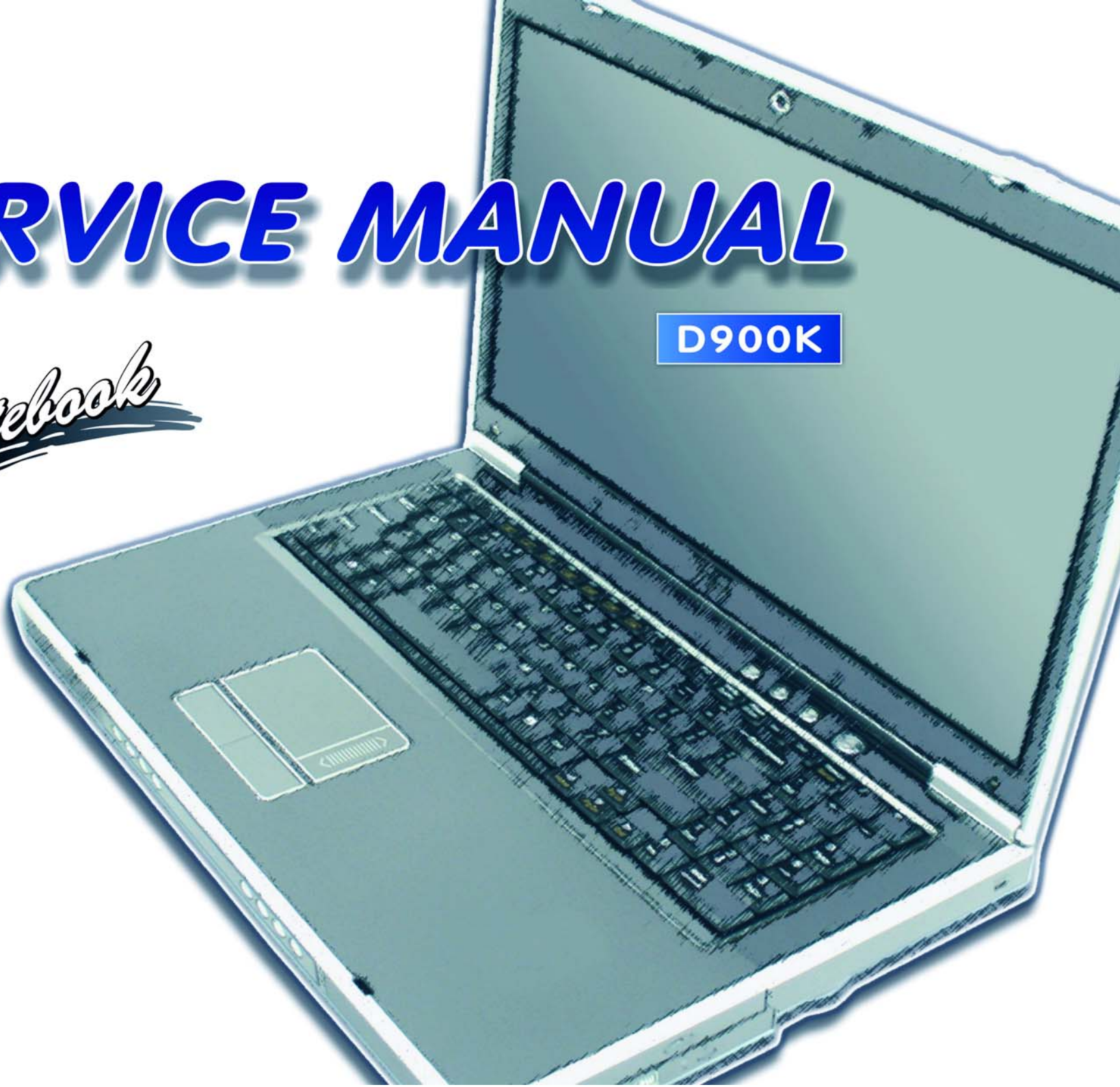


SERVICE MANUAL

D900K

notebook



Notebook Computer

D900K

Service Manual

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Version 1.0
January 2006

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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 *D900K* series notebook PC.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.

Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.

Appendix A, Part Lists

Appendix B, Schematic Diagrams

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit (DC Output 20V, 11A minimum AC/DC Adapter).

CAUTION

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

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

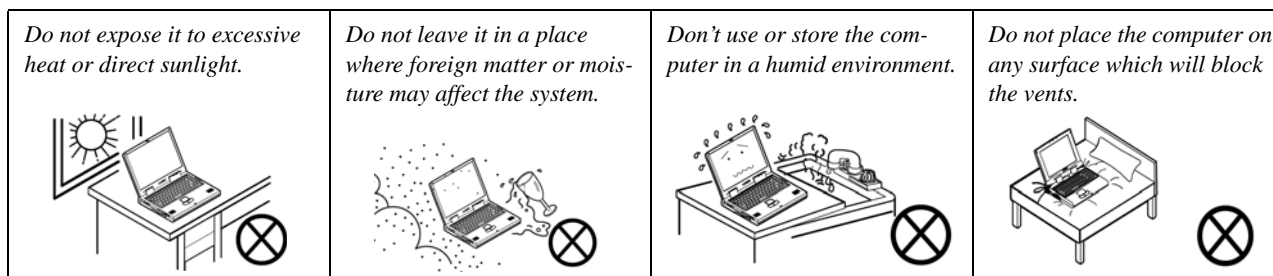
Instructions for Care and Operation

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

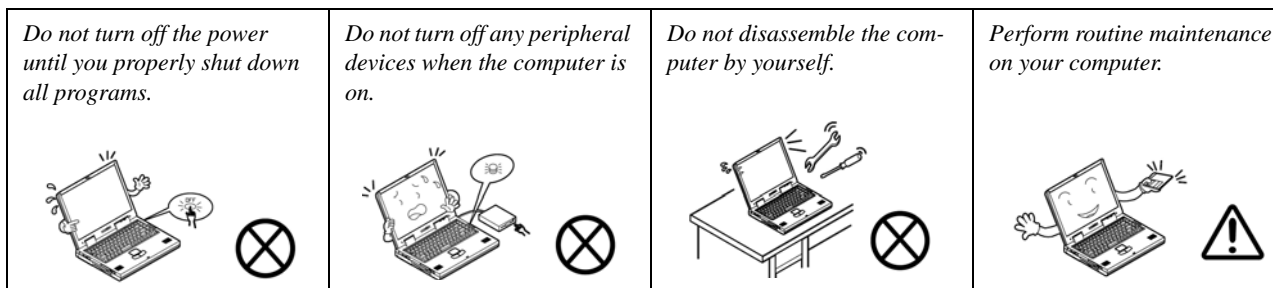
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



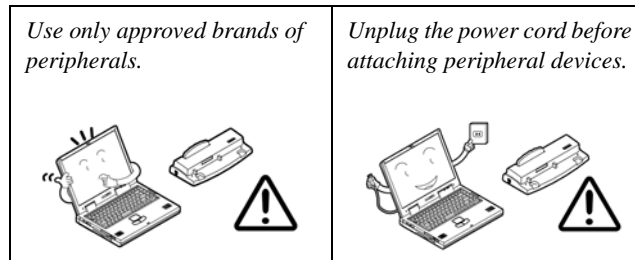
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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



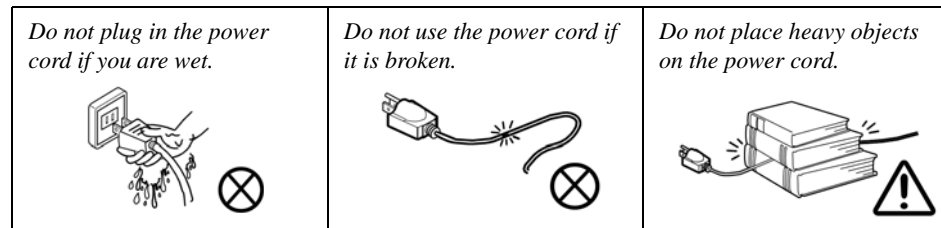
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies.



Power Safety Warning

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

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.



Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Related Documents

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

User's Manual on CD

This describes the notebook PC's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC.

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1: Introduction

Overview

This manual covers the information you need to service or upgrade the **D900K** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in *User's Manual*. That manual is shipped with the computer.


Operating systems (e.g. *Windows XP*, 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 **D900K** series notebook is designed to be upgradeable. See **“Disassembly” on page 2 - 1** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the “” symbol.


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

System Specifications

Feature	Specification	
Processor Types	AMD Athlon™ 64 FX-53 (89W), FX-55 (104W) 939-pin OuPGA Package	(μ0.09) 0.09 Micron Silicon-On-Insulator (SOI) Process Technology, 1MB On-Die L2 Cache Models 2400MHz / 2600MHz
	AMD Athlon™ 64 (67 - 85.3 W) 939-pin OuPGA Package	(μ0.09) 0.09 Micron Silicon-On-Insulator (SOI) Process Technology, 512KB On-Die L2 Cache Models 3000+ / 3200+ / 3400+ / 3500+ / 3800+
	AMD Athlon™ 64 X2 (35 - 110 W) 939-pin OuPGA Package	(μ0.09) 0.09 Micron Silicon-On-Insulator (SOI) Process Technology, 1MB On-Die L2 Cache Models 3700+ / 4000+
	AMD Athlon™ 64 X2 (35 - 110 W) 939-pin OuPGA Package	(μ0.09) 0.09 Micron Silicon-On-Insulator (SOI) Process Technology, 1MB On-Die L2 Cache Models 3800+ / 4200+ / 4600+
Core Logic	VIA K8T890CE + VT8237R Chipset	
LCD	17" WXGA (1440 * 900) / WSXGA+ (1680 * 1050) / WUXGA (1920 * 1200) TFT LCD	
Security	Security (Kensington® Type) Lock Slot	BIOS Password
Memory	Two 64-bit wide DDR Data Channels Two 200 Pin DDR SODIMM Sockets Supporting DDR 400MHz Expandable up to 2GB (Compatible with 1024MB, 512MB, 256MB DDR 400MHz Modules)	
BIOS	One 512KB Flash ROM	Phoenix BIOS

Feature	Specification	
Video Card Options	<p>NVIDIA GeForce Go 6800 NV42M High Performance Graphic Chip 256MB DDR OR DDR-III (DDR3) Video RAM On Board 256 bit Memory Interface PCI Express * 16 Fully DirectX® 9 Support Modular Design</p> <p>NVIDIA GeForce Go 6800 Ultra NV42M Ultra - Ultra High Performance Graphic Chip 256MB DDR-III (DDR3) Video RAM On Board 256 bit Memory Interface PCI Express * 16 Fully DirectX® 9 Support Modular Design</p> <p>NVIDIA GeForce Go 7800 GTX 256MB DDR-III (DDR3) Video RAM On Board 256 bit Memory Interface PCI Express * 16 Fully DirectX® 9 Support Modular Design H.264 Encode Support (HD-DVD/BD-DVD Play back)</p>	<p>NVIDIA Quadro FX Go 1400 NV42GLM Ultra High Performance Graphic Chip 256MB DDR-III (DDR3) Video RAM On Board 256 bit Memory Interface PCI Express * 16 OpenGL Support Fully DirectX® 9 Support Modular Design</p> <div data-bbox="1131 518 1639 794" style="border: 2px solid red; border-radius: 15px; padding: 10px; text-align: center;">  Video Card Options Note that card types, specifications and drivers are subject to continual updates and changes. Check with your service center for the latest details on video cards supported. </div>
Storage Options	<p>One External USB 1.44Mb Floppy Disk Drive</p> <p>One Changeable Primary 2.5" 9.5mm (h) Serial (SATA) or Parallel (PATA) Hard Disk Drive One Changeable Secondary 2.5" 9.5mm (h) Hard Disk Drive (RAID Option in SATA Configuration) Supports Serial (SATA) and Parallel (PATA) HDDs RAID 0, RAID 1, HDD Fault Tolerance System in SATA Configuration</p> <p>One Changeable Primary Optical Device Bay - 12.7 mm (h) for Optical CD/DVD Device Drive Options One Changeable Secondary Optical Device Bay - 12.7 mm (h) for Optical CD/DVD Device Drive Options</p>	

Introduction

Feature	Specification	
Audio	AC '97 Compliant Interface  SRS WOW Surround Sound Technology inside 3D Stereo Enhanced Sound System Virtual 8-Channel Sound System Compatible with Sound-Blaster PRO™	S/PDIF Digital Output (5.1 CH) Built-In Microphone 4 * Built-In Speakers Built-In Sub Woofer Built-In Audio "DJ" Console for Music CD (MP3 Format Compatible)
Keyboard & Pointing Device	Full Size Winkey Keyboard with Numeric Keypad	Built-In TouchPad (Scroll Functionality Included)
PCMCIA	One Type II PCMCIA 3.3V/5V Socket	
I/O Ports	Four USB 2.0 Ports Two Mini-IEEE1394a Ports One S-Video-Out Jack for TV & HDTV Output One Serial Port One Parallel Port (LPT1) Supporting ECP/EPP One Infrared Transceiver (IrDA 1.1/FIR/SIR/ASKIR) One DVI-Out Port One PS/2 Port (Mouse/Keyboard) One Headphone/Speaker-Out Jack One Microphone-In Jack	One S/PDIF Out Jack One RJ-11 Jack (Modem) One RJ-45 Jack (Local Area Network) One DC-In Jack One Line-In Jack for Audio Input One CATV-In Jack (Functions with Optional TV Tuner Module) One Consumer Infrared Transceiver (Functions with Optional TV Tuner Module) One S-Video-In Jack for Video Input (Functions with Optional TV Tuner Module)
Communication	Infrared Transceiver Infrared Transfer 1cm ~ 1M Operating Distance 115.2K bps SIR 4M bps FIR IrDA 1.1 Compliant 10/100/1000 BASE-TX Fast Ethernet LAN on board Integrated V.90/56K AC'97 Modem (V.92 Compliant)	802.11 b/g Mini-PCI Wireless LAN Module (Optional) Bluetooth™ Class II V2.0 & 802.11b/g Wireless LAN Mini-PCI interface Combo Module (Optional) 1.3M Pixel Video Camera Module (Optional)
Card Reader	Embedded 10-in-1 Card Reader (MS/ MS Pro/ SD/ MMC/ CF/ Micro Drive/ SM/ MS Duo/ Mini SD/ MMC) Note: MS Duo/ Mini SD/ RS MMC Cards require a PC adapter	
Power Management	Supports ACPI 2.0	Supports Hibernate/Stand by Modes

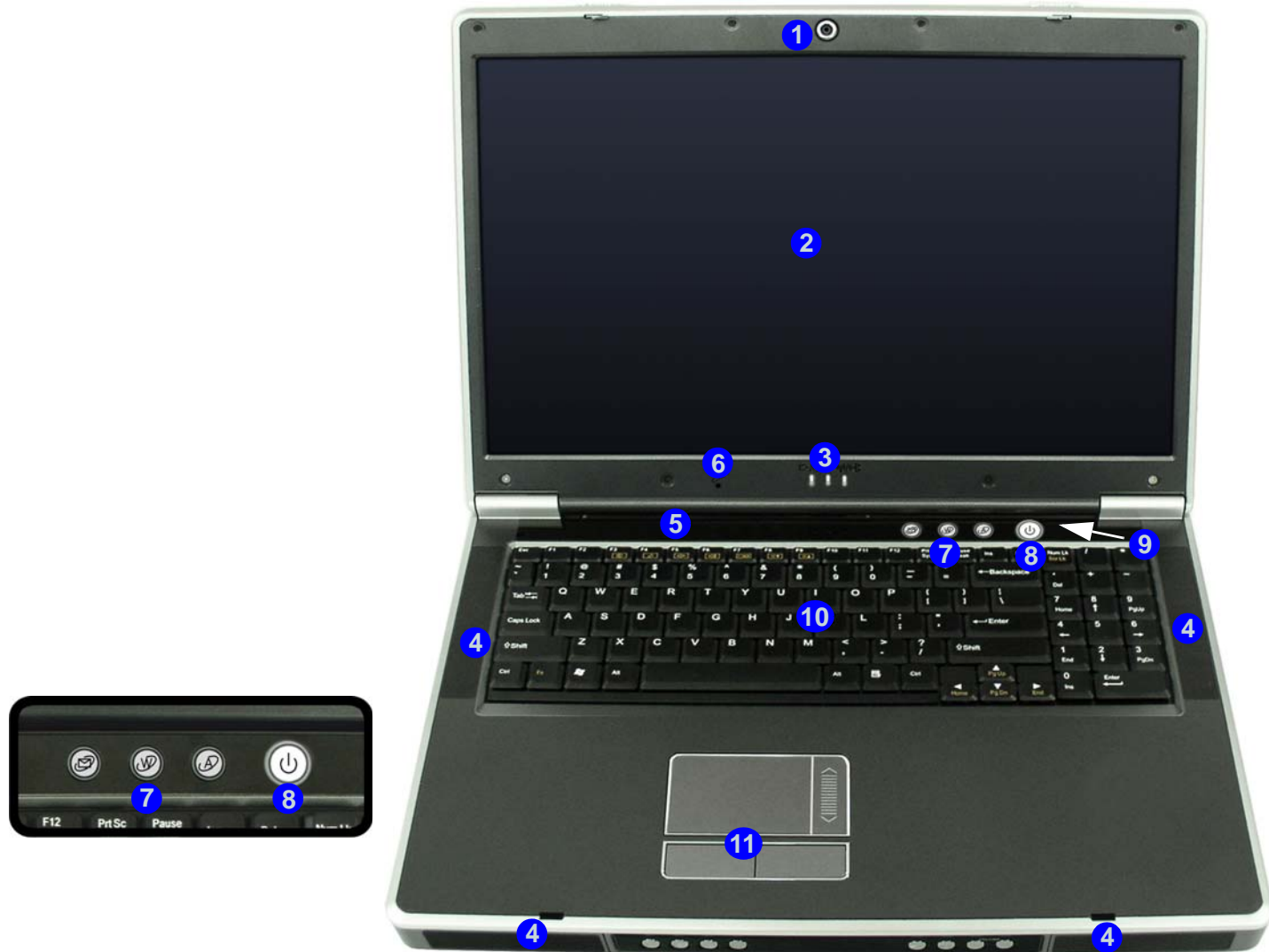
Feature	Specification	
Power	Full Range AC/DC Adapter – AC in 100~240V, 47~63Hz DC Output 20V, 11 A (220 Watts) Easy Changeable 12-Cell Smart Lithium-Ion 6600mAh/14.8V Main Battery	
Environmental Spec	Temperature Operating: 5°C ~ 35°C Non-Operating: -20°C ~ 60°C	Relative Humidity Operating: 20% ~ 80% Non-Operating: 10% ~ 90%
Physical Dimensions & Weight	397mm (w) * 298mm (d) * 49.5mm (h) 5.80+3% kg with Battery	
Optional	<u>Optical Drive Module Options:</u> DVD/CD-RW Combo Drive Module DVD-Dual Drive Module 1.3M Pixel USB 2.0 Video Camera Module Cyberlink PowerDVD 6.0 Player Software	
	Hybrid (Analog & Digital) TV Tuner Module with Mini-PCI Interface <u>WLAN/Bluetooth Module Options:</u> Mini-PCI 802.11 b/g Wireless LAN Module OR Mini-PCI 802.11 b/g Wireless LAN + Bluetooth Combo Module	

Introduction

External Locator - Top View with LCD Panel Open

Figure 1
Top View

1. Optional Built-In PC Camera
2. LCD
3. LED Power & Communication Indicators
4. Speakers
5. LED Status Indicators
6. Built-In Microphone
7. AP-Key Buttons
8. Power Button
9. Lid Sensor
10. Keyboard
11. TouchPad and Buttons



1 - 6 External Locator - Top View with LCD Panel Open

External Locator - Front & Rear Views



Figure 2
Front Views

1. LCD Latches
2. Audio "DJ" Player Controls
3. Consumer Infrared Transceiver*
4. Speakers



Figure 3
Rear Views

1. Vent/Fan Intake
2. DC-In Jack
3. Serial Port
4. Parallel Port
5. DVI-Out Port
6. PS2 Port
7. RJ-11 Phone Jack
8. RJ-45 LAN Jack
9. CATV Jack*
10. S-Video-In Jack*

*Enabled with **Optional** Mini-PCI TV Tuner Only

Introduction

External Locator - Left & Right Side View

Figure 4
Left Side View

1. S-Video-Out Jack
2. 4 * USB 2.0 Ports
3. 2 * Mini-IEEE 1394a Port
4. Line-In Jack
5. S/PDIF-Out Jack
6. Microphone-In Jack
7. Headphone-Out Jack
8. 10-in-1 Card Reader
9. PC Card Slot
10. Infrared Transceiver



Figure 5
Right Side View

1. Primary Optical Device Drive Bay (for CD/DVD Device)
2. Secondary Optical Device Drive Bay (for CD/DVD Device)
3. Security Lock Slot



External Locator - Bottom View

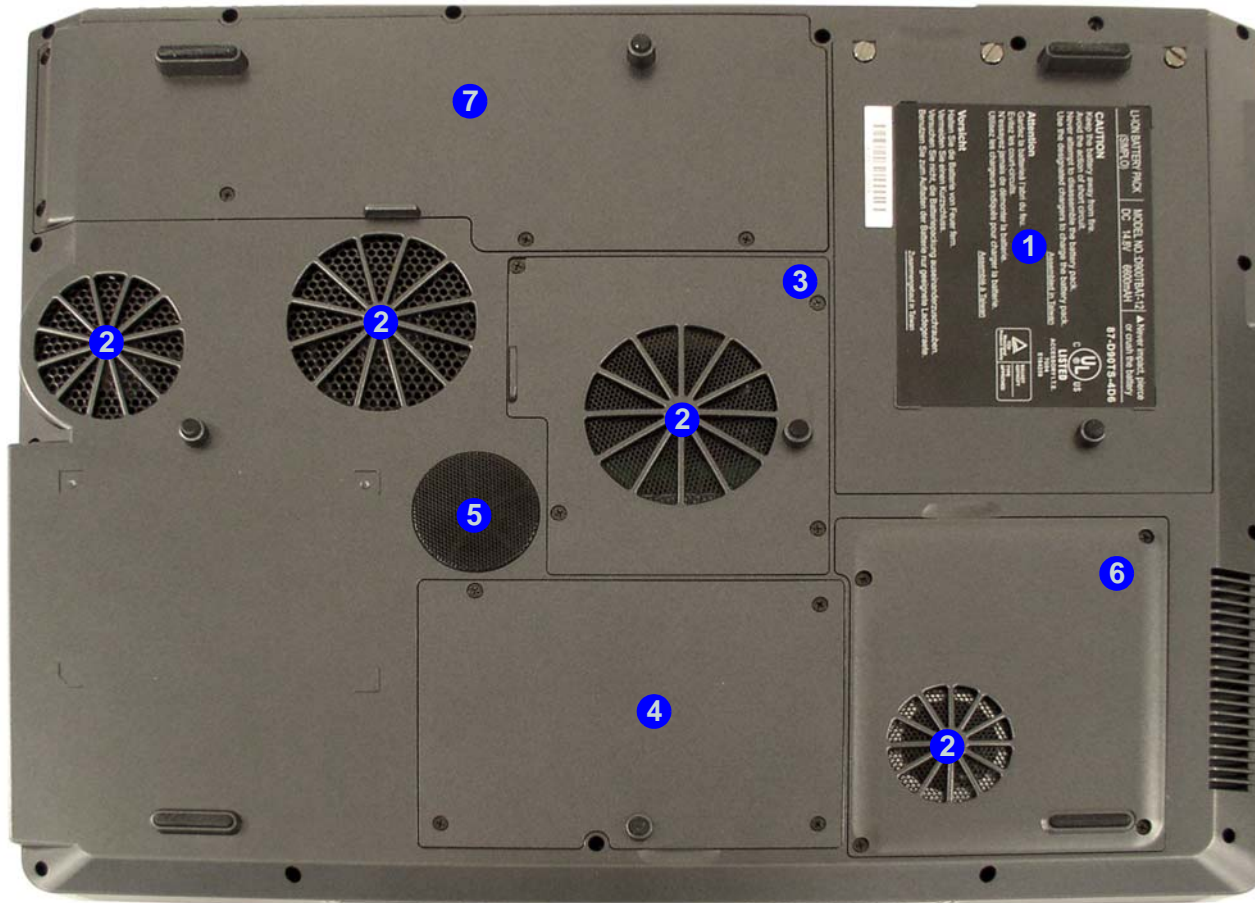


Figure 6
Bottom View

1. Battery
2. Vent/Fan Intake
3. Memory (RAM) Cover
4. Hard Disk Cover
5. Sub Woofer
6. Video Card Cover
7. CPU Cover


Overheating

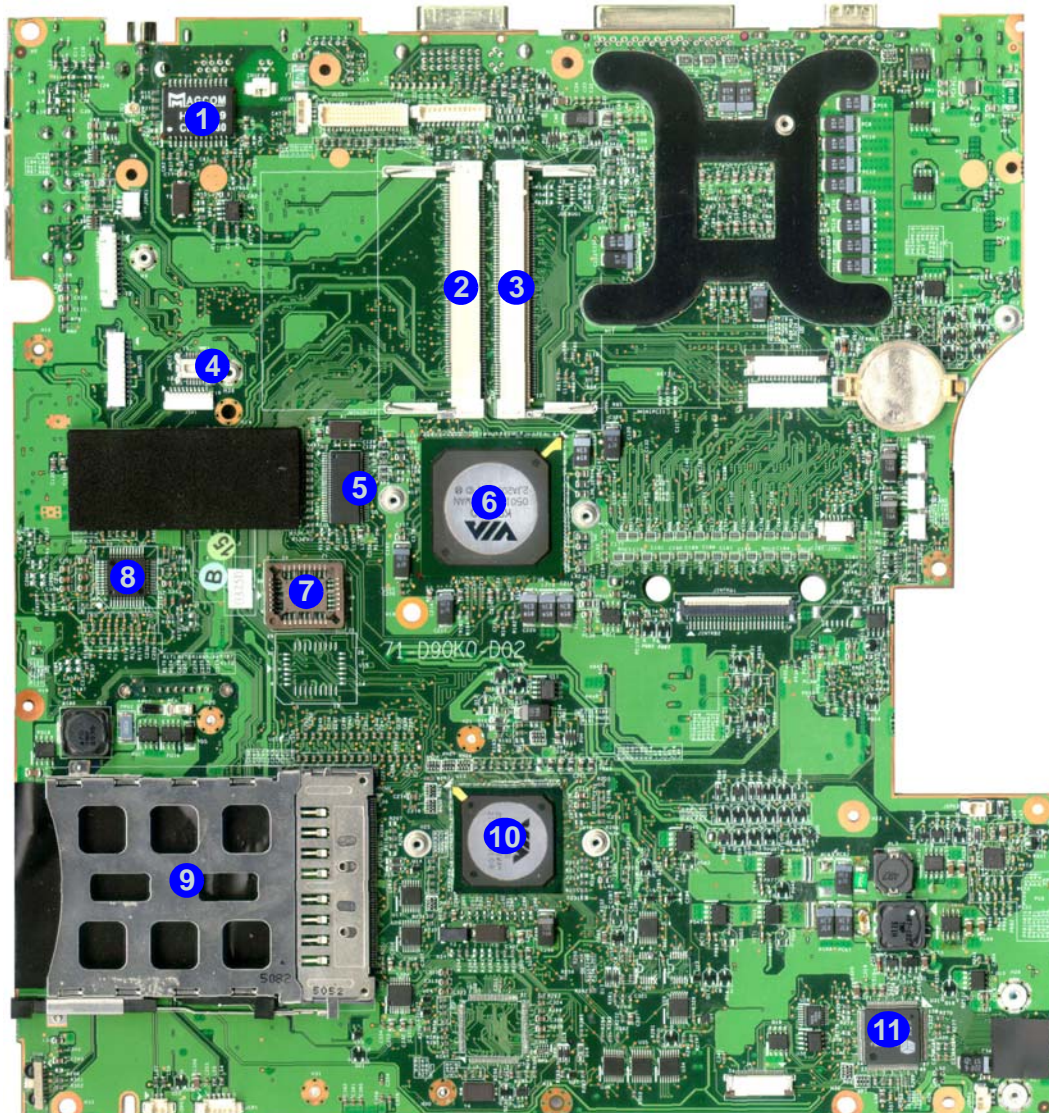
To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

Introduction

Figure 7
**Mainboard Top
Key Parts**

1. HS5019
2. Mini-PCI Socket
(TV Tuner
Module)
3. Mini-PCI Socket
(WLAN Module)
4. Modem Socket
5. Clock generator
6. Northbridge-VIA
K8T890
7. Flash BIOS ROM
8. WOW
9. PC Card
Assembly
10. Southbridge-VIA
VT8237R
11. BlueBirdVL+

D900K Mainboard Overview - Top (Key Parts)



D900K Mainboard Overview - Bottom (Key Parts)

