



**HDAMA Rev.I
USER MANUAL**

**Arima Computer Corp.
Building Your Competitive Advantage**

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Always read the safety instructions carefully.

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Release Date: Dec. 2005

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.
- 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.

Chapter 1. Getting Started

1.1 Congratulations

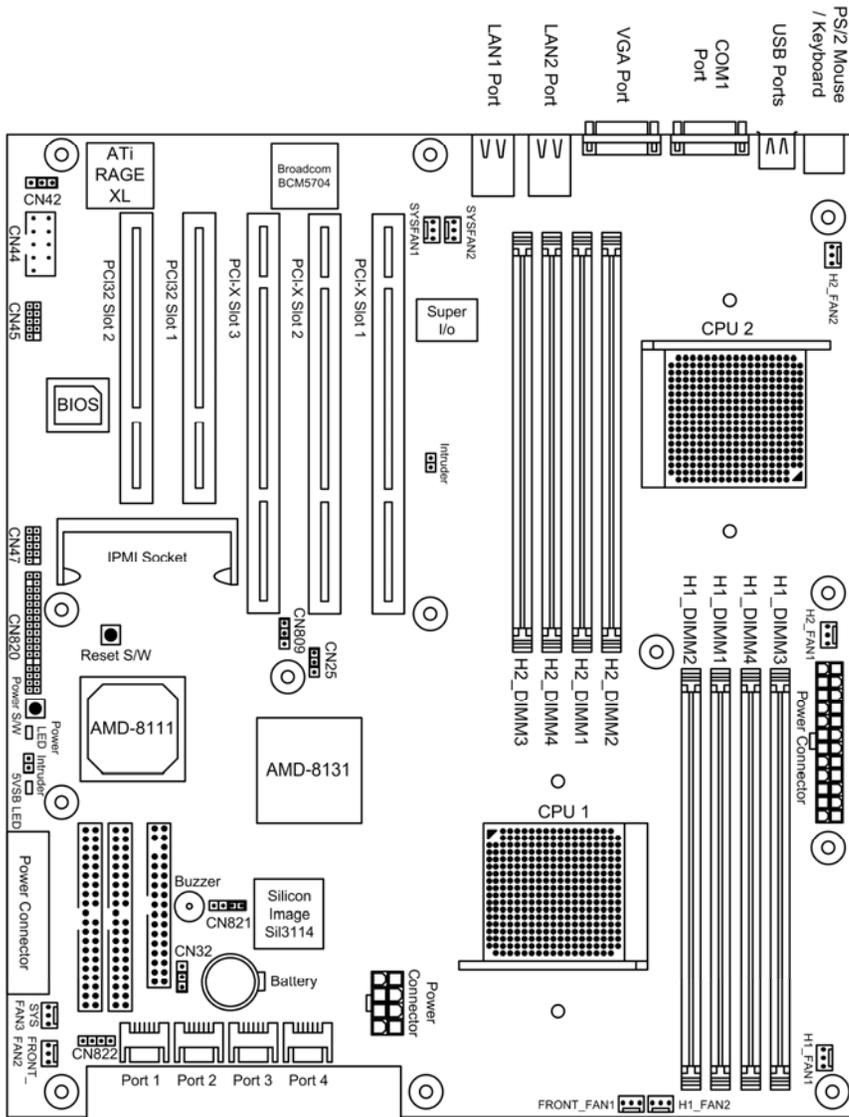
You have in possession one of the most powerful and versatile 2-way AMD Opteron processor solutions, the HDAMA Rev.I. Powered by cutting edge AMD 8131 and 8111 chipsets, HDAMA Rev.I efficiently utilizes the combined strength of 1600MT/sec HyperTransport, three PCI-X slots and integrated SATA controller, to name just a few. HDAMA Rev.I sports 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 HDAMA Rev.I. Thank you for purchasing Arima Computer Corp. family of products.

1.2 Unpacking

Arima Computer Corp. provides a number of accessories for your convenience. Check for the following items that come with your motherboard:

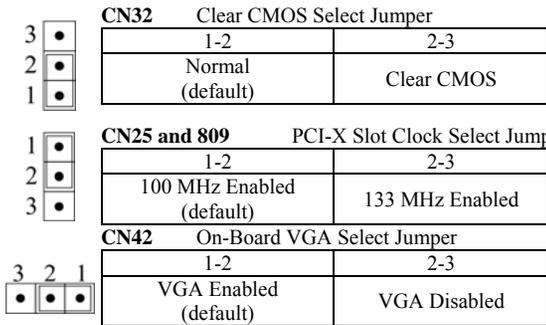
- 2 sets of CPU retention units
- 2 SATA Data Cable / 1 SATA power cable
- 1 Cable Kit (including 1 x Floppy cable, 1 x IDE cable, and 3 x jumpers)
- 1 I/O shield
- 1 Driver CD
- 1 Quick Installation Guide

1.2.1 Quick Installation Guide

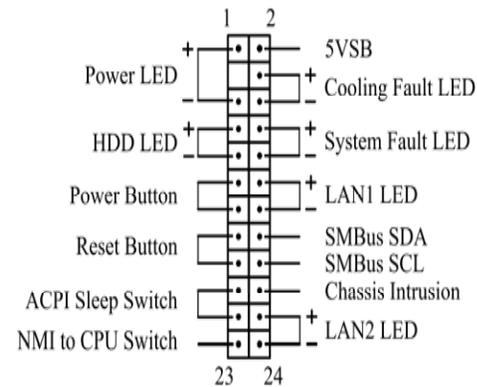


HDAMA-I Rev.I has IPMI socket and SATA controller
 HDAMA-F Rev.I has SATA controller without IPMI socket
 HDAMA Rev.I does not have SATA controller and IPMI socket

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



CN820 Front Panel Switches

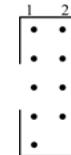


CN821 Speaker Header



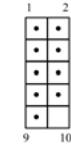
Pin	Description
1	Speaker
2	Buzzer
3	N/A
4	Speaker Power

CN44 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		

CN47 USB Header



Pin	Description	Pin	Description
1	VCC 1	2	VCC 2
3	Data - 1	4	Data - 2
5	Data + 1	6	Data + 2
7	Ground 1	8	Ground 2
9	NC/Key	10	NC/Key

CN822 SATA LED Header



Pin	Description
1	SATA_LED1
2	SATA_LED2
3	SATA_LED3
4	SATA_LED4

LAN Connector Indicator Light



Indication	Meaning
LED off	No link
LED flashing	Data activity
Left LED Green	Link at 10Mbps
Right LED Orange	Link at 100Mbps
Right LED Green	Link at 1000Mbps

Recommended Memory Configurations

1 DIMM	CPU1 Bank: Slot 1 or Slot 3 (This only provides 64-bit memory access)	
2 DIMMs	CPU1 Bank: Slot 1, 2 or Slot 3, 4	
4 DIMMs	Single Processor	CPU1 Bank: Slot 1, 2, 3, 4 *
	Dual Processor	CPU1 Bank: Slot 1, 2 or Slot 3, 4 CPU2 Bank: Slot 1, 2 or Slot 3, 4
6 DIMMs	CPU1 Slot 1, 2, 3, 4 *	
	CPU2 Slot 1, 2	
8 DIMMs	CPU1 Slot 1, 2, 3, 4 *	
	CPU2 Slot 1, 2, 3, 4 *	

* To support full speed of DDR400, please use [Single, Single, Single, Single] or [Double, Double, Single, Single] or [Single, Single, Double, Double]. Besides, DDR400 is supported by CPU rev C0 and later.

1.3 Features Highlight

CPU:

- Supports high productivity 2-way AMD Opteron processors configuration
- Supports Single and Dual Core AMD Opteron processor

CHIPSET:

- Runs state of the art AMD 8131 and 8111 Chipsets

SYSTEM MEMORY:

- Eight 184-pin DDR 400 memory slots
- Up to 32GB system memory size

EXPANSION SLOTS:

- Supports 64-bit PCI-X slots and 32-bit PCI32 slots

STORAGE:

- Total support of hard disk formats from SATA to ATA

INTEGRATED LAN CONTROLLER:

- Dual Gigabit Ethernet Ports

SYSTEM MANAGEMENT:

- SMBIOS 2.3.3 and DMI 2.0 compliant
- 64 bit OS ready
- Soft Power-down
- Multiple boot support (with BIOS Boot Specification v3.1 (BBS) support
- Wake on LAN

1.4 Motherboard Specification

Processors

- ❖ Dual uPGA 940 sockets
- ❖ Dual onboard 4-phase VRD
- ❖ Supports one or two AMD Opteron 200 series processors
- ❖ Supports Single and Dual Core AMD Opteron processor
- ❖ Supports 1600MT/s HyperTransport

Chipsets

- ❖ AMD 8131 and 8111 chipsets
- ❖ National Semiconductor Super I/O PC87360 chip
- ❖ Analog Devices ADM1026 Hardware Monitor chip

Memory

- ❖ 4+4 184-pin 2.6-Volt DDR DIMM sockets
- ❖ Dual channel memory bus
- ❖ Four-way interleaved memory banks (pair of DIMMs required)
- ❖ Supports DDR-400/333/266 memory
- ❖ Supports Registered ECC type memory modules only
- ❖ Supports up to 32GB

Expansion Slots

- ❖ Three 64-bit 133/100MHz PCI-X Slots
- ❖ Two 32-bit 33MHz (5V) PCI slot
- ❖ Total of five usable slots

Integrated SATA Controller (Optional, for HDAMA-F Rev.I and HDAMA-I Rev.I)

- ❖ SiliconImage Sil3114 4 ports Serial ATA controller
- ❖ PCI-32/33MHz interface
- ❖ Support RAID 0, 1, 10

Integrated ATA

- ❖ Provides one PCI bus master channels for up to two enhanced IDE devices
- ❖ Support for UDMA 133/100/66/33 IDE drives and ATAPI compliant device

Integrated Gigabit Ethernet Controller

- ❖ Boardcom 5704 dual ports Gigabit Ethernet controller
- ❖ PCI-X 64bit/133MHz interface
- ❖ Support Link aggregation, Fault-Tolerance and Fail-Over
- ❖ PXE option ROM solution
- ❖ Front panel LED output

Integrated Graphics Controller

- ❖ ATi RAGE XL PCI graphics controller
- ❖ 8MB Frame Buffer of video memory

Integrated USB 1.1

- ❖ Six USB 1.1 ports (2 rear panel connectors and 2 headers)
- ❖ Header supports up to 2 USB devices

Super I/O

- ❖ National Semiconductor Super I/O PC87360 chip
- ❖ One floppy connector supports two drive
- ❖ PS/2 mouse and PS/2 keyboard rear panel connectors
- ❖ Two 9-pin serial ports (one rear panel connector and one header)

Rear Panel I/O

- ❖ Stacked PS/2 mouse and PS/2 keyboard rear panel connectors
- ❖ Stacked two USB-2.0 connectors
- ❖ One 9-pin serial connector
- ❖ One DB15 Video connector
- ❖ Two RJ-45 connectors with LEDs

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)

System Management (Optional, for HDAMA-I Rev.I)

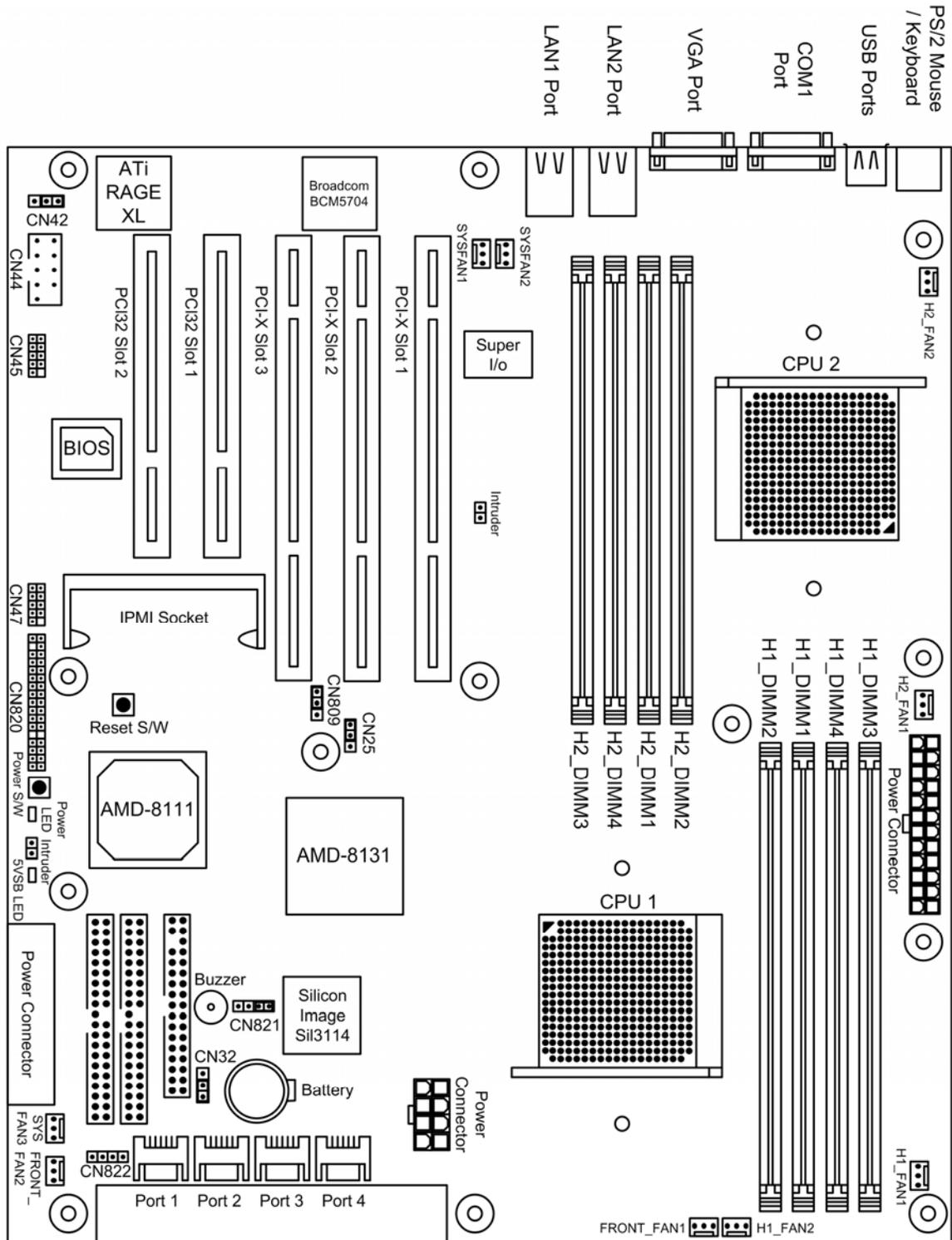
- ❖ SMC by Arima Scorpio Server Management Card (optional)
- ❖ IPMI socket
- ❖ IPMI2.0 compliance by Arima Scorpio Server Management Card (optional)

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

!INSTALLATION WARNING!

