SW44X
USER MANUAL

Arima Computer Corp.
Building Your Competitive Advantage

TABLE OF CONTENTS:

Legal Disclaimer

The information provided in this document is subject to change without notice.
Arima Computer Corp. makes no warranty regarding this document.
Always read the safety instructions carefully.

Arima Computer Corp. cannot anticipate all of your working conditions; for safety, you should use caution, care and good judgment when following the procedures described in this material. Arima Computer Corp. shall not be liable for errors contained in this material nor any damage incurred in the use of this material.

Arima Computer Corp. assumes no responsibility for any damage to property, injury to persons, or losses incurred as a result of misuse of the information provided.
Arima Computer Corp. assumes no responsibility for the reliability of its software on equipments that are not manufactured by Arima Computer Corp.

Copyright Notice

Revision: 0.92
Release Date: Nov. 2006

Technical Support

If a problem arises with your system during installation or operation and is unable to be resolved from the user manual, consult the following list of resources for help:

- ✓ Contact the place of purchase for help. This is the recommended solution as they can provide the quickest assistance.
- ✓ Visit Arima Computer Corp. website for up to the minute FAQ, guides and updates. The website can be found at: http://www.arima.com.tw/server
- ✓ Or contact our support staff at: server@arima.com.tw

About this User Guide

This manual contains some special icons that accompany special sections that are meant to help you along in the installation process. The special sections contain useful and/or critical information that you should know. Watch for these icons as you read through the manual.

Type of icons:	Description:
NOTE 	This icon indicates useful and timely information that will aid you in the setup.
WARNING 	This icon indicates information on dangerous and/or costly behavior to avoid.

Safety Instruction

- ✓ Keep this manual for future reference.
- ✓ Keep the equipments in a safe, cool, dry place.
- ✓ Perform the installation on a dry, flat surface.
- ✓ Ground yourself by touching a plugged-in power supply, which displaces static electricity.
- ✓ Adjust the power source to the proper voltage before connecting the equipment to the power outlet.
- ✓ Place the power cord in such a manner as to ensure that no one can step on it or trip over it.
- ✓ Always unplug the power cord when performing installation.
- ✓ Do not have liquid nearby as electrical shock can occur if liquid spills onto the equipment.
- ✓ Operating temperature: 10ºC to 35ºC or 50ºF to 95ºF.
- ✓ Pay attention to the warnings in the installation instructions when appropriate.
- ✓ In the following cases, do not try to fix the problem yourself, contact a party in Technical Support
  - The power cord or plug is damaged.
  - Liquid has been spilled onto the equipment.
  - Obvious sign of damage can be detected on the equipment.

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

Chapter 1. Getting Started

1.1 Congratulations

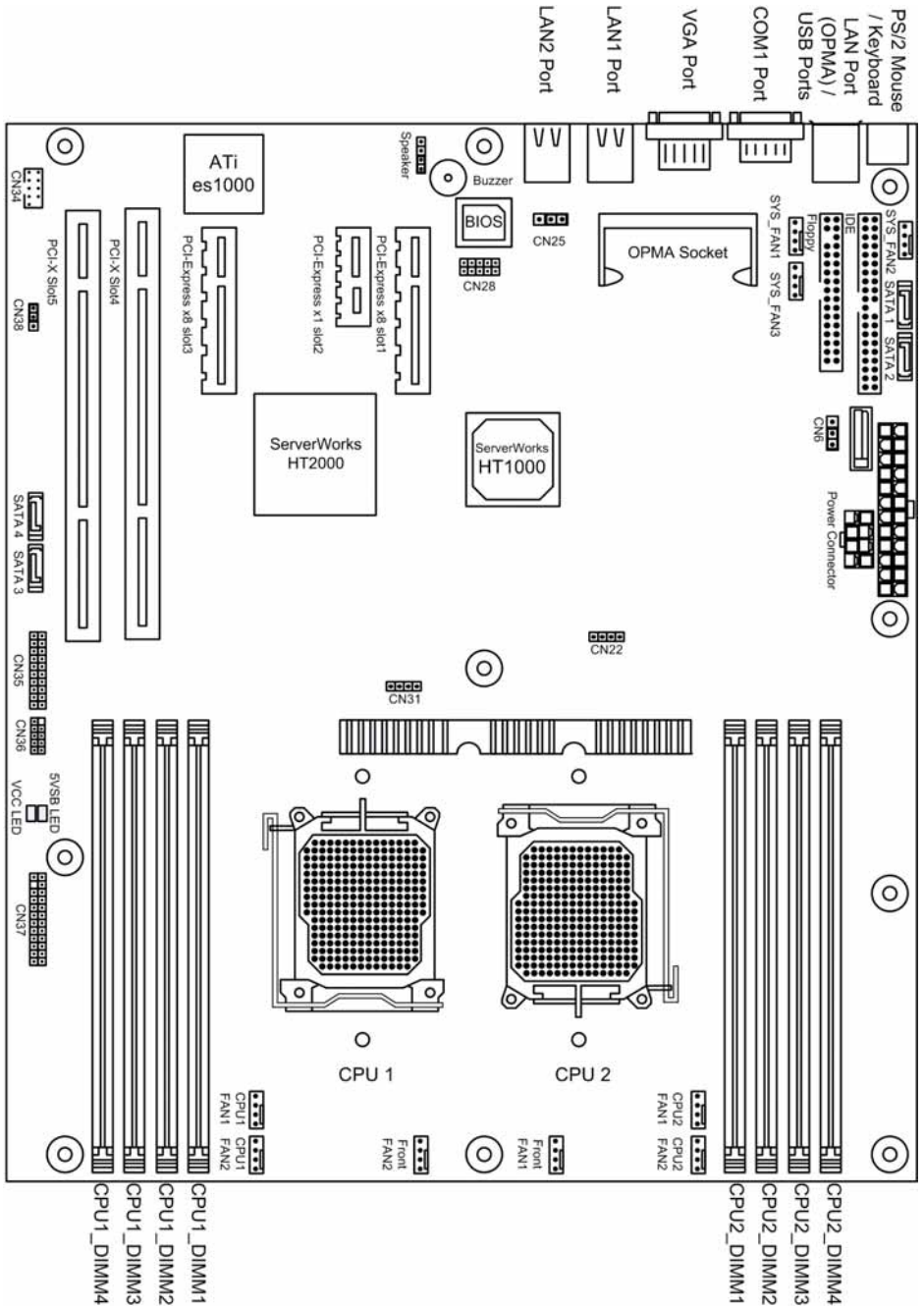
You have in possession one of the most powerful and versatile 2-way AMD Opteron processor solutions, the SW44X. Powered by ServerWorks HT2000 and ServerWorks HT1000 chipsets, SW44X efficiently utilizes the combined strength of 2000MT/s HyperTransport, two PCI-X slots, and SATAII controllers, to name just a few. SW44X supports independent buses for PCI-X slot as well, providing the most efficient bus management to date. It provides versatility, performance, value and dependability for today's computing environment. In just a couple of pages, a detailed specification will provide you with a comprehensive view of the capabilities of SW44X. Thank you for purchasing Arima Computer Corp. family of products.

1.2 Unpacking

Arima Computer Corp. provides a number of accessories for your convenience. Below is a checklist of the things that are included in this purchase:

1 x I/O shield
1 x IDE cable
1 x FDD cable
2 x SATA cables
1 x SATA power cord
1 x Spare jumper
2 x Retention module
1 x Driver CD
1 x Quick Installation Guide

1.2.1 Quick Installation Guide



CN6 Clear CMOS Select Jumper

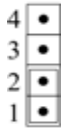
1-2	2-3
Normal (default)	Clear CMOS

CN38 PCI-X Slot Clock Select Jumper

1-2	2-3
100 MHz Enabled (default)	133 MHz Enabled

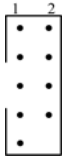
CN25 On-Board VGA Select Jumper

1-2	2-3
VGA Disabled	VGA Enabled (default)



CN30 Speaker Header

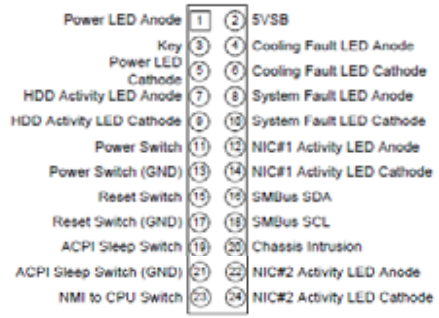
Pin	Description
1	Speaker
2	Buzzer
3	N/A
4	Speaker Power

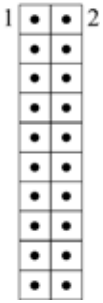


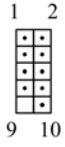
CN34 COM2 Header

Pin	Description	Pin	Description
1	DCD	2	DSR
3	Serial In	4	RTS
5	Serial Out	6	CTS
7	DTR	8	RI
9	GND		

CN37 Front Panel







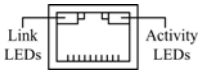
CN36 USB Header

Pin	Description	Pin	Description
1	VCC_1	2	N/A
3	Data - _1	4	N/A
5	Data + _1	6	N/A
7	Ground_1	8	N/A
9		10	N/A

* CN36 only supports one USB

CN35 Hard Drive Backplane/LED Board Connector

Pin	Description	Pin	Description
3	SMB ALERT	2	SMbus
5	CLR SW	4	
7	FP_ID LED	8	SATA1 LED
9	SATA2 LED	10	SATA3 LED
11	SATA4 LED	12	



LAN Connector Indicator Light

Indication	Meaning
Activity LED flashing	Data activity
Link LED lighting up	Connected to network

Recommended Memory Configurations

1 DIMM	H1 Bank: Slot 3	
2 DIMMs	H1 Bank: Slot 3, 4	
4 DIMMs	Single Processor	H1 Bank: Slot 1, 2, 3, 4
	Dual Processor	H1 Bank: Slot 3, 4 H2 Bank: Slot 3, 4
6 DIMMs	H1 Slot 1, 2, 3, 4 H2 Slot 3, 4	
8 DIMMs	H1 Slot 1, 2, 3, 4 H2 Slot 1, 2, 3, 4	

The Latest BIOS, Manual, Memory AVL, Drivers and Utility can be downloaded from http://www.arima.com.tw/server

Rev. 1.05

SB75370G00001

1.3 Features Highlight

CPU:
- ✓ Supports up to two AMD Opteron 2000 series processors
- ✓ Support dual core Opteron processor

CHIPSET:
- ✓ ServerWorks HT2000
- ✓ ServerWorks HT1000

SYSTEM MEMORY:
- ✓ 8x 240-pin 1.8-Volt DDR2 DIMM sockets

EXPANSION SLOTS:
- ✓ One PCI-Express x1 slot, two PCI-Express x8 slots, two PCI-X 133/100MHz slots.

STORAGE:
- ✓ Total support of hard disk formats from SATA II to ATA.

INTEGRATED LAN CONTROLLER:
- ✓ ServerWorks HT2000 integrated dual Gigabit Ethernet ports

SYSTEM MANAGEMENT:
- ✓ Arima SmartWatch server management application
- ✓ OPMA connector

1.4 Motherboard Specification

Processors
- ✓ Dual socket F (1207)
- ✓ Side-by-side placement
- ✓ Support up to two AMD Opteron 2000 series processors with 68/95/120 Wattage
- ✓ Support dual core Opteron processor
- ✓ Support 2000MT/s HyperTransport

Chipsets
- ✓ ServerWorks HT2000
- ✓ ServerWorks HT1000
- ✓ HT2000 supports PCI-E and PCI-X slots
- ✓ National Semiconductor Super I/O PC87417 chip
- ✓ Analog Devices ADM1026 Hardware Monitor chip

Memory
- ✓ 8x 240-pin 1.8-Volt DDR2 DIMM sockets
- ✓ DIMM sockets voltage from 12V
- ✓ Dual channel memory bus
- ✓ Four-way interleaved memory banks (pair of DIMMs required)
- ✓ Support DDR2-667/533/400 memory
- ✓ Support Registered ECC type memory modules only
- ✓ Support up to 32GB
- ✓ Support Chipkill, Parity, On-line spare

BIOS
- ✓ 4Mb Phoenix BIOS
- ✓ Legacy USB support
- ✓ MP 1.1 & 1.4 compliant
- ✓ SMBIOS 2.3.3 and DMI 2.0 compliant
- ✓ Soft Power-down
- ✓ Multiple boot support (with BIOS Boot Specification v3.1 (BBS) support)

Expansion Slots
- ✓ 2 x PCI-E x8 slots
- ✓ Connected to HT2000
- ✓ 1 x PCI-E x1 slot
- ✓ Connected to HT2000
- ✓ 2 x PCI-X 133/100MHz slots
- ✓ Connected to HT2000

Integrated Gigabit Ethernet
- ✓ ServerWorks HT2000 integrated dual Gigabit Ethernet ports
- ✓ PXE option ROM solution
- ✓ Front panel LED output

Integrated Graphics Controller
- ✓ ATI ES1000 PCI graphics controller
- ✓ 32MB video memory

Integrated SATAII
- ✓ Independent DMA operation on 4 ports
- ✓ Support SW10- RAID 0, 1, 0+1 (optional)
- ✓ Support SW52- RAID 0, 1, 0+1, 5, 1n, 0+1n, 50 (optional)

- ✓ DMA Transfers up to 1.5Gb/s
- ✓ HDD tray Link Activity LED output for each port

Integrated ATA
- ✓ Provides one PCI bus master channel for up to two enhanced IDE devices
- ✓ Support for ATA 100/66/33 IDE drives and ATAPI compliant devices

Integrated USB 2.0
- ✓ Four USB 2.0 ports (2 rear panel connectors and 1 header)
- ✓ Header supports up to 2 USB devices
- ✓ 1 USB port for header supports OPMA

Super I/O
- ✓ National Semiconductor Super I/O PC87417 chip
- ✓ One standard type floppy connector supports two drives
- ✓ PS/2 mouse and PS/2 keyboard rear panel connectors
- ✓ Two 9-pin serial ports (one rear, one header)