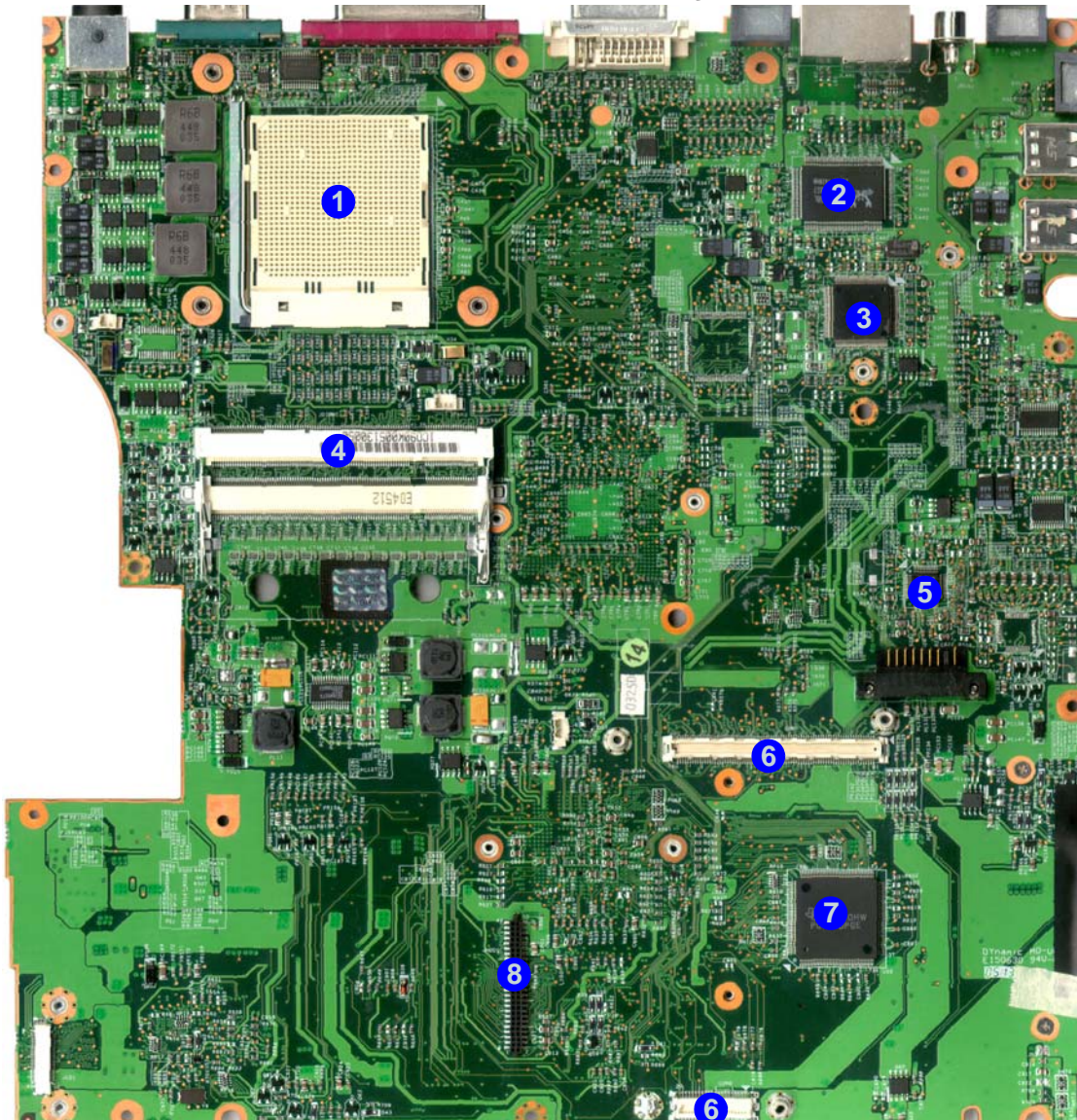


Figure 8
**Mainboard Bottom
Key Parts**

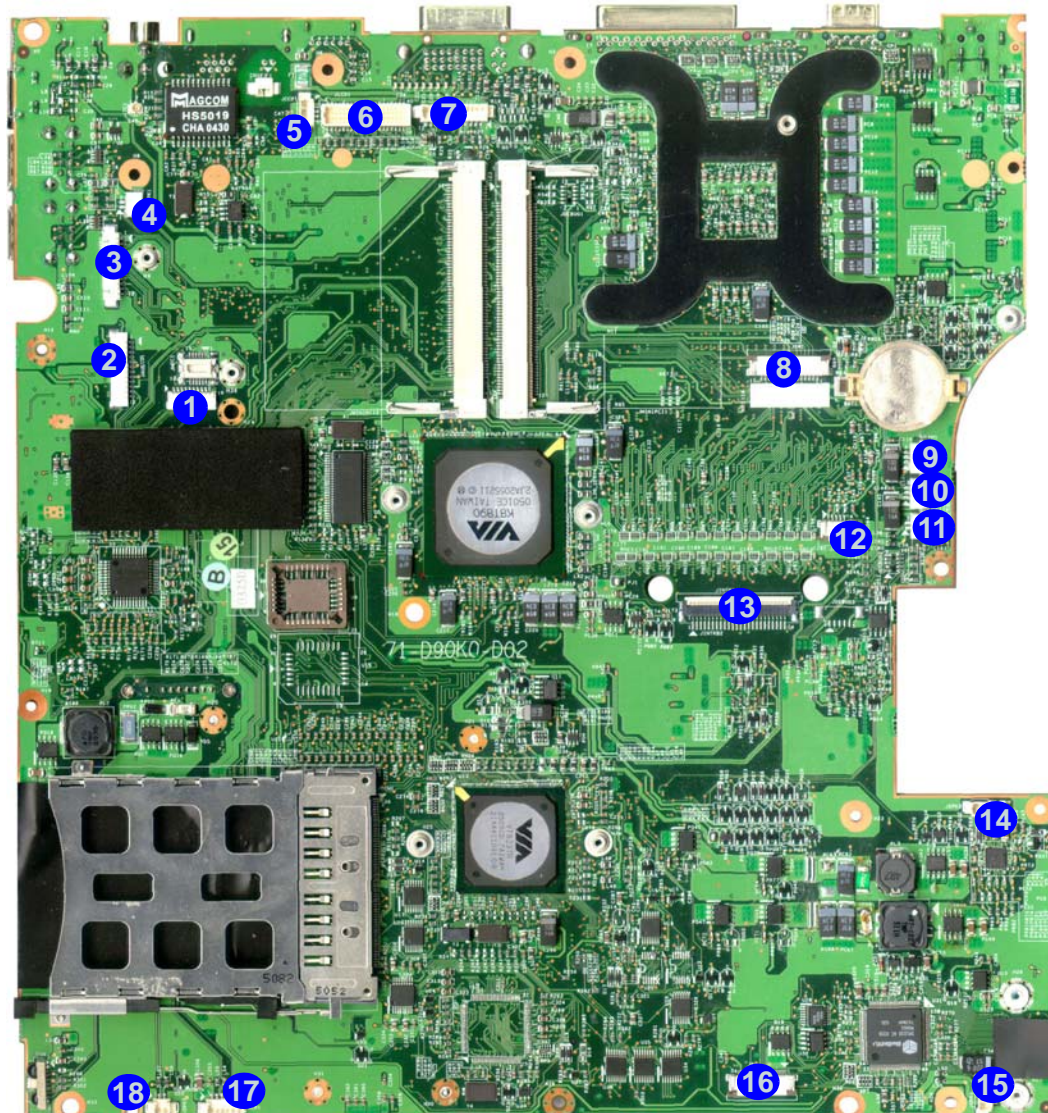
1. CPU Socket (no CPU installed)
2. RTL8110SBL 10/100/1000 LAN
3. 42A33NT
4. Memory Slots DDR So-DIMM
5. ALC655 Audio Codec
6. VGA sockets
7. 3CA00HW
8. HDD Socket

Introduction

Figure 9
**Mainboard Top
 Connectors**

1. Inverter Board Connector
2. Audio Connector
3. 1394a Connector
4. SPK 1 Connector
5. CCD Cable Connector
6. LCD Connector
7. LED Connector
8. AP-Key Cable Connector
9. CPU Fan 1 Cable Connector
10. CPU Fan 2 Cable Connector
11. SPK 2 Connector
12. Touch Pad Connector
13. Keyboard Cable Connector
14. SPK 3 Connector
15. SPK 4 Connector
16. Audio Player Controls Connector
17. Card Reader Connector
18. SPK 4 Connector

D900K Mainboard Overview - Top (Connectors)



D900K Mainboard Overview - Bottom (Connectors)

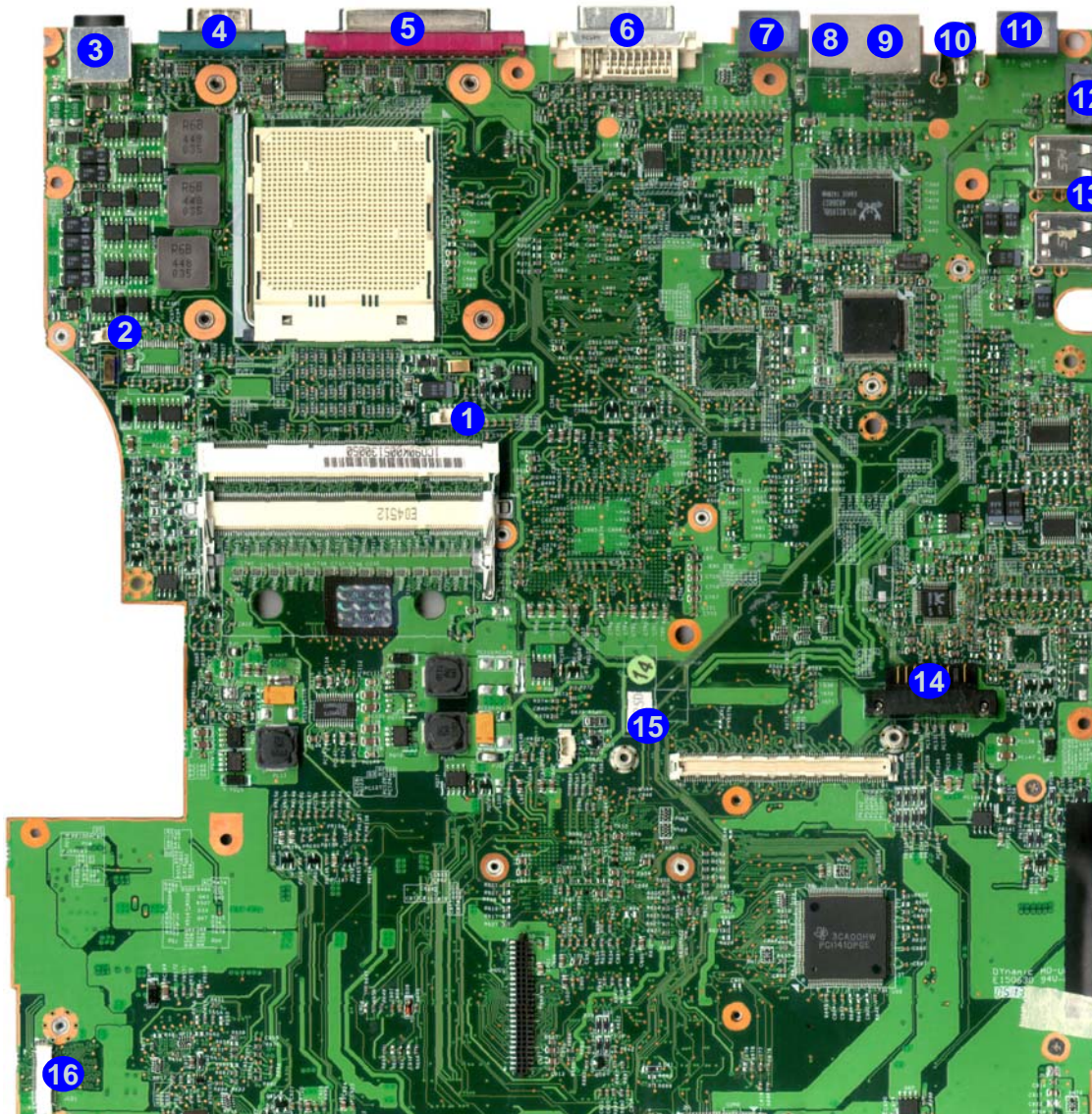


Figure 10
**Mainboard Bottom
Connectors**

1. System Memory Fan Cable Connector
2. Heat sink Cable Connector
3. DC-In Jack
4. Serial Port
5. Parallel Port
6. DVI-Out Port
7. PS2 Port
8. RJ-11 Phone Jack
9. RJ-45 LAN Jack
10. CATV Jack*
11. S-Video-In Jack*
12. S-Video-Out Jack
13. 4 * USB 2.0 Ports
14. Battery Connector
15. VGA Fan Cable Connector
16. Optical Device Connector


2: Disassembly



Overview

This chapter provides step-by-step instructions for disassembling the **D900K** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

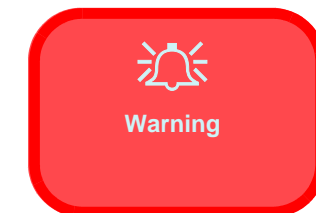
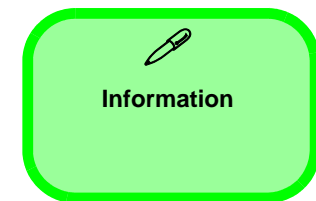
We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, 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 also provide any possible helpful information. A box with a  contains warnings.

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



Disassembly

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

Maintenance Tools

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

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

Connections

Connections within the computer are one of four types:

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

Maintenance Precautions

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

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

Cleaning

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

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



Power Safety Warning

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

Disassembly Steps

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

To remove the Battery:

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

To remove the Optical Device:

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

To remove the HDD:

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

To remove the Processor:

1. Remove the battery [page 2 - 5](#)
2. Remove the Processor [page 2 - 8](#)

To remove the System Memory:

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

To remove the VGA card:

1. Remove the battery [page 2 - 5](#)
2. Remove the VGA card [page 2 - 11](#)

To remove the Keyboard:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 12](#)
- 3.

To remove the Wireless LAN:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 12](#)
3. Remove the Wireless LAN [page 2 - 13](#)

To remove the Modem:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 12](#)
3. Remove the Modem [page 2 - 14](#)

To remove the TV tuner card:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 12](#)
3. Remove the TV tuner card [page 2 - 15](#)

Removing the Battery

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

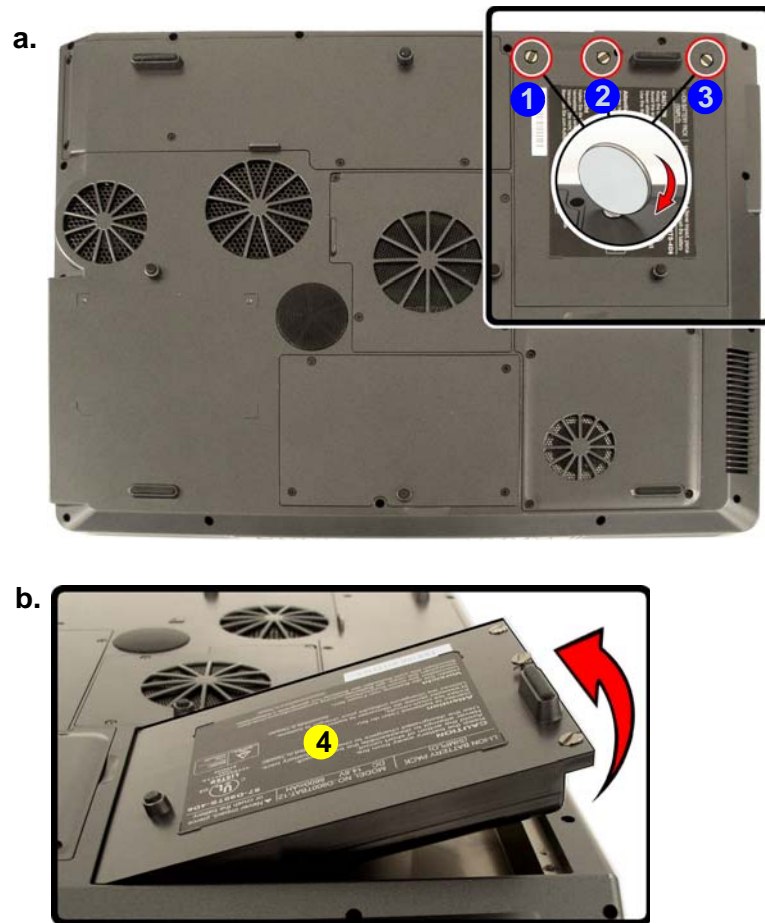


Figure 1
Battery Removal

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

4. Battery

- 3 Screws

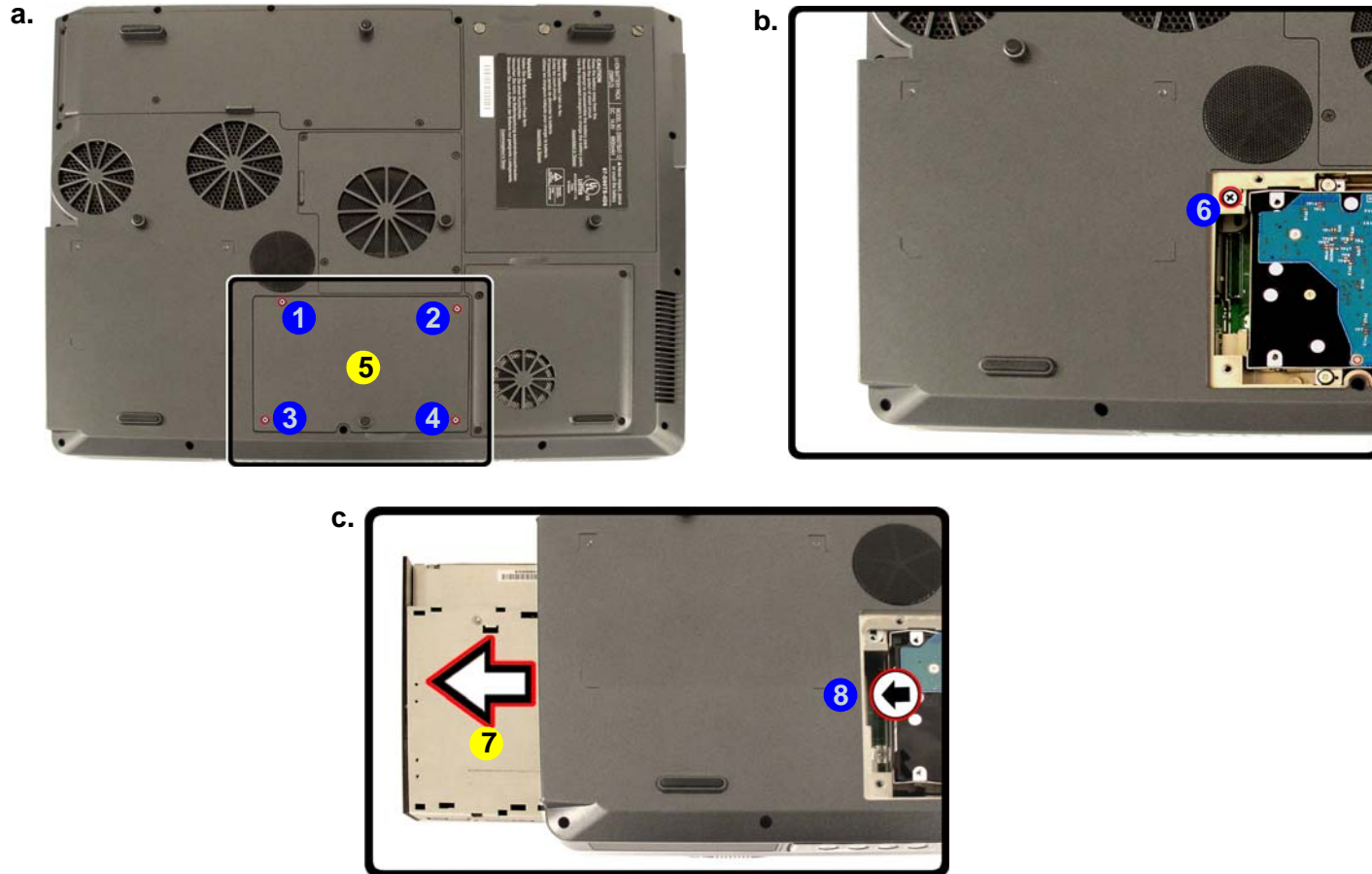
Disassembly

Figure 2
**Optical Device
Removal**

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

Removing the Optical (CD/DVD) Device

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



- Hard Disk Bay Cover
- Optical Device

- 5 Screws

Removing the Hard Disk Drive

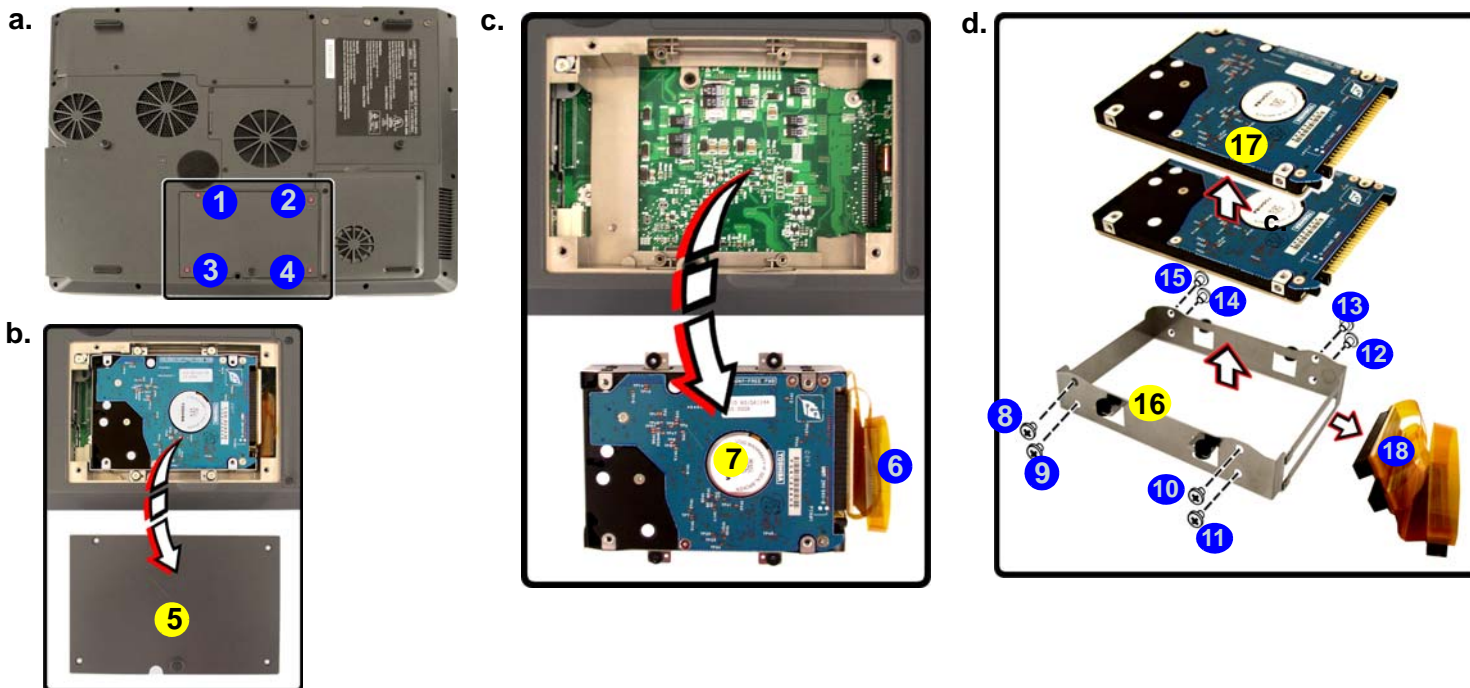
The hard disk drive is mounted in a removable case and can be taken out to accommodate other 2.5" IDE hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

Hard Disk Upgrade Process

1. Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
2. Locate the hard disk bay cover and remove screws **1** - **4**.
3. Remove the bay cover **5**.
4. Carefully release the cable **6** and lift the hard disk assembly **7** up out off the computer.
5. Remove screws **8** - **15** in order to separate the bracket **16** from the hard disk(s) **17**, and disconnect the cable **18**.
6. Reverse the process to install a new hard disk(s).

Figure 3
HDD Assembly Removal

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



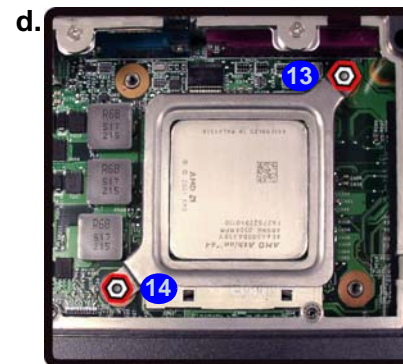
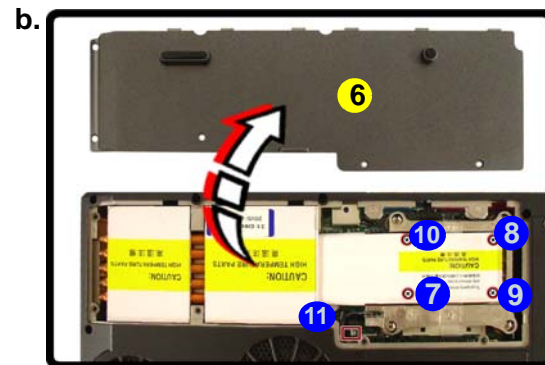
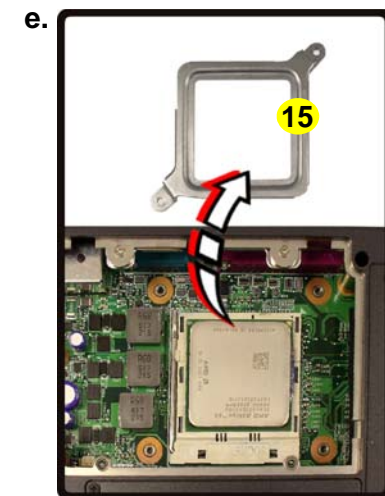
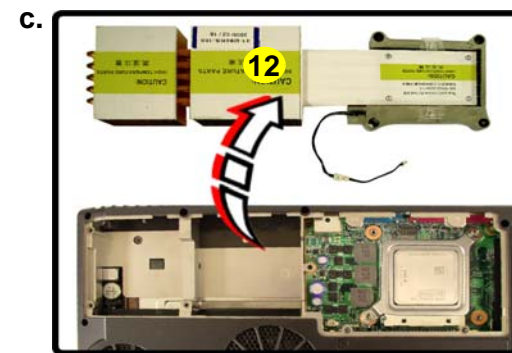
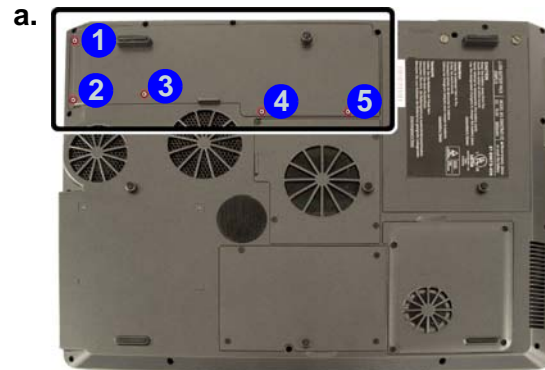
Disassembly

Figure 4
Processor Removal

- Remove the screws.
- Remove the cover, remove the screws in the order indicated and disconnect the connector.
- Remove the heat sink.
- Remove the screws.
- Remove the CPU bracket.

Removing the Processor

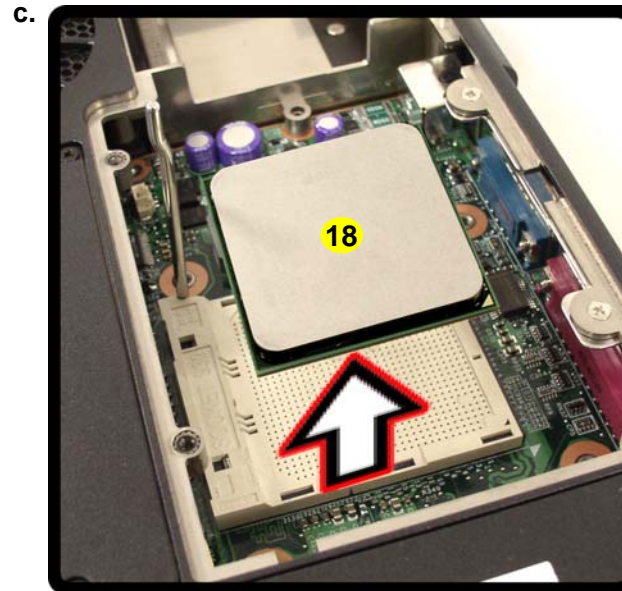
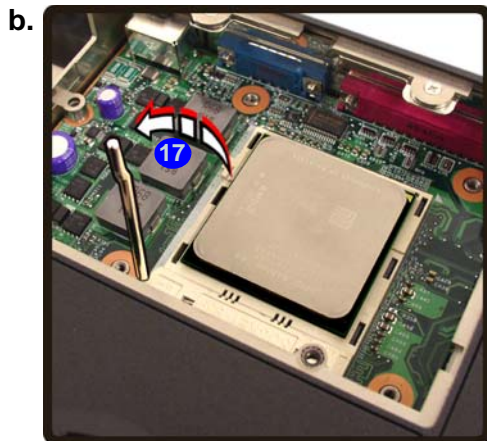
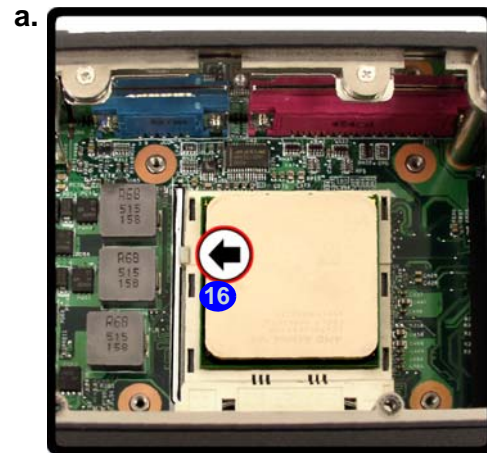
- Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
- Locate the CPU cover and remove screws ① - ⑤.
- Remove the bay cover ⑥.
- Remove screws ⑦ - ⑩ ([Figure b](#)) from the heat sink in the order indicated on the label and disconnect the connector ⑪ from the mainboard.
- Carefully lift the heat sink ⑫ ([Figure c](#)) up off the computer.
- Remove the screws ⑬ - ⑭ ([Figure d](#)) from the CPU bracket.
- Remove the CPU bracket ⑮ up off the computer.



6. CPU Bay Cover
12. Heat Sink
15. CPU Bracket

- 11 Screws

8. Press down and hold the latch **16** (with the latch held down you will be able to release it).
9. Move the latch **17** fully in the direction indicated to unlock the CPU.
10. Carefully (it may be hot) lift the CPU **18** up out of the socket (*Figure b*).
11. Reverse the process to install a new CPU.
12. 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.

Figure 5

Processor Removal (cont'd)

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



18. CPU

Disassembly

Figure 6
RAM Module
Removal

- Remove the screws.
- Lift off the bay cover.
- Pull the release latch(es).
- Remove the module(s).