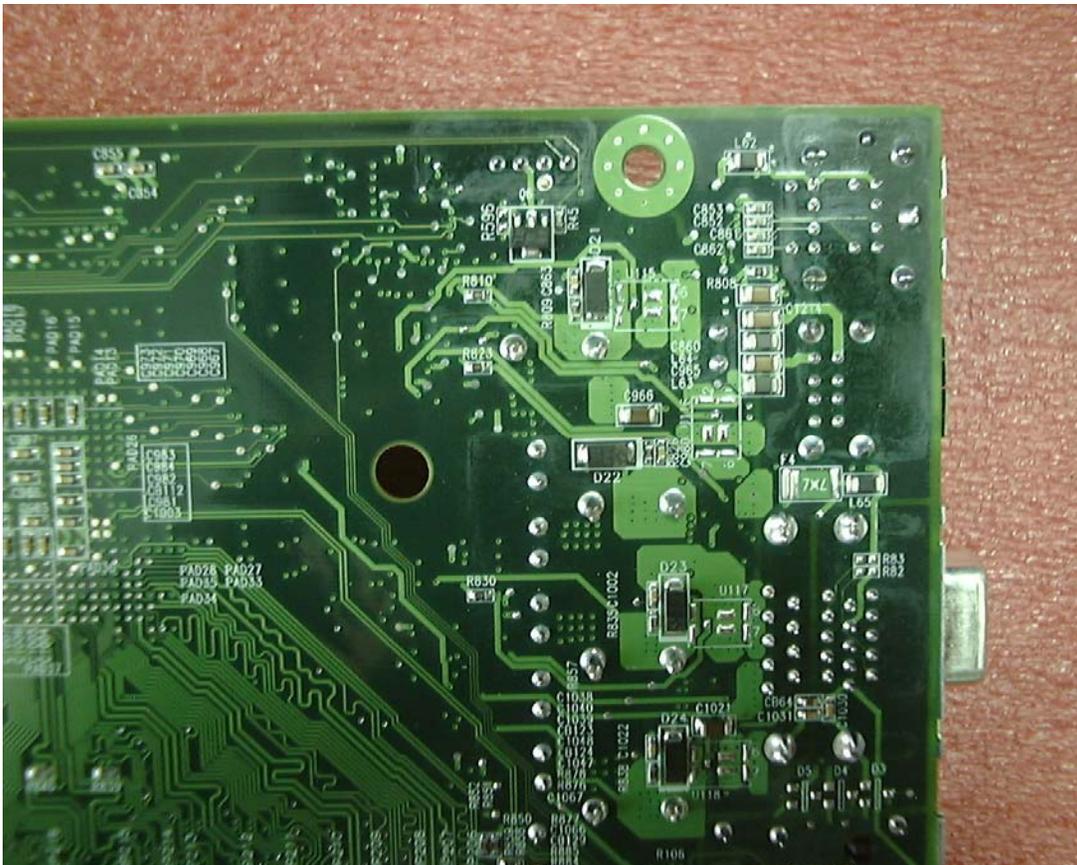
Use Caution When Installing the ServerBoard into the System Chassis

The components underneath the PS/2 Mouse/Keyboard connectors around the mounting hole are very FRAGILE and can be knocked off of their soldered positions, resulting in IRREPARABLE DAMAGE during installation when sliding the board into a system chassis.

Gently install the ServerBoard into the chassis, and use a Mylar Sheet to cover and protect the underside of the ServerBoard during installation. Take care NOT to scrape the bottom of the ServerBoard on the chassis stand-offs and mounting holes.

These components are necessary for many different operations, including the Mouse and the Keyboard. If you damage any of these chips, one of the symptoms is that the ServerBoard will NOT respond to key strokes through the PS/2 port and the ServerBoard will have to be replaced. Other symptoms include the loss of response or functionality in any of the rear I/O ports. Contact your authorized dealer for more information.

The Damage noted here in this WARNING may require the ServerBoard to be replaced. Due to the Nature of the Damage, this may be considered **Out-of-Warranty Damage**. Make certain that ALL documented procedures are followed correctly.



2.2 Installing the processor

HDAMA Rev.I operates best when dual AMD Opteron processors are in use. When using only one processor, install it in CPU1 socket.



We discourage you from installing in the CPU2 socket if you have only one processor to install. The result may be unpredictable.

Procedure:

First read the instructions that comes with the CPU

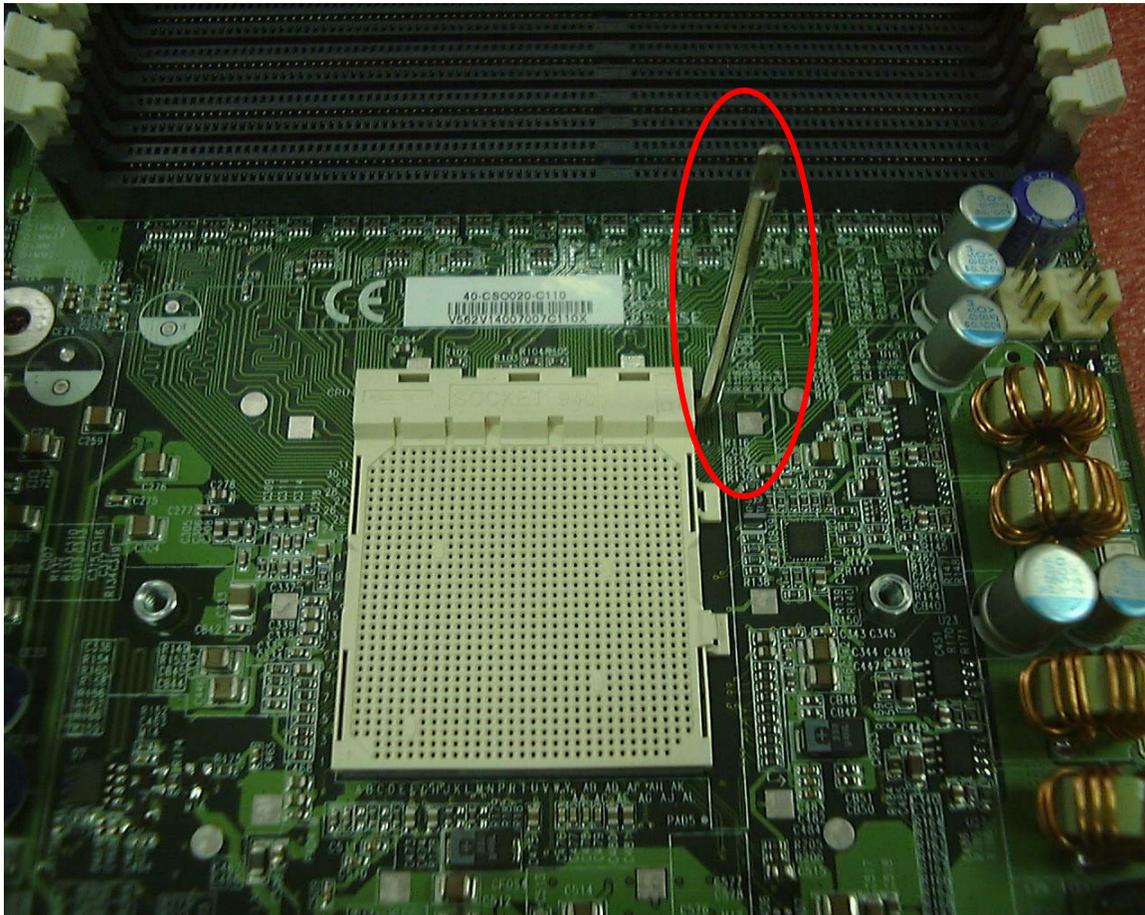
1. Flip over the motherboard and install the backplate. There are two holes around each CPU socket; align the backplate with the two holes around the CPU socket, insert the backplate from the back of the motherboard through the four holes. The backplate should now clamp onto the motherboard .



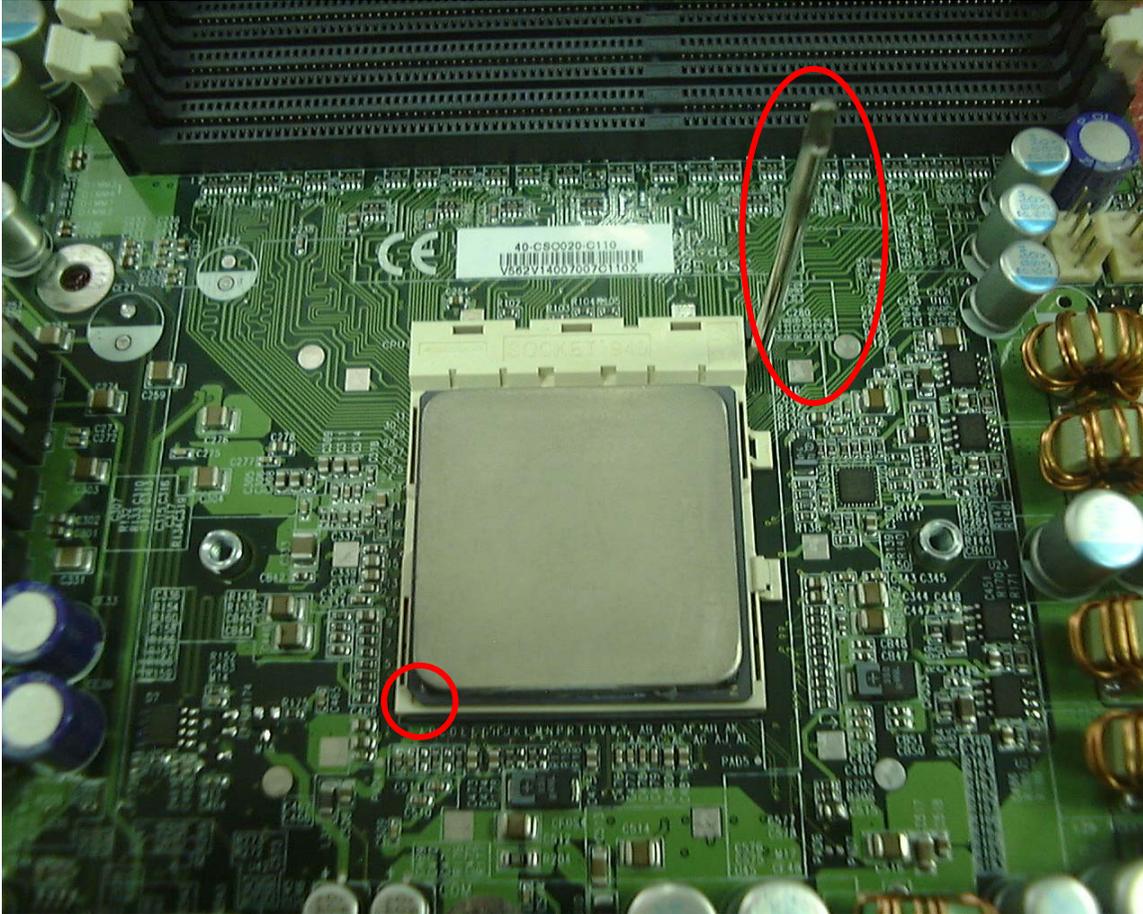


A good quality backplate should have tape over some parts of it that prevents electrical damage. Whenever possible, use high quality backplates to prolong the life of your motherboard.

