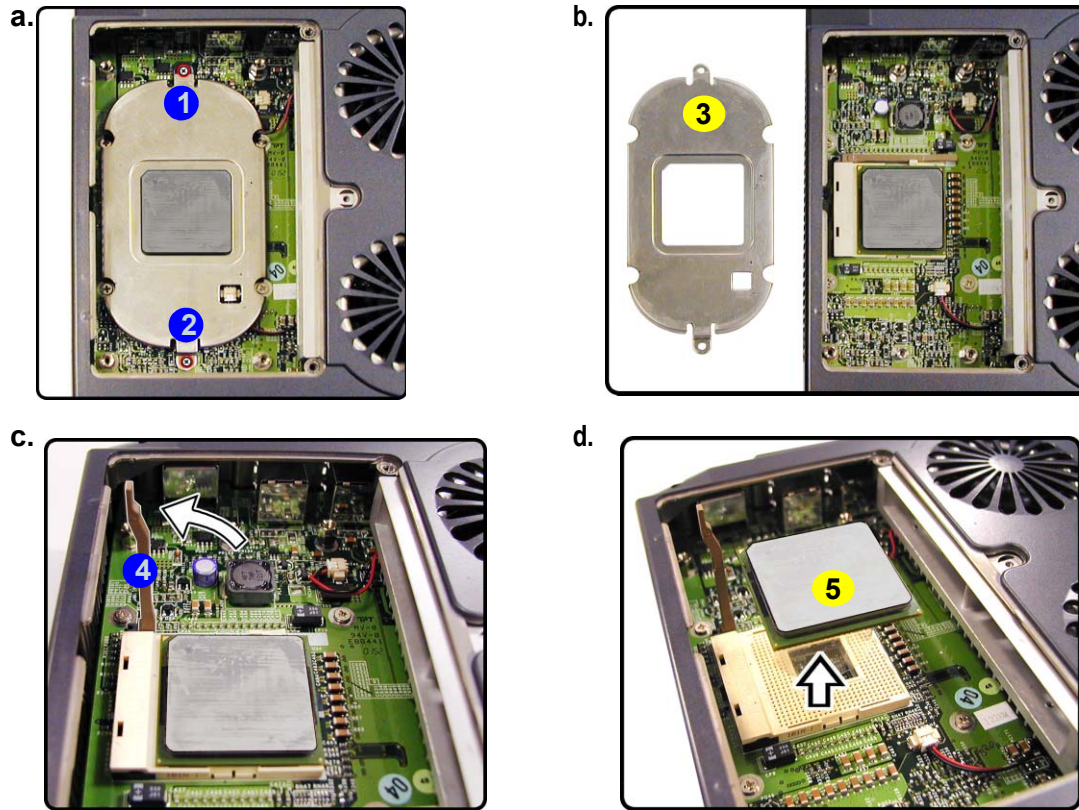
a. Remove the screws from the bracket.
b. Lift the bracket up.
c. Raise the latch to unlock the CPU.
d. Lift the CPU out of the socket.

a.

b.

c.

d.

2.Disassembly

3. CPU bracket
5. CPU

•   2 Screws

2.Disassembly
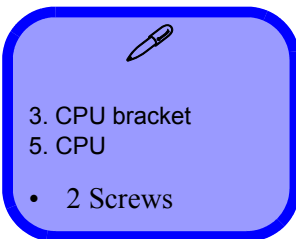
Appendix A:Part Lists

This appendix breaks down the notebook PC'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 1

Part List Illustration Location

Part	8880		8880
Top	page A - 3	DVD-ROM Drive	page A - 13
Bottom	page A - 4	Audio DJ	page A - 14
LCD 15"	page A - 5	Floppy Disk Drive	page A - 15
LCD 15.7"	page A - 6	First Hard Disk Drive	page A - 16
Battery	page A - 7	Second Hard Disk Drive	page A - 17
Center Cover	page A - 8	Third Hard Disk Drive	page A - 18
Center Cover Finger	page A - 9	Third Hard Disk - Dummy	page A - 19
CD-ROM Drive	page A - 10	IP Sharing Module	page A - 20
CD-RW Drive	page A - 11	MP3 Player	page A - 21
Combo Drive	page A - 12		

Part Lists
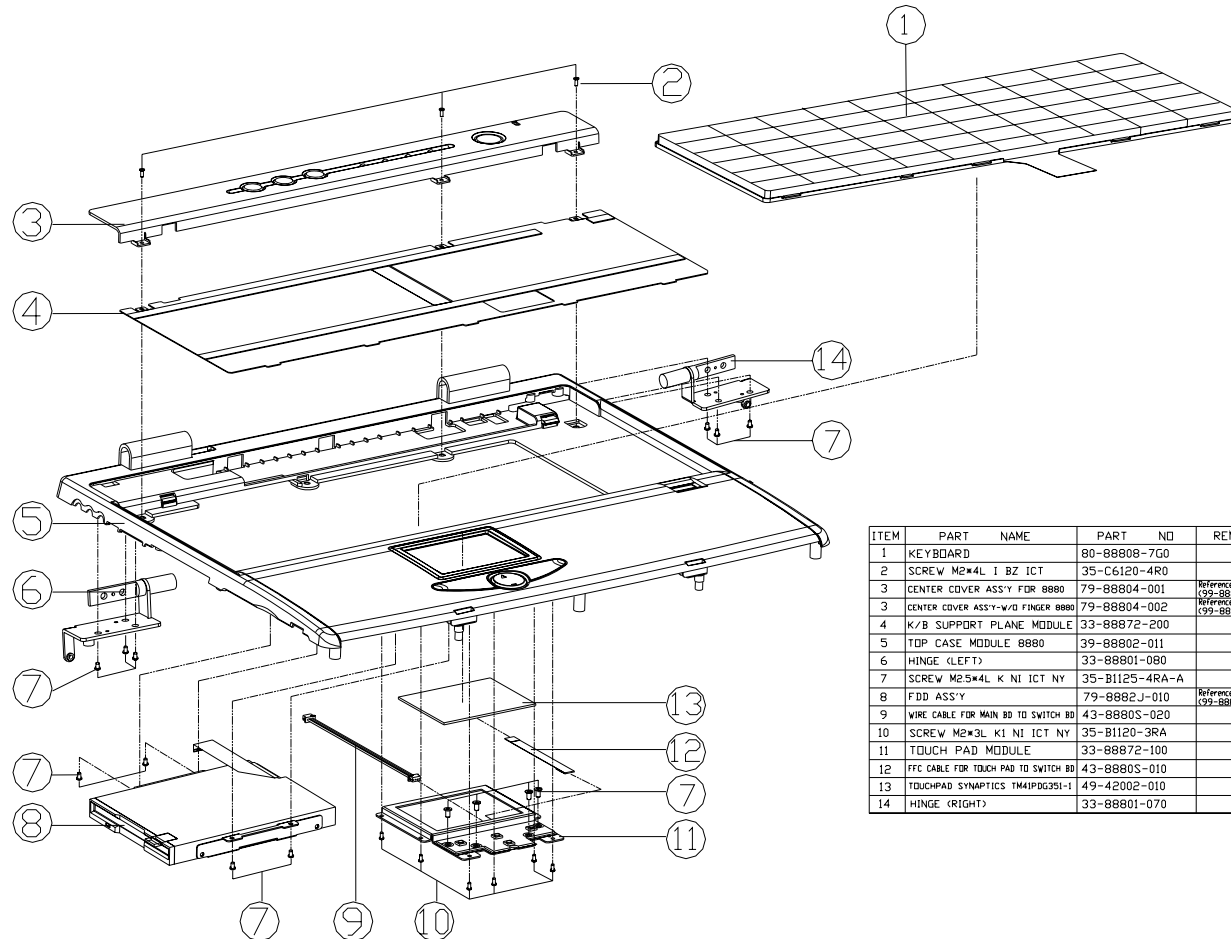
Top (8880)

Figure 1
Top (8880)

ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD	80-88808-7G0	
2	SCREW M2×4L I BZ ICT	35-C6120-4R0	
3	CENTER COVER ASS'Y FOR 8880	79-88804-001	Reference Ass'y Dwg (99-88805-100)
3	CENTER COVER ASS'Y-W/O FINGER 8880	79-88804-002	Reference Ass'y Dwg (99-88805-101)
4	K/B SUPPORT PLANE MODULE	33-88872-200	
5	TOP CASE MODULE 8880	39-88802-011	
6	HINGE (LEFT)	33-88801-080	
7	SCREW M2.5×4L K NI ICT NY	35-B1125-4RA-A	
8	FDD ASS'Y	79-8882J-010	Reference Ass'y Dwg (99-88805-040)
9	WIRE CABLE FOR MAIN BD TO SWITCH BD	43-8880S-020	
10	SCREW M2×3L K1 NI ICT NY	35-B1120-3RA	
11	TOUCH PAD MODULE	33-88872-100	
12	FFC CABLE FOR TOUCH PAD TO SWITCH BD	43-8880S-010	
13	TOUCHPAD SYNAPTICS TM41PDG35I-1	49-42002-010	
14	HINGE (RIGHT)	33-88801-070	

Bottom (8880)

Figure 2
Bottom (8880)
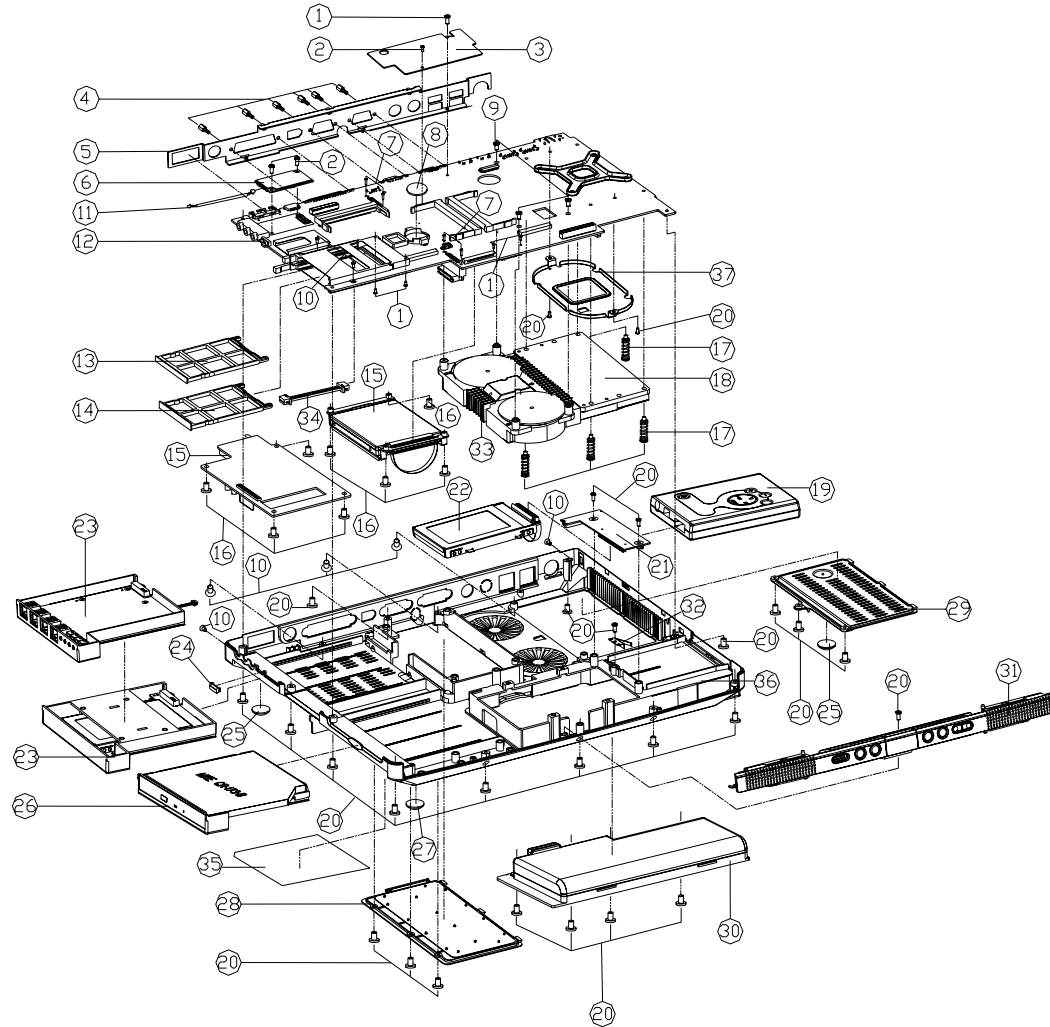
ITEM	PART NAME	PART NO	REMARK
1	SCREW M2.5×6L K BZ ICT	35-82125-6R0	
2	SCREW M2×3L K1 NI NY	35-B1120-3RA	
3	CHIP HEAT SINK FOR 8880	31-8880N-010	
4	HEX STUD <SUM22 NI-PL> 11MM	34-07009-011-A	
5	I/O BRACKET 8880	33-8880S-010	
6	<INCLUDE TEL.CABLE> MDC MODEM MODULE	76-32200-003	
7	SCREW M2×10L B NI ICT	35-41120-100	
8	BATTERY 3V 210mA CR2032	23-62015-407	
9	SCREW M2.5×4L B BNI ICT	35-49125-4R0	
10	SCREW M2×4 P BN ICT	35-09120-4R0	
11	CABLE FOR MDC 30MM JAE-F1-S2S	43-8880Z-010	
12	MAIN BOARD	77-88800-D0X	
13	CARBUS UP HOUSING 8880	42-88843-010	
14	CARBUS DOWN HOUSING 8880	42-88843-020	
15	TV TUNNER ASS'Y(OPTION)	79-88821-010	Reference Ass'y Dwg (99-88805-060)
16	SCREW M2.5×6L K BZ ICT	35-82125-6R0	
17	SCREW M2.5×045P×17 d=35 L=17.5 S=2.5 B	35-41025-175	
18	HEAT SINK MODULE FOR 8880	31-8887N-100	
19	MP3 ASS'Y	79-8882H-010	Reference Ass'y Dwg (99-88805-090)
20	SCREW M2.5×6LK BZ ICT	35-82125-6R0	
21	HDD & MP3 CONVERTER BOARD	77-8880N-D0X	
22	FIST HDD ASS'Y	79-88821-010	Reference Ass'y Dwg (99-88805-051)
23	SECOND HDD(W/O) ASS'Y	79-88821-020	Reference Ass'y Dwg (99-88805-052)
23	THIRD HDD(W/O) ASS'Y	79-88821-030	Reference Ass'y Dwg (99-88805-053)
23	THIRD DUMMY HDD CASE ASS'Y	79-88821-040	Reference Ass'y Dwg (99-88805-056)
23	IP SHARE ASS'Y(OPTION)	79-8882U-010	Reference Ass'y Dwg (99-88805-054)
23	CD-RW ASS'Y(OPTION)	79-8882W-010	Reference Ass'y Dwg (99-88805-054)
23	COMBO ASS'Y(OPTION)	79-8882X-010	Reference Ass'y Dwg (99-88805-055)
24	IR LENS 8880	42-88813-010	
25	BOTTOM CASE BACK RUBBER FOR 8880	47-88823-020	
26	CD-ROM ASS'Y (OPTION)	79-8882W-010	Reference Ass'y Dwg (99-88805-061)
26	DVD ASS'Y (OPTION)	79-8882V-010	Reference Ass'y Dwg (99-88805-062)
27	BOTTOM CASE RUBBER FOR 8880	47-88823-010	
28	2ND HDD COVER MODULE	42-88871-200	
29	CPU COVER 8880	42-88873-020	
30	BATTERY(OPTION)	87-8888S-498	Reference Ass'y Dwg (99-88805-070)
30	BATTERY(OPTION)	87-8888S-4E8	Reference Ass'y Dwg (99-88805-070)
31	AUDIO DJ BEZEL MODULE	42-88878-100	Reference Ass'y Dwg (99-88805-080)
32	MP3 BRACKET(BATTERY PLATE)	33-8880H-030	
33	FAN MODULE FOR 8880	31-8887S-100	
34	WIRE CABLE FOR MAIN BD TO LAN	43-8880U-010	
35	PRODUCT LABEL(TUV) FOR 8880	45-88803-010	
36	BOTTOM CASE MODULE 8880	39-88803-011	
37	CPU FIXED BRACKET	33-8880S-030	
38	SCREW M2.5×4L B BNI ICT	35-49125-4R0	

LCD 15" (8880)
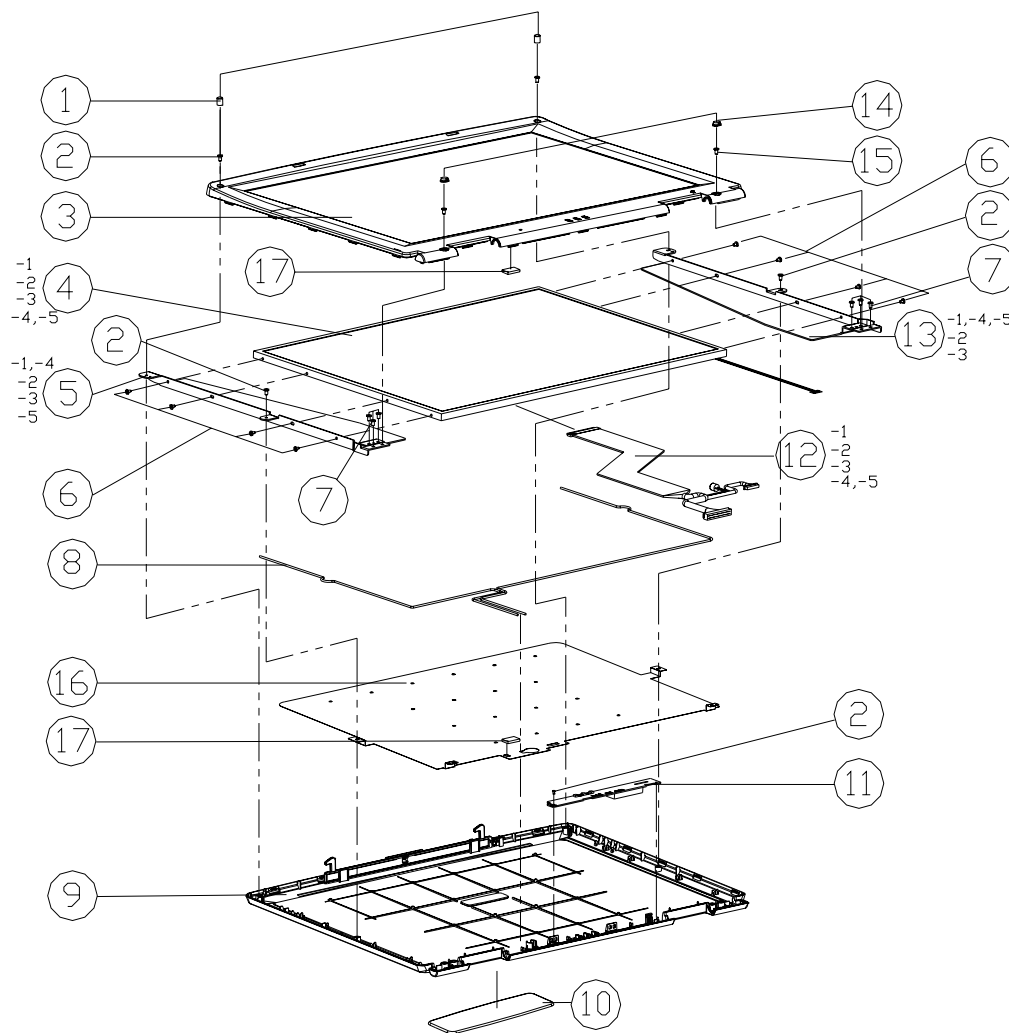
ITEM	PART NAME	PART NO	REMARK
1	RUBBER FOR LCD UP	47-88831-010	
2	SCREW M2×5L P NI ICT	35-01120-5R0-A	
3	DISPLAY FRONT PANEL MODULE FOR 15.0"	39-88801-011	
4-1	LCD 15.0 IBM TFT OEM95C-02	50-L3241-E00	
4-2	LCD 15.0 UNIPAC TFT B150PN01	50-L5259-U10	
4-3	LCD T CPT CLAA150PA01 15.0"	50-L5270-C00	
4-4-5	LCD T IDT(IBM) IAUX14(W/IPS) 15.0" UXGA	50-L4207-E01	
5-1-4	LCD BRACKET (LEFT) IBM 15"	33-88801-021	
5-2	LCD BRACKET (LEFT) UNIPAC 15.0"	33-88801-221	
5-3	LCD BRACKET (LEFT) CPT 15.0"	33-88801-121	
5-5	LCD BRACKET (LEFT) LG 15.0"	33-88801-421	
6	SCREW M2×3L K1 NI ICT NY	35-B1120-3RA	
7	SCREW M2.5×6L K1 NI ICT NY	35-82125-6R0	
8	WIRELESS LAN ANTENNA	23-742R4-030	
9	DISPLAY BACK PANEL MODULE FOR 15.0"/15.7"	39-88801-021	
10	NAME PLATE "NOTEBOOK"	45-18N01-010	
11	INVERTER BOARD	77-4200R-D02	
12-1	WIRE CABLE FOR 15.0" LCD IBM	43-88801-050	
12-2	WIRE CABLE FOR 15.0" LCD UNIPAC	43-88801-010	
12-3	WIRE CABLE FOR 15.0" LCD CPT	43-88801-040	
12-4-5	WIRE CABLE FOR 15.0" LCD UXGA LG	43-88801-130	
13-1-4-5	LCD BRACKET (RIGHT) IBM 15.0"	33-88801-011	
13-2	LCD BRACKET (RIGHT) UNIPAC 15.0"	33-88801-211	
13-3	LCD BRACKET (RIGHT) CPT 15.0"	33-88801-111	
14	RUBBER FOR LCD DOWN	47-88821-020	
15	SCREW M2.5×7L B BN ICT NY	35-49125-7R0	
16	LCD SHIELDING	33-88801-090	
17	GASKET (L20×W9×H4.5)	47-00190-1J0	