Contact Warning

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



8. RAM Module(s)

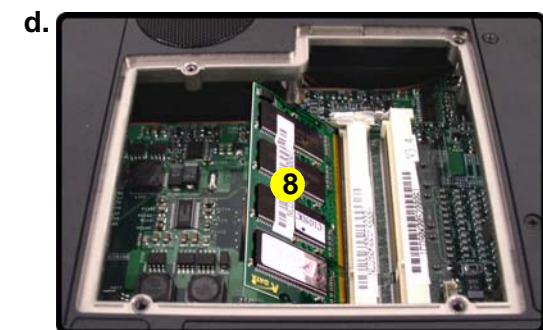
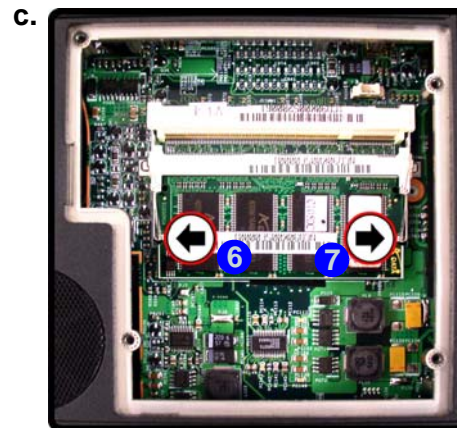
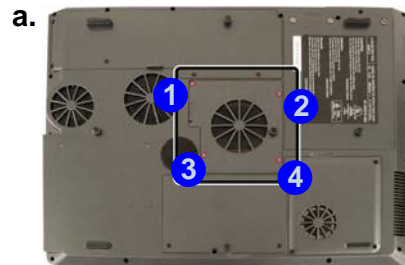
- 4 Screws

Removing the System Memory (RAM)

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR 400 MHz. The main memory can be expanded up to 2GB. The SO-DIMM modules supported are 256MB, 512MB and 1024MB **DDR** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

- Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
- Locate the memory (RAM) bay cover and remove screws **1** - **4**.
- Carefully (the fan cable will still be attached) lift off the bay cover **5**.
- Gently pull the two release latches **6** & **7** on the sides of the memory socket in the direction indicated by the arrows ([Figure c](#)).
- The RAM module **8** will pop-up ([Figure d](#)), and you can then remove it.
- Pull the latches to release the second module if necessary.
- Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
- The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. **DO NOT FORCE IT**; it should fit without much pressure.
- Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
- Replace the memory (RAM) bay cover and the screws ([Figure a](#)).
- Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

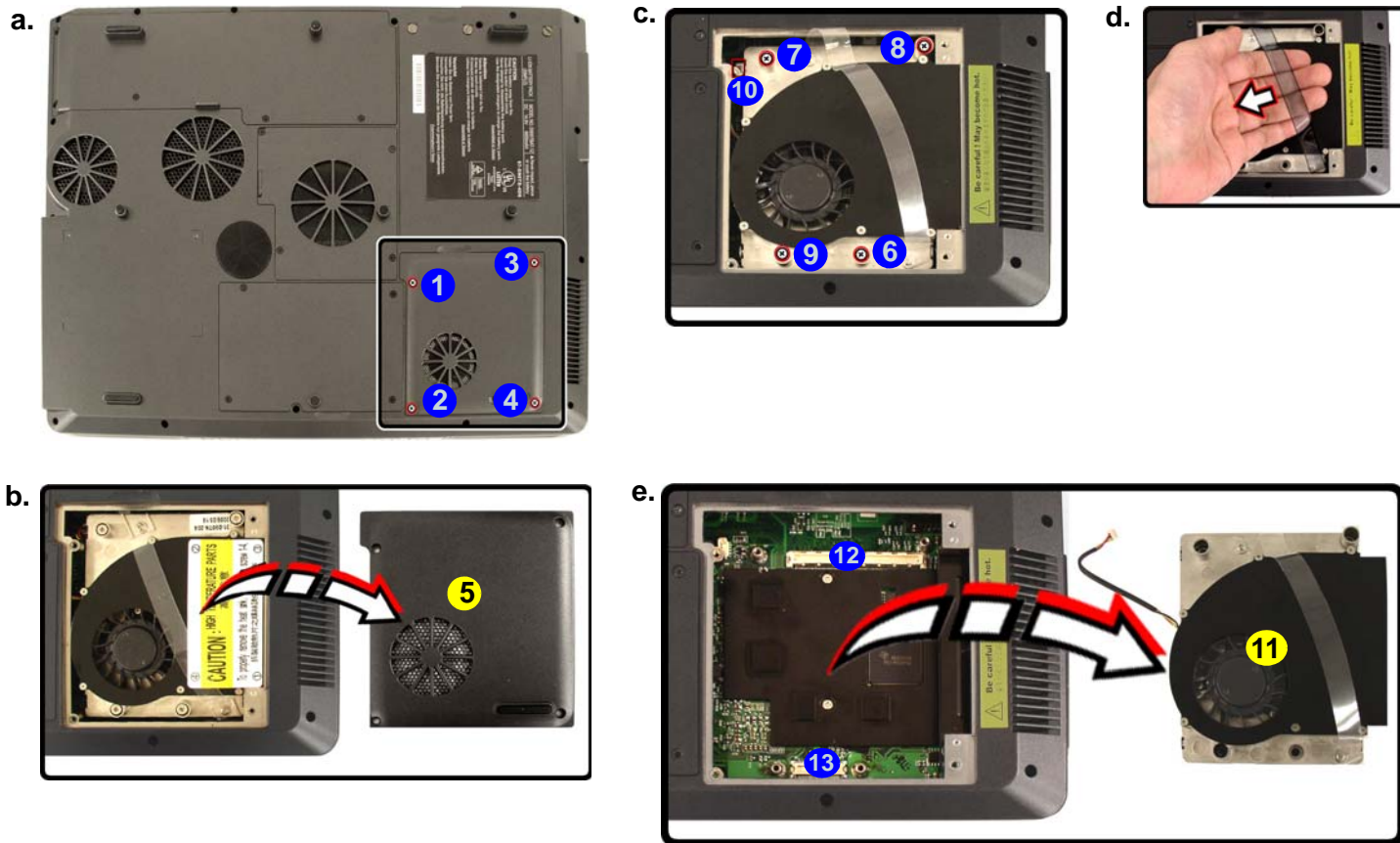


Removing the VGA Card

1. Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
2. Locate the VGA bay cover and remove screws ① - ④.
3. Remove the bay cover ⑤.
4. Remove the screws ⑥ - ⑨ ([Figure c](#)) from the heat sink in the order indicated on the label and and disconnect the cable ⑩ from the mainboard.
5. Carefully release the VGA card from the mainboard ([Figure d](#)).
6. Lift the VGA card up ⑪ off the sockets ⑫ and ⑬.

Figure 7
VGA Card Removal

- a. Remove the screws.
- b. Remove the cover.
- c. Remove the screws in the order indicated and disconnect the cable.
- d. Release the VGA card.
- e. Lift the VGA card out off the sockets.



5. VGA Bay Cover
11. VGA card

- 8 Screws

Disassembly

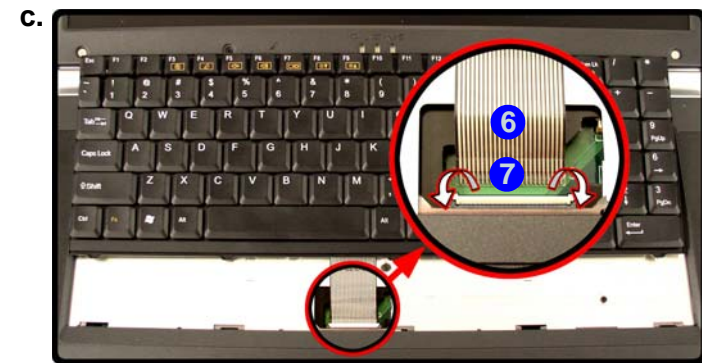
Figure 8

Keyboard Removal

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

Removing the Keyboard

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



Keyboard Tabs



Re-Inserting the Keyboard

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



5. Keyboard

Removing the Wireless LAN Module

1. Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)) and remove the keyboard ([page 2 - 12](#)).
2. Remove screws **1** - **5** from the keyboard shielding.
3. Remove the keyboard shielding **6**, the Wireless LAN Module will be visible at point **7**.
4. Carefully disconnect cables **8** & **9** then gently pull the two release latches **10** - **11** on the sides of the module socket.
5. The Wireless LAN Module **12** ([Figure c](#)) will pop-up, and you can remove it.

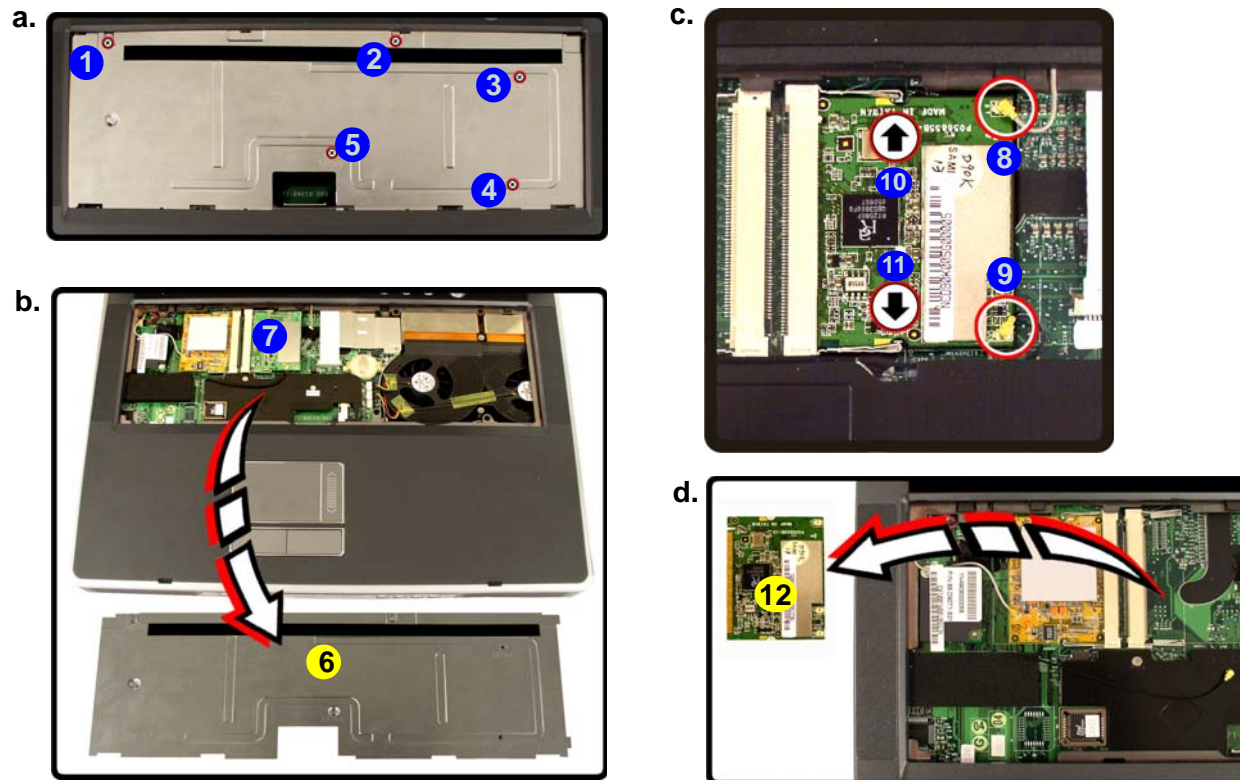



Figure 9
**Wireless LAN
Module Removal**

- a. Remove the screws.
- b. Remove the keyboard shielding.
- c. Disconnect the cables and pull the release latches.
- d. Remove the WLAN module.

Note: Make sure you reconnect the antenna cables to the “Main” and “BT” socket ([Figure c](#)).



6. Keyboard Shielding
12. Wireless LAN Module

- 5 Screws

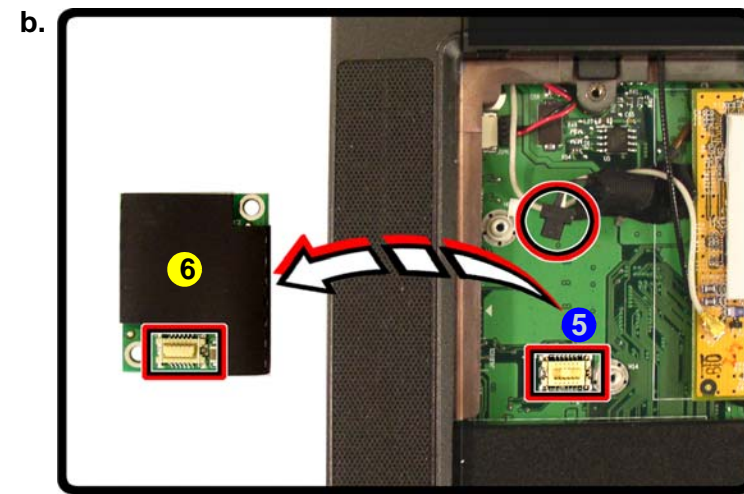
Disassembly

Figure 10
Modem Removal

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

Removing the Modem

1. Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)), remove the keyboard ([page 2 - 12](#)) and remove the keyboard shielding ([page 2 - 13](#)).
2. The modem is visible at point **1**.
3. Remove the screws **2** - **3** from the modem module and disconnect cable **4**.
4. Lift the modem up off the socket **5**.
5. Lift the modem **6** up and off the computer.



6. Keyboard Bracket
12. Modem

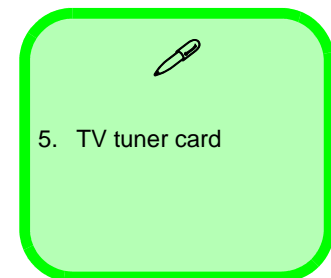
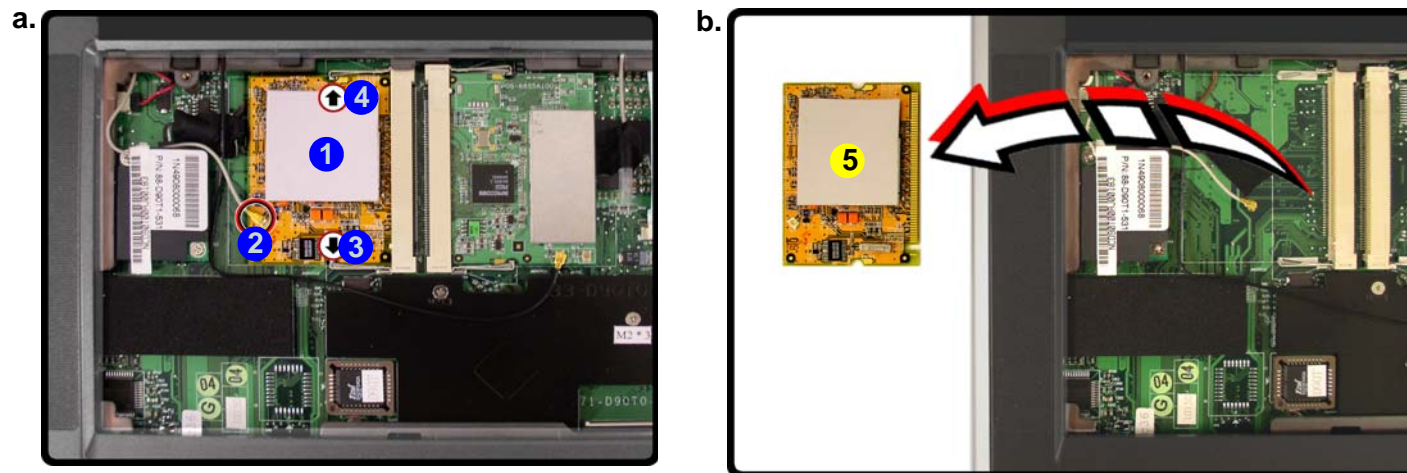
- 7 Screws

Removing the TV Tuner Card

1. Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)), remove the keyboard ([page 2 - 12](#)) and remove the keyboard shielding ([page 2 - 13](#)).
2. The TV tuner card is visible at point **1**
3. Carefully disconnect cable **2** then gently pull the two release latches **3** - **4** on the sides of the module socket.
4. The TV tuner card **5** ([Figure c](#)) will pop-up and you can remove it

Figure 11
TV Tuner Card Removal

- a. Disconnect the cable and pull the release latches.
- b. The TV tuner card will pop up and remove it.



Appendix A:Part Lists

This appendix breaks down the *D900K* series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

Part List Illustration Location

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

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

Part	D900K
TOP - (D900K)	<i>page A - 3</i>
BOTTOM - (D900K)	<i>page A - 4</i>
LCD - (D900K)	<i>page A - 5</i>
DVD - TOSHIBA - (D900K)	<i>page A - 6</i>
COMBO - TSST - (D900K)	<i>page A - 7</i>
DVD-DUAL RW - (D900K)	<i>page A - 8</i>
COMBOTOSHIBA - (D900K)	<i>page A - 9</i>

TOP (D900K)

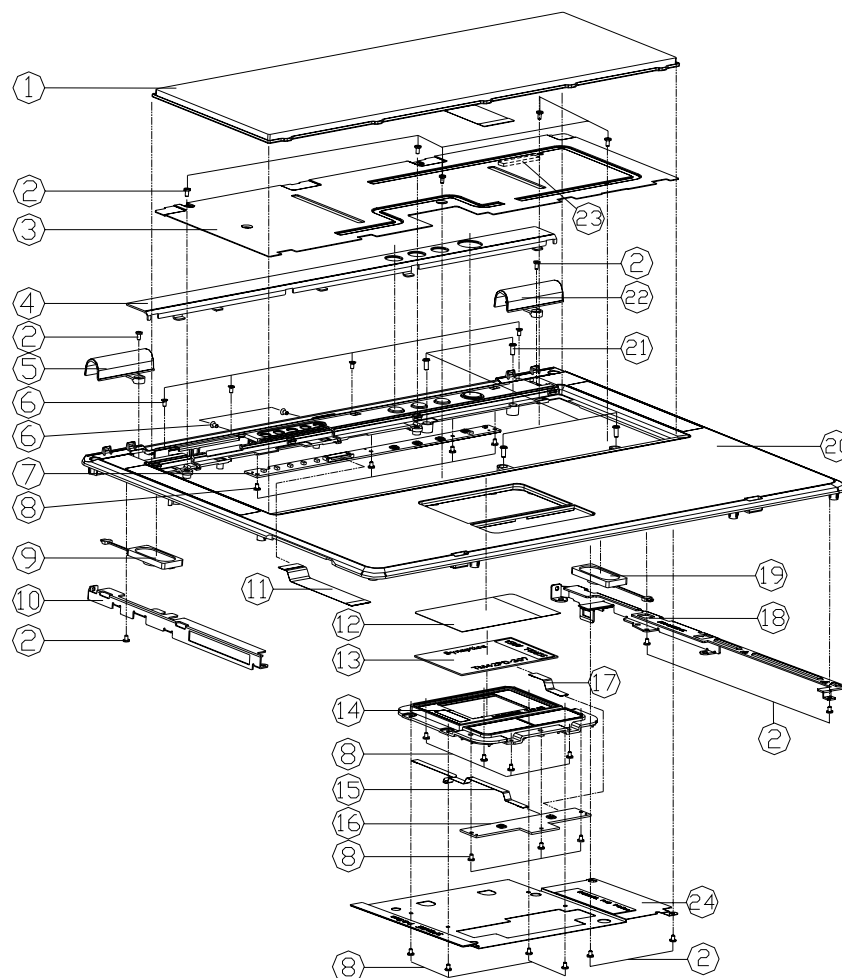


Figure A - 1
TOP (D900K)

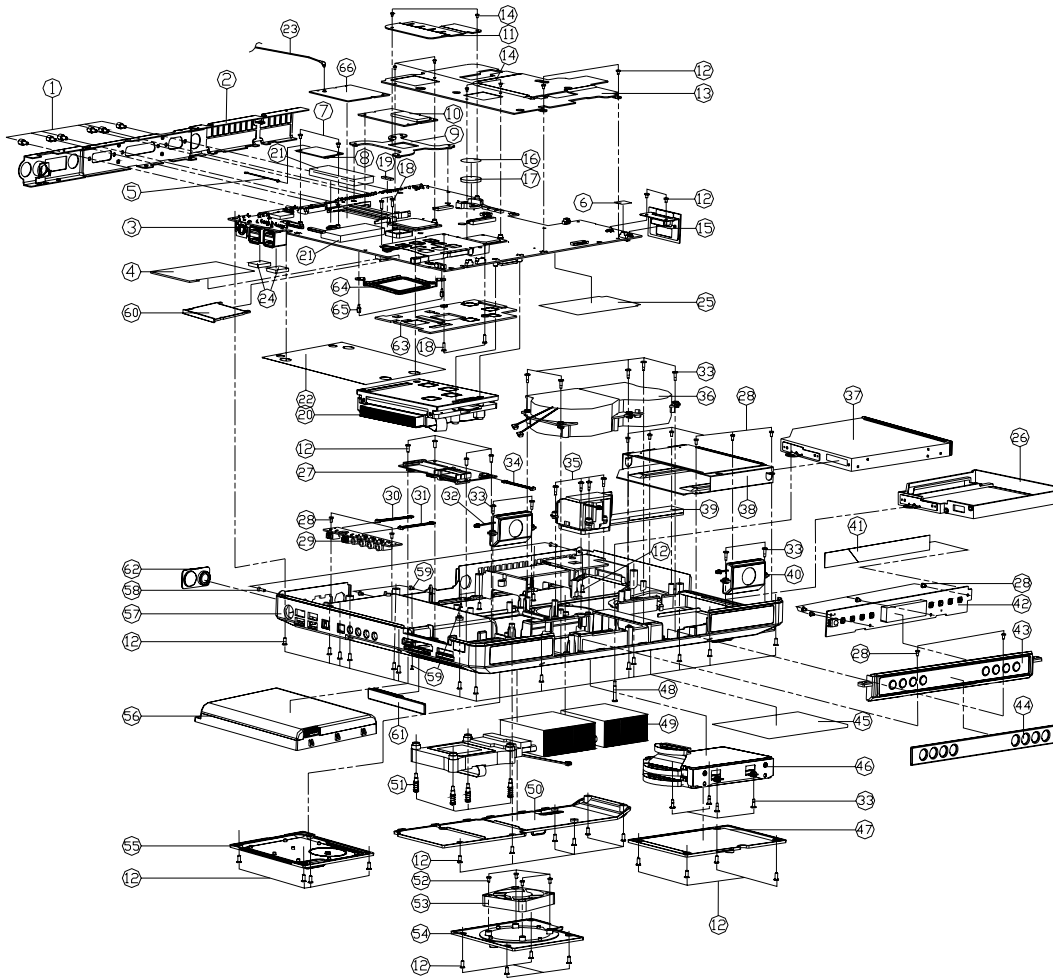
ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD	80-D90T0-011-1	
2	SCREW M2*4L 1 BZ ICT GTY-PATCH	35-C6120-4RB	
3	KEYBOARD SHIELDINGCAL 0.5MM	33-D90T7-013	
4	CENTER COVER MODULE (ROTATING KEY)	42-D90T2-105-L	
5	HINGE COVER+GASKET MODULE(L)	42-D90TY-401	
6	SCREW M2*4L F NI ICT NY	35-21120-4RA	
7	SWITCH BOARD	77-D90TS-005A-IL	
8	SCREW M2*4L KI NI ICT NY (0.8*0.55*H=0.3)	35-B1120-3RE	
9	SPEAKER CABLE 30MM DIA. 29M682, L	23-5A410-501	
10	HINGE BRACKET(L) (無鉛)	33-D90T1-091	
11	FFC CABLE FOR W/B TO SWITCH BOARD 06 PITCH	43-D90T0-060	
12	T/P MYLAR (有鉛)	40-D90T2-010-1	
13	TOUCHPAD SYNAPTICS TM2P-307 D900T	49-D90T2-010	
14	G/P HOLDER MODULE (無鉛)	42-D90T2-704	
15	FFC CABLE FOR W/B TO CLICK BOARD M2.5MM 4	43-D90T0-090	
16	CLICK BOARD	77-D90T2-005-L	
17	FFC CABLE FOR CLICK BOARD TO TOUCH PAD 25	43-D90T0-080	
18	HINGE BRACKET(R) (無鉛)	33-D90T1-081	
19	SPEAKER CABLE 230MM DIA. 29M681, 1W.8 DIA	23-5S410-230	
20	TOP CASE MODULE (無鉛(完全))	39-D90T2-016-1	
21	SCREW M2.5*6L K BZ ICT	35-82125-6R0	
22	HINGE COVER(R) (無鉛)	42-D90TY-032	
23	GASKET L60*5*3	47-00190-063	
24	TOP CU PLATE	33-D90T2-030	

A.Part Lists

BOTTOM (D900K)

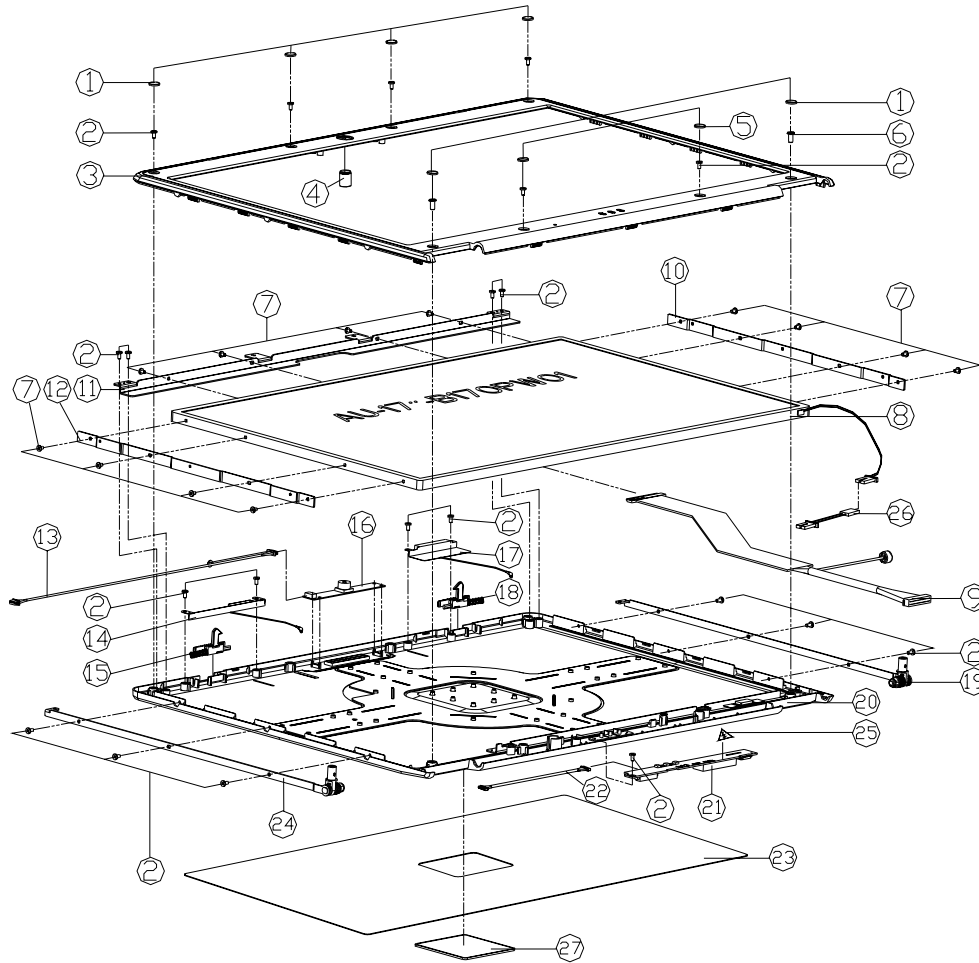
A.Part Lists

Figure A - 2
BOTTOM (D900K)



ITEM	PART NAME	PART NO	REMARK
1	HEX STUCCASER N-PL3 DIM GIY-PATCH	34-07009-012	
2	ID BRACKET	33-D90TS-011	
3	MAIN BOARD	77-D900K-D04-L	
4	PCMCIA MYLAR MYLAR 320	40-32004-000	
5	CABLE FOR HD, NALUK F1-25,ACES 8520-A	43-D90TU-010	
6	MYLAR F CLR MB 15x15	40-D90TS-040	
7	SCREW M2X4.5 NI CT NY 084933,14D3	35-B1120-3RA	
8	HOUSING 12 PIN COUPLER FIDE 8040X77	88-D90K1-390	
9	D9000 CPU SUPPORTER W/ SLOTS 2 VDD	33-D90KS-010	
10	KEY ME-4825A M/AN/O + SLOTS 2 VDD	88-D90K2-010	
10	W/LN BRD 6/8 M/AN/O 3A W-5433 Y-G11	88-D70T2-472	
11	MODFET SINK D900T	33-D90T0-012	
12	SCREW M2.5x6L K BZ ICT	35-82125-6R0	
13	D900K CHIP SINK	33-D90KS-021	
14	SCREW M2X4 NI NI ICT GIY-PATCH	35-B1120-3RE	
15	CD-ROM READER VDD5.0	77-D90T8-D05-L	
16	MYLAR FOR BATTERY	40-8505M-010	
17	BATTERY 3V 210mAh CR2032	23-G2015-407	
18	SCREW M2X7.0L K1 NI ICT NY	35-B1120-7RA	
19	D900K CLOCK GEN PAD/CORR 8549448M	47-D90K2-010	
20	VGA INVIDIA NV4400-ULTRA BOARD IAL	77-D90T1-D1K-1	Reference Part No. 40-D90K1-000
20	VGA BOARD NV4400-ULTRA IAL D900K	77-D90T1-D1K-1	Reference Part No. 40-D90K1-000
20	VGA BOARD NV4400-ULTRA IAL D900K	77-D90T1-D1K-1	Reference Part No. 40-D90K1-000
20	NVIDIA VGA 1279M-G13 IAL BOARD	77-D90T1-D1K-1	Reference Part No. 40-D90K1-000
21	SPRING FOR MB 58x25x6.1	47-0019A-580	
22	MYLAR FOR MB (339x42)	40-D90TS-020	
23	CABLE FOR TV TUNER ANTKA 058011	43-D90T0-0T1	
24	GASKET 10x15x2	47-00190-155	
25	PCMCIA MYLAR MYLAR 320	40-32004-000	
26	DUD DUMMY CASE ASSY D900T	79-D90T2-000	(option)
27	CARD READER MODULE 0580-0580000 D900K	88-D90T1-E-332	
28	SCREW M2X4 L BZ ICT GIY-PATCH 11-08 I-40	35-C6120-4RB	
29	AUDIO BOARD	77-D90T8-D05-L	
30	IDE CABLE FOR W/LN BRD 1.8MM 300MM CDM CORN	43-D90T0-0C0	
31	IDE CABLE FOR W/LN BRD 1.8MM 300MM CDM CORN	43-D90T0-0D1	
32	FRONT PANEL WITH CABLE FOR W/LN BOARD 10M	23-S1712-501	
33	SCREW M2X4 L BZ 1.45 X 4 NI CT NY	35-B1120-750	
34	IDE CABLE FOR W/LN BRD 1.8MM 300MM	43-D90T0-030	
35	SCREW M2X4 L BZ 1.7 X 4 NI CT NY	35-82120-115	
36	D900T FAN MODULE	31-D90TS-101	
37	CD/MD ASSY (option)	79-D90KX-010	Reference Part No. 40-D90K1-000
37	DVD/RW ASSY (option)	79-D90K0-000	Reference Part No. 40-D90K1-000
37	DVD ASSY (option)	79-D90KV-010	Reference Part No. 40-D90K1-000
38	CD-ROM HELDER	33-D90T2-022	
39	PC 58 VFD WITH CABLE M/AN/O 10M CDM CORN	23-A5430-501	
40	IDE CABLE FOR W/LN BRD 1.8MM 300MM CDM CORN	23-S1712-130	
41	IDE CABLE FOR W/LN BRD 1.8MM 300MM CDM CORN	43-D90T0-071	
42	AUDIO DJ BOARD VDD5.0	77-D90T8-D05-L	
43	AUDIO DJ HELDER MODULE	42-D90T8-701	
44	AUDIO DJ COSMETIC PLATE	42-D90T8-080	
45	PRODUCT LABEL D900K	45-D90KX-010-C	
45	W/D HDD ASSY IIDE D900T	79-D90T1-010	
46	W/D HDD ASSY SERATA D900T	79-D90T1-020	
47	D900 HDD COVER MODULE	42-D90T1-101	
48	SCREW M2X4.5 L BZ 1.5 X 4 NI CT NY	35-B1120-240	
49	D900K CPU THERMAL MODULE	31-D90KS-102	
50	D900 CPU COVER MODULE	42-D90T3-301	
51	KEY BOARD W/LN 0580-0580000 W/LN D900K	35-11025-175	
52	SCREW 1/8x1/8x1/8x1/8 NI CT NY	35-C9155-100	
53	FAN 6000M SV 635A CF850-DIEM-B01	23-A6012-111	
54	D900 RAM COVER MODULE	42-D90T3-202	
55	D900 VGA COVER MODULE	42-D90T3-101	
56	BATTERY 1.8V 650mAh IEC 4535P36M3LN	87-D90TS-4D6	
57	BOTTOM CASE MODULE	39-D90T3-011	
58	SCREW M2X6L F NI ICT NY	35-11120-8RA	
59	SCREW M2X4L F NI ICT NY	35-11120-4RA	
60	PCMCIA DUMMY CARD	42-D90TP-010	
61	SAFETY RUBBER FOR CARD READER	47-D87PR-011	
62	TV TUNER SAFETY RUBBER	47-D90T3-070	
63	D900 MB CU-PLATE	33-D90TS-020	
64	D900K CPU HOLDER	33-D90KS-031	
65	KEY BOARD W/LN 0580-0580000 W/LN D900K	34-D90K3-020	
66	TV TUNER CASE WITH 4 WINDING PITCH 3A W	88-D90K7-660	

LCD (D900K)