2. Lift up the lever. Refer to the following picture.

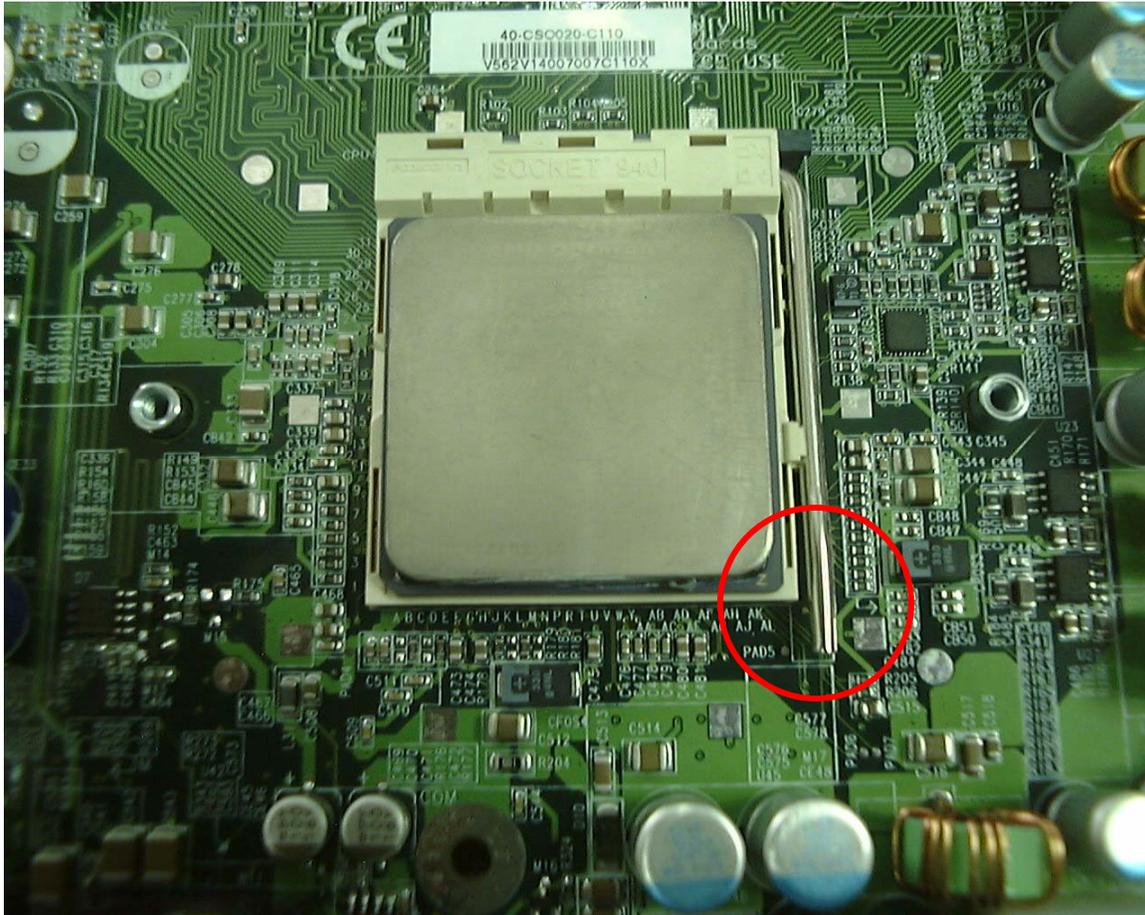


3. Place the CPU with the correct orientation (B) as shown in the following pictures. The lever is still up and the two triangles are in the same corner.



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.

4. Lower the socket locking lever in place.

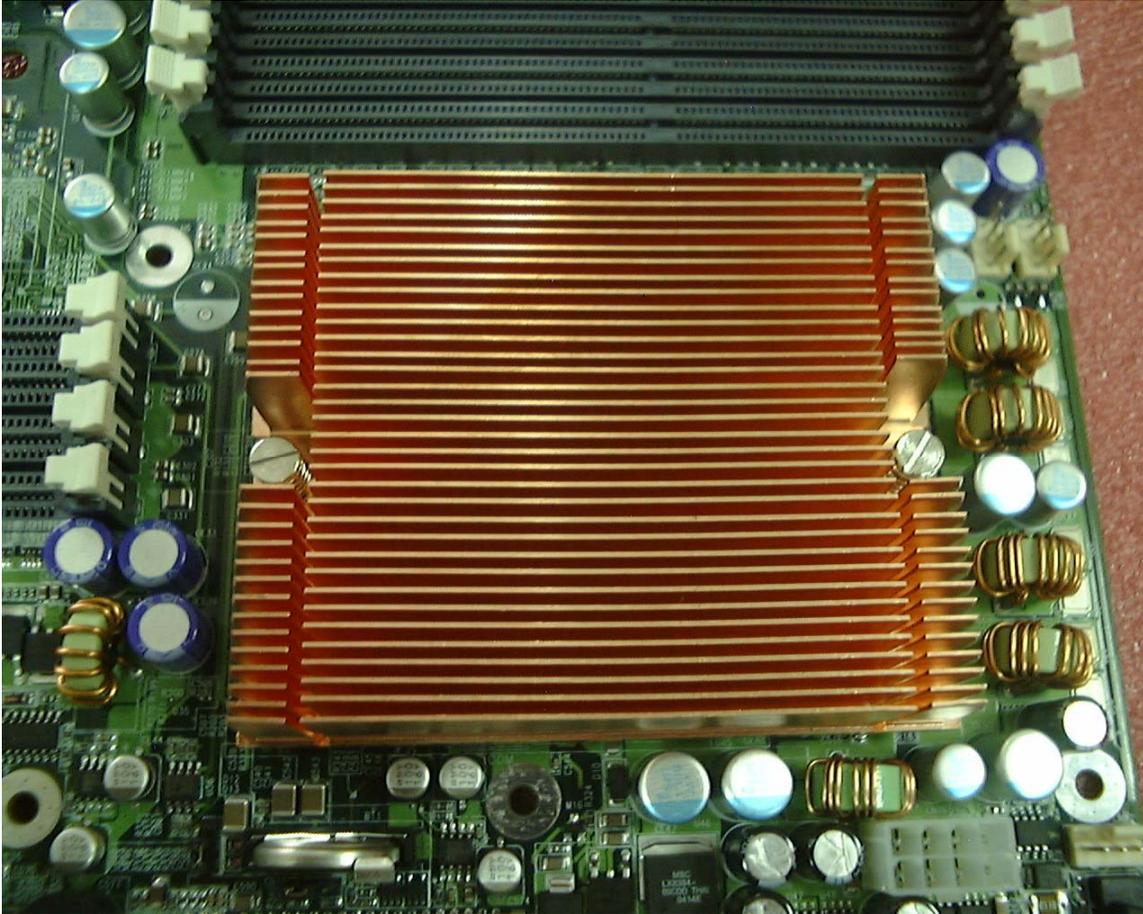


5. Now, rest the motherboard into the chassis, align the two holes of the backplate.



We do not recommend you to apply thermal grease at this point of the installation. The heatsink provided 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.

6. Mount the CPU heatsink to the top of the CPU and socket. Align the screws of the heatsink with the two holes of the backplate, then fasten them securely.



Repeat the steps for the installation of another CPU.

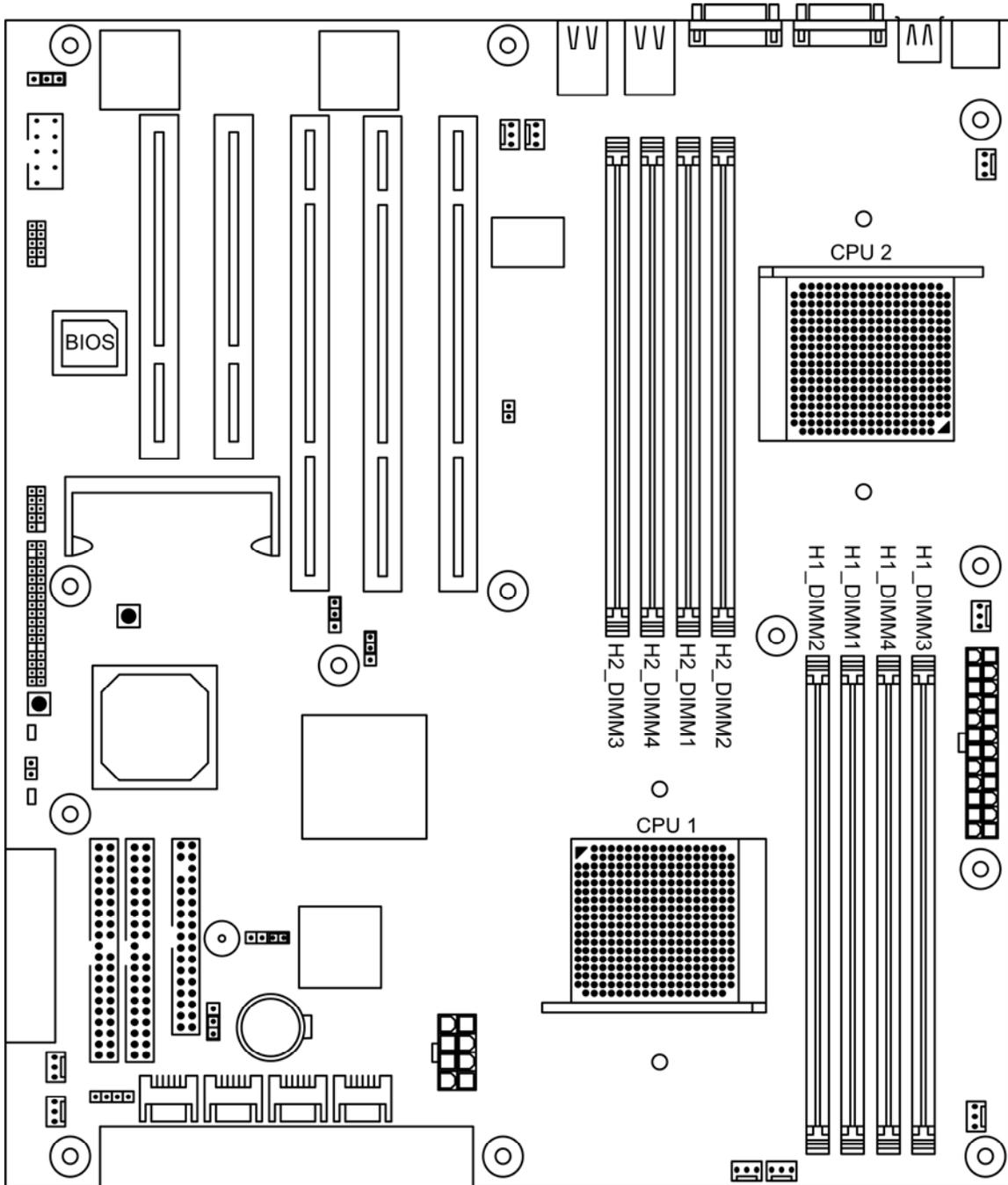


Heatsink not included in the package.

2.3 Installing the memory

2.3.1 DIMM combination

The following diagram indicates the locations of memory sockets.



Types of memory supported:

Eight sockets of 184-pin 2.6Volt DDR DIMM supporting DDR-400/333/266.

They are running on dual channel memory bus and two-way interleaved memory banks. Therefore, the memories must be INSTALLED IN MEMORY DIMM 1 AND 2, OR 3 AND 4. Be sure that every memory module is of the same speed, size and rank.

DDR memory types are determined by two factors: speed and rank. HDAMA Rev.I supports DDR 400/333/266 speed in both single/dual rank. The rank of your memory could impact the effectiveness of the motherboard. Besides DDR400 is supported by Opteron CPU rev. C0 and later.



The number of memory chips and how they are stacked on a memory module do not indicate the rank of that memory module. The only way to determine the rank of a memory module is to contact the memory manufacturer for its specification.

Table 1.

1 DIMM	CPU1 Bank: Slot 1 or Slot 3 (This only provides 64-bit memory access)	
2 DIMMs	CPU1 Bank: Slot 1, 2 or Slot 3, 4	
4 DIMMs	Single Processor	CPU1 Bank: Slot 1, 2, 3, 4 *
	Dual Processor	CPU1 Bank: Slot 1, 2 or Slot 3, 4 CPU2 Bank: Slot 1, 2 or Slot 3, 4
6 DIMMs	CPU1 Slot 1, 2, 3, 4 * CPU2 Slot 1, 2	
8 DIMMs	CPU1 Slot 1, 2, 3, 4 * CPU2 Slot 1, 2, 3, 4 *	

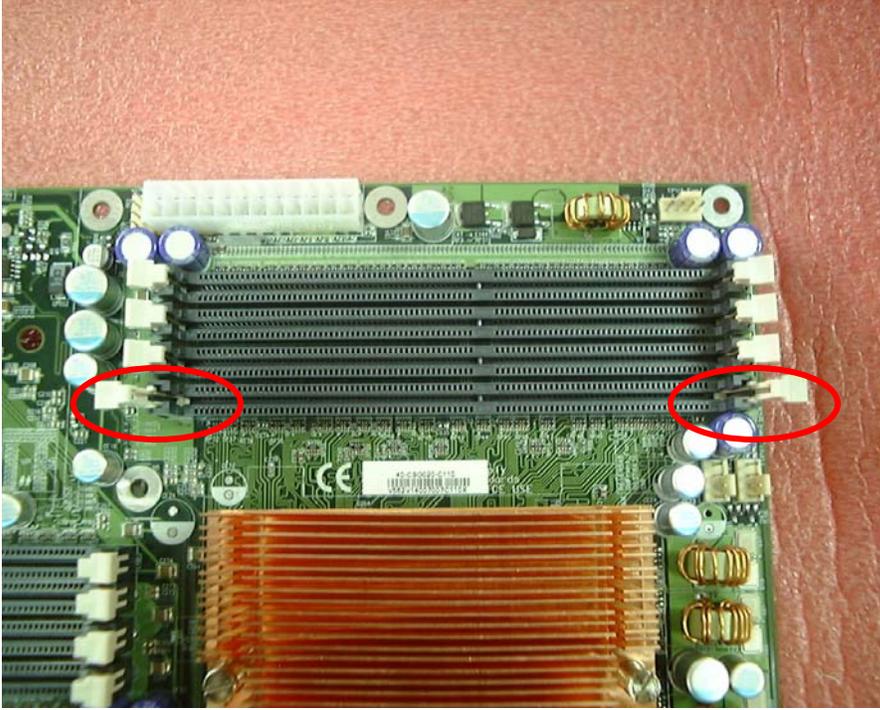
*To support full speed of DDR400, please use [Single, Single, Single, Single] or [Double, Double, Single, Single] or [Single, Single, Double, Double].



