

# SERVICE MANUAL

W350ETQ

*notebook*





**Notebook Computer**

**W350ETQ**

**Service Manual**

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## About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the *W350ETQ* series notebook PC.

The following information is included:

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

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

Appendix A, Part Lists

Appendix B, Schematic Diagrams

## **IMPORTANT SAFETY INSTRUCTIONS**

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

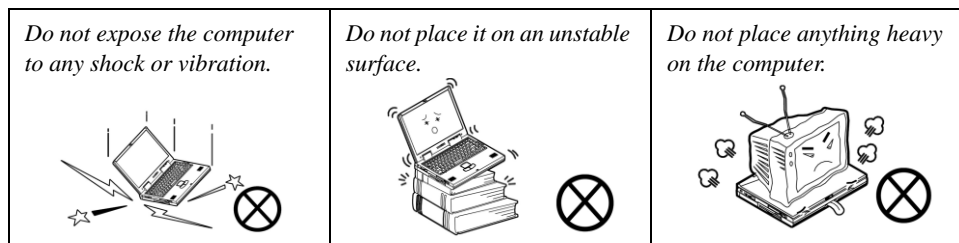
1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit (Full Range AC/DC Adapter – AC Input 100 - 240V, 50 - 60Hz, DC Output 19V, 6.3A).

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

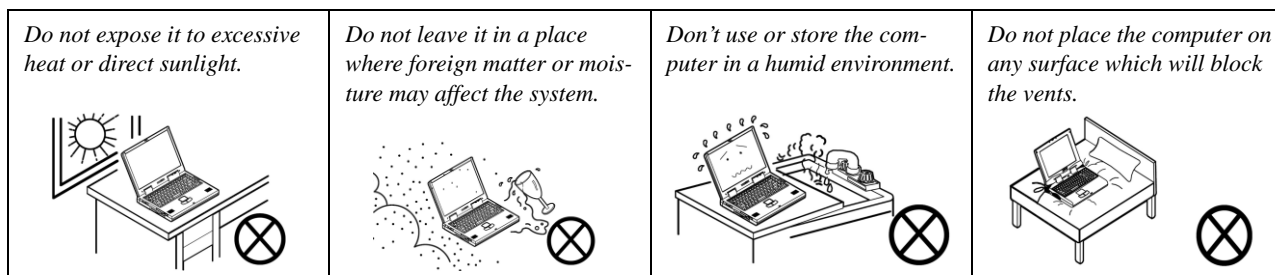
## Instructions for Care and Operation

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

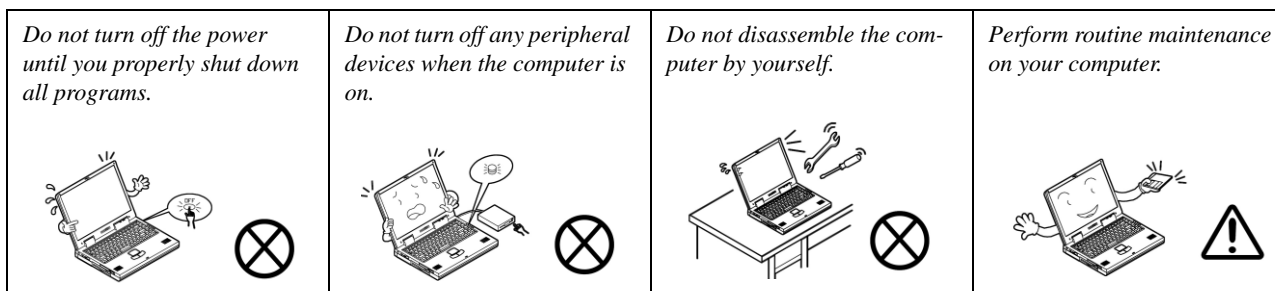
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



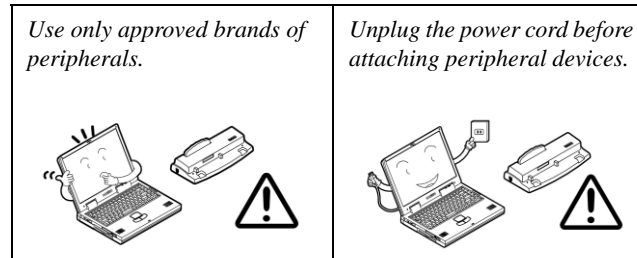
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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



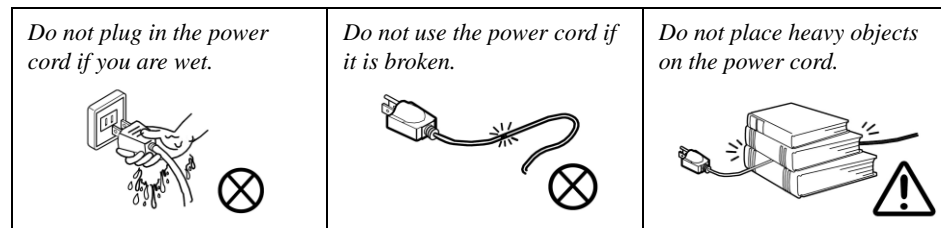
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



## Power Safety

The computer has specific power requirements:

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



### Power Safety Warning

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



## Battery Precautions

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

## Battery Guidelines

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

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




### Battery Disposal

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

### Caution

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

### Battery Level

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

### Related Documents

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

#### User's Manual on CD

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

## Contents

### Introduction .....1-1

Overview .....	1-1
System Specifications .....	1-2
External Locator - Front View with LCD Panel Open .....	1-4
External Locator - Front & Right side Views .....	1-5
External Locator - Left Side & Rear View .....	1-6
External Locator - Bottom View .....	1-7
Mainboard Overview - Top (Key Parts) .....	1-8
Mainboard Overview - Bottom (Key Parts) .....	1-9
Mainboard Overview - Top (Connectors) .....	1-10
Mainboard Overview - Bottom (Connectors) .....	1-11

### Disassembly .....2-1

Overview .....	2-1
Maintenance Tools .....	2-2
Connections .....	2-2
Maintenance Precautions .....	2-3
Disassembly Steps .....	2-4
Removing the Battery .....	2-5
Removing the Optical (CD/DVD) Device .....	2-6
Removing the Hard Disk Drive .....	2-7
Removing and Installing the Processor .....	2-10
Removing the Keyboard .....	2-13
Removing the System Memory (RAM) .....	2-14
Removing the Hinge Cover .....	2-16

### Part Lists .....A-1

Part List Illustration Location .....	A-2
Top with Fingerprint .....	A-3
Top without Fingerprint .....	A-4
Bottom .....	A-5

LCD .....	A-6
HDD .....	A-7
2nd HDD .....	A-8
DVD .....	A-9
COMBO .....	A-10

### Schematic Diagrams.....B-1

System Block Diagram .....	B-2
Ivy Bridge 1/7 .....	B-3
Ivy Bridge 2/7 .....	B-4
Ivy Bridge 3/7 .....	B-5
Ivy Bridge 4/7 .....	B-6
Ivy Bridge 5/7 .....	B-7
Ivy Bridge 6/7 .....	B-8
Ivy Bridge 7/7 .....	B-9
DDR3 SO-DIMM A_0 .....	B-10
DDR3 SO-DIMM B_0 .....	B-11
DDR3 SO-DIMM A_1 .....	B-12
Panel, Inverter, CRT .....	B-13
VGA PCI-E Interface .....	B-14
VGA Frame Buffer Interface .....	B-15
VGA Frame Buffer A .....	B-16
VGA Frame Buffer A .....	B-17
VGA Frame Buffer B .....	B-18
VGA Frame Buffer B .....	B-19
VGA I/O .....	B-20
VGA NVDD Decoupling .....	B-21
PantherPoint M 1/9 .....	B-22
PantherPoint M 2/9 .....	B-23
PantherPoint M 3/9 .....	B-24
PantherPoint M 4/9 .....	B-25

## Preface

---


PantherPoint M 5/9 .....	B-26
PantherPoint M 6/9 .....	B-27
PantherPoint M 7/9 .....	B-28
PantherPoint M 8/9 .....	B-29
PantherPoint M 9/9 .....	B-30
Mini PCIE, Fan, Audio Con .....	B-31
USB Charge, CCD, TPM, Multi-Con .....	B-32
ESATA/USB3.0 Connector .....	B-33
Card Reader / LAN RTL8411 .....	B-34
SATA HDD, VLED CON, LID SW .....	B-35
HDMI, RJ45, Audio AMP .....	B-36
Audio Codec ALC269 .....	B-37
KBC ITE IT8518E .....	B-38
5VS, 3VS, 3.3VM, 1.5VS_CPU .....	B-39
VDD3, VDD5 .....	B-40
Power 0.85VS, 1.8VS .....	B-41
Power 1.5/0.75V/PEX_VDD .....	B-42
Power 1.05VS, 0.85VS .....	B-43
Power V-Core 1 .....	B-44
Power V-Core 2 .....	B-45
VGA NVVDD .....	B-46
AC-In, Charger .....	B-47
W370/350ET Audio Board .....	B-48
W370/350ET Power LED Board .....	B-49
W370/350ET Click Board .....	B-50
W370ET Power Switch Board .....	B-51
W350ET Power Switch Board .....	B-52
W370ET LID / VGA LED Board .....	B-53
W350ET LID / VGA LED Board .....	B-54
W350ET VGA / WLAN SW Board .....	B-55
POWER ON SEQUENCE .....	B-56
<b>Updating the FLASH ROM BIOS.....</b>	<b>C-1</b>

# Chapter 1: Introduction

## Overview

This manual covers the information you need to service or upgrade the **W350ETQ** 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 7*, 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 **W350ETQ** 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 Options

### Intel® Core™ i7 Processor

#### i7-3820QM (2.70GHz)

8MB L3 Cache, 22nm, DDR3-1600MHz, TDP 45W

#### i7-3720QM (2.60GHz), i7-3610QM (2.30GHz)

6MB L3 Cache, 22nm, DDR3-1600MHz, TDP 45W

#### i7-3520M (2.90GHz)

4MB L3 Cache, 22nm, DDR3-1600MHz, TDP 35W

### Intel® Core™ i5 Processor

#### i5-3360M (2.80GHz), i5-3320M (2.60GHz), i5-3210M (2.50GHz)

3MB L3 Cache, 22nm, DDR3-1600MHz, TDP 35W

### Intel® Core™ i3 Processor

#### i3-3110M (2.40GHz)

3MB L3 Cache, 22nm, DDR3-1600MHz, TDP 35W

### Intel® Core™ i7 Processor

#### i7-2860QM (2.50GHz), i7-2820QM (2.30GHz)

8MB L3 Cache, 32nm, DDR3-1600MHz, TDP 45W

#### i7-2760QM (2.40GHz), i7-2720QM (2.20GHz)

6MB L3 Cache, 32nm, DDR3-1600MHz, TDP 45W

#### i7-2670QM (2.20GHz), i7-2630QM (2.00GHz)

6MB L3 Cache, 32nm, DDR3-1333MHz, TDP 45W

#### i7-2640M (2.80GHz), i7-2620M (2.70GHz)

4MB L3 Cache, 32nm, DDR3-1333MHz, TDP 35W

### Intel® Core™ i5 Processor

#### i5-2540M (2.60GHz), i5-2520M (2.50GHz), i5-2450M (2.50GHz), i5-2430M (2.40GHz), i5-2410M (2.30GHz)

3MB L3 Cache, 32nm, DDR3-1333MHz, TDP 35W

### Intel® Core™ i3 Processor

#### i3-2370M (2.40GHz), i3-2350M (2.30GHz), i3-2330M (2.20GHz), i3-2310M (2.10GHz)

3MB L3 Cache, 32nm, DDR3-1333MHz, TDP 35W

## Core Logic

Intel® HM77 Chipset

## BIOS

One 48Mb SPI Flash ROM

AMI BIOS

## LCD

15.6" (39.62cm) HD+ (1600 \* 900) / FHD (1920 \* 1080), 16:9 Backlit Panel

## Audio

High Definition Audio Compliant Interface

S/PDIF Digital Output

THX TruStudio Pro

2 \* Built-In Speakers

Built-In Microphone

## Storage

One 12.7 mm Super Multi/Blu-Ray Combo/Blu-Ray Writer SATA Optical Device Drive (**Factory Option**)

Up to Two (**Factory Option**) Changeable 2.5" 9.5 mm (h) **SATA** (Serial) Hard Disks with RAID Level 0/1 Support

## Memory

Dual Channel **DDRIII (DDR3)**

\*Three 204 Pin SO-DIMM Sockets Supporting **DDRIII (DDR3) 1333/1600 MHz** Memory Modules (*real operational frequency depends on the FSB of the processor*)

\*Note: Three SO-DIMMs are only supported by Quad-Core CPUs; Dual-Core CPUs support two SO-DIMMs maximum

Memory Expandable up to 24GB

Compatible with 2GB, 4GB or 8GB Modules

## Video Adapter

**Intel® Integrated GPU and NVIDIA® Discrete GPU**

**Supports NVIDIA® Optimus Technology**

**Intel Integrated GPU (GPU is Dependent on Processor)**

### Intel® HD Graphics 3000

Dynamic Frequency (Intel Dynamic Video Memory Technology for up to **1.7GB**)

Microsoft DirectX®10 Compatible

### Intel® HD Graphics 4000

Dynamic Frequency (Intel Dynamic Video Memory Technology for up to **1.7GB**)

Microsoft DirectX®11 Compatible

### **NVIDIA Discrete GPU**

#### **NVIDIA® GeForce GTX 660M**

**2GB GDDR5** Video RAM

Microsoft DirectX®11 Compatible

**Security**

BIOS Password  
 Security (Kensington® Type) Lock Slot  
 Fingerprint Reader Module (**Factory Option**)

**Keyboard**

Full Size Isolated Winkey Keyboard with  
 Numeric Keypad

**Pointing Device**

Built-In TouchPad (with Multi Gesture  
 Functionality)

**Interface**

One USB 2.0 Port  
 Three USB 3.0 Ports  
 One eSATA Port (SATA/USB 3.0 Combo)  
 One External Monitor Port  
 One HDMI™-Out (High-Definition Multimedia  
 Interface) Port (with HDCP)  
 One Microphone-In Jack  
 One Headphone/Speaker-Out Jack  
 One S/PDIF Out Jack  
 One RJ-45 LAN Jack  
 One DC-In Jack

**Slots****1st Mini-Card Slot:**

Mini-Card Slot for WLAN & Bluetooth Combo  
 Half Mini-Card Module with PCIe and USB  
 Interface

**2nd Mini-Card Slot for Model A Only:**

Mini-Card Slot for 3G Full Size Mini-Card  
 Module with USB Interface

**Card Reader**

Embedded Multi-In-1 Push-Push Card Reader  
 - MMC / RSMCC  
 - SD / Mini SD / SDHC / SDXC  
 - MS / MS Pro / MS Duo

**Note:** Some of these cards require PC  
 adapters that are usually supplied with the  
 cards.

**Communication**

Built-In 10/100/1000Mb Base-TX Ethernet LAN  
**(Factory Option)** 1.3M Pixels/2M Pixels (HD)  
 PC Camera Module

**WLAN/ Bluetooth Half Mini-Card Modules:**

**(Factory Option)** Intel® Centrino® Ultimate-N  
 6300 Wireless LAN (**802.11a/g/n**)

**(Factory Option)** Intel® Centrino® Advanced-N  
 6235 Wireless LAN (**802.11a/g/n**) + Bluetooth  
**4.0**

**(Factory Option)** Intel® Centrino® Wireless-N  
 2230 Wireless LAN (**802.11b/g/n**) + Bluetooth  
**4.0**

**(Factory Option)** Third-Party Wireless LAN  
**(802.11b/g/n)**

**(Factory Option)** Third-Party Wireless LAN  
**(802.11b/g/n)** + Bluetooth **4.0**

UMTS/HSPDA **OR** UMTS/HSPDA+ based **3G**  
**Module** with Mini-Card Interface (**Factory**  
**Option**)

Quad-band GSM/GPRS (850 MHz, 900 MHz,  
 1800 MHz, 1900 MHz)

UMTS WCDMA FDD (2100 MHz)

Note that UMTS modes CAN NOT be used in  
 North America

**Power**

Full Range AC/DC Adapter – AC in 100 - 240V,  
 50 - 60Hz DC Output 19V, 6.3A (**120 Watts**)

Removable 8 Cell Smart Lithium Ion Battery Pack  
 76.96WH

**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**

374mm (w) \* 250mm (d) \* 16.3 - 42.7mm (h)  
 2.7kg with ODD and Battery

## Introduction

*Figure 1*  
**Top View**

1. Optional Built-In PC Camera
2. LCD
3. Power Button
4. Top Case LED Indicators
5. WLAN Hot Key Button
6. GPU Button
7. Speakers
8. Keyboard
9. Built-In Microphone
10. Touchpad & Buttons

## External Locator - Front View with LCD Panel Open





## External Locator - Front & Right side Views

*Figure 2*  
**Front Views**

1. LED Indicators



*Figure 3*  
**Right Side Views**

1. Multi-in-1 Card Reader
2. USB 3.0 Ports
3. Combined eSATA/USB 3.0 Port
4. HDMI-Out Port
5. RJ-45 LAN Jack



## Introduction

### External Locator - Left Side & Rear View

*Figure 4*  
**Left Side View**

1. Security Lock Slot
2. USB 2.0 Port
3. S/PDIF-Out Jack
4. Microphone-In Jack
5. Headphone-Out Jack
6. Optical Device Drive Bay
7. Emergency Eject Hole

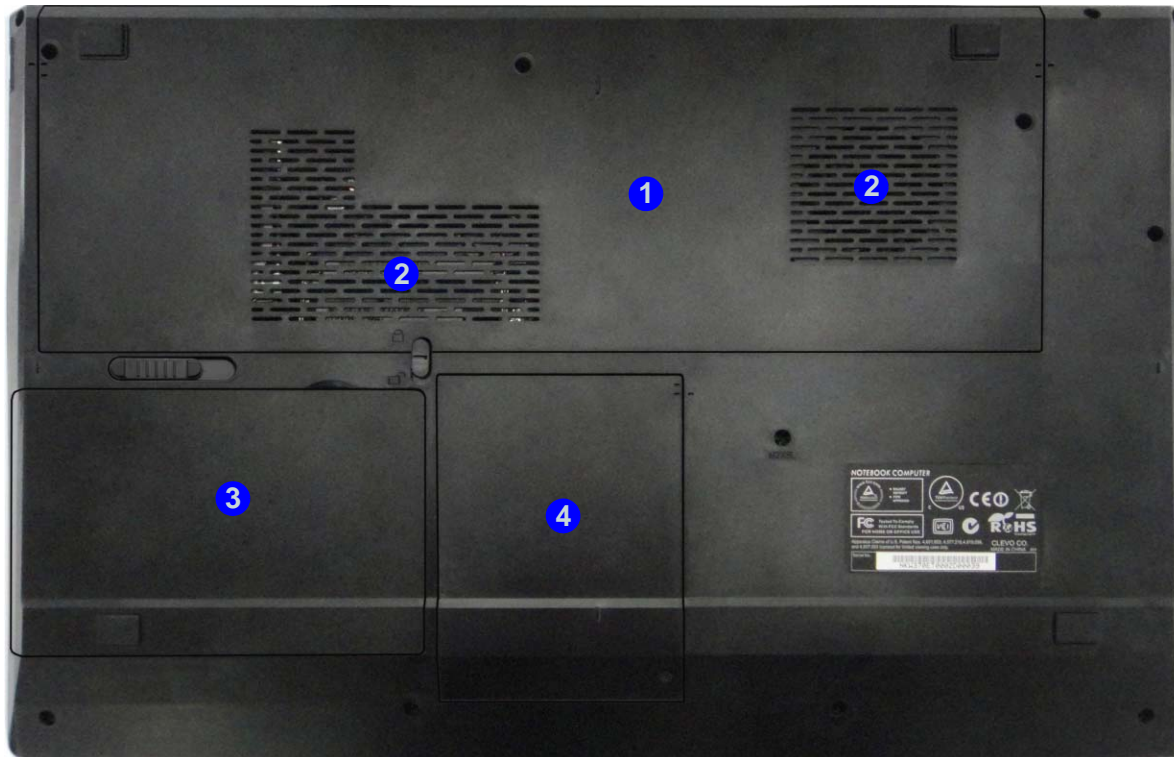


*Figure 5*  
**Rear View**

1. External Monitor Port
2. DC-In Jack
3. Vent



## External Locator - Bottom View



*Figure 6*  
**Bottom View**

1. Component Bay Cover
2. Vent
3. Battery
4. HDD Bay

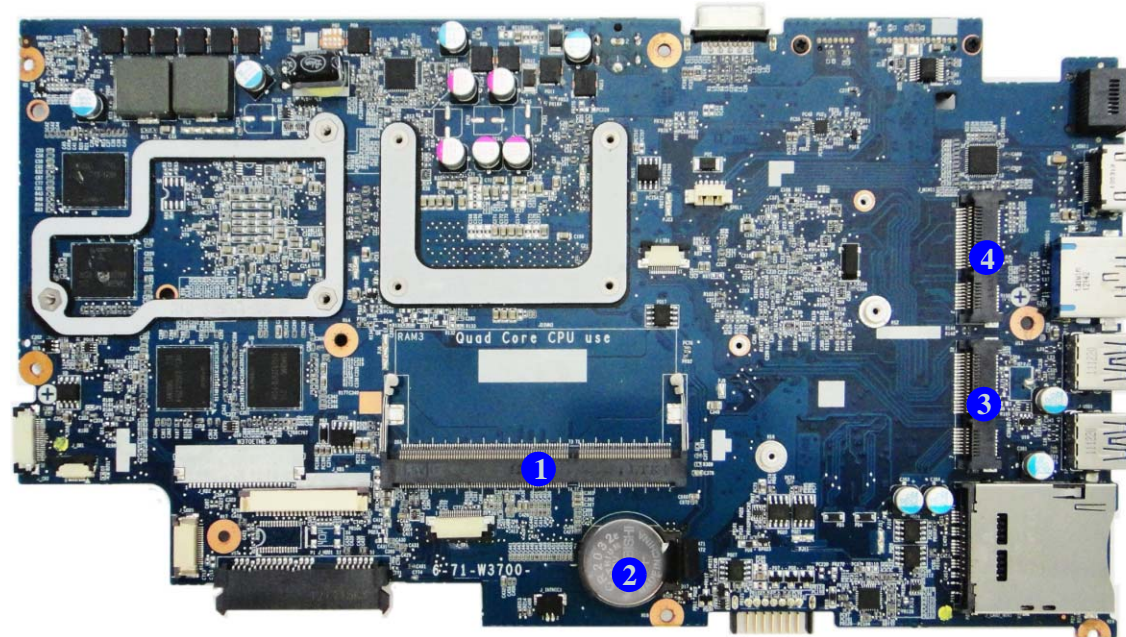
  
**Overheating**

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

## Mainboard Overview - Top (Key Parts)

*Figure 7*  
**Mainboard Top  
Key Parts**

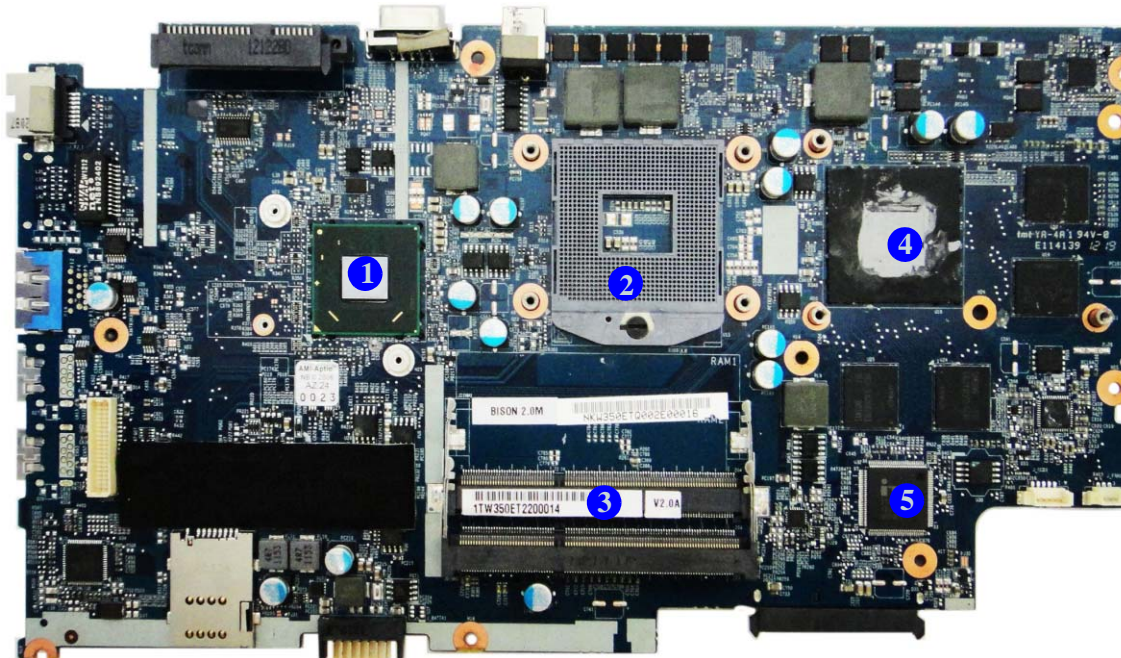
1. Memory Slots DDR3 So-DIMM
2. CMOS Battery
3. Mini-Card Connector (3G Module)
4. Mini-Card Connector (WLAN Module)



## Mainboard Overview - Bottom (Key Parts)

*Figure 8*  
**Mainboard Bottom  
Key Parts**

1. PantherPoint Controller
2. CPU Socket
3. Memory Slots DDR3 So-DIMM
4. NV Graphic
5. KBC

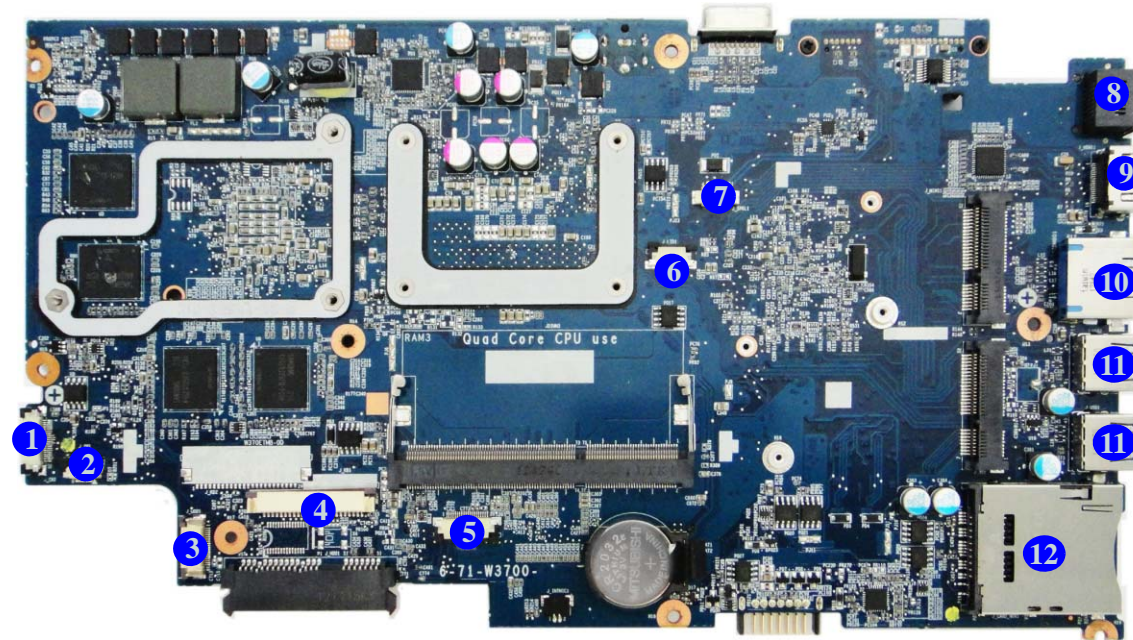


## Introduction

*Figure 9*  
**Mainboard Top  
Connectors**

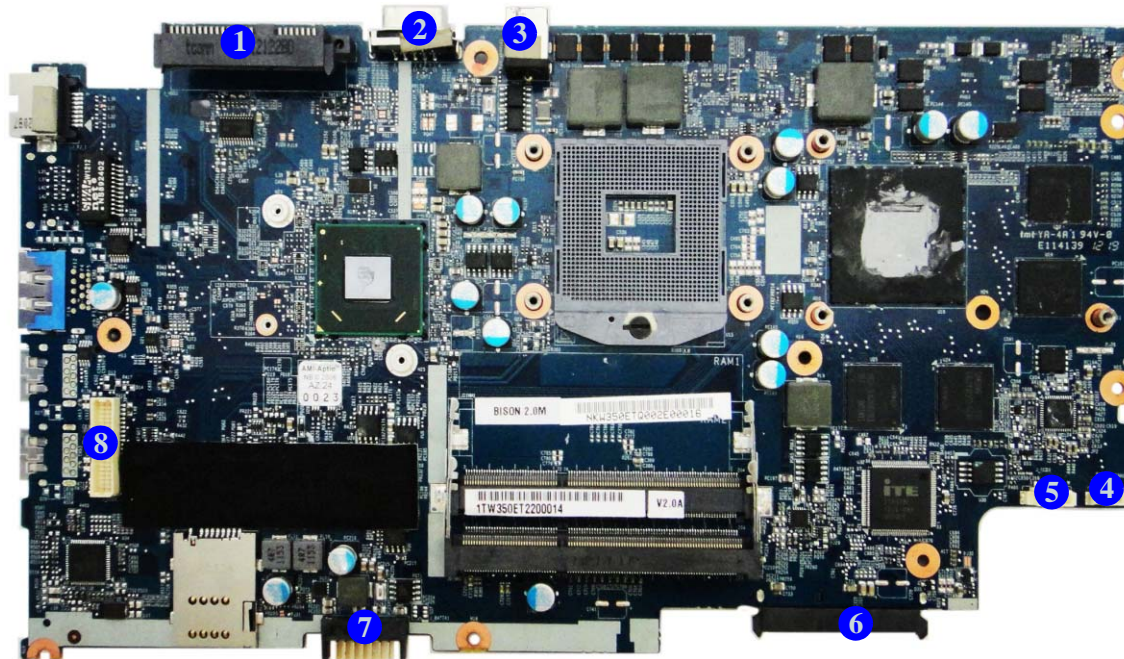
## Mainboard Overview - Top (Connectors)

1. Audio Cable Connector
2. Power Switch Cable Connector
3. ODD Cable Connector
4. Keyboard Cable Connector
5. Click Board Cable Connector
6. VGA SW Cable Connector
7. Speaker Cable Connector
8. RJ-45 LAN Jack
9. HDMI-Out Port
10. eSATA Connector
11. USB 3.0 Ports
12. Multi-in-1 Card Reader



## Mainboard Overview - Bottom (Connectors)

*Figure 10*  
**Mainboard Bottom  
Connectors**



1. HDD2 Connector
2. External Monitor Port
3. DC-In Jack
4. Fan Cable Connector
5. CCD Cable Connector
6. HDD1 Connector
7. Battery Connector
8. LCD Cable Connector






# Chapter 2: Disassembly



## Overview

This chapter provides step-by-step instructions for disassembling the **W350ETQ** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

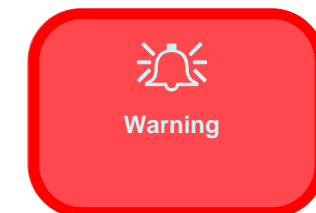
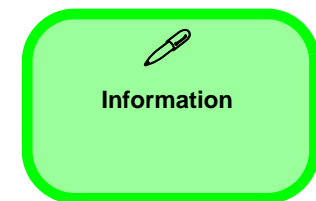
We suggest you completely review any procedure before you take the computer apart.