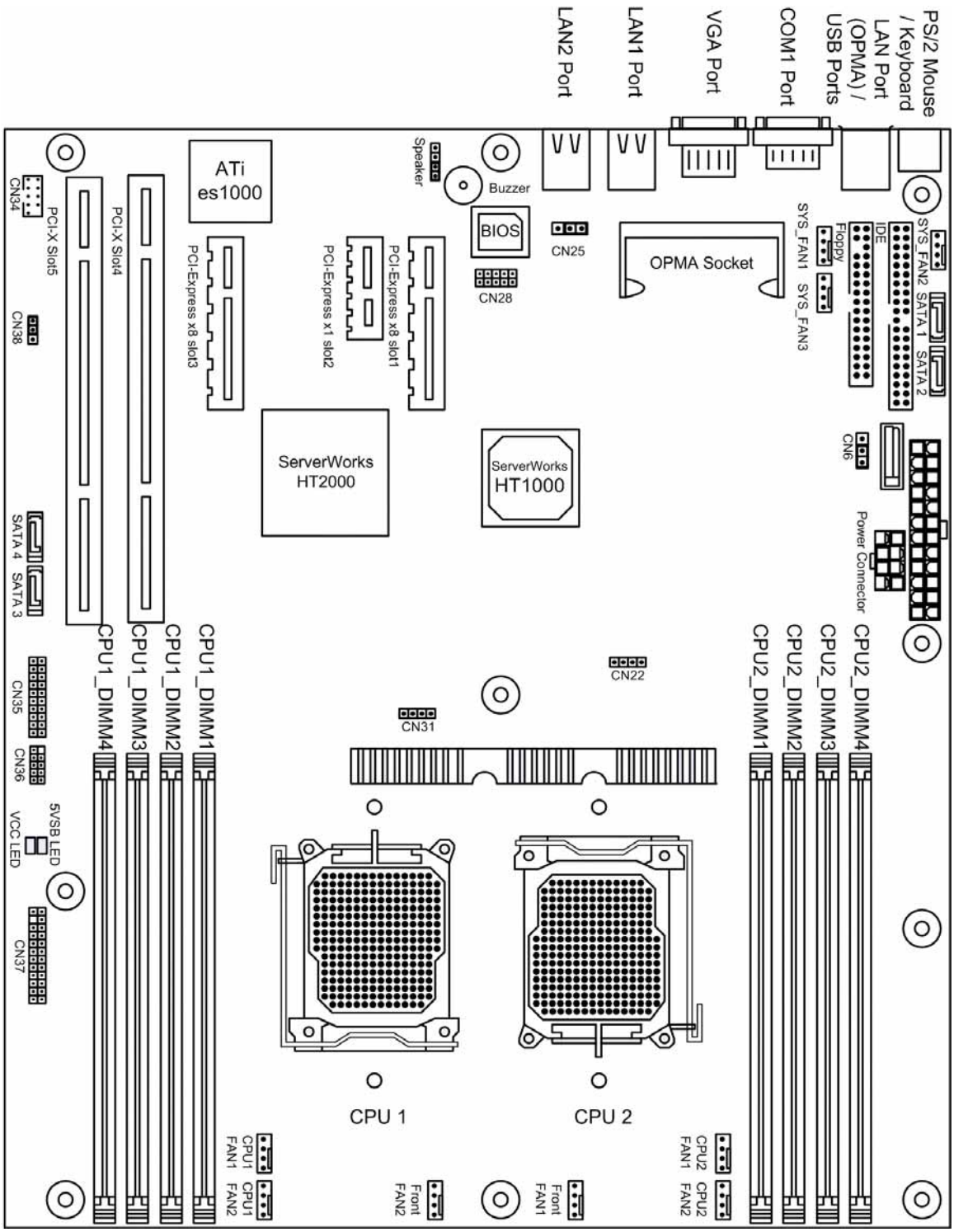
Rear Panel I/O
- ✓ Stacked PS/2 mouse and PS/2 keyboard rear panel connectors
- ✓ Stacked two USB 2.0 connectors
- ✓ 9-pin serial and DB15 Video connectors
- ✓ Two RJ-45 connectors with LEDs

System Management
- ✓ Arima SmartWatch server management application
- ✓ OPMA connector

Form Factor
- ✓ SSI form factor with size: 12” X 13” (8 layers)
- ✓ EPS 12V power connectors (24pin + 8pin)

1.5 Motherboard Layout [Major Components]

The following diagram indicates all the major components of the motherboard.



Chapter 2. Hardware Installation

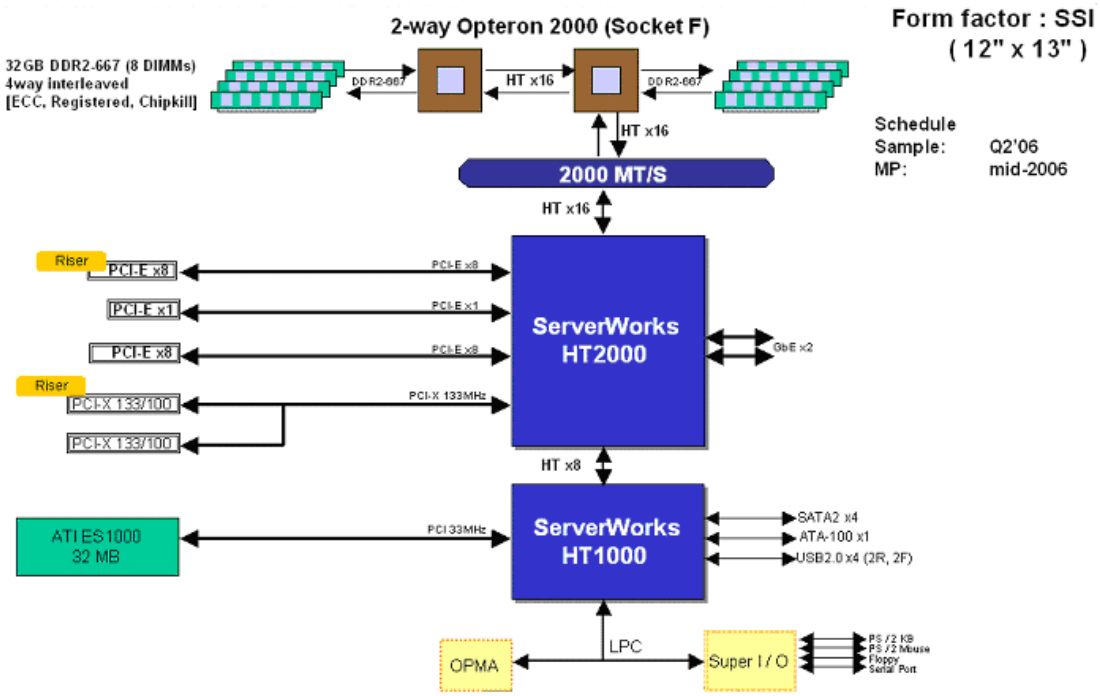
2.1 Mounting the Motherboard

The SW44X confirms to the SSI form factor. Before continuing on with installation, please confirm that your chassis supports a standard SSI motherboard. If you are unsure, contact your dealer for more information.

Precautions:

- ✓ Static electricity can damage components on your motherboard. Before touching the motherboard, discharge any static build-up in yourself by touching a grounded object.
- ✓ Disconnect your computer from any power supply if disassembly is needed.
- ✓ Try to avoid touching the surface or back of the motherboard, for chips and other components on the motherboard are very fragile.
- ✓ Before the motherboard is ready for immediate installation, place the motherboard on the Mylar Sheet (antistatic bag) in which the board was shipping in.
- ✓ Before installing, inspect the motherboard for any possible flaws.

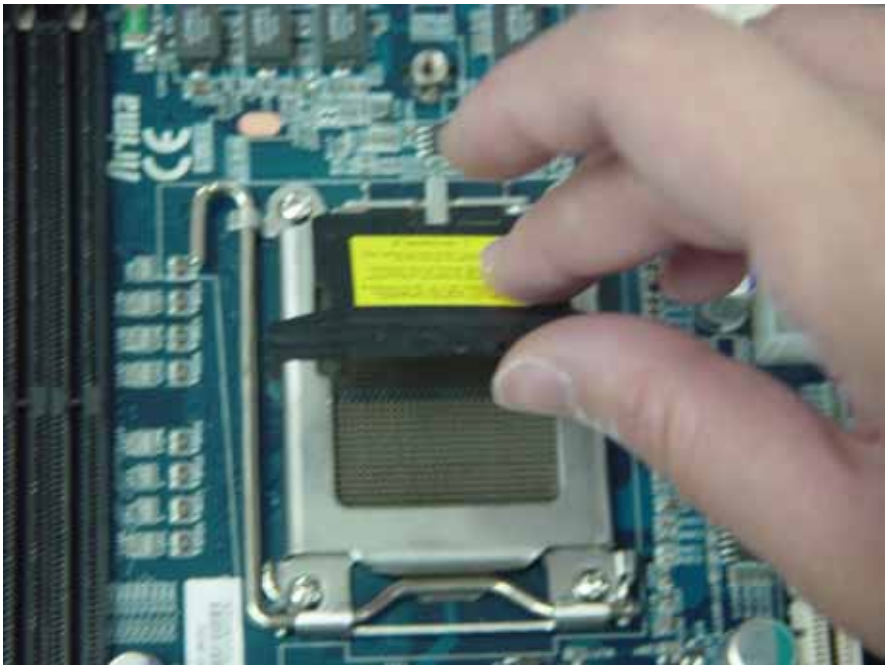
2.2 Block Diagram



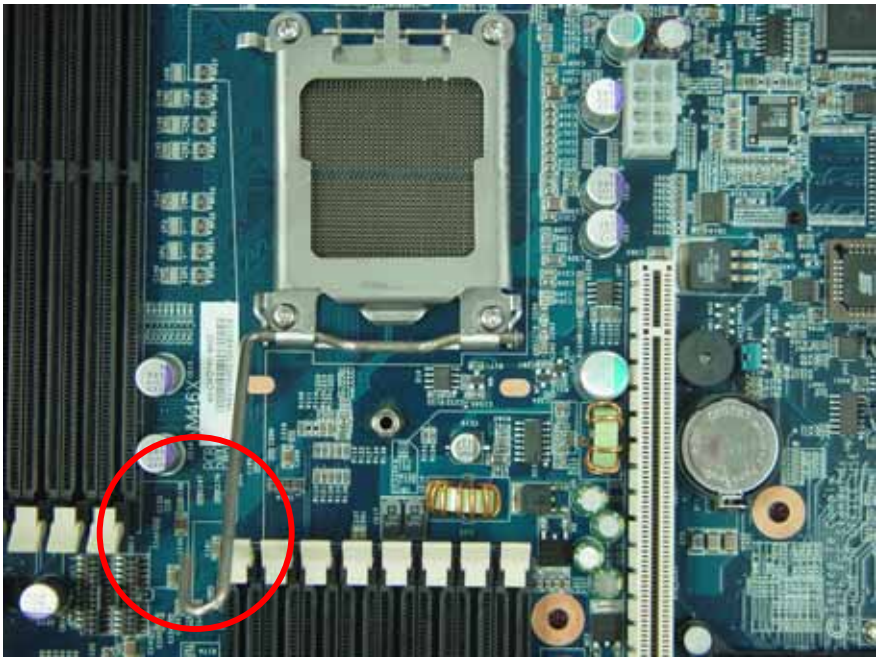
2.3 Installing the Processor

Procedure:
First read the instructions that came with the CPU. Follow the procedures below step by step.

1. Locate the processor socket on the motherboard and carefully remove the protective cover.



2. Pull the lever out of its locked position and let it spring into its open position.



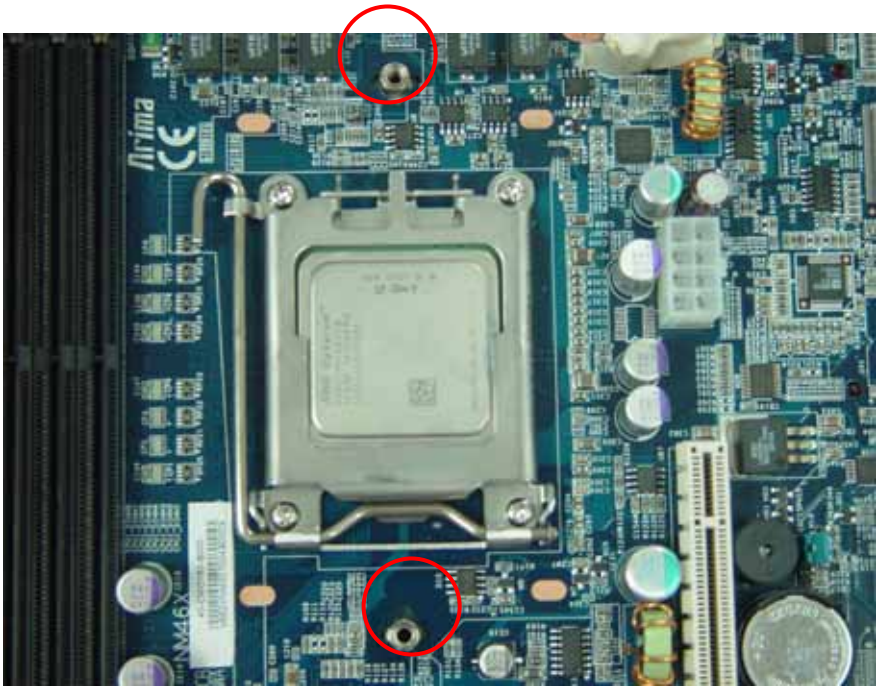
3. Now that the lever is in its unlocked position, lift up the metal cover to reveal the CPU socket.

4. Place the CPU into the socket with the arrows pointing to the bottom right of the socket as shown (there are two gaps on both sides of the CPU, make sure they fit perfectly into the socket. If it is placed correctly, the CPU pins should be able to fit into the socket perfectly).

The CPU will not fit if the orientation is wrong. Do not try to force the CPU into the socket; it could result in irreparable damage to the CPU.

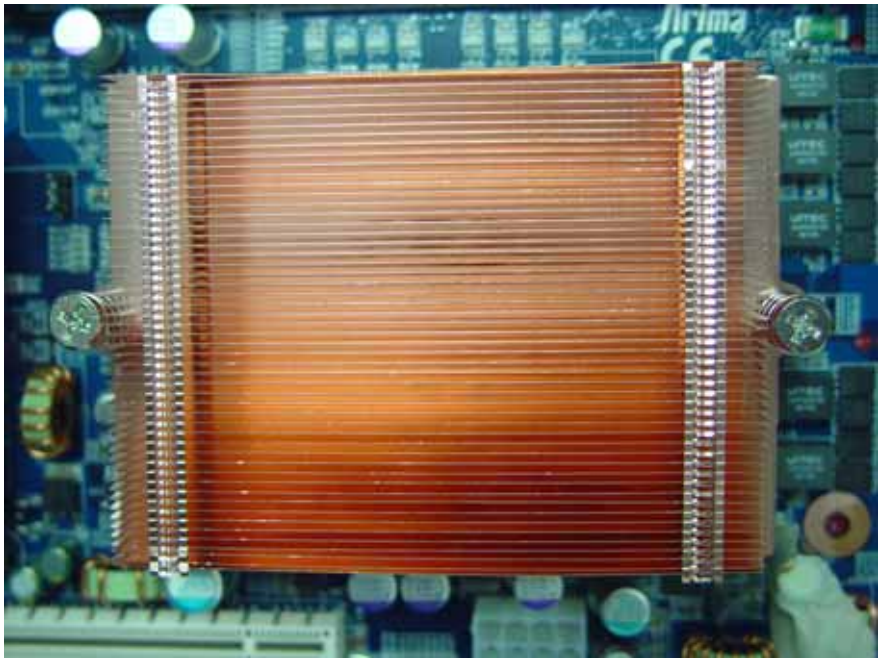
5. Close the metal cover and return the lever into its original locked position.

6. Now, rest the motherboard into the chassis, align the two holes of the backplate with the two bolts of the chassis.



We do not recommend you to apply thermal compound at this point of the installation. The heatsink provided along with your CPU already has thermal grease on the bottom for your convenience. Do not apply more thermal grease if it is already present. Too much thermal grease will spill onto the CPU circuit and damage the CPU.

7. First align the two pegs with the two mounting holes on the motherboard. After you have made sure that the pegs are in their proper positions, lock the pegs into the mounting holes.