Figure 3
LCD 15" 8880

Part Lists

LCD 15.7" (8880)
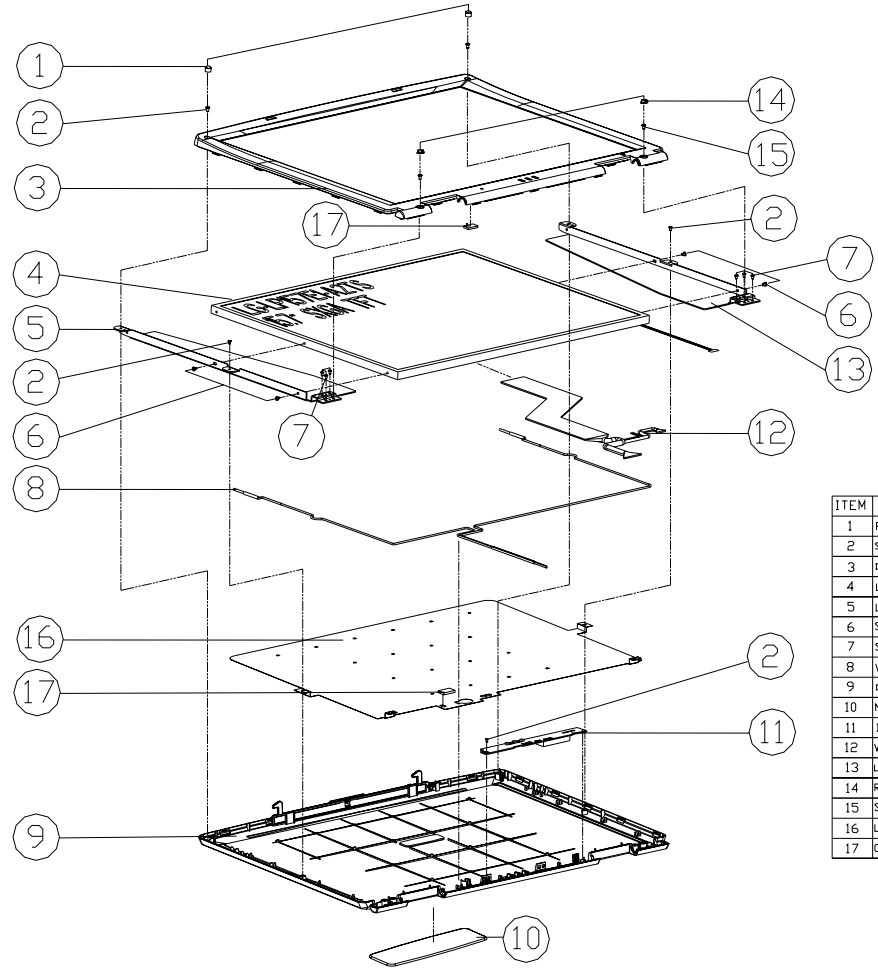
Figure 4
LCD 15.7" 8880

ITEM	PART NAME	PART NO	REMARK
1	RUBBER FOR LCD UP	47-88831-010	
2	SCREW M2*5L P NI ICT	35-01120-5R0-A	
3	DISPLAY FRONT PANEL MODULE FOR 15.7"	39-88801-111	
4	LCD 15.7" LG TFT LP157E1-A2TS	50-L3274-L00	
5	LCD BRACKET (LEFT) LG 15.7"	33-88801-321	
6	SCREW M2*3L K1 NI ICT NY	35-B1120-3RA	
7	SCREW M2.5*6L K BZ ICT	35-82125-6R0	
8	WIRELESS LAN ANTENNA	23-742R4-030	
9	DISPLAY BACK PANEL MODULE FOR 15.0"/15.7"	39-88801-021	
10	NAME PLATE "NOTEBOOK"	45-88801-010	
11	INVERTER BOARD	77-4200R-D0X	
12	WIRE CABLE FOR 15.7" LCD LG	43-88801-131	
13	LCD BRACKET (RIGHT) LG 15.7"	33-88801-311	
14	RUBBER FOR LCD DOWN	47-88821-020	
15	SCREW M2.5*7L B BN ICT NY	35-49125-7R0	
16	LCD SHIELDING	33-88801-090	
17	GASKET (L20*W9*H4.5)	47-00190-1J0	

Battery (8880)
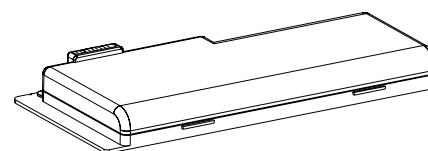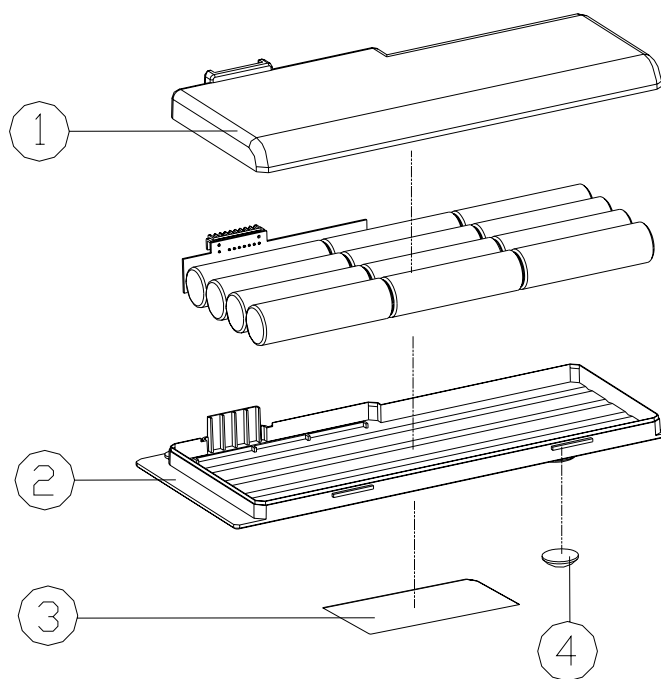
Figure 5
Battery (8880)

ITEM	PART NAME	PART NO	REMARK
1	BATTERY TOP CASE	42-8887M-010	
2	BATTERY BOTTOM CASE	42-8887M-020	
3	BATTERY LABEL	87-8888S-498	
3	BATTERY LABEL	87-8888S-4E8	
4	BOTTOM CASE RUBBER FOR 8880	47-88823-010	

Center Cover (8880)

Figure 6
**Center Cover
(8880)**
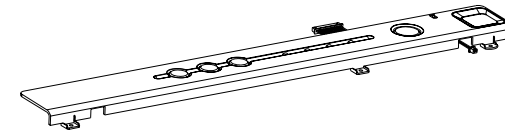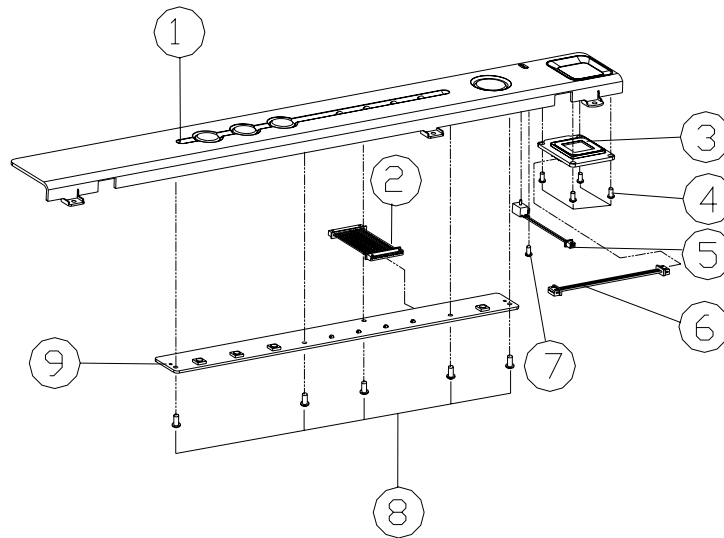
ITEM	PART NAME	PART NO	REMARK
1	CENTER COVER MODULE FOR 8880	42-88872-100	
2	WIRE CABLE FOR HOT KEY TO POWER SWITCH	43-8880S-031	
3	FINGER USB BOARD	77-8880F-D0X	
4	SCREW 11.4*3	35-01714-3R0	
5	WIRE CABLE FOR PANEL OFF 43-88804-010+53-70108-020	43-88804-011	
6	WIRE CABLE FOR MAIN BD TO FINGERPRINT BD	43-8880F-010	
7	SCER 11.4*4	35-01714-4R0	
8	SCERW M2*3L K1 NI ICT NY	35-B1120-3RA	
9	SWITCH KEY BOARD	77-88804-D0X	

Part Lists

Center Cover Finger (8880)
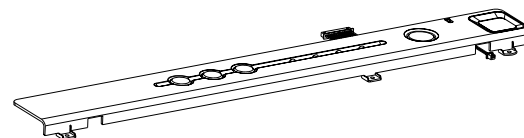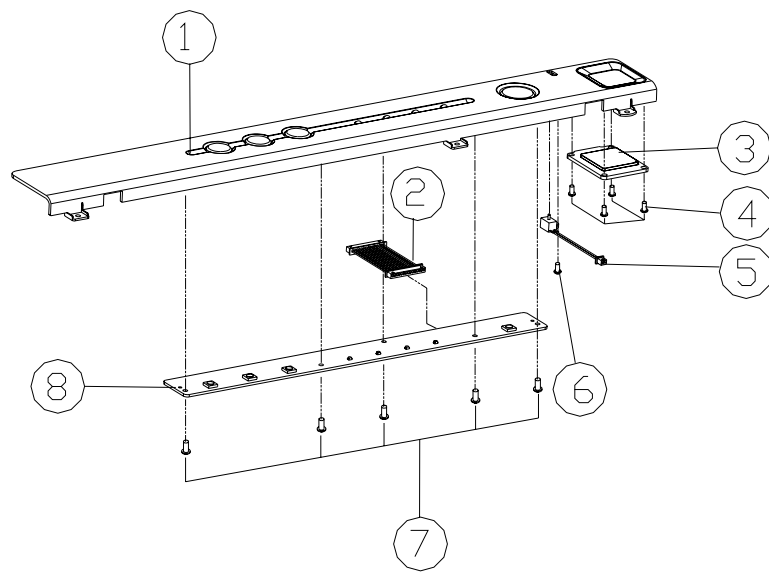
Figure 7
**Center Cover
Finger
(8880)**

ITEM	PART NAME	PART NO	REMARK
1	CENTER COVER MODULE FOR 8880	42-88872-100	
2	WIRE CABLE FOR HOT KEY TO POWER SWITCH	43-8880S-031	
3	FINGER PRINT COVER	42-88882-060	
4	SCREW 11.4*3	35-01714-3R0	
5	WIRE CABLE FOR PANEL OFF 43-88804-010+53-7010B-020	43-88804-011	
6	SCER 11.4*4	35-01714-4R0	
7	SCERW M2*3L K1 NI ICT NY	35-B1120-3RA	
8	SWITCH KEY BOARD	77-88804-D0X	

CD-ROM Drive (8880)

Figure 8
**CD-ROM Drive
(8880)**
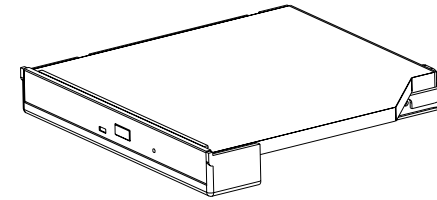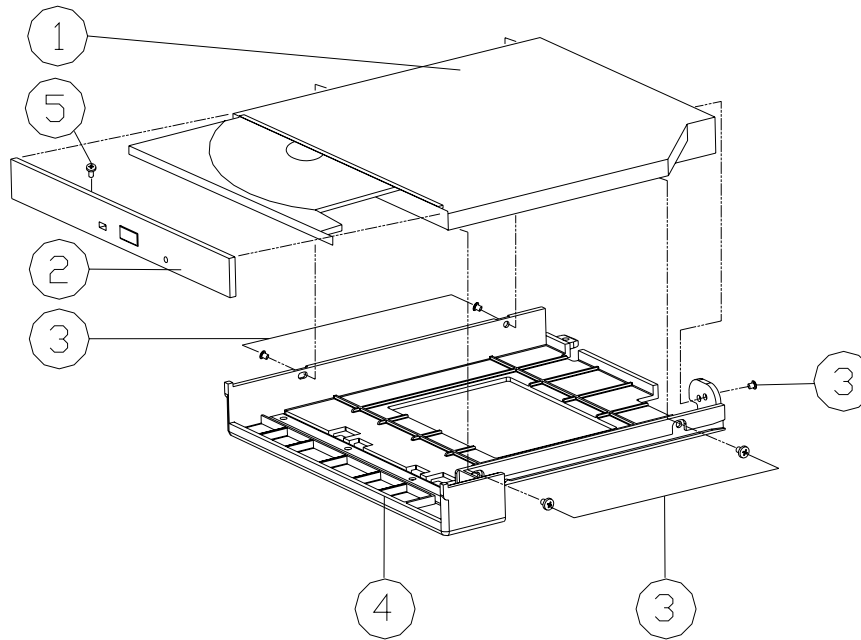
ITEM	PART NAME	PART NO	REMARK
1-1	CD-ROM 5 1/4" 24X CAB SLIM 12.7MM	85-607□X-C00	QSI(SCR-242)
1-2	CD-ROM 5 1/4" 24X CD-224E-B20 12.7mm	85-607□X-706	TEAC(REV:A02)
2-1	CD-ROM BEZEL MODULE FOR QSI	42-8887Z-210	
2-2	CD-ROM BEZEL MODULE FOR TEAC	42-8887Z-300	
3	SCREW M2*3L K1 NI ICT NY	35-B1120-3RA	
4	CD ROM CASE MODULE	42-8880Z-101	
5	SCREW M1.7*2.5L K1 BK/□	35-B4917-2R5	FOR QSI

CD-RW Drive (8880)
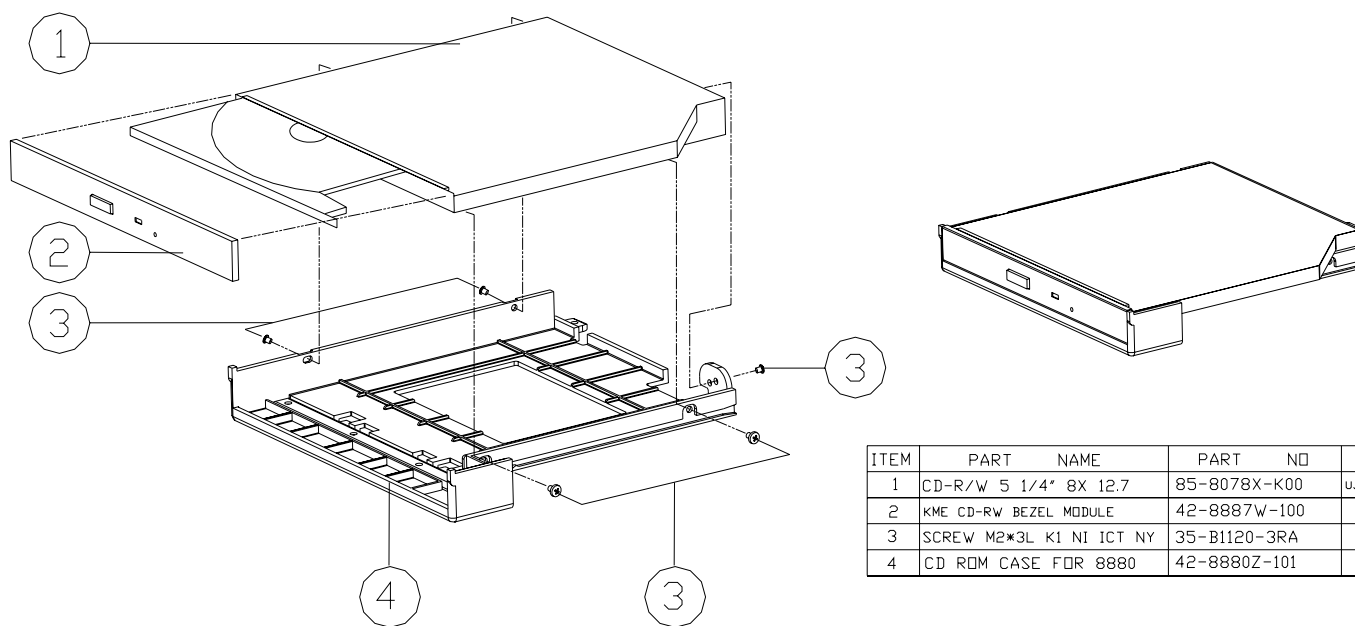
ITEM	PART NAME	PART NO	REMARK
1	CD-R/W 5 1/4" 8X 12.7	85-8078X-K00	UJDA330CL-Z KME
2	KME CD-RW BEZEL MODULE	42-8887W-100	
3	SCREW M2*3L K1 NI ICT NY	35-B1120-3RA	
4	CD ROM CASE FOR 8880	42-8880Z-101	

Combo Drive (8880)

Figure 10
Combo Drive (8880)
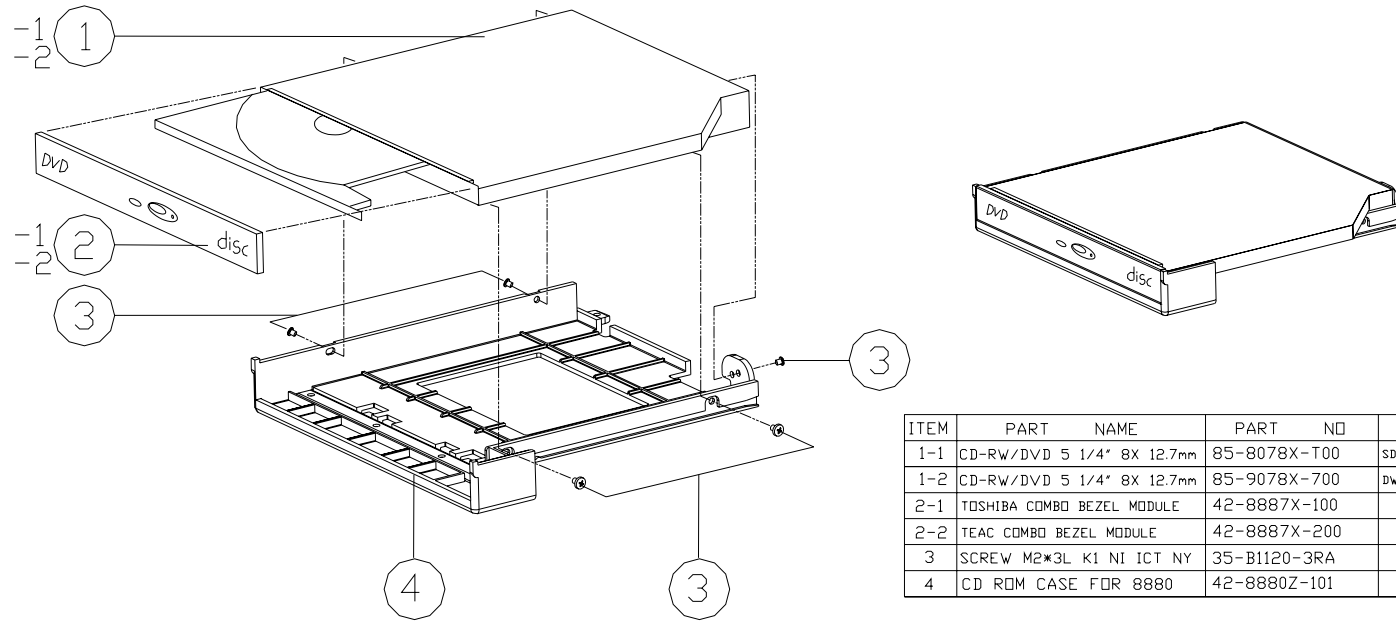
ITEM	PART NAME	PART NO	REMARK
1-1	CD-RW/DVD 5 1/4" 8X 12.7mm	85-8078X-T00	SD-R2102 TOSHIBA
1-2	CD-RW/DVD 5 1/4" 8X 12.7mm	85-9078X-700	DW-28E-82 TEAC
2-1	TOSHIBA COMBO BEZEL MODULE	42-8887X-100	
2-2	TEAC COMBO BEZEL MODULE	42-8887X-200	
3	SCREW M2*3L K1 NI ICT NY	35-B1120-3RA	
4	CD ROM CASE FOR 8880	42-8880Z-101	