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

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

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

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



## Disassembly

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**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 and power cord). 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 and install the Processor:

1. Remove the battery *page 2 - 5*
2. Remove the Processor *page 2 - 10*
3. Install the Processor *page 2 - 12*

#### To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 13*

#### To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 14*

#### To remove the Hinge Cover:

1. Remove the battery *page 2 - 5*
2. Remove the hinge cover *page 2 - 16*

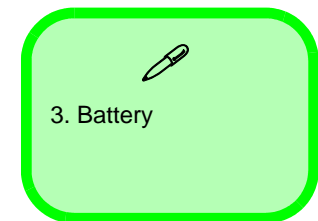
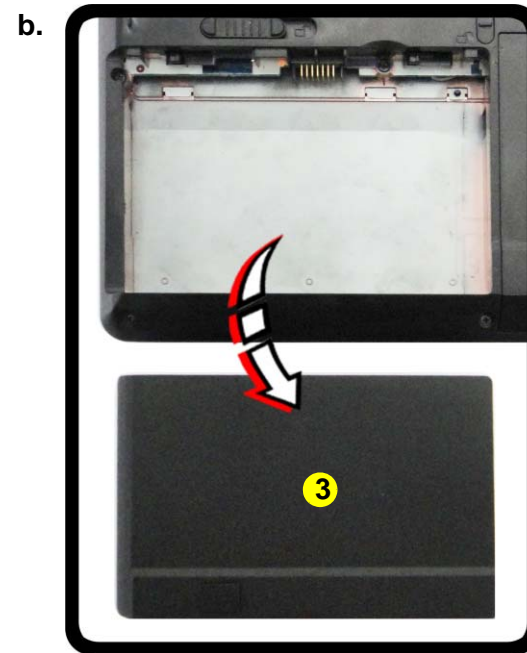
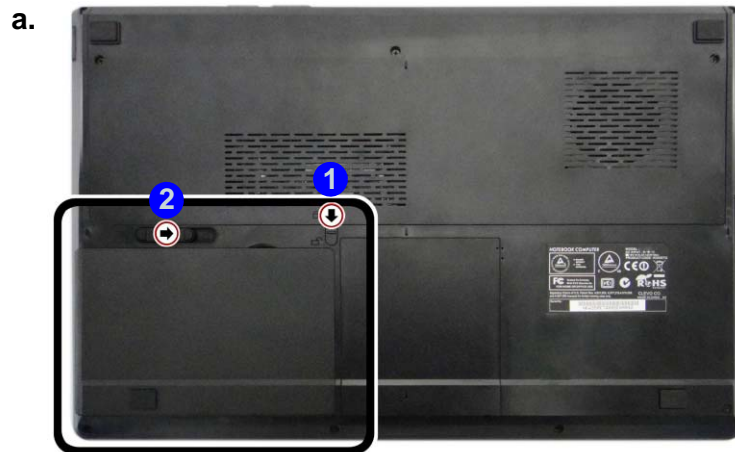
## Removing the Battery

If you are confident in undertaking upgrade procedures yourself, for safety reasons it is best to remove the battery.

1. Turn the computer off, and turn it over.
2. Slide the latch **1** in the direction of the arrow.
3. Slide the latch **2** in the direction of the arrow and battery will pop-up.
4. Lift the battery **3** up (*Figure b*) and out of the battery bay.

*Figure 1*  
**Battery Removal**

- a. Slide the latch **1** in the direction of the arrow, and slide the latch **2** in the direction of the arrow and battery will pop-up.
- b. Lift the battery out of the bay as indicated.



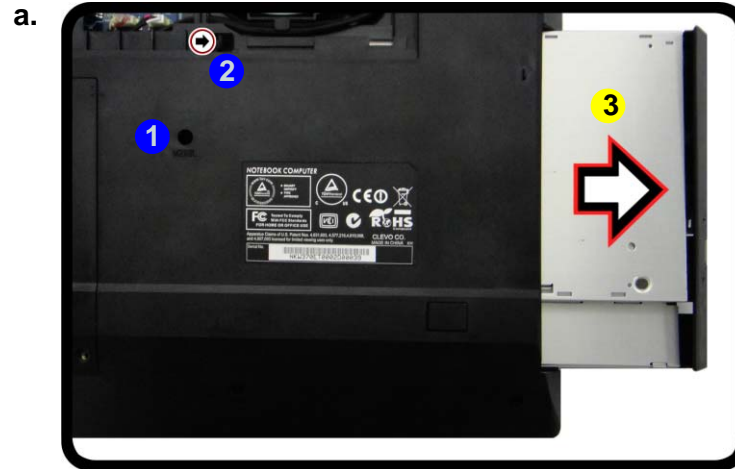
## Disassembly

### Figure 2 Optical Device Removal

a. Remove the screw and push the optical device out of the computer.

## Removing the Optical (CD/DVD) Device

1. Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)) and remove the component bay cover ([page 2 - 9](#)).
2. Remove the screw **1**, and use a screwdriver to carefully push out the optical device **3** at point **2**.
3. Reverse the process to install the new device.



3. Optical Device

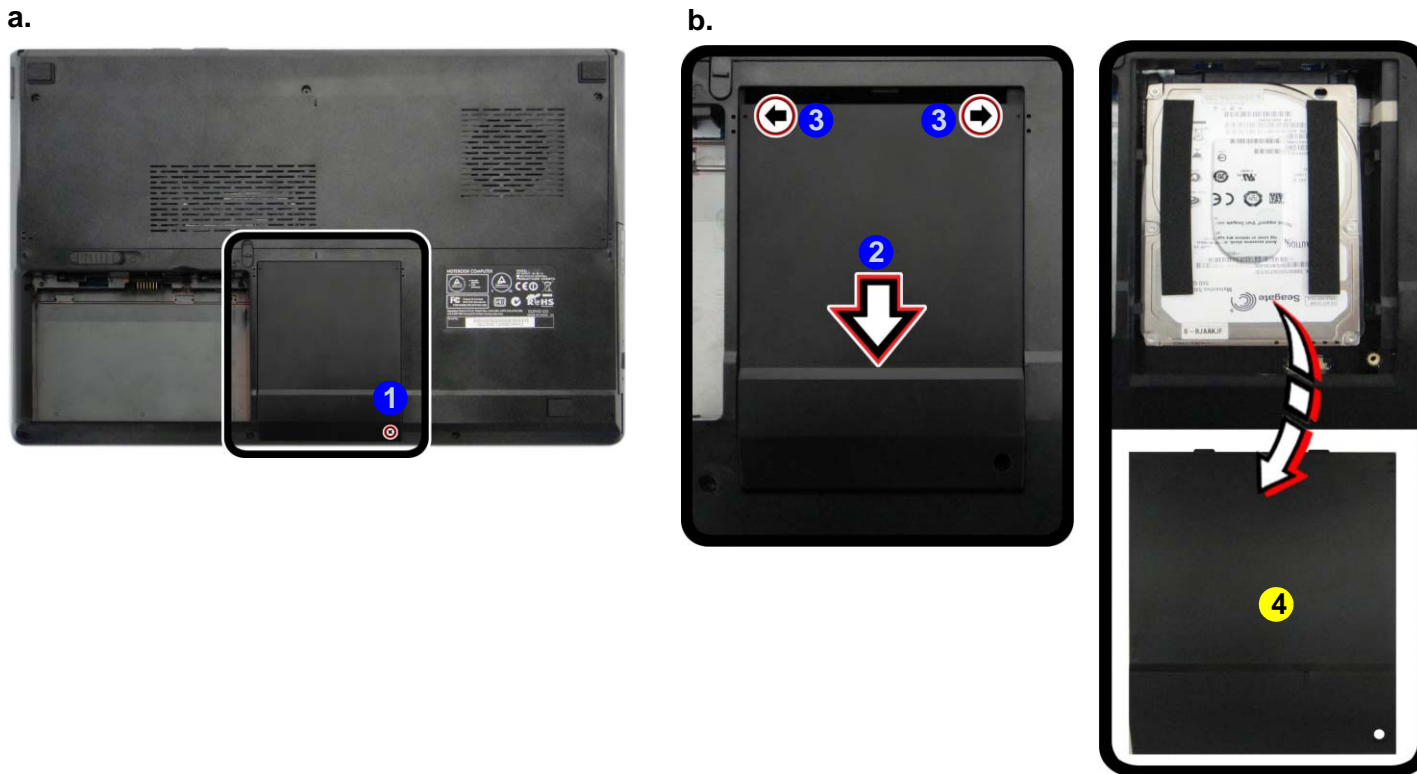
- 1 Screw

## Removing the Hard Disk Drive

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

### Hard Disk Upgrade Process

1. Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
2. Locate the Hard disk bay cover and remove screw **1**.
3. Slide the cover in the direction of the arrow **2** (as illustrated) until the case markers **3** line up.
4. Remove the bay cover **4**.



4. Hard Disk Bay Cover

- 1 Screws

- a. Remove the screws.
- b. Remove the cover

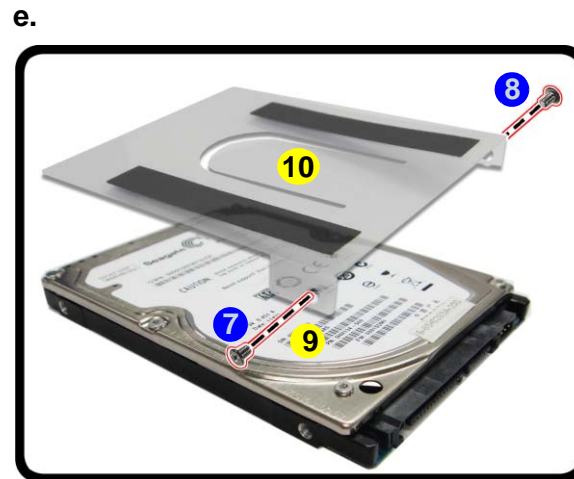
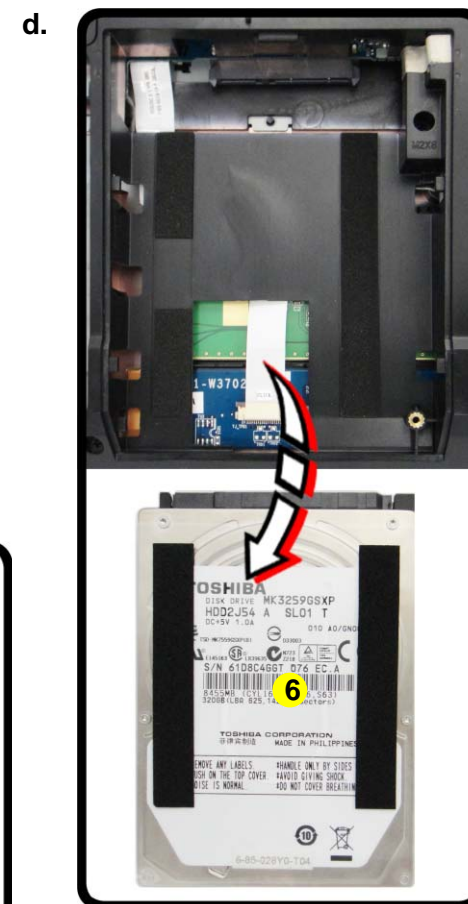
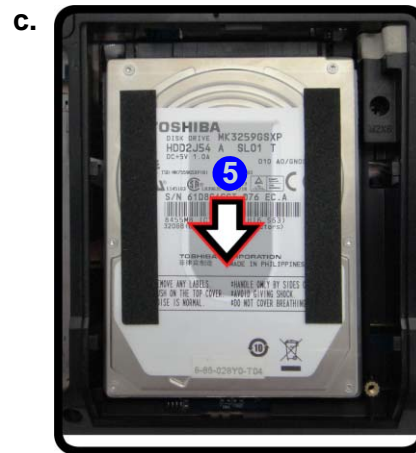
Figure 3  
HDD Assembly  
Removal

## Disassembly

### Figure 4 HDD Assembly Removal (cont'd.)

- c. Slide the hard disk assembly out.
- d. Lift the hard disk assembly out of the computer.
- e. Remove the screws to release the hard disk from the mylar.

5. Grip the tab and slide the hard disk in the direction of arrow **5** (Figure 4e).
6. Lift the hard disk assembly **6** out of the computer.
7. Remove screws **7** - **8**.
8. Separate the hard disk **9** and hard disk mylar **10**.
9. Reverse the process to install a new hard disk(s).



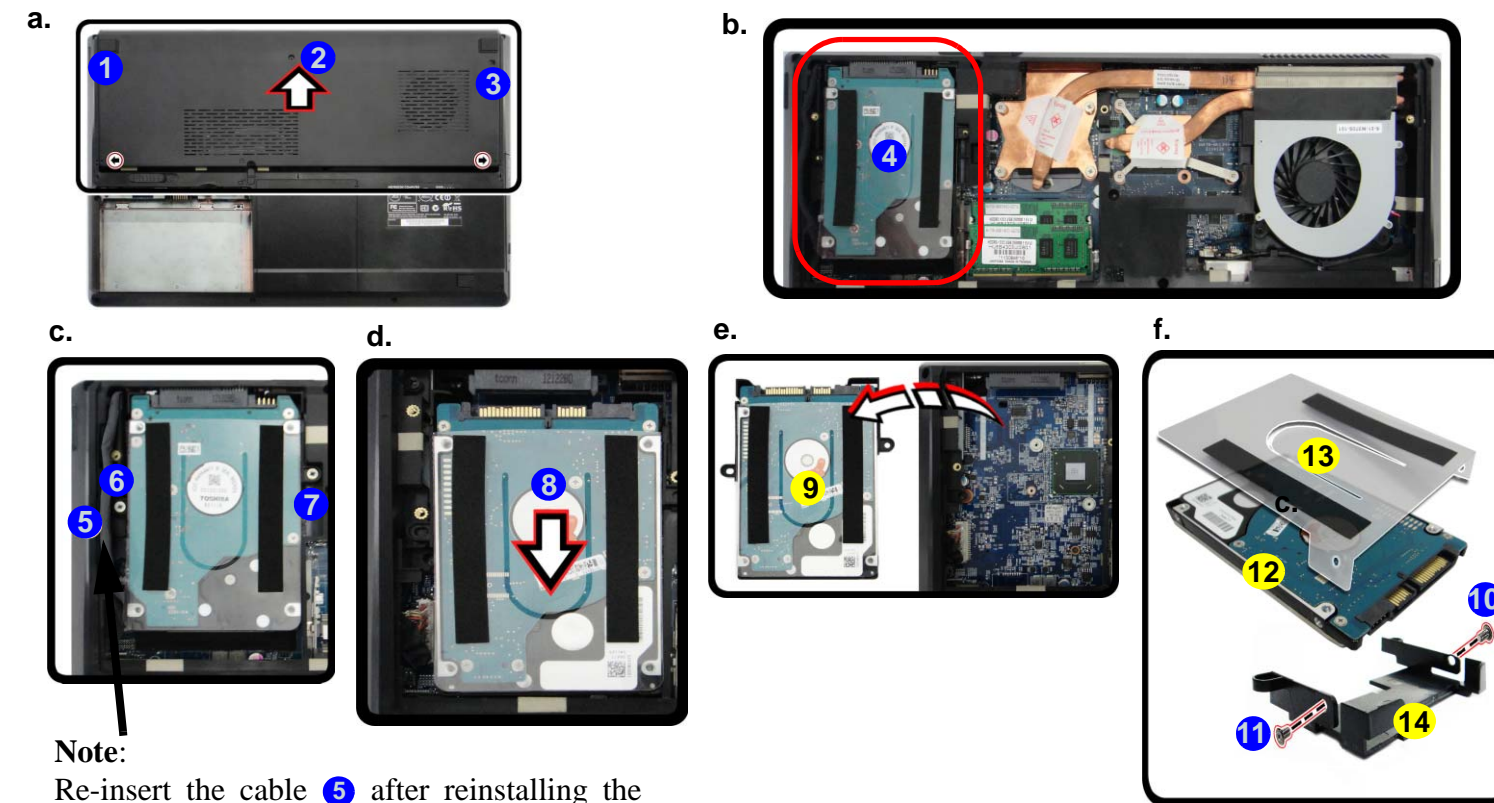
- 6 Hard Disk Assembly
- 9 Hard Disks
- 10 Hard Disk Mylar

- 2 Screws




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

1. Turn **off** the computer, and turn it over and remove the battery.
2. Locate the component bay cover and remove screws **1** - **3** and the cover.
3. The hard disk will be visible at point **4** on the mainboard.
4. Remove screws **6** - **7** (Note that you need to set aside the cable **5** to see the screw **6**).
5. Grip the tab and slide the hard disk in the direction of arrow **8** (*Figure 5e*).
6. Lift the hard disk assembly **9** out of the compartment.
7. Remove the screws **10** - **11** to release the hard disk(s) **12** and hard disk mylar **13** from the case **14**.
8. Reverse the process to install any new hard disk(s).



*Figure 5*  
**Secondary HDD  
Assembly Removal**

- a. Remove the screws and cover.
- b. Locate the hard disk.
- c. Remove the screws.
- d. Slide the hard disk assembly out.
- e. Lift the hard disk assembly out of the computer.
- f. Remove the screws and separate the HDD(s) from case.



9. Hard Disk Assembly  
12. Hard Disks  
13. Hard Disk Mylar  
14. Hard Disk Case

- 7 Screws

**Note:**  
Re-insert the cable **5** after reinstalling the hard disk assembly and tightening the screws.

## Disassembly

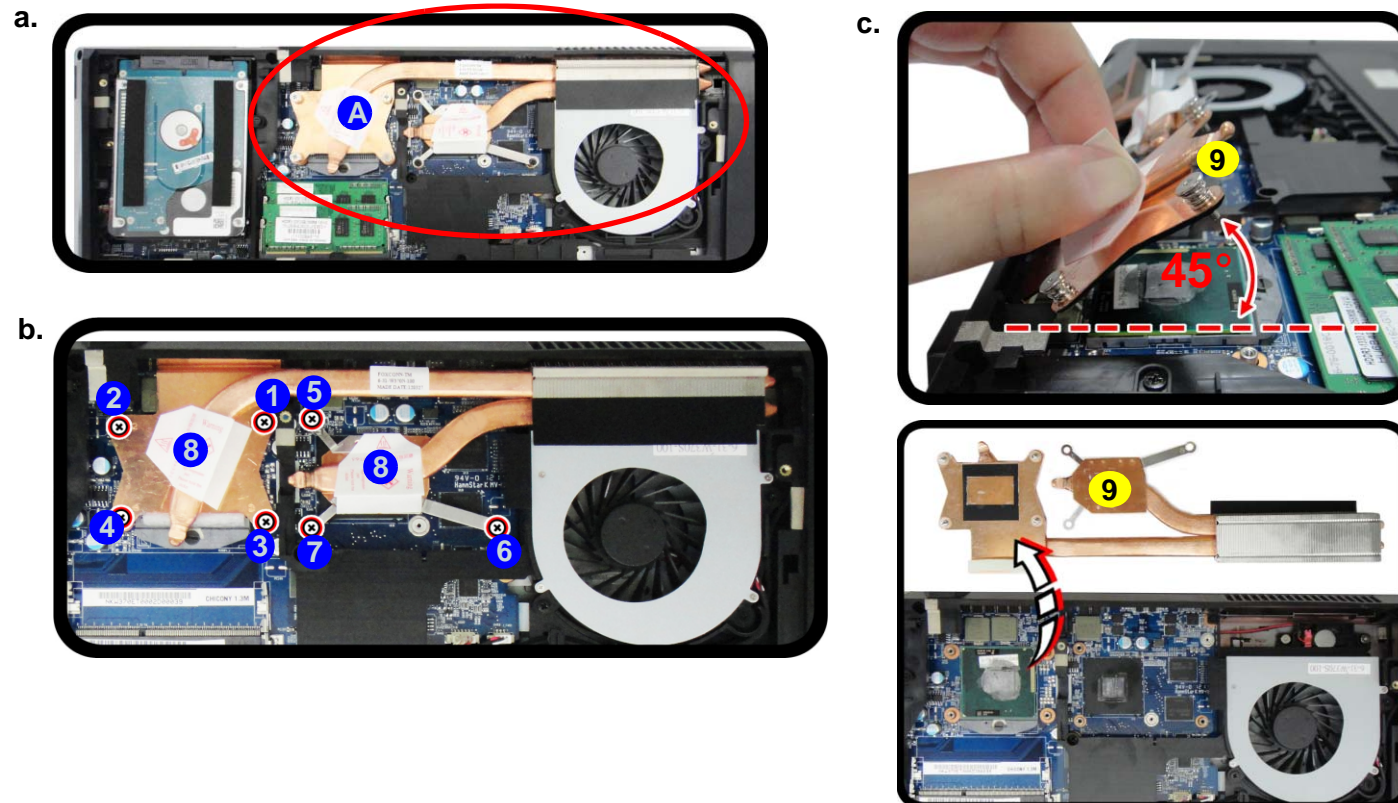
Figure 6  
Processor Removal

- Locate the heat sink.
- Remove the screws.
- Grip the heat sink tab and carefully lift the heat sink up and off the computer.

## Removing and Installing the Processor

### Processor Removal Procedure

- Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)), and component bay cover ([page 2 - 9](#)).
- The CPU heat sink will be visible at point **A** on the mainboard.
- Remove screws **7**, **6**, **5**, **4**, **3**, **2**, **1**, the reverse order indicated on the label ([Figure 6b](#)).
- Grip the heat sink tab **8** and carefully lift the heat sink **9** up straight (**do not angle it as you lift it**) about a centimeter in order to clear the fan unit, and then angle it around 45° to remove it from the computer.




### 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.

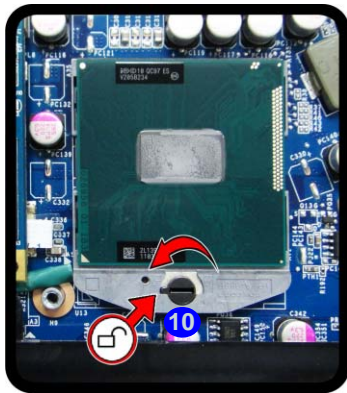


### 9. CPU Heat Sink

- 7 Screws

- Turn the release latch **10** towards the unlock symbol  to release the CPU (*Figure 7d*).
- Carefully (it may be hot) lift the CPU **11** up and out of the socket (*Figure 7e*).
- Reverse the process to install a new CPU.
- When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

d.

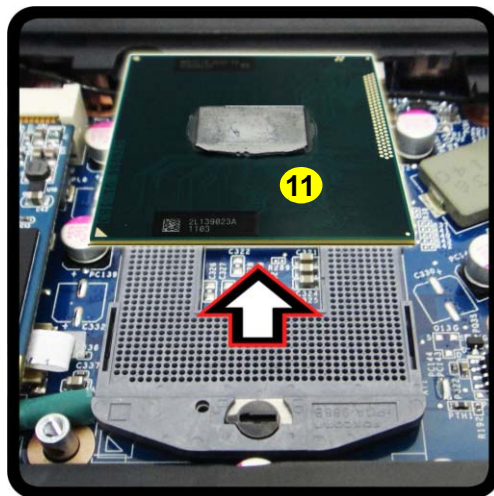


Unlock



Lock

e.



### Caution

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




11. CPU

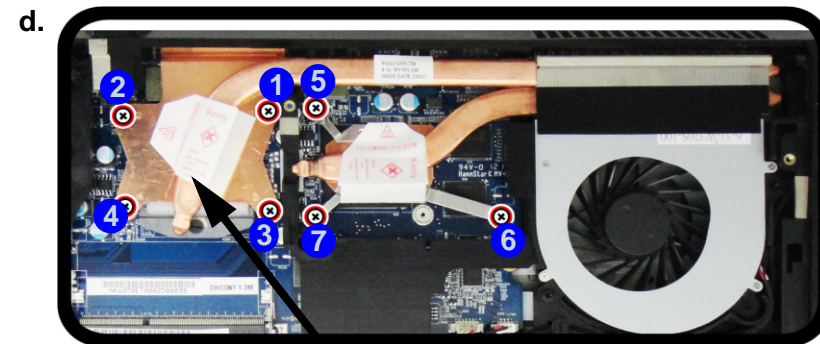
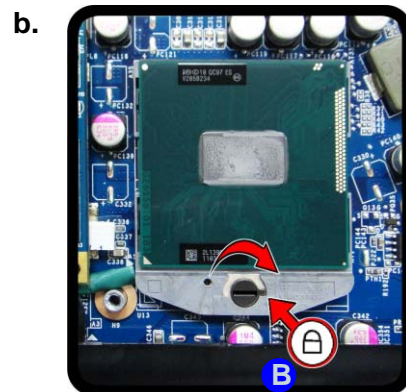
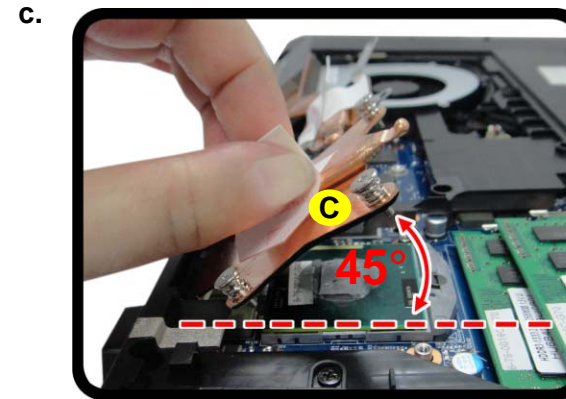
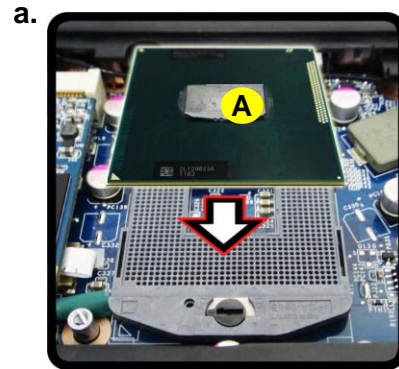
## Disassembly

*Figure 8*  
**Processor Installation**


- Insert the CPU.
- Turn the release latch towards the lock symbol.
- Insert the heat sink.
- Tighten the screws.