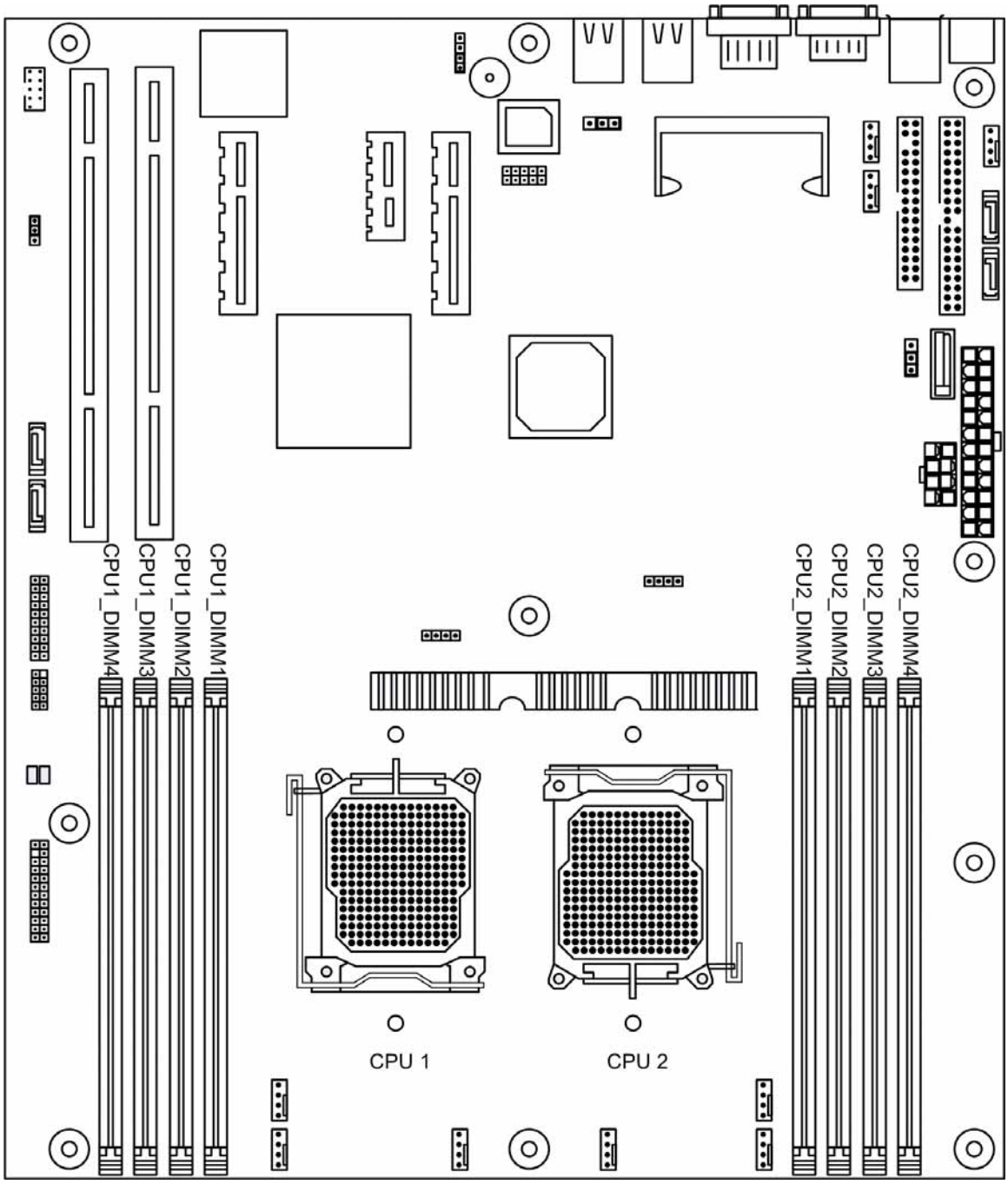
To remove the heatsink, gently turn the pegs until they loosen themselves from the mounting holes. Gently pull up the heatsink, to prevent any damage to the CPU.

Heatsink not included in the package.

2.4 Installing the Memory

2.4.1 DIMM Combination

The diagram below shows the 8 DIMM slots from 1 to 4 for both CPU1 and CPU2.



Types of memory supported:
There are 8 DIMM sockets for 240-pin 1.8-Volt DDR2 DIMMs (WILL ONLY SUPPORT Registered ECC type memory module). Please note the diagrams below to identify if your DIMM memories are ECC or non-ECC.

Before installing your memory sticks, please ensure that the memory sticks you have are compatible with theSW44X. The SW44X will only support DDR2-667/533/400 modules. Please study the table below for memory module specification of the SW44X.

Key Notes:
- ✓ DDR2 Memory Modules Supported: 256MB – 4GB (Registered ECC Only)
- ✓ Installed memory will all be automatically detected (No jumpers or settings are needed)
- ✓ SW44X supports up to 32GB in total
- ✓ Unbuffered memory is NOT supported

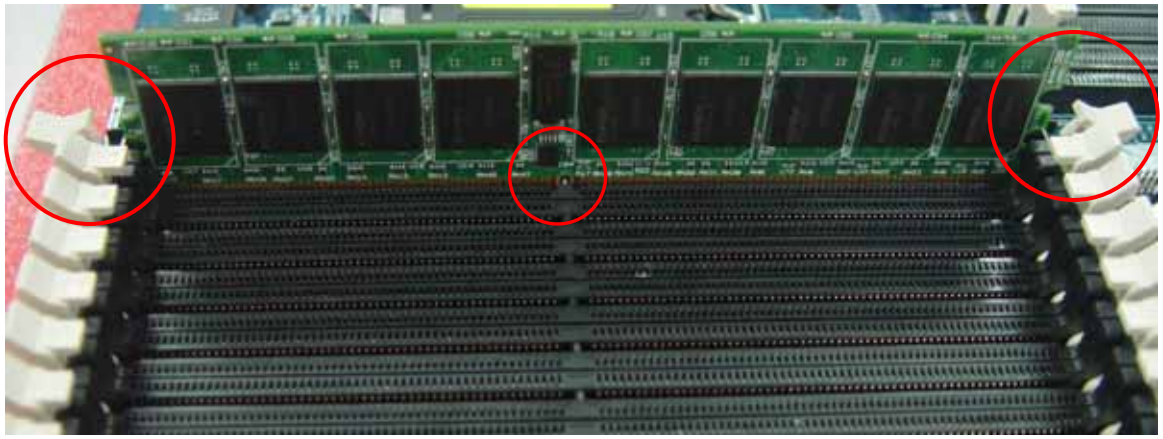
1 DIMM	H1 Bank: Slot 3	
2 DIMMs	H1 Bank: Slot 3, 4	
4 DIMMs	Single Processor	H1 Bank: Slot 1, 2, 3, 4
	Dual Processor	H1 Bank: Slot 3, 4 H2 Bank: Slot 3, 4
6 DIMMs	H1 Slot 1, 2, 3, 4 H2 Slot 3, 4	
8 DIMMs	H1 Slot 1, 2, 3, 4 H2 Slot 1, 2, 3, 4	

Any configuration other than the recommended is not guaranteed to work. Please refrain from using those configurations, as we cannot provide technical support on them.

2.4.2 Installing DIMM modules

1. Open up the brackets on the sides by flicking them to the sides:

2. Line up the memory with socket. Make sure the gap fits into the socket.



3. Push the memory stick down until the brackets on the sides snap to secure the memory module in place. Make sure the brackets are locked into the memory module.

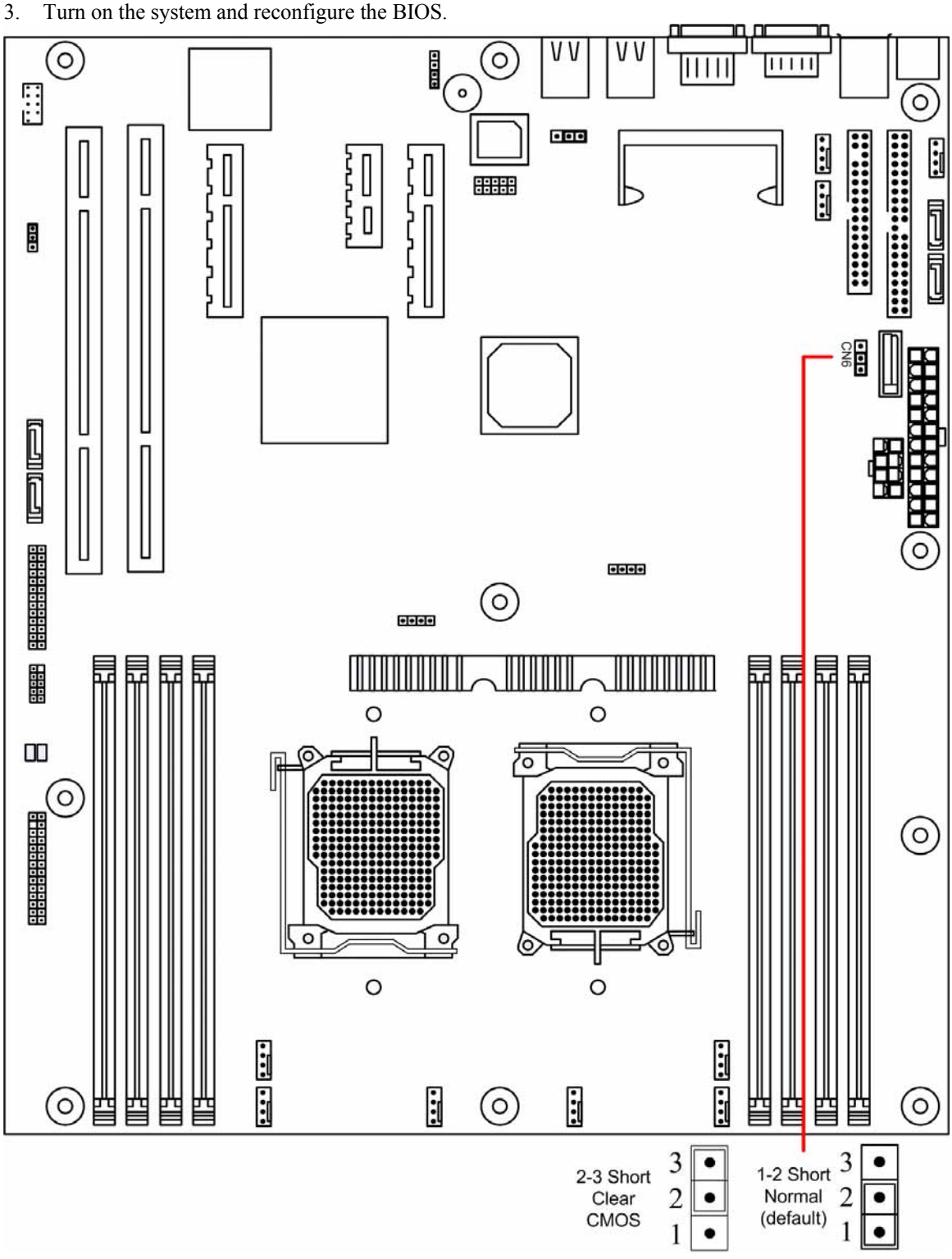
These pictures only show the procedures for the installation of one memory module. Please refer to section 2.4.1 to make sure the memory module combination is qualified for the motherboard.

2.5 Jumpers Configuration

2.5.1 Clear CMOS header

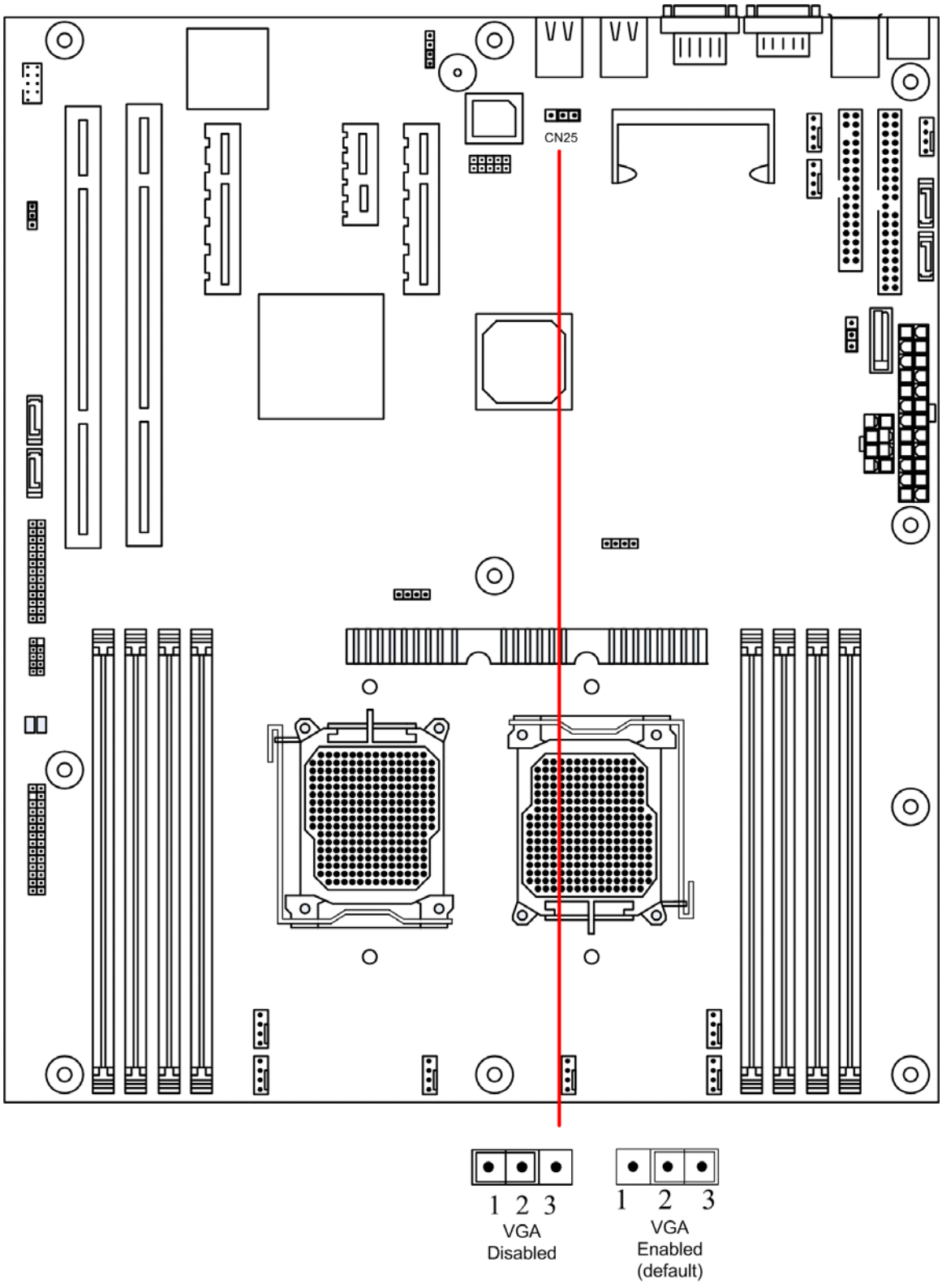
Header CN6 controls CMOS setting. Position your motherboard as it appears in the following diagram. To clear CMOS:

1. Turn off the system, and make sure the standby power on the power supply has been turned off too.
2. Short pin 2 and pin 3 using a jumper for a few seconds, and switch back to pin 1 and pin 2 (as default).
3. Turn on the system and reconfigure the BIOS.