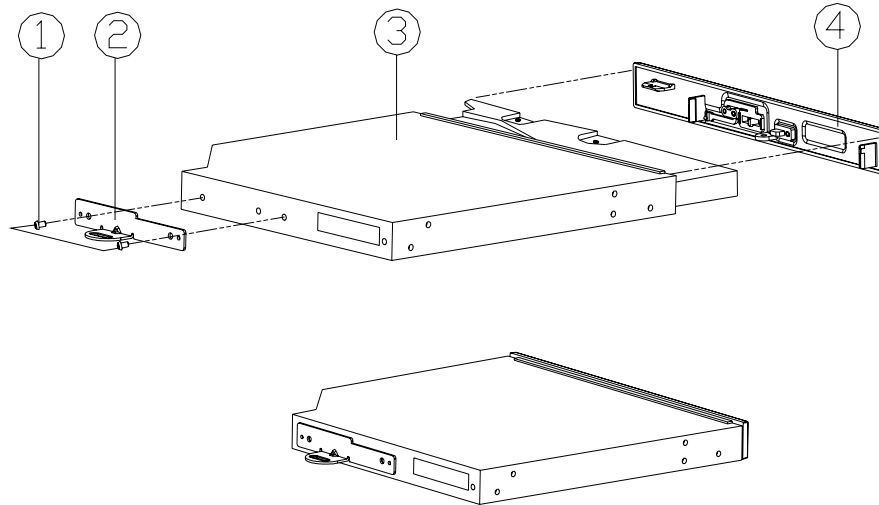
ITEM	PART NAME	PART NO	REMARK
1	LCD TOP RUBBER	47-D90T1-012	
2	SCREW M2*4L I BZ ICT GTY-PATCH	35-C6120-4RB	
3	DISPLAY FRONT CASE MODULE	39-D90K1-010	
4	VIDEO CAMERA RUBBER	47-D90T1-030	FOR W/CCD
5	LCD DOWN RUBBER	47-D90T1-020	
6	SCREW M3*6L KI NI ICT NY	35-B1130-6RA	
7	SCREW M2*3L KI NI ICT NY	35-B1120-3RA	
8	LCD T LG LP171W2-B4 17" WGA(HD)900 6	50-N7265-L06	
8	LCD T LG LP171W2-43G7(P/S) V52GA 168	50-NB269-L00	
8	LCD T LG LP171W4-44K4(LA)E 17X3 17" W	50-NB269-L01	
9	WIRE CABLE FOR SAMSUNG L17H1WU-L1 V05GA	43-D90T1-050	
9	WIRE CABLE FOR LG LP171W2 318MM 40PIN	43-D90T1-020	
9	WIRE CABLE FOR LG LP171W2 318MM 40PIN	43-D90T1-021	
9	WIRE CABLE FOR AU B17P*W01 318MM 40PIN	43-D90T1-030	
10	LG LCD17 BRACKET (R)	33-D90T1-061	FOR LG
10	RIGHT BRACKET OF AU LCD17	33-D90T1-121	FOR AU
11	TDP BRACKET OF LG LCD17	33-D90T1-141	FOR LG
11	TDP BRACKET OF AU LCD17	33-D90T1-111	FOR AU
12	LG LCD17 BRACKET(L)	33-D90T1-071	FOR LG
12	LEFT BRACKET OF AU LCD17	33-D90T1-131	FOR AU
13	WIRE CABLE FOR W8 TO VIDEO CAMERA 375MM 5	43-D90T0-041	
14	ANTENNA PFA BLUE(T)PFA 2.4GHz L-479MM GR	23-742R4-C80	
15	HDDK (KINDBL) MODULE	42-D90T1-804	
16	VIDEO CAMERA ON-2202-4E L3M OMS J08 2.0 1.0M 1/4" 3.0	88-D45TC-681	OPTION
16	VIDEO CAMERA INC-0YK3-153M OMSJUS 2.0 1.0M 1/4" 3.0	88-D90TC-612	OPTION
17	ANTENNA WIRELESS LAN DUAL BAND L-580MM BL	23-742R4-C81	
18	HDDK (KINDBR) MODULE	42-D90T1-704	
19	HINGE (R)	33-D90T1-012	
20	DISPLAY BACK CASE MODULE	39-D90T1-027	
21	INVERTER MODULE FOR D700T(MPT)	76-D70TR-001	
22	WIRE CABLE FOR W8 TO INVERTER 280M 12 PI	43-D90T0-052	
23	BACK PANEL COSMETIC PLATE	33-D90T1-050	
24	HINGE (L)	33-D90T1-022	
25	ELECTRIC SHOCK CAUTION B2H	45-B2004-000	
26	WIRE CABLE CONVERTER(25MM)*	43-D4701-031	
27	LOGO BASE	42-D90T1-030	

Figure A - 3
LCD (D900K)

A.Part Lists

DVD - TOSHIBA (D900K)

Figure A - 4
DVD TOSHIBA
(D900K)



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L KI NI ICT GTY-PATCH	35-B1120-3RE	
2	CDROM LOCK BRACKET	33-D90TZ-041	
3	DVD 5 1/4" 8X 12.7MM SD-C2732 TOSHIBA	85-7078X-T06	
4	DVD G-BEZEL MODULE	42-D90KV-100	

COMBO - TSST (D900K)

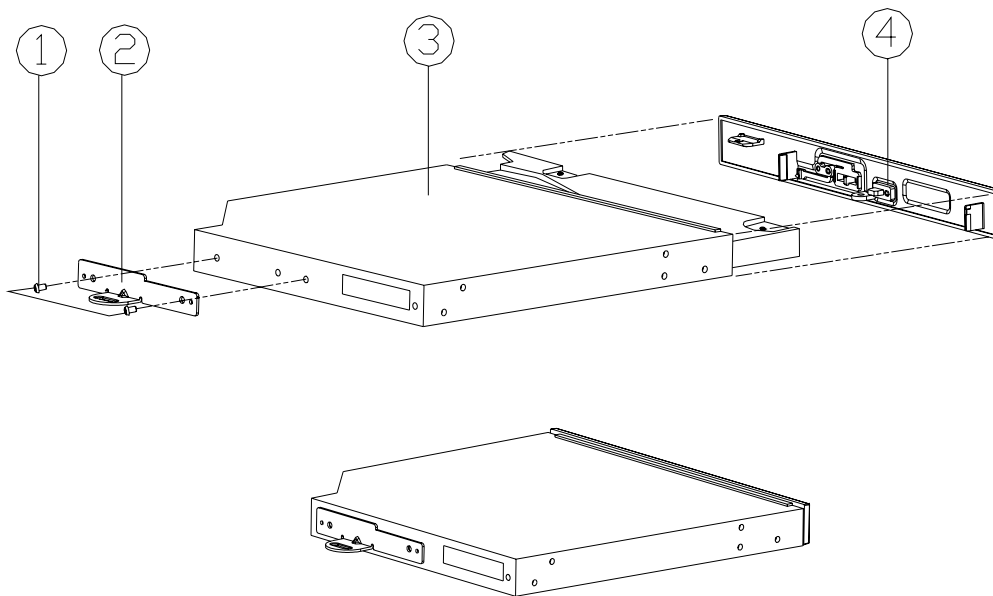
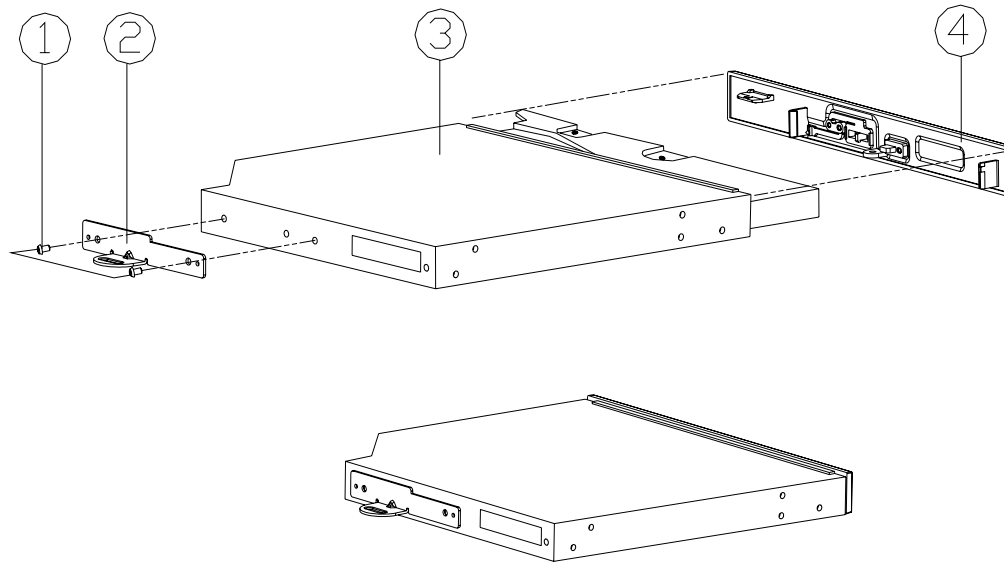


Figure A - 5
COMBO TSST
(D900K)

ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L KI NI ICT GTY-PATCH	35-B1120-3RE	
2	CDROM LOCK BRACKET	33-D90TZ-041	
3	CD-RW/DVD 5 1/4" 24X 12.7MM TS-L462A TOSHIBA(TSST,G-BASS)	85-907PX-T01	
3	CD-RW/DVD 5 1/4" 24X 12.7MM TS-L462C TOSHI	85-907PX-T00	
4	DVD RW G-BEZEL MODULE	42-D90KX-100	

DVD-DUAL RW (D900K)

Figure A - 6
DVD-DUAL RW
(D900K)



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L K1 NI ICT GTY-PATCH	35-B1120-3RE	
2	CDROM LOCK BRACKET	33-D90TZ-041	
3	DVD/DUAL RW 5 1/4" 8X 12.7MM DVR-K15RA PIONEER(G-BASS)	85-A078X-B01	FOR PIONEER
3	DVD/DUAL RW 5 1/4" 8X 12.7MM TS-L532U TSST	85-A078X-T01	FOR TOSHIBA
3	DVD/DUAL RW 5 1/4" 8X 12.7MM UJ-840S PANAS	85-A078X-P01	FOR PANASONIC
4	DVD DUAL BEZEL MODULE TOSHIBA(TSST) (G-BASS)	42-D90TQ-300	

COMBO - TOSHIBA (D900K)

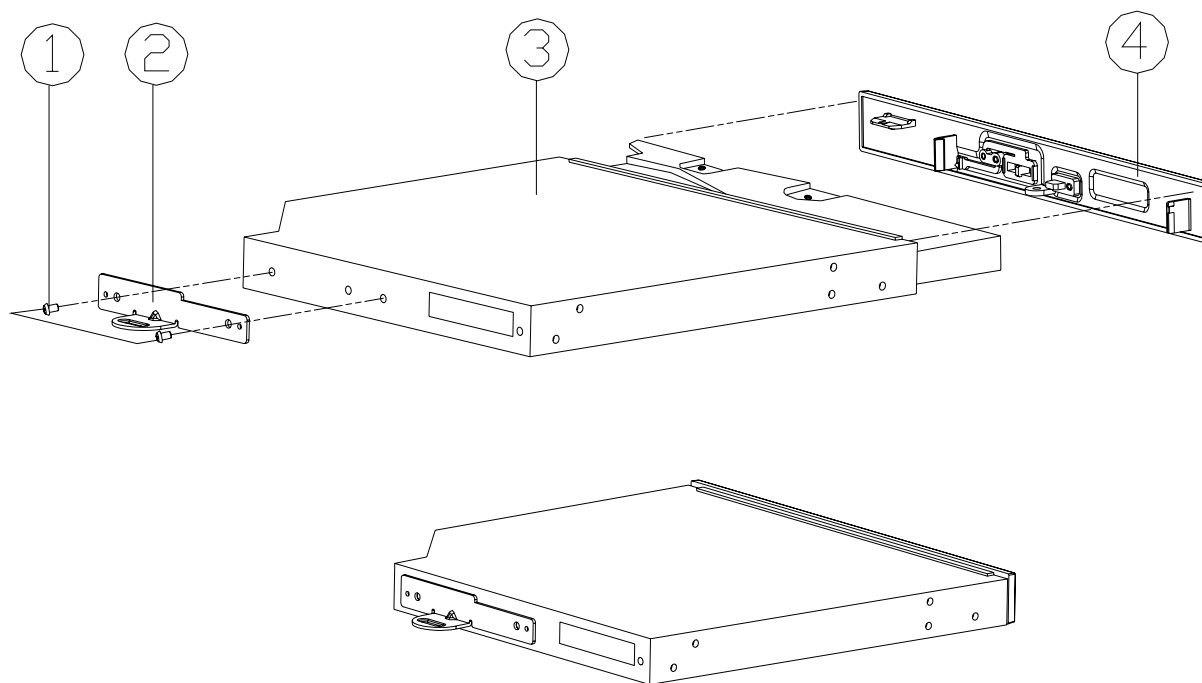


Figure A - 7
COMBO TOSHIBA
(D900K)

ITEM	PART NAME	PART NO	REMARK
1	SCREW M2X3L KI NI ICT GTY-PATCH	35-B1120-3RE	
2	CDROM LOCK BRACKET	33-D90TZ-041	
3	DVD 5 1/4" 8X 12.7MM SD-C2732 TOSHIBA	85-7078X-T06	
4	DVD G-BEZEL MODULE	42-D90KV-100	

A.Part Lists

Appendix B:Schematic Diagrams

This appendix has circuit diagrams of the *D900K* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>BLOCK DIAGRAM - Page B - 2</i>	<i>DVI/ TV OUT/ VIDEO IN CON - Page B - 16</i>	<i>MINI PCI/ NC/ MDC/ BT CON - Page B - 30</i>
<i>CLOCK GENERATOR - Page B - 3</i>	<i>PANEL CON/ LED INDICATOR - Page B - 17</i>	<i>POWER CONTROLLER 1 - Page B - 31</i>
<i>CPU-1 CONTROL/ HYPERTRANSPORT - Page B - 4</i>	<i>PCMCIA T11410 - Page B - 18</i>	<i>POWER CONTROLLER 2 - Page B - 32</i>
<i>CPU-2 MEMORY INTERFACE - Page B - 5</i>	<i>PCMCIA POWER/ FAN CON - Page B - 19</i>	<i>SYSTEM POWER - Page B - 33</i>
<i>DDR MEMORY DIMM - Page B - 6</i>	<i>PCI 1394a TI TSB43AB22 - Page B - 20</i>	<i>VCORE - Page B - 34</i>
<i>DDR TERMINATION - Page B - 7</i>	<i>GLAN RTL8110SBL - Page B - 21</i>	<i>+01.2VS, +1.5V, +2.5v, DDR - Page B - 35</i>
<i>CPU-3 POWER/ GND - Page B - 8</i>	<i>HDD CON - Page B - 22</i>	<i>CHARGER - Page B - 36</i>
<i>NB K8T890-1 HT INTERFACE - Page B - 9</i>	<i>LPC SUPER I/ O NS87393 - Page B - 23</i>	<i>AUDIO BOARD - Page B - 37</i>
<i>NB K8T890-2 PCI-E INTERFACE - Page B - 10</i>	<i>LPT/ COM PORT CON/ Thermistor - Page B - 24</i>	<i>AUDIO DJ BOARD - Page B - 38</i>
<i>NB K8T890-3 VLINK & VGA - Page B - 11</i>	<i>LPC H8 - Page B - 25</i>	<i>CD-ROM BOARD - Page B - 39</i>
<i>SB VT8237A-IPCI/ USB - Page B - 12</i>	<i>CODEC ALC850 - Page B - 26</i>	<i>CLICK BOARD - Page B - 40</i>
<i>SB VT8237A-2 IDE, ISA & SATA - Page B - 13</i>	<i>AUDIO JACK & ADJ POWER - Page B - 27</i>	<i>SWITCH BOARD - Page B - 41</i>
<i>SB VT8237A-3 LPC, LAN, VLINK - Page B - 14</i>	<i>AUDIO DJ BBVL + CONTROL - Page B - 28</i>	
<i>VGA DAUGHTER CONNECTOR - Page B - 15</i>	<i>USB/ CR/ CCD CON/ SRS - Page B - 29</i>	

Table B - 1
**Schematic
Diagrams**

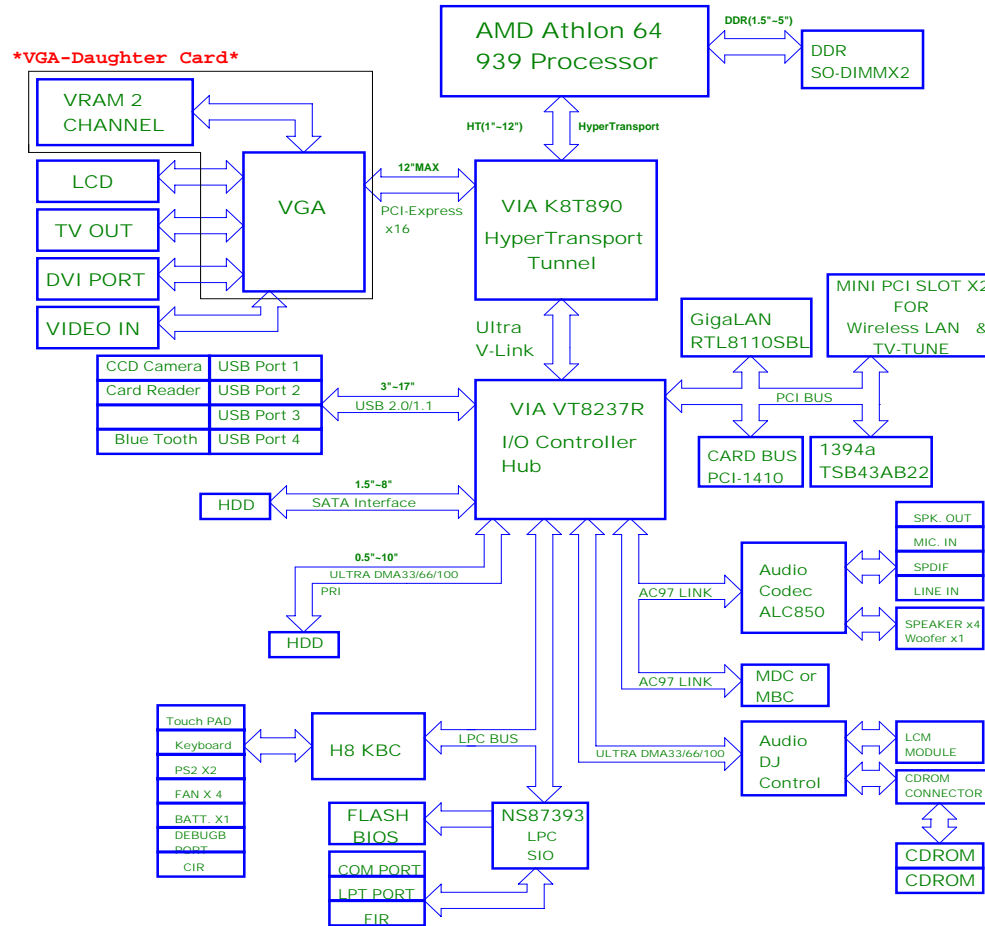


Version Note

The schematic diagrams in this chapter are based upon version **71-D900K-D04**. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

BLOCK DIAGRAM

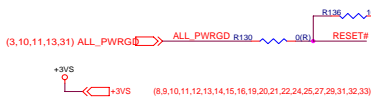
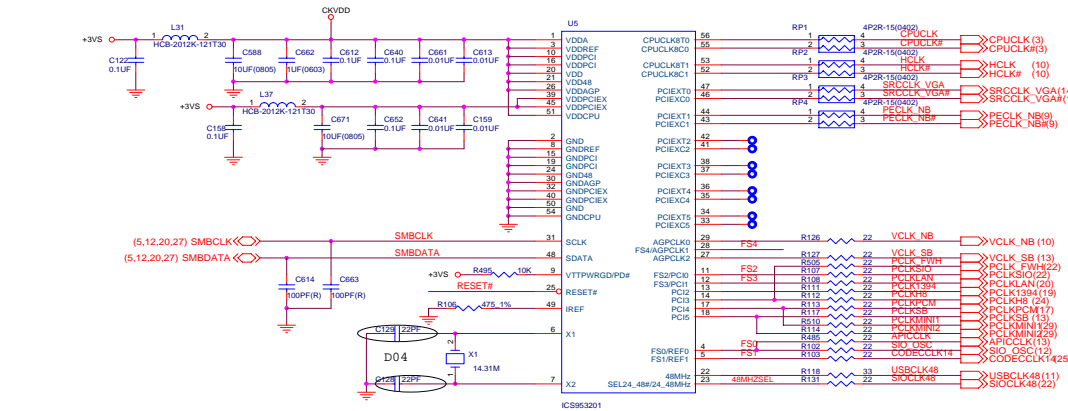
BLOCK DIAGRAM



DEVICE	INT#	REQ#/GNT#	IDSEL
PCMCIA	INT#C	PREQ#0 PGNT#0	AD16
1394	INT#E	PREQ#1 PGNT#1	AD17
LAN	INT#F	PREQ#2 PGNT#2	AD19
MINI PCI-1	INT#B	PREQ#4 PGNT#4	AD21
MINI PCI-2	INT#G	PREQ#3 PGNT#3	AD20
K8T890	INT#H		

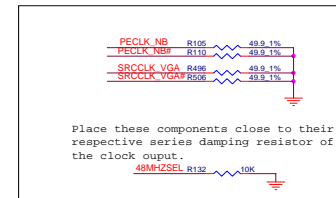
Sheet 1 of 40
BLOCK DIAGRAM

CLOCK GENERATOR

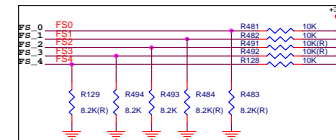


FS_[4:0]	CPU	PCIEX	AGP	PCI	FS_[4:0]	CPU	PCIEX	AGP	PCI
00000	100.90	100.90	67.27	33.63	10000	100.00	100.00	66.67	33.33
00001	133.90	100.43	66.95	33.48	10001	133.00	100.00	66.67	33.33
00010	168.00	100.80	67.20	33.60	10010	166.66	104.16	69.44	34.72
00011	202.00	101.00	67.33	33.67	10011	200.00	100.00	66.67	33.33
00100	100.20	100.20	66.80	33.40	10100	103.00	103.00	68.67	34.33
00101	133.50	100.13	66.75	33.38	10101	137.33	103.00	68.66	34.33
00110	166.70	100.02	66.68	33.34	10110	171.66	103.00	68.66	34.33
00111	200.40	100.20	66.80	33.40	10111	206.00	103.00	68.67	34.33
01000	160.00	100.00	66.67	33.33	11000	208.00	104.00	69.33	34.67
01001	202.00	101.00	67.33	33.67	11001	210.00	105.00	70.00	35.00
01010	210.00	105.00	70.00	35.00	11010	215.00	107.50	71.67	35.83
01011	212.00	106.00	70.67	35.33	11011	220.00	110.00	73.33	36.67
01100	270.00	101.25	67.50	33.75	11100	326.00	113.00	75.33	37.67
01101	225.00	112.50	75.00	37.50	11101	230.00	115.00	76.67	38.33
01110	266.67	100.00	66.67	33.33	11110	240.00	120.00	80.00	40.00
01111	300.00	112.50	75.00	37.50	11111	250.00	125.00	83.33	41.67

Clock Synthesizer

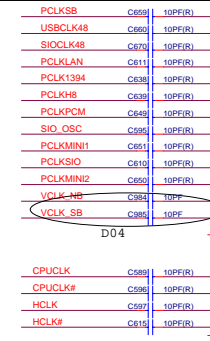


Place these components close to their respective series damping resistor of the clock output.



Place these components close to their respective series damping resistor of the clock output.

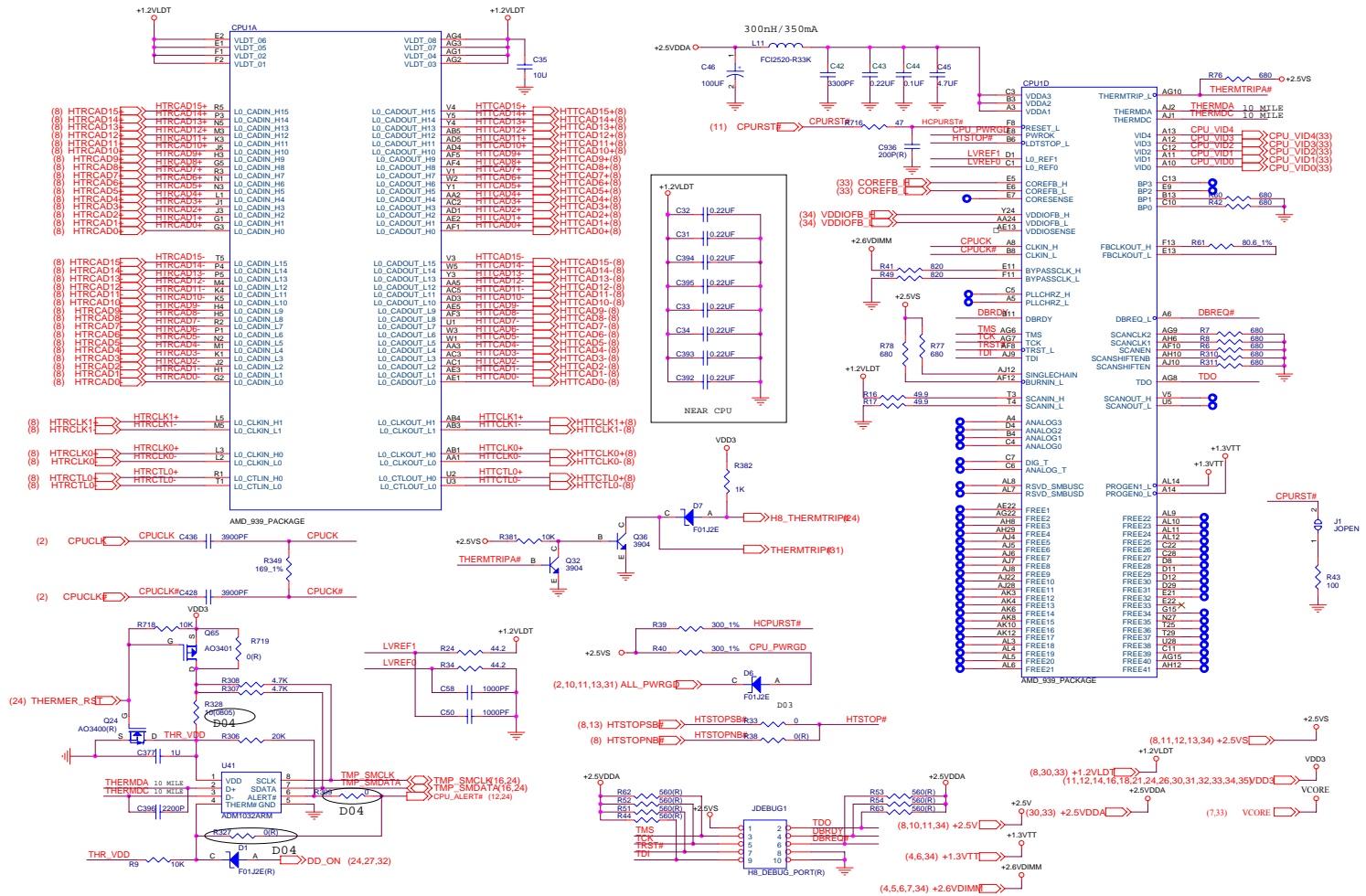
Set FS_[4:0] value at 10011 for default frequencies as below:
 CPU PCIEX AGP PCI
 200.00 100.00 66.67 33.33



Sheet 2 of 40
CLOCK GENERATOR

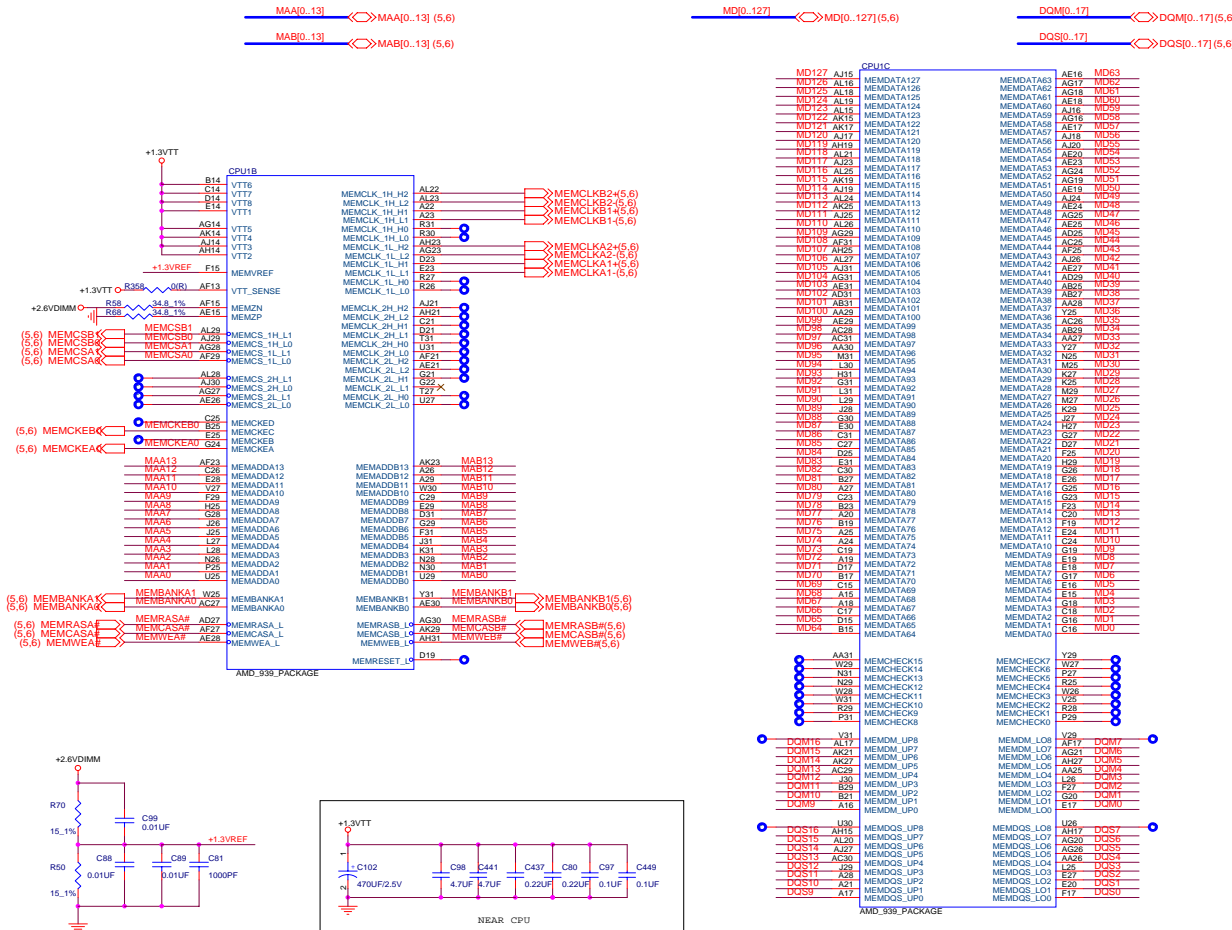
CPU-1 CONTROL/ HYPERTRANSPORT

Sheet 3 of 40
CPU-1 CONTROL/
HYPERTRANSPORT



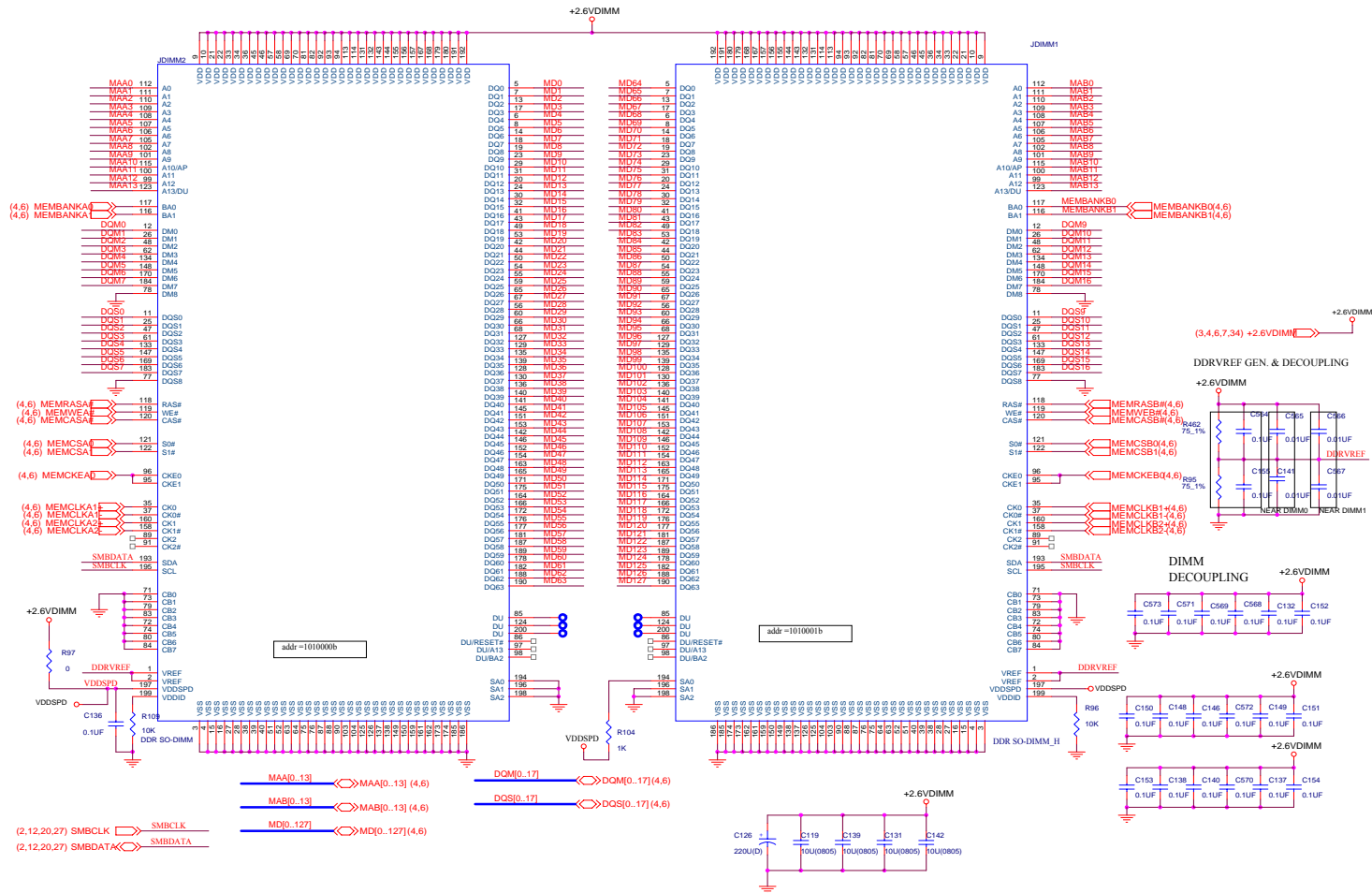
CPU-2 MEMORY INTERFACE

Sheet 4 of 40
CPU-2 MEMORY
INTERFACE



DDR MEMORY DIMM

Sheet 5 of 40
DDR MEMORY
DIMM

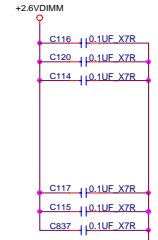
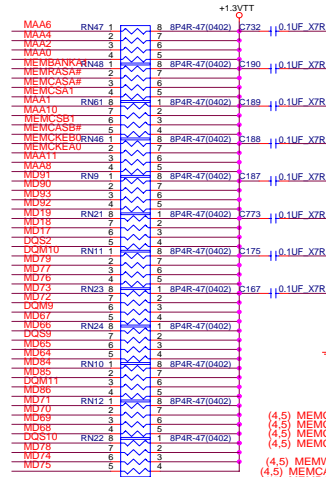
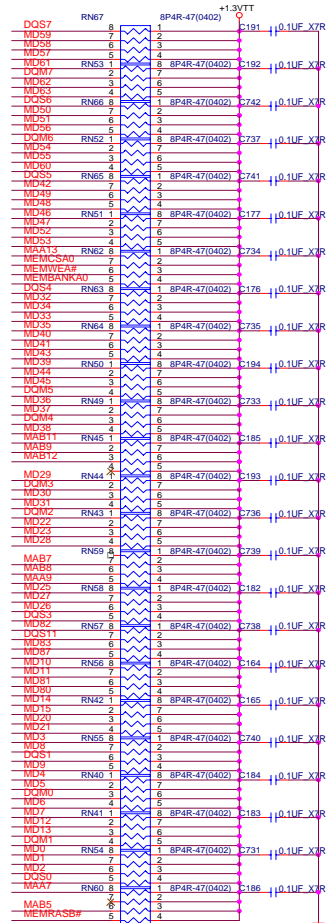