### Processor Installation Procedure

- Insert the CPU **A** (*Figure 8a*), pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!), and turn the release latch **B** towards the lock symbol  (*Figure 8b*).
- Insert the heat sink **C** at an angle of around 30° as indicated in *Figure 8c*.
- Tighten the CPU heat sink screws in the order **1**, **2**, **3**, **4**, **5**, **6** & **7** (the order as indicated on the label and *Figure 8d*).
- Replace the component bay cover.

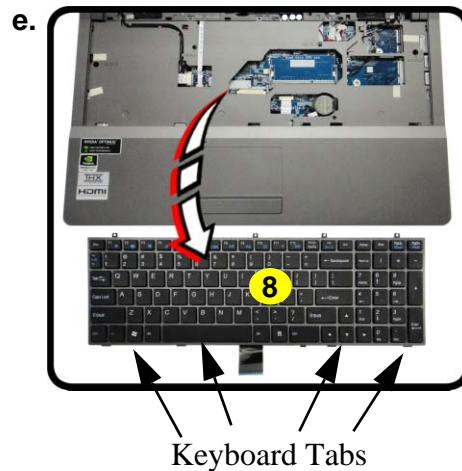
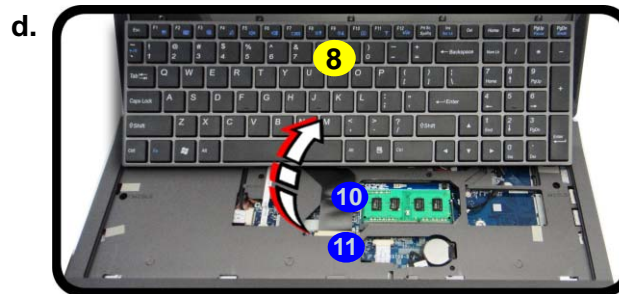
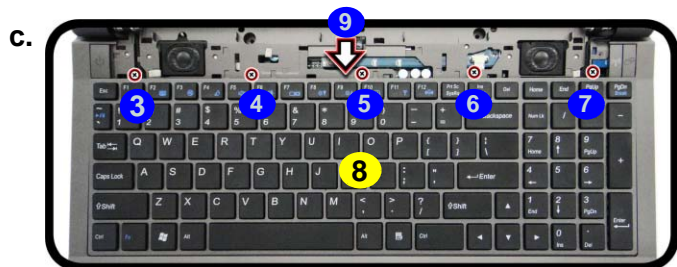
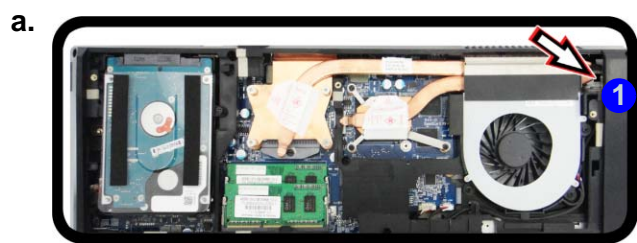


**Note:**  
Tighten the screws in the order as indicated on the label.

- 
- A. CPU  
C. Heat Sink
- 7 Screws

## Removing the Keyboard

1. Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)), and component bay cover ([page 2 - 9](#)).
2. Use a screwdriver to carefully push out the speakers cover **2** at point **1**.
3. Turn the computer over, unsnap the speaker cover **2** upward from the center of the computer ([Figure 9b](#)).
4. Remove screws **3** - **7** from the keyboard ([Figure 9c](#)).
5. Carefully lift the keyboard **8** up from point **9**, being careful not to bend the keyboard ribbon cable **10**.
6. Disconnect the keyboard ribbon cable **10** from the locking collar socket **11** by using a flat-head screwdriver to pry the locking collar pins away from the base ([Figure 9d](#)).
7. Carefully lift up the keyboard **8** ([Figure 9e](#)) off the computer.



**Re-Inserting the Keyboard**

When re-inserting the keyboard firstly align the **four** keyboard tabs at the bottom ([Figure 9e](#)) at the bottom of the keyboard with the slots in the case.

- 5 Screws

*Figure 9*  
**Keyboard Removal**

- a. Use a screwdriver to carefully push out the speakers cover at point **1**.
- b. Turn the computer over, unsnap the LED cover module upward from the center of the computer.
- c. Remove screws from the keyboard. Carefully lift the keyboard up.
- c. Disconnect the keyboard ribbon cable from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins away from the base.
- e. Remove the keyboard.

## Disassembly

*Figure 10*  
**RAM Module Removal**

- The RAM modules will be visible at point **1** on the mainboard.
- Pull the release latches.
- Remove the module.



### 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. RAM Module

## Removing the System Memory (RAM)

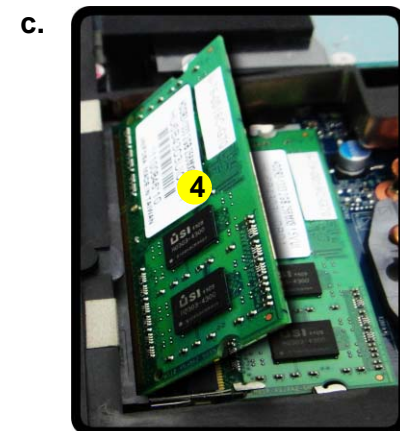
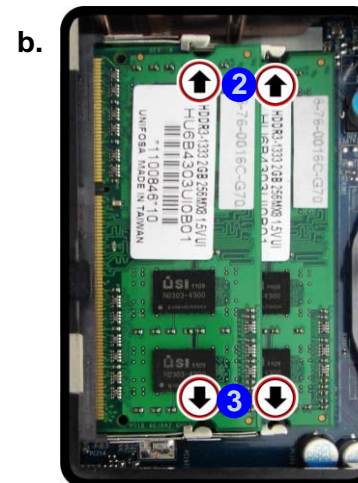
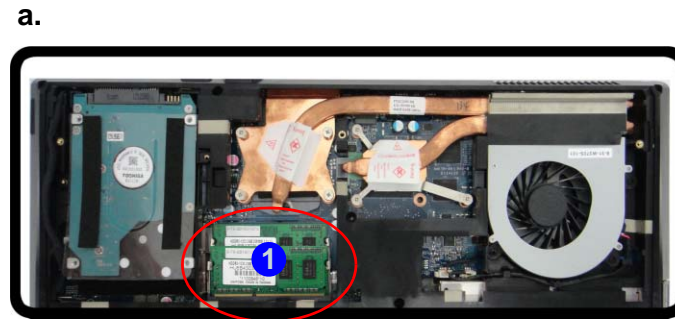
The computer has **three** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDR III (DDR3)** type memory modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Note that **three SO-DIMMs are only supported by Quad-Core CPUs; Dual-Core CPUs support two SO-DIMMs maximum.**

**Two primary memory sockets are located under component bay cover (the bottom case cover), and one secondary memory sockets are located under the keyboard. If you are installing only two RAM modules then they should be installed in the primary memory sockets under the component bay cover.**

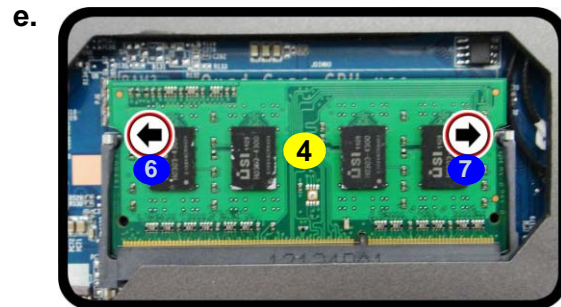
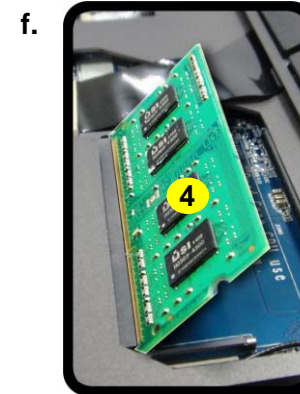
### Primary System Memory Upgrade Process

- Turn **off** the computer, turn it over and remove the battery ([page 2 - 5](#)) and remove the component bay cover ([page 2 - 9](#)).
- The RAM modules will be visible at point **1** on the mainboard.
- Gently pull the two release latches (**2** & **3**) on the sides of the memory socket in the direction indicated by the arrows ([Figure 10b](#)). The RAM module **4** will pop-up ([Figure 10c](#)), and you can then remove it.
- Pull the latches to release the second module if necessary.



## Memory (under Keyboard) Upgrade Process

5. Turn **off** the computer, turn it over and remove the battery ([page 2 - 5](#)), component bay cover ([page 2 - 9](#)) and keyboard ([page 2 - 13](#)).
6. The memory sockets will be visible at point **5** ([Figure 11d](#)).
7. Gently pull the two release latches (**6** & **7**) on the sides of the memory socket(s) in the direction indicated below.
8. The RAM module **4** will pop-up, and you can remove it.



### 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.

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



4 RAM Module

*Figure 11*  
**RAM Module  
(under keyboard)  
Removal**

- d. The secondary RAM modules will be visible at point **5**.
- e. Pull the release latches.
- f. Remove the module.

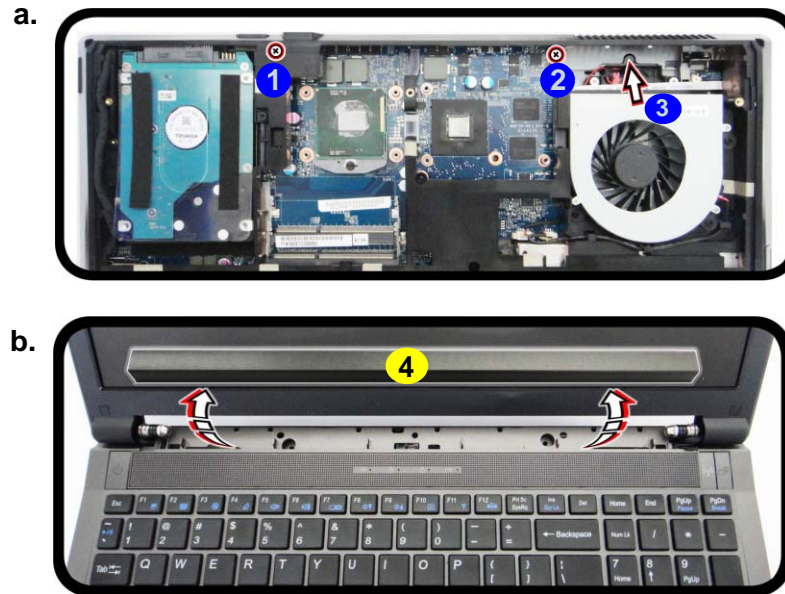
## Disassembly

*Figure 12*  
**Hinge Cover  
Removal**

- a. Remove the screws and use a screwdriver to push out the hinge cover.
- b. Turn the computer over, remove the hinge cover.

## Removing the Hinge Cover

1. Turn off the computer, turn it over and remove the battery ([page 2 - 5](#)), and component bay cover ([page 2 - 9](#)).
2. Remove screws **1** - **2** and use a screwdriver to carefully push out the hinge cover **4** at point **3**.
3. Turn the computer over, carefully lift the hinge cover **4** out of the computer ([Figure 12b](#)).



4. Hinge Cover

- 2 Screws



# Appendix A: Part Lists

This appendix breaks down the *W350ETQ* series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

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

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

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

## Part List Illustration Location

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

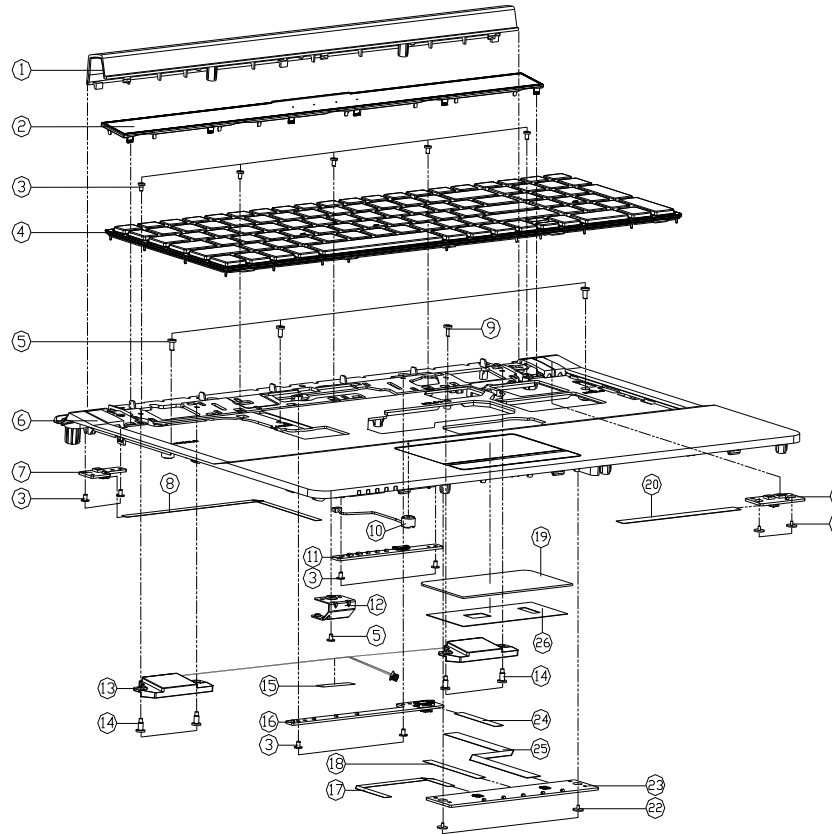
*Table A-1*  
**Part List Illustration  
Location**

Parts	W350ETQ
Top with Fingerprint	<i>page A - 3</i>
Top without Fingerprint	<i>page A - 4</i>
Bottom	<i>page A - 5</i>
LCD	<i>page A - 6</i>
HDD	<i>page A - 7</i>
2nd HDD	<i>page A - 8</i>
DVD	<i>page A - 9</i>
COMBO	<i>page A - 10</i>



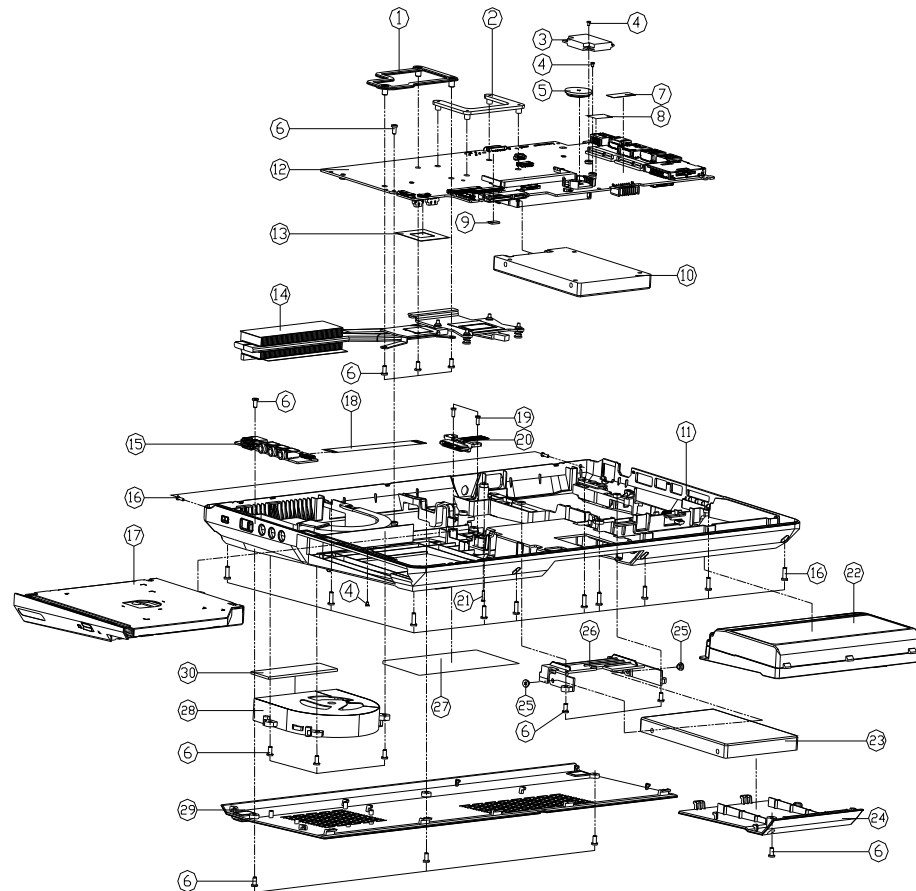
# Top without Fingerprint

Figure A - 2  
Top without Fingerprint



ITEM	PART NAME	PART NO	REMARK
1	HINGE COVER PC+ABS W350E1Q	6-42-W35E2-031	
2	KB COVER MODULE W350E1Q	6-42-W35E2-101	
3	SCREW NEXEL KI NI ICT NY (D0=45.0T-R4)	6-35-B1120-0RE	
4	K/B US/BLACK FRAM(US) MODULE W30ET	6-79-W370E1BK-010	
5	SCREW M2.5*5L KI BK/Z ICT NY	6-35-B6125-0RA	
6	PPC-PROCESSOR CASE W/O FINGER KISS W350E1Q	6-78-W350E1Q2-010	
7	POWER SWITCH BOARD V2.0 W350E1Q	6-77-W35E5-D02	
8	FFC CABLE FOR HD TO POWER BOARD SPIN CLOUD W350E1	6-43-W35E0-031	
9	SCREW NEXSL KKT-08 D=4.0 BK/Z ICT NY	6-35-B6120-SR0	
10	IC W350E1Q-0 W350E1Q-0 W350E1Q-0 W350E1Q-0	6-23-EM550-011-2	
11	POWER LED BOARD V2.0A W350E1Q	6-77-W3704-D08A-A	
12	TOP CASE BRSS BKT SECC W350E1Q	6-33-W35E2-010	
13	SPEAKER FRONT HLL SHR P22 2W 4T EUPHON PRODR	6-23-SP15E-051	
14	SCREW NEXGEL NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
15	TAPE NYLAR TRANSPARENT (20*10*0.05) P180M	6-40-P1803-020	
16	LID SWITCH BOARD V2.0 W350E1Q	6-77-W35E2-D02	
17	FFC CABLE FOR FRONT LED TO CLICK BOARD CLOUD W350E1	6-43-W35E2-021	
18	FFC CABLE FOR HP TO CLICK BOARD SPIN P180M HSD	6-43-X5102-011-2	
19	TOUCH PAD CLM SHAR-420 HLL/FINGER RESUME W350E1Q	6-49-W25A2-011	
20	FFC CABLE FOR HD KEY TO HLL SENSOR SPIN CLOUD W350E1Q	6-43-W35E2-011	
21	VGA / WLAN SWITCH BOARD V2.0 W350E1Q	6-77-W35E5-D12	
22	SCREW NEXEL KI BK/Z ICT NY (46.1*0.5)	6-35-B6120-2RC	
23	CLICK BOARD V3.0 (W/O FFP) W350E1Q	6-77-W3702-D03-B	
24	FFC CABLE FOR HD TO HLL SENSOR BOARD SPIN CLOUD W350E1	6-43-W35E0-040	
25	FFC CABLE FOR CLICK BOARD TO HD SPIN CLOUD W350E1	6-43-W35E0-021	
26	NYLAR FOR TOUCHPAD TRANSPARENT NYLAR-TP2800 (VAND)	6-40-W3402-020	

Bottom

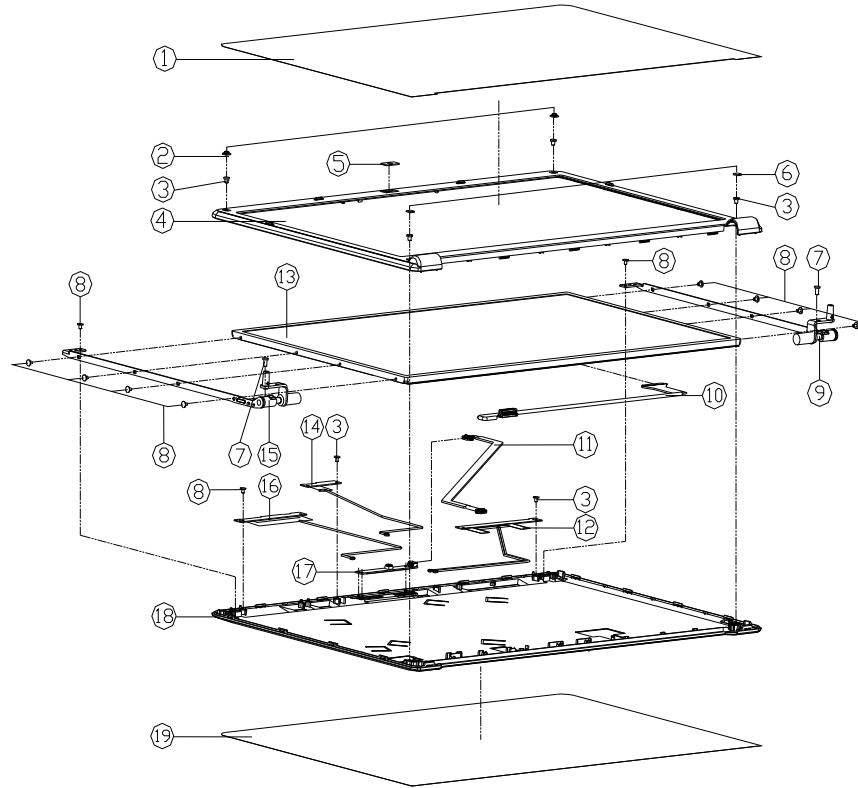


ITEM	PART NAME	PART NO	REMARK
1	VGA SUPPORTER SECC W150E0	6-33-W15ES-012	
2	CPU SUPPORT BRACKET SECC T1-15 P150M	6-33-X510S-011	
3	W/O HDD COVER FOR 3.5" BAY (OPTIONAL)	6-88-M7C2-4220	(OPTION)
3	W/O DVD COVER FOR 5.25" BAY (OPTIONAL)	6-88-P17EF-4200	(OPTION)
3	W/O DVD COVER FOR 5.25" BAY (OPTIONAL)	6-88-W255F-4200	(OPTION)
3	W/O DVD COVER FOR 5.25" BAY (OPTIONAL)	6-88-W345F-9400	(OPTION)
3	W/O DVD COVER FOR 5.25" BAY (OPTIONAL)	6-88-W345F-8700	(OPTION)
3	W/O DVD COVER FOR 5.25" BAY (OPTIONAL)	6-88-W25H2-9400	(OPTION)
3	W/O DVD COVER FOR 5.25" BAY (OPTIONAL)	6-88-W25H2-7000	(OPTION)
4	SCREW M2.5X5L K1 BK/Z ICT NY	6-35-B1120-3RE	
5	BATTERY 3V 210MA CR2032 (MITSUBISHI)	6-23-62015-607	
6	SCREW M2.5X5L K1 BK/Z ICT NY	6-35-B6125-SRA	
7	TAPE MILAR TRANSPARENT (OPTIONAL) P180M	6-40-P1803-020	
8	W/O DVD COVER FOR 5.25" BAY (OPTIONAL) P180M	6-40-X510S-020	
9	CABLE I/O W/4070 FOR USB BOARD W50M	6-47-00190-12J	
10	W/HDD ASS'Y W350E10	6-79-W350E10J-020	(OPTION)
10	W/O HDD ASS'Y W350E10	6-79-W350E10J-010	(OPTION)
10	W/HDD W/ 2HDD ASSY W350E10	6-79-W350E10J-030	(OPTION)
11	BOTTOM CASE MODULE W350E10	6-39-W35E3-011	
12	MAIN BOARD V30 (W/3G) W350E10	6-77-W35E0-003	
12	MAIN BOARD V30 (W/O 3G) W350E10	6-77-W35E0-003-1	
13	VGA CHIP HEAT SINK 30X30 (MSP-022 COVER) W370E1	6-40-MB60S-092	
14	CPU HEAT SINK MODULE W370E1	6-31-W370N-101	
15	PHONE JACK & USB BOARD V20M W370E1	6-77-W370A-002A	
16	SCREW M2.5X6L K1 BK/Z NY ICT	6-35-B6125-8R0	
17	W/O DVD ASS'Y W350E10 (OPTION)	6-79-W350E10Z-000	(OPTION)
17	SATA DVD SUPER MULTI ASSY (OPTION)	6-79-W350E100-000	(OPTION)
17	SATA BLU-RAY COMBO ASSY (OPTION)	6-79-W350E10W-000	(OPTION)
18	ITE CABLE FOR AUDIO BOARD TO MP TOP HOLE Y30E1	6-43-W35E0-011	
19	SCREW M2.5X4L K1T-08 B+40 BK/Z ICT NY	6-35-B6120-5R0	
20	W/O DVD COVER FOR 5.25" BAY (OPTIONAL) ITE CABLE Y30E1	6-23-FW35E-010	
21	SCREW M2.5X6L K1 BK/Z ICT NY	6-35-B6120-8R0	
22	W/O DVD ASS'Y W350E10 (OPTION)	6-87-W370S-4271	(OPTION)
23	W/O 2HDD ASS'Y W370E1	6-79-W370E10J-040	(OPTION)
24	HDD COVER MODULE W350E10	6-42-W35EJ-100	
25	SCREW M2.5X4L K1 BK/Z ICT NY (H=4.8 T=0.5)	6-35-B6130-4RB	
26	SECOND HDD HOLDING PCMB B201 W370E1	6-42-W370J-020	
27	PRODUCT LABEL FOR W350E10	6-45-W350E10Z-010	
28	FAN MODULE (ADDA) W370E1	6-31-W370S-101	
29	CPU COVER MODULE W350E10	6-42-W35E8-101	
30	STICKER L PRNTE 4506407 (OPTION) W350E10	6-47-0019A-660	