DVD-ROM Drive (8880)
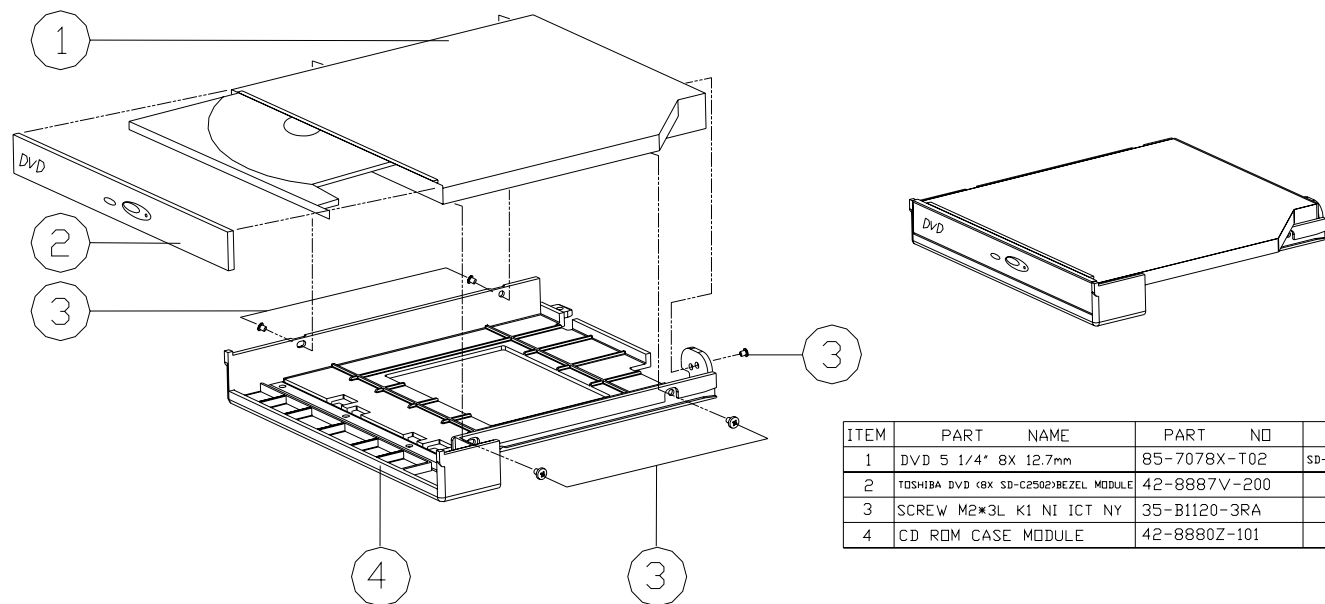
Figure 11
**DVD-ROM Drive
(8880)**

ITEM	PART NAME	PART NO	REMARK
1	DVD 5 1/4" 8X 12.7mm	85-7078X-T02	SD-C2502 TOSHIBA
2	TOSHIBA DVD (8X SD-C2502)BEZEL MODULE	42-8887V-200	
3	SCREW M2*3L K1 NI ICT NY	35-B1120-3RA	
4	CD ROM CASE MODULE	42-8880Z-101	

Audio DJ (8880)

Figure 12
Audio DJ (8880)
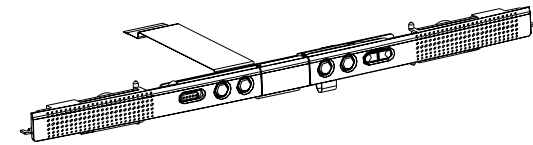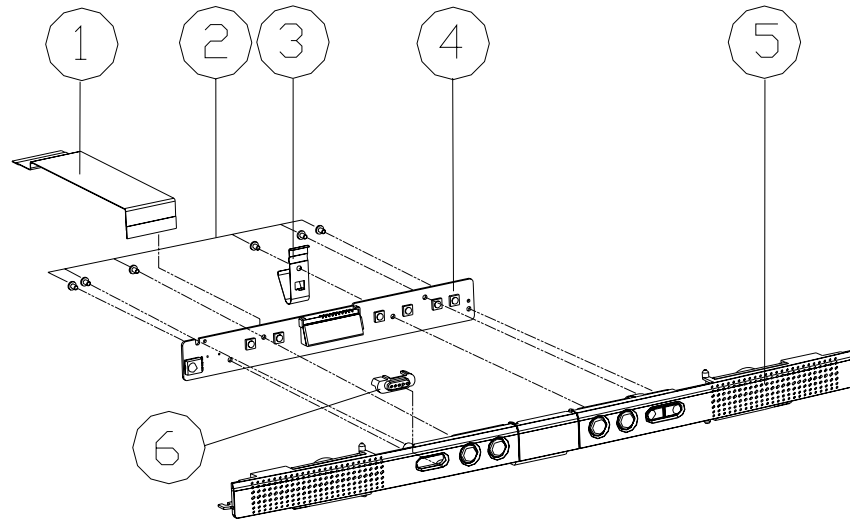
ITEM	PART NAME	PART NO	REMARK
1	FFC CABLE FOR MAIN BD TO LCM CTRL BD	43-88808-011	
2	SCREW M2*3L K1 NI ICT NY	35-B1120-3RA	
3	AUDIO DJ EMI SPRING FOR 8880	38-88808-010	
4	AUDIO CONTROL LCM BOARD	77-88808-D03	
5	AUDIO JACK BEZEL MODULE FOR 8880	42-88878-100	
6	AUDIO DJ POWER KNOB FOR 8880	42-88888-020	

Floppy Disk Drive (8880)
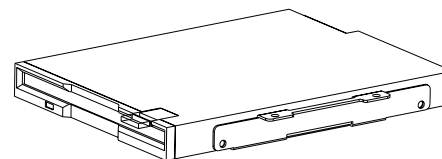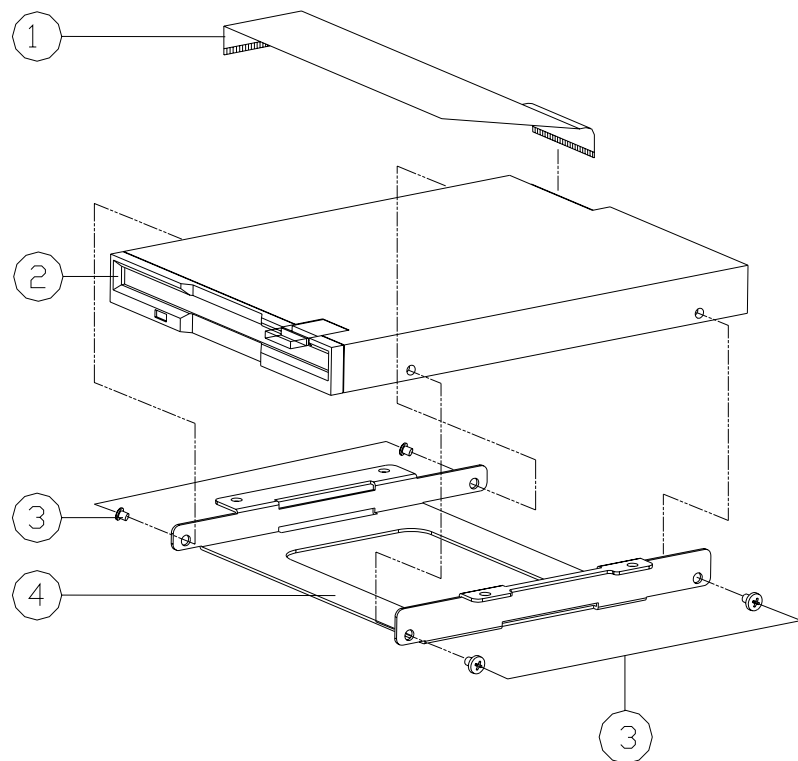
Figure 13
Floppy Disk Drive (8880)

ITEM	PART NAME	PART NO	REMARK
1	FFC CABLE FOR MAIN BD TO FLOPPY DISK	43-8880I-010	
2	3.5' FDD 12.7mm Y-E DATA	85-11700-Y01	YD-702J-6637J
3	SCREW M2.5*3L K1 BK/O. NY	35-B4125-3RA	
4	FDD BRACKET FOR 8880	33-8880J-010	

Part Lists

First Hard Disk Drive (8880)

Part Lists

Figure 14
First HDD Drive
(8880)
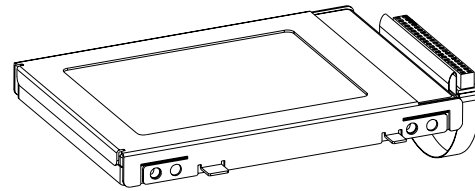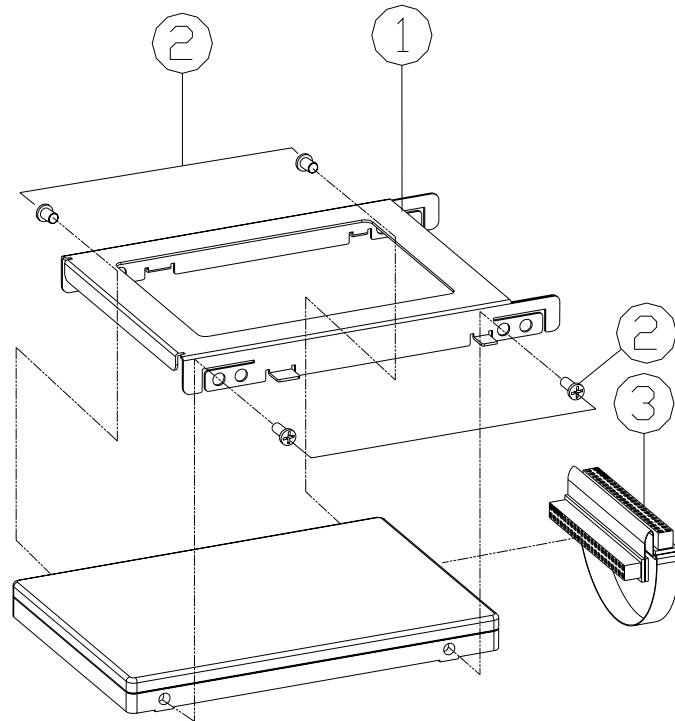
ITEM	PART NAME	PART NO	REMARK
1	HDD BRACKET FOR 1ST HDD	33-8880I-020	
2	SCREW M3*4L K1 BZ ICT NY	35-B6130-4RA	
3	FPC CABLE FOR HD TO MAIN BD 30MM	43-88800-010	

Second Hard Disk Drive (8880)
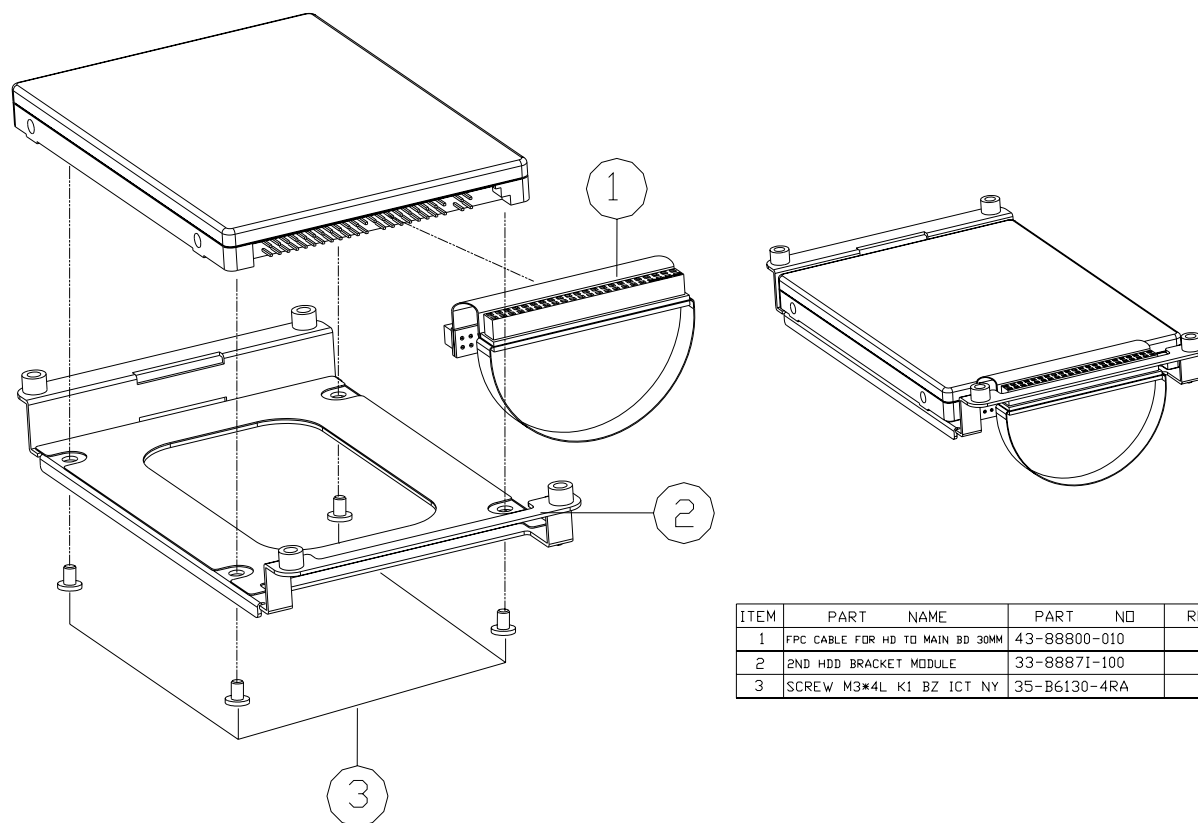
Figure 15
**Second HDD Drive
(8880)**

ITEM	PART NAME	PART NO	REMARK
1	FPC CABLE FOR HD TO MAIN BD 30MM	43-88800-010	
2	2ND HDD BRACKET MODULE	33-8887I-100	
3	SCREW M3*4L K1 BZ ICT NY	35-B6130-4RA	

Part Lists

Third Hard Disk Drive (8880)

Figure 16
**Third Hard Disk
Drive
(8880)**
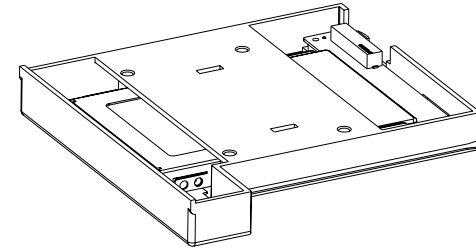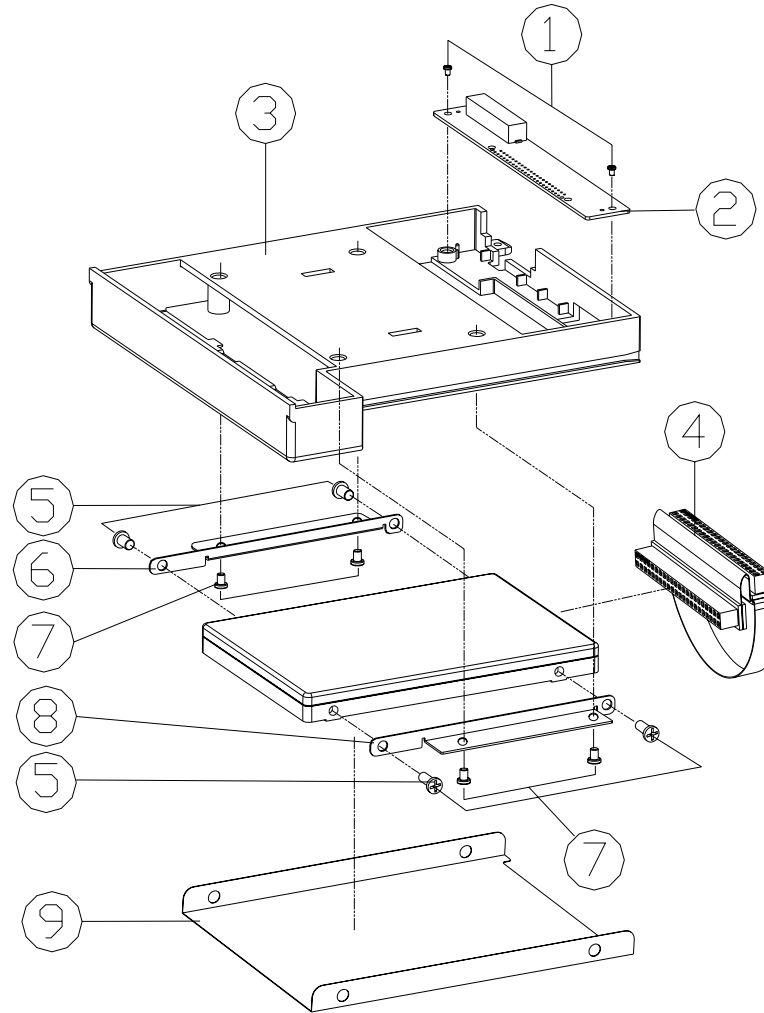
ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L K1 NI ICT NY	35-B1120-3RA	
2	3RD HDD CONVERTER BOARD	77-8881N-D0X	
3	3RD HDD CASE FOR 8880	42-8887I-010	
4	FPC CABLE FOR HD TO MAIN BD 30MM	43-88800-010	
5	SCREW M3*4L K1 BZ ICT NY	35-B6130-4RA	
6	3RD HDD BRACKET-L	33-8880I-050	
7	SCREW M2.5*6L K BZ ICT	35-82125-6R0	
8	3RD HDD BRACKET-R	33-8880I-040	
9	3RD HDD MYLAR	40-8885I-020	

Third Hard Disk - Dummy (8880)

Figure 17
**Third Hard Disk -
Dummy (5620P)**
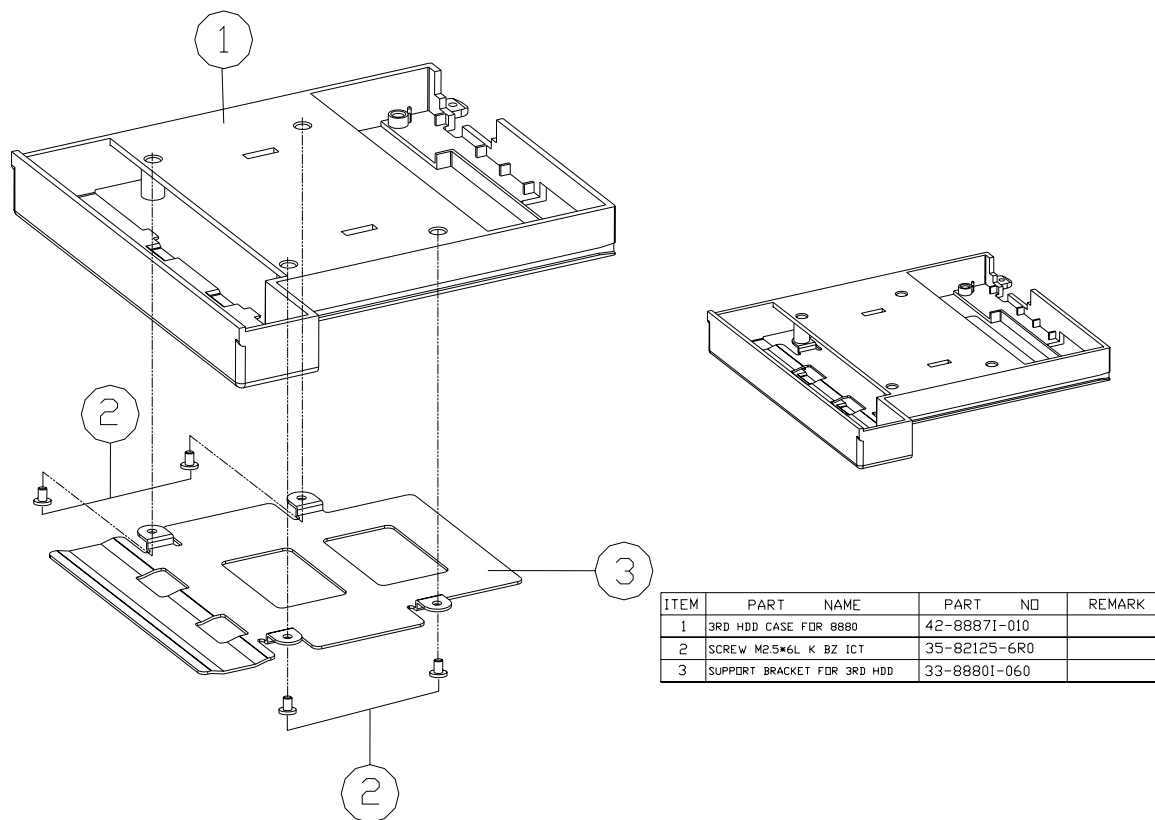
ITEM	PART NAME	PART NO	REMARK
1	3RD HDD CASE FOR 8880	42-8887I-010	
2	SCREW M2.5×6L K BZ ICT	35-82125-6R0	
3	SUPPORT BRACKET FOR 3RD HDD	33-8880I-060	