DDR TERMINATION

(4.5) MD[0..127]K <-> MD[0..127]
 (4.5) DQM[0..17]K <-> DQM[0..17]
 (4.5) DQS[0..17]K <-> DQS[0..17]
 (4.5) MAA[0..13]K <-> MAA[0..13]

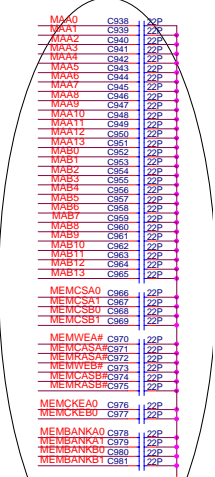
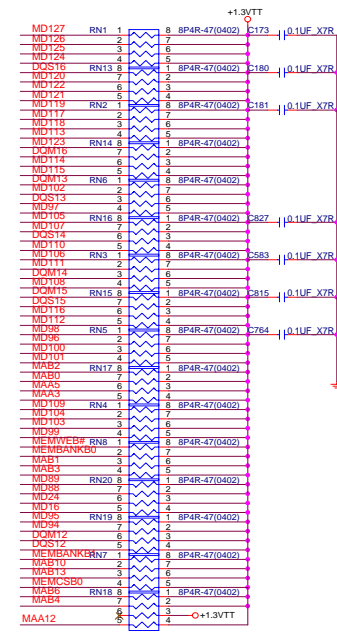
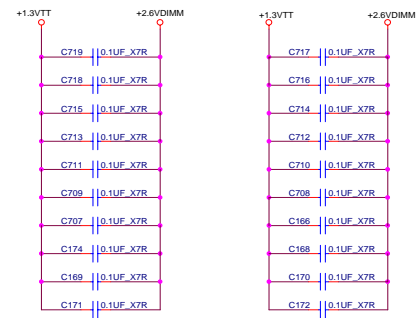
(4.5) MAB[0..13]K <-> MAB[0..13]
 (3,4,34) +1.3VTT

DDR Termination



- (4.5) MEMCSA0 <-> MEMCSA0
- (4.5) MEMCSA1 <-> MEMCSA1
- (4.5) MEMCSA2 <-> MEMCSA2
- (4.5) MEMCSA3 <-> MEMCSA3
- (4.5) MEMCSA4 <-> MEMCSA4
- (4.5) MEMWEA# <-> MEMWEA#
- (4.5) MEMRASA# <-> MEMRASA#
- (4.5) MEMWEAB# <-> MEMWEAB#
- (4.5) MEMRASAB# <-> MEMRASAB#
- (4.5) MEMCKEA0 <-> MEMCKEA0
- (4.5) MEMCKEB0 <-> MEMCKEB0
- (4.5) MEMBANKA0 <-> MEMBANKA0
- (4.5) MEMBANKA1 <-> MEMBANKA1
- (4.5) MEMBANKB0 <-> MEMBANKB0
- (4.5) MEMBANKB1 <-> MEMBANKB1

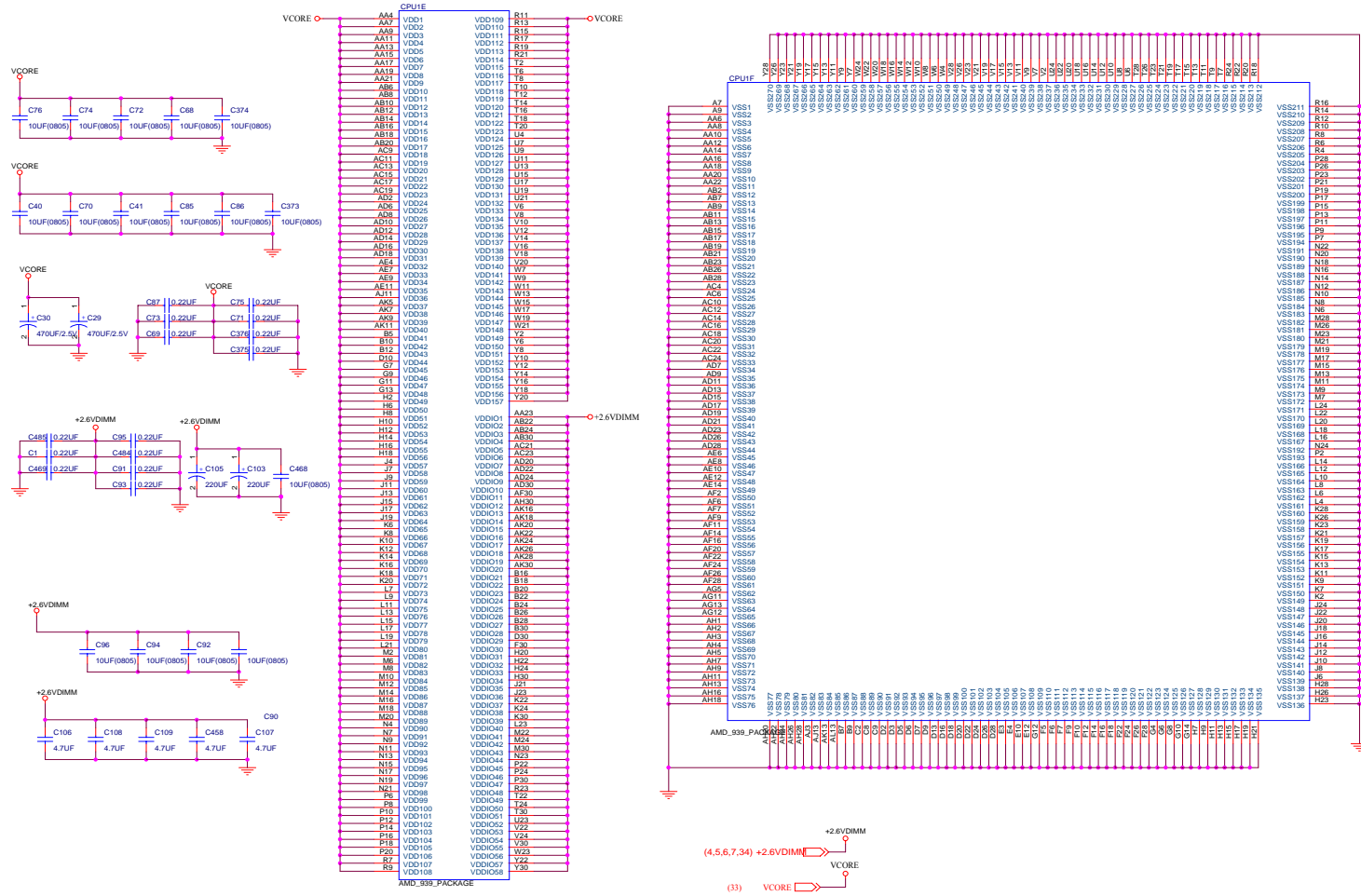
LAYOUT: Place a cap every 1 inch on VTT trace between Clawhammer and DDR.



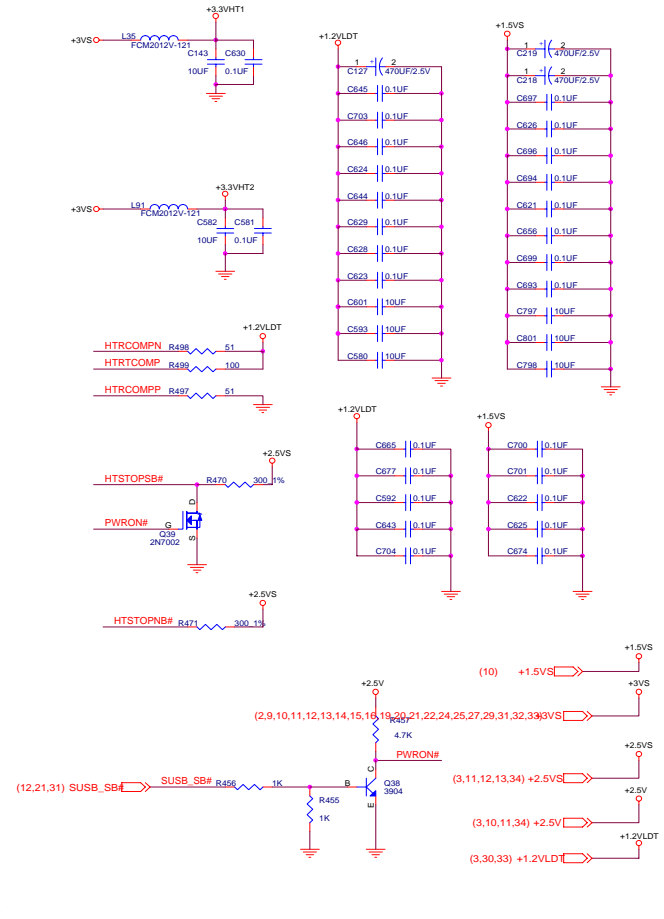
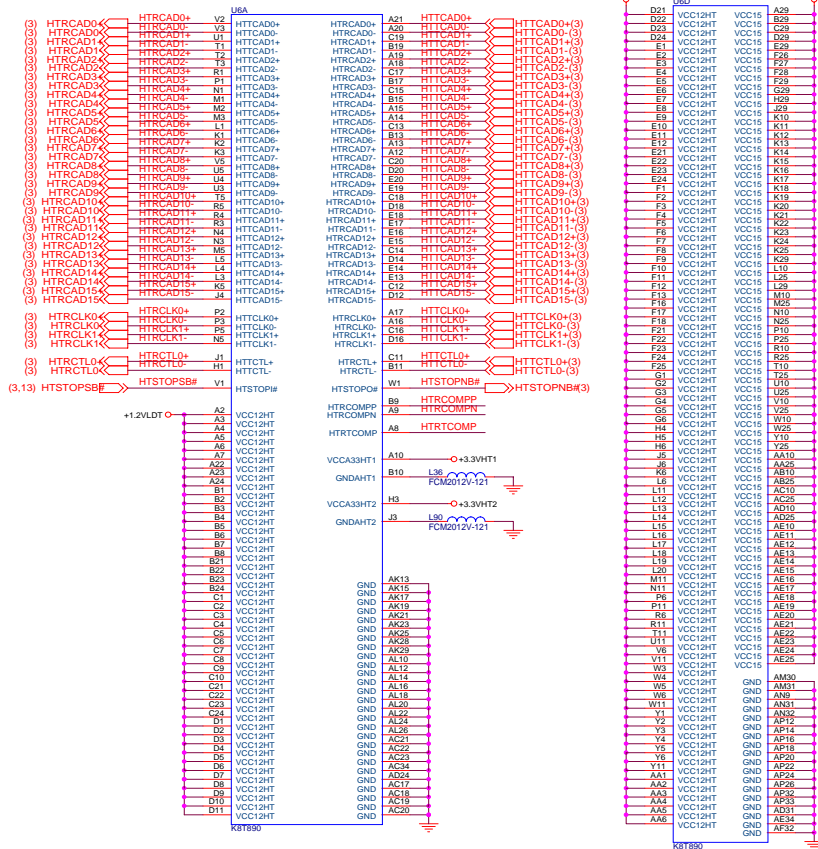
Sheet 6 of 40
 DDR
 TERMINATION

CPU-3 POWER/ GND

Sheet 7 of 40
CPU-3 POWER/
GND



NB K8T890-1 HT INTERFACE

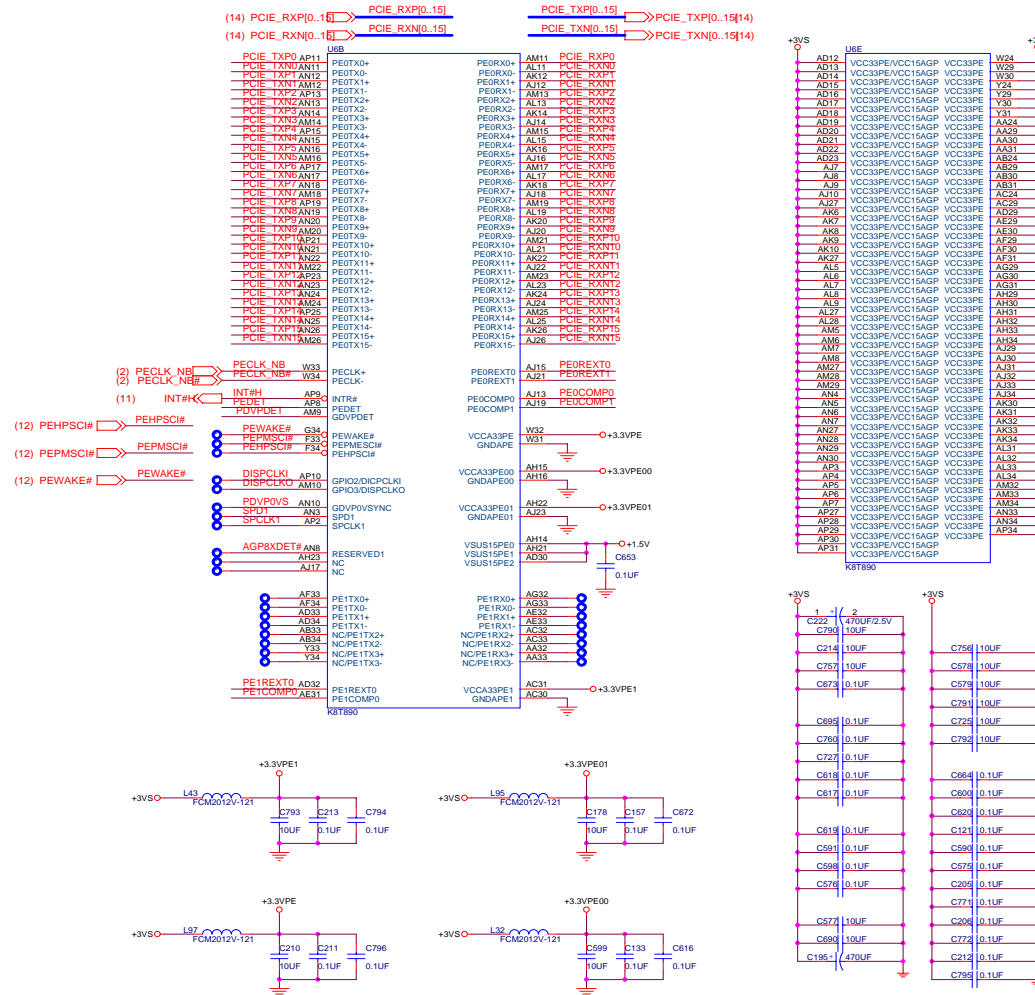


Sheet 8 of 40
NB K8T890-1 HT
INTERFACE

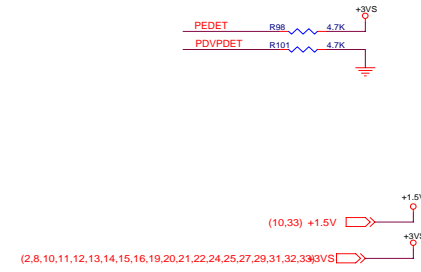
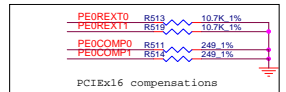
B. Schematic Diagrams

NB K8T890-2 PCI-E INTERFACE

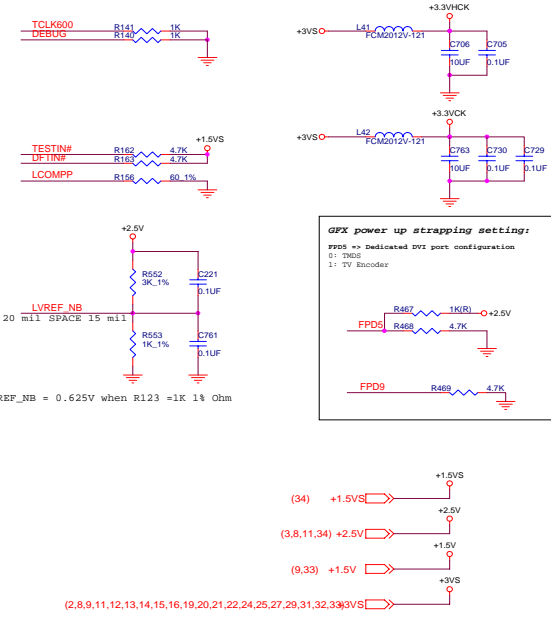
Sheet 9 of 40
NB K8T890-2 PCI-E
INTERFACE



Note:
K8T890 support 4 X1 Lane or 1 X4 Lane PCI Express.



NB K8T890-3 VLINK & VGA

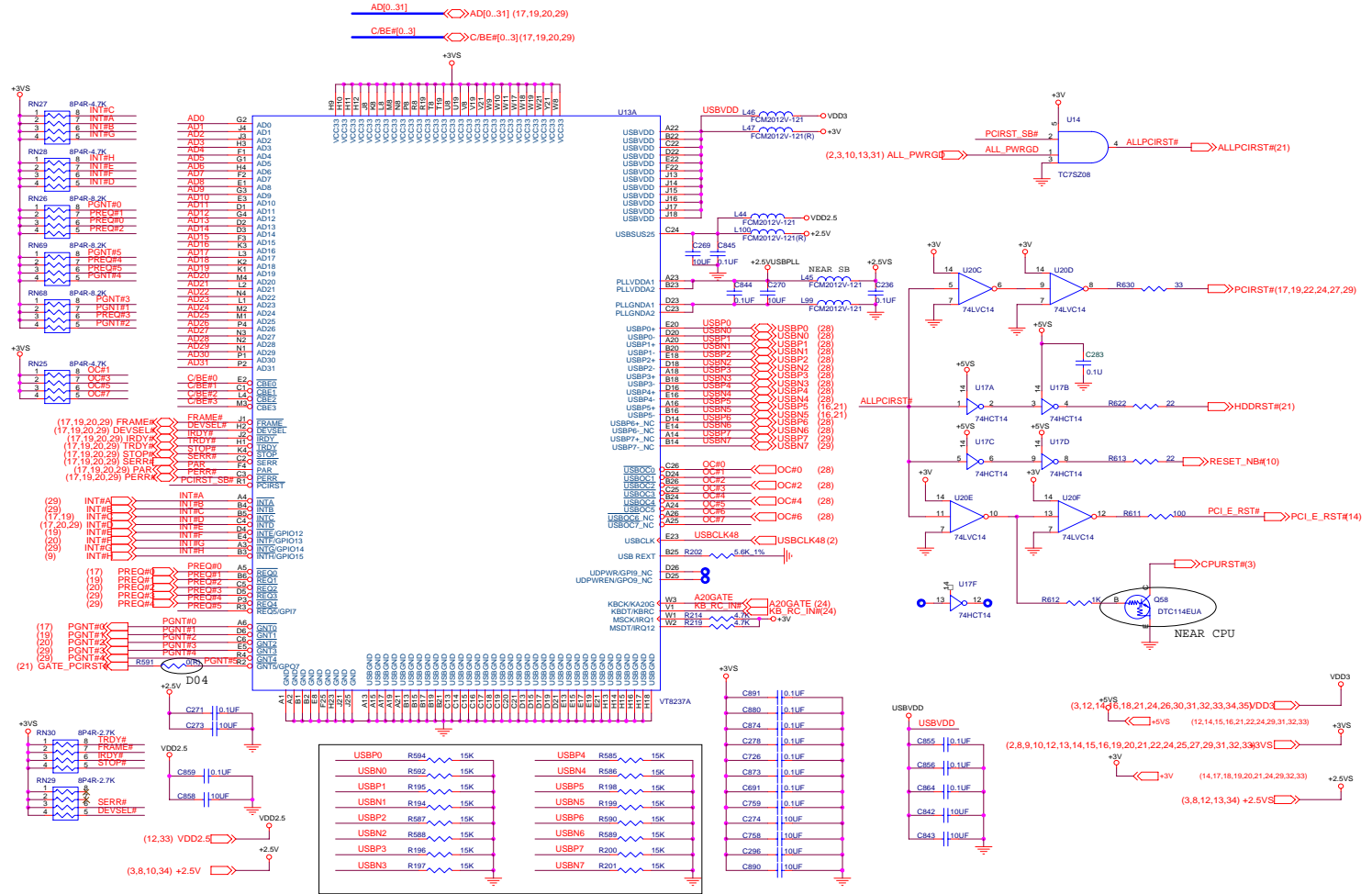


Sheet 10 of 40
NB K8T890-3
VLINK & VGA

B. Schematic Diagrams

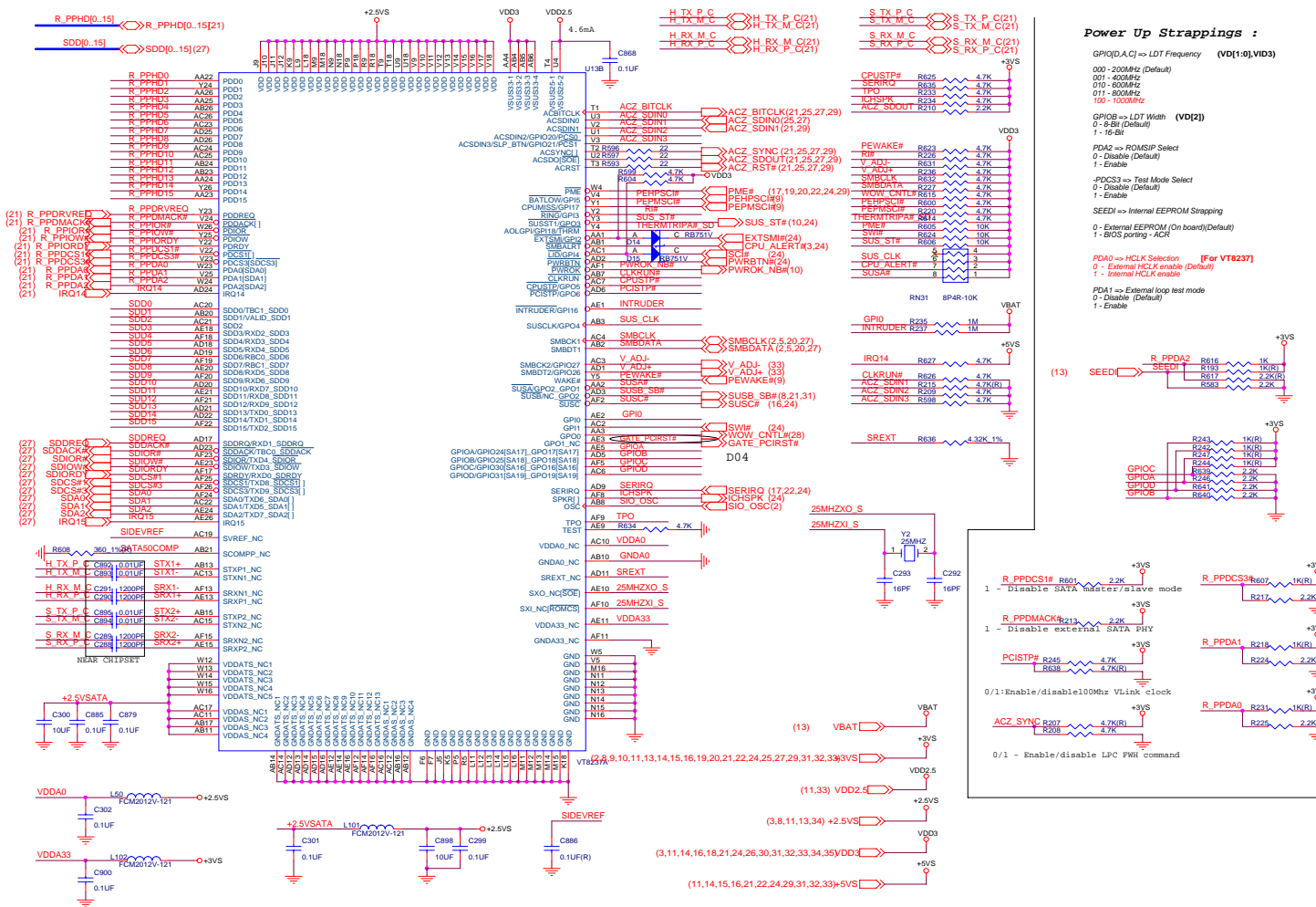
SB VT8237A-1PCI/ USB

Sheet 11 of 40
SB VT8237A-1PCI/
USB



SB VT8237A-2 IDE, ISA & SATA

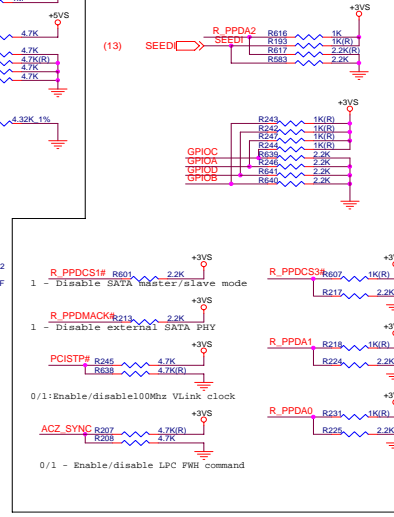
B.Schematic Diagrams



Power Up Strappings :

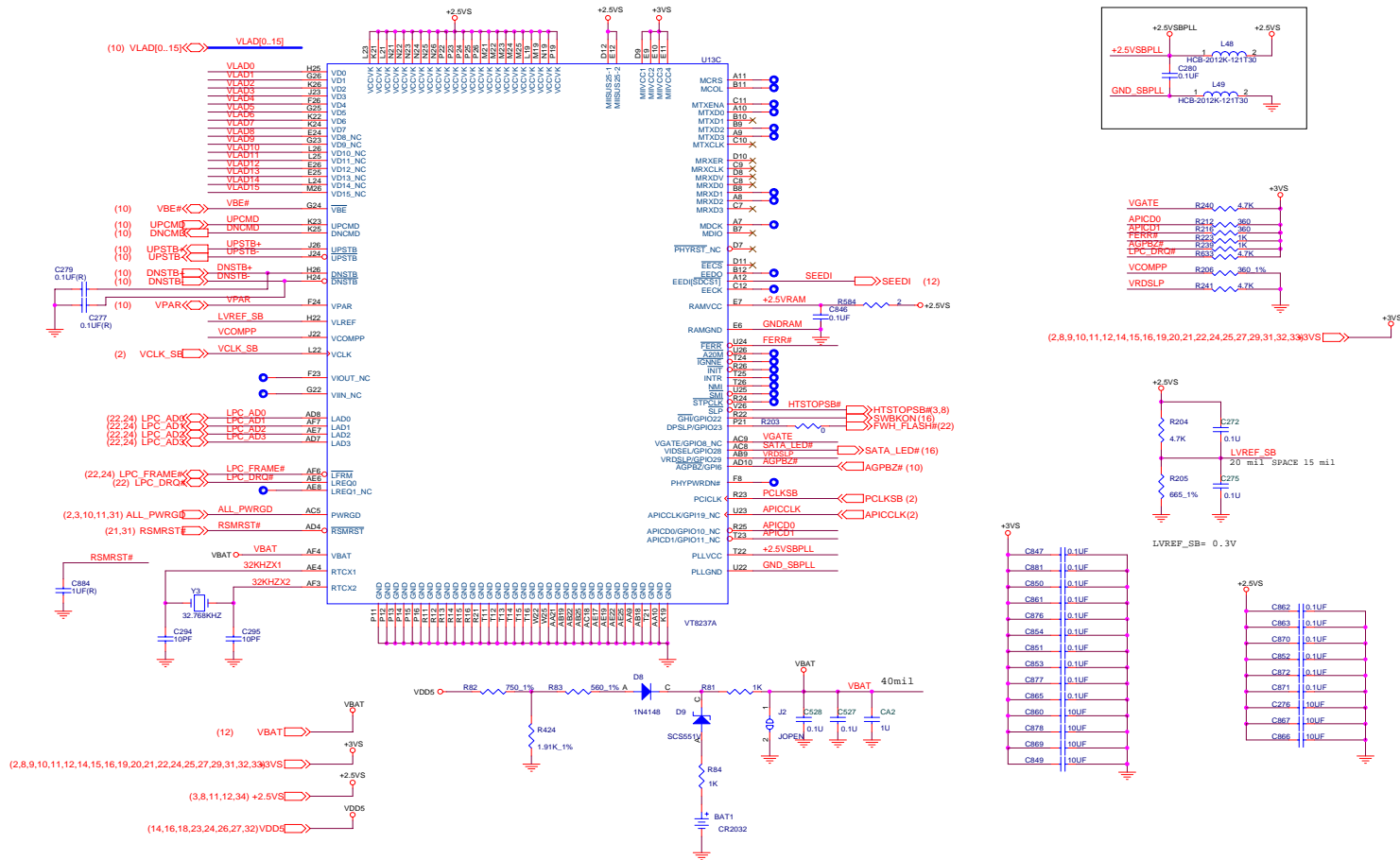
- GPIO[A,C] => LDT Frequency (VD1:0),VD3)
 - 001 - 200MHz (Default)
 - 001 - 400MHz
 - 010 - 600MHz
 - 011 - 800MHz
 - 100 - 1000MHz
- GPIOB => LDT Width (VD2)
 - 0 - 5-Bit (Default)
 - 1 - 16-Bit
- PD2 => ROMSIP Select
 - 0 - Disable (Default)
 - 1 - Enable
- PDCS => Test Mode Select
 - 0 - Disable (Default)
 - 1 - Enable
- SEED1 => Internal EEPROM Strapping
 - 0 - External EEPROM (On board/Default)
 - 1 - BIOS parsing - ACR
- PD40 => HCLK Selection [For VT8237]
 - 0 - External HCLK enable (Default)
 - 1 - Internal HCLK enable
- PD41 => External loop test mode
 - 0 - Disable (Default)
 - 1 - Enable