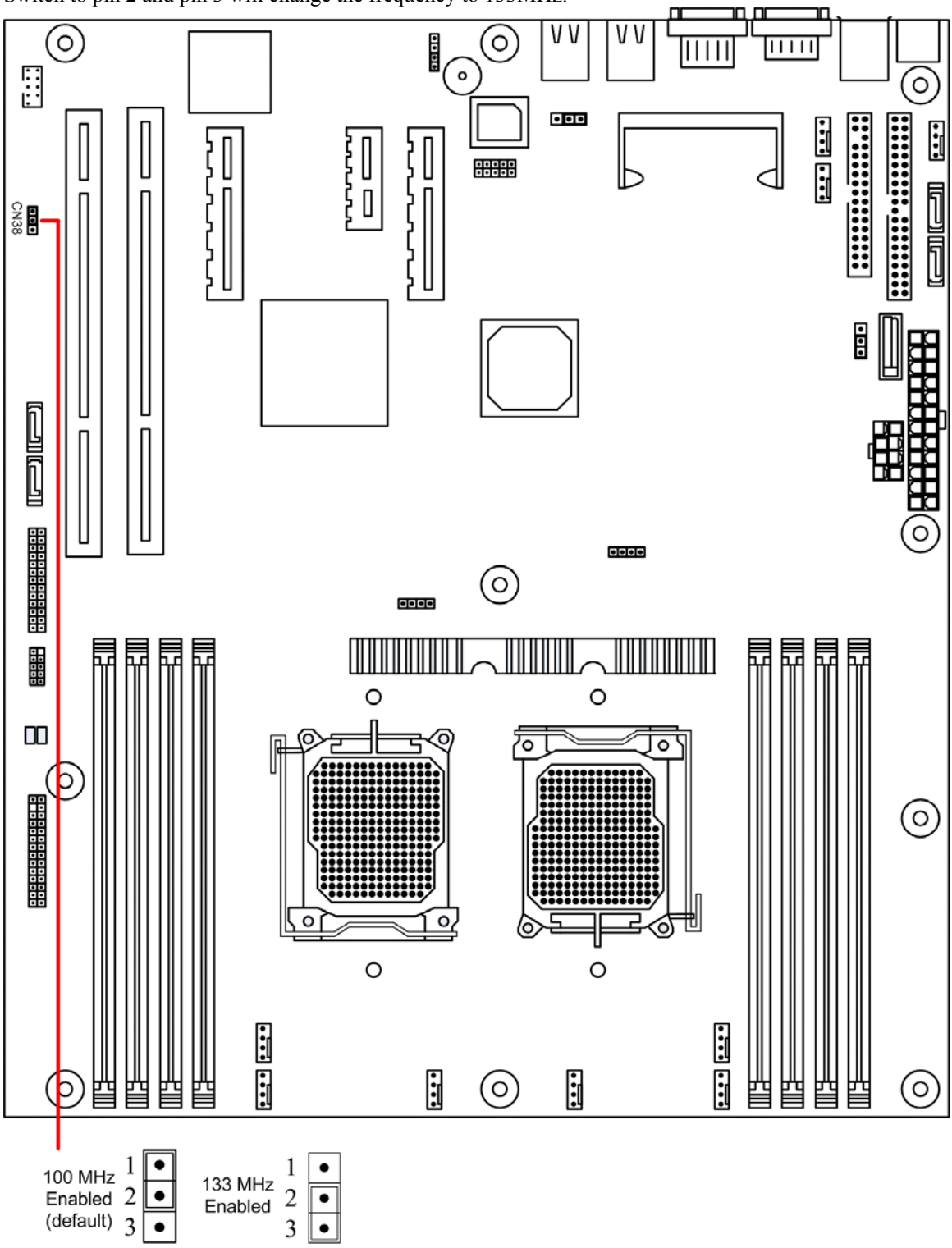
2.5.2 Enable onboard VGA header

Header CN25 controls the onboard VGA setting.
CN25 has the default set as enabled where pin 2 and pin 3 are short, and switch the jumper to pin 1 and pin 2 will disable onboard VGA. Refer to the following diagram for CN25 location:



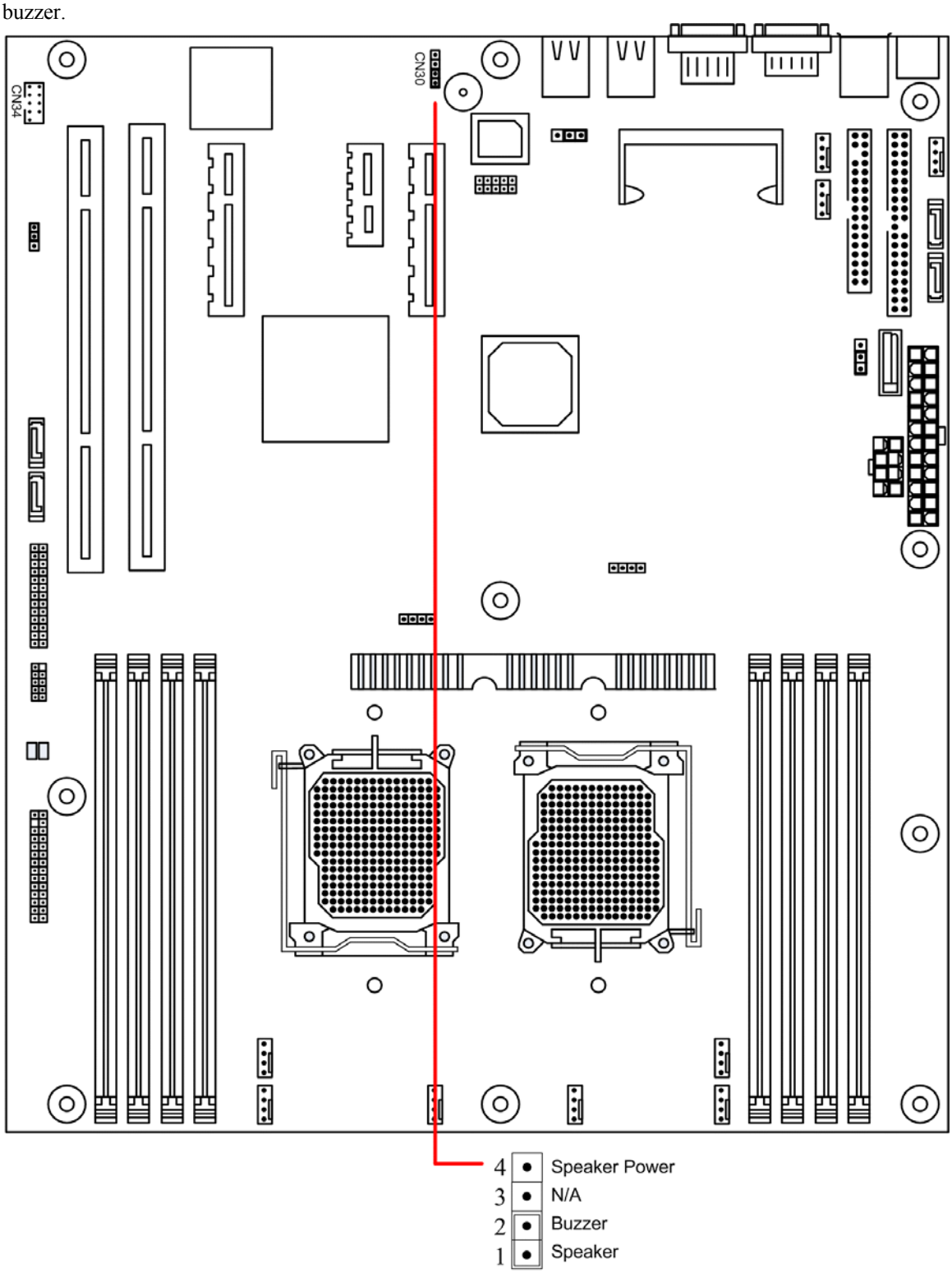
2.5.3 PCI-X Frequency Setting

The default frequency setting of PCI-X Slot is 100MHz where pin 1 and pin 2 on header CN38 are shorted. Switch to pin 2 and pin 3 will change the frequency to 133MHz.



2.5.4 Onboard Buzzer

Header CN30 setting controls the on and off state of the onboard buzzer. Set jumper on 1-2 to enable the buzzer.



2.6 Power Supply

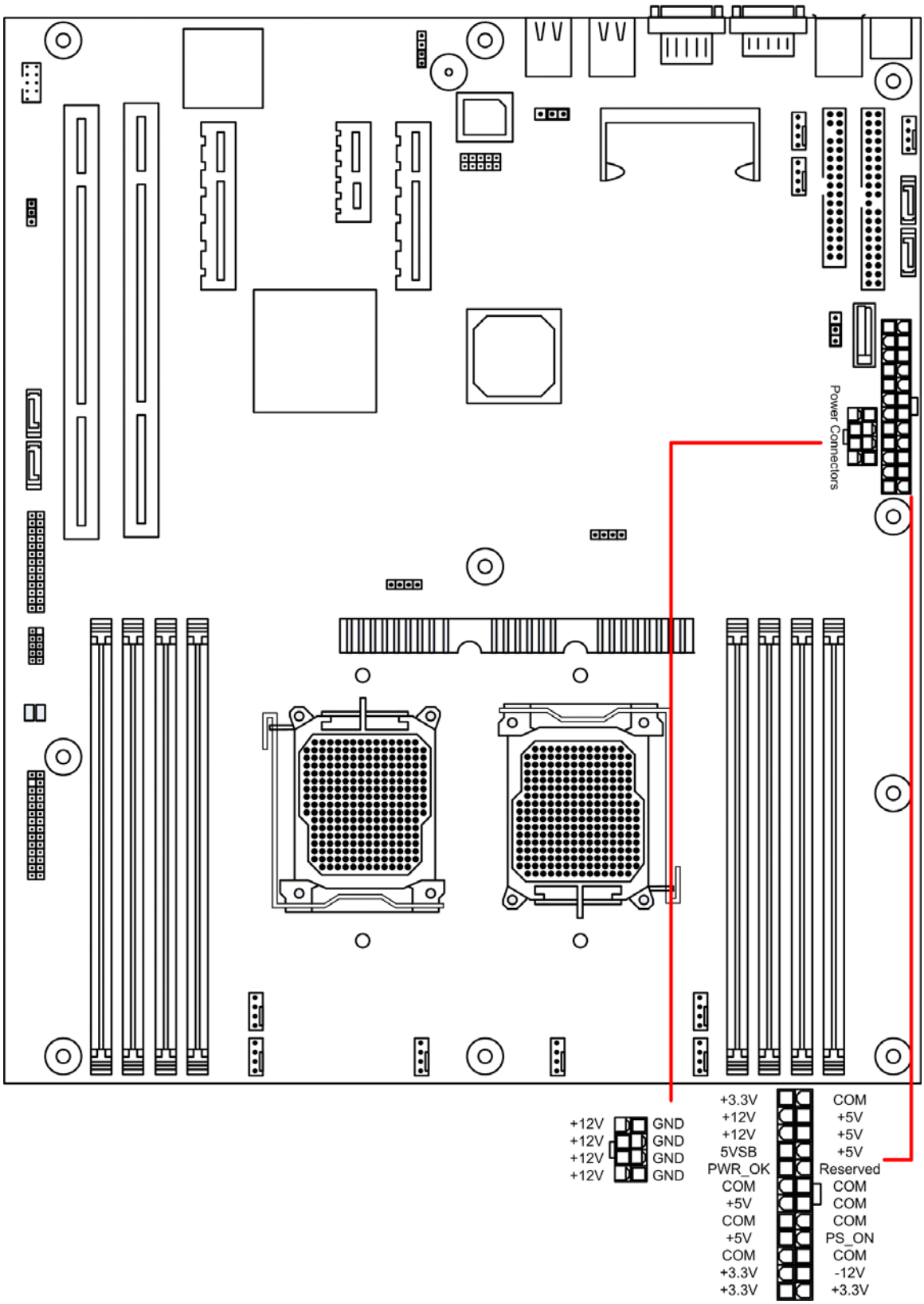
2.6.1 ATX 24-pin power connector and CPU 8/4-pin connector

There is one 24-pin power input connection and a 8/4-pin power input connection on the motherboard. The 24-pin power connection is used to connect to the power supply, while the 8/4-pin power connection is used to power up the CPU. BOTH must be connected in order for the system to boot up. Make sure the plugs are inserted into the connectors properly, to prevent any damage.

Please make sure your power supply can support at least 2 amps standby power for the Advanced Configuration and Power Interface (ACPI) functions.

Make sure the AC adapter is not plugged into the wall outlet during installation. The electric current could damage the motherboard.

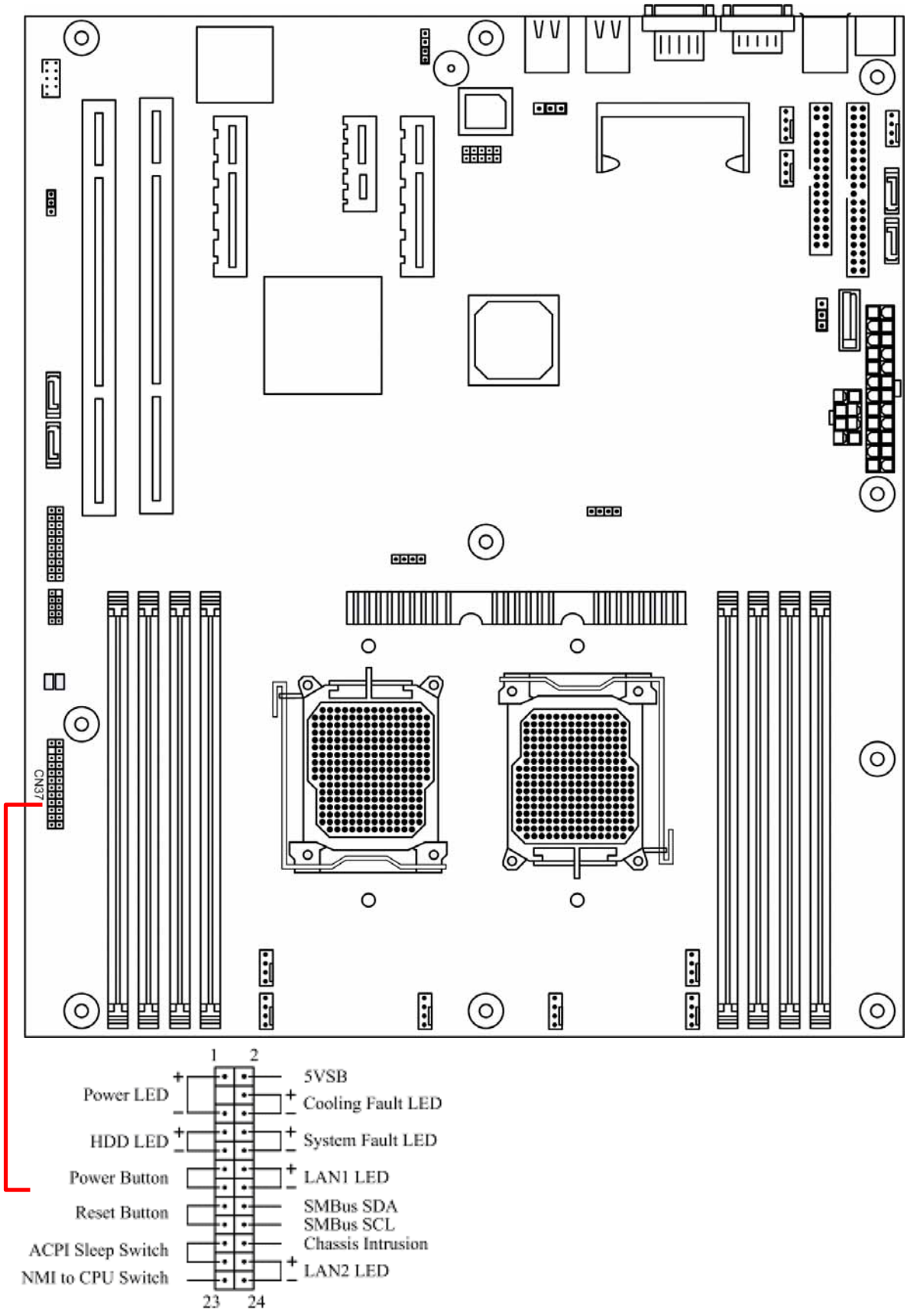
Refer to the following diagram below for the connector locations.