IP Sharing Module (8880)
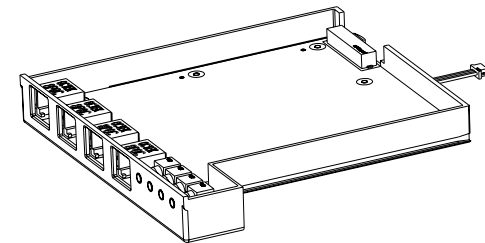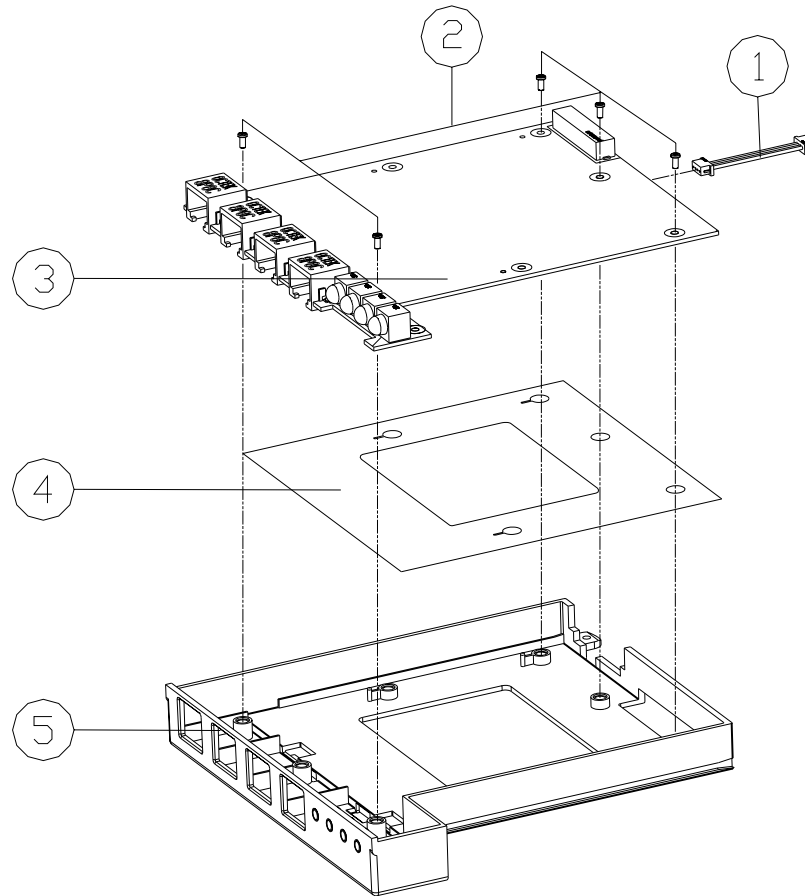
Figure 18
**IP Sharing Module
(8880)**

Part Lists

ITEM	PART NAME	PART NO	REMARK
1	WIRE CABLE FOR MAIN BD TO LAN	43-8880U-010	
2	SCREW M2*3L K1 NI ICT NY	35-B1120-3RA	
3	IP SHARE BOARD MODULE	88-88820-300	
4	IP CASE MYLAR	40-8880U-010	
5	IP CASE MODULE	42-8887U-100	

MP3 Player (8880)
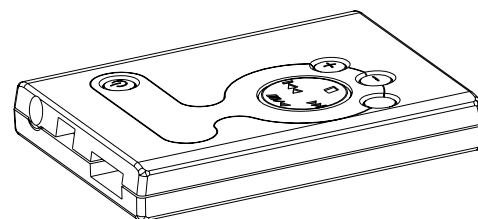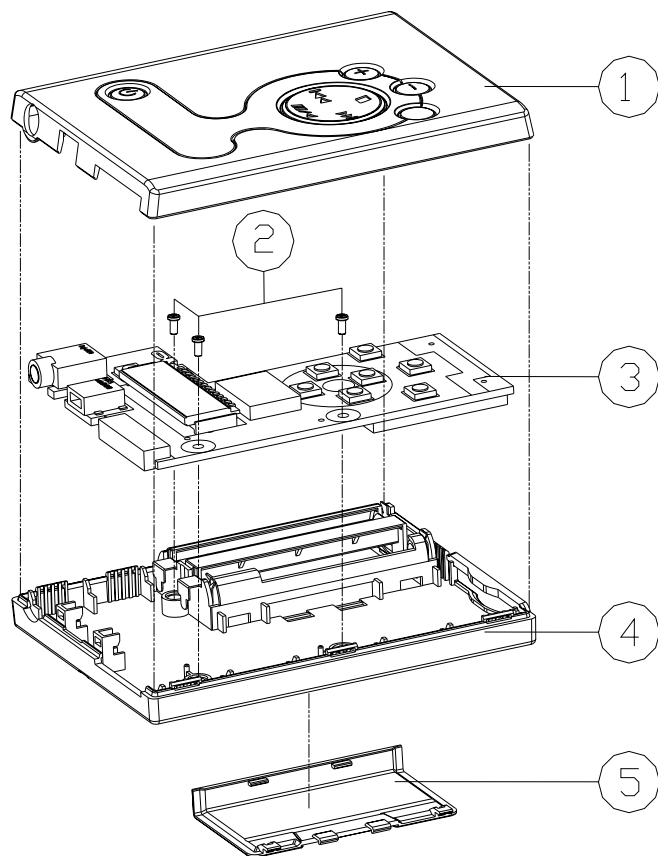
Figure 19
**MP3 Player
(8880)**

ITEM	PART NAME	PART NO	REMARK
1	MP3 TOP CASE MODULE 8880	42-8887H-500	
2	SCREW M2×3L K1 NI ICT NY	35-B1120-3RA	
3	MP3 PLAYER BOARD	77-88809-D04A	
4	MP3 BOTTOM CASE MODULE	42-8887H-300	
5	MP3 BATTERY COVER 8880	42-88809-010	

Part Lists

Appendix B:Schematic Diagrams

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

Table 1

Schematic Diagrams

Diagram - Page	Diagram - Page	Diagram - Page
System Block Diagram - Page B - 2	VGA DDR DRAM Term 2 of 2 - Page B - 17	KBC H8 - Page B - 32
CPU (Northwood) 1 of 2 - Page B - 3	Moblility M7-P Power - Page B - 18	Mini PCI/MDC - Page B - 33
CPU (Northwood) 2 of 2 - Page B - 4	TV CRT & LVDS - Page B - 19	PCI 1520 - Page B - 34
CPU Decoupling - Page B - 5	Video In 7114 - Page B - 20	PCMCIA Connector - Page B - 35
MCH (Host, AGP, Hub) - Page B - 6	ICH3 1 of 2 - Page B - 21	1394 TSB43AB21 - Page B - 36
MCH (Voltage, PLL, USS) - Page B - 7	ICH3 2 of 2 - Page B - 22	LAN RTL8100B - Page B - 37
MCH (DDR) - Page B - 8	USB RTC - Page B - 23	LED Indicator - Page B - 38
DDR Termination - Page B - 9	HDD & CD-R/W & MP3 CNN - Page B - 24	Power Plane - Page B - 39
DDR SODIMM - Page B - 10	AMP TPA0132/ALC201A 1 of 2 - Page B - 25	TV Tuner/Fingerchip - Page B - 40
CLK - Page B - 11	AMP TPA0132/ALC201A 2 of 2 - Page B - 26	W83518D Media Reader - Page B - 41
Mobility M7 - P - Page B - 12	Audio DJ CD-ROM - Page B - 27	System Power 1 SCH (+3V, +5V, +12V) - Page B - 42
Mobility M7 - P Mem A/B - Page B - 13	Fan Control - Page B - 28	System Power 2 SCH (+2.5V, +1.8V, +1.5V, +1.25V) - Page B - 43
VGA DDR DRAM 1 of 2 - Page B - 14	Flash ROM LPT1 - Page B - 29	VCORE - Page B - 44
VGA DDR DRAM 2 of 2 - Page B - 15	LPC Bridge & Super I/O - Page B - 30	Charger-PWM - Page B - 45
VGA DDR DRAM Term 1 of 2 - Page B - 16	I/O Connector - Page B - 31	3VH8 VDD1.8 - Page B - 46

System Block Diagram

8880 SCHEMATIC

**Sheet 1 of 45
System Block
Diagram**

**CK TITAN
Clocking**
PG8

Intel Pentiun 4
/Northwood processor
PGA478
PG2,3

	MOBILITY M7	INT#A	
PREQ0# GNT#0	PCI1520	SERIRQ	AD25
PREQ1# GNT#1	TSB43AB21	INT#B	AD18
PREQ3# GNT#3	LAN RTL8100	INT#C	AD16
PREQ2# GNT#2	MINI PCI	SERIRQ INT#A INT#B	AD19
PREQ4# GNT#4	TV TUNNER	INT#B	AD20

DDR-SGRAM
PG13,15

TV OUT
PG18

LVDS
PG18

CRT
PG18

Moblity M7-P
ATI
PG11,12,17

PHLIIPS
SAA7114
PG19

ZV PORT

AGP 4X

Brookdale
MCH
593 FC-BGA
PG5,6,7

DDR SDRAM 200MHz

SODIMM0
PG10

SODIMM1
PG10

Hub Interface 1.8V , 66MHz

MP3 PG23
PLAYER

USB 1.1

USB 1.1

ICH3-M
421 BGA
PG20,21

33MHz, 3.3V PCI 2.2 I/F

AC'97 2.1 I/F

USB0
PG22

USB1
PG22

USB2
PG22

USB3
PG22

**MDC
MODEM**
PG35

**AUDIO CODEC
AD1886**
PG24

**Realtek
RTL8100**
PG36

**CARDBUS
(TI1520)**
PG33

**W83518D
Media Reader**
PG40

**TYPE III
Mini PCI**
PG32

**1394
TSB43AB21**
PG35

IDE INTERFACE 0
HDD   PG23

Ultra ATA 33/66/100

33MHz, 3.3V LPC I/F

IDE INTERFACE 0
SECOND
HDD(OPTION) PG23

IDE INTERFACE 1
CD-ROM/DVD-ROM
PG26

**AUDIO DJ
OZ165**
PG26

Ultra ATA 33/66/100

IN. K/B

**KBC H8
H8S-2149 HM**
PG31

**NS87393
LPC SUPER I/O**
PG29

IR PORT
PG30

COM
PG30

EX. K/B

LCM   PG25

EX. PS/2

TOUCH PAD

Flash ROM
PG28

FDC
PG30

IDE INTERFACE 1
SECOND   PG23
CD-R/W(OPTION)

CPU (Northwood) 1 of 2

LAYOUT NOTICE:
HD[0..63]
Data Line lengths:
2"-10" from pin to
pin.

LAYOUT NOTICE:
HD[0..15]»ẞµ¥°ø, »~®t
+/-100mils.
¥B@MHDSTBN0#, HDSTBP0#, HDBI0#
µ¥°ø, »~®t+/-25mils.

LAYOUT NOTICE:
HD[16..31]»ẞµ¥°ø, »~®t
+/-100mils.
¥B@MHDSTBN1#, HDSTBP1#, HDBI1#
µ¥°ø, »~®t+/-25mils.

LAYOUT NOTICE:
HD[32..47]»ẞµ¥°ø, »~®t
+/-100mils.
¥B@MHDSTBN2#, HDSTBP2#, HDBI2#
µ¥°ø, »~®t+/-25mils.

LAYOUT NOTICE:
HD[48..63]»ẞµ¥°ø, »~®t
+/-100mils.
¥B@MHDSTBN3#, HDSTBP3#, HDBI3#
µ¥°ø, »~®t+/-25mils.

LAYOUT NOTICE:
HA[17..35]»ẞµ¥°ø,
»~®t+/-200mils.
¥B@MADSTB1#µ¥°ø,
»~®t+/-25mils.

LAYOUT NOTICE:
HA[3..16]»ẞµ¥°ø,
»~®t+/-200mils.
¥B@MADSTB0#, HREQ[0..4]#µ¥°ø,
»~®t+/-25mils.

LAYOUT NOTICE:
HA[3..31]
Address Line lengths:
2"-10" from pin to
pin.

For Mobile Northwood
Processor

Line to line spacing: Greater than
3:1
Trace Impedance: 50ohm +/-15%

Reserved

Place close to cpu

CPU (Northwood) 2 of 2

Sheet 3 of 45
CPU 2 of 2

CPU Decoupling

CLOSE TO SO DIMM 1

Put the cap on the North side of the processor

VCORE

C389	C391	C394	C400	C405	C411	C417	C419	C421	C372	C371	C370	C369	C368	CP10
10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	330U/6V_D POSCAP

VCORE

C477	C476	C474	C470	C466	C464	C460	C456	C454	C450	C447	C443	C440	C438
0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U

Put the cap on the South side of the processor

VCORE

C467	C396	C395	C401	C407	C413	C418	C420	C457	C451	C462	C402	C408	C414
10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)

VCORE

C437	C439	C442	C445	C449	C453	C455	C459	C461	C465	C828	C469	C473	C475	CP9
0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	0.47U	330U/6V_D POSCAP

Put the cap in the processor cavity

VCORE

C397	C403	C409	C415	C399	C404	C410	C416	C429	C430	C431	C433	C432	C398	C406	C412	C422	C423	C424	C425	CP8
10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	1U_X7R	1U_X7R	1U_X7R	1U_X7R	1U_X7R	1U_X7R	1U_X7R	150U/6V_D POSCAP

BACK SIDE CPU DECOUPING

VCORE

C484	C485	C486	C487	C488	C489
10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)

VCORE

C482	C483	C373	C374	C375	C376
10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)

VCORE

C377	C378	C468	C463	C458	C452
10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)

VCORE

C446	C441	C436	C435	C434	C367	CP5
10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	10U(1206)	150U/6V_D POSCAP

CLOSE TO SO DIMM 0

2.5V_DDR

C652	C236	C241	C233	C238	C235	C240	C643	C639
0.1U_X7R	0.1U_X7R	0.1U_X7R	0.1U_X7R	1U_0805_X7R	1U_0805_X7R	1U_0805_X7R	10U(1206)	10U(1206)

2.5V_DDR

C815	C606	C607	C611	C608	C613	C616	C610	C604	CP11
0.1U_X7R	0.1U_X7R	0.1U_X7R	0.1U_X7R	0.1U_X7R	0.1U_X7R	10U(1206)	10U(1206)	10U(1206)	150U/6V_D POSCAP

CLOSE TO SO DIMM 1

2.5V_DDR

C678	C675	C670	C667	C669	C673	C677	C663	C665
0.1U_X7R	0.1U_X7R	0.1U_X7R	0.1U_X7R	1U_0805_X7R	1U_0805_X7R	1U_0805_X7R	10U(1206)	10U(1206)

2.5V_DDR

C711	C709	C707	C705	C704	C703	C712	C706	C702	CP12
0.1U_X7R	0.1U_X7R	0.1U_X7R	0.1U_X7R	0.1U_X7R	0.1U_X7R	10U(1206)	10U(1206)	10U(1206)	150U/6V_D POSCAP

VCORE 2,3,6,21,43

1.25V 3,6..8,38,42

2.5V_DDR 6,7,9

MCH (Host, AGP, Hub)

Sheet 5 of 45
MCH
(Host, AGP, Hub)

CPU

CLK/RESET

Hub Interface

AGP Interface

ST1	ST0	MCH STRAP
X	0	DDR
X	1	SDR
0	X	533Mhz
1	X	400Mhz

+-10mils

FOR DEBUG ONLY

With 5/20 trace/space routing.Signals must match +/- 0.1" of HL_STB/HL_STB# signals

R: 4K~16K, Recommand 8.2K.

TRACE Keep to less than 0.1 inches.
(AGP 1X:0.5 inches, 2X/4X: 0.1 inces)

845MCH

MCH (Voltage, PLL, USS)

Sheet 6 of 45
MCH
(Voltage, PLL, USS)

MCH (DDR)

Schematic Diagrams

**Sheet 7 of 45
MCH
(DDR)**

U36B

DDR Interface

845MCH

NOTE: Place these decoupling
capacitors close to 1.25V
termination resistors. (one
decoupling capacitor for each
two R-packs)

Decoupling capacitors (Place near DDR SDRAM DIMM modules)

One 0.1U cap per power pin.

1.25V   3,6,8,38,42
2.5V_DDR   4,6,9

DDR Termination

Sheet 8 of 45
DDR Termination

Place these damping resistors close to SO-DIMM

DDR SODIMM

Sheet 9 of 45
DDR SODIMM

SO DIMM 0

SO DIMM 1

CLK
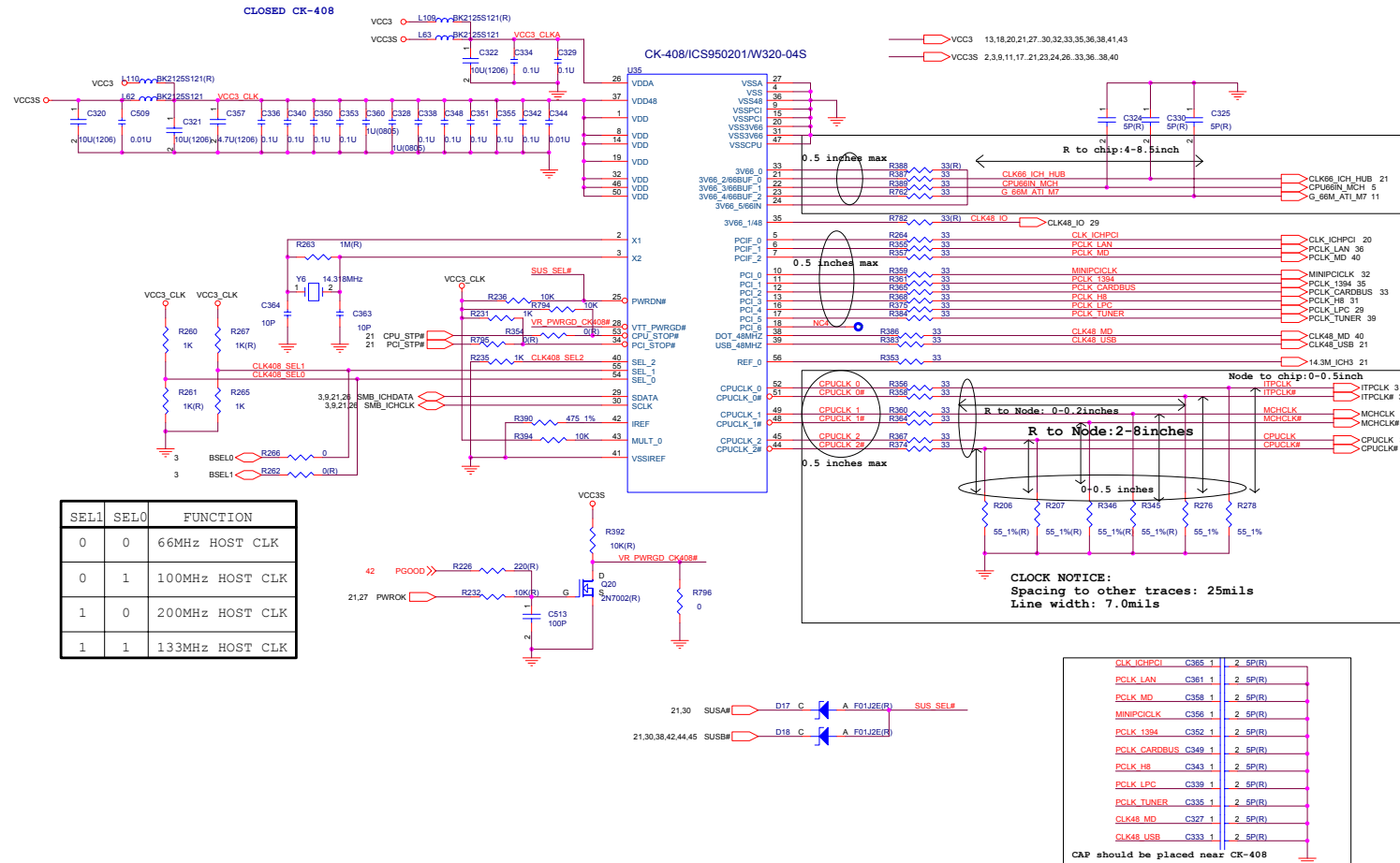
SEL1	SEL0	FUNCTION
0	0	66MHz HOST CLK
0	1	100MHz HOST CLK
1	0	200MHz HOST CLK
1	1	133MHz HOST CLK