Sheet 12 of 40 SB VT8237A-2 IDE, ISA & SATA

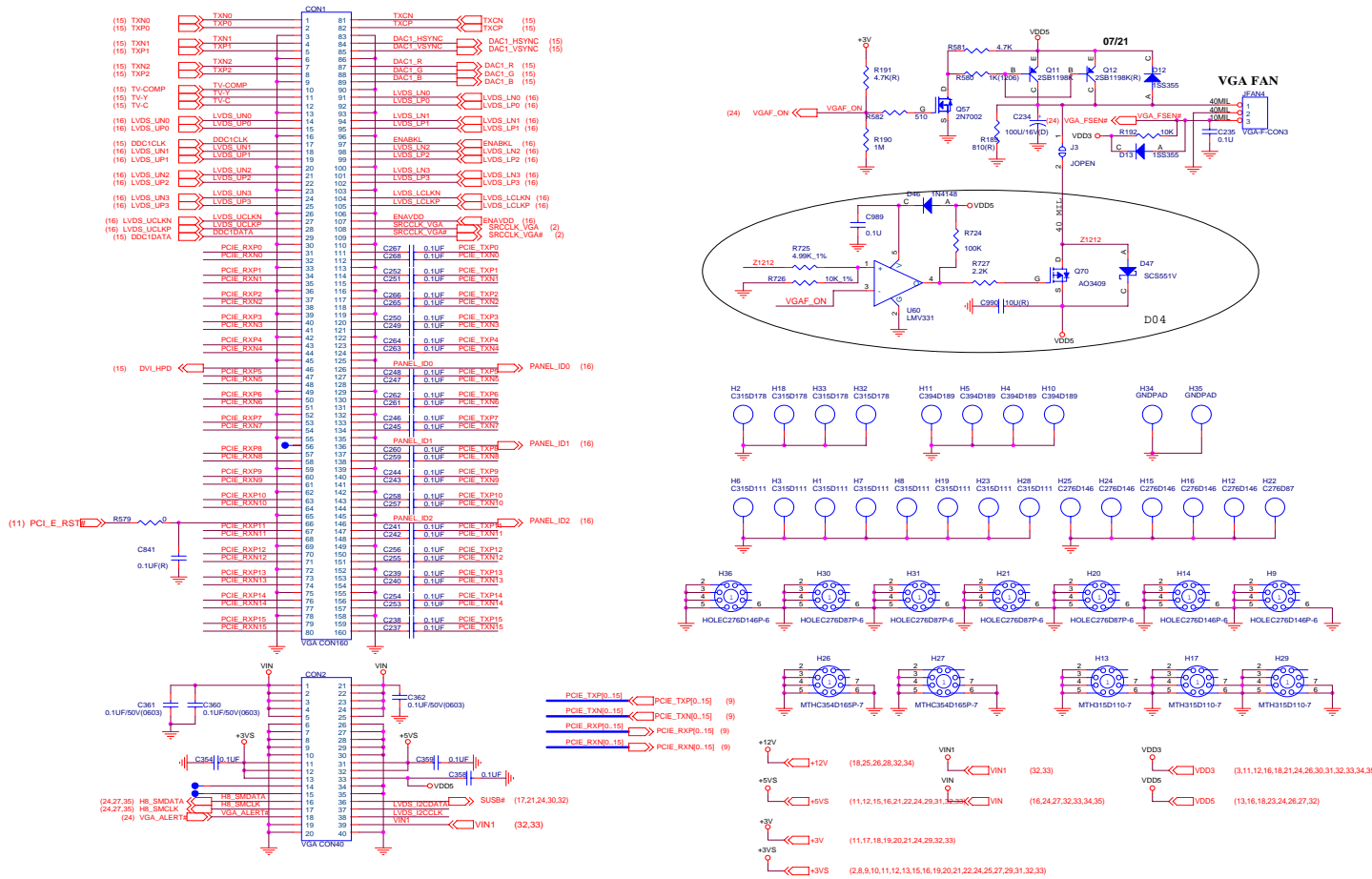


SB VT8237A-3 LPC, LAN, VLINK

Sheet 13 of 40
SB VT8237A-3 LPC,
LAN, VLINK



VGA DAUGHTER CONNECTOR

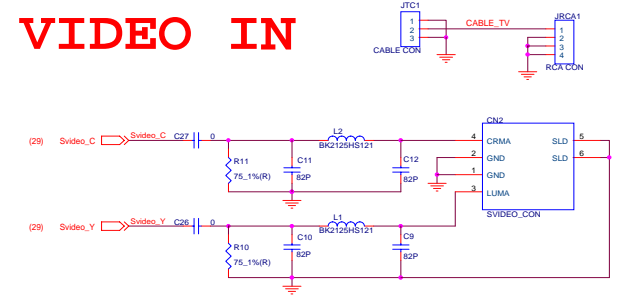
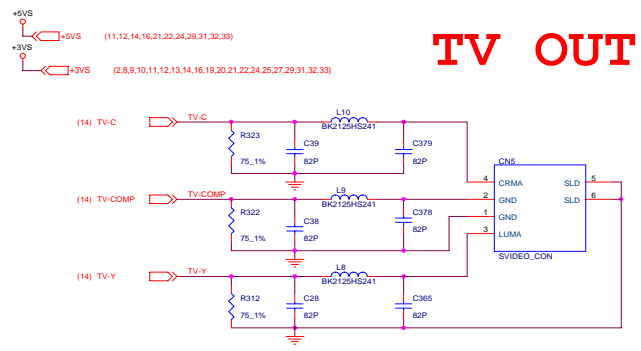
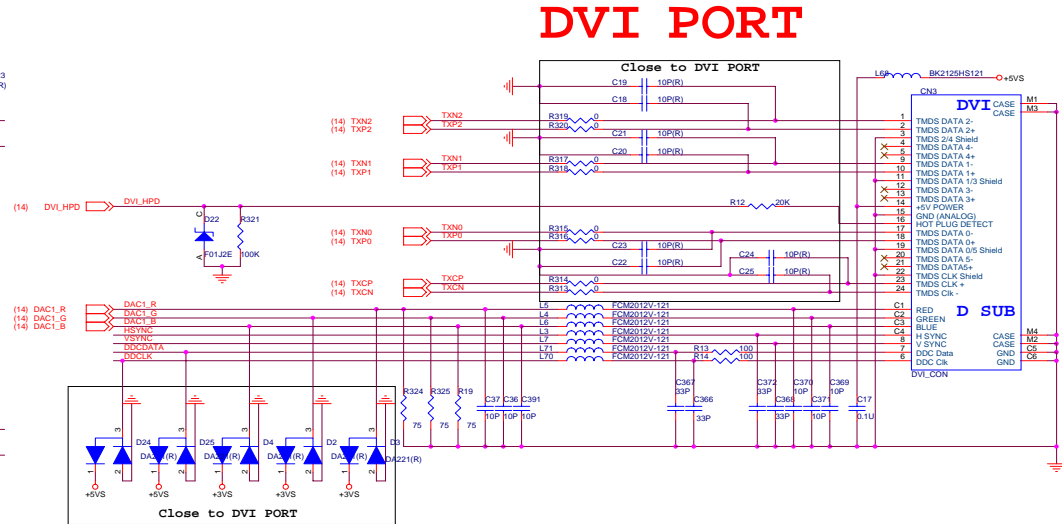
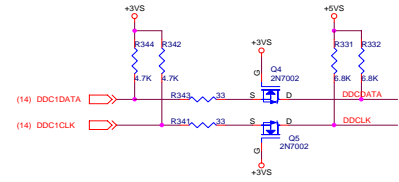
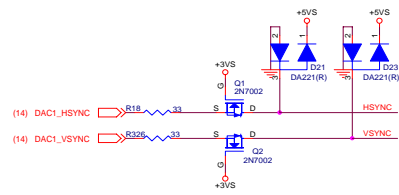


Sheet 14 of 40
VGA DAUGHTER CONNECTOR

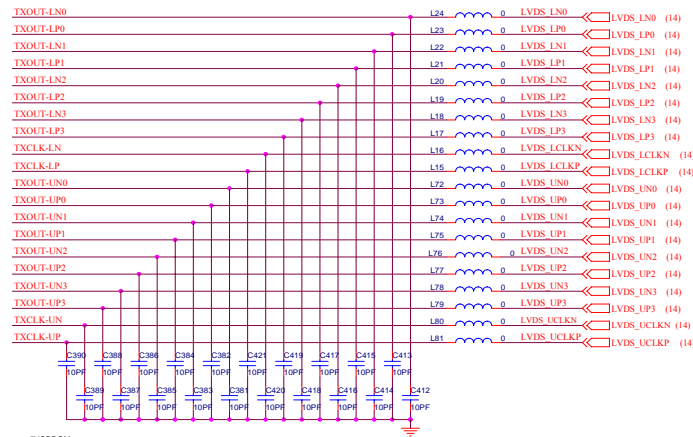
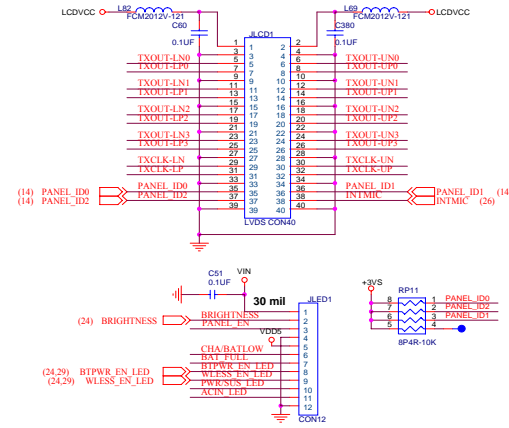
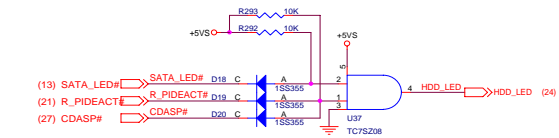
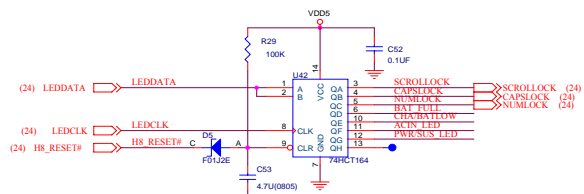
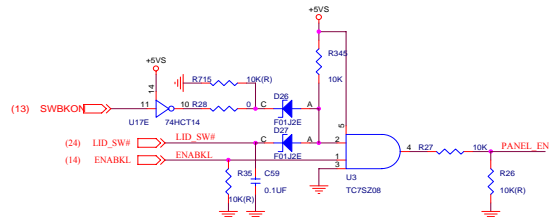
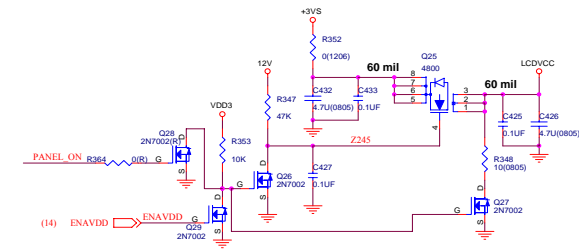
B.Schematic Diagrams