Power Connectors
+12V GND
+12V GND
+12V GND
+12V GND
+3.3V COM
+12V +5V
+12V +5V
5VSB +5V
PWR_OK Reserved
COM COM
+5V COM
COM COM
+5V PS_ON
COM COM
+3.3V -12V
+3.3V +3.3V

2.7 Cables & Connectors

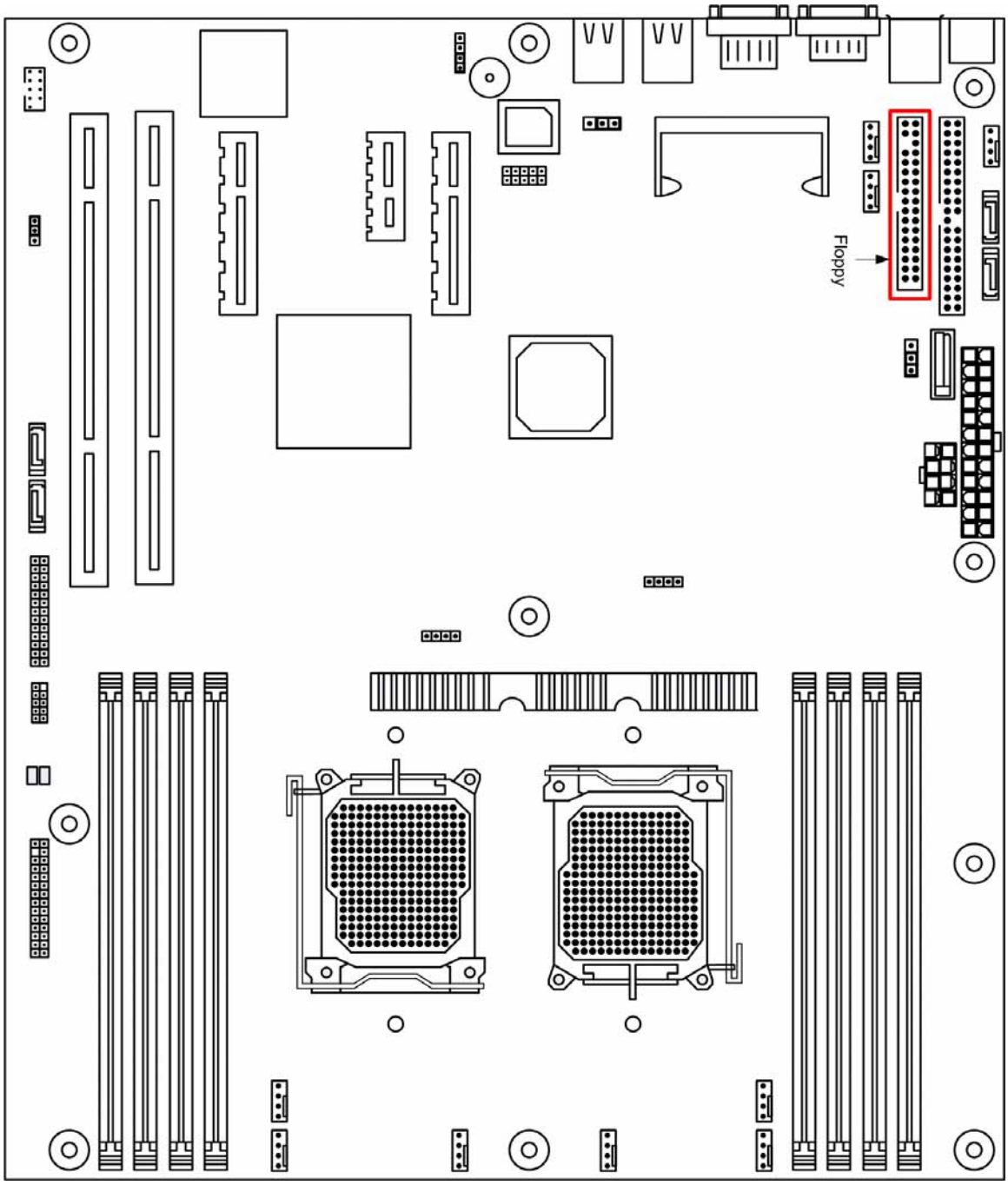
2.7.1 Front Panel Connectors

Power LED:	This 3-pin connector attaches to the power LED.
HDD Activity LED:	This 2-pin connector attaches to the LED of the hard disk. The LED lights up when HDD is active.
Power Switch:	This 2-pin connector attaches to the power button of the system.
Reset Switch:	This 2-pin connector attaches to the case-mounted reset switch for rebooting your computer without turning on/off your power switch.
ACPI Sleep Switch:	This 2-pin connector connects to the switch that can take the system into standby mode when pressed.
NMI to CPU Switch:	This 1-pin connector connects to the switch that send Non-Maskable Interrupt to the CPU. User can customize the button to perform a particular function.
5 VSB:	This connector provides the user with power to any extra devices that uses 5 volt power.
Cooling Fault LED:	This connector connects to the LED that lights up when a problem arises with cooling system.
System Fault LED:	This connector connects to the LED that lights up when a problem arises with the system.
NIC#1 Activity LED:	This connector connects to the LED that lights up when there is activity on Gbe 1.
SMBus SDA:	A private bus to BMC chip for serial data, for use with BMC only.
SMBus SCL:	A private bus to BMC chip for serial clock, for use with BMC only.
Chassis Intrusion:	This connects to the mechanical switch that indicates whether the chassis had been opened. User can activate it if desired.
NIC#2 Activity LED:	This connector connects to the LED that lights up when there is activity on Gbe 2.


CN37
1
2
Power LED
5VSB
Cooling Fault LED
HDD LED
System Fault LED
Power Button
LAN1 LED
Reset Button
SMBus SDA
SMBus SCL
ACPI Sleep Switch
Chassis Intrusion
NMI to CPU Switch
LAN2 LED
23
24

2.7.2 Floppy disk drive connector

The following diagram indicates the location of the floppy drive connector:



To install the floppy drive, first refer to the instructions that come with the floppy drive. Then follow the instructions here.

Attaching a floppy drive can be done in a similar manner to an IDE drive. Most of the current floppy drives on the market require that the cable be installed with the colored stripe positioned next to the power

connector. In most cases, there will be a key pin on the cable, which will force proper connection of the cable.

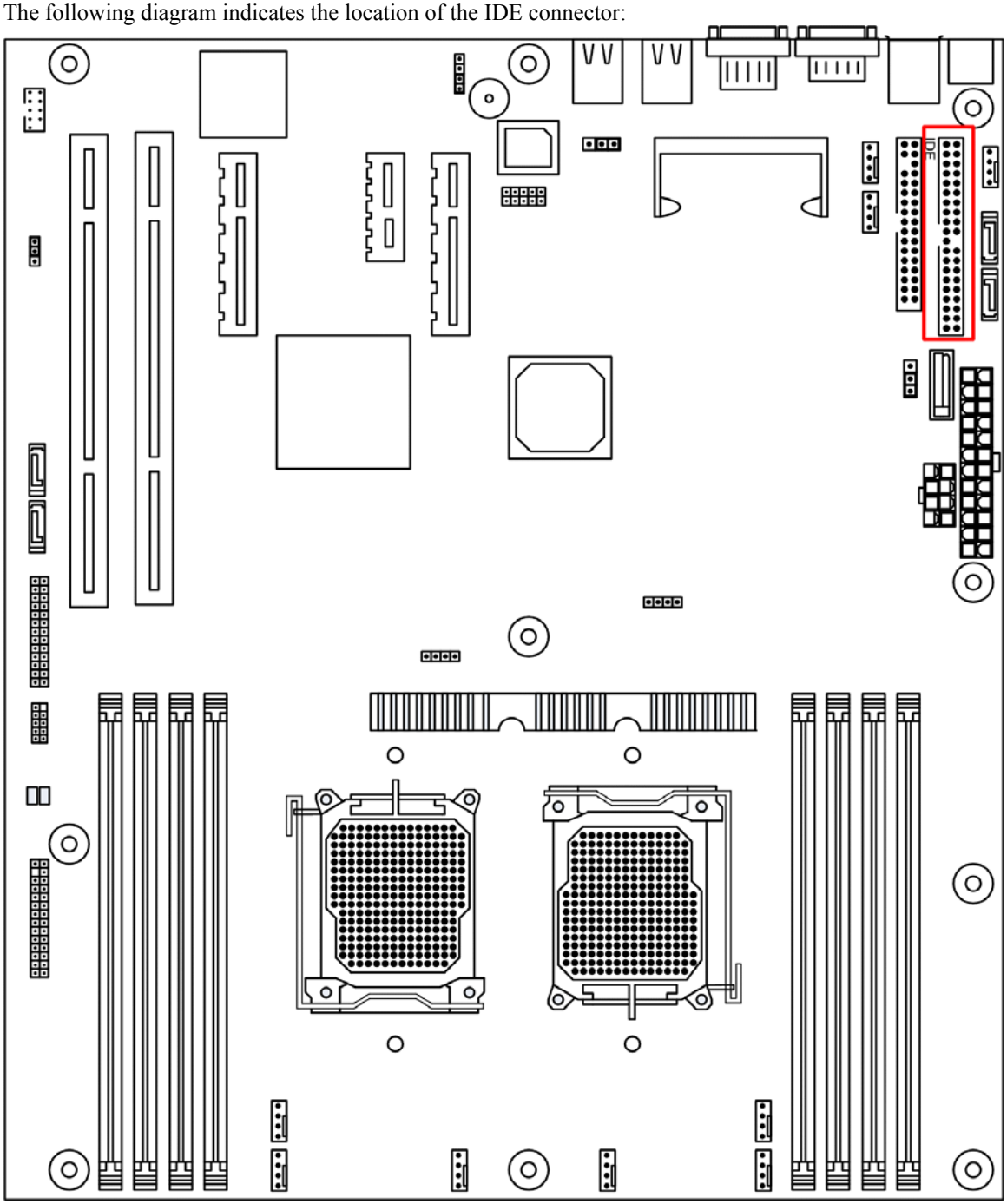
The motherboard supports only one floppy connector, but the connector can support up to two floppy drives. Below are some symptoms of incorrectly installed floppy drives. Wrong installation should not cause severe damage but it may cause your system to freeze or crash when trying to read and/or write to the floppy diskette.

Diagnosing an incorrectly installed floppy drive

Drive is not automatically detected.	Usually caused by faulty cables, cables put in backwards or a bad floppy drive or motherboard. Try another floppy drive to verify the problem if the cable is properly installed or try replacing the actual cable. Also check to see if the onboard floppy controller is enabled in the BIOS setup.
Drive Fail message at boot-up.	The cable, floppy drive or motherboard may be faulty. Try another drive or cable to verify.
Drive does not power on.	Check power cable and cabling. Maybe a bad power supply or drive cable problem.
Drive activity light is constantly on.	Usually signifies that the cable on the drive is on backwards, which is a common issue. Reverse the cable on the floppy drive end and try again.

2.7.3 IDE connectors

The following diagram indicates the location of the IDE connector:

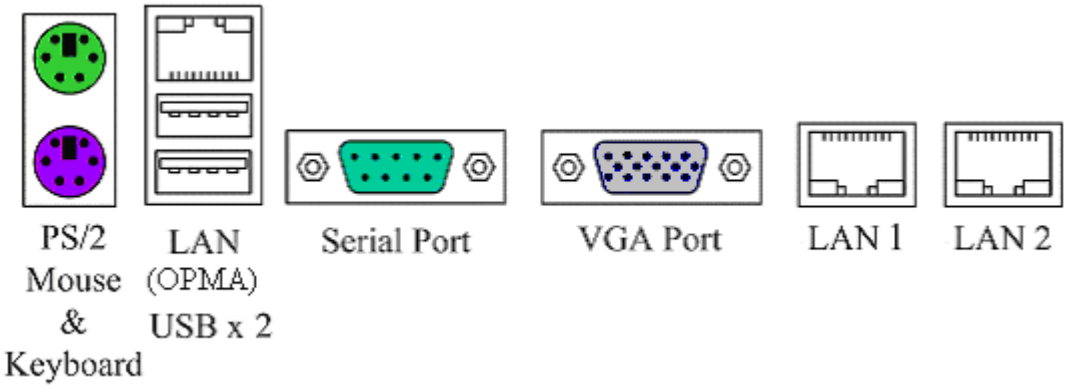


Read the instructions that come with the IDE drive and then consult the instructions here.
For Parallel ATA, installing IDE drives has become simpler over the years. The cables are now "keyed" to guide the user to the correct installation configuration. Each IDE connector can support two IDE drives.

Remember to set BIOS to match the configuration that you implement here. Go to Advanced Menu section of BIOS for detail.

2.7.4 Rear Panel I/O ports

The following illustration displays the motherboard I/O port array.

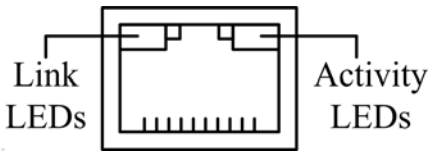


Type of Port	Function
PS/2 Mouse connector	The system will direct IRQ12 to the PS/2 mouse if one is detected. If not detected, IRQ12 can be used for expansion slot.
PS/2 Keyboard connector	This connection is for a standard keyboard using a PS/2 plug (mini DIN). This connector will not allow standard AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards.
USB Ports	Four external USB 2.0 ports that allow simultaneous connections of 2 USB devices.
Serial Port connector (9-pin male)	This serial port can be used for pointing devices or other serial devices. See BIOS setup.
VGA connector (15-pin female)	The VGA port connects display devices such as a monitor. See the BIOS setup.
Gigabit Ethernet Port 1 & 2	These ports are RJ-45. The motherboard uses the ServerWorks HT2000 integrated dual channel Gigabit Ethernet.
Ethernet Port 3 (OPMA)	This port is RJ-45. This port is ONLY for OPMA, not for regular network.