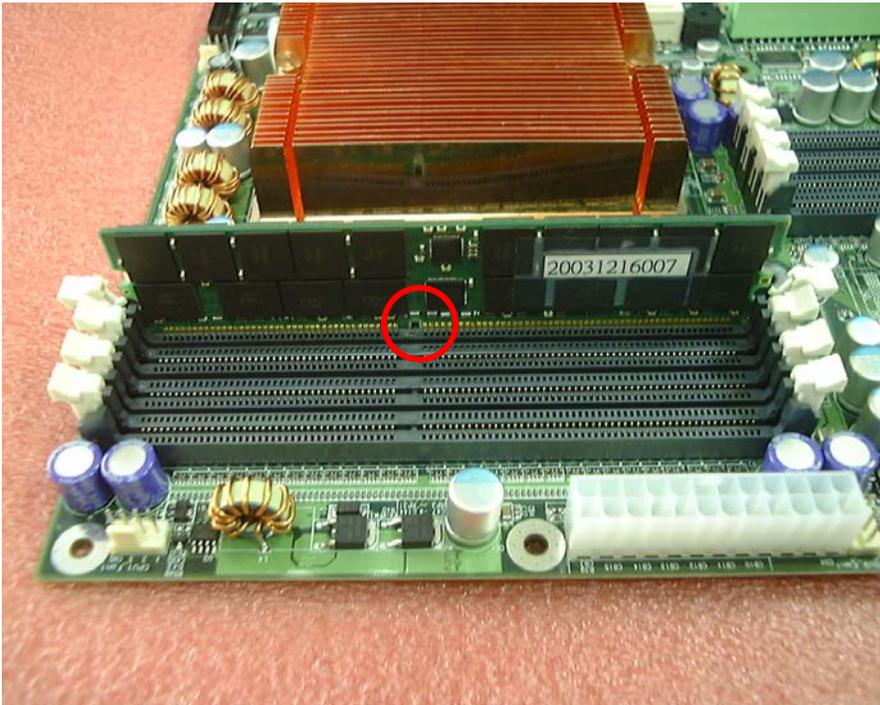
Any configuration other than the recommended is not guaranteed to work. Please refrain from using those configurations as we cannot provide technical support on them.

2.3.2 Installing DIMM modules

1. Open up the brackets:



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



3. Push in the memory stick until bracket can be closed securely onto the stick. Make sure the brackets hold onto the memory module.



These pictures only show one memory stick but remember to install them in pairs.

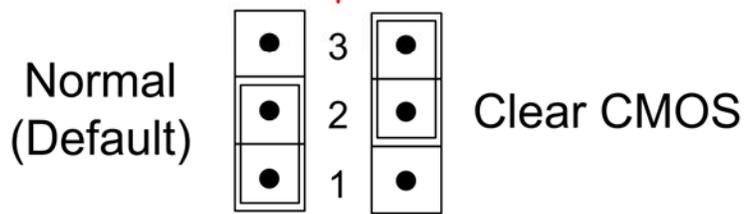
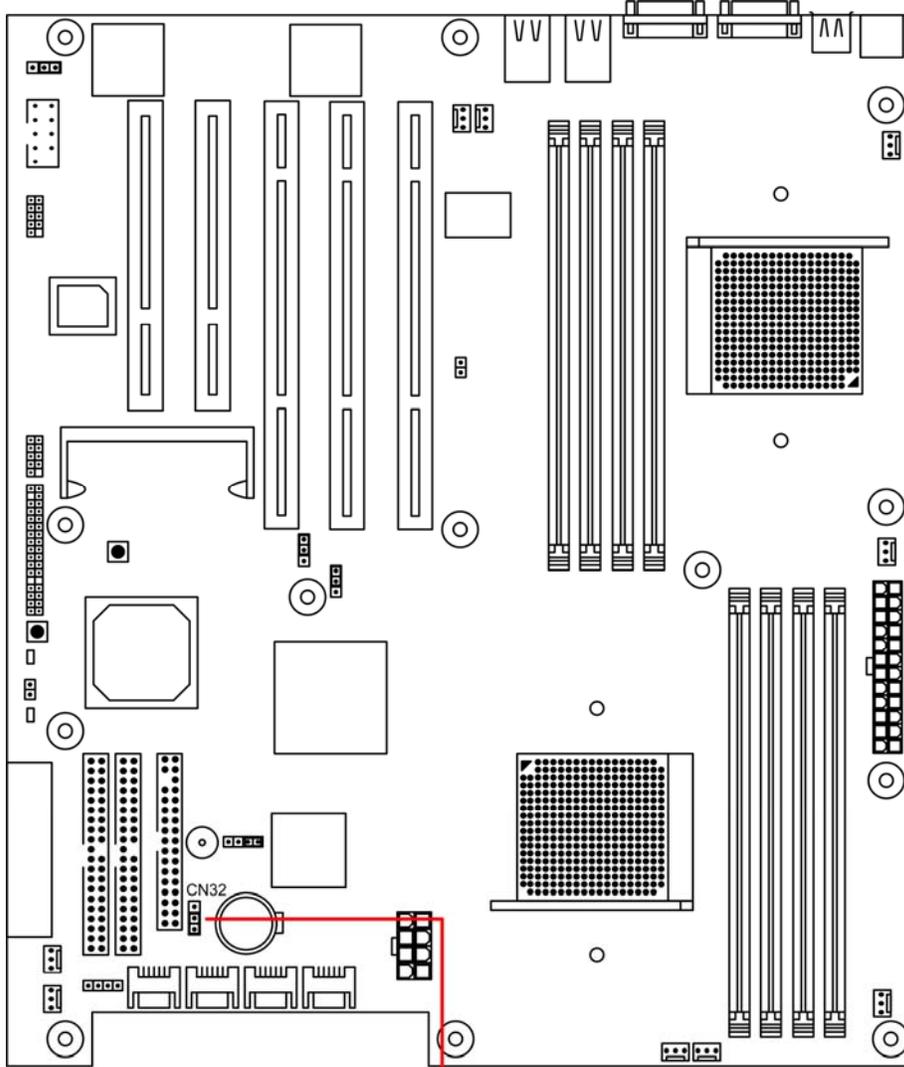
2.4 Jumpers Configuration

2.4.1 Clear CMOS header

Header CN32 controls CMOS setting. Position your motherboard as it appears in the following diagram.

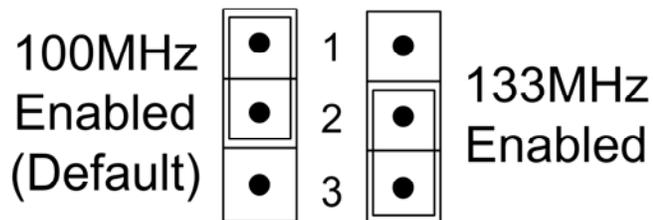
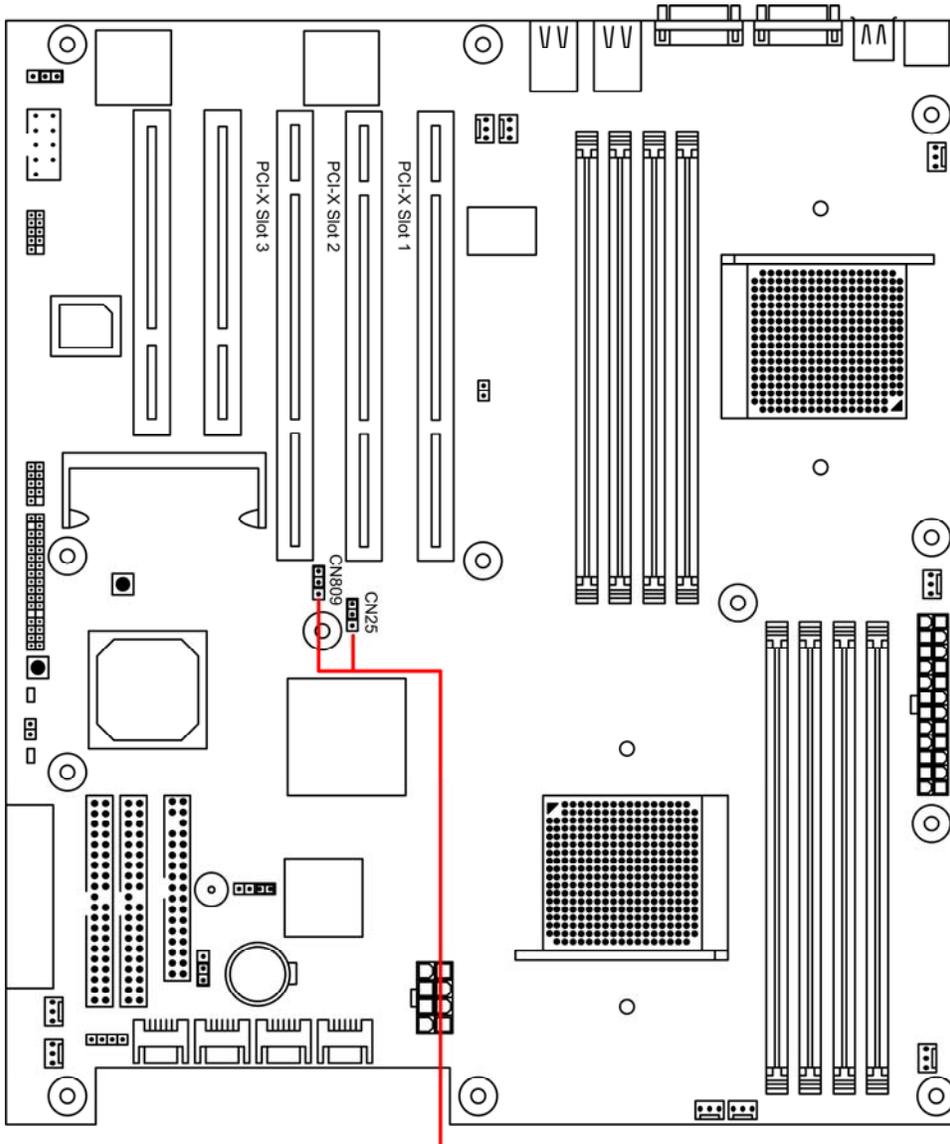
To clear CMOS:

1. Turn off the system.
2. Short pin 2 and pin 3 using a jumper for a few seconds.
3. Take out the jumper.
4. Turn on the system and reconfigure the BIOS.



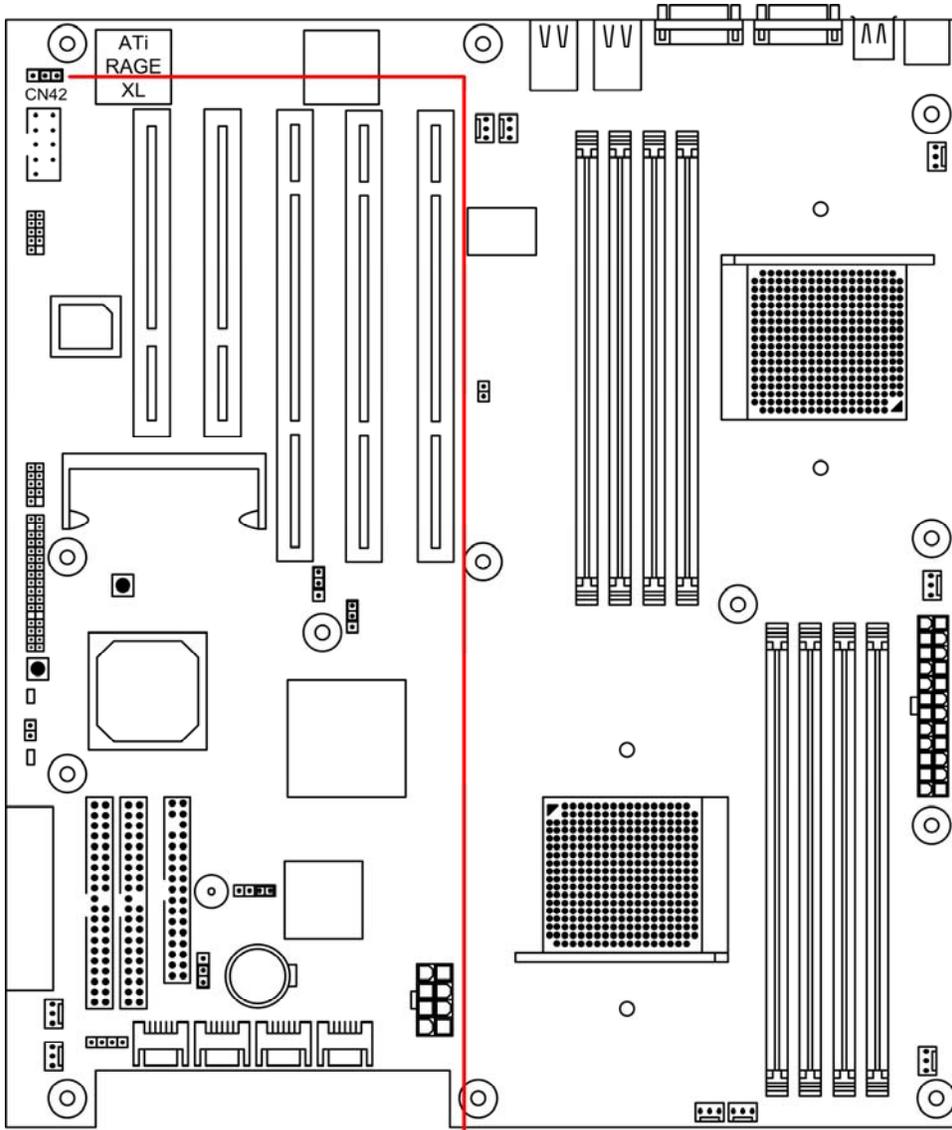
2.4.2 PCI-X Slot Jumper Setting:

Header CN25 and CN809 controls PCI-X Slot setting. CN25 controls PCI-X Slot1 and Slot2. CN809 controls PCI-X Slot3. When it is 2-3 short, PCI-X slots are set to 133MHz. When it is 1-2 short, PCI-X slot is set to 100MHz. The frequencies describe here are maximum operating frequencies. If PCI-X channel is shared with other devices, then maximum operating frequency cannot be achieved. Refer to the following diagram for the location of CN25 and CN809.