Figure A - 3  
Bottom

# LCD

Figure A - 4  
LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD FRONT COVER PROTECTION FILM (E55558) (OPTION)	6-40-B51M8-010	
2	LCD FRONT COVER SCREW RUBBER SLIPON C4500	6-47-C4501-031	
3	SCREW MEXSL K101-08 B=40 BK/Z ICT NY	6-35-B6120-5R0	
4	LCD FRONT COVER MODULE (4RD RIB) B500M	6-39-B51M1-014	
5	CCD BRACKET/MMA M810L	6-42-M8101-011	
5	W/O CCD COSMETIC PC M810L	6-42-M8101-020	
6	FRONT COVER PC FOR SCREW C4500	6-40-C4501-071	
7	SCREW M2.5xSL K1 BK/Z ICT NY	6-35-B6125-5RA	
8	HINGE R (SECC+SK7) W350ETD	6-33-W35E1-0R2	
9	HINGE R (SECC+SK7) W350ETO	6-33-W35E1-0R2	
10	WIRE CABLE FOR LCD TO MAIN BOARD (OPTION) (OPTION)	6-43-W35E1-011-C	
11	WIRE CABLE SPIN FOR CCD (O/L) W350ET	6-43-W35E1-011	
12	WIRE CABLE SPIN FOR CCD (O/L) W350ETO	6-43-W35E1-011	
13	LCD ISLc HD LG IPS/AMT-FILC GLUE (TYPE) (O/L) (O/L) SMM	6-50-LA157-L02	
13	LCD ISLc HD LG IPS/AMT-FILC GLUE (TYPE) (O/L) SMM	6-50-LA157-L02	
13	LCD ISLc FHD LG IPS/AMT-FILC GLUE (TYPE) (O/L) SMM	6-50-LB257-L02	
13	LCD ISLc FHD LG IPS/AMT-FILC GLUE (TYPE) (O/L) SMM	6-50-LB257-L05	
14	HINGE L (SECC+SK7) W350ETO	6-33-W35E1-0L1	
15	HINGE L (SECC+SK7) W350ETD	6-33-W35E1-0L1	
16	HINGE L (SECC+SK7) W350ETO	6-23-W15E1-010	
17	DVC CAMERA BEZEL FILC (OPTION) (OPTION) (OPTION) (OPTION) (OPTION)	6-88-E510C-4904	OPTION
17	DVC CAMERA BEZEL FILC (OPTION) (OPTION) (OPTION) (OPTION) (OPTION)	6-88-W25UC-5100	OPTION
17	DVC CAMERA BEZEL FILC (OPTION) (OPTION) (OPTION) (OPTION) (OPTION)	6-88-W21EC-5100	OPTION
17	DVC CAMERA BEZEL FILC (OPTION) (OPTION) (OPTION) (OPTION) (OPTION)	6-88-W15EC-4901	OPTION
18	LCD BACK COVER IMR MODULE W350ETO	6-39-W35E1-021	
19	LCD BACK COVER PROTECTION FILM (E55558) (OPTION)	6-40-E5558-010	

HDD

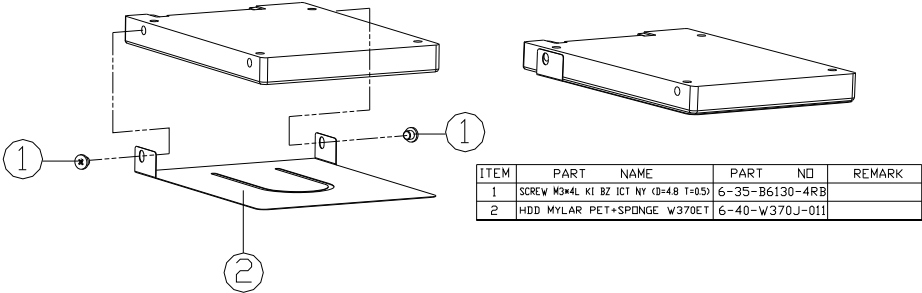
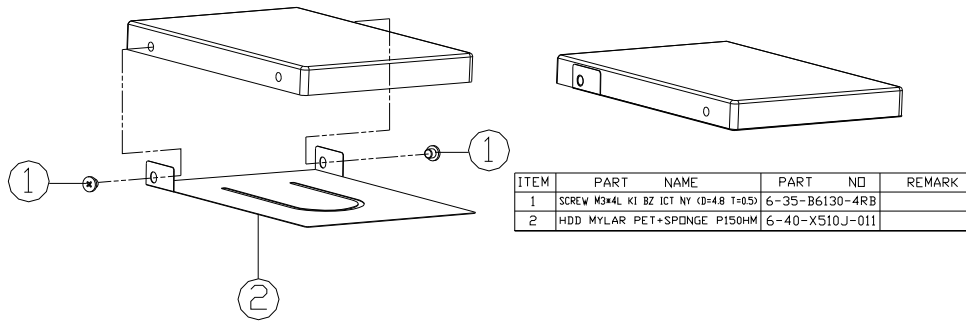


Figure A - 5  
HDD

## 2nd HDD

Figure A - 6  
2nd HDD





DVD

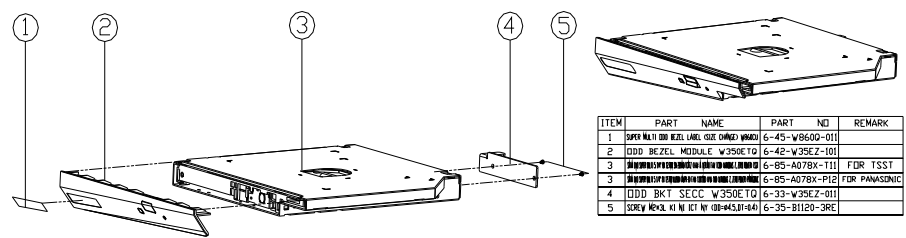
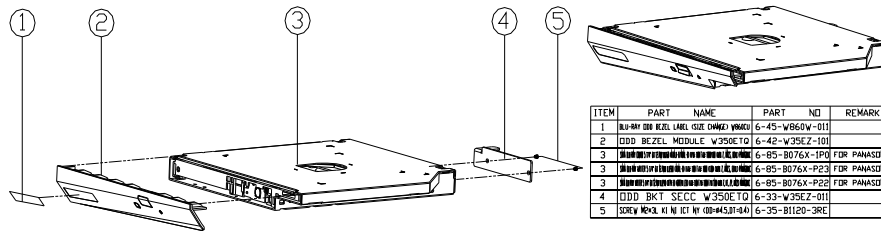


Figure A - 7  
DVD

# COMBO

Figure A - 8  
COMBO



ITEM	PART NAME	PART NO	REMARK
1	BEZEL DR. LML GLE DMKZ YMKJ	6-45-W860W-011	
2	DDD BEZEL MODULE W350E10	6-42-W35E2-101	
3	DRIVE UNIT W350E10	6-85-B076X-1P0	FOR PANASONIC
3	DRIVE UNIT W350E10	6-85-B076X-P23	FOR PANASONIC
3	DRIVE UNIT W350E10	6-85-B076X-P28	FOR PANASONIC
4	DDD BKT SECC W350E10	6-33-W35E2-011	
5	SCREW M3X.41 N.101 W.00-445.01-440	6-35-B1120-3RE	

# Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the W370ET notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>VGA NVDD Decoupling - Page B - 21</i>	<i>VDD3, VDD5 - Page B - 40</i>
<i>Ivy Bridge 1/7 - Page B - 3</i>	<i>PantherPoint M 1/9 - Page B - 22</i>	<i>Power 0.85VS, 1.8VS - Page B - 41</i>
<i>Ivy Bridge 2/7 - Page B - 4</i>	<i>PantherPoint M 2/9 - Page B - 23</i>	<i>Power 1.5/0.75V/PEX_VDD - Page B - 42</i>
<i>Ivy Bridge 3/7 - Page B - 5</i>	<i>PantherPoint M 3/9 - Page B - 24</i>	<i>Power 1.05VS, 0.85VS - Page B - 43</i>
<i>Ivy Bridge 4/7 - Page B - 6</i>	<i>PantherPoint M 4/9 - Page B - 25</i>	<i>Power V-Core 1 - Page B - 44</i>
<i>Ivy Bridge 5/7 - Page B - 7</i>	<i>PantherPoint M 5/9 - Page B - 26</i>	<i>Power V-Core 2 - Page B - 45</i>
<i>Ivy Bridge 6/7 - Page B - 8</i>	<i>PantherPoint M 6/9 - Page B - 27</i>	<i>VGA NVVDD - Page B - 46</i>
<i>Ivy Bridge 7/7 - Page B - 9</i>	<i>PantherPoint M 7/9 - Page B - 28</i>	<i>AC-In, Charger - Page B - 47</i>
<i>DDR3 SO-DIMM A_0 - Page B - 10</i>	<i>PantherPoint M 8/9 - Page B - 29</i>	<i>W370/350ET Audio Board - Page B - 48</i>
<i>DDR3 SO-DIMM B_0 - Page B - 11</i>	<i>PantherPoint M 9/9 - Page B - 30</i>	<i>W370/350ET Power LED Board - Page B - 49</i>
<i>DDR3 SO-DIMM A_1 - Page B - 12</i>	<i>Mini PCIE, Fan, Audio Con - Page B - 31</i>	<i>W370/350ET Click Board - Page B - 50</i>
<i>Panel, Inverter, CRT - Page B - 13</i>	<i>USB Charge, CCD, TPM, Multi-Con - Page B - 32</i>	<i>W370ET Power Switch Board - Page B - 51</i>
<i>VGA PCI-E Interface - Page B - 14</i>	<i>ESATA/USB3.0 Connector - Page B - 33</i>	<i>W350ET Power Switch Board - Page B - 52</i>
<i>VGA Frame Buffer Interface - Page B - 15</i>	<i>Card Reader / LAN RTL8411 - Page B - 34</i>	<i>W370ET LID / VGA LED Board - Page B - 53</i>
<i>VGA Frame Buffer A - Page B - 16</i>	<i>SATA HDD, VLED CON, LID SW - Page B - 35</i>	<i>W350ET LID / VGA LED Board - Page B - 54</i>
<i>VGA Frame Buffer A - Page B - 17</i>	<i>HDMI, RJ45, Audio AMP - Page B - 36</i>	<i>W350ET VGA / WLAN SW Board - Page B - 55</i>
<i>VGA Frame Buffer B - Page B - 18</i>	<i>Audio Codec ALC269 - Page B - 37</i>	<i>POWER ON SEQUENCE - Page B - 56</i>
<i>VGA Frame Buffer B - Page B - 19</i>	<i>KBC ITE IT8518E - Page B - 38</i>	
<i>VGA I/O - Page B - 20</i>	<i>5VS, 3VS, 3.3VM, 1.5VS_CPU - Page B - 39</i>	

Table B - 1  
Schematic  
Diagrams

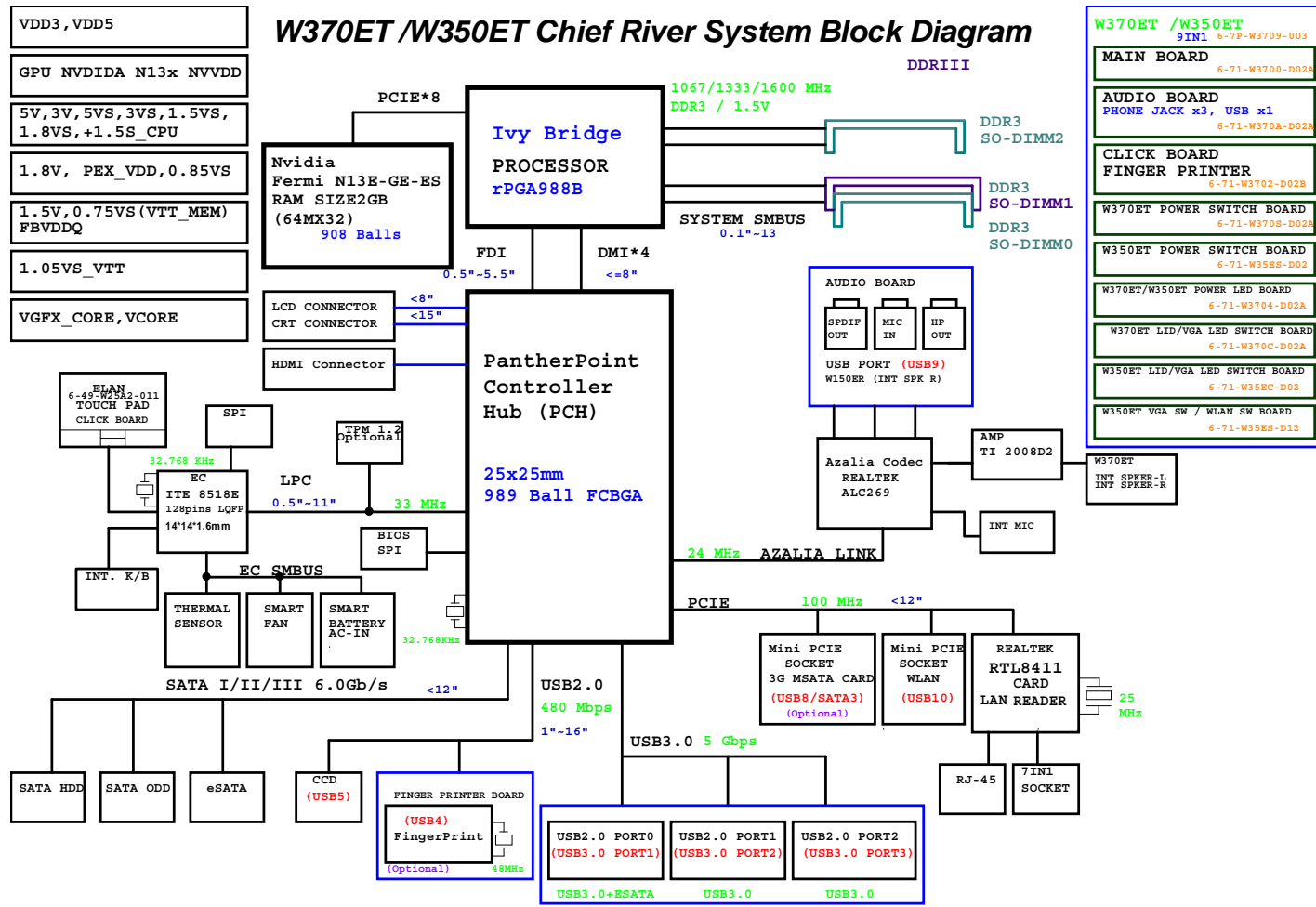


**Version Note**

The schematic diagrams in this chapter are based upon version 6-7P-W3709-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

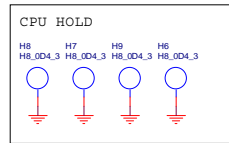
# System Block Diagram

Sheet 1 of 55  
System Block  
Diagram



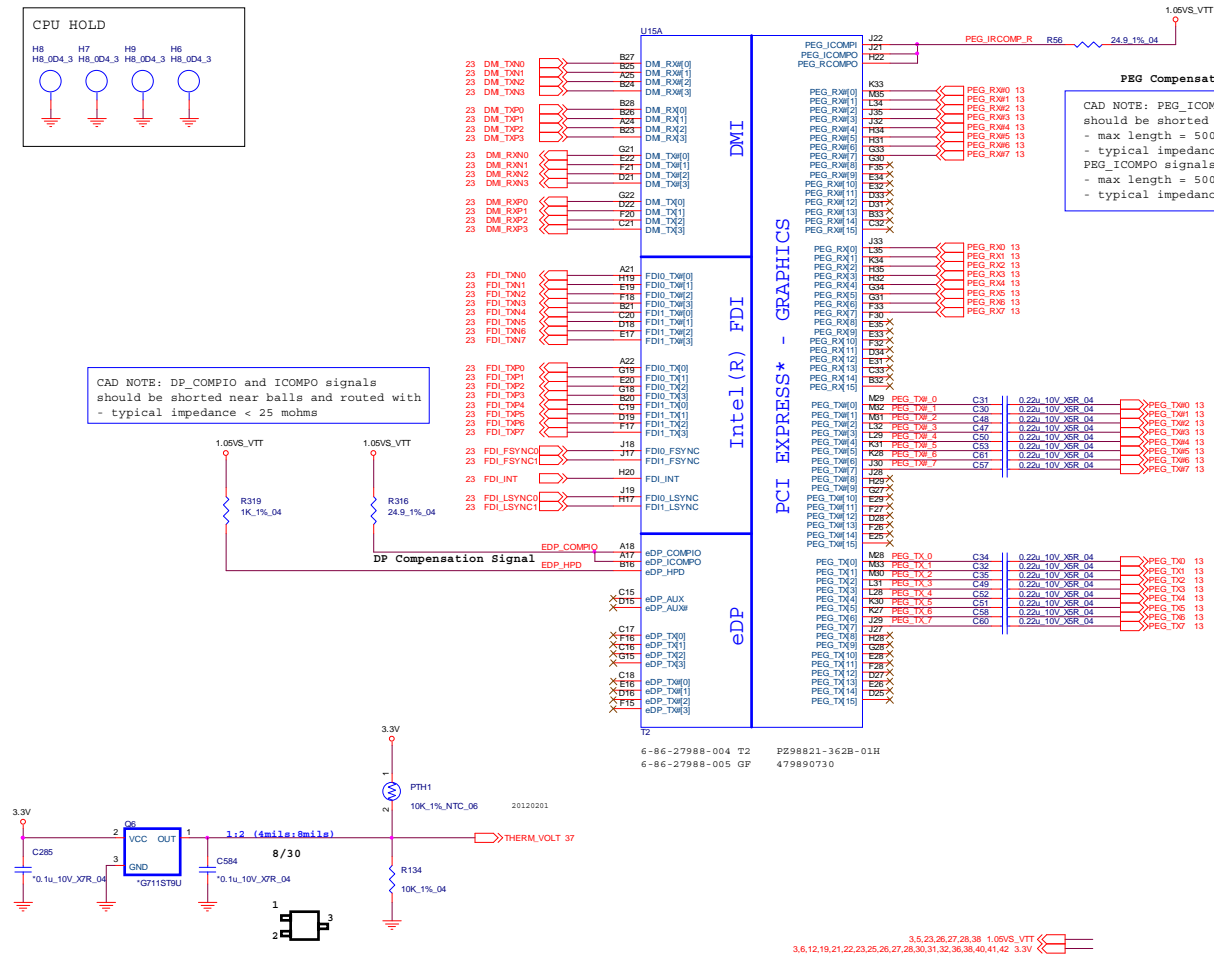
# Ivy Bridge 1/7

## Ivy Bridge Processor 1/7 (DMI, PEG, FDI)



CAD NOTE: DP\_COMPIO and ICOMPO signals should be shorted near balls and routed with - typical impedance < 25 mohms

**PEG Compensation Signal**  
 CAD NOTE: PEG\_ICOMP1 and RCOMP0 signals should be shorted and routed with  
 - max length = 500 mils  
 - typical impedance = 43 mohms  
 PEG\_ICOMPO signals should be routed with  
 - max length = 500 mils  
 - typical impedance = 14.5 mohms



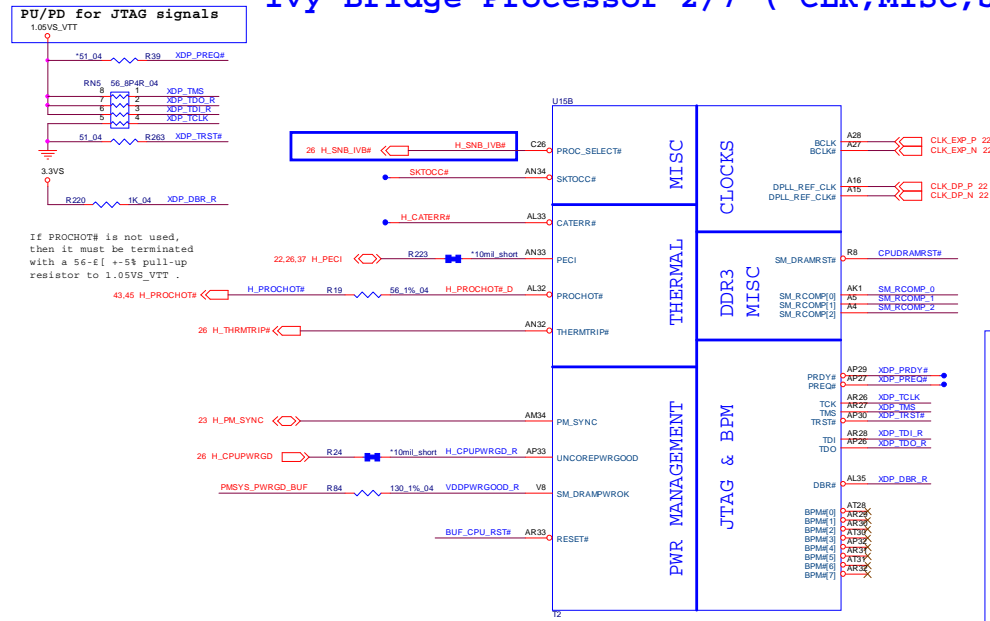
Sheet 2 of 55  
Ivy Bridge 1/7

B.Schematic Diagrams

# Ivy Bridge 2/7

Sheet 3 of 55  
Ivy Bridge 2/7

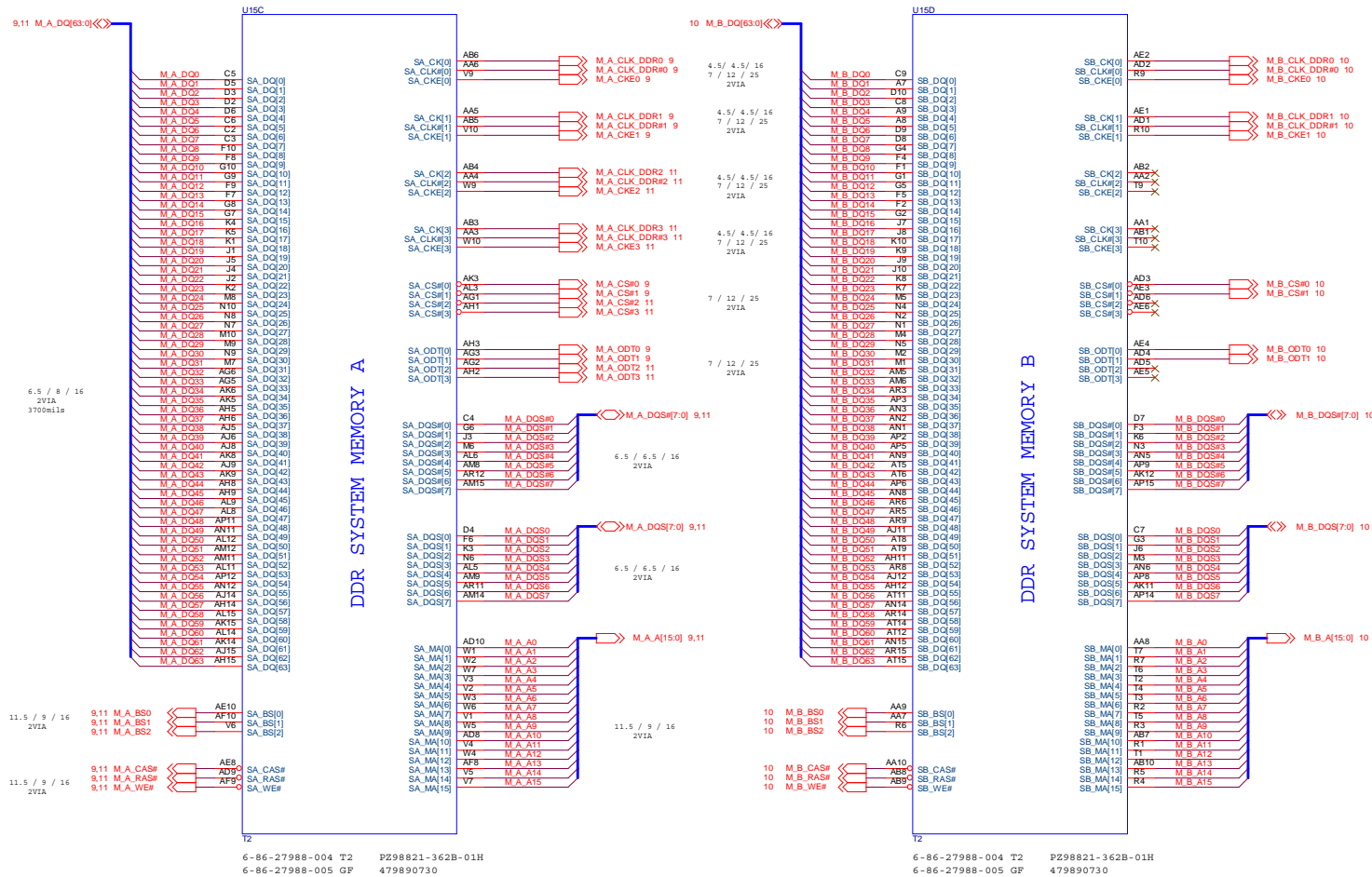
## Ivy Bridge Processor 2/7 ( CLK,MISC,JTAG )



- 6,38,41 1.5VS\_CPU
- 6,9,10,11,28,38,41 1.5V
- 2,5,23,26,27,28,38 1.05VS\_VTT
- 2,6,12,19,21,22,23,25,26,27,29,30,31,32,36,38,40,41,42 3.3V
- 9,10,11,12,21,22,23,24,25,26,27,28,30,31,33,34,35,36,37,38,43,45 3.3VS