Mobility M7 - P

Sheet 11 of 45
Mobility M7 - P

Mobility M7 - P Mem A/B

MEMVMODE[1:0]	MEMORY IO VOLTAGE
0	2.5V (DDR)
1	
1	1.8V (DDR)
0	
1	3.3V (SDR)
1	

VGA DDR DRAM 1 of 2

Sheet 13 of 45
VGA DDR DRAM
1 of 2
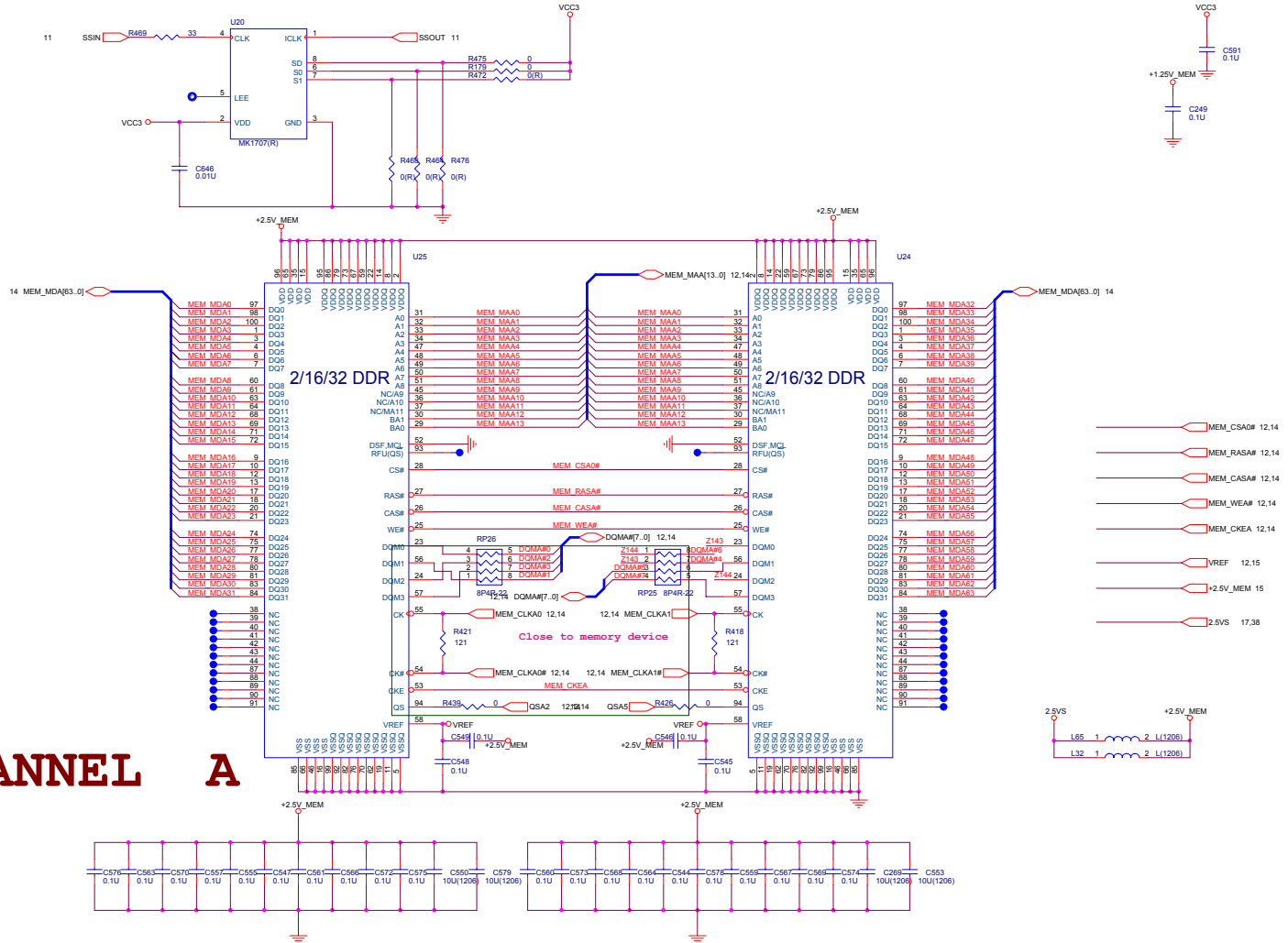
CHANNEL A

VGA DDR DRAM 2 of 2

CHANNL B

MEM_MDB[63..0] 16

VREF 12,13

+2.5V_MEM 13

MEM_CSB0# 12,16

MEM_RASB# 12,16

MEM_CASB# 12,16

MEM_WEB# 12,16

MEM_CKEB 12,16

+2.5V_MEM

+2.5V_MEM

U17

U16

MEM_MAB[13..0] 12,16

2/16/32 DDR

2/16/32 DDR
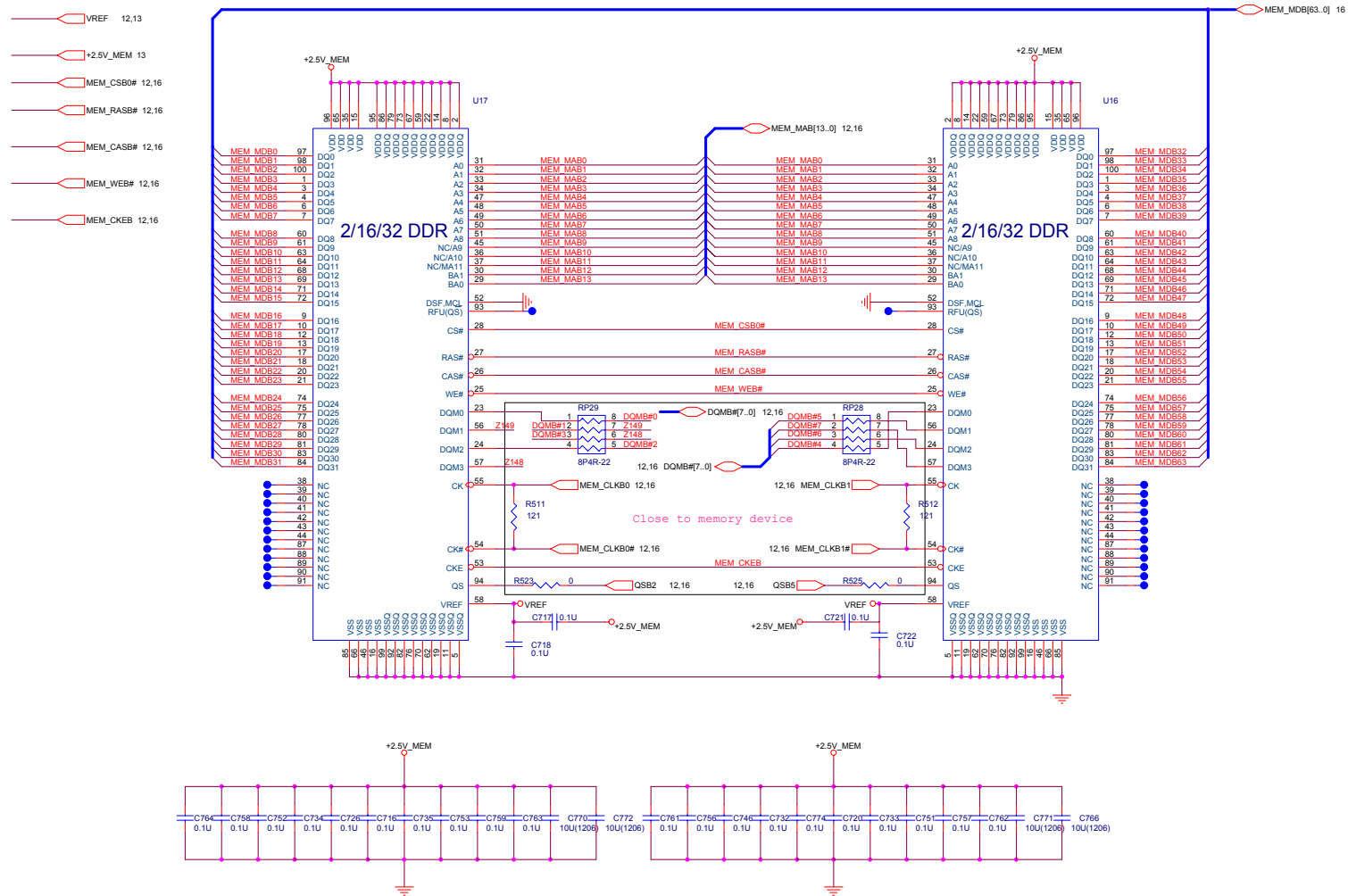
**Sheet 14 of 45
VGA DDR DRAM
2 of 2**

Close to memory device

R511 121

R512 121

MEM_CLKB0 12,16

MEM_CLKB1 12,16

MEM_CLKB0# 12,16

12,16 MEM_CLKB1#

MEM_CKEB

R523 0   QSB2 12,16   12,16 QSB5   R525 0

DQMB#[7..0] 12,16

RP29   RP28

8P4R-22   8P4R-22

12,16 DQMB#[7..0]

C717 0.1U   +2.5V_MEM   +2.5V_MEM   C721 0.1U

C718 0.1U   C722 0.1U

+2.5V_MEM   +2.5V_MEM

C764 C758 C752 C734 C726 C716 C735 C753 C759 C763 C770 C772
0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 10U(1206) 10U(1206)

C761 C756 C746 C732 C774 C720 C733 C751 C757 C762 C771 C766
0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 0.1U 10U(1206) 10U(1206)

VGA DDR DRAM Term 1 of 2

**Sheet 15 of 45
VGA DDR DRAM
Term
1 of 2**

CHANNEL   A

VGA DDR DRAM Term 2 of 2

CHANNL B

**Sheet 16 of 45
VGA DDR DRAM
Term
2 of 2**

Moblility M7-P Power

Schematic Diagrams

**Sheet 17 of 45
Mobility M7-P
Power**

TV CRT & LVDS

Schematic Diagrams

Video In 7114

Sheet 19 of 45
Video In 7114

ICH3 1 of 2

Schematic Diagrams

ATA33 : PULL HIGH

ATA66/100 : PULL LOW

ICH3

CPU I/F

PCI I/F

IDE I/F

INTERRUP I/F

PLACE NEAR ICH3

ICH3 2 of 2
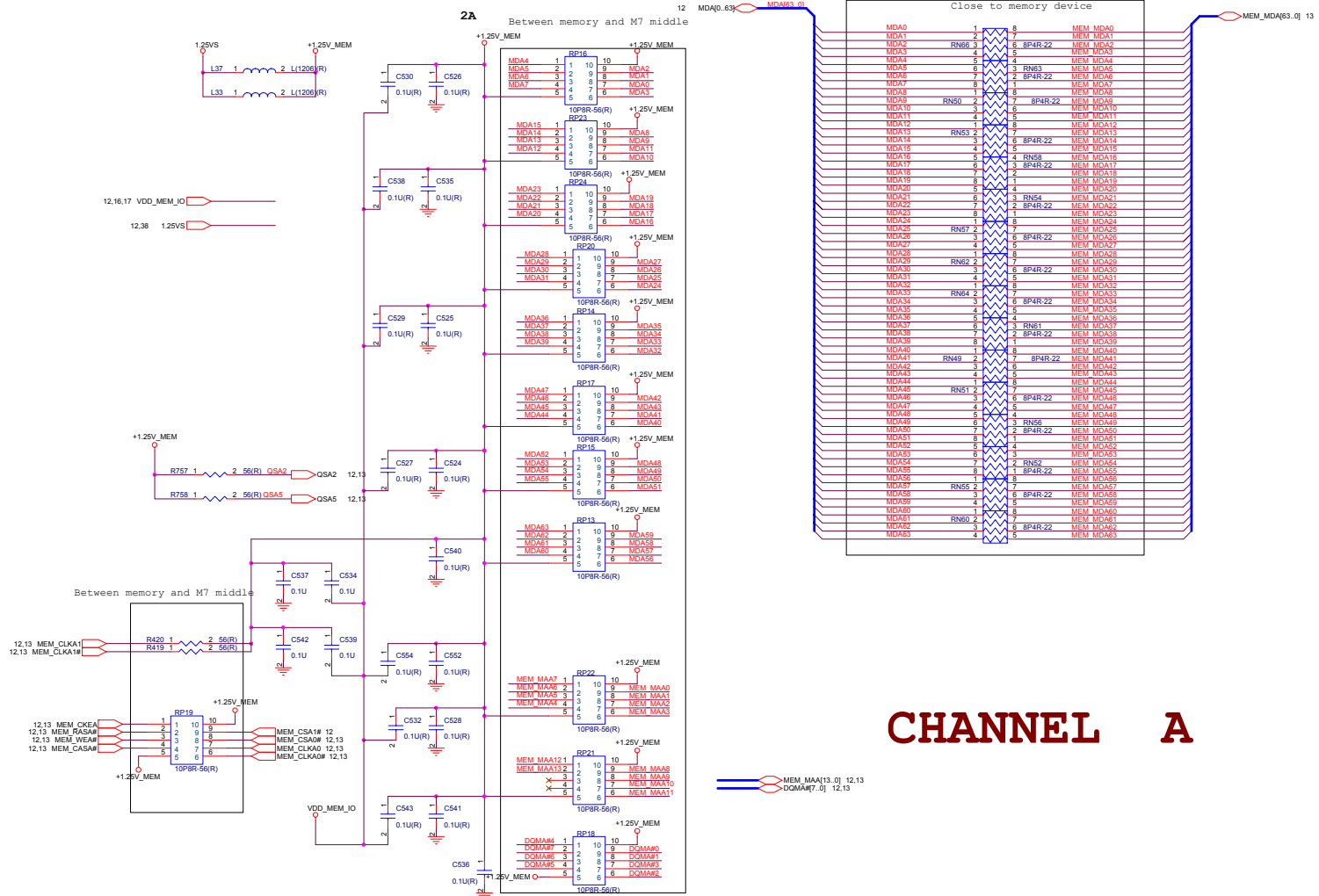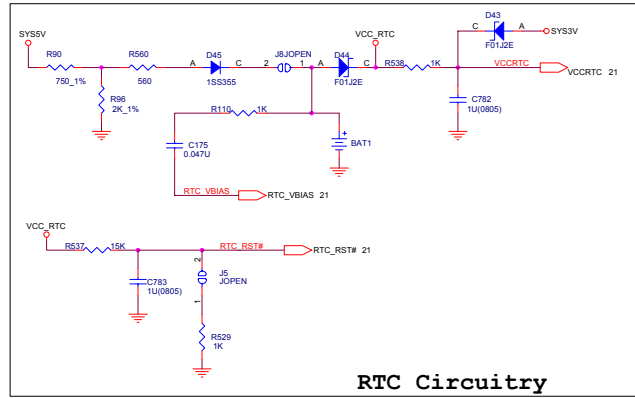
ICH3

USB RTC

RTC Circuitry
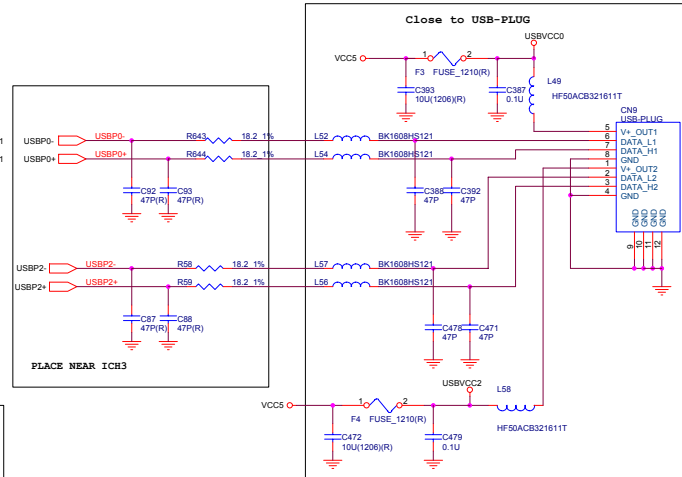
PLACE NEAR ICH3

Close to USB-PLUG

Close to USB-PLUG

HDD & CD-R/W & MP3 CNN

**Sheet 23 of 45
HDD & CD-R/W &
MP3 CNN**
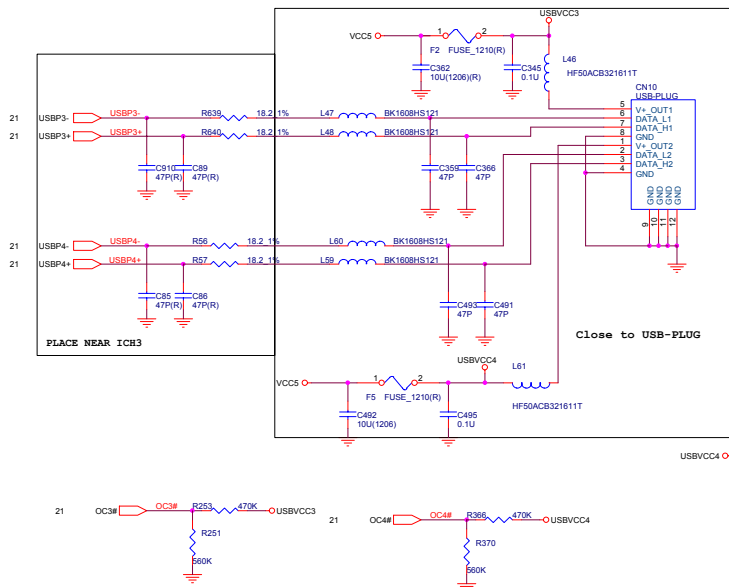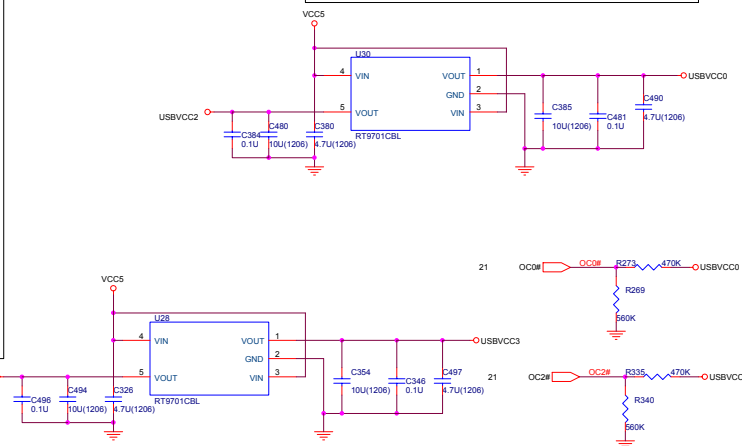
AMP TPA0132/ALC201A 1 of 2
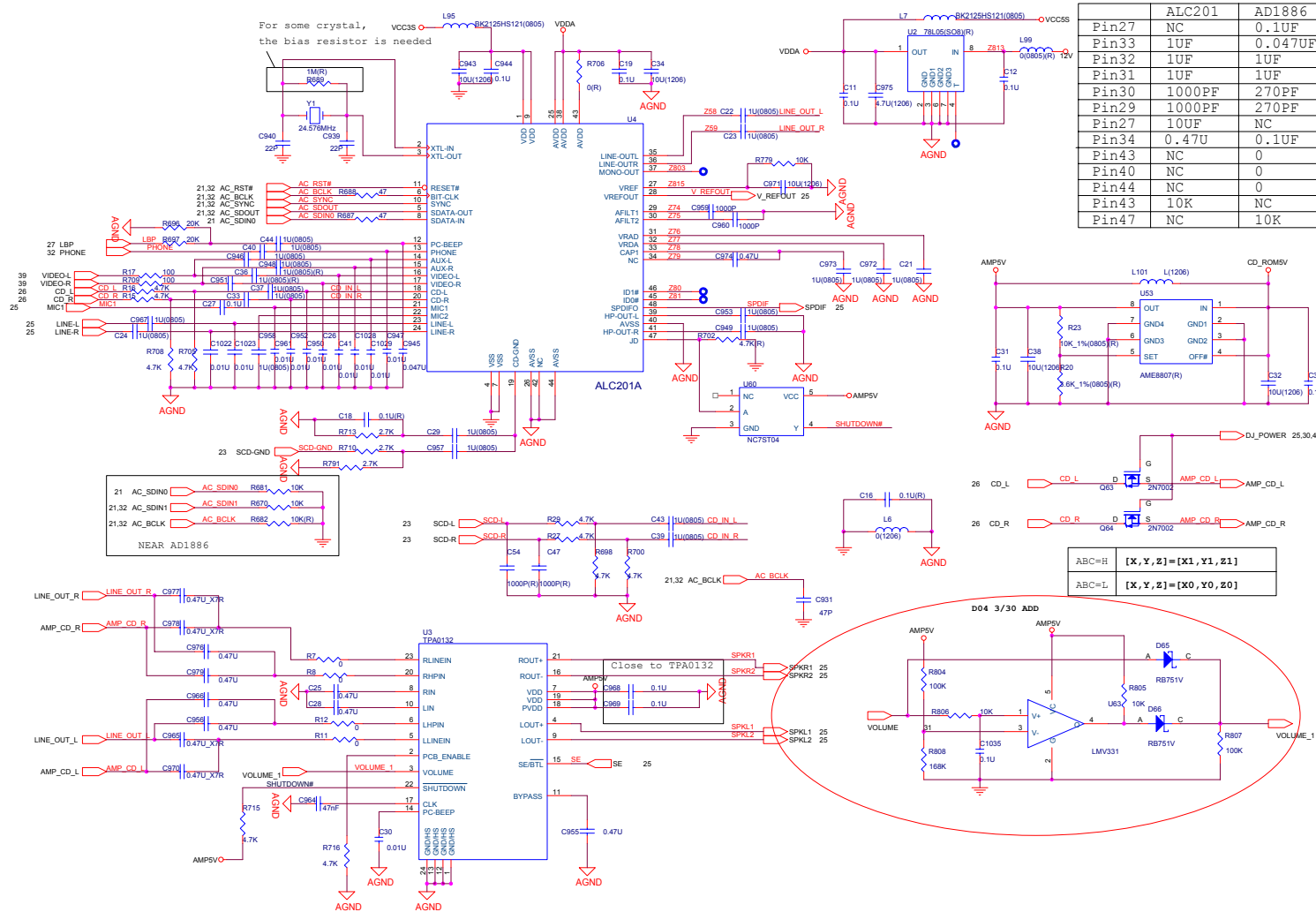
	ALC201	AD1886
Pin27	NC	0.1UF
Pin33	1UF	0.047UF
Pin32	1UF	1UF
Pin31	1UF	1UF
Pin30	1000PF	270PF
Pin29	1000PF	270PF
Pin27	10UF	NC
Pin34	0.47U	0.1UF
Pin43	NC	0
Pin40	NC	0
Pin44	NC	0
Pin43	10K	NC
Pin47	NC	10K