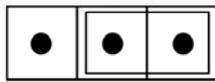


2.4.3 On-Board VGA Select Jumper Setting:

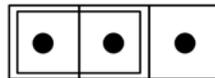
Header CN42 controls On-Board VGA setting. When CN42 is 1-2 short, On-Board VGA is enabled. When CN42 is 2-3 short, On-Board VGA is disabled. Refer to the following diagram for the location of CN42.



VGA Enabled
(Default)



3 2 1



VGA Disabled

2.5 Power Supply

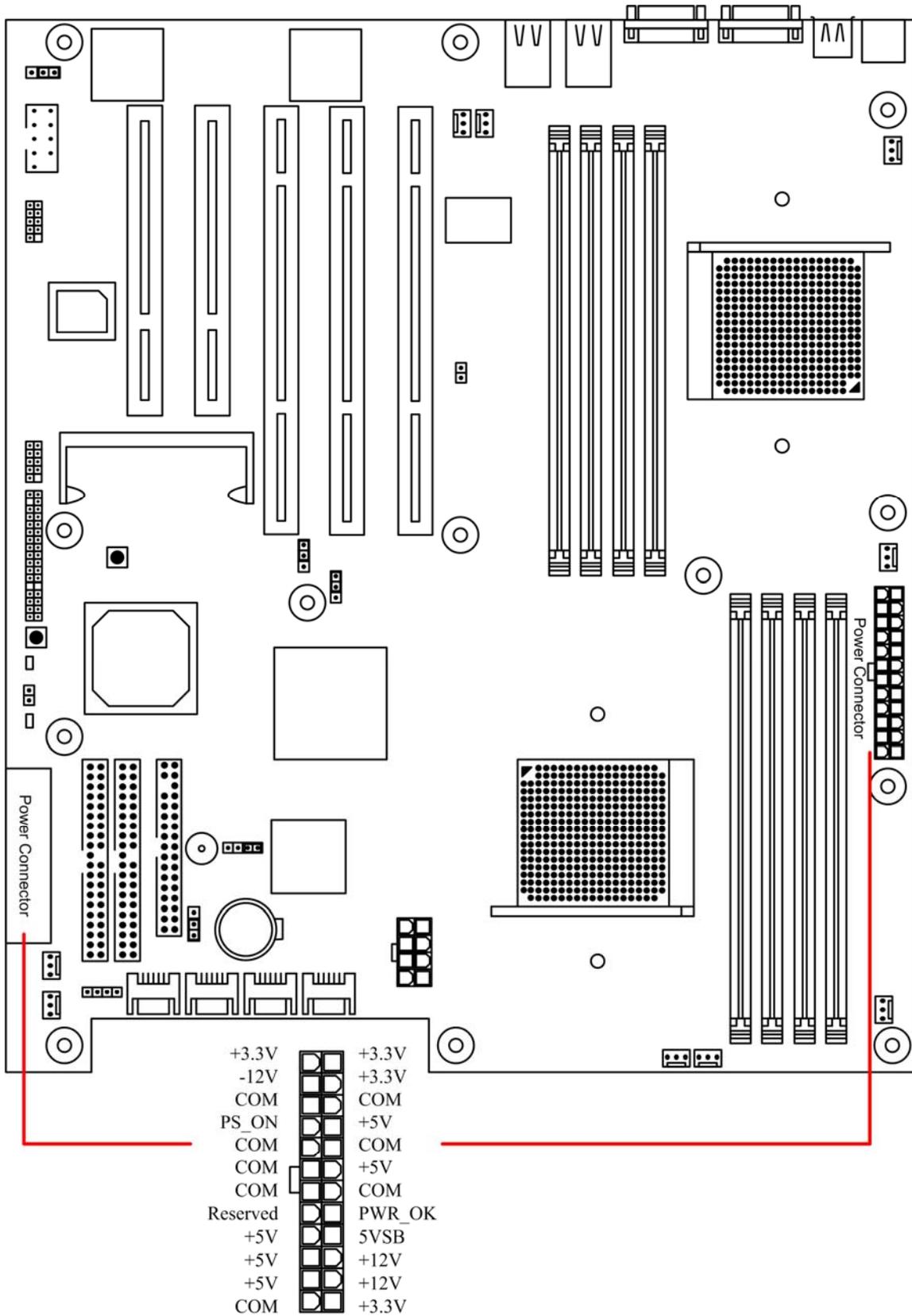
2.5.1 ATX 24-pin power connector

There are two 24 pin power connectors on the motherboard. Only one is needed to make the motherboard operational. The redundancy is built-in for your convenience; you may choose either one to hook up depending on the layout of your system chassis. The 24-pin connector provides power to the motherboard and the 8-pin connector provides power to the CPU. So both must be connected for the system to run properly.

Be sure to plug the power supply connector in the right direction. Failure to do so could cause damage to the motherboard.

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

Refer to the following diagram for the connector locations and orientations.

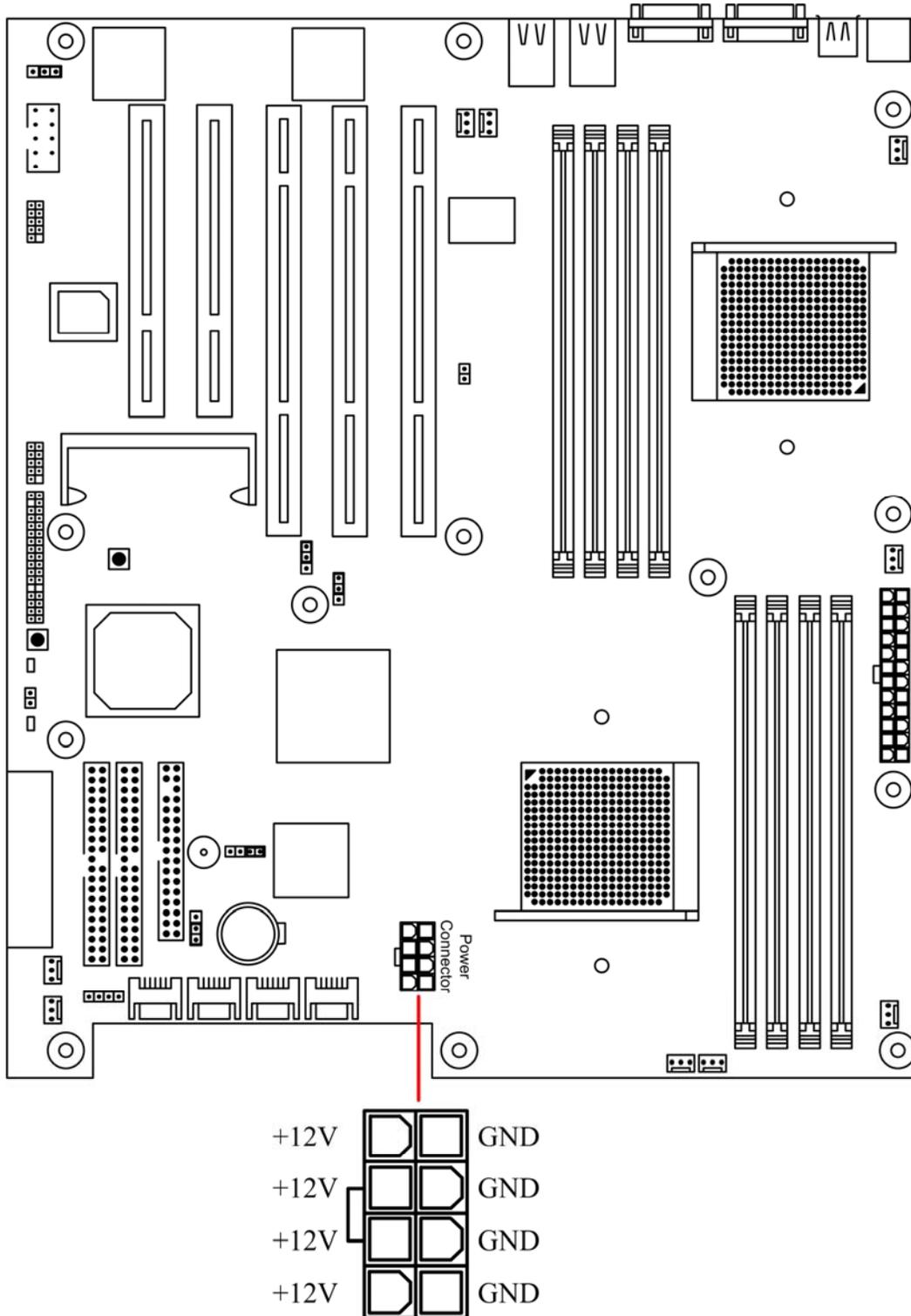




Make sure the AC adapter is not plugged into the wall outlet during installation. The electric current could damage the motherboard.

2.5.2 ATX 8-pin power connector

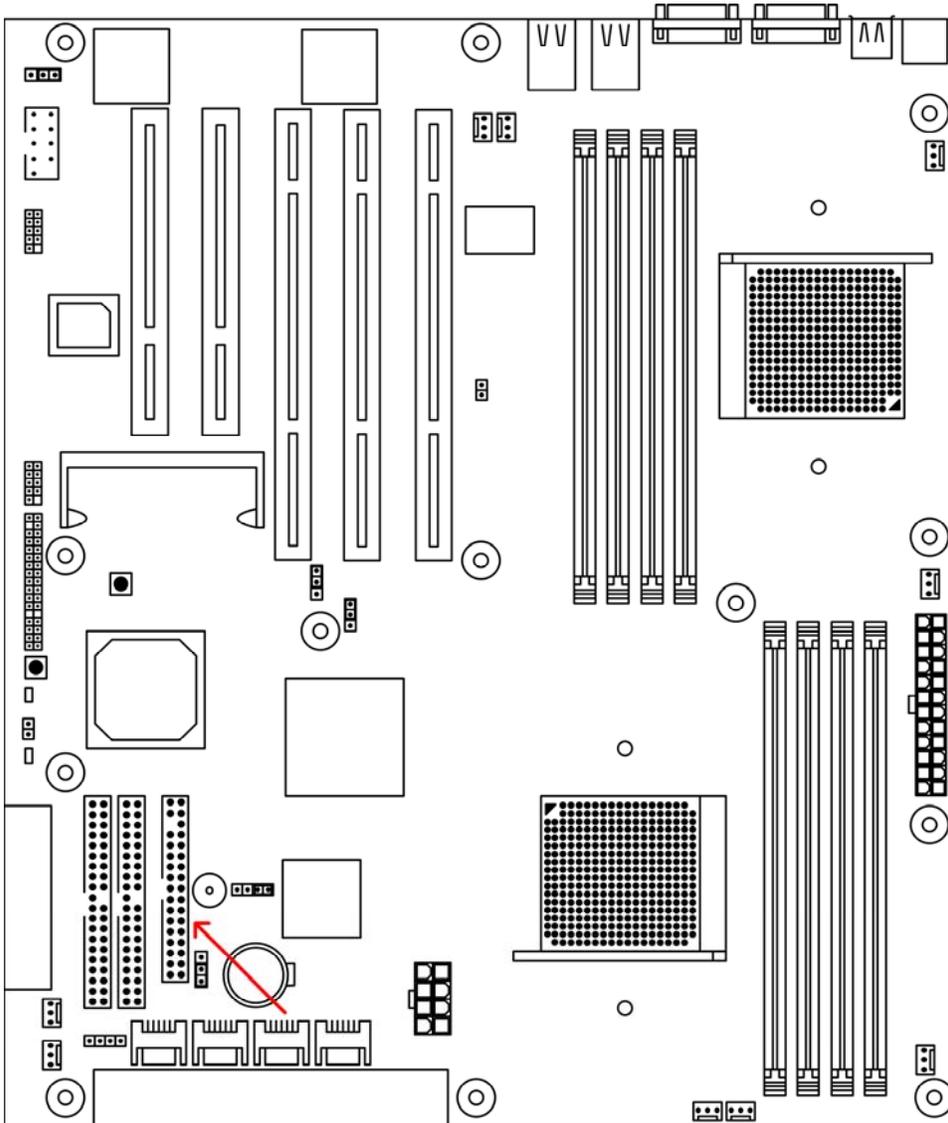
The 8-pin connector provides dedicated power to the CPU. Refer to the following diagram for its location and configuration.