2.7.5 Back Panel LAN LED

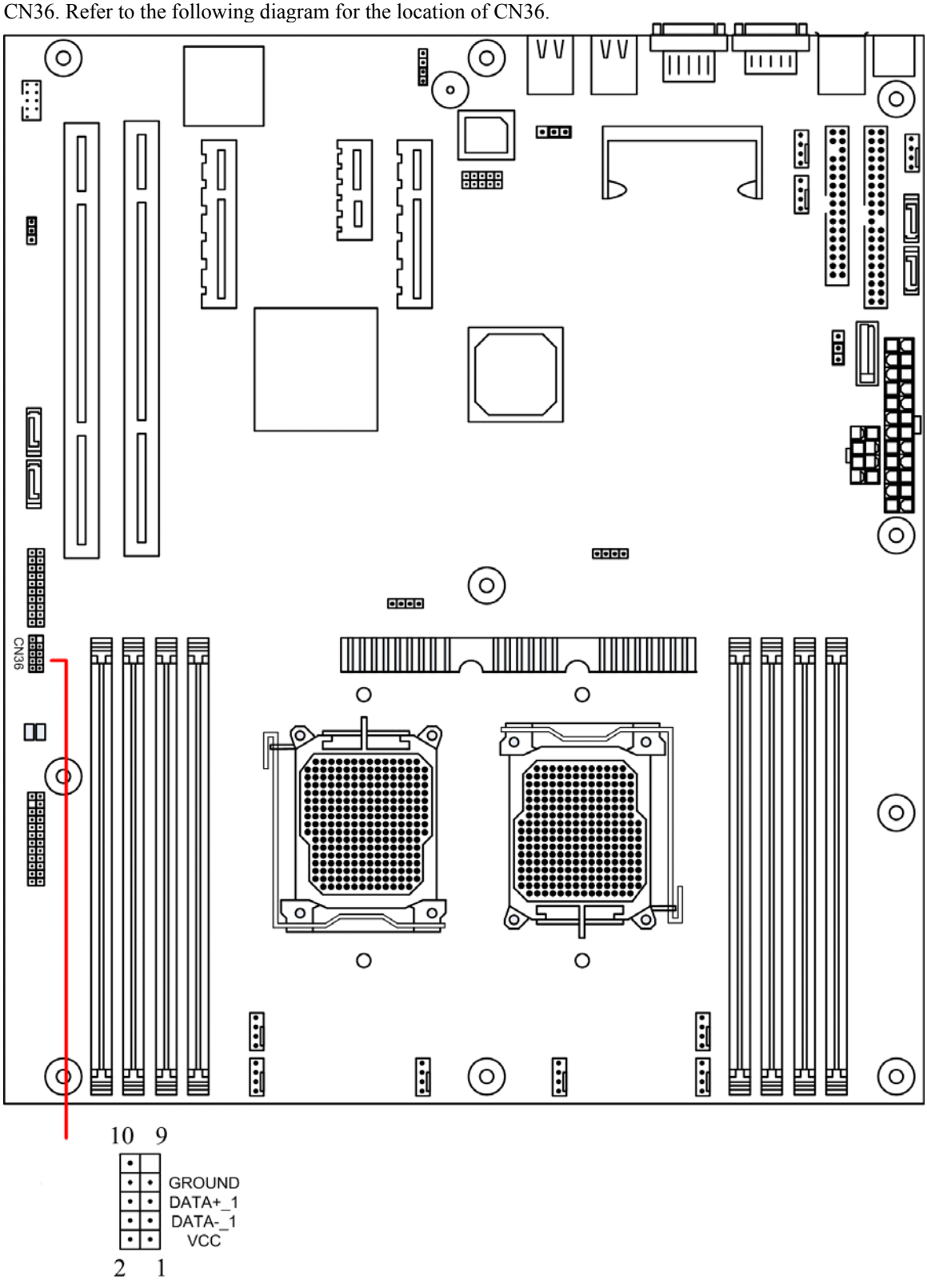
Back Panel LAN LED:
The table below will allow the user to monitor LAN activities from the back of the system.

Indication	Meaning
Activity LED flashing	Data activity
Link LED lighting up	Connected to network



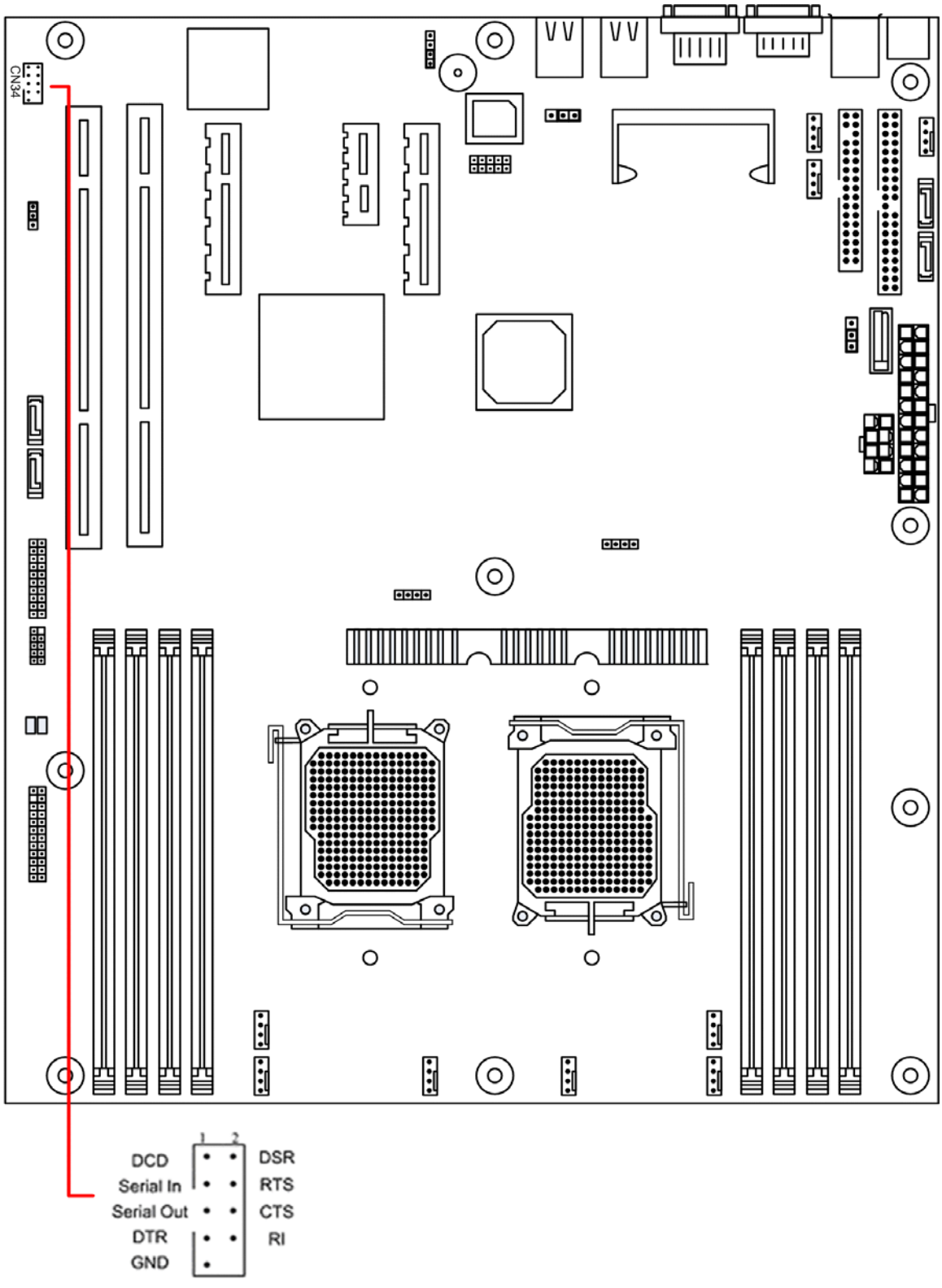
2.7.6 Front USB Connector

Header CN36 controls only one front USB connection. To activate the front USB, connect the USB wire to CN36. Refer to the following diagram for the location of CN36.



2.7.7 Front Panel Serial Port Connector

Header CN34 controls the activation of front panel serial port. In the specification, front panel serial port is COM2, the back panel is COM1.
Refer to the following diagram for location and orientation of CN34.


CN34
1
2
DCD
Serial In
Serial Out
DTR
GND
DSR
RTS
CTS
RI

Chapter 3. BIOS Setup

This chapter discusses the PhoenixBIOS setup program built into the ROM BIOS.
BIOS is the basic input/output system, the firmware on the motherboard that enables the hardware to interact with the software. The setup program allows the users to modify the basic system configurations according to their needs. The configuration is then stored in a battery-backed NVRAM so that it retains the configuration even when the power is turned off. The PhoenixBIOS installed in the motherboard's ROM is a custom version of an industry standard BIOS.
The rest of the chapter will list all the menus and sub-menus in the BIOS. Along with them, you can also find the list of varieties for any configurable item in the BIOS.

3.1 Entering BIOS Setup

The PhoenixBIOS is activated when the system powers on. The BIOS reads the system information contained in the CMOS and begins the process of checking the system and configuring it. After finish configuring the whole system, BIOS will seek for an OS on the disk and turn the control of the system over to the OS that is found.
While BIOS is in control, the Setup menu can be accessed by pressing the <F2> key when the following message appears briefly at the bottom of the screen during Power On Self Test: "Press <F2> to enter SETUP."

3.2 Using Setup

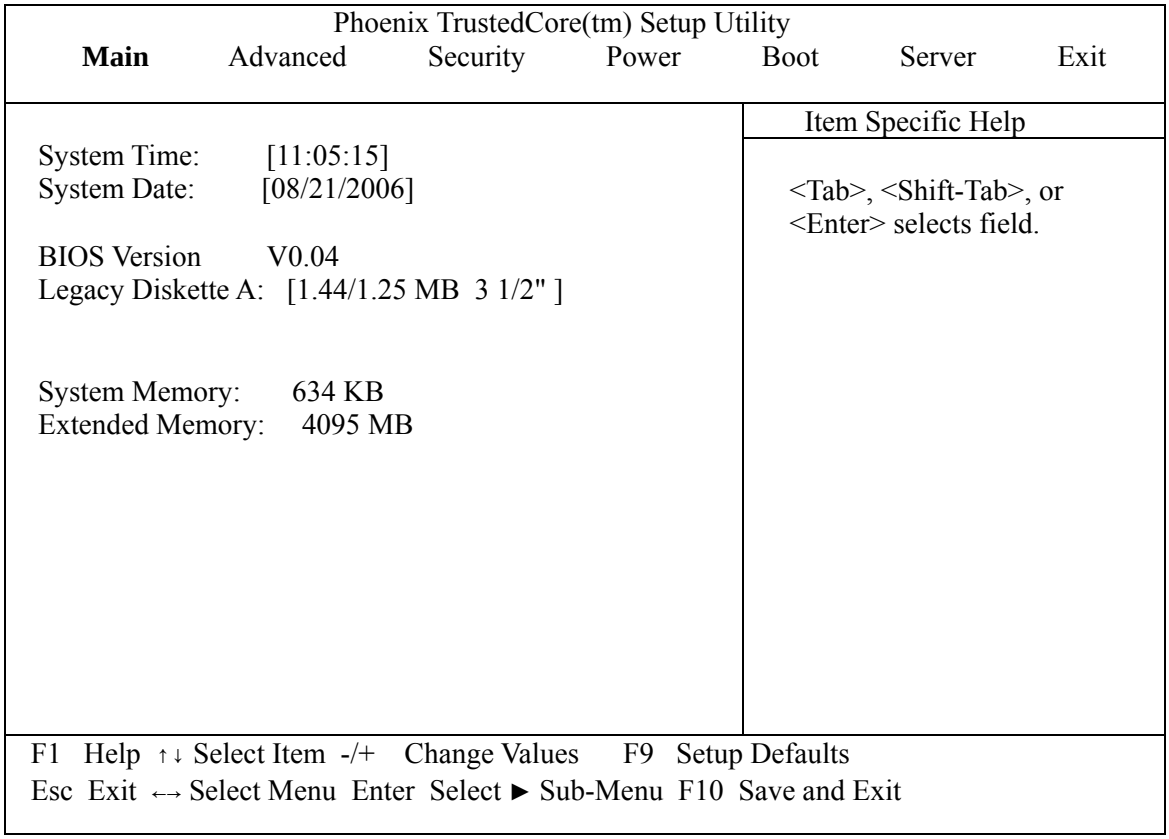
The following table provides details about how to navigate the Setup program using keyboard.

KEY	FUNCTION
Up Arrow ↑	Move to the previous item.
Down Arrow ↓	Move to the next item.
Left Arrow ←	Move to the previous menu.
Right Arrow →	Move to the next menu.
Esc	In the sub-menu: Exit the sub-menu. In the main menu: Exit without saving.
Enter	Select the item. A pop-up window will appear to allow setting of the item's value. If the item has a ► in front of it, it means that the item leads to a sub-menu. Pressing <Enter> will take you to the sub-menu.
+	Increase the numeric value or goes to the previous setting value.
-	Decrease the numeric value or goes to the next setting value.
F1	General help on setup navigation keys. Press <F1> key to pop up a small help window that describe the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <ESC> key or <F1> key again.
F9	Setup Defaults.
F10	Save and Exit.

3.3 Troubleshooting

In case the system cannot be booted after some changes in BIOS, use the clear CMOS jumper setting to reset the BIOS to default (See Page 23). To avoid such problem, configure only the items that you thoroughly understand and refrain from modifying the advanced settings.

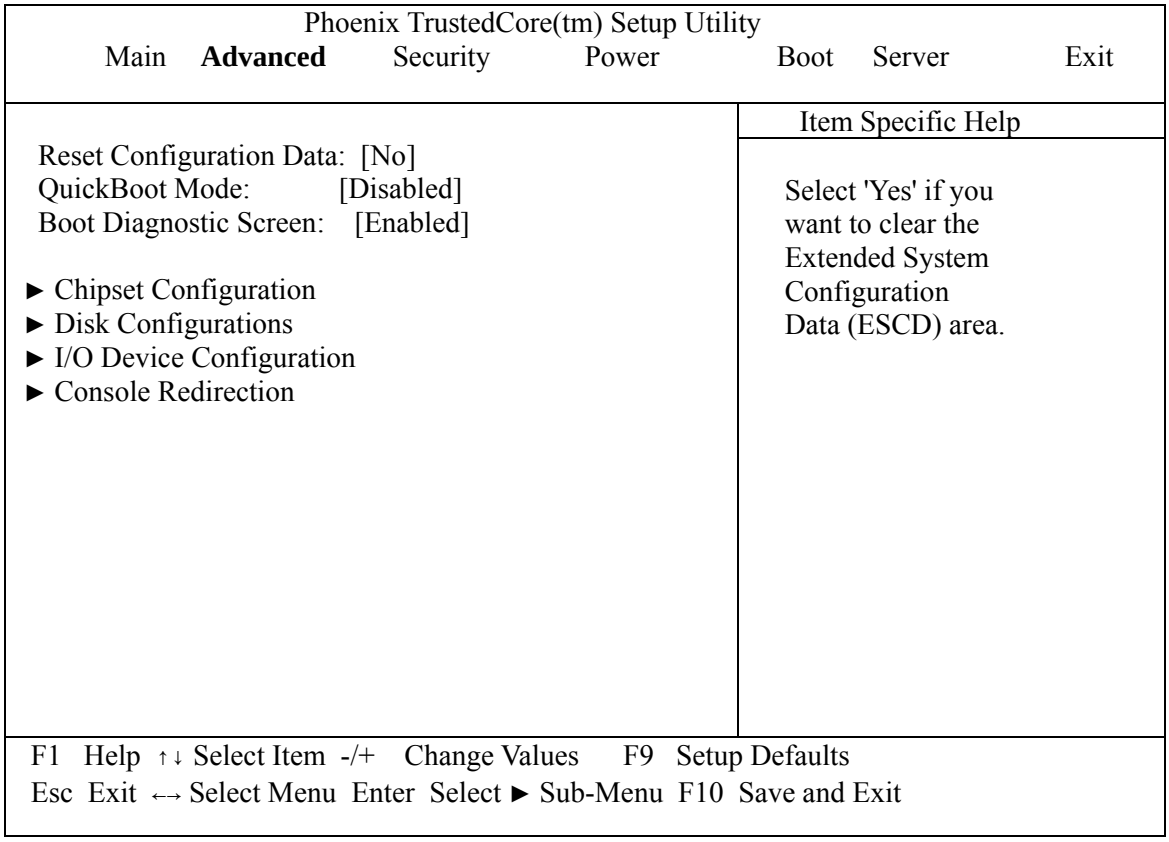
3.4 Main Menu:



The following table shows the items that you can customize on under the Main menu page:

Item	Options	Description
System Time	No options.	Shows the time of the day in the format of Hour/Min/Sec.
System Date	No options.	Shows the date in the format of MM/DD/YYYY.
BIOS Version	No options.	Version of the BIOS.
Legacy Diskette A	Disabled 360 Kb 5 1/4" 1.2 MB 5 1/4" 720 Kb 3 1/2" 1.44/1.25 MB 3 1/2" 2.88 MB 3 1/2"	Selects floppy type. Note that 1.25 MB 3 1/2" references a 1024 byte/sector Japanese media format. The 1.25 MB, 3 1/2" diskette requires a 3-Mode floppy-disk drive.
System Memory	No options.	This item is not configurable to user.
Extended Memory	No options.	This item is not configurable to user.