DVI/ TV OUT/ VIDEO IN CON

Sheet 15 of 40
DVI/ TV OUT/
VIDEO IN CON

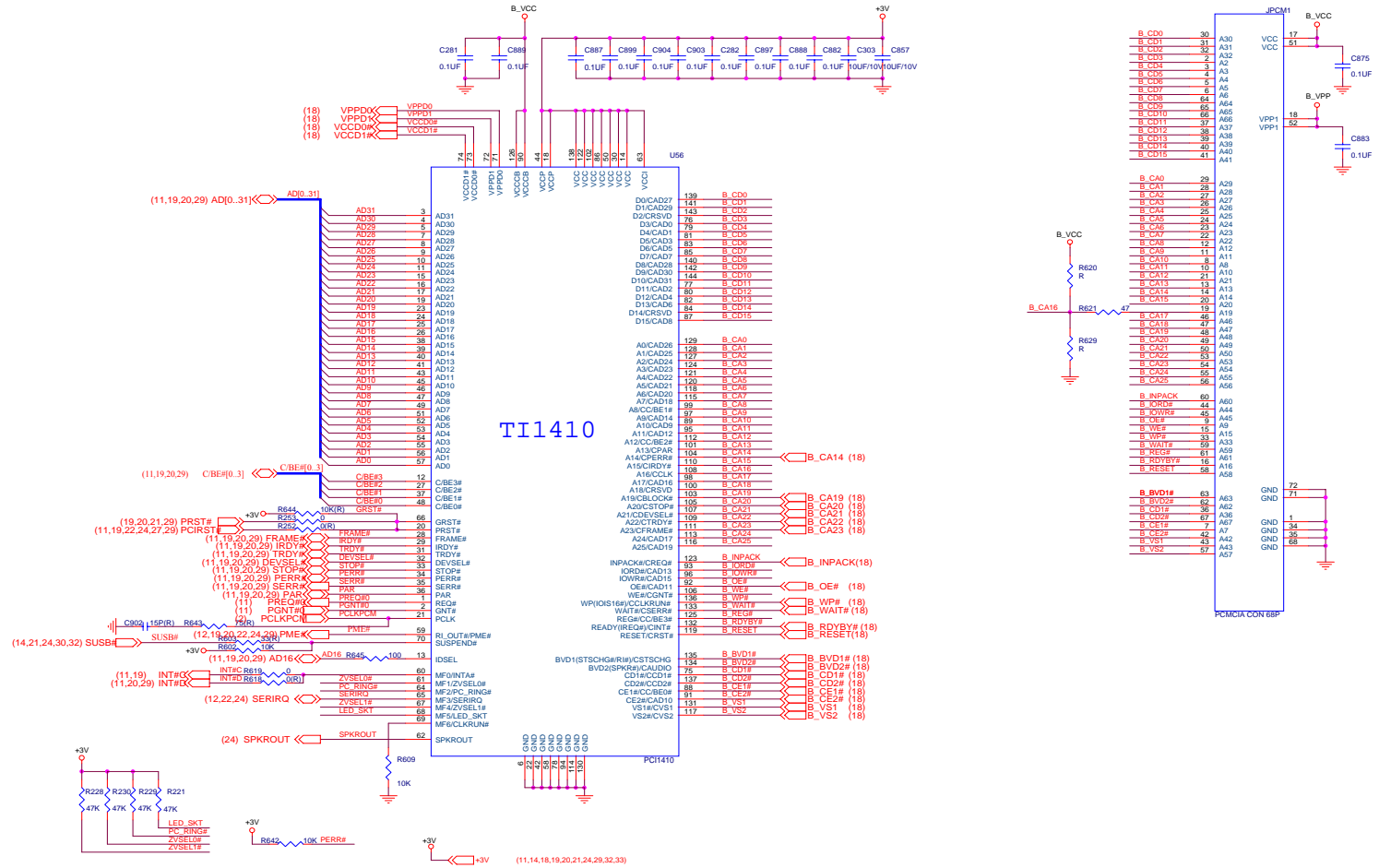


PANEL CON/ LED INDICATOR

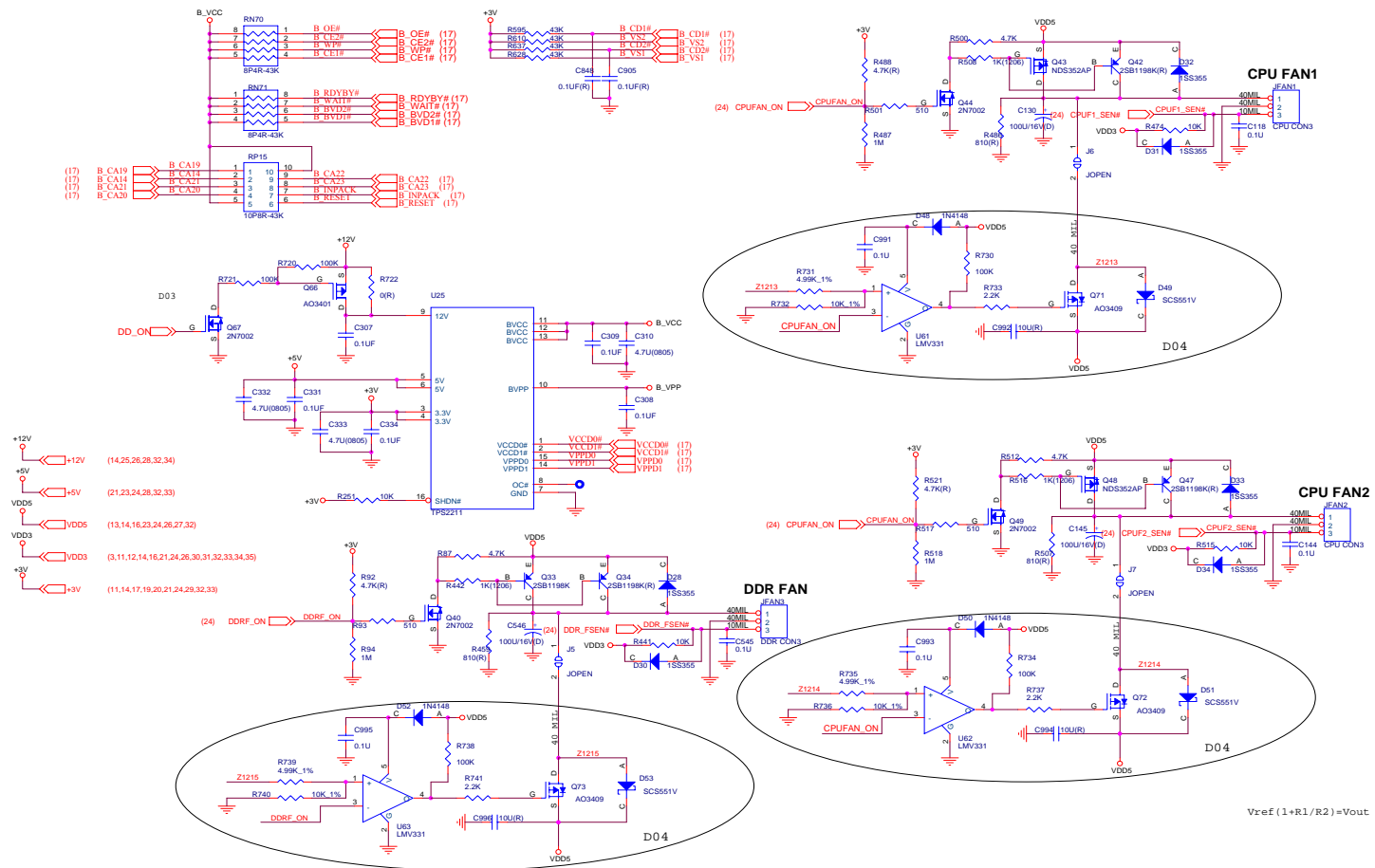


Sheet 16 of 40
PANEL CON/ LED
INDICATOR

PCMCIA T11410



PCMCIA POWER/ FAN CON



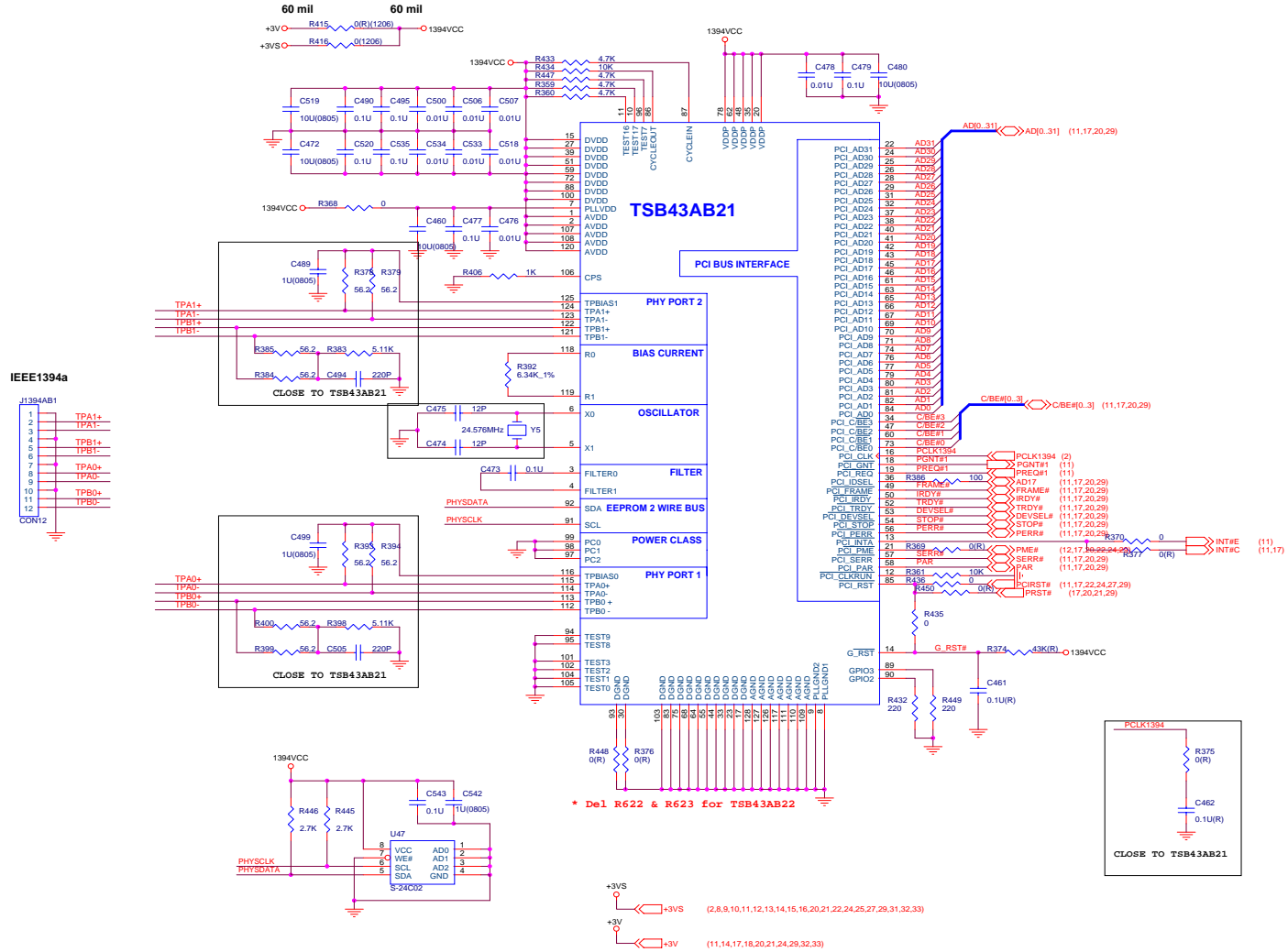
Sheet 18 of 40
PCMCIA POWER/
FAN CON

B.Schematic Diagrams

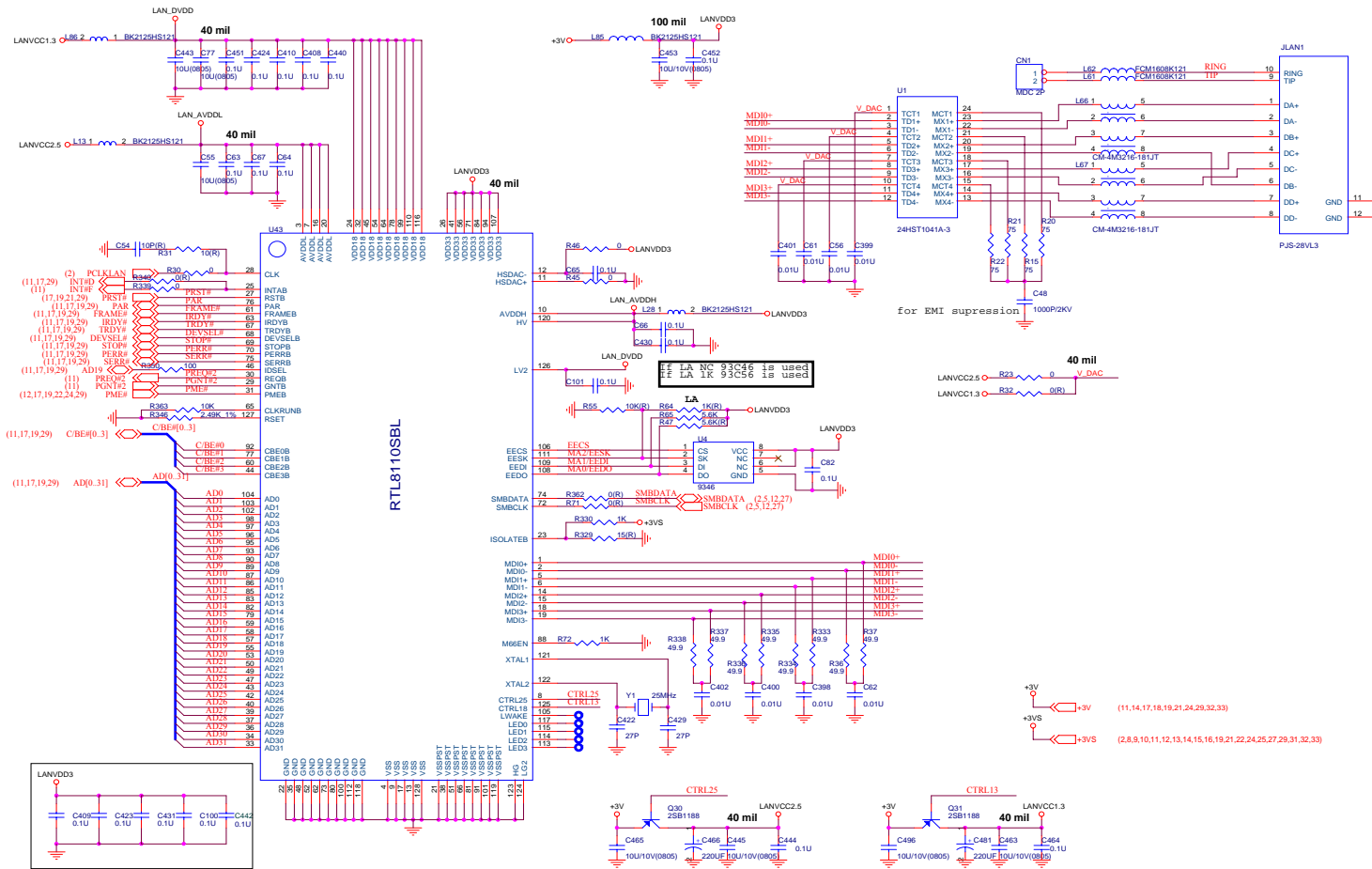
PCI 1394a TI TSB43AB22

B.Schematic Diagrams

Sheet 19 of 40
PCI 1394a TI
TSB43AB22



GLAN RTL8110SBL

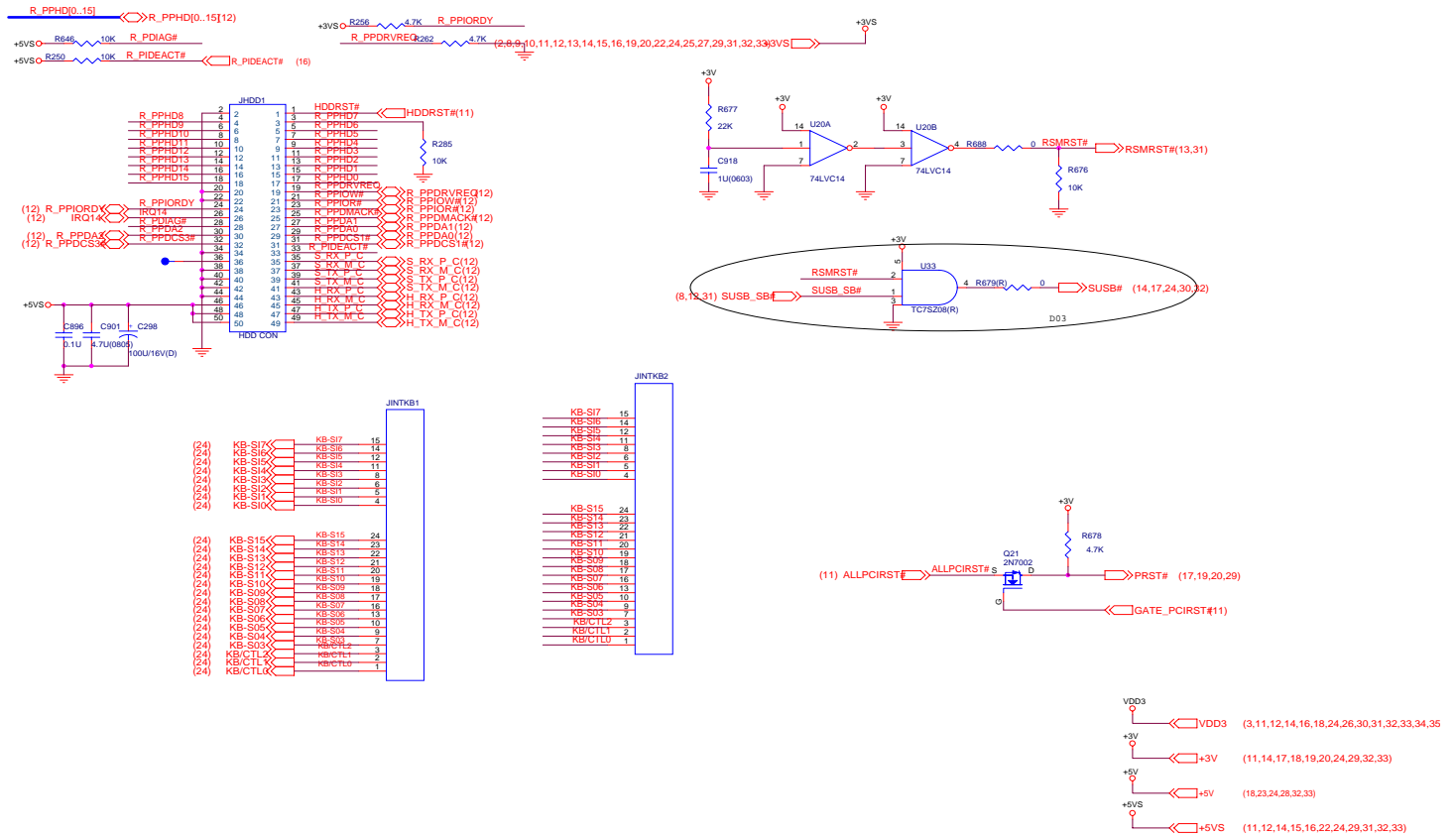


B.Schematic Diagrams

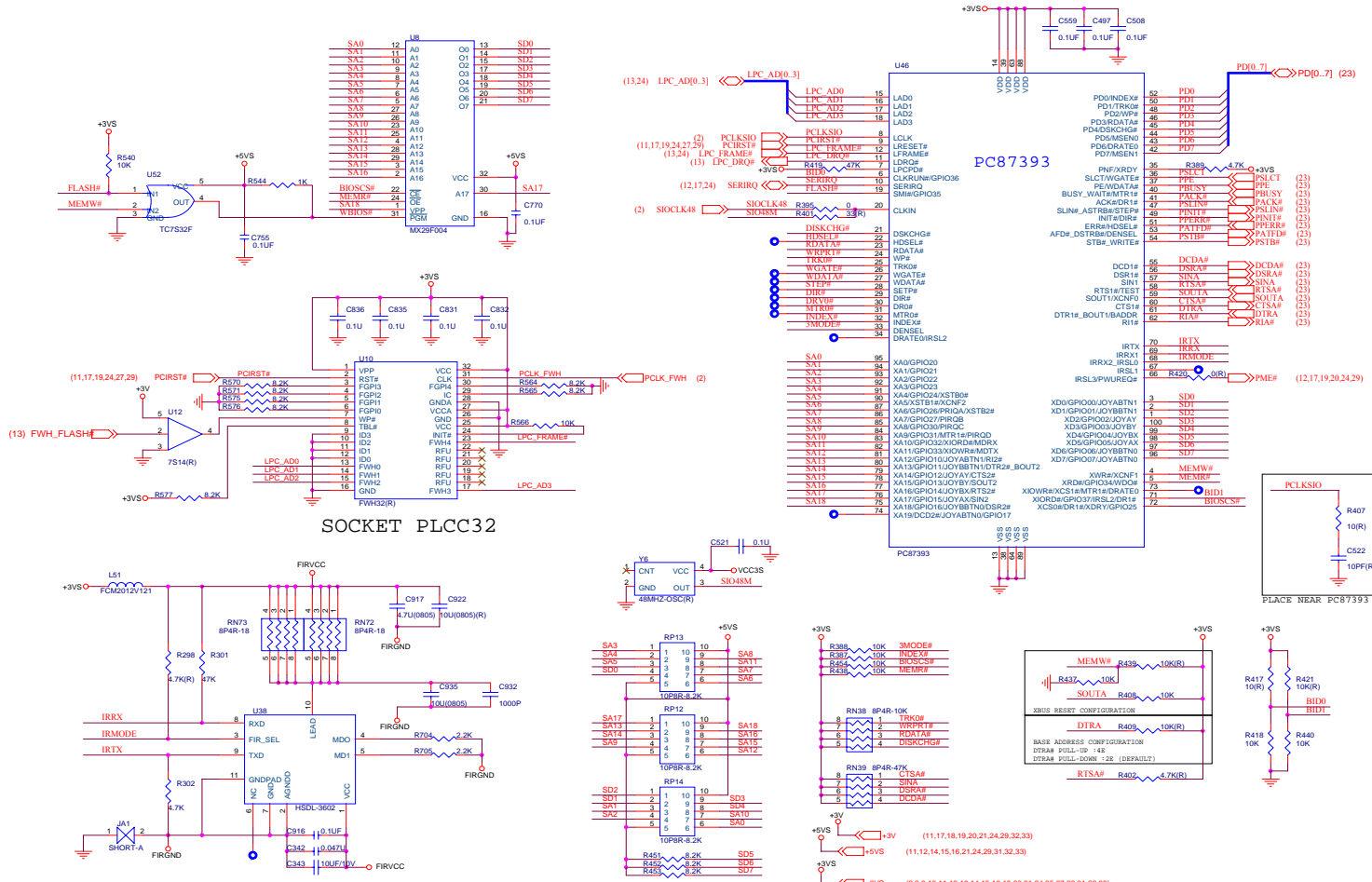
Schematic Diagrams

HDD CON

Sheet 21 of 40
HDD CON



LPC SUPER I/O NS87393



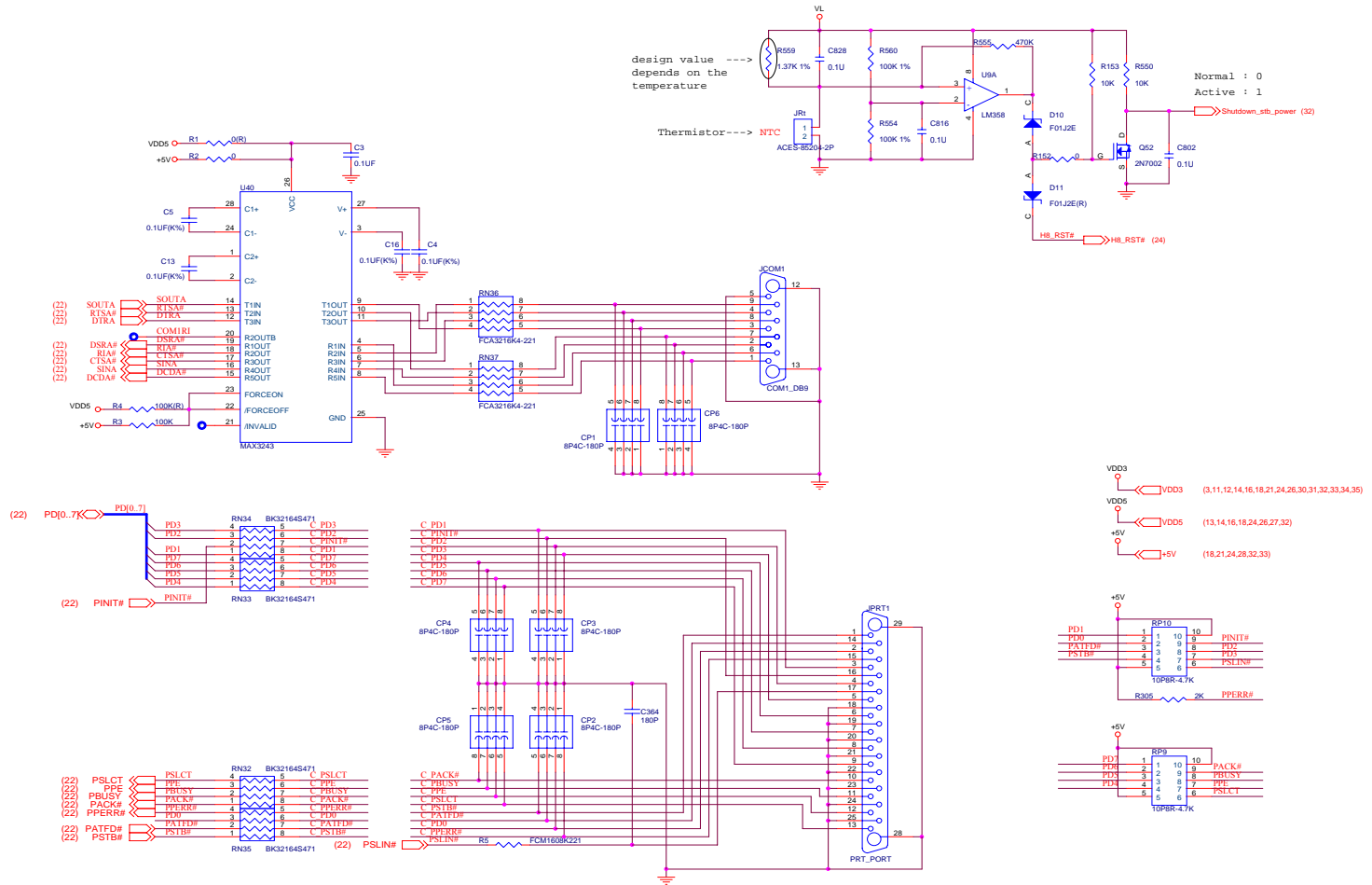
SOCKET PLCC32

SA0	85	XA6/GPIO20
SA1	86	XA7/GPIO21
SA2	87	XA8/GPIO22
SA3	88	XA9/GPIO23
SA4	89	XA10/GPIO24/STB0#
SA5	90	XA11/GPIO25/PRGM/ASTB2#
SA6	91	XA12/GPIO26/PIRQB
SA7	92	XA13/GPIO27/PIRQC
SA8	93	XA14/GPIO28/JOYAV
SA9	94	XA15/GPIO29/JOYBX
SA10	95	XA16/GPIO30/JOYAX
SA11	96	XA17/GPIO31/MDTX
SA12	97	XA18/GPIO32/JOYABTN1/ROT2
SA13	98	XA19/GPIO33/JOYABTN1/DTR2#_BOUT2
SA14	99	XA20/GPIO34/JOYBY/SOUT2
SA15	100	XA21/GPIO35/JOYBY/SOUT2
SA16	101	XA22/GPIO36/JOYBY/SOUT2
SA17	102	XA23/GPIO37/JOYBY/SOUT2
SA18	103	XA24/GPIO38/JOYBY/SOUT2
SA19	104	XA25/GPIO39/JOYBY/SOUT2
SA20	105	XA26/GPIO40/JOYBY/SOUT2

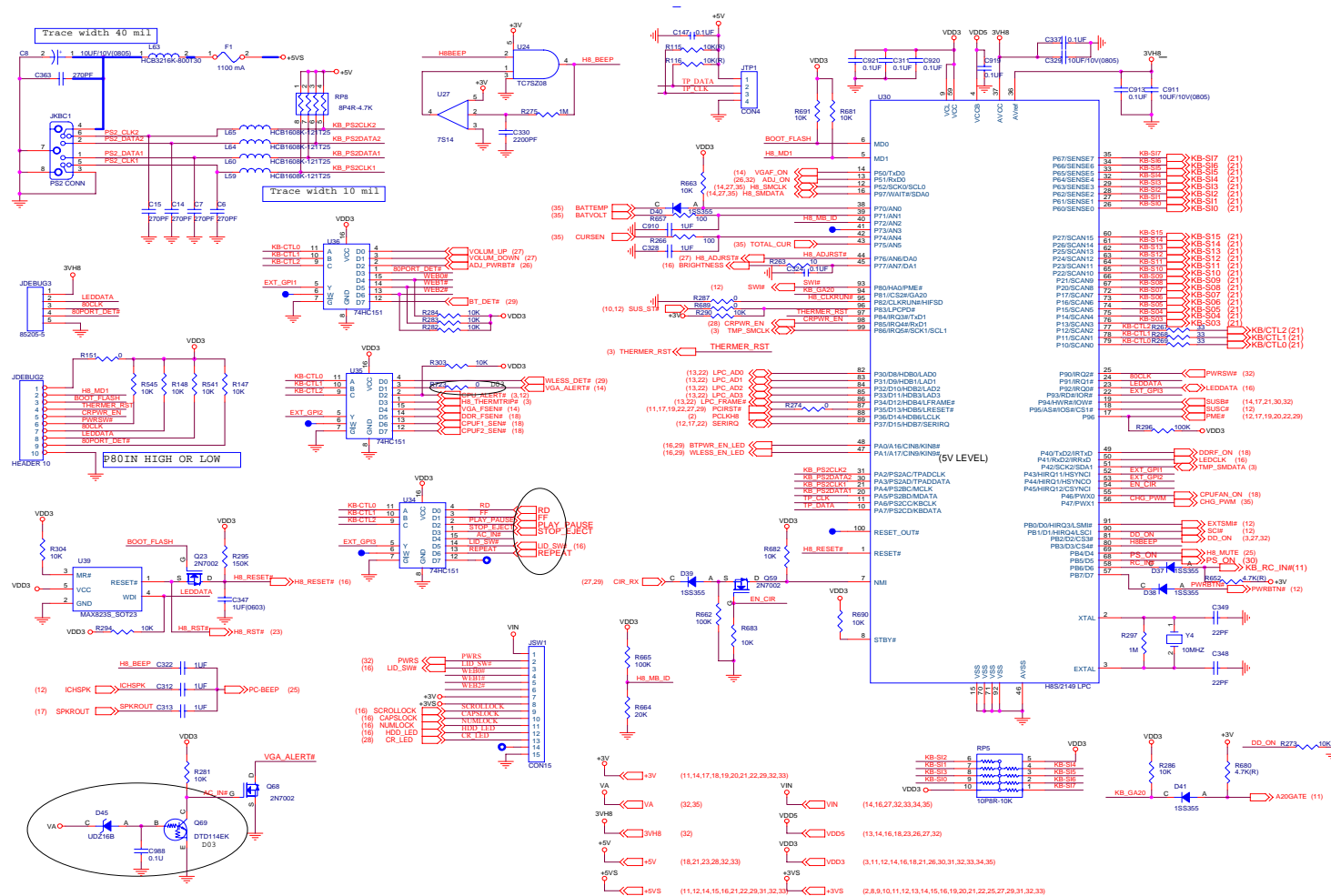
Sheet 22 of 40
LPC SUPER I/O
NS87393

LPT/ COM PORT CON/ Thermistor

Sheet 23 of 40
LPT/ COM PORT
CON/ Thermistor



LPC H8

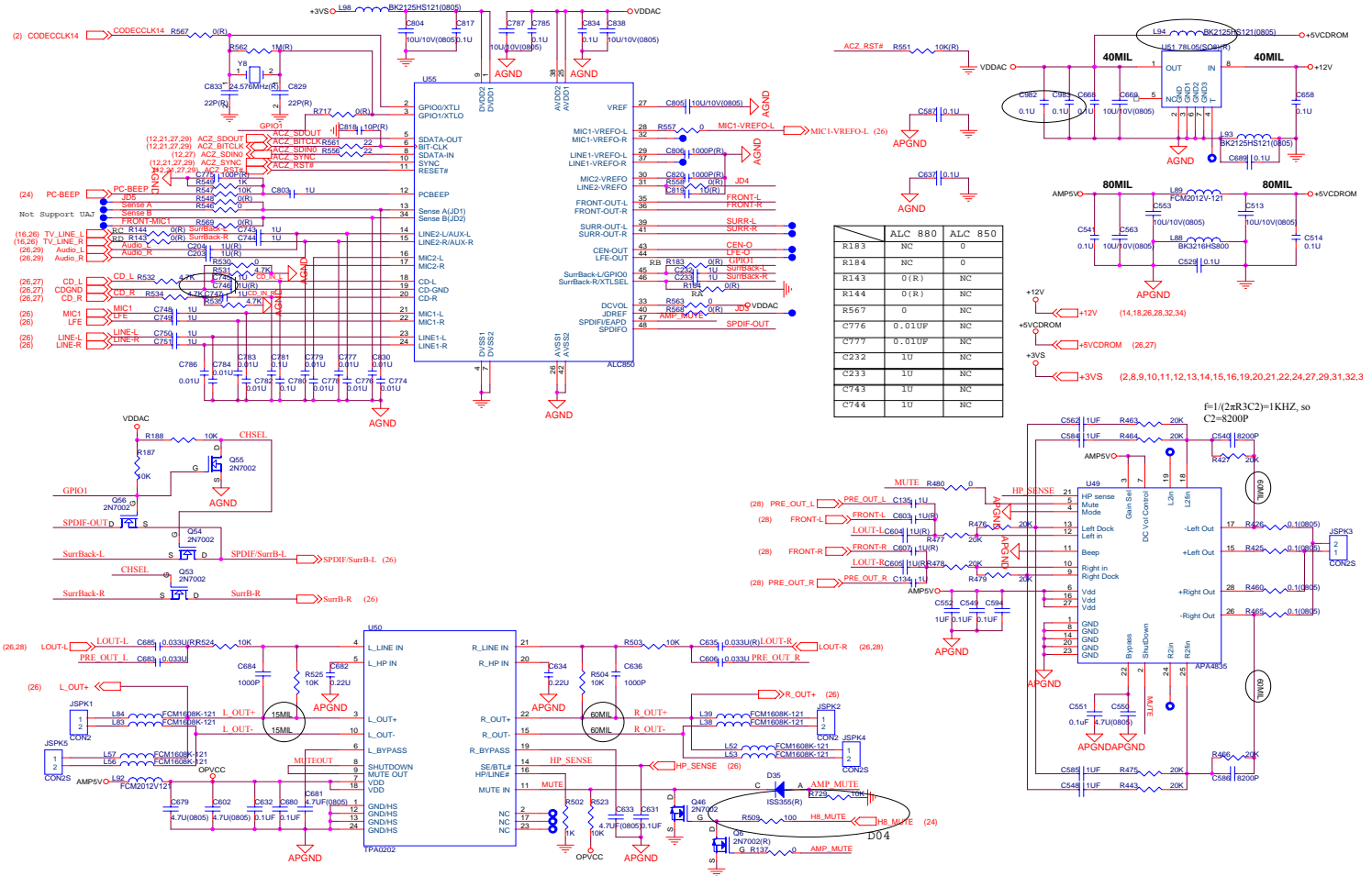


Sheet 24 of 40
LPC H8

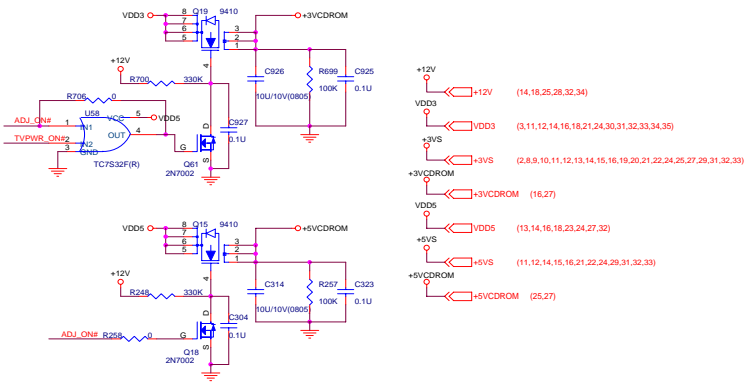
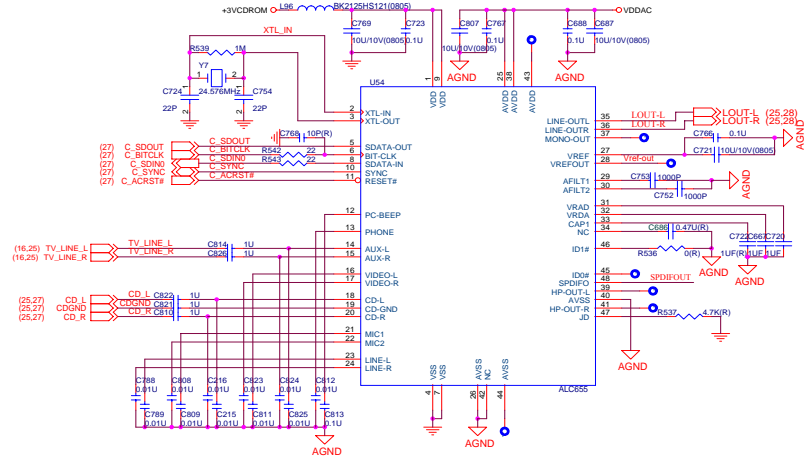
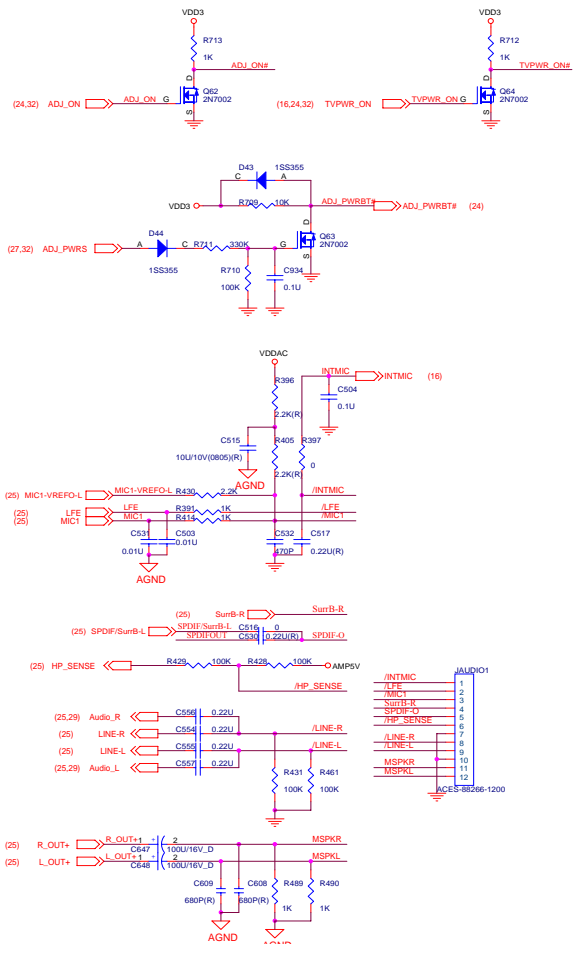
B. Schematic Diagrams

CODEC ALC850

Sheet 25 of 40
CODEC ALC850



AUDIO JACK & ADJ POWER

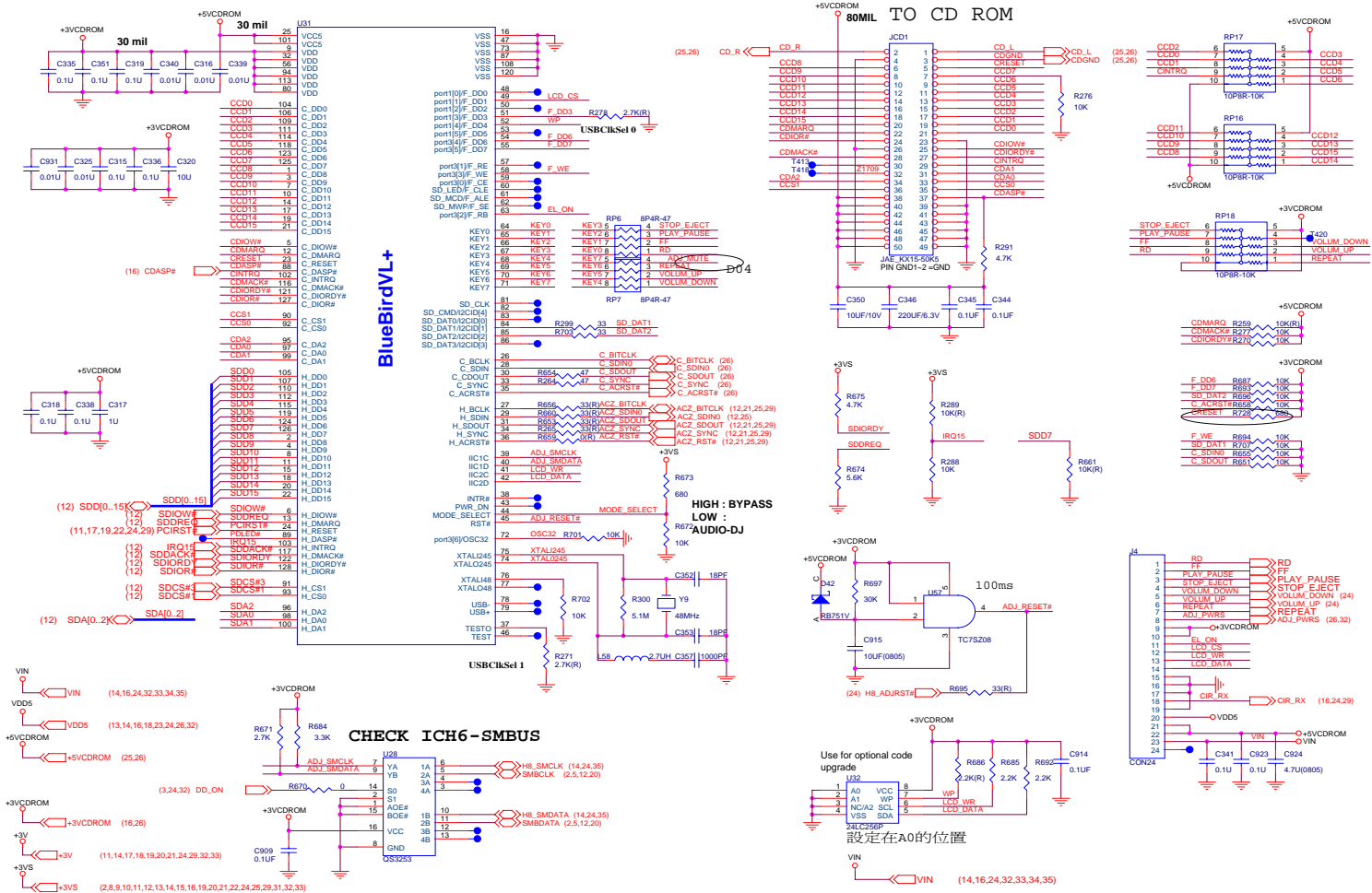


Sheet 26 of 40
AUDIO JACK &
ADJ POWER

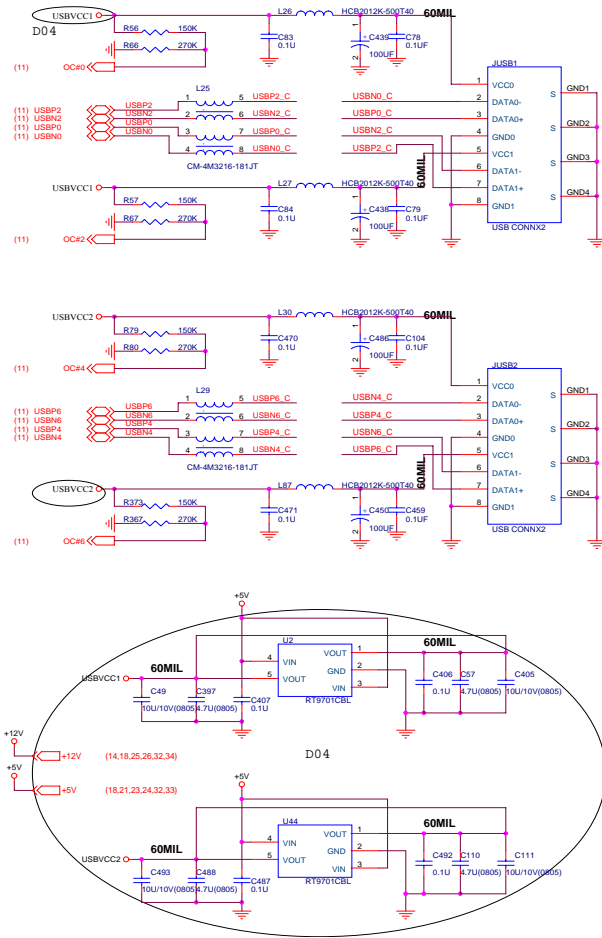
B. Schematic Diagrams

AUDIO DJ BBVL + CONTROL

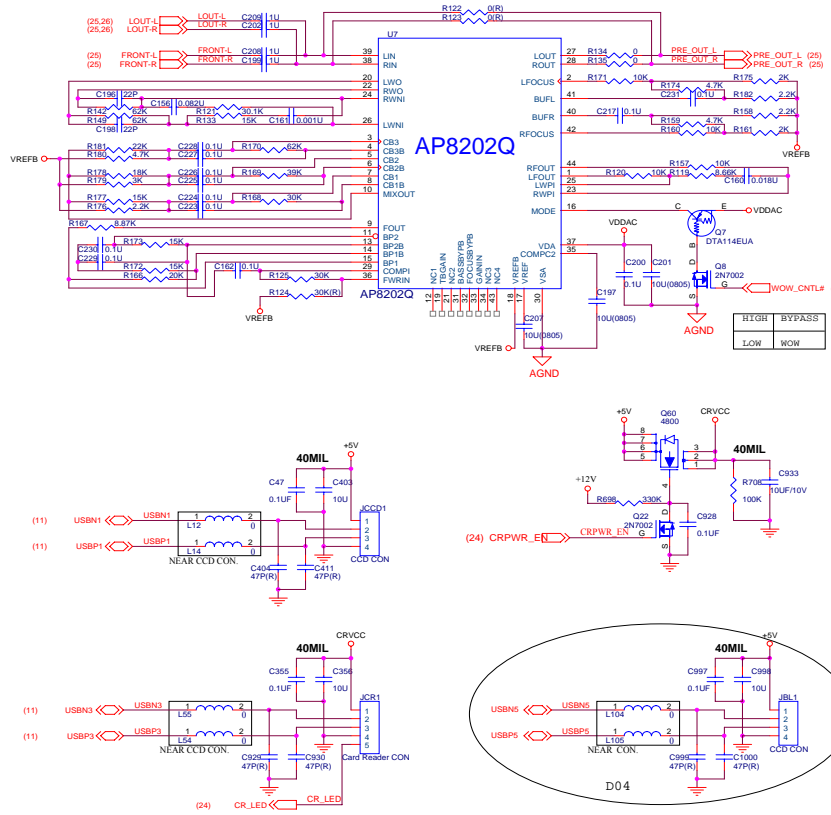
Sheet 27 of 40
AUDIO DJ BBVL + CONTROL



USB/ CR/ CCD CON/ SRS



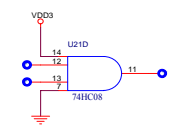
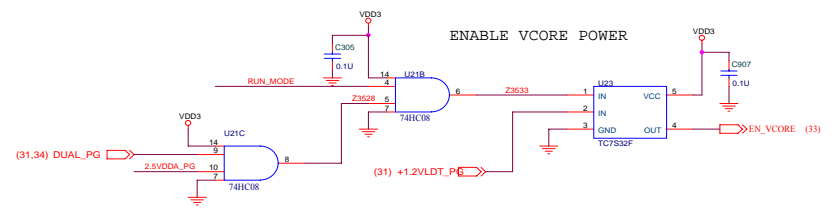
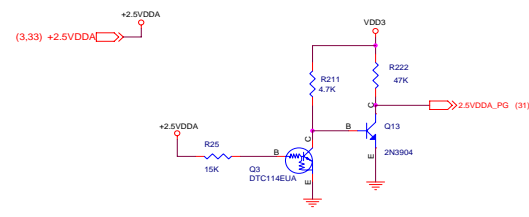
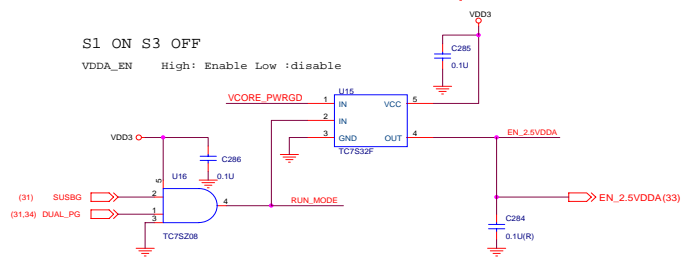
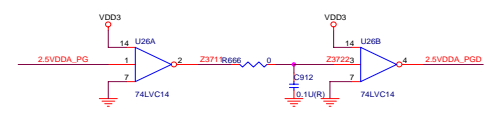
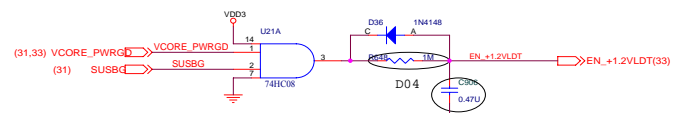
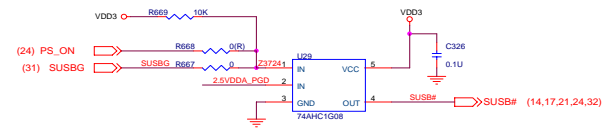
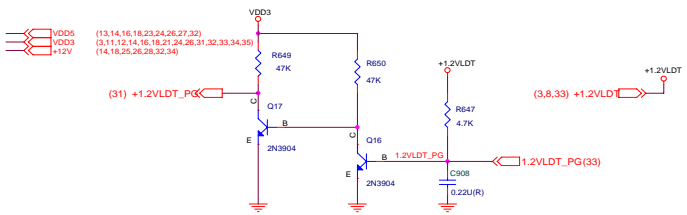
AUDIO PROCESSOR