ABC=H	[X,Y,Z]=[X1,Y1,Z1]
ABC=L	[X,Y,Z]=[X0,Y0,Z0]

AMP TPA0132/ALC201A 2 of 2

**Sheet 25 of 45
AMP TPA0132/
ALC201A
2 of 2**

To LCM Module

SPDIF OUT/MIC IN

LINE IN

SPEAKER OUT

Audio DJ CD-ROM

Sheet 26 of 45
Audio DJ CD-ROM
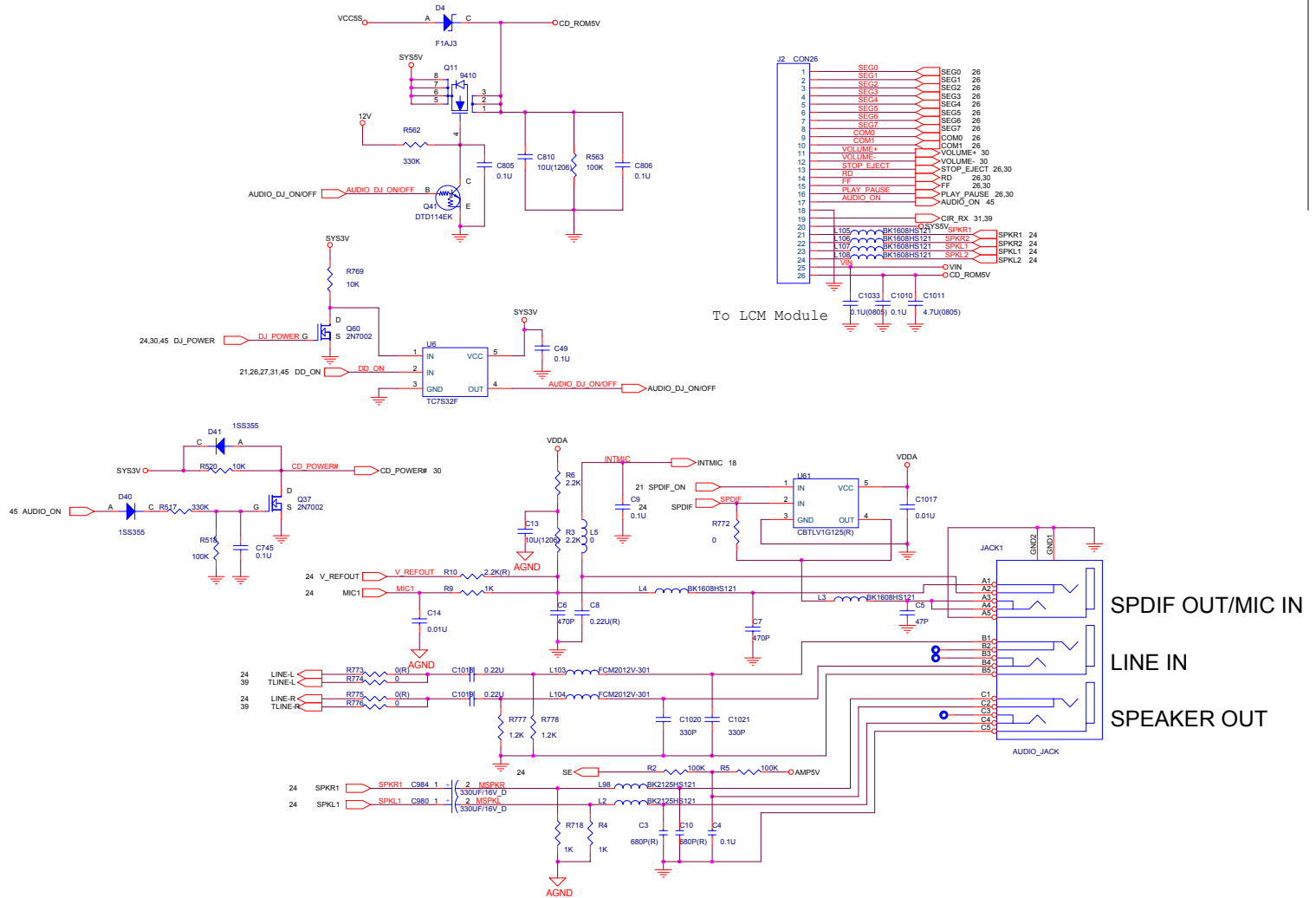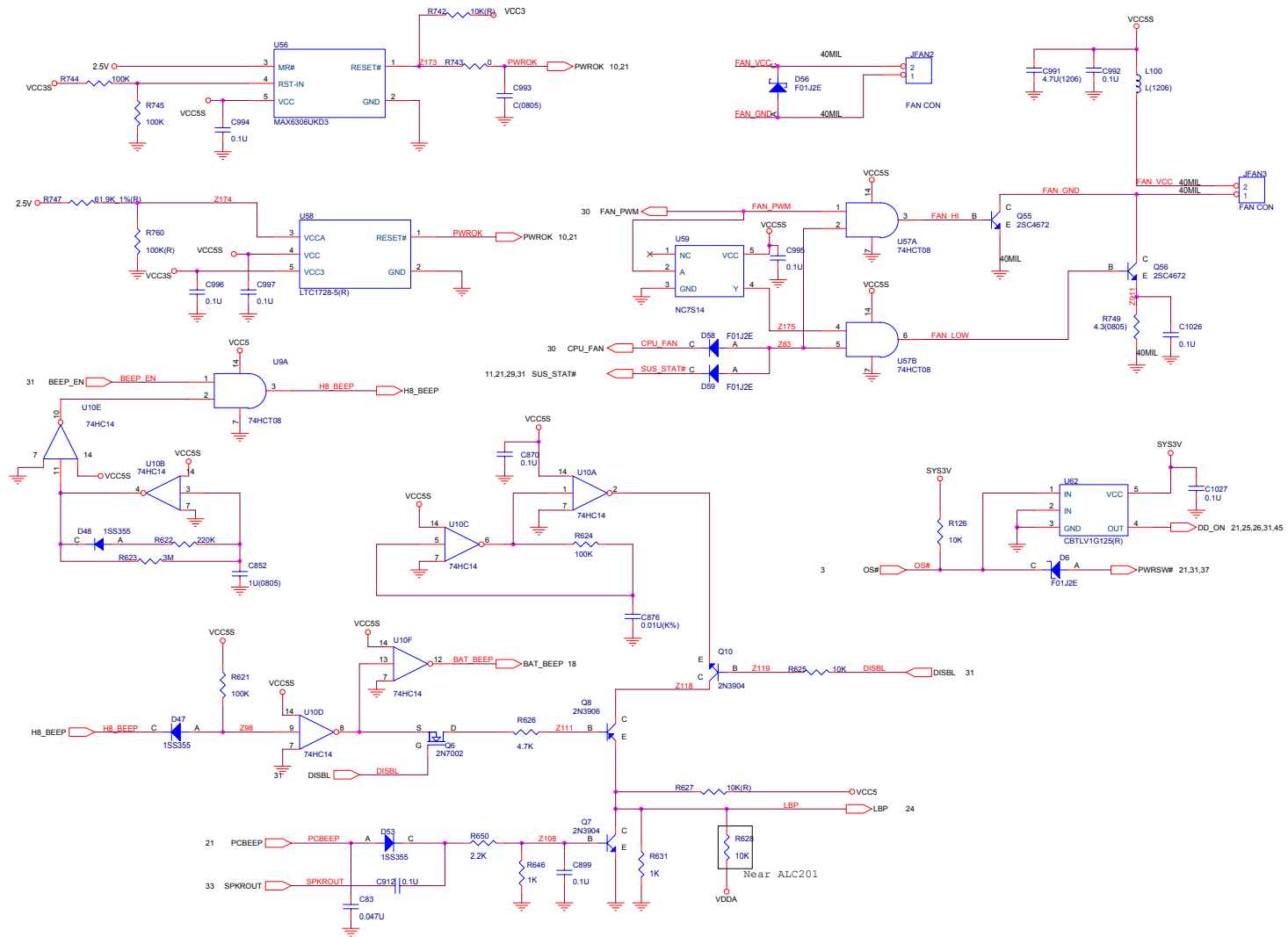
Fan Control

Flash ROM LPT1

Place near ICH3
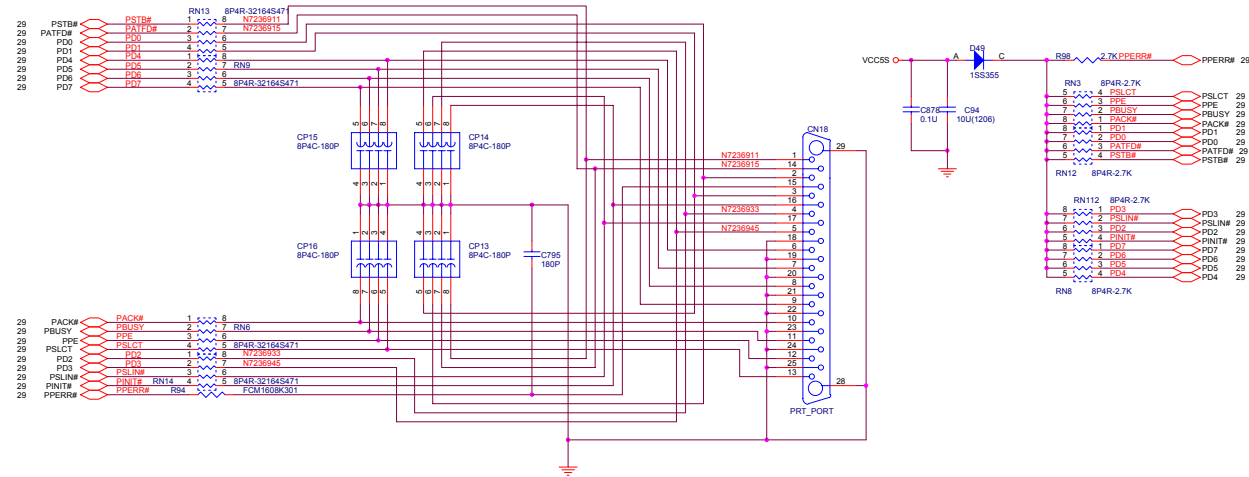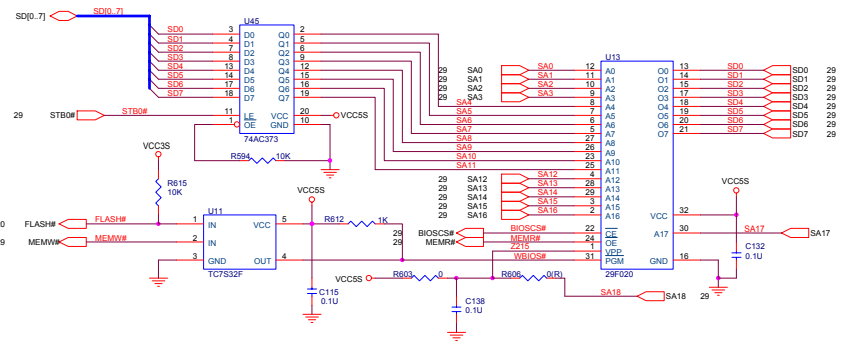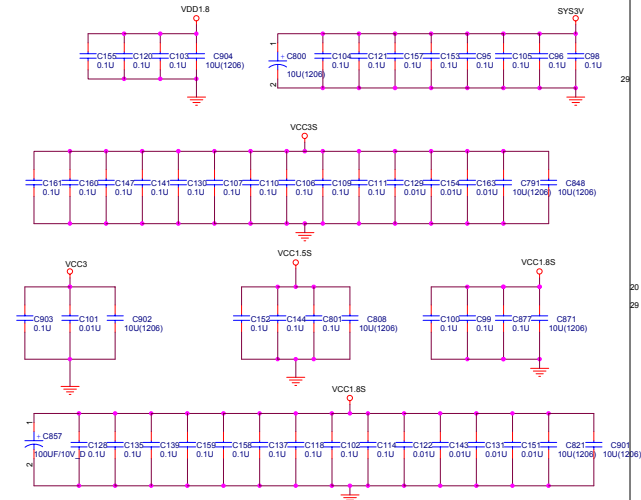
LPC Bridge & Super I/O

I/O Connector

KBC H8

Sheet 31 of 45
KBC H8

Mini PCI/MDC

PCI 1520

**Sheet 33 of 45
PCI 1520**
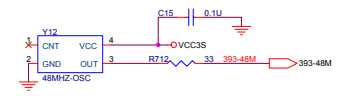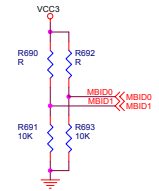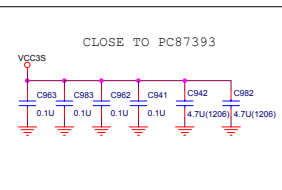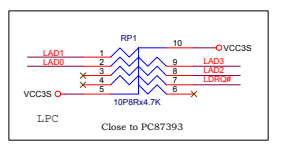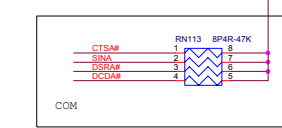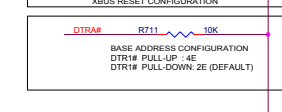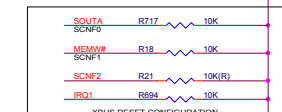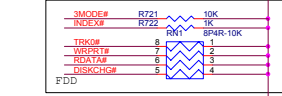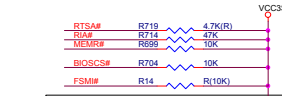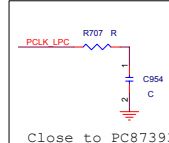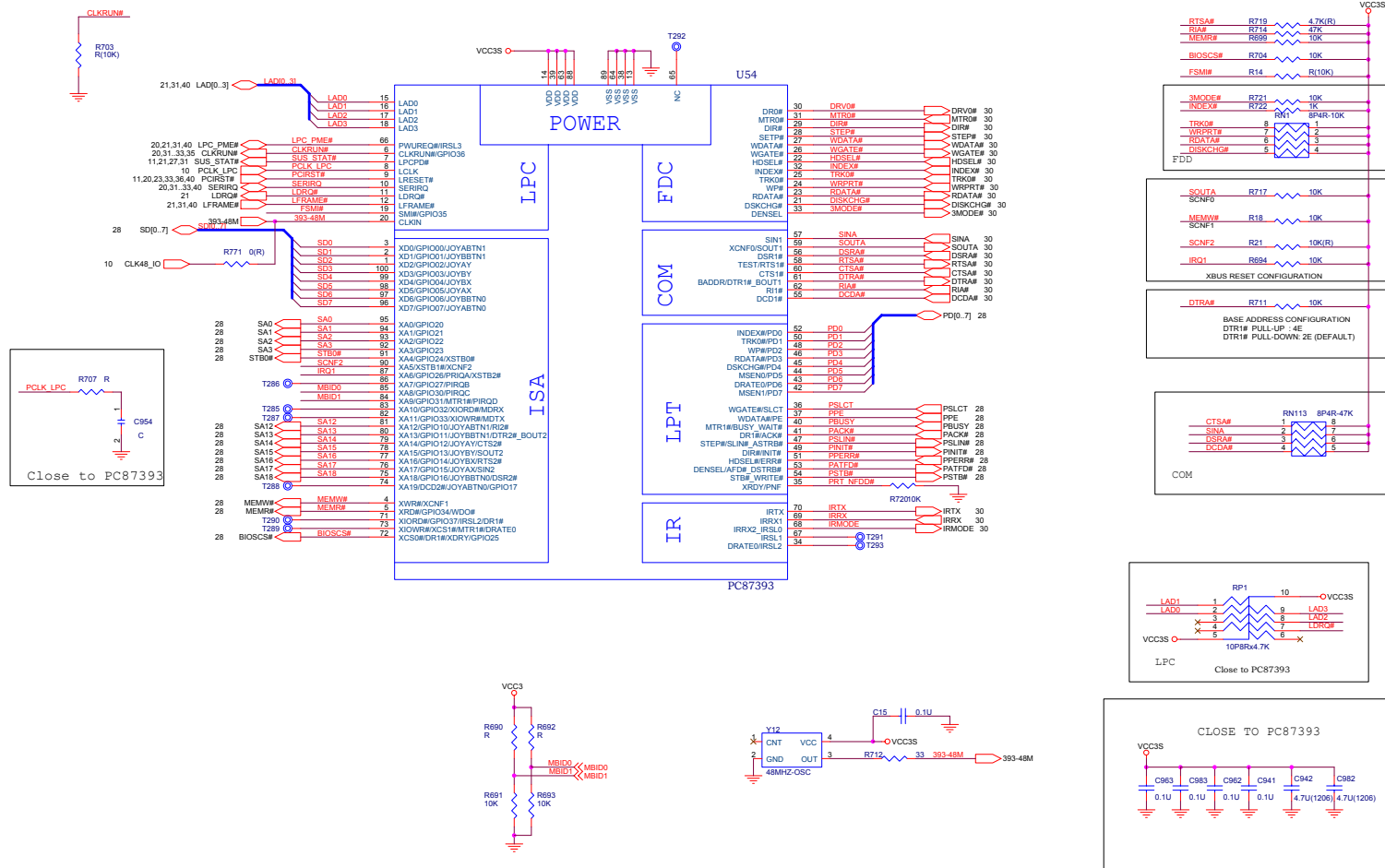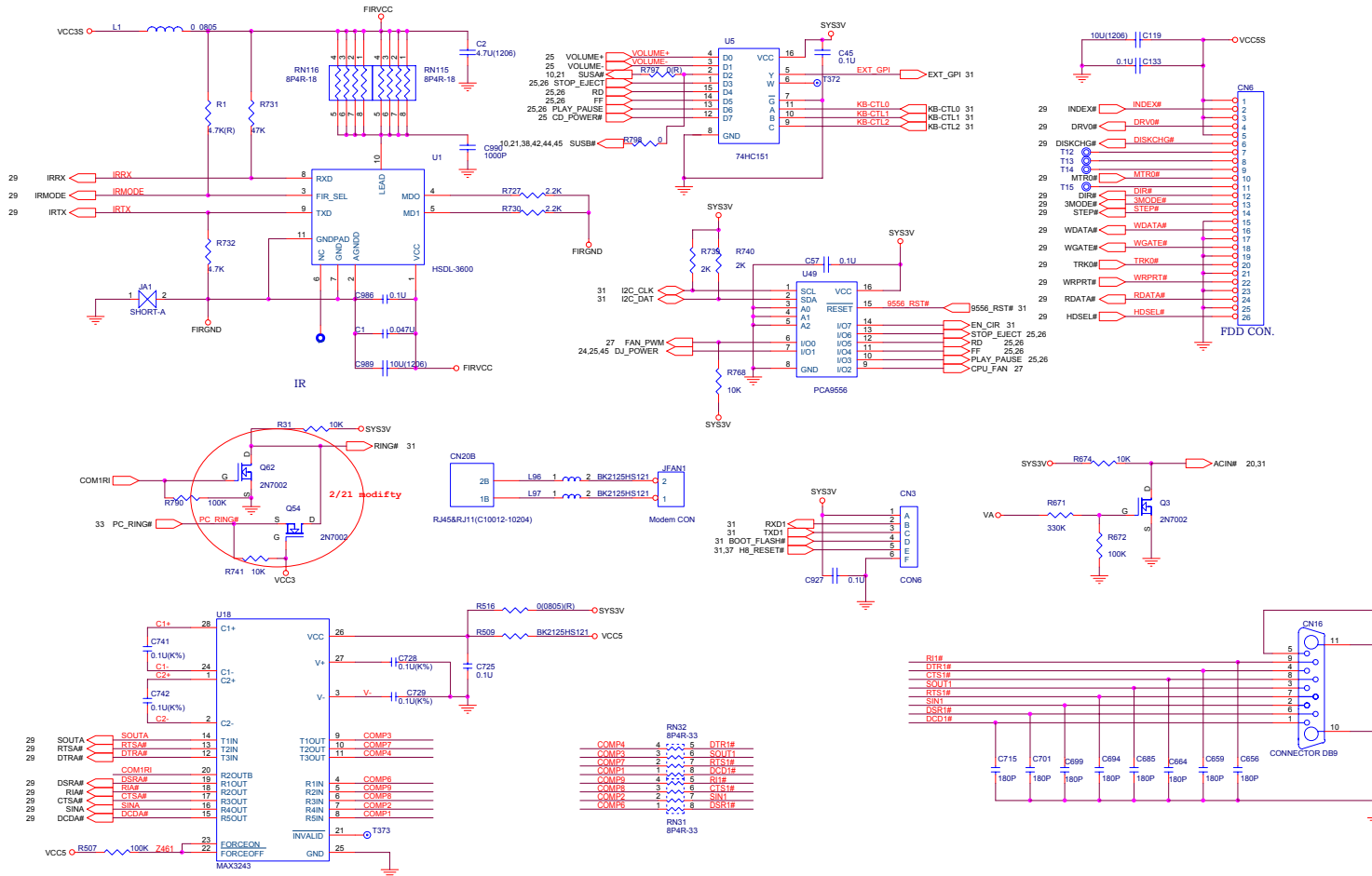
PCMCIA Connector