# Ivy Bridge 3/7

## Ivy Bridge Processor 3/7 ( DDR3 )



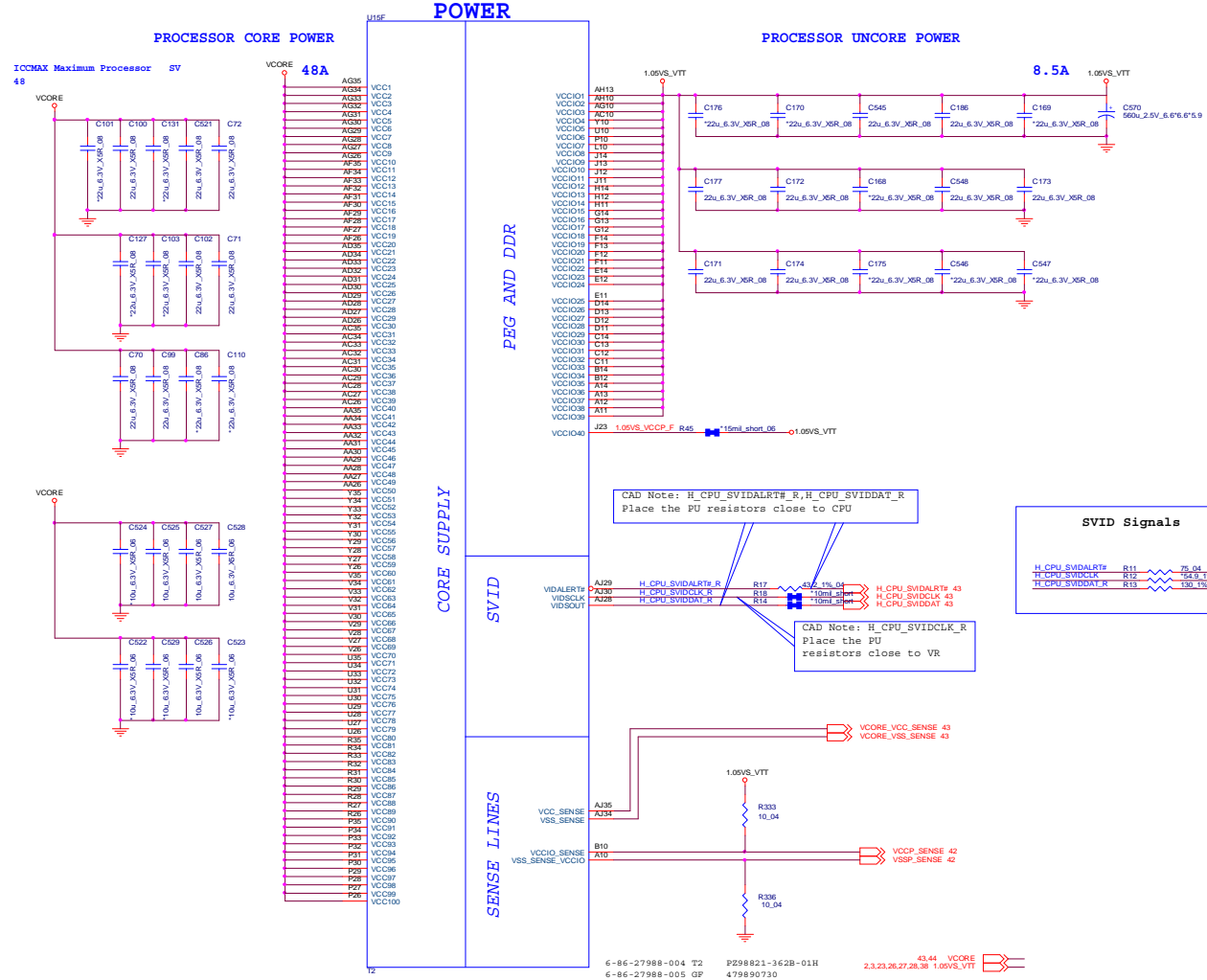
B.Schematic Diagrams

Sheet 4 of 55  
Ivy Bridge 3/7

# Schematic Diagrams

## Ivy Bridge 4/7

### Ivy Bridge Processor 4/7 ( POWER )



Sheet 5 of 55  
Ivy Bridge 4/7

B. Schematic Diagrams

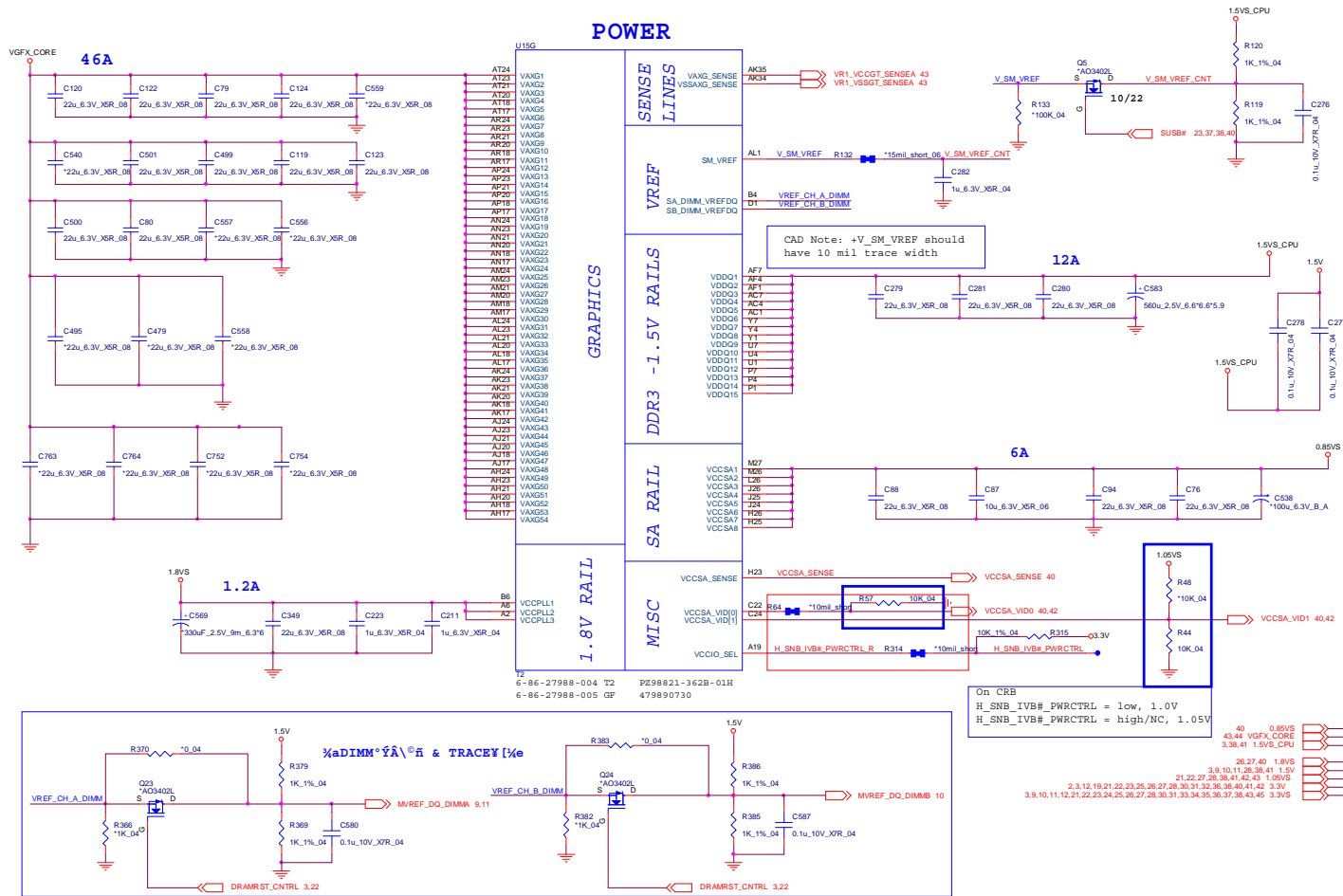


# Ivy Bridge 5/7

## Ivy Bridge Processor 5/7 ( GRAPHICS POWER )

B.Schematic Diagrams

Sheet 6 of 55  
Ivy Bridge 5/7

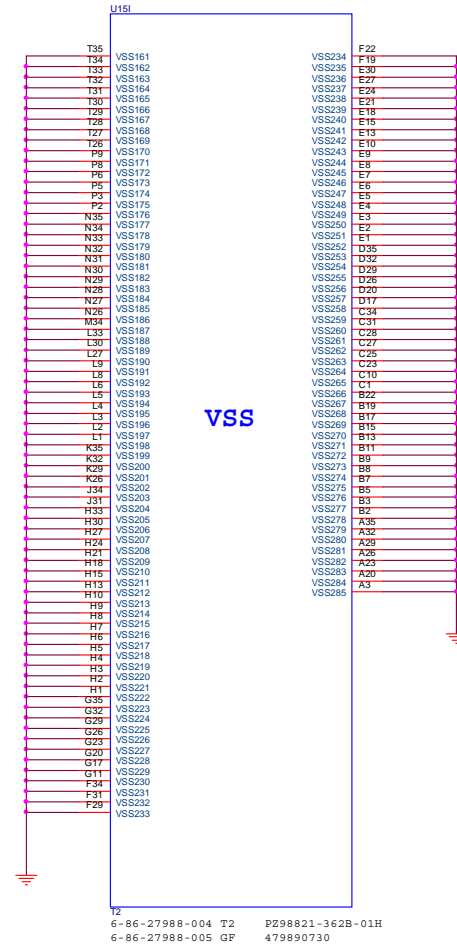
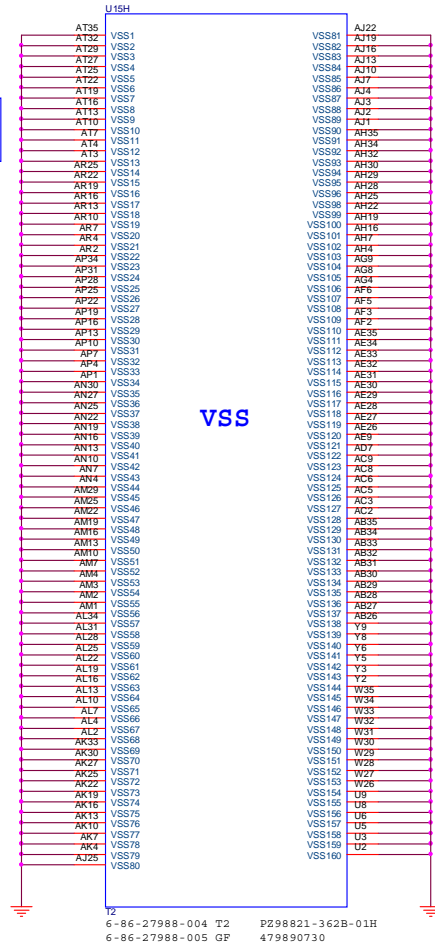


# Ivy Bridge 6/7

## Ivy Bridge Processor 6/7 ( GND )

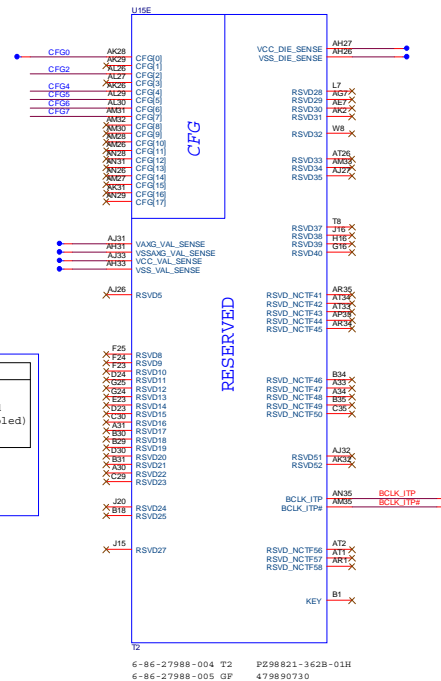
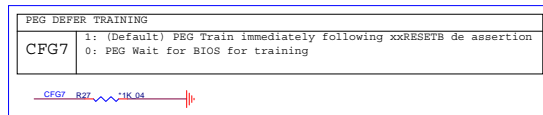
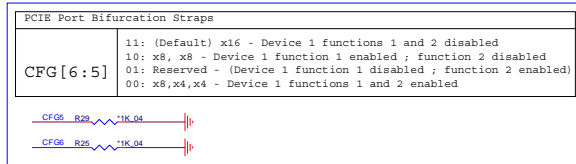
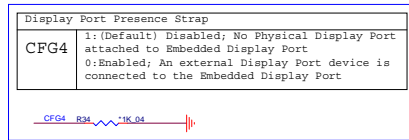
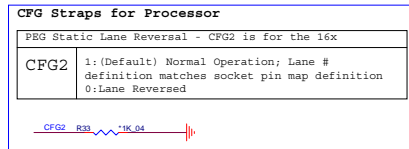
Sheet 7 of 55  
Ivy Bridge 6/7

CAD Note: 0 ohm resistor  
should be placed close  
to CPU



# Ivy Bridge 7/7

## Ivy Bridge Processor 7/7 ( RESERVED )



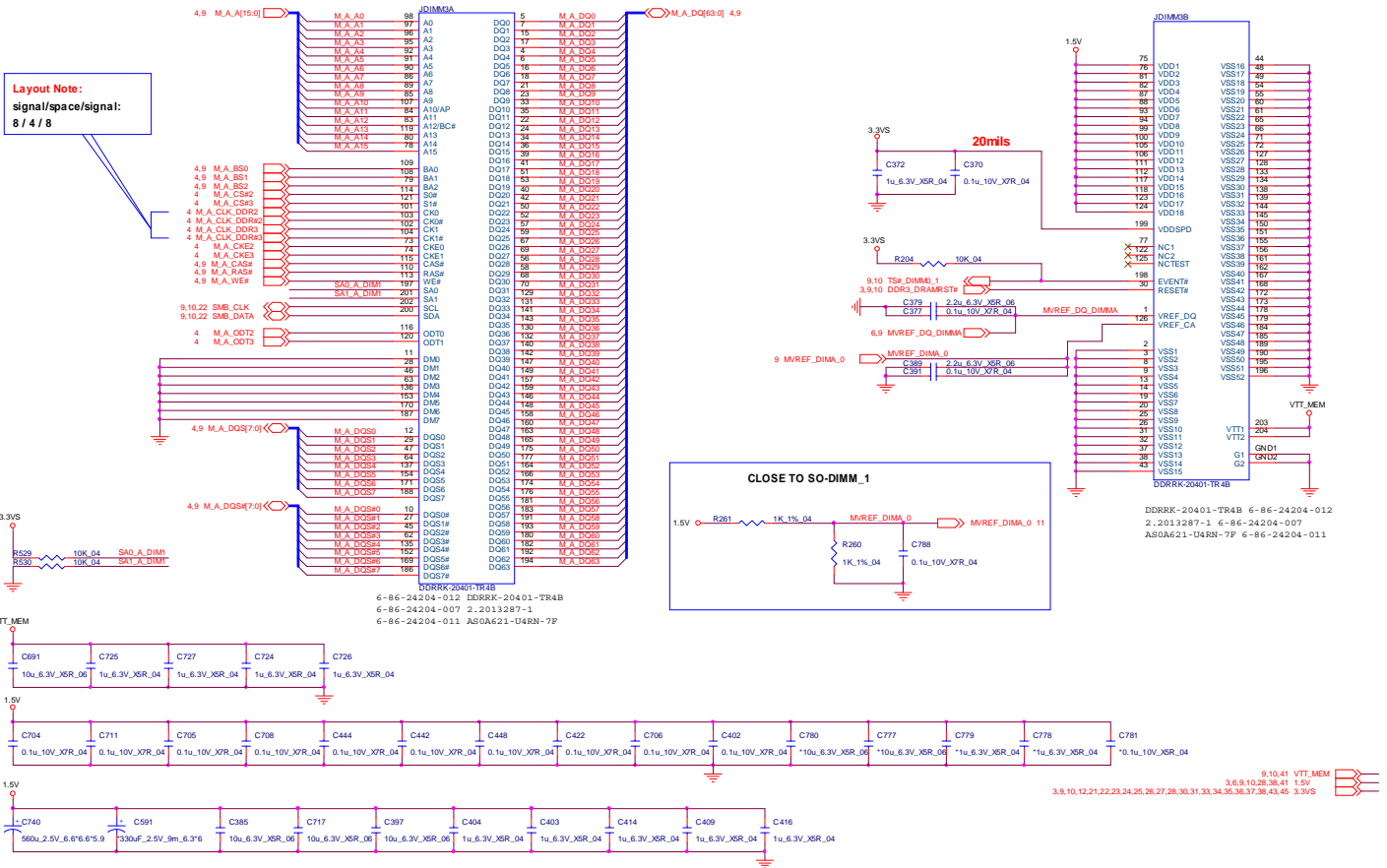




# DDR3 SO-DIMM A\_1

## SO-DIMM A\_1

CHANGE TO STANDARD



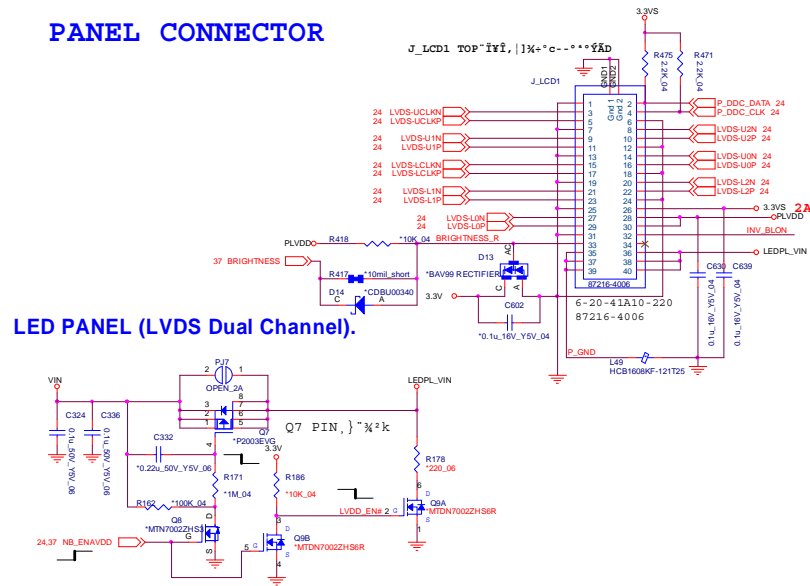
B.Schematic Diagrams

Sheet 11 of 55  
DDR3 SO-DIMM  
A\_1

Layout Note:  
signal/space/signal:  
8 / 4 / 8

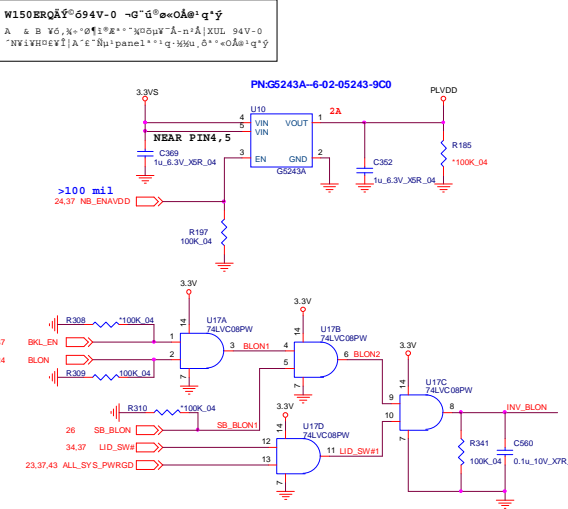
# Panel, Inverter, CRT

## PANEL CONNECTOR



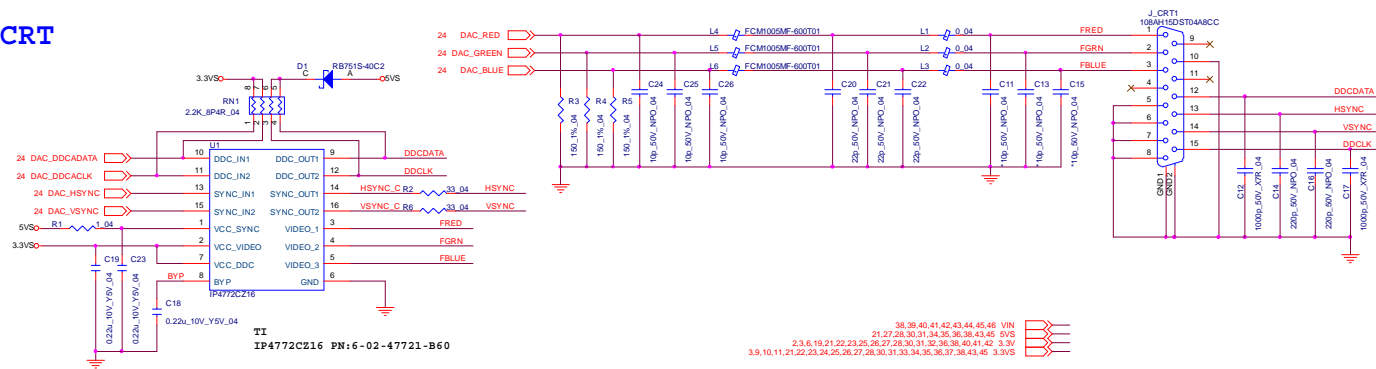
## LED PANEL (LVDS Dual Channel)