Sheet 28 of 40
USB/ CR/ CCD
CON/ SRS

B. Schematic Diagrams

POWER CONTROLLER 1

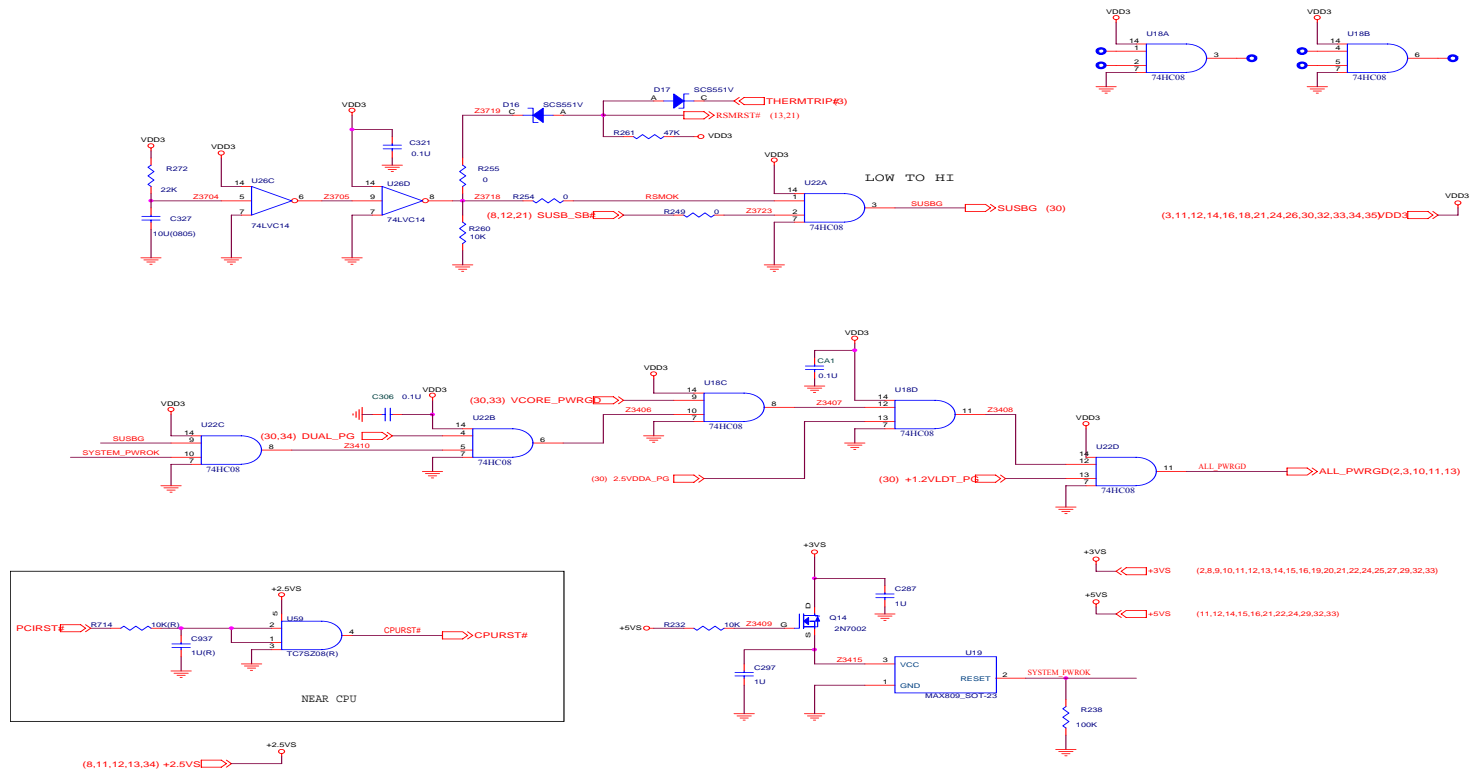


Sheet 30 of 40
POWER
CONTROLLER 1

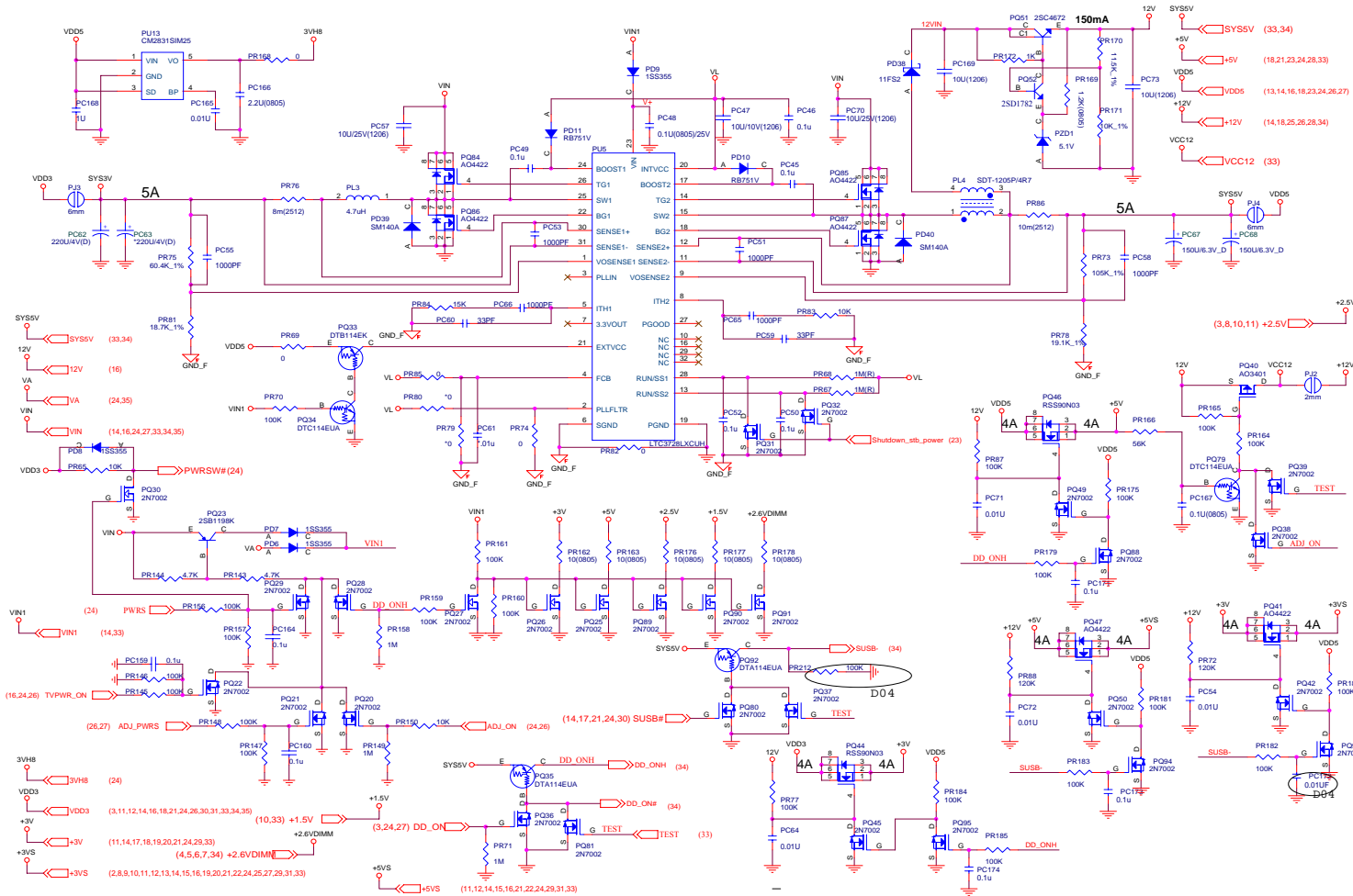
B.Schematic Diagrams

POWER CONTROLLER 2

Sheet 31 of 40
POWER
CONTROLLER 2



SYSTEM POWER

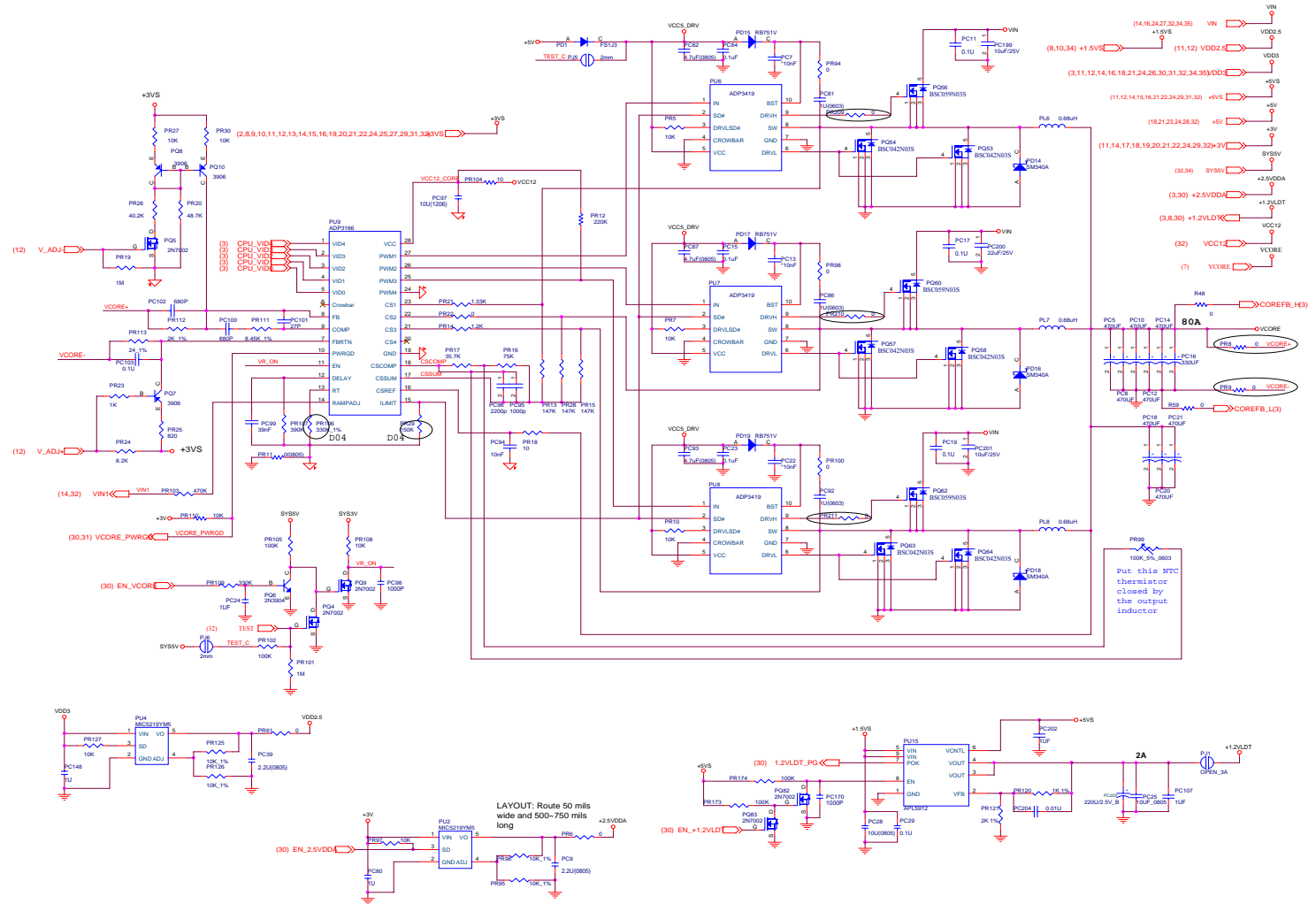


Sheet 32 of 40
SYSTEM POWER

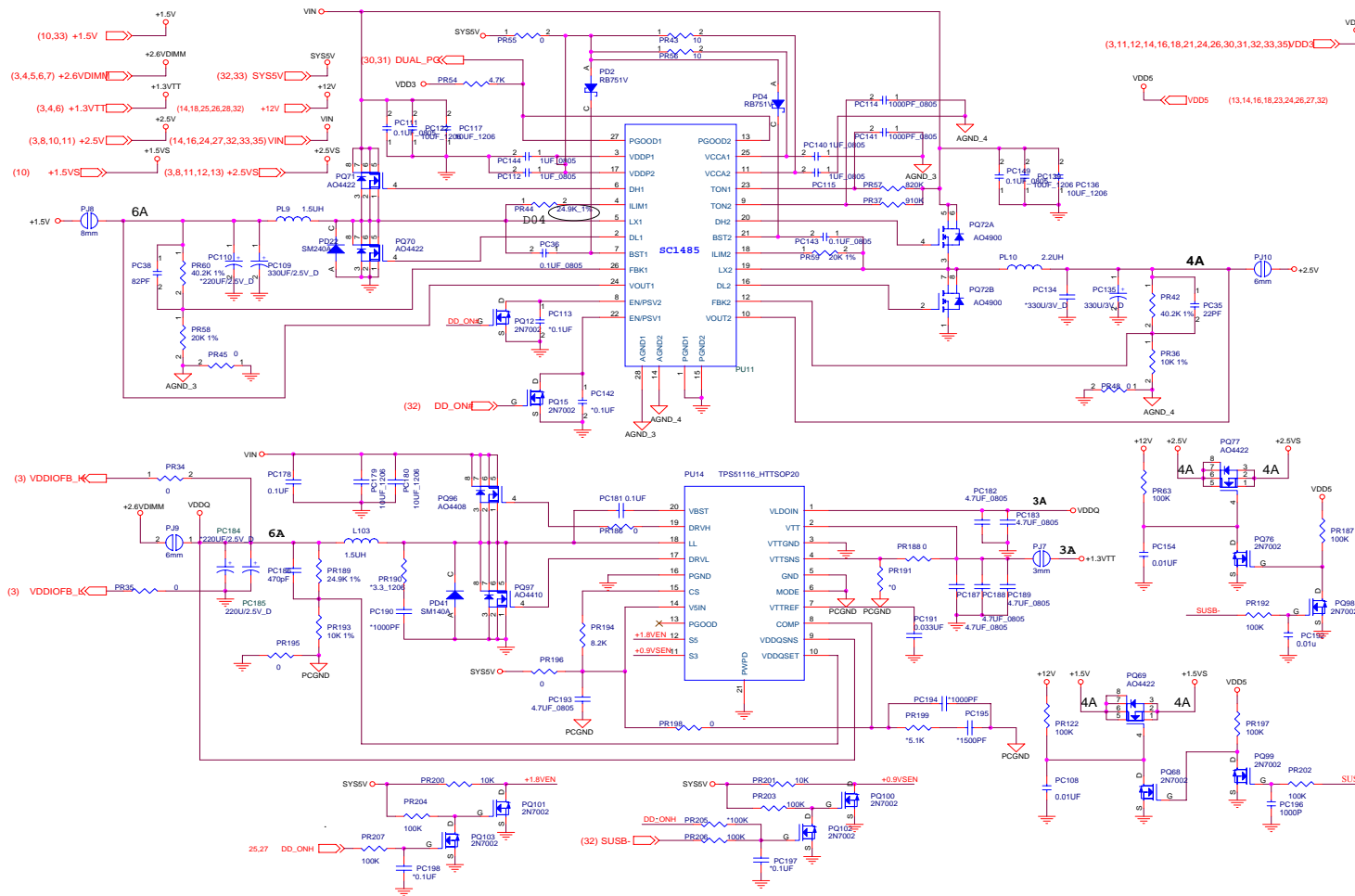
B.Schematic Diagrams

VCORE

Sheet 33 of 40
VCORE



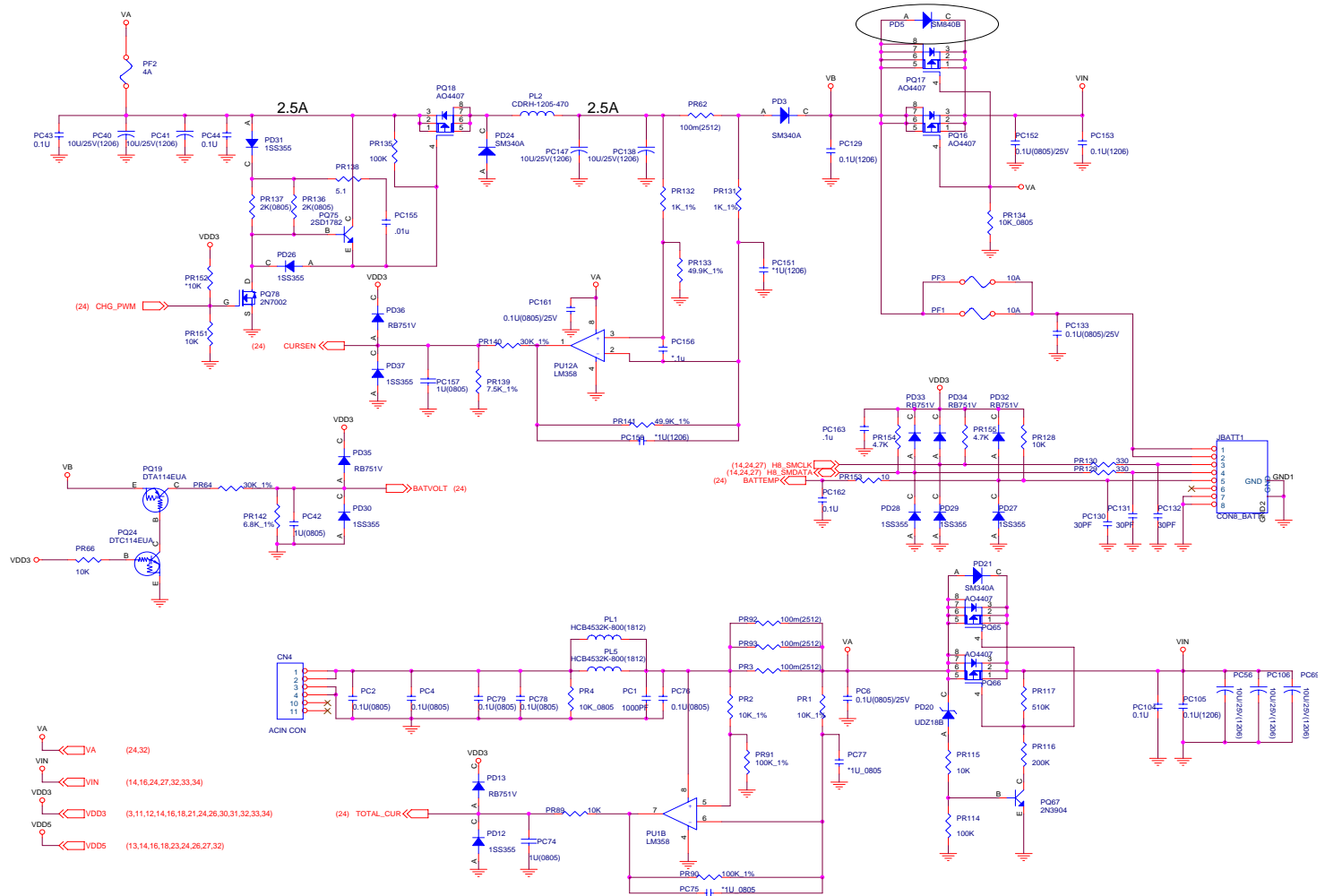
+01.2VS, +1.5V, +2.5v, DDR



Sheet 34 of 40
+01.2VS, +1.5V,
+2.5v, DDR

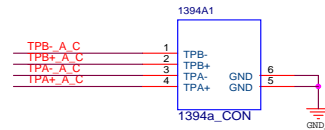
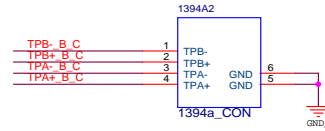
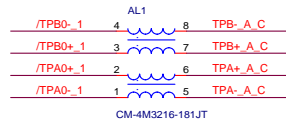
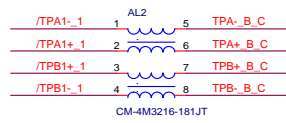
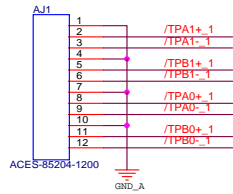
CHARGER

Sheet 35 of 40
CHARGER

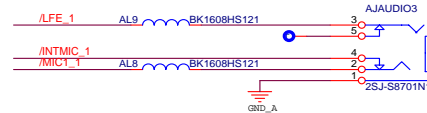
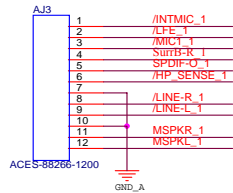


AUDIO BOARD

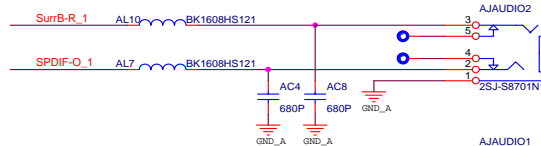
IEEE1394a



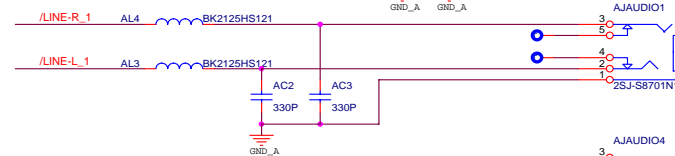
Sheet 36 of 40
AUDIO BOARD



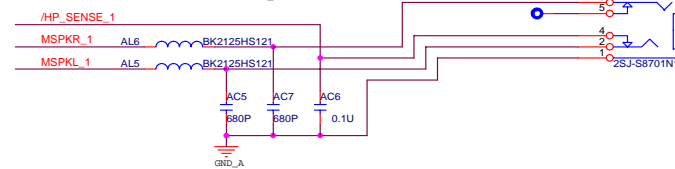
MIC IN
(CENTER)



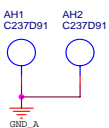
SPDIF OUT
(SURRB)



LINE IN
(SURRE)



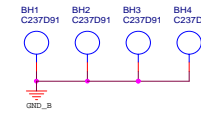
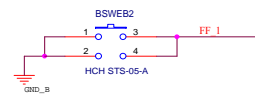
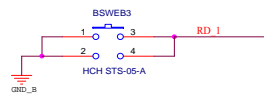
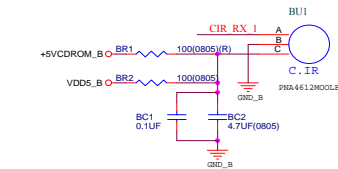
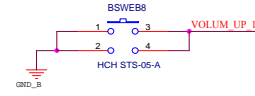
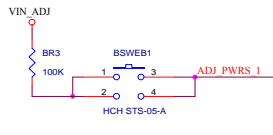
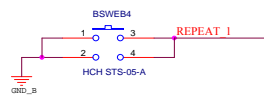
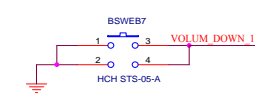
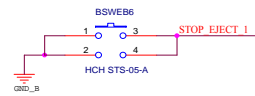
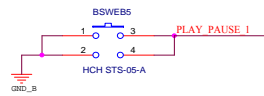
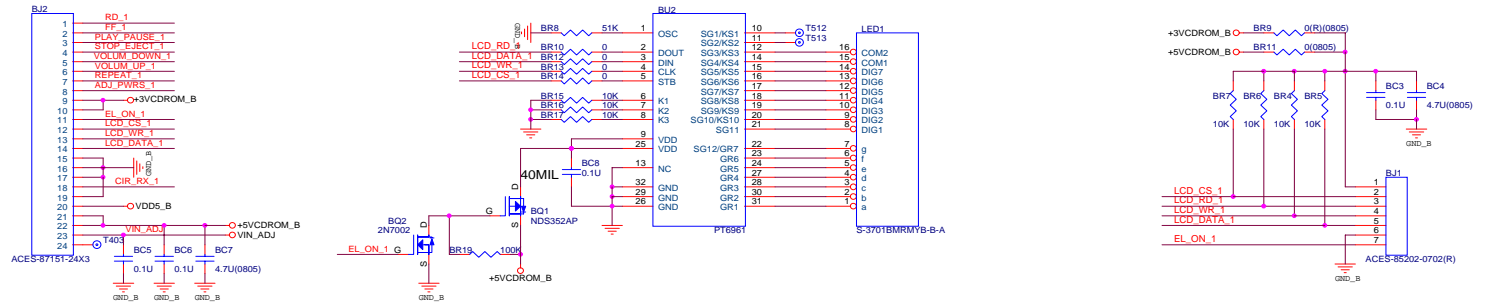
SPEAKER OUT
(FRONT)



B. Schematic Diagrams

AUDIO DJ BOARD

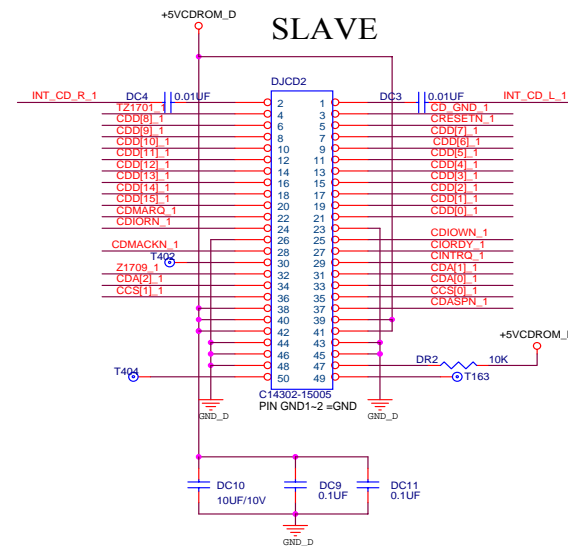
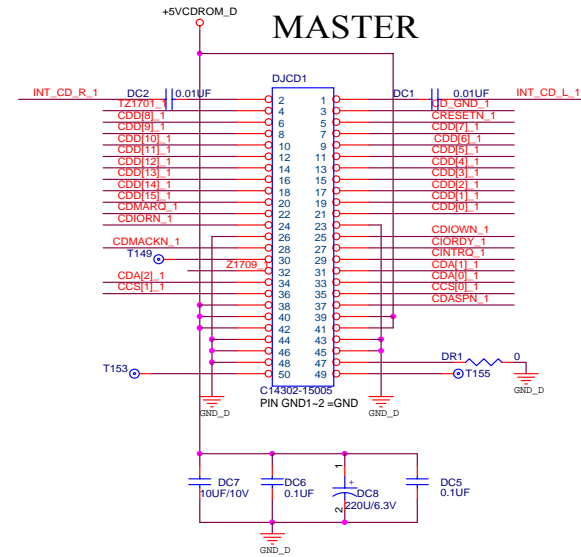
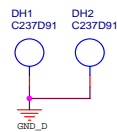
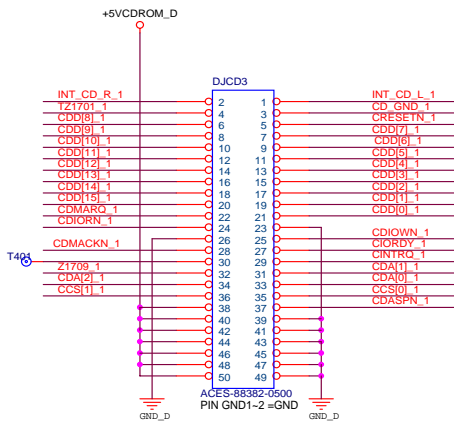
Sheet 37 of 40
AUDIO DJ BOARD



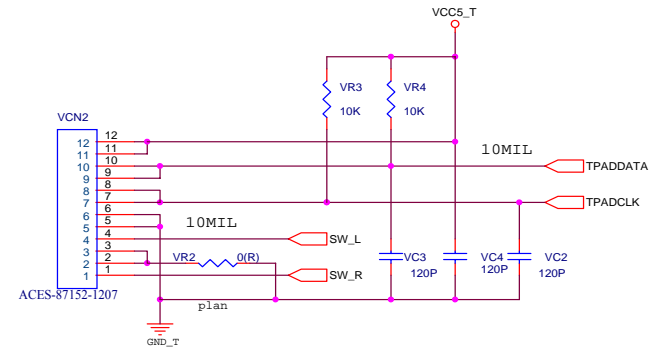
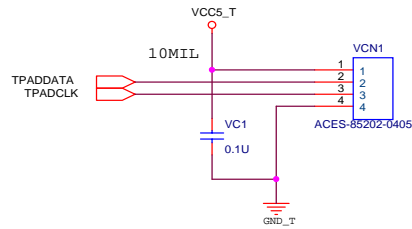
CD-ROM BOARD

B.Schematic Diagrams

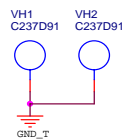
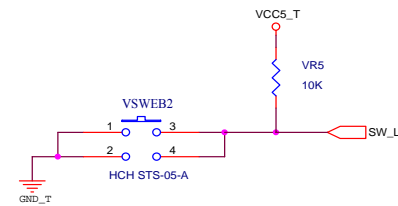
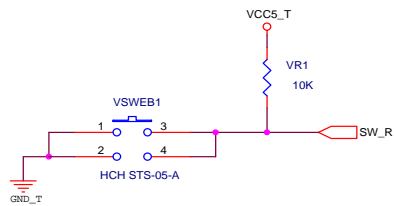
Sheet 38 of 40
CD-ROM BOARD



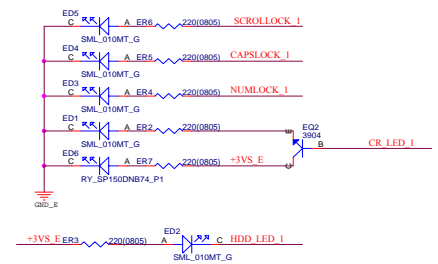
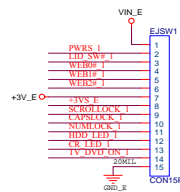
CLICK BOARD



Sheet 39 of 40
CLICK BOARD

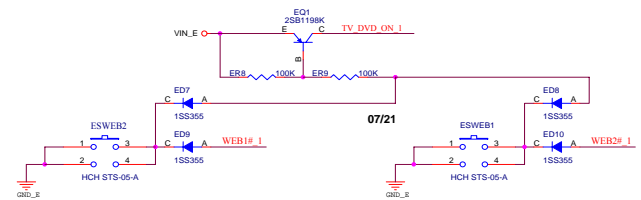
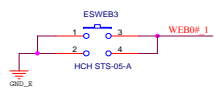
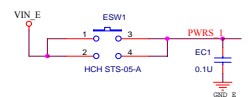
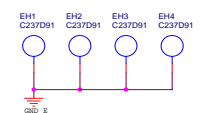
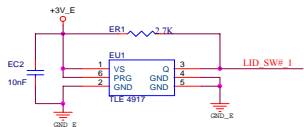


SWITCH BOARD



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SWITCH BOARD

B. Schematic Diagrams



Schematic Diagrams