2.6 Cables & Connectors

2.6.1 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 consult 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.

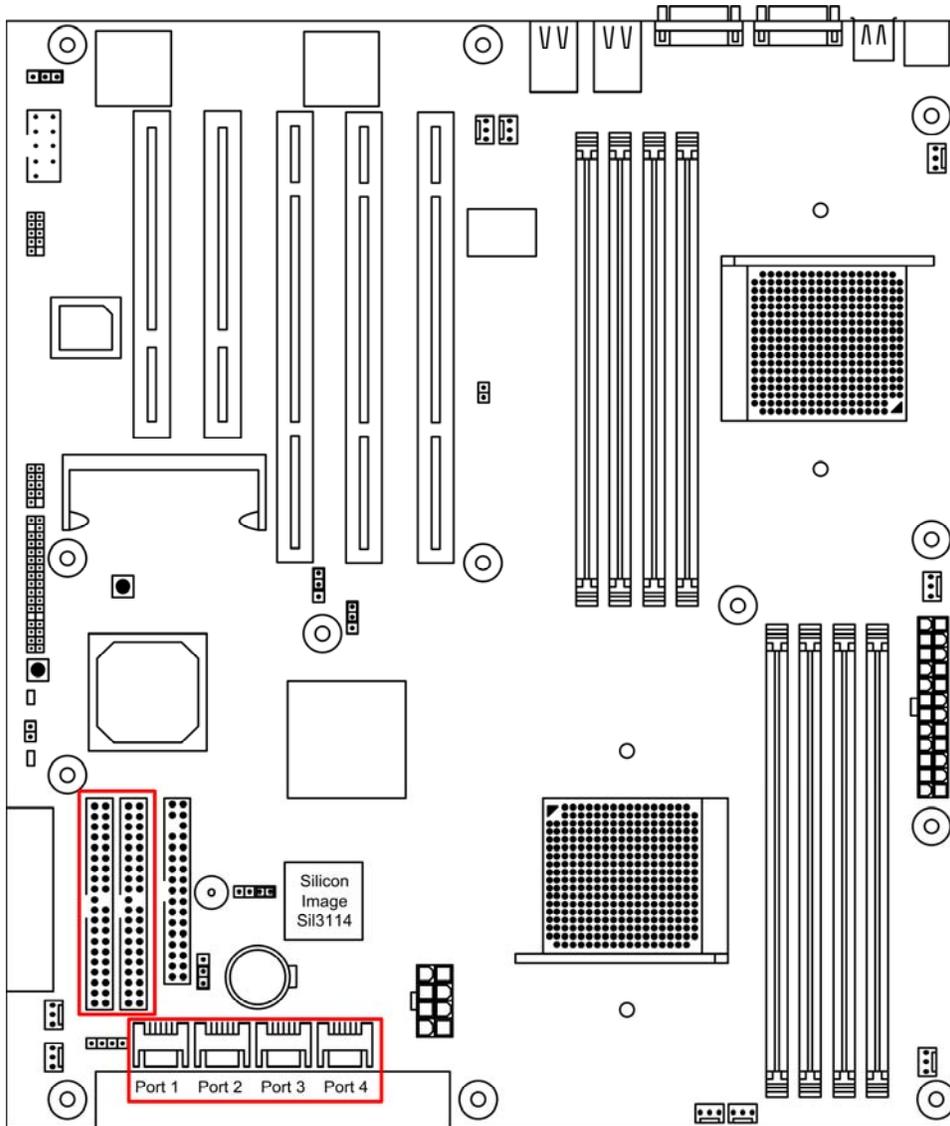
The motherboard supports only one slim floppy connector. Below are some symptoms of incorrectly installed floppy drives. Wrong installation should not cause severe damage but it may cause your system to freeze or crash when trying to read and/or write to the floppy diskette.

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.

2.6.2 IDE and SATA connectors

The following diagram indicates the location of the IDE and SATA connectors:



As always, 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. IDE connector can support two IDE drives.



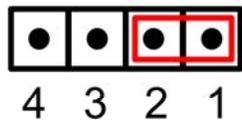
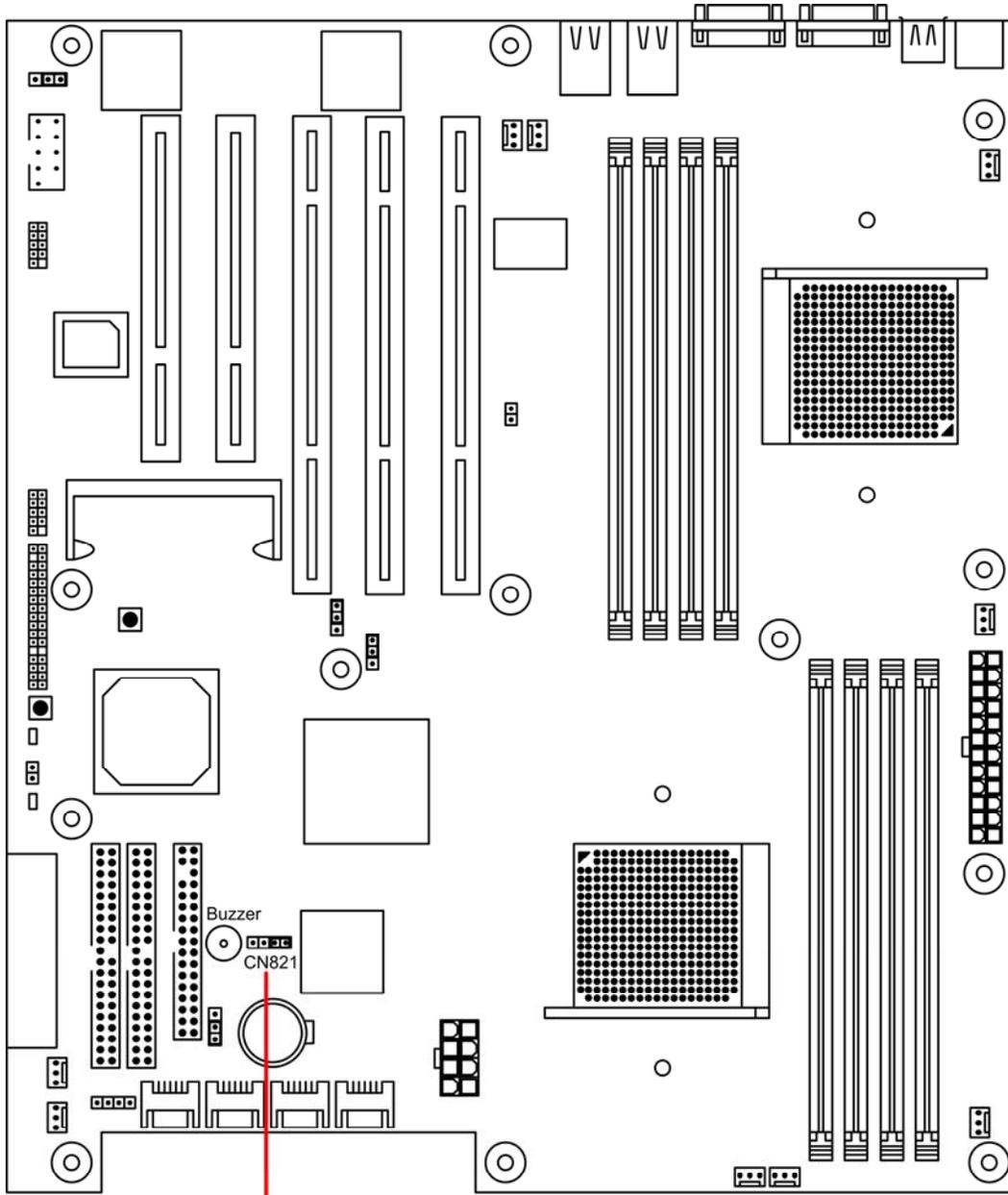
Remember to set BIOS to match the configuration that you implement here. Go to Advanced Menu section of BIOS for detail.

- 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.
- LAN#1 Activity LED: This connector connects to the LED that lights up when there is activity on the LAN 1 port.
- LAN#2 Activity LED: This connector connects to the LED that lights up when there is activity on the LAN 2 port.

Pin-27 to Pin-34 are reserved for OEM purpose

2.6.4 Speaker Connectors

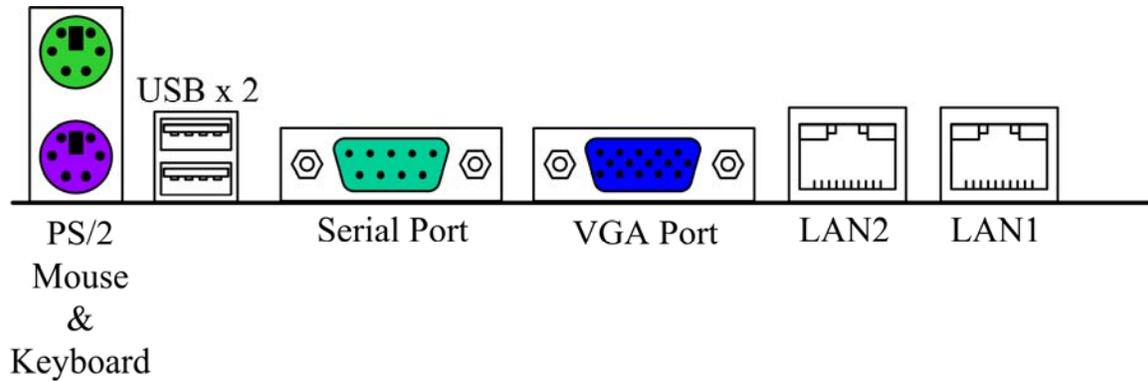
You can find the pin number on the corner of the pin block. When CN39 is 1-2 short, Internal Buzzer is enabled. Refer to the following diagram for the location of CN28.



- 1 External Speaker
- 2 Internal Buzzer
- 3 N/A
- 4 Speaker Power

2.6.5 Rear Panel I/O ports

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



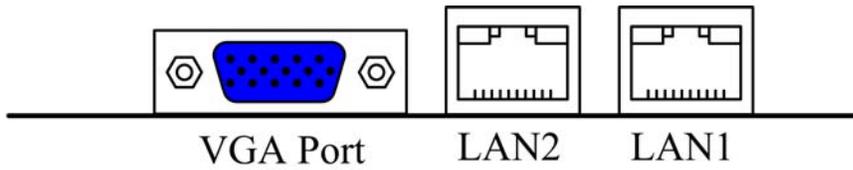
Type of Port	Function
PS/2 Mouse connector	The system will direct IRQ12 to the PS/2 mouse if one is detected. If not detected, IRQ12 can be used for expansion slot.
PS/2 Keyboard connector	This connection is for a standard keyboard using a PS/2 plug (mini DIN). This connector will not allow standard AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards.
USB Port 1 & 2	Two 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 Broadcom 57xx dual channel Gigabit Ethernet Controller, depending on the manufacturing option.

2.6.6 Back Panel LAN LED

Back Panel LAN LED:

header CN32 front panel LAN LED settings. It allows the user to monitor LAN activities from the front of the system.

State of Link	Left LED	Right LED
No link	OFF	OFF
Link @ 10Mbps	ON	OFF
Link @ 100Mbps	OFF	Orange
Link @ 1000Mbps	OFF	Green
Activity	BLINK	

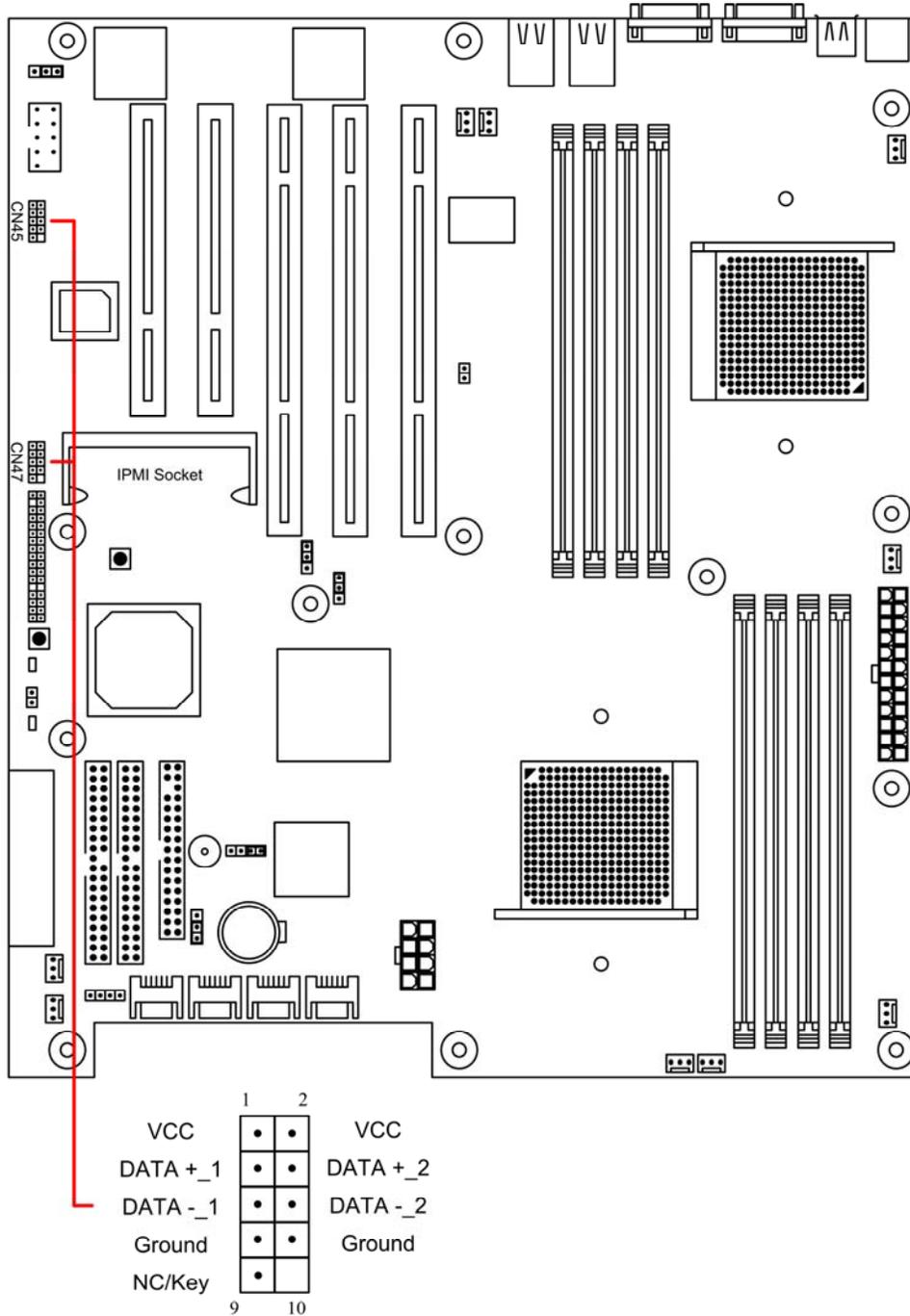


2.6.7 Front USB Connector

Header CN22 controls the two front USB connections.