Schematic Diagrams
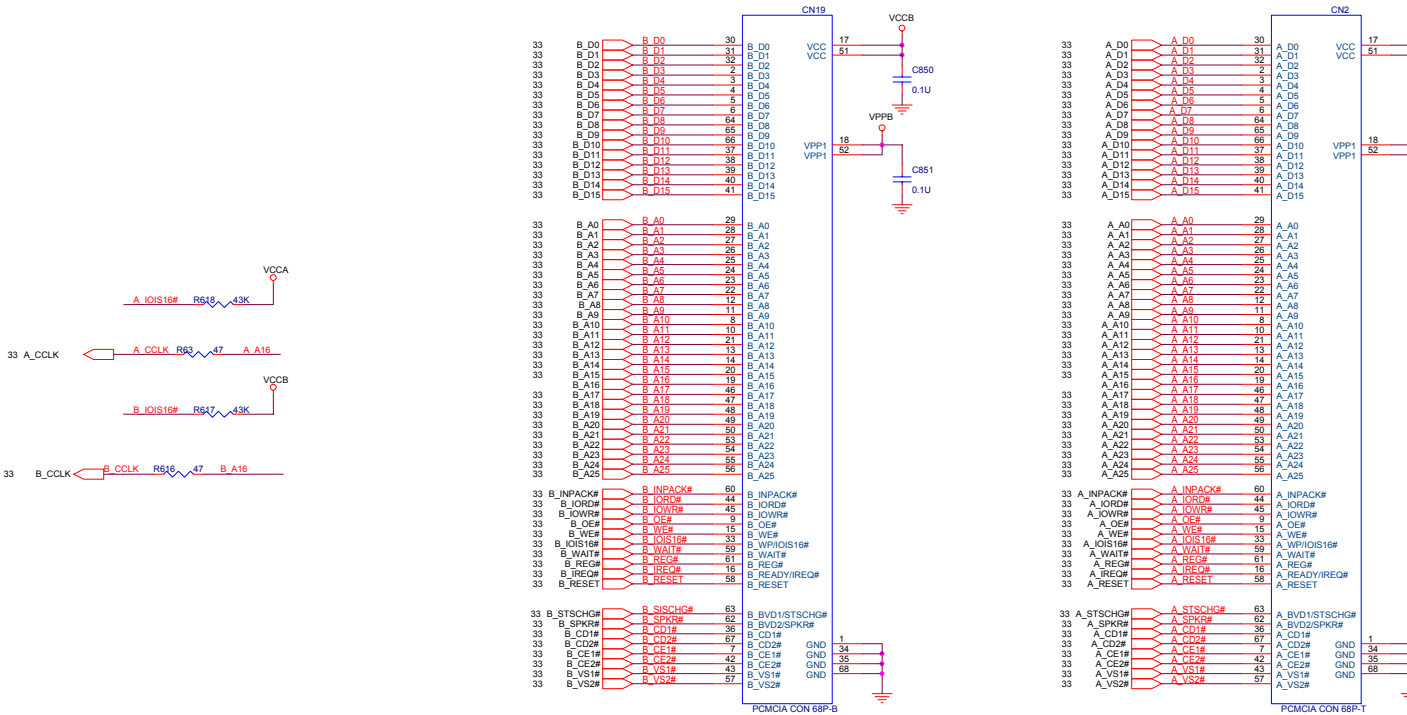
**Sheet 34 of 45
PCMCIA Connector**

CN19

Signal	Pin
B_D0	30
B_D1	31
B_D2	32
B_D3	2
B_D4	3
B_D5	4
B_D6	5
B_D7	6
B_D8	64
B_D9	65
B_D10	66
B_D11	37
B_D12	38
B_D13	39
B_D14	40
B_D15	41

VCC 17
VCC 51
VCCB
C850 0.1U

VPP1 18
VPP1 52
VPPB
C851 0.1U

B_A0	29
B_A1	28
B_A2	27
B_A3	26
B_A4	25
B_A5	24
B_A6	23
B_A7	22
B_A8	12
B_A9	11
B_A10	8
B_A11	10
B_A12	21
B_A13	13
B_A14	14
B_A15	20
B_A16	19
B_A17	46
B_A18	47
B_A19	48
B_A20	49
B_A21	50
B_A22	53
B_A23	54
B_A24	55
B_A25	56

B_INPACK#	60
B_IORD#	44
B_IOWR#	45
B_OE#	9
B_WE#	15
B_WP/IOIS16#	33
B_WAIT#	59
B_REG#	61
B_READY/IREQ#	16
B_RESET	58

B_BVD1/STSCHG#	63
B_BVD2/SPKR#	62
B_CD1#	36
B_CD2#	67
B_CE1#	7
B_CE2#	42
B_VS1#	43
B_VS2#	57

GND 1
GND 34
GND 35
GND 68

PCMCIA CON 68P-B

A_IOIS16# R618 43K VCCA
A_CCLK R63 47 A_A16
B_IOIS16# R617 43K VCCB
B_CCLK R616 47 B_A16

CN2

Signal	Pin
A_D0	30
A_D1	31
A_D2	32
A_D3	2
A_D4	3
A_D5	4
A_D6	5
A_D7	6
A_D8	64
A_D9	65
A_D10	66
A_D11	37
A_D12	38
A_D13	39
A_D14	40
A_D15	41

VCC 17
VCC 51
VCCA
C116 0.1U

VPP1 18
VPP1 52
VPPA
C117 0.1U

A_A0	29
A_A1	28
A_A2	27
A_A3	26
A_A4	25
A_A5	24
A_A6	23
A_A7	22
A_A8	12
A_A9	11
A_A10	8
A_A11	10
A_A12	21
A_A13	13
A_A14	14
A_A15	20
A_A16	19
A_A17	46
A_A18	47
A_A19	48
A_A20	49
A_A21	50
A_A22	53
A_A23	54
A_A24	55
A_A25	56

A_INPACK#	60
A_IORD#	44
A_IOWR#	45
A_OE#	9
A_WE#	15
A_WP/IOIS16#	33
A_WAIT#	59
A_REG#	61
A_READY/IREQ#	16
A_RESET	58

A_BVD1/STSCHG#	63
A_BVD2/SPKR#	62
A_CD1#	36
A_CD2#	67
A_CE1#	7
A_CE2#	42
A_VS1#	43
A_VS2#	57

GND 1
GND 34
GND 35
GND 68

PCMCIA CON 68P-T

1394 TSB43AB21

Sheet 35 of 45
1394 TSB43AB21

LAN RTL8100B

RTL8100B Note:
A. Change R718 from 1.8K(RTL8100) to 5.6K(RTL8100B)
B. RTL8100B Del R?
C. RTL8100B Pin 51,96 to VDD25. Pin 58 to AVDD25.
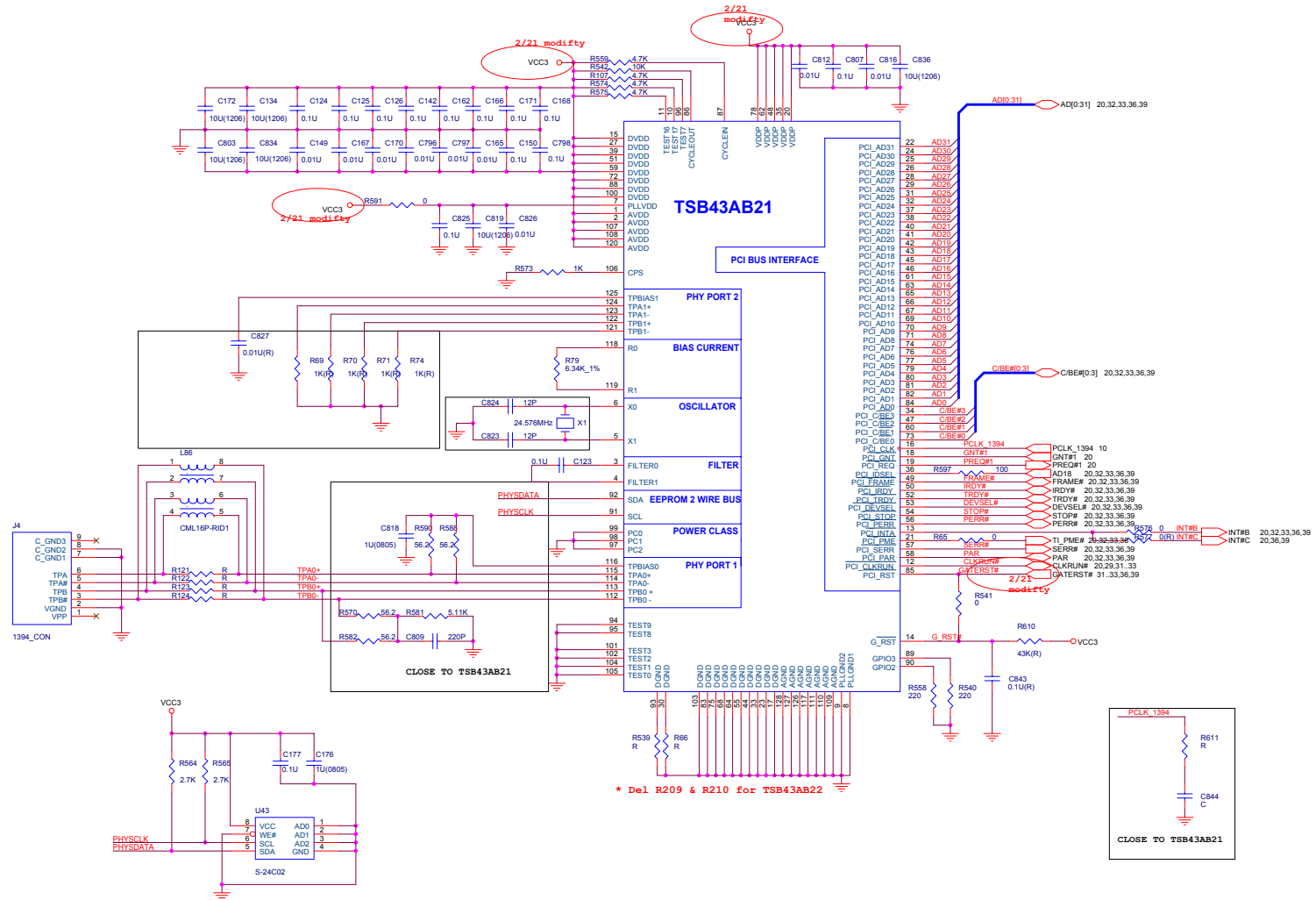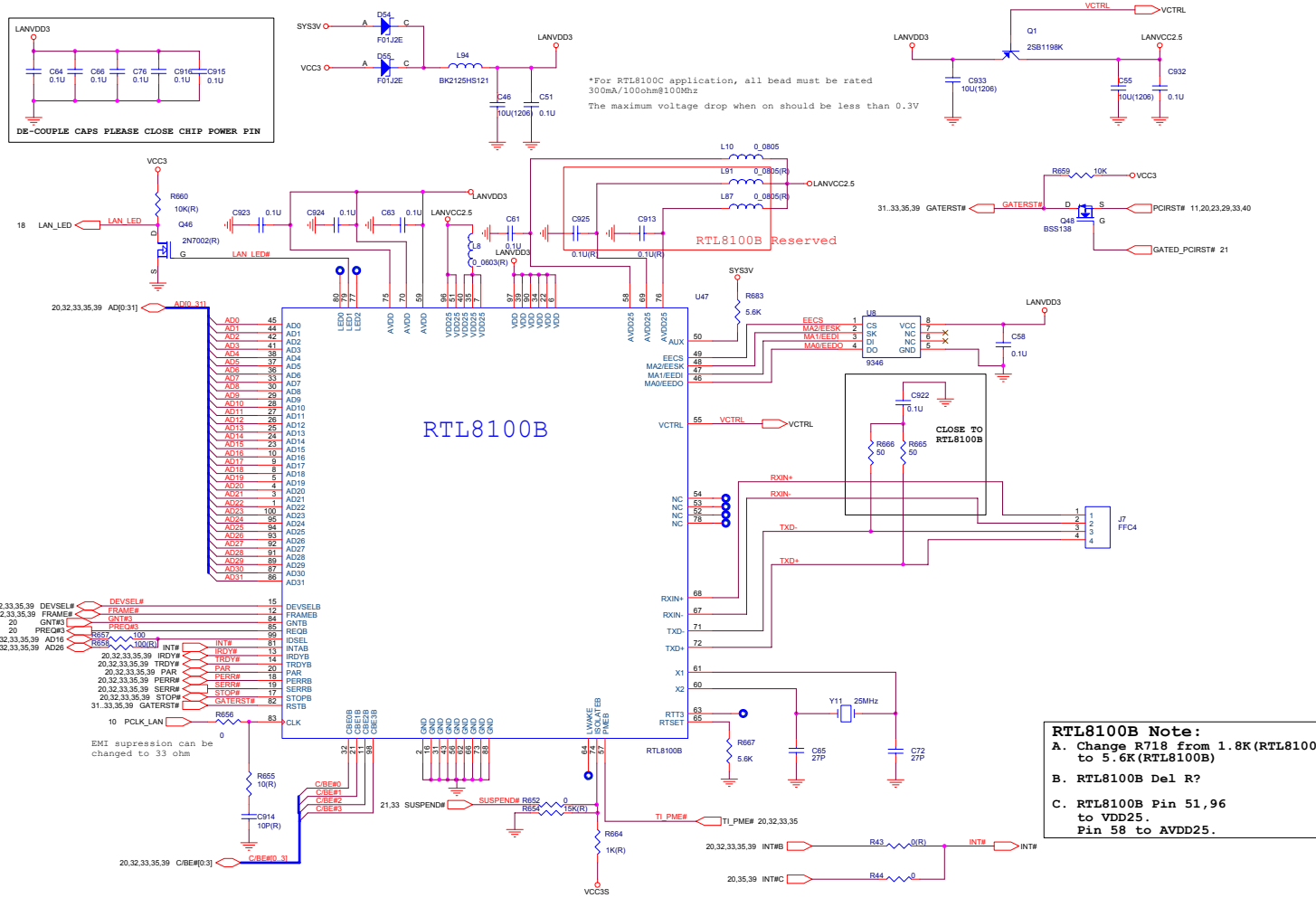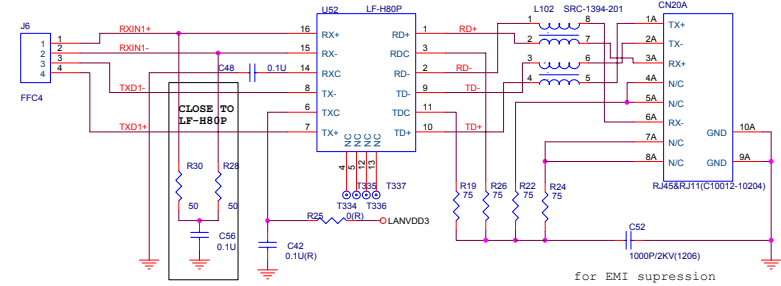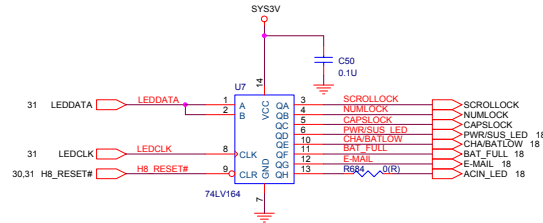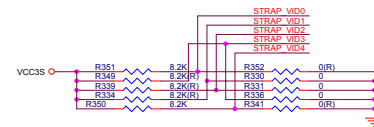
LED Indicator

Sheet 37 of 45
LED Indicator
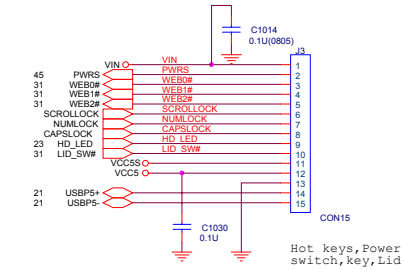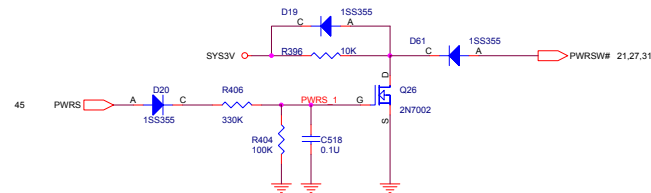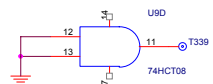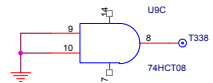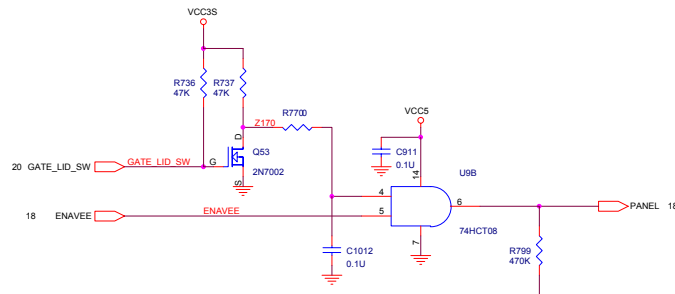
for EMI supression