## PANEL POWER



Sheet 12 of 55  
Panel, Inverter,  
CRT

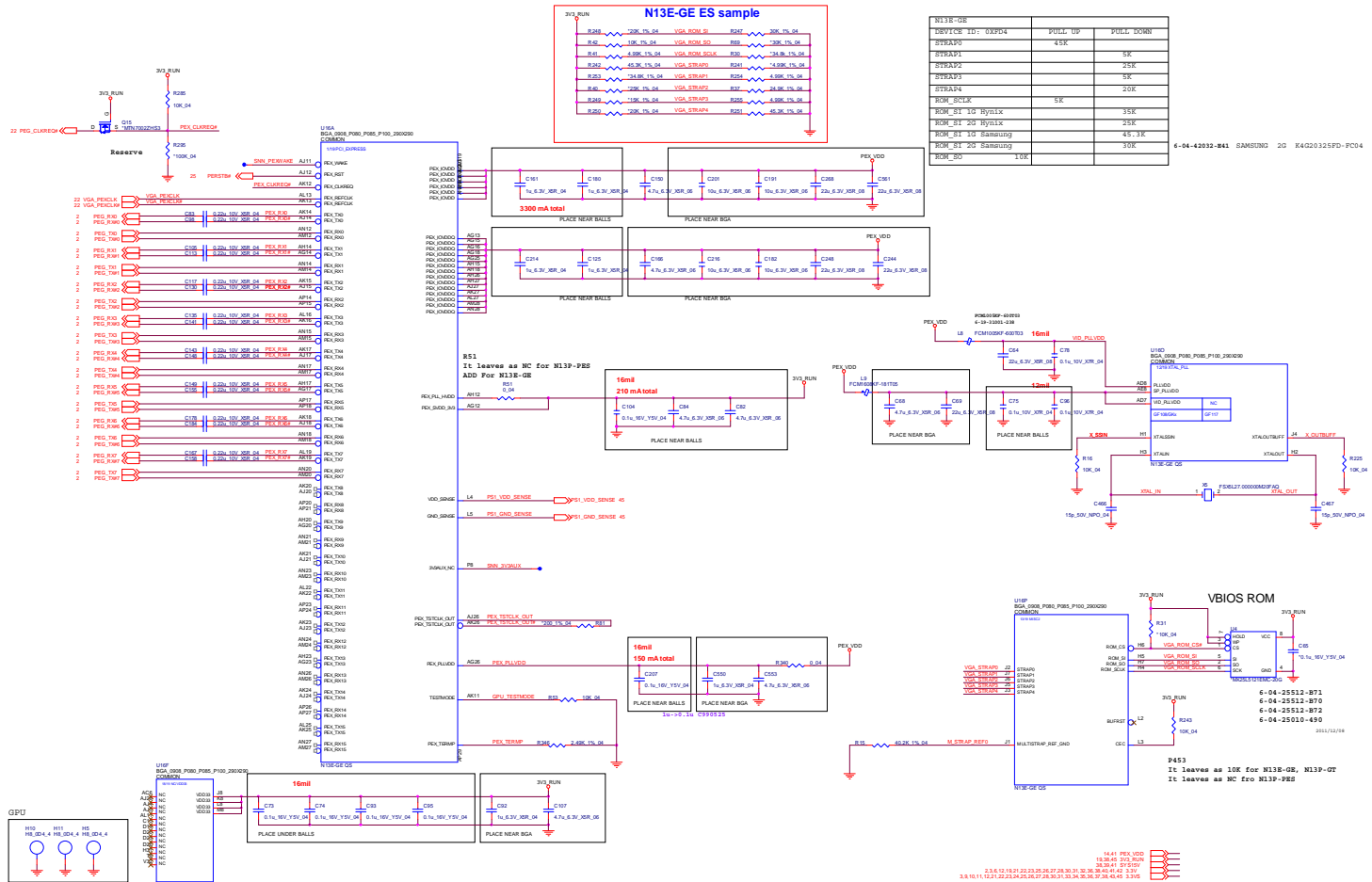
## CRT



B.Schematic Diagrams

# VGA PCI-E Interface

Sheet 13 of 55  
VGA PCI-E  
Interface

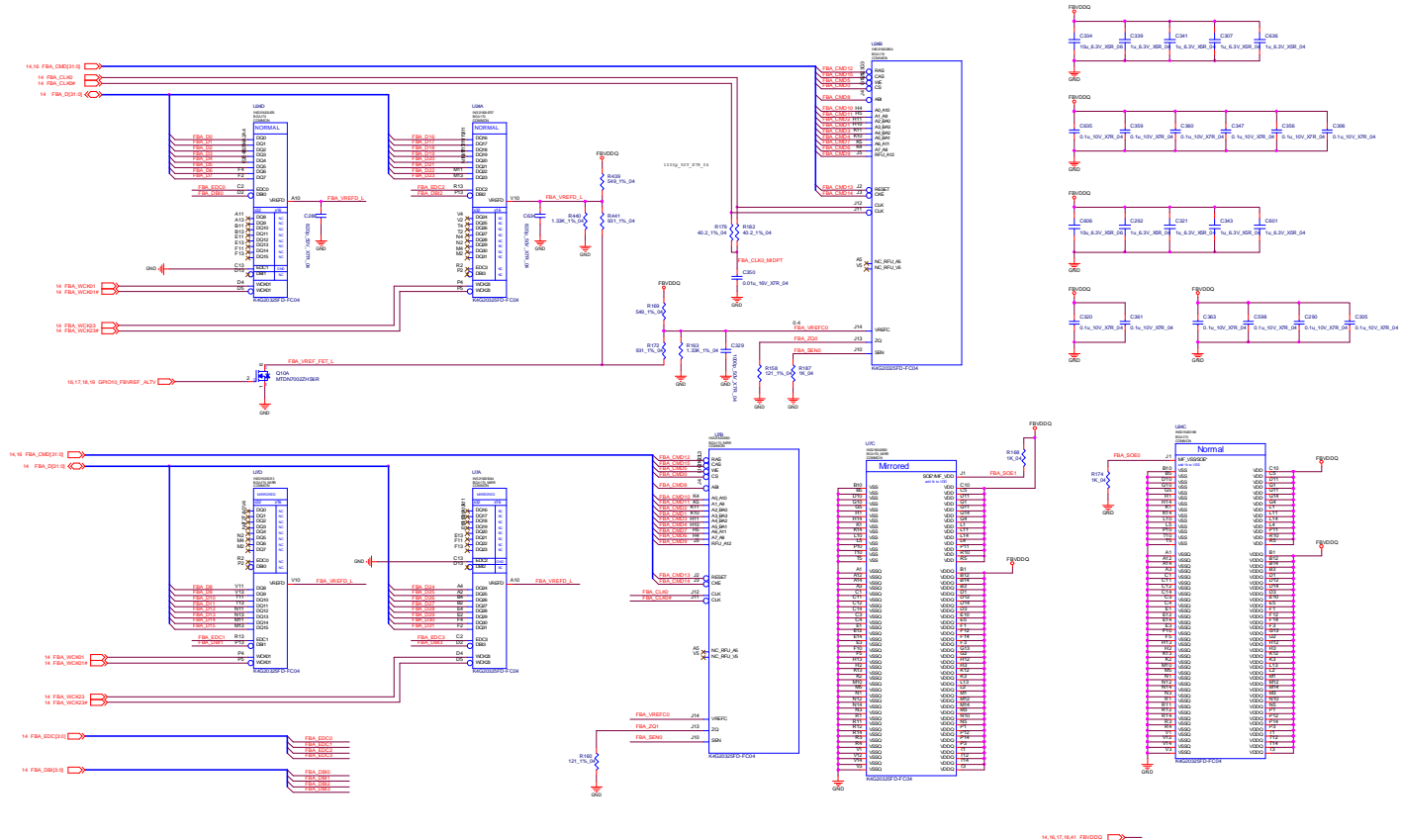






# VGA Frame Buffer A

Sheet 15 of 55  
VGA Frame Buffer  
A







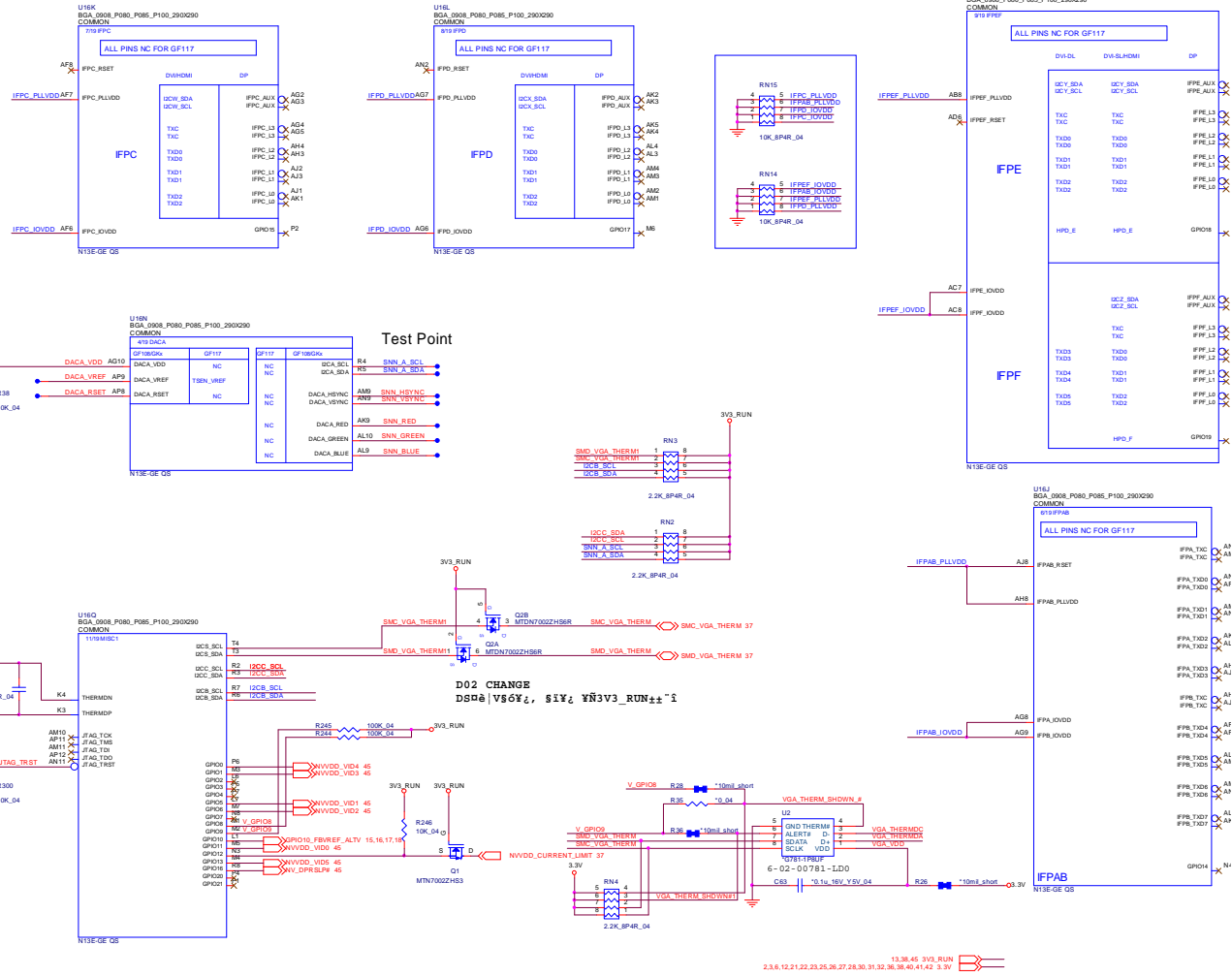


# Schematic Diagrams

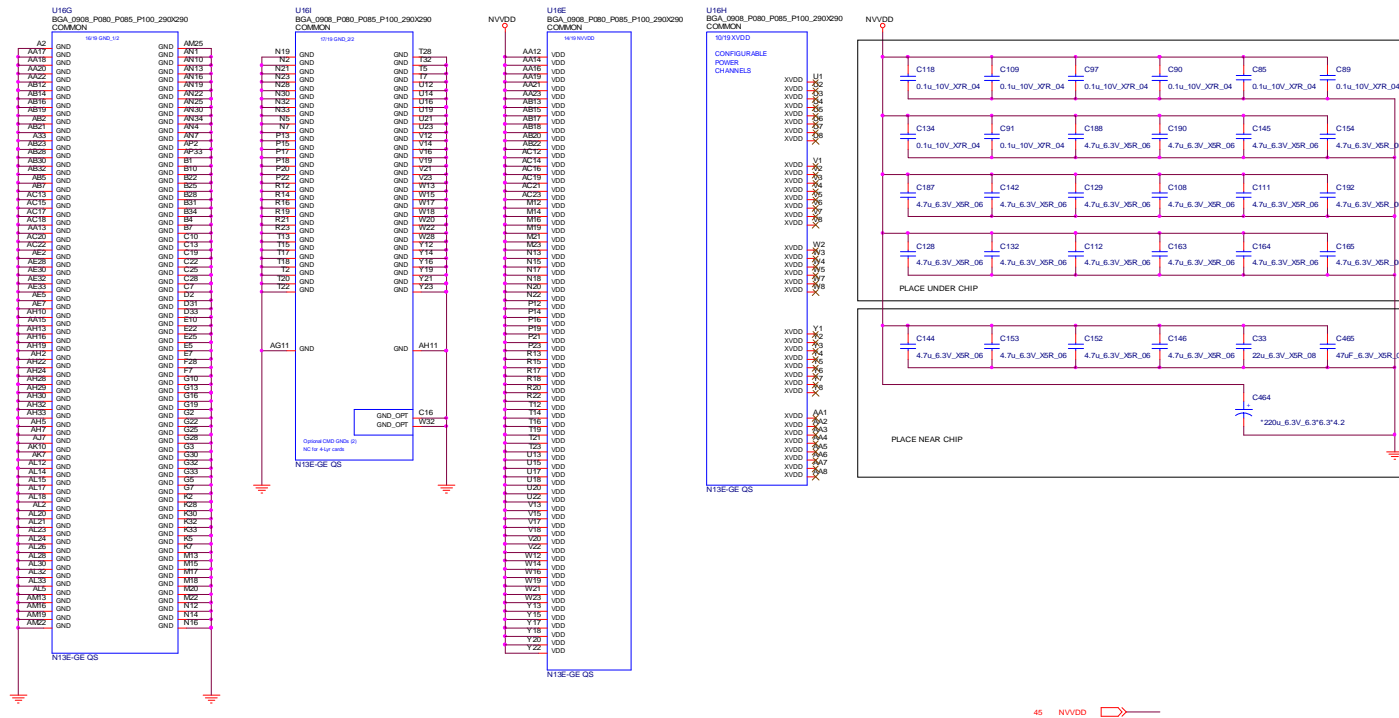
## VGA I/O

B.Schematic Diagrams

Sheet 19 of 55  
VGA I/O



# VGA NVDD Decoupling



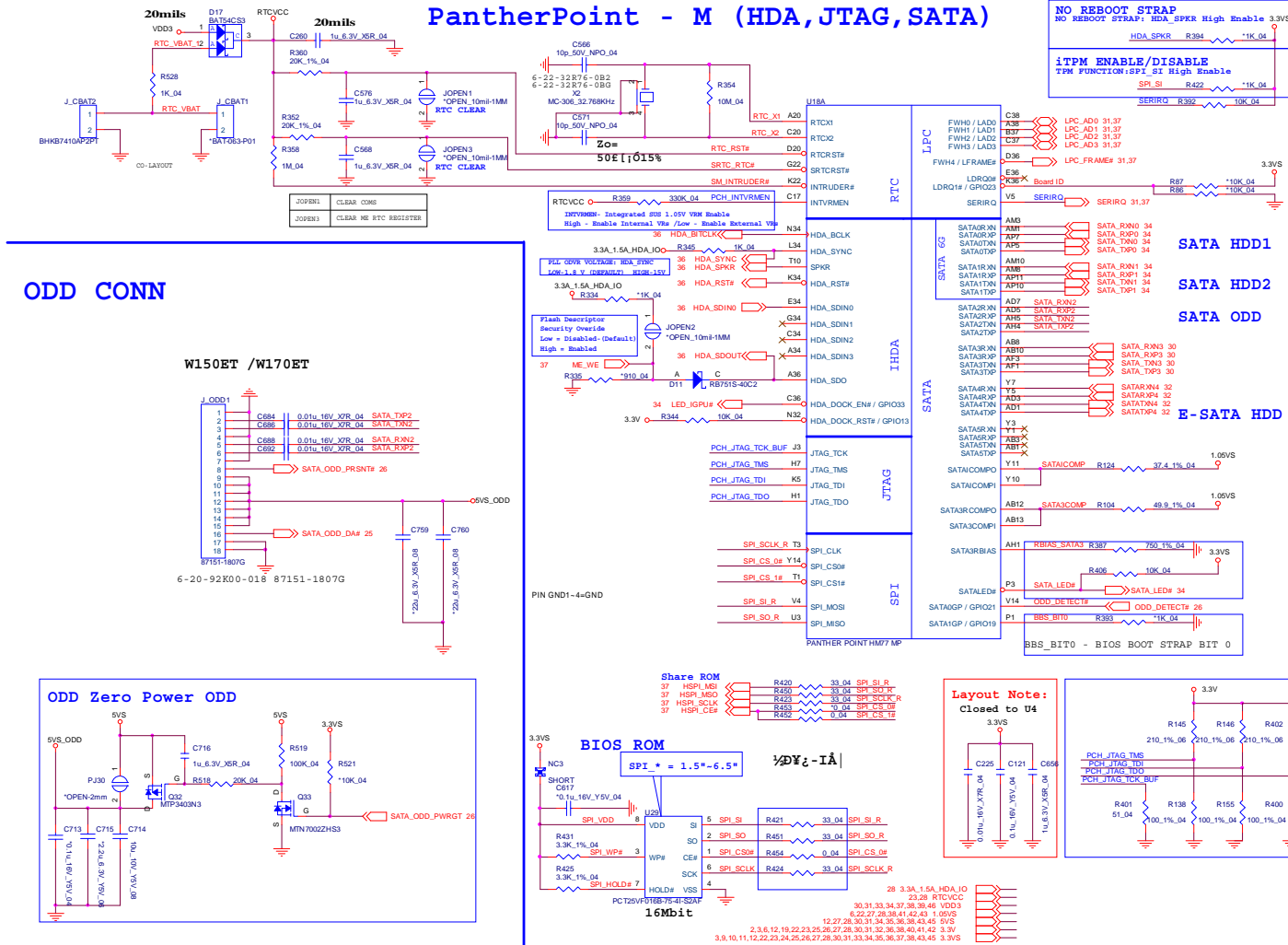
Sheet 20 of 55  
VGA NVDD  
Decoupling

B.Schematic Diagrams

# PantherPoint M 1/9

B.Schematic Diagrams

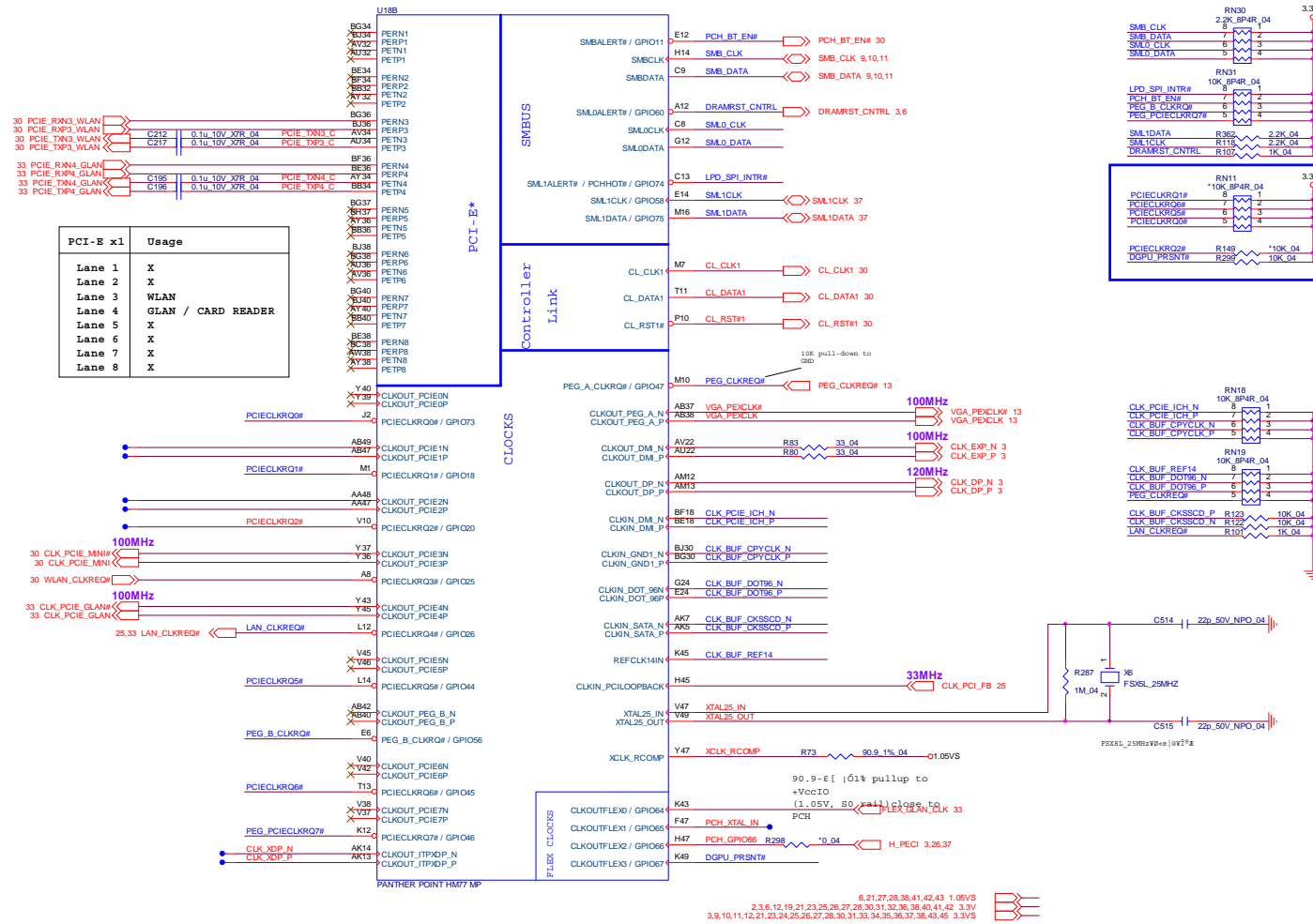
Sheet 21 of 55  
PantherPoint M 1/9





# PantherPoint M 2/9

## PantherPoint - M (PCI-E, SMBUS, CLK)

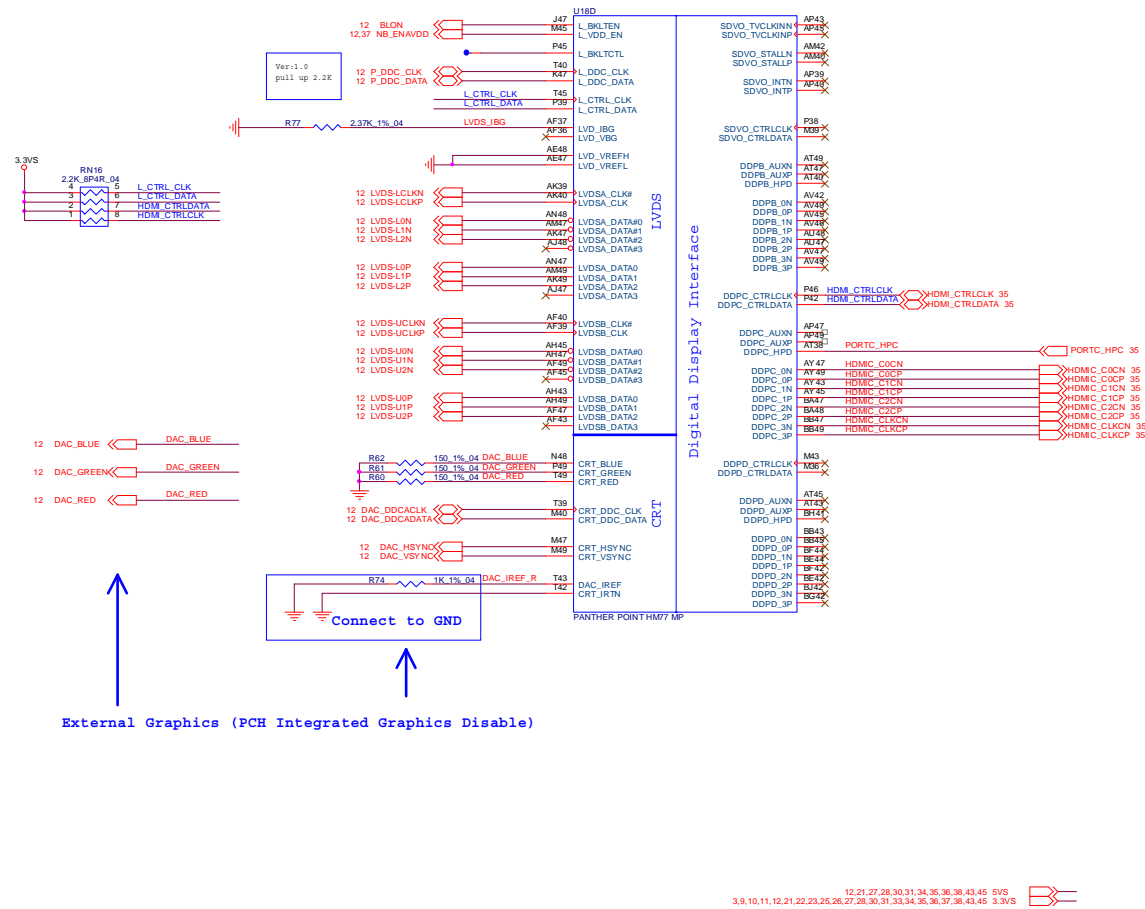


Sheet 22 of 55  
PantherPoint M 2/9



# PantherPoint M 4/9

## PantherPoint -M (LVDS,DDI)



Sheet 24 of 55  
PantherPoint M 4/9

# PantherPoint M 5/9

## PantherPoint -M (PCI,USB,NVRAM)

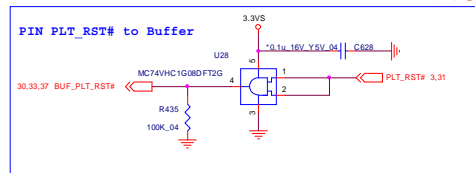
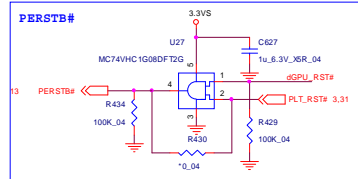
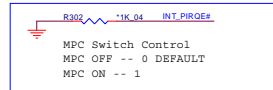
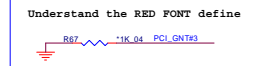
B.Schematic Diagrams

Sheet 25 of 55  
PantherPoint M 5/9

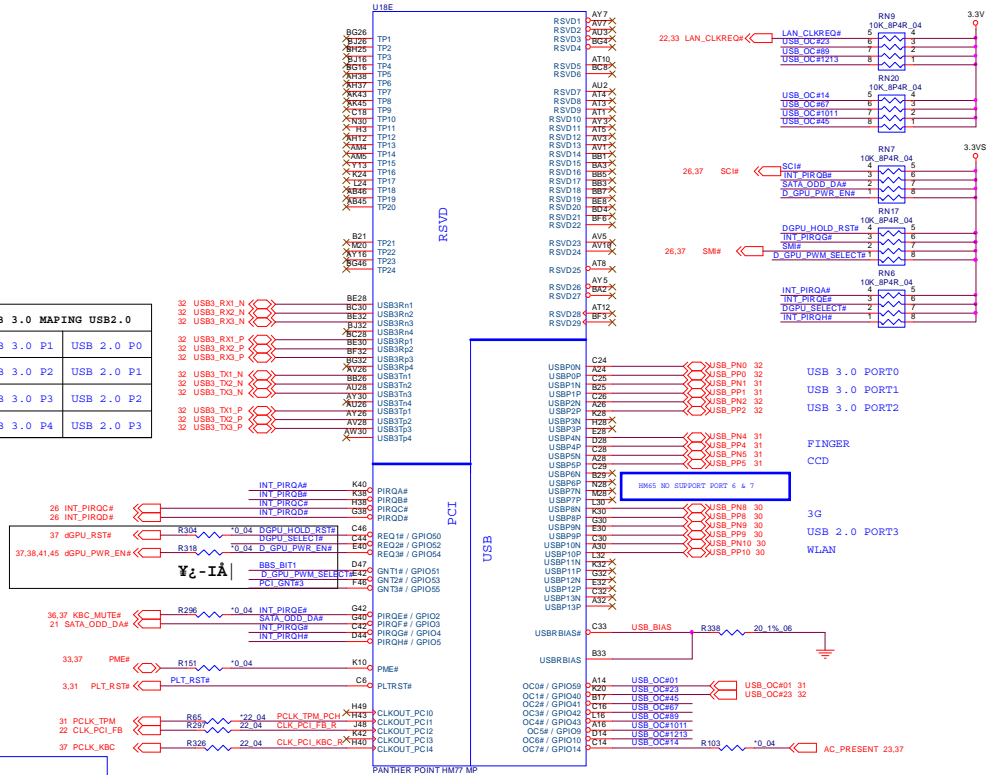
Boot BIOS Strap		
BBS_BIT1	BBS_BIT0	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI



Flash Descriptor security override strap	
PCI_GNT#3	LOW = PCI_GNT#3 swap override HIGH = Default



USB 3.0 MAPPING USB2.0	
USB 3.0 P1	USB 2.0 P0
USB 3.0 P2	USB 2.0 P1
USB 3.0 P3	USB 2.0 P2
USB 3.0 P4	USB 2.0 P3



2,3,6,12,19,21,22,23,26,27,28,30,31,32,36,38,40,41,42 3.3V  
3,9,10,11,12,21,22,23,24,26,27,28,30,31,33,34,35,36,37,38,43,45 3.3VS



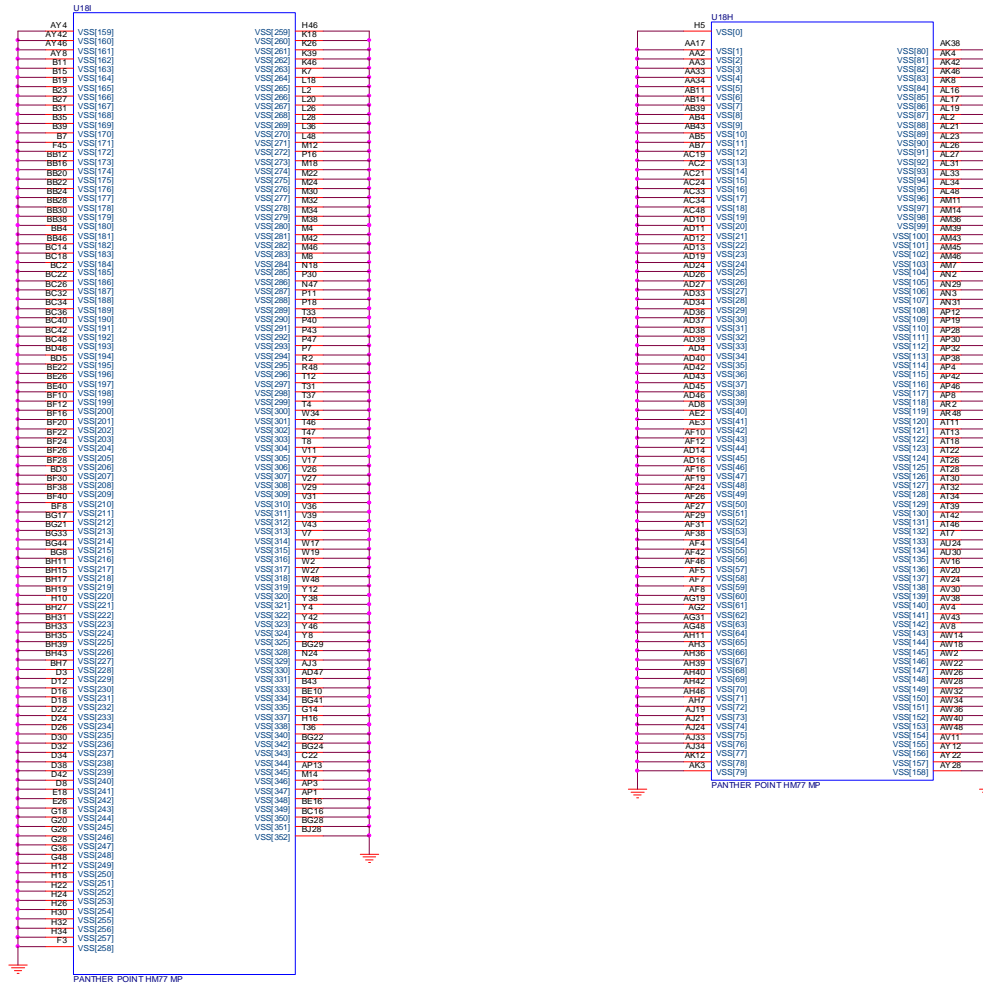




# PantherPoint M 9/9

Sheet 29 of 55  
PantherPoint M 9/9

PantherPoint -M (GND)



Voltage Rail	Voltage	S0	Icmax	Current (A)
V_CPU_IO	1.05	1		1 (mA)
VSRFP	5	1		1 (mA)
VSRFP_Sus	5	1		1 (mA)
Vcc3_3	3.3	3.3	0.266	
VccADAC3	1.05	1		1 (mA)
VccADPLLA	1.05	0.08		
VccADPLLB	1.05	0.08		
VccCore	1.05	1.3		
VccDMI	1.1	0.042		
VccIO	1.05	2.925		
VccASW	1.05	1.01		
VccSPI	3.3	0.020		
VccDSW3_3	3.3	2 (mA)		
VccDFTRM	1.8	0.19		
VccBus3_3	3.3	0.097		
VccBusHDA	3.3	1 (mA)		
VccVRM	1.5	0.16		
VccCLKDMI	1.05	0.02		
VccSSC	1.05	0.095		
VccDIFFCLKN	1.05	0.055		
VccALVDS	3.3	1 (mA)		
VccTX_LVDS	1.8	0.06		

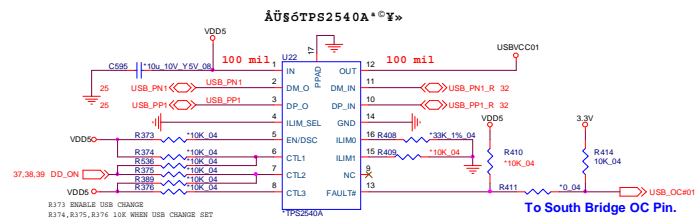




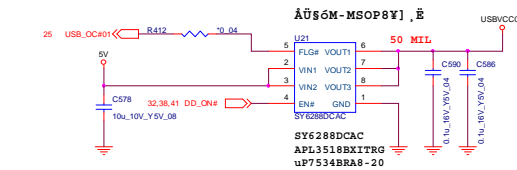
# USB Charge, CCD, TPM, Multi-Con

Sheet 31 of 55  
USB Charge, CCD,  
TPM, Multi-Con

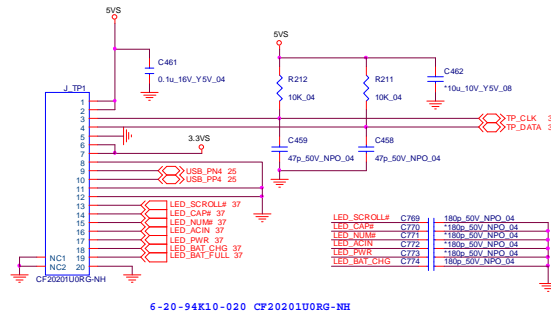
## USB Charge PORT



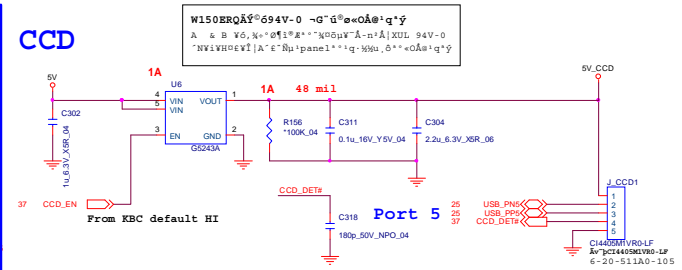
Co-lay



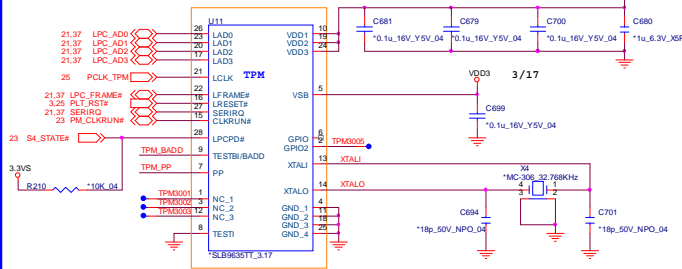
## CLICK CONN



## CCD



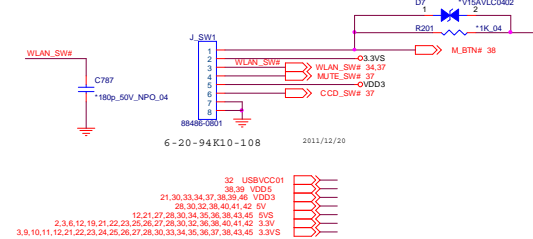
## TPM 1.2



Asserted before entering S3  
LPC reset timing:  
LPCPD# inactive to LRST# inactive 32-96us

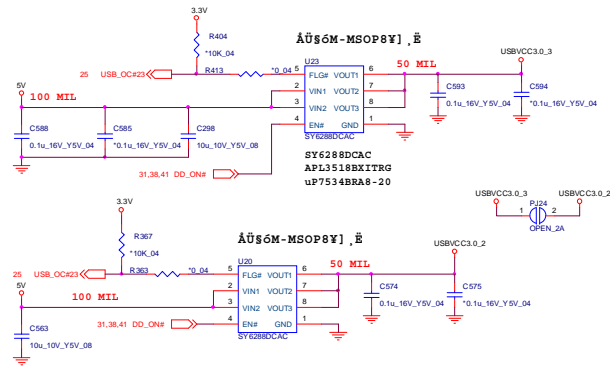
TPM_PP	HI: ACCESS LOW: NORMAL ( Internal PD)
TPM_BADD	HI: 4E' 4F H LOW: 2E' 2F H