To activate the front USB, connect the two USB wire to CN22. Each USB wire requires 4 pins; CN22 has 9 pins, therefore supports two USB connections. The one extra pin is for chassis ground use.

Refer to the following diagram for the location of CN22.



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 interface 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 battery-backed NVRAM so that it retains the configuration 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 possible values 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 out the system and configuring it. After finishing configuring the whole system, BIOS will seek an OS on disk and turn over control of the system to the OS 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 submenu: Exit the submenu. 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 4in front of it, it means that the item leads to a sub-menu. Pressing <Enter> will take you to the sub-menu.
PgUp	Increase the numeric value or goes to the previous setting value.
PgDn	Decrease the numeric value or goes to the next setting value.
+	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. To avoid such problem, configure only the items that you thoroughly understand and refrain from modifying the default chipset settings.

3.4 Main Menu:

PhoenixBIOS Setup Utility						
Main	Advanced	Security	Power	Boot	Server	Exit
						Item Specific Help
System Time		[12:59:59]				<Tab>, <Shift-Tab>, or <Enter> selects field.
System Date		[12/28/2005]				
Legacy Diskette A:		[1.44/1.25 MB 3½]				
Legacy Diskette B:		[Disabled]				
SMART Device Monitoring:		[Enabled]				
▶ Primary Master		[120GB]				
▶ Primary Slave		[None]				
▶ Secondary Master		[None]				
▶ Secondary Slave		[None]				
HDD Post Write Buffer:		[Enabled]				
Large Disk Access Mode:		[DOS]				
Boot Summary Screen:		[Disabled]				
Extended Memory Testing		[Just zero it]				
System Memory:		624 KB				
Extended Memory:		4094KB				
F1 Help		↑↓ Select Item		-/+ Change Values		F9 Setup Defaults
ESC Exit		←→ Select Menu		Enter Select▶ Sub-Menu		F10 Save and Exit

The following table shows the items that you can customize on 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.
Legacy Diskette A	Disabled 360 KB 1.2 MB 720 KB 1.44/1.25 MB 2.88 MB	Selects floppy type. Note that 1.25 MB 3½" references a 1024 byte/sector Japanese media format. The 1.25 MB, 3½" diskette requires a 3-Mode floppy-disk drive.
Legacy Diskette B	Disabled 360 KB 1.2 MB 720 KB 1.44/1.25 MB 2.88 MB	Selects floppy type. Note that 1.25 MB 3½" references a 1024 byte/sector Japanese media format. The 1.25 MB, 3½" diskette requires a 3-Mode floppy-disk drive.
SMART Device Monitoring	Disabled Enabled	IDE Failure Prediction
HDD Post Write Buffer	Disabled Enabled	Disabled/Enabled HDD Post Write Buffer support.
Large Disk Access Mode	Other DOS	UNIX, Novell NetWare, or other operating systems, select 'Other'. If you are installing new software and the drive fails, change this selection and try again. Different operating

		systems require different representations of drive geometries.
Boot Summary Screen	Disabled Enabled	Display system configuration on boot
Extended Memory Testing	Enabled Just zero it Disabled	Determines which type of tests will be performed on extended memory (above 1M).
System Memory	No options.	This item is not configurable to user.
Extended Memory	No options.	This item is not configurable to user.

3.4.1 Primary/Secondary Master/Slave Sub Menu

The Primary Master/Slave Sub Menu looks like the following:

PhoenixBIOS Setup Utility		
Advanced		
Primary Master [120GB]		Item Specific Help
Type:	[Enabled]	User = you enter parameters of hard-disk drive installed at this connection.
Multi-Sector Transfers:	[16 Sectors]	Auto = autotypes hard-disk drive installed here.
LBA Mode Control:	[Enabled]	1-39 = you select pre-determined type of hard-disk drive installed here.
32 Bit I/O:	[Disabled]	CD-ROM = a CD-ROM drive is installed here.
Transfer Mode:	[Fast PIO 4]	ATAPI Removable = removable disk drive is installed here.
Ultra DMA Mode:	[Mode 5]	
F1 Help	↑↓ Select Item	-/+ Change Values
ESC Exit	←→ Select Menu	Enter Select ► Sub-Menu
		F9 Setup Defaults
		F10 Save and Exit

The following table shows the items that you can customize on the Primary Master/Slave sub-menu page:

Item	Options	Description
Type	Auto None CD-ROM ATAPI Removable IDE Removable Other ATAPI User	User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. 1-39 = you select pre-determined type of hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.
Multi-Sector Transfers	Disabled 2 Sectors 4 Sectors 8 Sectors 16 Sectors	Specify the number of sectors per block for multiple sector transfers. "MAX" refers to the size the disk returns when queried.
LBA Mode Control	Disabled Enabled	Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads_Sectors.

32 Bit I/O	Disabled Enabled	This setting enables or disables 32 bit IDE data transfers.
Transfer Mode	Standard Fast PIO 1 Fast PIO 2 Fast PIO 3 Fast PIO 4 FPIO 3 / DMA 1 FPIO 4 / DMA 2	Select the method for moving data to/from the drive. Autotype the drive to select the optimum transfer mode.
Ultra DMA Mode	Disabled Mode 1 Mode 2 Mode 3 Mode 4 Mode 5	Select the Ultra DMA mode used for moving data to/from the drive. Autotype the drive to select the optimum transfer mode.

3.5 Advanced Menu:

PhoenixBIOS Setup Utility		
Main	Advanced	Security Power Boot Server Exit
		Item Specific Help
Installed O/S: [Other] Reset Configuration Data: [No] USB Host Controller: [Enabled] USB BIOS Legacy Support: [Enabled] CPU1,CPU2 Link TX Speed [800Mhz] CPU1,GOLEM0 Link TX Speed [600Mhz] Processor Frequency Downgrade [Default] Memory Frequency Downgrade [AUTO] MTRR Mapping Method: [Continuous] Memhole mapping [Hardware] 4GB Memory Hole Adjust [Auto] 4GB Memory Hole Size [64 MB] Multiprocessor Specification: [1.4] Use PCI Interrupt Entries in MP: [Yes] ► Chipset Configuration ► Keyboard Configuration ► I/O Device Configuration QuickBoot Mode: [Enabled] Boot Diagnostic Screen: [Disabled] ► PCI Configuration ► Console Redirection		Select the operating system installed on your system which you will use most commonly. Note: An incorrect setting can cause some operating systems to display unexpected behavior.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select ► Sub-Menu F10 Save and Exit		

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

Item	Options	Description
Installed O/S	Other Win95 Win98 WinMe Win2000	Select the operating system installed on your system which you will use most commonly. Note: An incorrect setting can cause some operating systems to display unexpected behavior.
Reset Configuration Data	No Yes	Select 'Yes' if you want to clear the Extended System Configuration Data (ESCD) area.
USB Host Controller	Disabled Enabled	Enables or Disables the USB hardware (Disabled resources will be freed up for other uses)
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)
CPU1,CPU2 Link TX Speed	800MHz 1 GHz	CPU1 to CPU2 TX Speed Select

CPU1,GOLEM0 Link TX Speed	600MHz 800MHz	CPU1 to GOLEM0 TX Speed Select
Processor Frequency Downgrade	Default 1400MHz 1600MHz 1800MHz 2000MHz 2200MHz 2400MHz 2600MHz	Note: This item only supported if the CPU is capable of FID changes. If installed two CPU, the AP should have same model as BSP.
Memory Frequency Downgrade	AUTO DDR333 DDR400	Memory Frequency Downgrade Auto: Follow AMD spec. to downgrade MAX. memory frequency. DDR333: Downgrade MAX. frequency to 333Mhz. DDR400: Force MAX. frequency as 400Mhz.
MTRR Mapping Method	Continuous Discrete	Select the CPU MTRR mapping method. Discrete – Compatible with Linux AGP. Continuous – Default method.
Memhole mapping	Disabled Software Hardware	Remapping scheme for PCI memory hole.
4GB Memory Hole Adjust	Manual Auto	4GB Memory Hole Adjust Auto - Adjust the memory hole size automatically according to the memory space used by PCI devices. Manual - Memory hole size is determined manually.
4GB Memory Hole Size	64 MB 128 MB 256 MB 512 MB 768 MB 1024 MB 1280 MB 1536 MB 1792 MB 2048 MB 2304 MB 2560 MB 2816 MB 3096 MB 3328 MB 3584 MB	4GB Memory Hole Size
Multiprocessor Specification	1.1 1.4	Configures the MP Specification revision level. Some operating

		systems will require 1.1 for compatibility reasons.
Use PCI Interrupt Entries in MP	Yes No	Configures the MP Table with PCI interrupt entries.
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 looks like the following:

PhoenixBIOS Setup Utility		
Advanced		
Chipset Configuration		Item Specific Help
<p style="text-align: center;">Setup Warning</p> <p>Setting items on this menu to incorrect values may cause your system to malfunction.</p> <p>Dram Bank Interleave: [Auto] Node Memory Interleave: [Disabled] ECC: [Enabled] Dram ECC: [Enabled] ECC Scrub Redirection [Enabled] Chip-Kill: [Enabled]</p> <p>DCACHE ECC Scrub CTL: [Disabled] L2 ECC Scrub CTL: [Disabled] Dram ECC Scrub CTL: [1.31 ms] Speculative TLB Reload: [Enabled]</p>		<p>Interleave memory blocks across dram chip selects. BIOS will AUTO detect capability on each Node.</p>
<p>F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select ► Sub-Menu F10 Save and Exit</p>		

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

Item	Options	Description
Dram Bank Interleave	Disabled Auto	Interleave memory blocks across dram chip selects. BIOS will AUTO detect capability on each Node.
Node Memory Interleave	Disabled Auto	Interleave memory blocks across Processor Nodes. BIOS will AUTO detect apability of Memory System.
ECC	Disabled Enabled	ECC check/correct mode. This is a Global enable function for all blocks within CPU core and North Bridge. NOTE: After loading setup defaults, restart and enter setup to access Dram ECC setup options.

Dram ECC	Disabled Enabled	If all memory in the system supports ECC (x72), enabling this will Initial scrub dram and enable system requests to dram to be checked and/or corrected.
ECC Scrub Redirection	Disabled Enabled	Enable ECC Scrubber to correct errors detected in Dram during normal CPU requests (Foreground scrubbing).
Chip-Kill	Disabled Enabled	Enable Chip Kill ECC on Nodes with all x4 ECC capable dimms.
DCACHE ECC Scrub CTL	Disabled 40 ns 80 ns 160 ns 320 ns 640 ns 1.28 us 2.56 us	Sets the rate of background scrubbing for DCACHE lines
L2 ECC Scrub CTL	Disabled 40 ns 80 ns 160 ns 320 ns 640 ns 1.28 us 2.56 us	Sets the rate of background scrubbing for L2 cache lines
Dram ECC Scrub CTL	Disabled 1.31 ms 2.62 ms 5.24 ms 10.49 ms 20.97 ms 42.0 ms 84.0 ms	Sets the rate of BACKGROUND scrubbing for Dram (In addition to normal ECC scrubbing from system requests). NOTE: BACKGROUND agent works independently of CPU requests and bus masters, but cannot be enabled without first enabling Dram ECC.
Speculative TLB Reload	Disabled Enabled	Speculative TLB enable/disabled

3.5.2 Keyboard Configuration Sub Menu

The Keyboard Configuration Sub Menu looks like the following:

PhoenixBIOS Setup Utility		
Advanced		
Disk Configurations		Item Specific Help
NumLock: [Auto] Keyboard auto-repeat rate: [30/sec] Keyboard auto-repeat delay: [1/2 sec]		Selects Power-on state for NumLock
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select▶ Sub-Menu F10 Save and Exit		

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

Item	Options	Description
NumLock	Auto On Off	Selects Power-on state for NumLock
Keyboard auto-repeat rate	30/sec 26.7/sec 21.8/sec 18.5/sec 13.3/sec 10/sec 6/sec 2/sec	Selects key repeat rate
Keyboard auto-repeat delay	1/4 sec 1/2 sec 3/4 sec 1 sec	Selects delay before key repeat

3.5.3 I/O Device Configuration Sub Menu

The I/O Device Configuration Sub Menu looks like the following:

PhoenixBIOS Setup Utility		
Advanced		
I/O Device Configuration		Item Specific Help
Serial port A:	[Enabled]	Configure serial port A using options:
Base I/O address:	[3F8]	
Interrupt:	[RQ 4]	
Serial port B:	[Enabled]	[Disabled] No Configuration
Base I/O address:	[2F8]	[Enabled] User configuration
Interrupt:	[RQ 3]	
Floppy disk controller:	[Enabled]	[Auto] BIOS or OS chooses configuration
Floppy check:	[Disabled]	
PS/2 Mouse	[Enabled]	
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults		
ESC Exit ←→ Select Menu Enter Select ► Sub-Menu F10 Save and Exit		

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

Item	Options	Description
Serial port A/B	Disabled Enabled Auto	Configure serial port A/B using options: [Disabled] No Configuration [Enabled] User configuration [Auto] BIOS or OS chooses configuration
Base I/O address	3F8 2F8 3E8 2E8	Set the base I/O address for serial port A/B.
Interrupt	IRQ 3 IRQ 4	Set the interrupt for serial port A.
Floppy disk controller	Disabled Enabled Auto	Configure using these options: [Disabled] No configuration [Enabled] User configuration [Auto] BIOS or OS chooses configuration

Floppy check	Disabled Enabled	Enabled verifies floppy type on boot; disabled speeds boot.
PS/2 Mouse	Disabled Enabled	'Disabled' prevents any installed PS/2 mouse from functioning, but frees up IRQ 12. 'Enabled' forces the PS/2 mouse port to be enabled regardless if a mouse is present.