Hot keys, Power
switch, key, Lid

Power Plane

TV Tuner/Fingerchip

2/21 modifty

VCC5

TV Tuner

Sheet 39 of 45
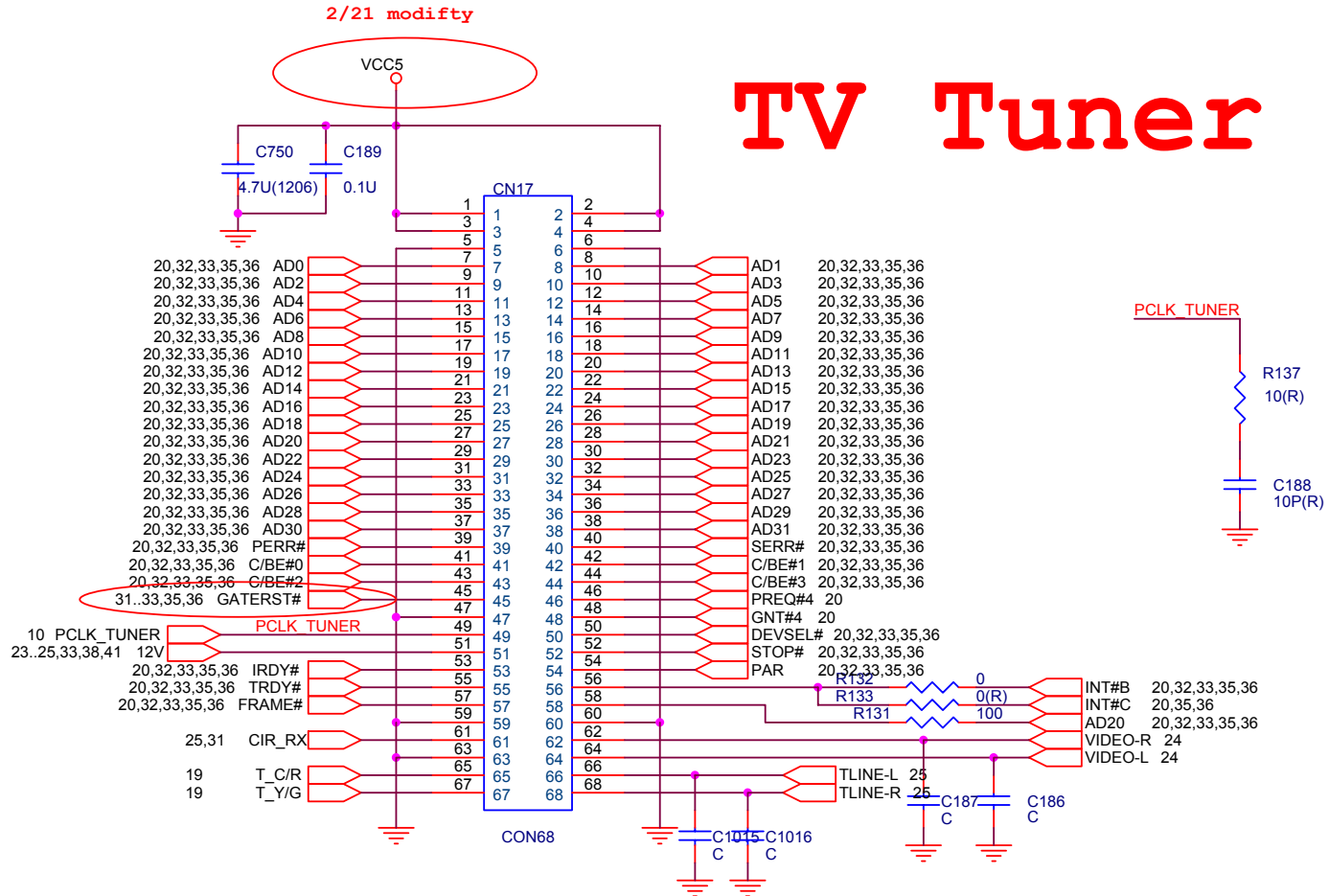**TV Tuner**
Fingerchip

C750 C189

4.7U(1206) 0.1U

CN17

20,32,33,35,36	AD0
20,32,33,35,36	AD2
20,32,33,35,36	AD4
20,32,33,35,36	AD6
20,32,33,35,36	AD8
20,32,33,35,36	AD10
20,32,33,35,36	AD12
20,32,33,35,36	AD14
20,32,33,35,36	AD16
20,32,33,35,36	AD18
20,32,33,35,36	AD20
20,32,33,35,36	AD22
20,32,33,35,36	AD24
20,32,33,35,36	AD26
20,32,33,35,36	AD28
20,32,33,35,36	AD30
20,32,33,35,36	PERR#
20,32,33,35,36	C/BE#0
20,32,33,35,36	C/BE#2
31..33,35,36	GATERST#

AD1   20,32,33,35,36
AD3   20,32,33,35,36
AD5   20,32,33,35,36
AD7   20,32,33,35,36
AD9   20,32,33,35,36
AD11 20,32,33,35,36
AD13 20,32,33,35,36
AD15 20,32,33,35,36
AD17 20,32,33,35,36
AD19 20,32,33,35,36
AD21 20,32,33,35,36
AD23 20,32,33,35,36
AD25 20,32,33,35,36
AD27 20,32,33,35,36
AD29 20,32,33,35,36
AD31 20,32,33,35,36
SERR# 20,32,33,35,36
C/BE#1 20,32,33,35,36
C/BE#3 20,32,33,35,36
PREQ#4 20
GNT#4 20

PCLK_TUNER

R137
10(R)

C188
10P(R)

PCLK_TUNER

10	PCLK_TUNER
23..25,33,38,41	12V
20,32,33,35,36	IRDY#
20,32,33,35,36	TRDY#
20,32,33,35,36	FRAME#
25,31	CIR_RX
19	T_C/R
19	T_Y/G

DEVSEL# 20,32,33,35,36
STOP# 20,32,33,35,36
PAR 20,32,33,35,36

R132 0
R133 0(R)
R131 100

INT#B 20,32,33,35,36
INT#C 20,35,36
AD20 20,32,33,35,36
VIDEO-R 24
VIDEO-L 24
TLINE-L 25
TLINE-R 25

C187
C

C186
C

CON68

C1015 C1016
C   C

W83518D Media Reader

200MA

MS_MSAPWCTL#   G

Q2
SI2301DS

C74
10U(1206)

C59
0.1U

Memory Stick Socket Circuit.

VCC3S

C98

0.1U

C988

0.1U

21,29,31 LAD[0..3]

LAD[0..3]

RN114
8P4R_4.7K

VCC3S

U55

VDD3V

VDD

VSS
VSS

W83518D (LPC)

44	LAD3	LAD3
45	LAD2	LAD2
46	LAD1	LAD1
47	LAD0	LAD0
48	SERIRQ	
1	PCICLK	
2	LDRQ#	
3	LFRAME#	
4	RESET#	
5	PME#	

20,29,31..33 SERIRQ
10 PCLK_MD
21 LDRQ1#
21,29,31 LFRAME#
11,20,23,29,33,36 PCIRST#
20,21,29,31 LPC_PME#

LDRQ1#

MSAPWCTL#/SDAPWCTL#
MSA1/SDA1
MSA2/SDA2
MSA3/SDA3
MSA4/SDA4
MSA5/SDA5
MSACLK/SDACLK
MSALED/SDALED

XIN

XOUT

R723   0   MS_MSAPWCTL#
MD_MS1
MD_MS2
MD_MS3
MD_MS4
MD_MS5
R725   0   MD_MSCLK

CLK48_MD

CLK48_MD 10

R724
10

C985
10P

R733
4.7K

R728
4.7K

R729
10(R)

C987
10P(R)

LDRQ1#   R726   8.2K   VCC3S

MS_VCC3S

VCC3S

R36
4.7K

200MA

MD_MS1
MS_VCC3S
MD_MS2
MD_MS3
MD_MS4
MD_MS5
MD_MSCLK

C67
0.1U

CN1

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

MS_SOCKET

Memory Stick Socket

**Sheet 40 of 45
W83518D Media
Reader**

Schematic Diagrams

System Power 1 SCH (+3V, +5V, +12V)
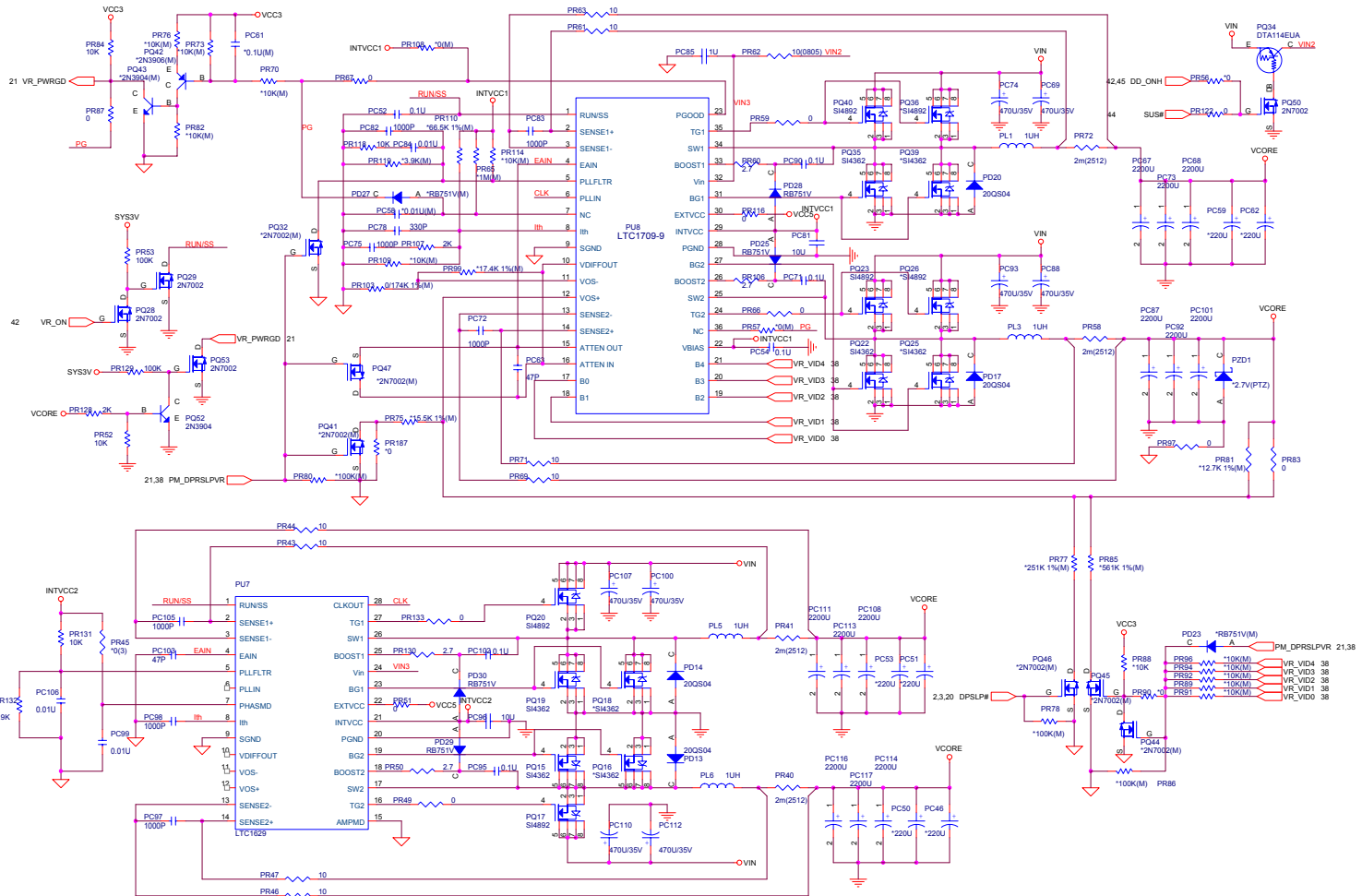
**Sheet 41 of 45
System Power 1
SCH (+3V, +5V,
+12V)**
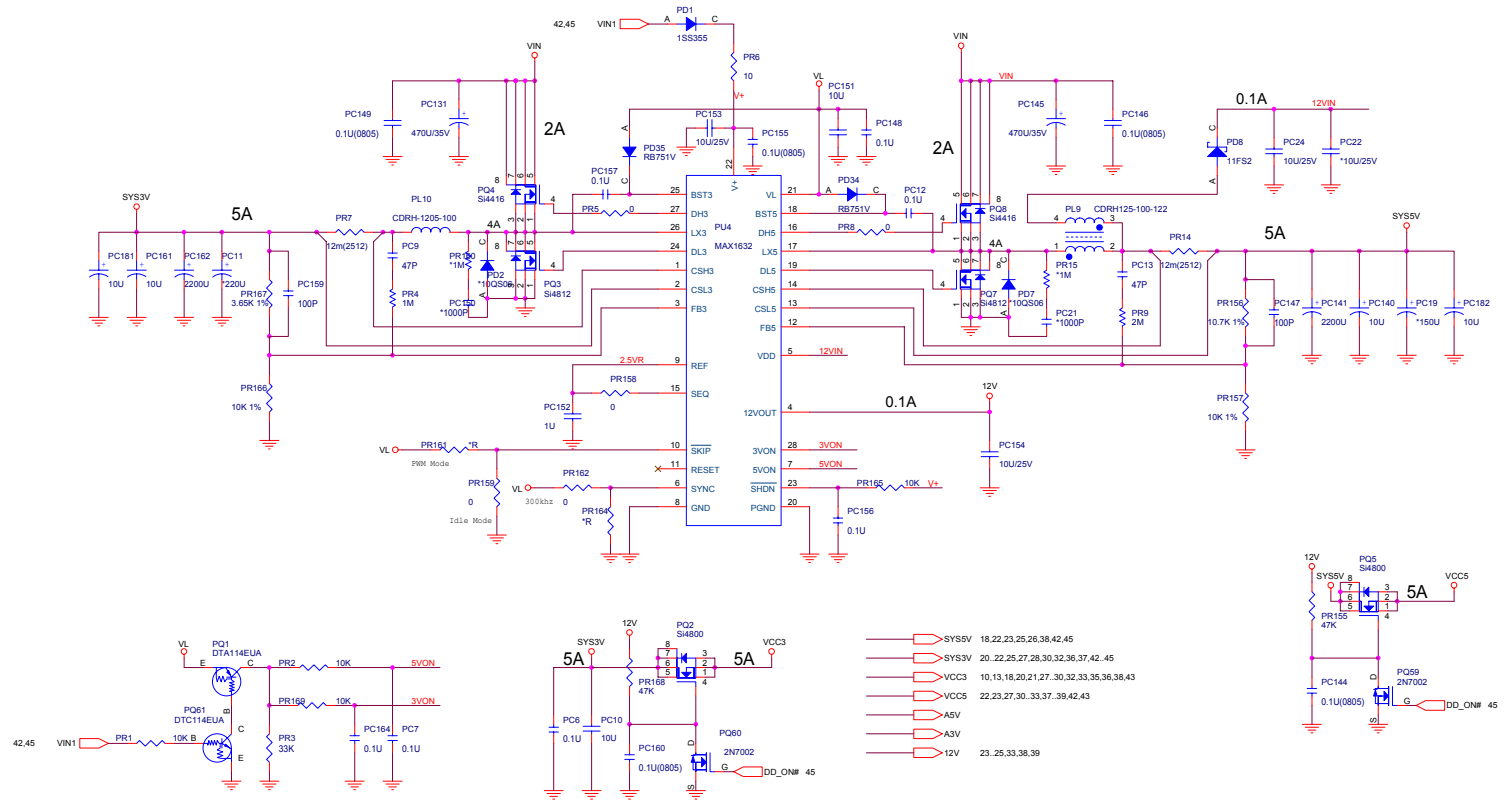
System Power 2 SCH (+2.5V, +1.8V, +1.5V, +1.25V)
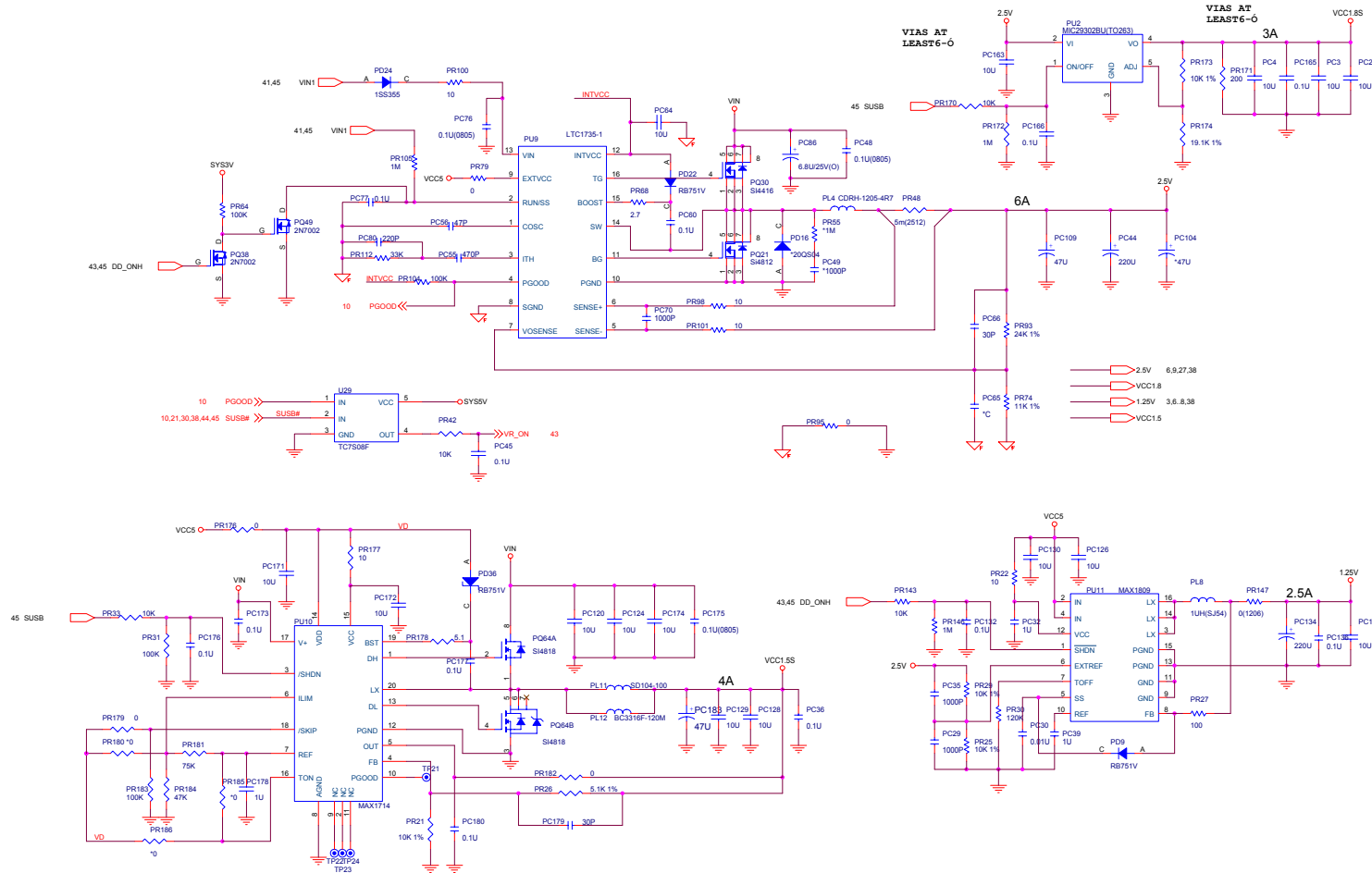
**Sheet 42 of 45
System Power 2
SCH (+2.5V, +18V,
+1.5V, +1.25V)**

VCORE

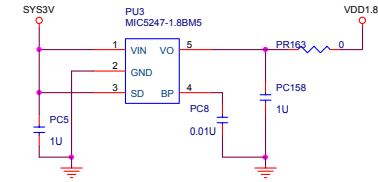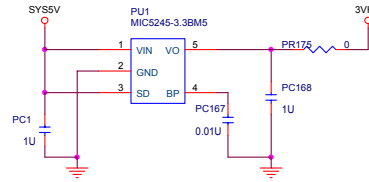**Sheet 43 of 45**
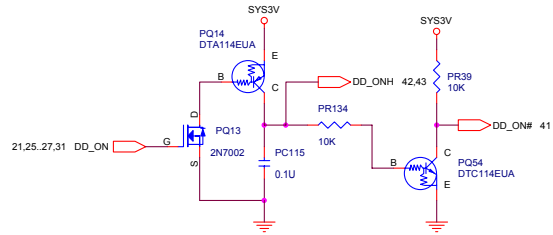**VCORE**

Charger-PWM

3VH8 VDD1.8

Sheet 45 of 45
3VH8 VDD1.8