## FOR POWER SWITCH BOARD

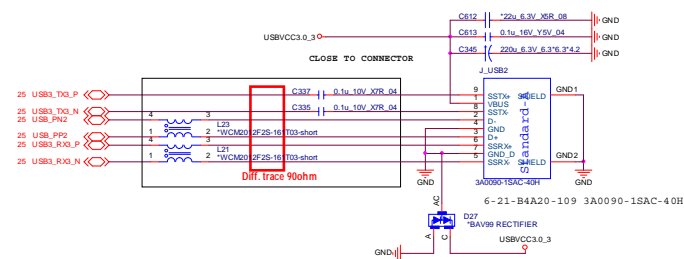


# ESATA/USB3.0 Connector

## USB POWER SWITCH

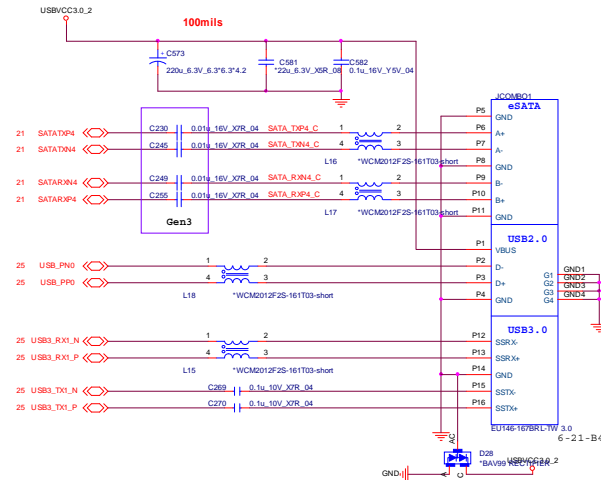


## USB2.0 PORT (PORT2) USB3.0 PORT (PORT3)

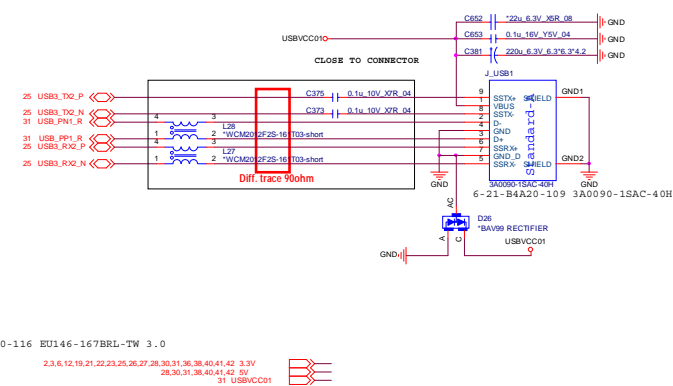


Sheet 32 of 55  
ESATA/USB3.0  
Connector

## ESATA+USB3.0 USB2.0 PORT (PORT0) USB3.0 PORT (PORT1)



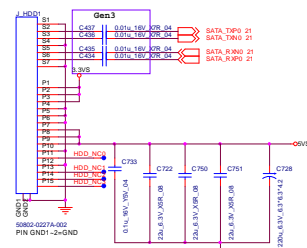
## USB2.0 PORT (PORT1) Debug USB3.0 PORT (PORT2) USB2.0 Charge Function



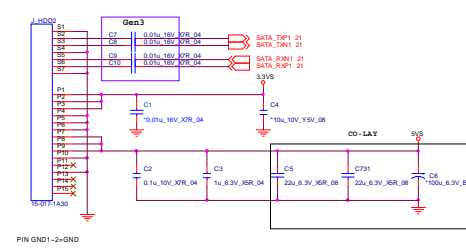


# SATA HDD, VLED CON, LID SW

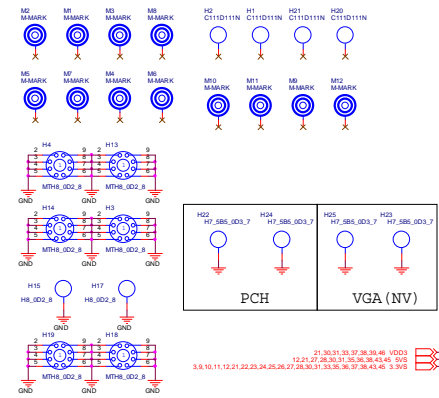
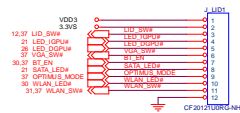
HDD CONNECT1 (MASTER)



HDD CONNECT2 (SLAVE)



LID SWITCH  
W370ET W350ET LID / VGA LED CON



Sheet 34 of 55  
SATA HDD, VLED  
CON, LI DSW

B.Schematic Diagrams

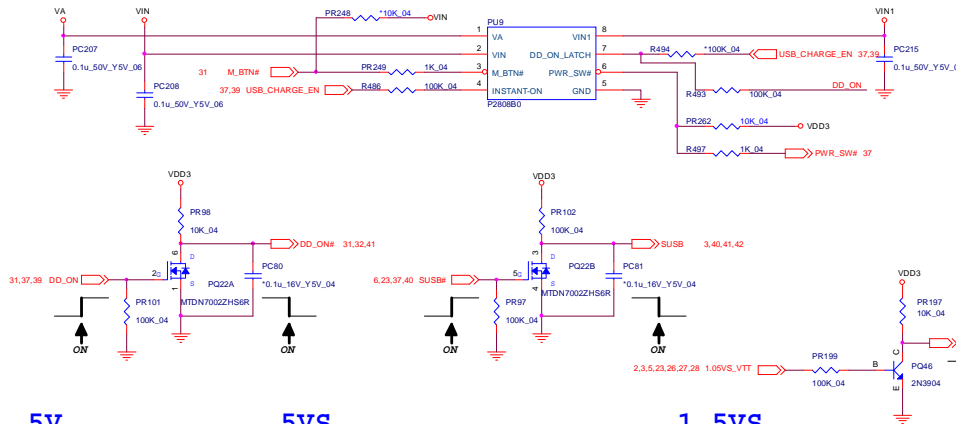




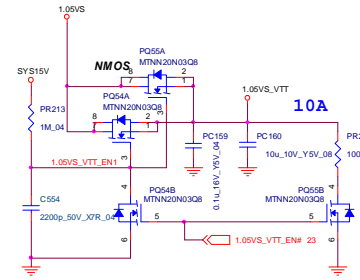




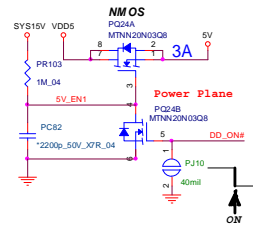
# 5VS, 3VS, 3.3VM, 1.5VS\_CPU



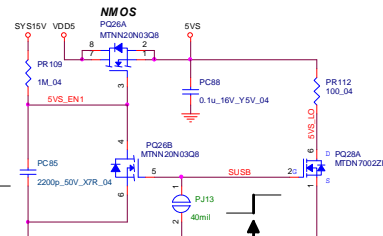
1.05VS\_VTT



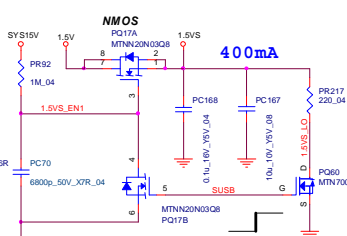
5V



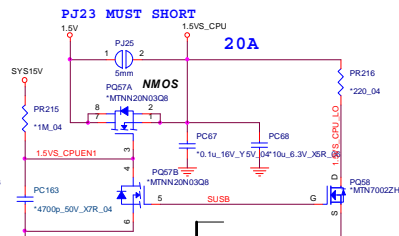
5VS



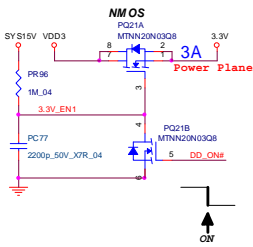
1.5VS



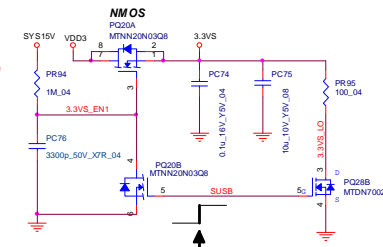
1.5VS\_CPU



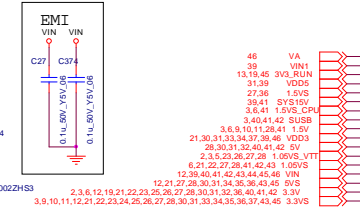
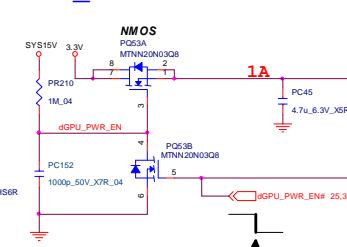
3.3V



3.3VS

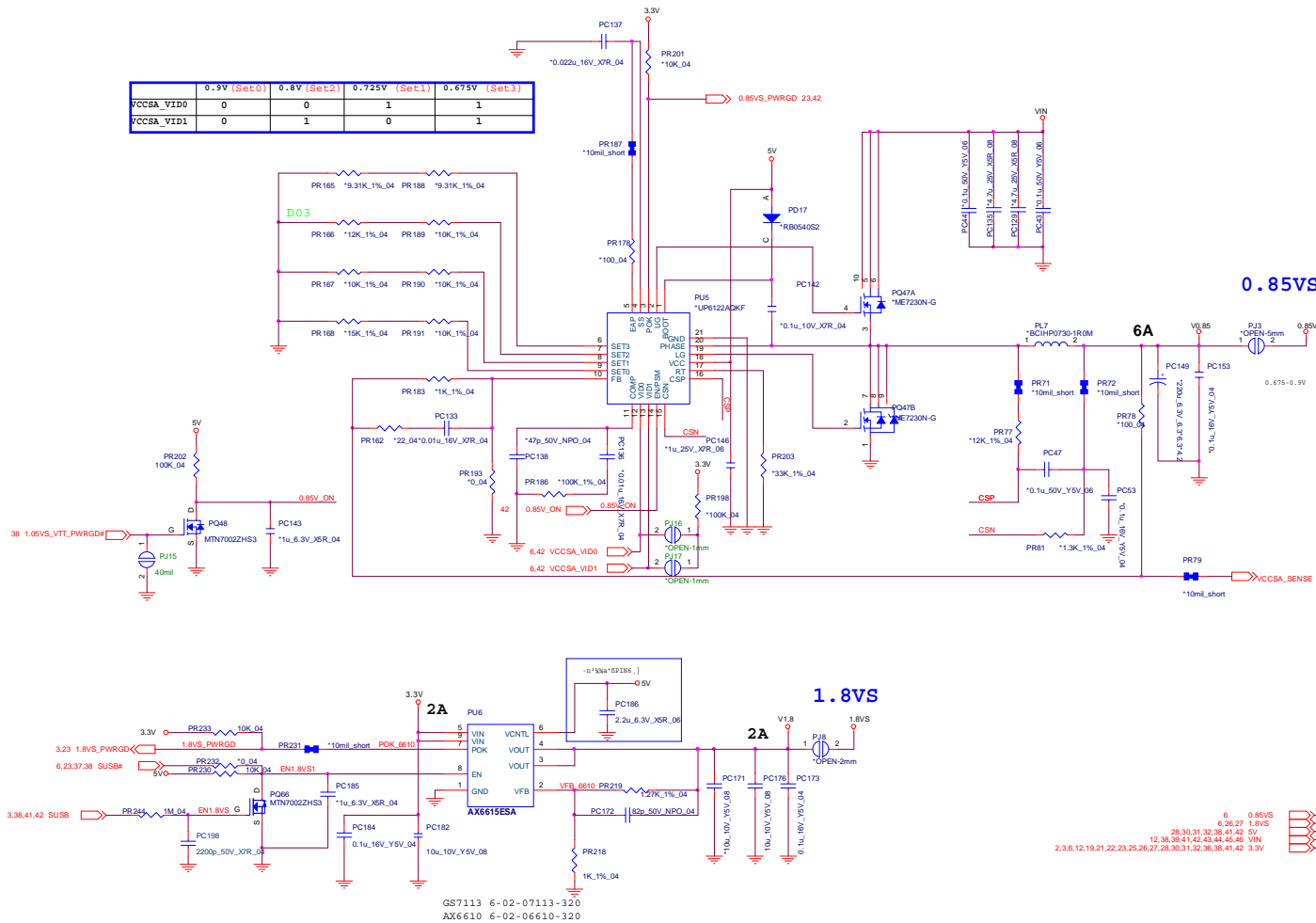


3V3\_RUN





# Power 0.85VS, 1.8VS



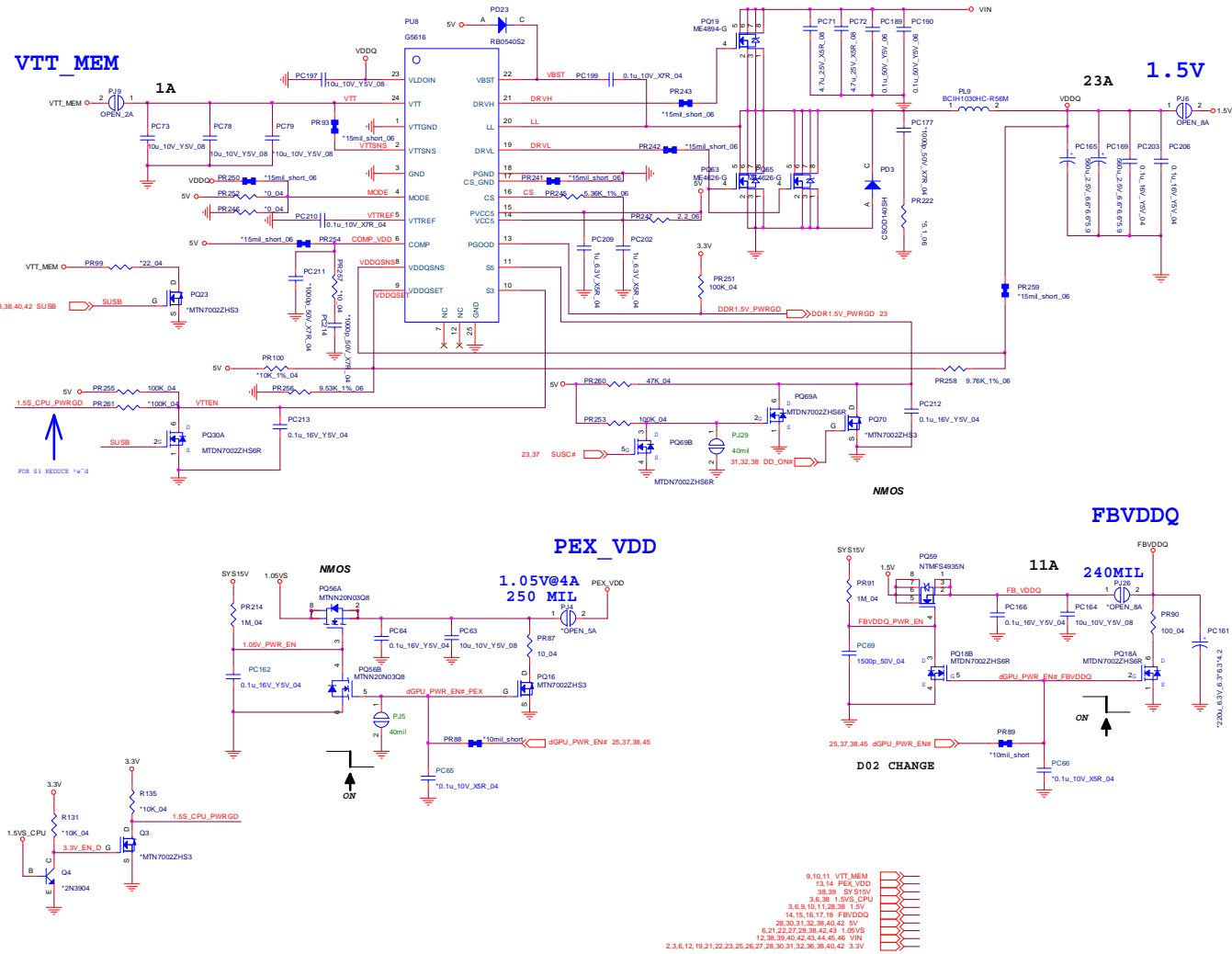
Sheet 40 of 55  
Power 0.85VS,  
1.8VS

# Schematic Diagrams

## Power 1.5/0.75V/PEX\_VDD

B.Schematic Diagrams

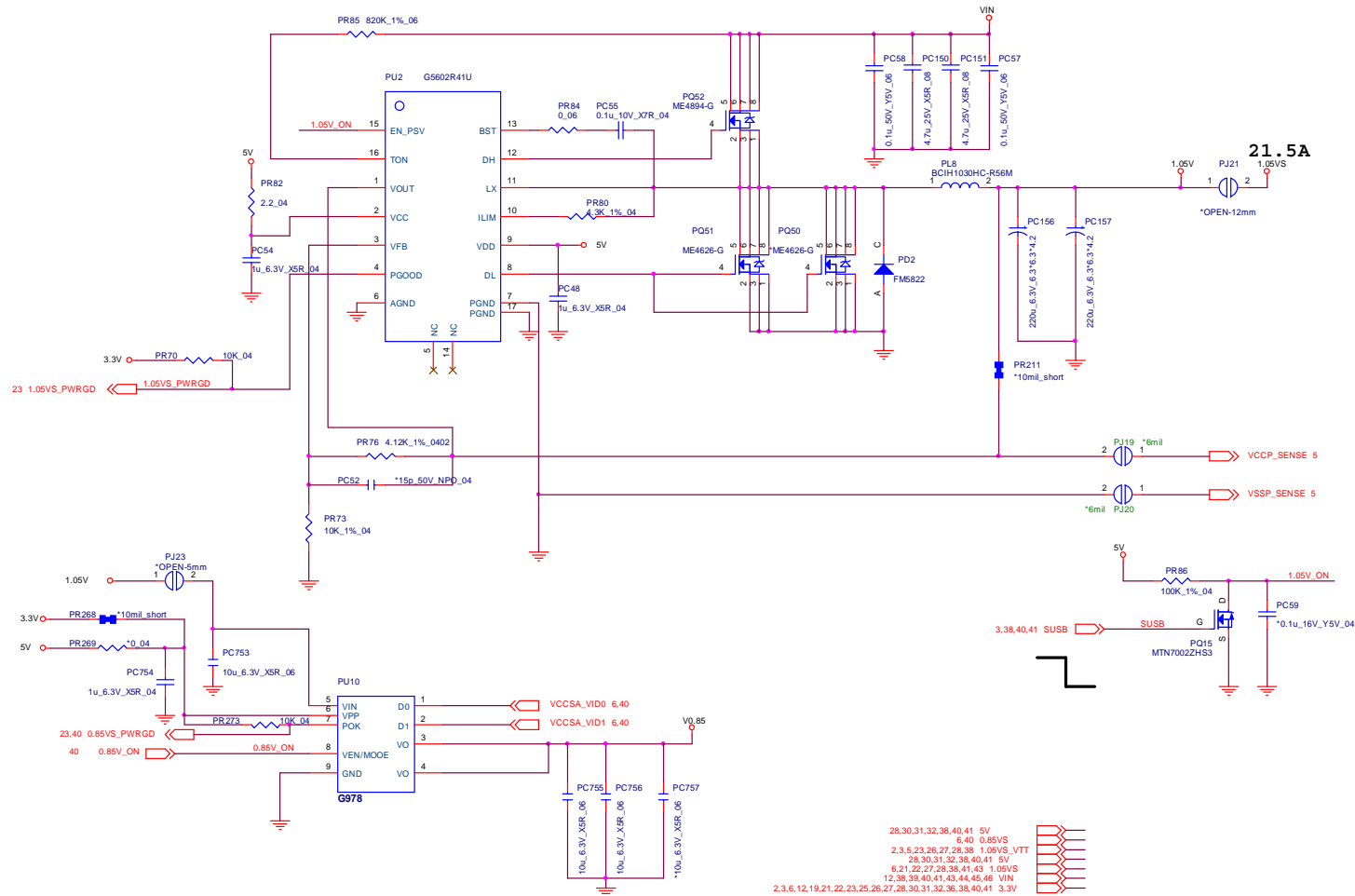
Sheet 41 of 55  
Power 1.5/0.75V/  
PEX\_VDD



# Power 1.05VS, 0.85VS

B.Schematic Diagrams

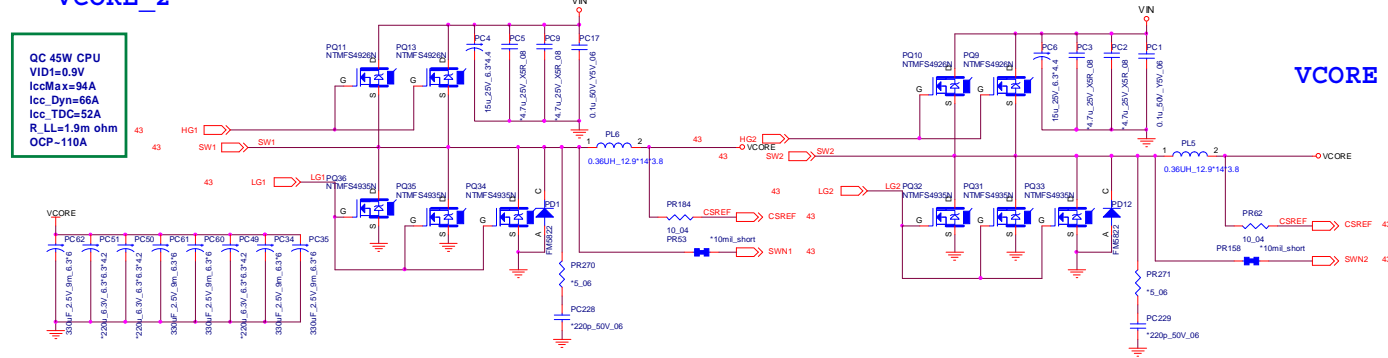
Sheet 42 of 55  
 Powe 1.05VS/  
 0.85VS





# Power V-Core 2

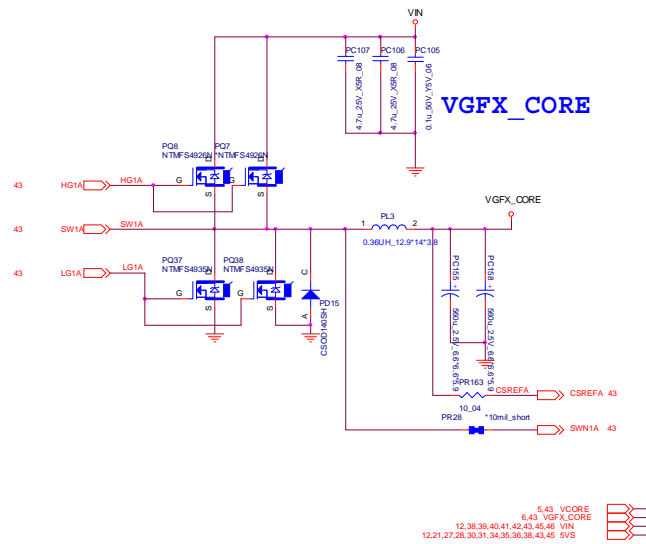
VCORE\_2



Sheet 44 of 55  
 Power V-Core 2

VGFX\_CORE

**QC 45W GT2**  
 VID=1.23V  
 IccMax=25A  
 Icc\_Dyn=37A  
 Icc\_TDC=38A  
 R\_LL=3.9m ohm  
 OCP=30A

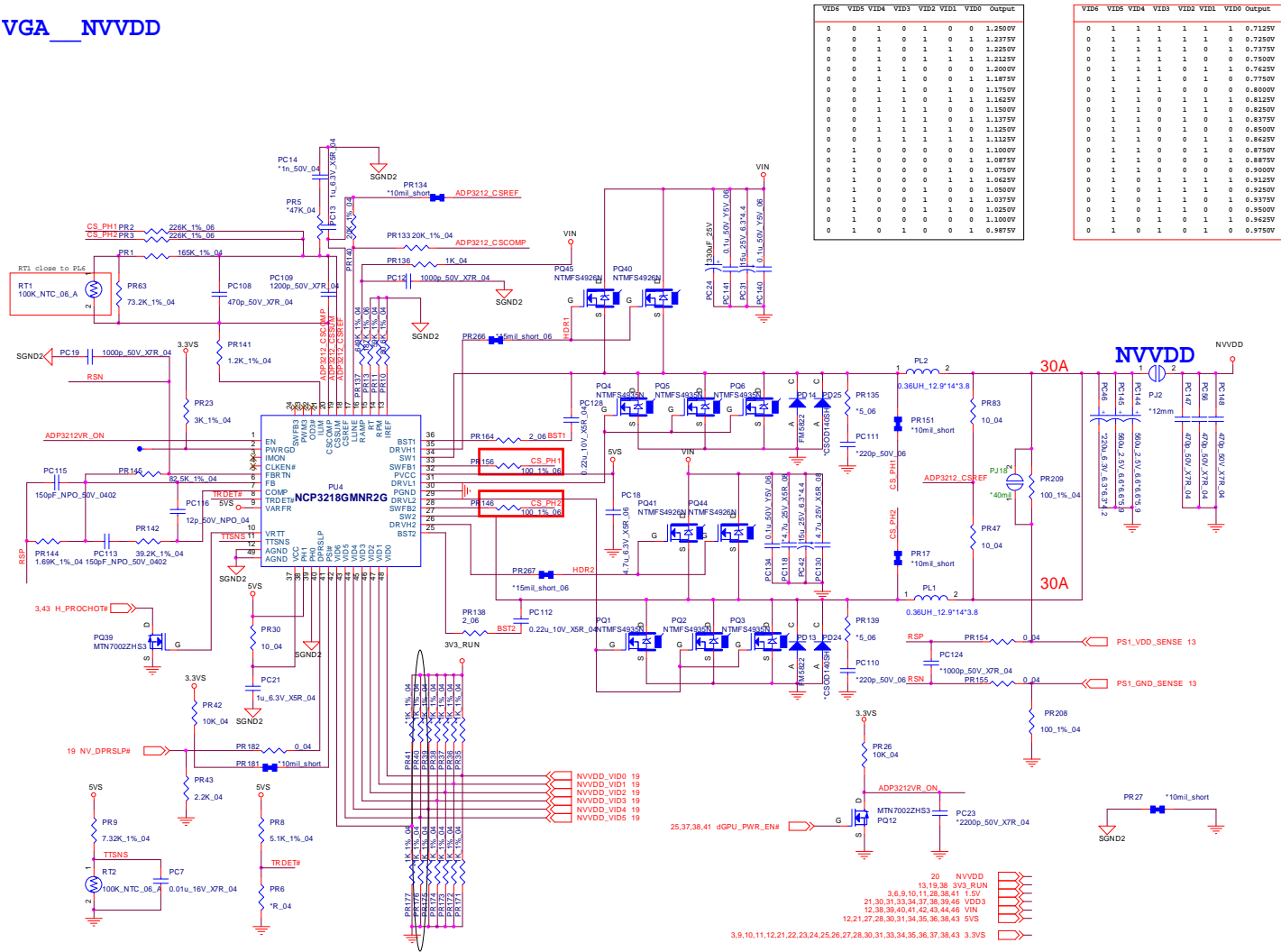


B.Schematic Diagrams

# VGA NVVDD

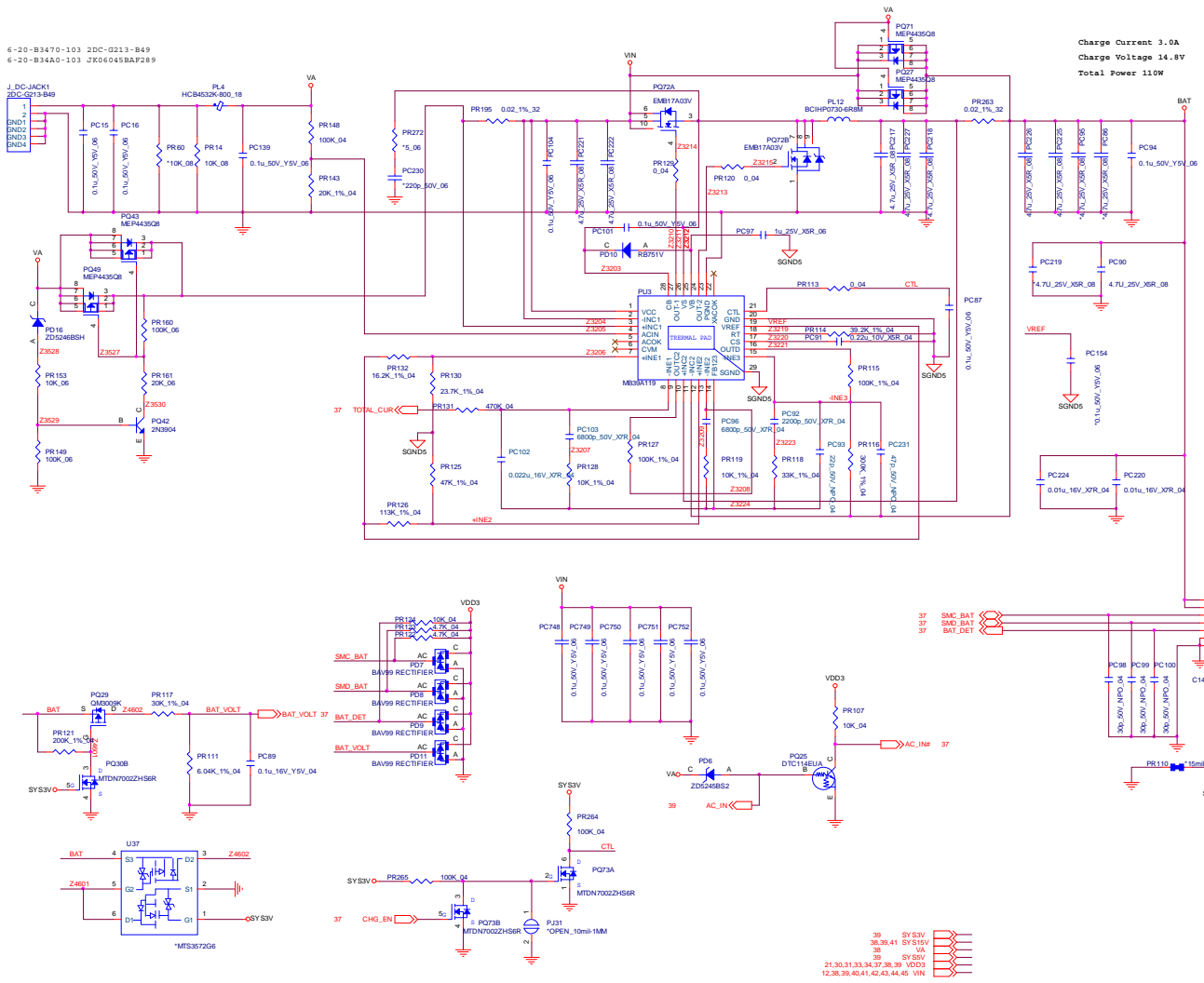
Sheet 45 of 55  
VGA NVVDD

VGA\_NVVDD





# AC-In, Charger



Sheet 46 of 55  
AC-In, Charger

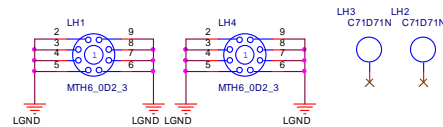
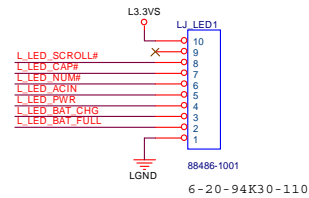
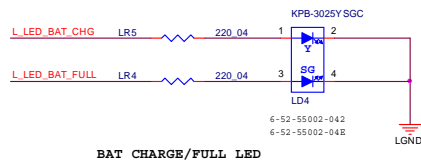
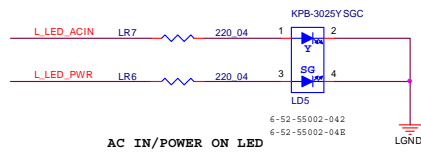
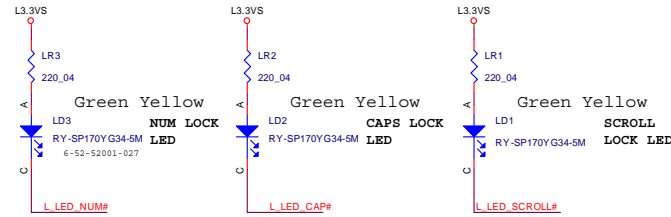
B.Schematic Diagrams