3.5 Advanced Menu:

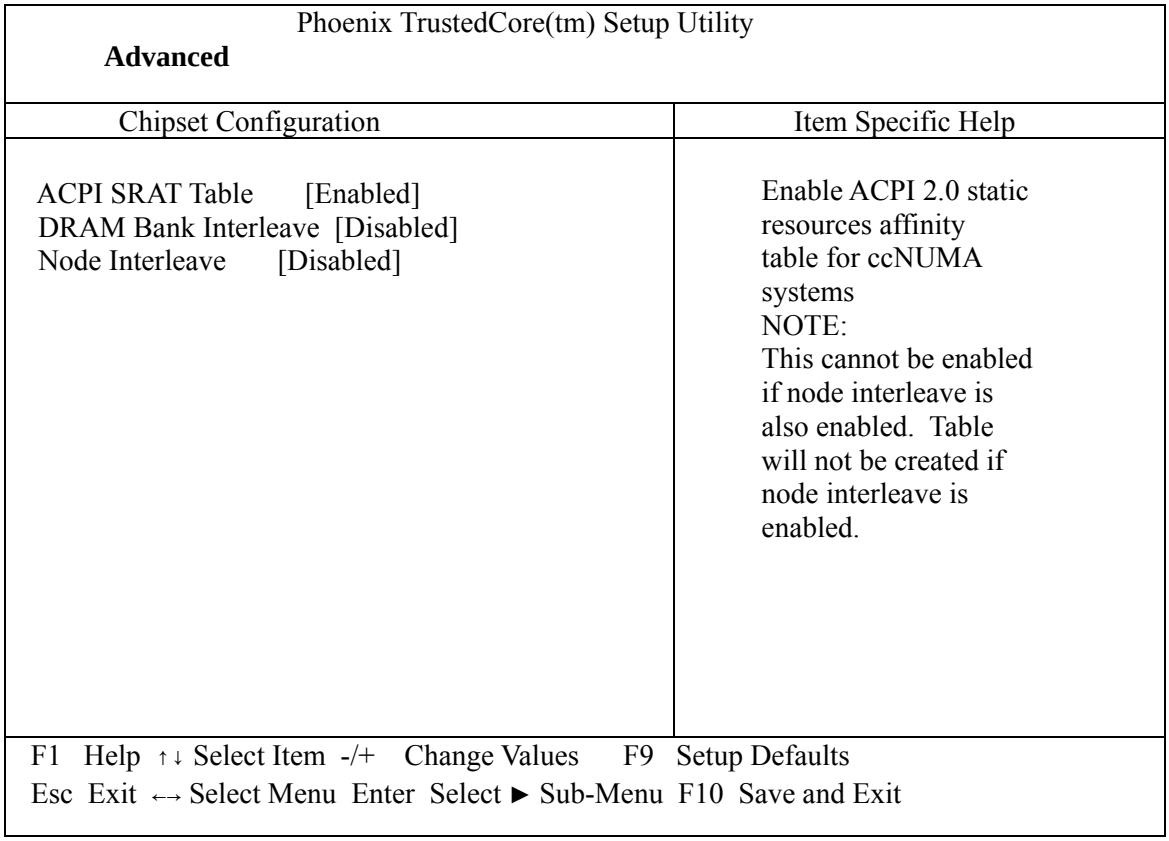


The following table shows the items that you can customize on the Advanced menu page:

Item	Options	Description
Reset Configuration Data	No Yes	Select 'Yes' if you want to clear the Extended System Configuration Data (ESCD) area.
QuickBoot Mode	Disabled Enabled	Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system.
Boot Diagnostic Screen	Disabled Enabled	Display the diagnostic screen during boot

3.5.1 Chipset Configuration Sub-Menu

The Chipset Configuration sub-menu is shown in following figure:



The following table shows the items that you can customize on the Chipset Configuration sub-menu page:

Item	Options	Description
ACPI SRAT Table	Disabled Enabled	Enable ACPI 2.0 static resources affinity table for ccNUMA systems NOTE: This cannot be enabled if node interleave is also enabled. Table will not be created if node interleave is enabled.
DRAM Bank Interleave	Disabled AUTO	Interleave memory blocks across the DRAM chip selects. Auto will set this enabled when possible.
Node Interleave	Disabled AUTO	Interleave memory blocks across nodes. Auto will set this enabled when possible.

3.5.2 Disk Configurations Sub-Menu

The Disk Configurations sub-menu should look like following:

<table>
<tr><td colspan="2">Phoenix TrustedCore(tm) Setup Utility
Advanced</td></tr>
<tr><td>Disk Configurations</td><td>Item Specific Help</td></tr>
<tr><td>Embedded SATA [Enabled]
SATA mode [IDE]

► Primary Master [100GB]
► Primary Slave [CD-ROM]</td><td>Embedded SATA
enable or
disable</td></tr>
<tr><td colspan="2">F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ► Sub-Menu F10 Save and Exit</td></tr>
</table>

The following table shows the items that you can customize on the Disk Configurations sub-menu page:

Item	Options	Description
Embedded SATA	Disabled Enabled	Embedded SATA enable or disable
SATA mode	IDE MMIO	select mode: IDE or MMIO.

Primary Master sub-menu:

Phoenix TrustedCore(tm) Setup Utility **Advanced**	
Primary Master [100GB]	Item Specific Help
Type: [Auto] LBA Format Total Sectors: 195813072 Maximum Capacity: 100GB Multi-Sector Transfers: [16 Sectors] LBA Mode Control: [Enabled] 32 Bit I/O: [Disabled] Transfer Mode: [Fast PIO 4] Ultra DMA Mode: [Mode 6]	User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ↔ Select Menu Enter Select ► Sub-Menu F10 Save and Exit	

Primary Slave sub-menu:

Phoenix TrustedCore(tm) Setup Utility **Advanced**	
Primary Slave [CD-ROM]	Item Specific Help
Type: [Auto] Multi-Sector Transfers: [Disabled] LBA Mode Control: [Disabled] 32 Bit I/O: [Disabled] Transfer Mode: [Fast PIO 4] Ultra DMA Mode: [Mode 2]	User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ↔ Select Menu Enter Select ► Sub-Menu F10 Save and Exit	

3.5.3 I/O Device Configuration Sub-Menu

The I/O Device Configuration sub-menu looks like the following:

<table>
<tr><td colspan="2">Phoenix TrustedCore(tm) Setup Utility
Advanced</td></tr>
<tr><td>I/O Device Configuration</td><td>Item Specific Help</td></tr>
<tr><td>Serial port A: [Auto]
Serial port B: [Auto]

Floppy disk controller: [Enabled]

USB BIOS Legacy Support: [Enabled]</td><td>Configure serial port A using options:

[Disabled]
No configuration

[Enabled]
User configuration

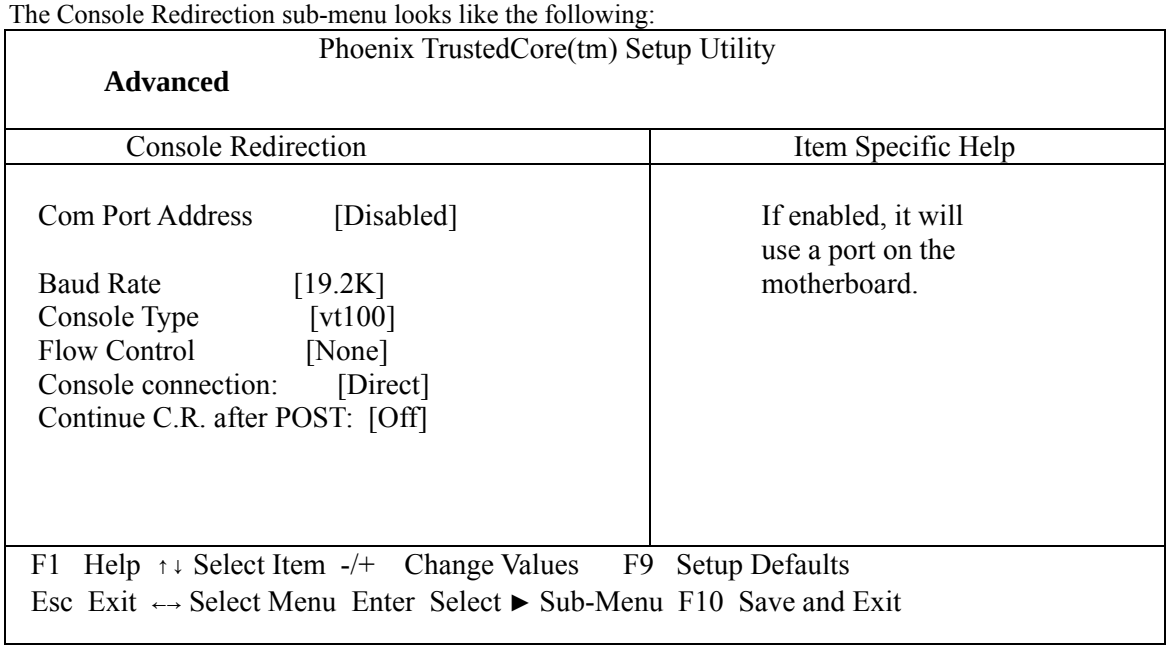
(OS Controlled)
Displayed when controlled by OS</td></tr>
<tr><td colspan="2">F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ► Sub-Menu F10 Save and Exit</td></tr>
</table>

The table below is a list of items that you can customize on the I/O Device Configuration sub-menu.

Item	Options	Description
Serial port A	Disabled Enabled AUTO	Disabled - No configuration Enabled - User configuration Auto - BIOS or OS chooses configuration (OS Controlled) Displayed when controlled by OS
Serial port B	Disabled Enabled AUTO	Disabled - No configuration Enabled - User configuration Auto - BIOS or OS chooses configuration (OS Controlled) Displayed when controlled by OS
Floppy disk controller	Disabled Enabled AUTO	Enable or disable onboard legacy floppy diskette controller. NOTE: IF disabled is chosen please set main menu legacy diskettes to disabled. IF not done and an add-in removable device is used, it will not be assigned drive number 0 (or a:).
USB BIOS Legacy Support	Disabled Enabled	Enables or Disables support for USB Keyboards and Mice. (Enable for use with a non-USB aware Operating System such as DOS or UNIX)

3.5.4 Console Redirection Sub-Menu

The Console Redirection sub-menu looks like the following:

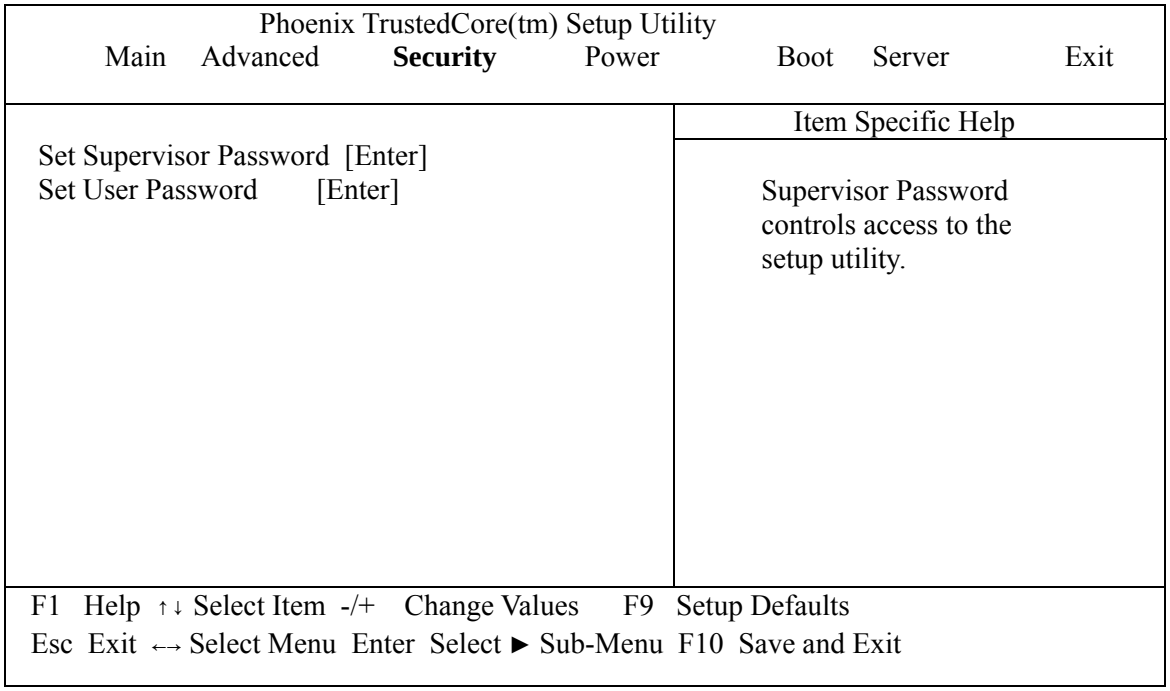


The following table shows the items that you can customize on the Console Redirection sub-menu page:

Item	Options	Description
Com Port Address	Disabled On-board COM A On-board COM B	If enabled, it will use a port on the motherboard.
Baud Rate	300 1200 2400 9600 19.2K 38.4K 57.6K 115.2K	Enables the specified baud rate.
Console Type	vt100 vt100 8bit ANSI 7bit ANSI vt100 plus UTF8 ASCII	Enables the specified console type.
Flow Control	None XON/XOFF CTS/RTS	Enables Flow Control
Console connection	Direct Via modem	Indicate whether the console is connected directly to the system or a modem is used to connect.
Continue C.R. after POST	Off On	Enables Console Redirection after OS has loaded.