# W370/350ET Power LED Board

W370ET /W350ET

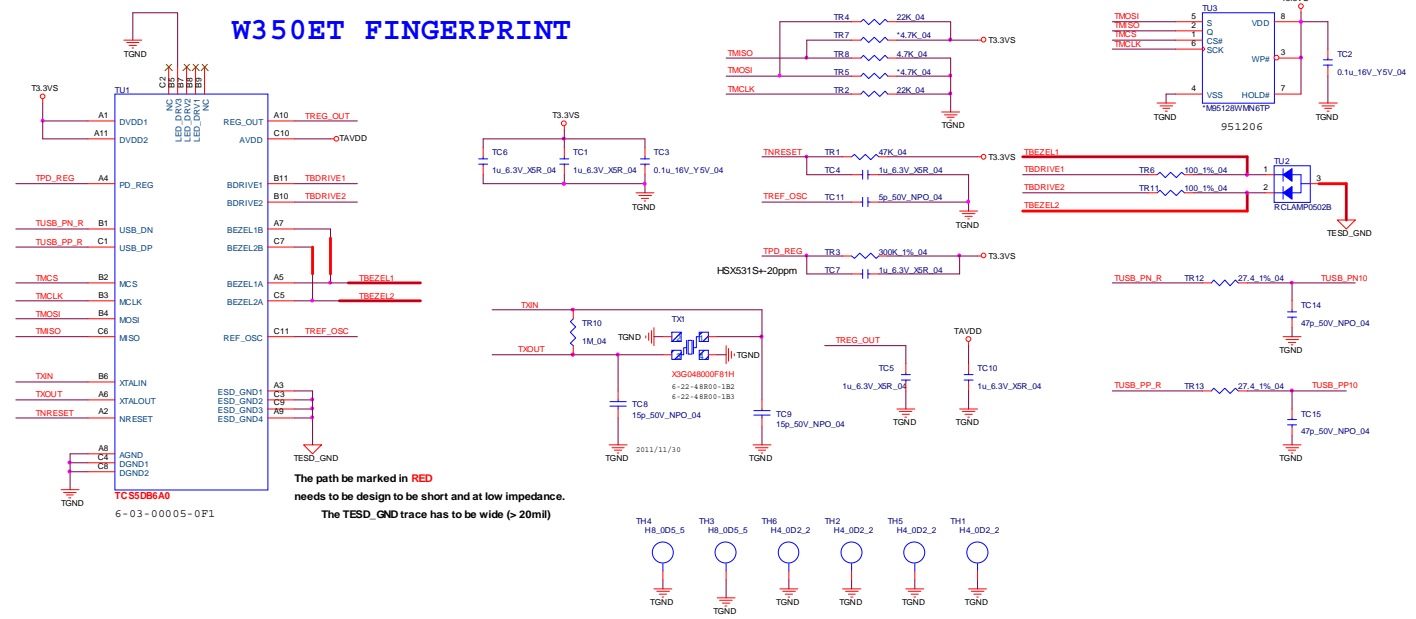
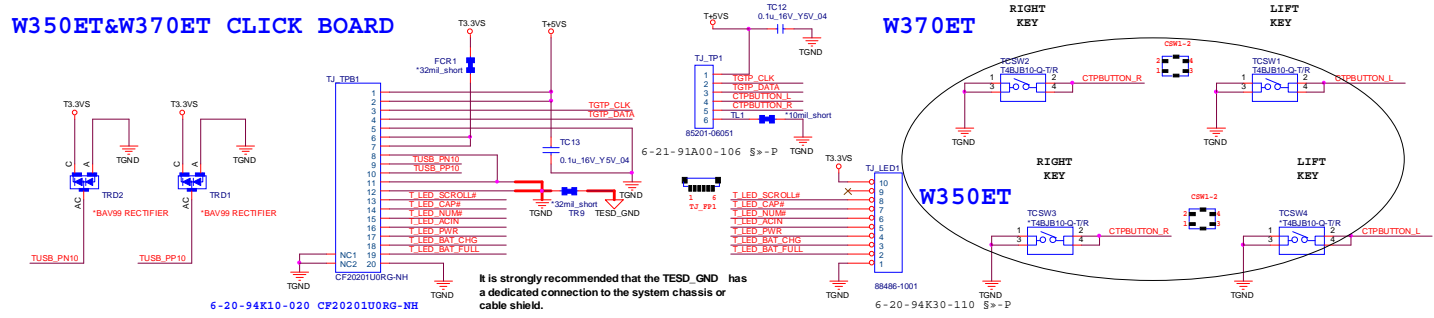
## LED



Sheet 48 of 55  
W370/350ET Power  
LED Board

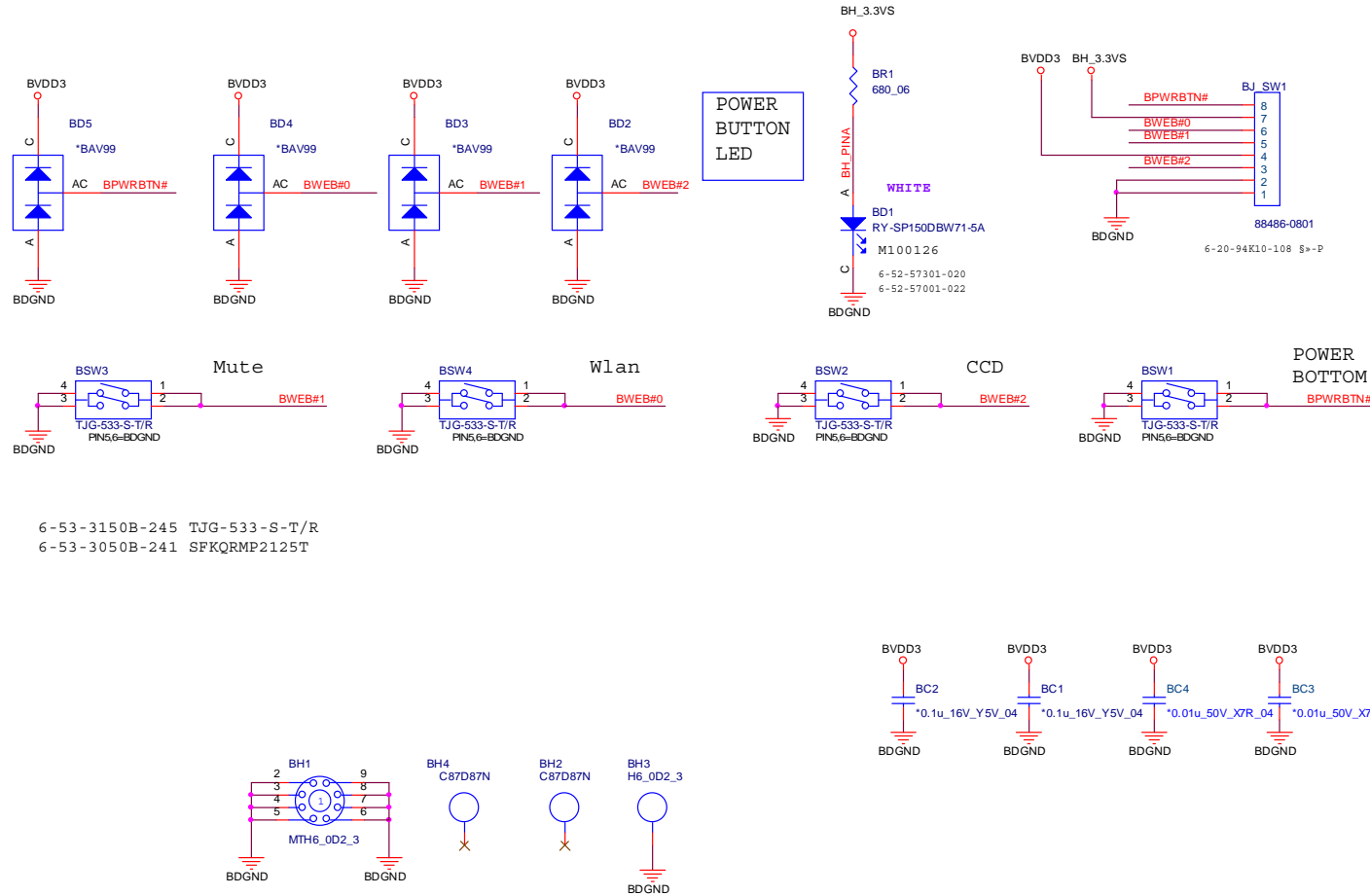
# W370/350ET Click Board

Sheet 49 of 55  
W370/350ET Click Board



# W370ET Power Switch Board

## W370ET POWER SWITCH BOARD

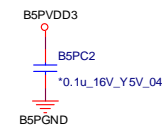
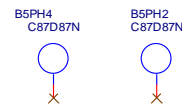
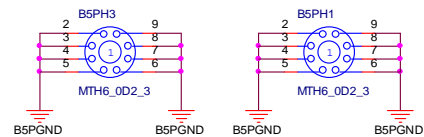
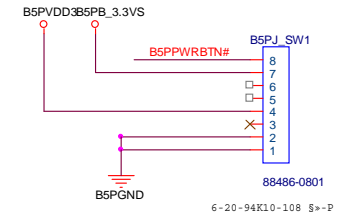
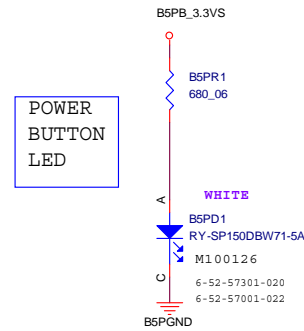
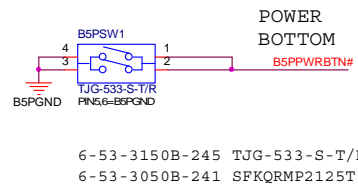
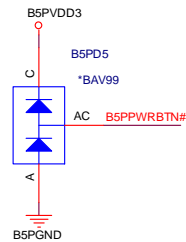


Sheet 50 of 55  
W370ET Power  
Switch Board

# W350ET Power Switch Board

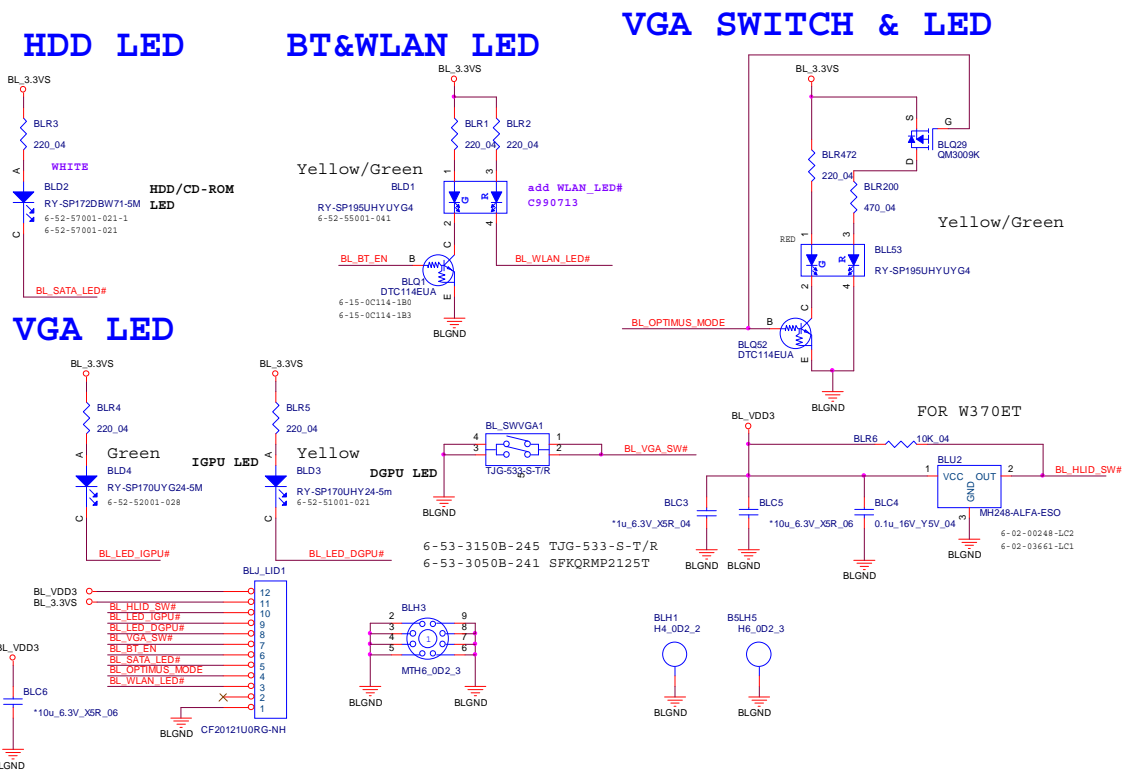
## W350ET POWER SWITCH BOARD

Sheet 51 of 55  
W350ET Power  
Switch Board



# W370ET LID / VGA LED Board

## W370ET LID & VGA LED SW BOARD

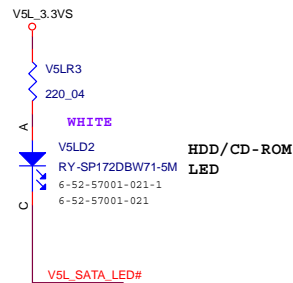


Sheet 52 of 55  
 W370ET LID / VGA  
 LED Board

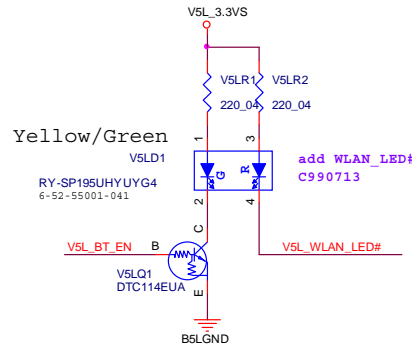
# W350ET LID / VGA LED Board

## W350ET LID & VGA LED BOARD

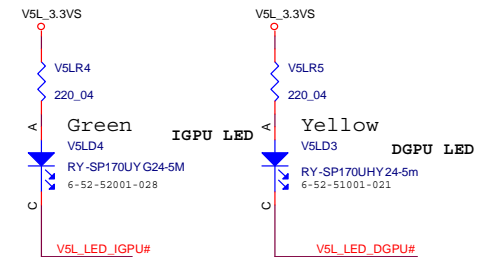
### HDD LED



### BT&WLAN LED

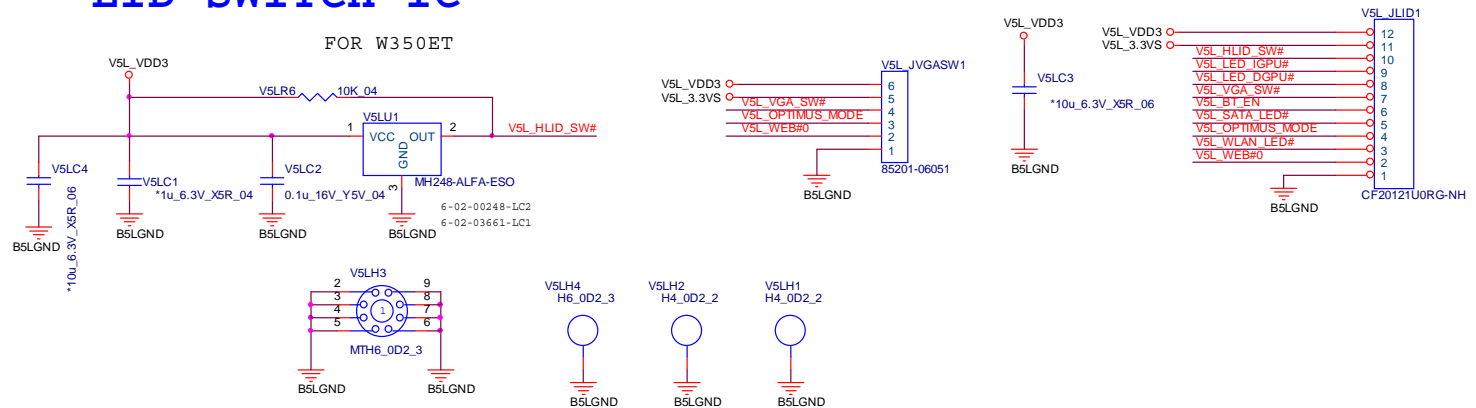


### VGA LED



### LID SWITCH IC

FOR W350ET



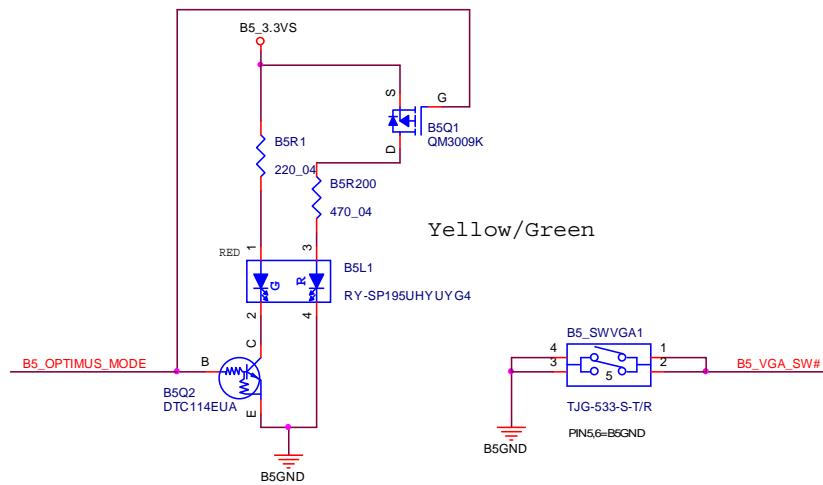
Sheet 53 of 55  
W350ET LID / VGA  
LED Board



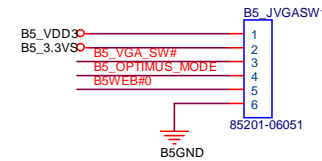
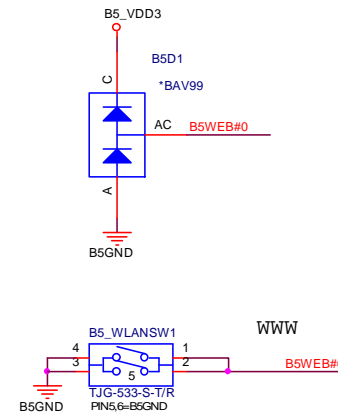
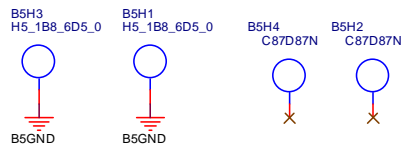
# W350ET VGA / WLAN SW Board

## W350ET VGA & WWL SW BOARD

### VGA SWITCH & LED



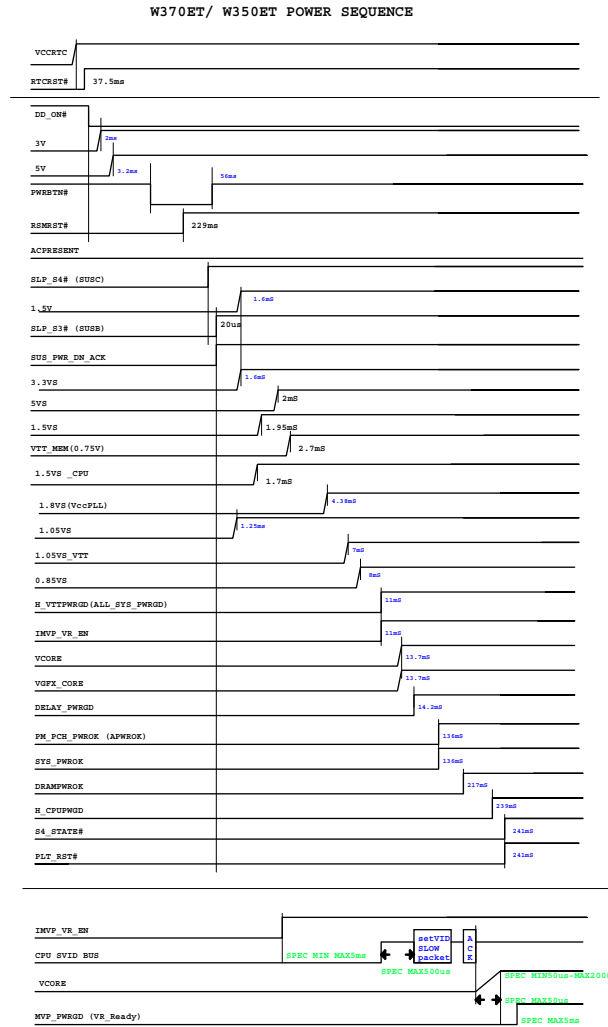
6-53-3150B-245 TJK-533-S-T/R  
6-53-3050B-241 SFKQRMP2125T



Sheet 54 of 55  
W350ET VGA /  
WLAN SW Board

# POWER ON SEQUENCE

Sheet 55 of 55  
POWER ON SEQUENCE



# Appendix C: Updating the FLASH ROM BIOS

## To update the FLASH ROM BIOS you must:

- Download the BIOS update from the web site.
- Unzip the files onto a bootable CD/DVD/USB Flash Drive.
- Reboot your computer from an external CD/DVD/USB Flash Drive.
- Use the flash tools to update the flash BIOS using the commands indicated below.
- Restart the computer booting from the HDD and press **F2** at startup enter the BIOS.
- Load setup defaults from the BIOS and save the default settings and exit the BIOS to restart the computer.
- After rebooting the computer you may restart the computer again and make any required changes to the default BIOS settings.

## Download the BIOS

1. Go to [www.clevo.com.tw](http://www.clevo.com.tw) and point to **E-Services** and click **E-Channel**.
2. Use your user ID and password to access the appropriate download area (BIOS), and download the latest BIOS files (the BIOS file will be contained in a batch file that may be run directly once unzipped) for your computer model (see sidebar for important information on BIOS versions).

## Unzip the downloaded files to a bootable CD/DVD/ or USB Flash drive

1. Insert a bootable CD/DVD/USB flash drive into the CD/DVD drive/USB port of the computer containing the downloaded files.
2. Use a tool such as Winzip or Winrar to unzip all the BIOS files and refresh tools to your bootable CD/DVD/USB flash drive (you may need to create a bootable CD/DVD with the files using a 3rd party software).

## Set the computer to boot from the external drive

1. With the bootable CD/DVD/USB flash drive containing the BIOS files in your CD/DVD drive/USB port, restart the computer and press **F2** (in most cases) to enter the BIOS.
2. Use the arrow keys to highlight the **Boot** menu.
3. Use the “+” and “-” keys to move boot devices up and down the priority order.
4. Make sure that the CD/DVD drive/USB flash drive is set first in the boot priority of the BIOS.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.



### BIOS Version

Make sure you download the latest correct version of the BIOS appropriate for the computer model you are working on.

You should only download BIOS versions that are **V1.01.XX or higher** as appropriate for your computer model.

Note that BIOS versions are not backward compatible and therefore you may not downgrade your BIOS to an older version after upgrading to a later version (e.g if you upgrade a BIOS to ver 1.01.05, you **MAY NOT** then go back and flash the BIOS to ver 1.01.04).

## BIOS Update

---

### Use the flash tools to update the BIOS

1. Make sure you are not loading any memory management programs such as HIMEM by holding the **F8** key as you see the message “**Starting MS-DOS**”. You will then be prompted to give “**Y**” or “**N**” responses to the programs being loaded by DOS. Choose “**N**” for any memory management programs.
2. You should now be at the DOS prompt e.g: DISK C:\> (C is the designated drive letter for the CD/DVD drive/USB flash drive).
3. **Type the following command** at the DOS prompt:

**C:\> Flash.bat**

4. The utility will then proceed to flash the BIOS.
5. You should then be prompted to press any key to restart the system or turn the power off, and then on again but make sure you remove the CD/DVD/USB flash drive from the CD/DVD drive/USB port before the computer restarts.

### Restart the computer (booting from the HDD)

1. With the CD/DVD/USB flash drive removed from the CD/DVD drive/USB port the computer should restart from the HDD.
2. Press **F2** as the computer restarts to enter the BIOS.
3. Use the arrow keys to highlight the **Exit** menu.
4. Select **Load Setup Defaults** (or press **F3**) and select “**Yes**” to confirm the selection.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.

### Your computer is now running normally with the updated BIOS

You may now enter the BIOS and make any changes you require to the default settings.