3.6 Security Menu:

The Security Menu is shown as the following figure:

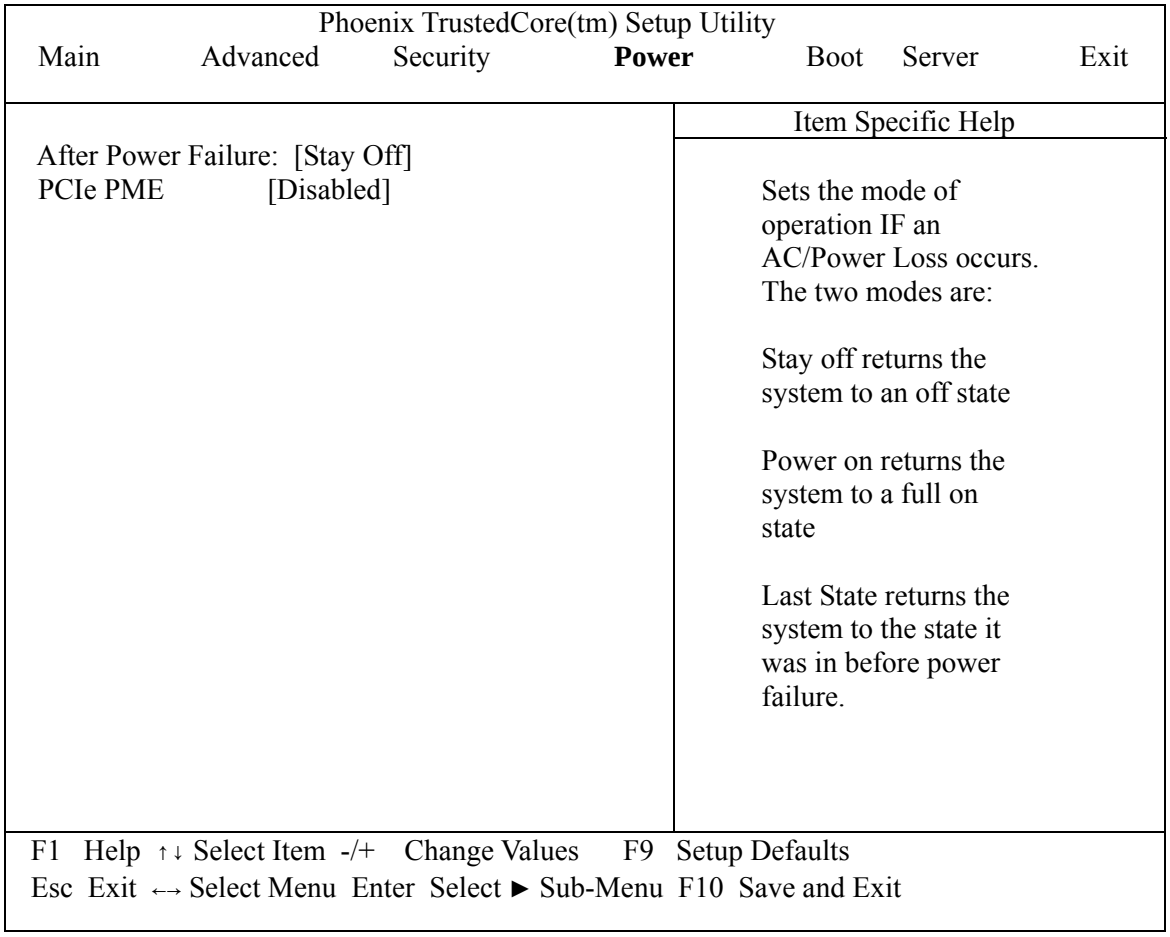


The following table shows the items that you can customize on the Security Menu page:

Item	Options	Description
Set Supervisor Password	Enter New Password [ ] Confirm New Password [ ]	Supervisor Password controls access to the setup utility.
Set User Password	Enter New Password [ ] Confirm New Password [ ]	User Password controls access to the system at boot.

3.7 Power Menu:

The Power Menu is shown as following figure:



The following table shows the items that you can customize on the Power Menu:

Item	Options	Description
After Power Failure	Stay Off Last State	Sets the mode of operation IF an AC/Power Loss occurs. Stay off - returns the system to an off state Power on - returns the system to a full on state Last State - returns the system to the state it was in before power failure.
PCIe PME	Disabled Enabled	

3.8 Boot Menu:

All the possible devices that you can boot from are automatically detected and listed on the page.
The first device listed is the first boot device. In the example shown below, the Floppy Drive is the first boot device, followed by the Maxtor 6L100P0-(PM) hard drive and COMBO COB-1H4816-(PS) CD rom.

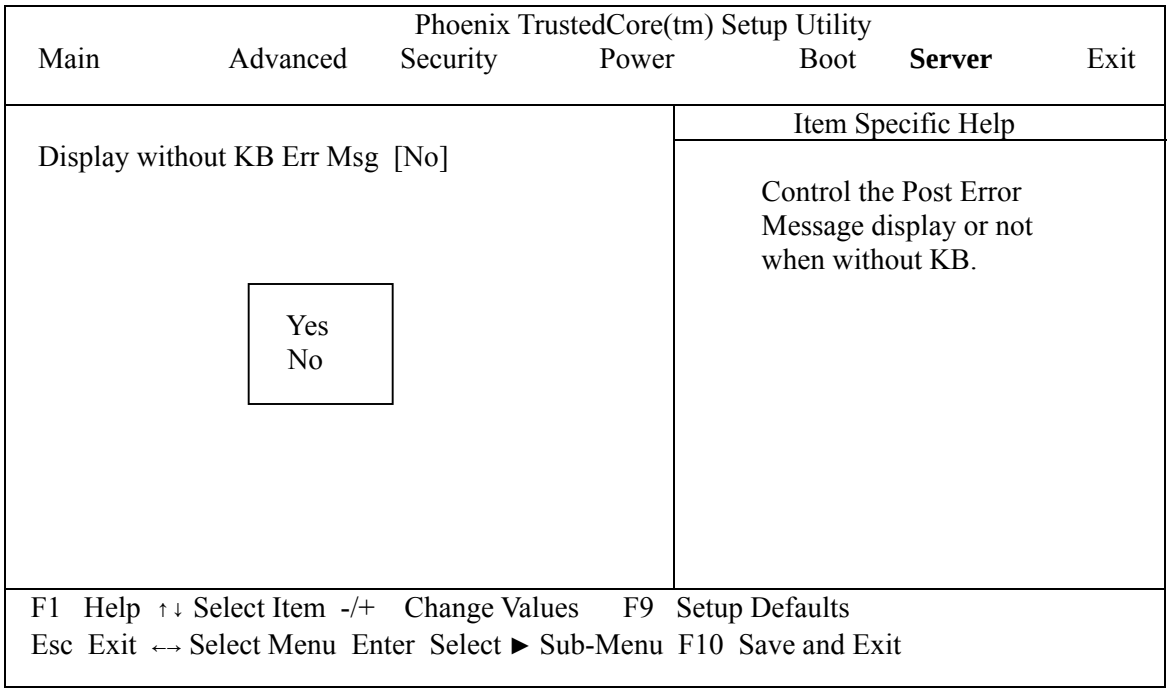
Phoenix TrustedCore(tm) Setup Utility

Main Advanced Security Power **Boot** Server Exit

	Item Specific Help
Boot priority order: 1: Legacy Floppy Drives 2: IDE 0: Maxtor 6L100P0-(PM) 3: IDE CD: COMBO COB-1H4816-(PS) 4: 5: 6: 7: 8: Excluded from boot order: : PCI BEV: MBA v8.2.5 Slot 0420 : PCI BEV: MBA v8.2.5 Slot 0421 : ALL USB KEY : All USB Floppy : All USB HDD : All PCI SCSI : Legacy Network Card	Keys used to view or configure devices: Up and Down arrows select a device. <+> and <-> moves the device up or down. <f> and <r> specifies the device fixed or removable. <x> exclude or include the device to boot. <Shift + 1> enables or disables a device. <1 - 4> Loads default boot sequence.

F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ► Sub-Menu F10 Save and Exit

3.9 Server Menu:



3.10 Exit Menu:

Phoenix TrustedCore(tm) Setup Utility Main Advanced Security Power Boot Server **Exit**	
Exit Saving Changes Exit Discarding Changes Load Setup Defaults Discard Changes Save Changes	Item Specific Help Exit System Setup and save your changes to CMOS.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ↔ Select Menu Enter Select ► Sub-Menu F10 Save and Exit	

APPENDIX I: Glossary

ACPI (Advanced Configuration and Power Interface): a power management specification that allows the operating system to control the amount of power distributed to the computer's devices. Devices not in use can be turned off, reducing unnecessary power expenditure.

AGP (Accelerated Graphics Port): a PCI-based interface which was designed specifically for demands of 3D graphics applications. The 32-bit AGP channel directly links the graphics controller to the main memory. While the channel runs only at 66 MHz, it supports data transmission during both the rising and falling ends of the clock cycle, yielding an effective speed of 133 MHz.

ATAPI (AT Attachment Packet Interface): also known as IDE or ATA; a drive implementation that includes the disk controller on the device itself. It allows CD-ROMs and tape drives to be configured as master or slave devices, just like HDDs.

ATX: the form factor designed to replace the AT form factor. It improves on the AT design by rotating the board 90 degrees, so that the IDE connectors are closer to the drive bays, and the CPU is closer to the power supply and cooling fan. The keyboard, mouse, USB, serial, and parallel ports are built-in.

Bandwidth: refers to carrying capacity. The greater the bandwidth, the more data the bus, phone line, or other electrical path can carry. Greater bandwidth results in greater speed.

BIOS (Basic Input/Output System): the program that resides in the ROM chip, which provides the basic instructions for controlling your computer's hardware. Both the operating system and application software use BIOS routines to ensure compatibility.

Buffer: a portion of RAM which is used to temporarily store data; usually from an application though it is also used when printing and in most keyboard drivers. The CPU can manipulate data in a buffer before copying it to a disk drive. While this improves system performance (reading to or writing from a disk drive a single time is much faster than doing so repeatedly) there is the possibility of losing your data should the system crash. Information in a buffer is temporarily stored, not permanently saved.

Bus: a data pathway. The term is used especially to refer to the connection between the processor and system memory, and between the processor and PCI or ISA local buses.

Bus mastering: allows peripheral devices and IDEs to access the system memory without going through the CPU (similar to DMA channels).

Cache: a temporary storage area for data that will be needed often by an application. Using a cache lowers data access times since the information is stored in SRAM instead of slower DRAM. Note that the cache is also much smaller than your regular memory: a typical cache size is 512KB, while you may have as much as 4GB of regular memory.

Closed and open jumpers: jumpers and jumper pins are active when they are "on" or "closed", and inactive when they are "off" or "open".

CMOS (Complementary Metal-Oxide Semiconductors): chips that hold the basic startup information for the BIOS.

COM port: another name for the serial port, which is called as such because it transmits the eight bits of a byte of data along one wire, and receives data on another single wire (that is, the data is transmitted in serial form, one bit after another). Parallel ports transmit the bits of a byte on eight different wires at the same time (that is, in parallel form, eight bits at the same time).

DDR (Double Data Rate): a technology designed to double the clock speed of the memory. It activates output on both the rising and falling edge of the system clock rather than on just the rising edge, potentially doubling output.

DIMM (Dual In-line Memory Module): faster and more capacious form of RAM than SIMMs, and do not need to be installed in pairs.

DIMM bank: sometimes called DIMM socket because the physical slot and the logical unit are the same. That is, one DIMM module fits into one DIMM socket, which is capable of acting as a memory bank.

DMA (Direct Memory Access): channels that are similar to IRQs. DMA channels allow hardware devices (like soundcards or keyboards) to access the main memory without involving the CPU. This frees up CPU resources for other tasks. As with IRQs, it is vital that you do not double up devices on a single line. Plug-n-Play devices will take care of this for you.

DMI: A specification that establishes a standard framework for managing networked computers. DMI covers hardware and software, desktop systems and servers, and defines a model for filtering events and describing interfaces.

DRAM (Dynamic RAM): widely available, very affordable form of RAM which looses data if it is not recharged regularly (every few milliseconds). This refresh requirement makes DRAM three to ten times slower than non-recharged RAM such as SRAM.

ECC (Error Correction Code or Error Checking and Correcting): allows data to be checked for errors during run-time. Errors can subsequently be corrected at the same time that they're found.

EEPROM (Electrically Erasable Programmable ROM): also called Flash BIOS, it is a ROM chip which can, unlike normal ROM, be updated. This allows you to keep up with changes in the BIOS programs without having to buy a new chip.

ESCD (Extended System Configuration Data): a format for storing information about Plug-n-Play devices in the system BIOS. This information helps properly configure the system each time it boots.

Firmware: low-level software that controls the system hardware.

Form factor: an industry term for the size, shape, power supply type, and external connector type of the Personal Computer Board (PCB) or motherboard. The standard form factors are the AT and ATX.

IDE (Integrated Device/Drive Electronics): a simple, self-contained HDD interface. It can handle drives up to 8.4 GB in size. Almost all IDEs sold now are in fact Enhanced IDEs (EIDEs), with maximum capacity determined by the hardware controller.

IDE INT (IDE Interrupt): a hardware interrupt signal that goes to the IDE.

I/O (Input/Output): the connection between your computer and another piece of hardware (mouse, keyboard, etc.)

IRQ (Interrupt Request): an electronic request that runs from a hardware device to the CPU. The interrupt controller assigns priorities to incoming requests and delivers them to the CPU. It is important that there is only one device hooked up to each IRQ line; doubling up devices on IRQ lines can lock up your system. Plug-n-Play operating systems can take care of these details for you.

Latency: the amount of time that one part of a system spends waiting for another part to catch up. This occurs most commonly when the system sends data out to a peripheral device and has to wait for the peripheral to spread (peripherals tend to be slower than onboard system components).

NVRAM: ROM and EEPROM are both examples of Non-Volatile RAM, memory that holds its data without power. DRAM, in contrast, is volatile.

OPROM: Firmware on adapter cards that control bootable peripherals. The system BIOS interrogates the option ROMs to determine which devices can be booted.

Parallel port: transmits the bits of a byte on eight different wires at the same time.

PCI (Peripheral Component Interconnect): a 32 or 64-bit local bus (data pathway) which is faster than the ISA bus. Local buses are those which operate within a single system (as opposed to a network bus, which connects multiple systems).

PCI PIO (PCI Programmable Input/Output) modes: the data transfer modes used by IDE drives. These modes use the CPU for data transfer (in contrast, DMA channels do not). PCI refers to the type of bus used by these modes to communicate with the CPU.

PCI-to-PCI bridge: allows you to connect multiple PCI devices onto one PCI slot.

PnP (Plug-n-Play): a design standard that has become ascendant in the industry. Plug-n-Play devices require little set-up to use. Devices and operating systems that are not Plug-n-Play require you to reconfigure your system each time you add or change any part of your hardware.

RAID (Redundant Array of Independent Disks): a way for the same data to be stored in different places on many hard drives. By using this method, the data is stored redundantly and multiple hard drives will appear as a single drive to the operating system. RAID level 0 is known as striping, where data is striped (or overlapped) across multiple hard drives, but offers no fault-tolerance. RAID level 1 is known as mirroring, which stores the data within at least two hard drives, but does not stripe. RAID level 1 also allows for faster access time and fault-tolerance, since either hard drive can be read at the same time. RAID level 0+1 is both striping and mirroring, providing fault-tolerance, striping, and faster access all at the same time.

SDRAM (Synchronous Dynamic RAM): called as such because it can keep two sets of memory addresses open simultaneously. By transferring data alternately from one set of addresses and then the other, SDRAM cuts down on the delays associated with non-synchronous RAM, which must close one address bank before opening the next.

Serial port: called as such because it transmits the eight bits of a byte of data along one wire, and receives data on another single wire (that is, the data is transmitted in serial form, one bit after another).

Sleep/Suspend mode: in this mode, all devices except the CPU shut down.

SRAM (Static RAM): unlike DRAM, this type of RAM does not need to be refreshed in order to prevent data loss. Thus, it is faster and more expensive.

SMBIOS: The system management specification addresses how motherboard and system vendors present management information about their products in a standard format by extending the BIOS interface on Intel architecture systems.

Standby mode: in this mode, the video and hard drives shut down; all other devices continue to operate normally.

UltraDMA-33/66/100: a fast version of the old DMA channel. UltraDMA is also called UltraATA. Without a proper UltraDMA controller, your system cannot take advantage of higher data transfer rates of the new UltraDMA/UltraATA hard drives.

USB (Universal Serial Bus): a versatile port. This one port type can function as a serial, parallel, mouse, keyboard or joystick port. It is fast enough to support video transfer, and is capable of supporting up to 127 daisy-chained peripheral devices.

ZCR (Zero Channel RAID): ZCR card provides RAID-5 solution by working with the onboard SCSI/SATA/SATA-II chip through special PCI-X slot with Intel RAIDIOS logic, thus lowering cost of RAID-5 solution