3.5.4 PCI Configuration Sub Menu

The PCI Configuration Sub Menu looks like the following:

PhoenixBIOS Setup Utility		
Advanced		
PCI Configuration		Item Specific Help
PCI Device, Slot #1 [Enabled] Option ROM Scan: [Enabled] Enable Master: [Enabled] Latency Timer: [Default]		Setup items for configuring the specific PCI device Slot #1: PCIX_1 Slot #2: PCIX_2 Slot #3: PCIX_3
PCI Device, Slot #2 [Enabled] Option ROM Scan: [Enabled] Enable Master: [Enabled] Latency Timer: [Default]		
PCI Device, Slot #3 [Enabled] Option ROM Scan: [Enabled] Enable Master: [Enabled] Latency Timer: [Default]		
▶ Onboard Device Control ▶ PCI/PNP IRQ Exclusion ▶ PCI/PNP UMB Exclusion		
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit		

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

Item	Options	Description
PCI Device, Slot #1 #2 #3	Enabled Disabled	Setup items for configuring the specific PCI device Slot #1: PCIX_1 Slot #2: PCIX_2 Slot #3: PCIX_3
Option ROM Scan	Enabled Disabled	Initialize device expansion ROM
Enable Master	Disabled Enabled	Enable selected device as a PCI bus master
Latency Timer	Default 0020h 0040h 0060h 0080h 00A0h 00C0h 00E0h	Minimum guaranteed time slice allotted for bus master in units of PCI bus clocks

3.5.4.1 Onboard Device Control Sub Menu

The Onboard Device Control Sub Menu looks like the following:

PhoenixBIOS Setup Utility		
Advanced		
Onboard Device Control		Item Specific Help
Onboard LAN1	[Enabled]	Enable or Disable Onboard LAN
Option ROM Scan:	[Enabled]	
Onboard SATA(Optional)	[Enabled]	
F1 Help ESC Exit	↑↓ Select Item ←→ Select Menu	-/+ Change Values Enter Select▶ Sub-Menu F9 Setup Defaults F10 Save and Exit

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

Item	Options	Description
Onboard LAN1	Enabled Disabled	Enable or Disable Onboard LAN
Option ROM Scan	Enabled Disabled	Initialize device expansion ROM
Onboard SATA(Optional)	Enabled Disabled	Enable or Disable Onboard SATA(Optional)

3.5.4.2 PCI/PNP IRQ Exclusion Sub Menu

The PCI/PNP IRQ Exclusion Sub Menu looks like the following:

PhoenixBIOS Setup Utility		
Advanced		
PCI/PNP IRQ Exclusion		Item Specific Help
IRQ 3: [Available] IRQ 4: [Available] IRQ 5: [Available] IRQ 7: [Available] IRQ 10: [Available] IRQ 11: [Available]		Reserves the specified IRQ for use by legacy ISA devices
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select ► Sub-Menu F10 Save and Exit		

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

Item	Options	Description
IRQ 3, 4, 5, 7, 10, 11	Available Reserved	Reserves the specified IRQ for use by legacy ISA devices

3.5.4.3 PCI/PNP UMB Exclusion Sub Menu

The PCI/PNP UMB Exclusion Sub Menu looks like the following:

PhoenixBIOS Setup Utility		
Advanced		
PCI/PNP UMB Exclusion		Item Specific Help
C800 - CBFF: [Available] CC00 - CFFF: [Available] D000 - D3FF: [Available] D400 - D7FF: [Available] D800 - DBFF: [Available] DC00 - DFFF: [Available]		Reserves the specified block of upper memory for use by legacy ISA devices
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select ► Sub-Menu F10 Save and Exit		

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

Item	Options	Description
C800 - CBFF: CC00 - CFFF D000 - D3FF D400 - D7FF D800 - DBFF DC00 - DFFF	Available Reserved	Reserves the specified block of upper memory for use by legacy ISA devices

3.5.5 Console Redirection Sub Menu

The Console Redirection Sub Menu looks like the following:

PhoenixBIOS Setup Utility		
Advanced		
Console Redirection		Item Specific Help
Com Port Address	[Disabled]	If enabled, it will use a port on the motherboard.
Console connection	[Direct]	
Baud Rate	[57.6K]	
Flow Control	[None]	
Console Type	[ANSI]	
Continue C.R. after POST	[On]	
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select ► Sub-Menu F10 Save and Exit		

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.
Console connection	Direct Via modem	Indicate whether the console is connected directly to the system or a modem is used to connect.
Baud Rate	300 1200 2400 9600 19.2K 38.4K 57.6K	Enables the specified baud rate.
Flow Control	None XON/XOFF CTS/RTS	Enables flow control
Console Type	VT100 VT100, 8bit ANSI, 7bit ANSI VT100 plus UTF8	Enables the specified console type.
Continue C.R. after POST	Off On	Enables Console Redirection after OS has loaded.

3.6 Security Menu:

PhoenixBIOS Setup Utility						
Main	Advanced	Security	Power	Boot	Server	Exit
						Item Specific Help
Supervisor Password Is:		Clear				Supervisor Password controls access to the setup utility.
User Password Is:		Clear				
Set Supervisor Password:		[Enter]				
Set User Password:		[Enter]				
Password on boot:		[Disabled]				
Fixed disk boot sector:		[Normal]				
Diskette access:		[Supervisor]				
F1 Help	↑↓ Select Item	-/+ Change Values	F9 Setup Defaults			
ESC Exit	←→ Select Menu	Enter Select▶ Sub-Menu	F10 Save and Exit			

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

Item	Options	Description
Supervisor Password Is	Clear Set	Displays the password if there is one.
User Password Is	Clear Set	Displays the password if there is one.
Set Supervisor Password	Enter	Supervisor Password controls access to the setup utility.
Set User Password	Enter	*Note: to use this feature, you must first set supervisor password.
Password on boot	Disabled Enabled	Enables password entry on boot
Fixed disk boot sector	Normal Write Protect	Write protects boot sector on hard disk to protect against viruses
Diskette access	User Supervisor	Controls access to diskette drives

3.7 Power Menu:

PhoenixBIOS Setup Utility						
Main	Advanced	Security	Power	Boot	Server	Exit
						Item Specific Help
ACPI Enabled: [Yes] ACPI SRAT Table [Enabled] Enable High Precision Event Timer [No] Spread spectrum modulation [No] WakeUp On LAN/PME: [Enabled] Power Savings: [Disabled] Standby Timeout: Off Auto Suspend Timeout: Off Resume On Time: [Off] Resume Time: [00:00:00] After Power Failure: [Stay Off]						En/Disable ACPI BIOS (Advance Configuration and Power Interface)
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select▶ Sub-Menu F10 Save and Exit						

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

Item	Options	Description
ACPI Enabled	No Yes	En/Disable ACPI BIOS (Advance Configuration and Power Interface)
ACPI SRAT Table	Disabled Enabled	Enable ACPI 2.0 static resources affinity table for ccNUMA systems
Enable High Precision Event Timer	No Yes	Enable/Disable High Precision Event Timer support.
Spread spectrum modulation	No 0.10% 0.40% 0.70% 1.00% 1.30% 1.60% 2.00%	Enables frequency spreading on clock generators to reduce EMI emissions
WakeUp On LAN/PME	Disabled Enabled	Enables WakeUp On LAN/PME support.
Power Savings	Disabled Customized Maximum Power Savings Maximum Performance	Maximum Power Savings conserves the greatest amount of system power. Maximum Performance conserves power but allows greatest system performance. To alter these settings, choose Customized. To turn off power management, choose Disabled.
Standby Timeout	Off 1 Minute	Amount of time the system needs to be in Idle Mode before

	2 Minutes 4 Minutes 6 Minutes 8 Minutes 12 Minutes 16 Minutes	entering the Standby Mode. Standby Mode turns off various devices in the system, including the screen, until you start using the computer again.
Auto Suspend Timeout	Off 5 Minute 10 Minutes 15 Minutes 20 Minutes 30 Minutes 40 Minutes 60 Minutes	Amount of time the system needs to be in Standby before entering the SUSPEND Mode.
Resume On Time	Off On	Enabled wakes the system up at a specific time.
Resume Time	No Options	Specify the time when the system is to wake up. <Tab>, <Shift-Tab>, or <Enter> selects field.
After Power Failure	Stay Off Last State Power On	Sets the mode of operation if an AC/Power Loss occurs. The two modes are: Stay off returns the system to an off state Power on returns the system to a full on state

3.8 Boot Menu:

PhoenixBIOS Setup Utility							
Main	Advanced	Security	Power	Boot	Server	Exit	
							Item Specific Help
-Removable Devices Legacy Floppy Drivers CD-ROM Drive -Hard Drive ST380023AS-(P0) Bootable Add-in Cards Network Boot MBA v8.1.54 Slot 0218 MBA v8.1.54 Slot 0219							Keys used to view or configure devices: <Enter> expands or collapses devices with a + or - <Ctrl-Enter> expands all <Shift-1> enables or disables a device. <+> and <-> moves the device up or down. <n> may move removable device between Hard Disk or Removable Disk. <d> Remove a device that is not installed.
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:

PhoenixBIOS Setup Utility							
Main	Advanced	Security	Power	Boot	Server	Exit	
							Item Specific Help
Display without KB Err Msg: [No] ▶ Hardware Monitor ▶ IPMI							Control the Post Error Message display or not when without KB.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit							

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

Item	Options	Description
Display without KB Err Msg	Yes No	Control the Post Error Message display or not when without KB

3.9.1 Hardware Monitor Sub Menu

The Hardware Monitor Sub Menu looks like the following:

PhoenixBIOS Setup Utility		Server
Hardware Monitor		Item Specific Help
CPU1-Fan1 Speed = 5000RPM CPU1-Fan2 Speed = No Function CPU2-Fan1 Speed = 5000RPM CPU2-Fan2 Speed = No Function Front-Fan1 Speed = No Function Front-Fan2 Speed = No Function CPU 1 Temperature = 63°C CPU 2 Temperature = 54°C On-Chip Temperature = 37°C Vbat : 3.2894V Vcc(5V) : 5.1969V -12V : -12.2404V +12V : +12.960V CPU 1 Vcore : 1.5086V CPU 2 Vcore : 1.5036V CPU 1 Vtt(1.25V) : 1.3200V CPU 2 Vtt(1.25V) : 1.3366V CPU 1 Vcc(2.5V) : 2.6875V CPU 2 Vcc(2.5V) : 2.6875V Vsb(3.3V) : 3.3064V Vcc3(3.3V) : 3.2588V VLDT(1.2V) : 1.1876	All items on this menu cannot be modified in user mode. If any items require changes, please consult your system Supervisor.	
F1 Help ESC Exit	↑↓ Select Item ←→ Select Menu	-/+ Change Values Enter Select ► Sub-Menu F9 Setup Defaults F10 Save and Exit

3.9.2 IPMI Sub Menu

The IPMI Sub Menu looks like the following:

PhoenixBIOS Setup Utility			
Advanced			
IPMI		Item Specific Help	
BMC/Scorpio Configuration	[Enabled]	Enabling this selection will force the BIOS to Configuration IP Address	
IP Address	[192.168.254.001]		
Subnet Mask	[255.255.255.000]		
Default Gateway	[192.168.254.000]		
IPMI Specification Version	(Unknown)		
BMC Firmware Version	(Unknown)		
System Event Logging	[Enabled]		
Existing Event Log number	0		
Event Log Control			
SYS Firmware Progress	[Disabled]		
BIOS POST Errors	[Enabled]		
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults ESC Exit ←→ Select Menu Enter Select▶ Sub-Menu F10 Save and Exit			

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

Item	Options	Description
BMC/Scorpio Configuration	Disabled Enabled	Enabling this selection will force the BIOS to Configuration IP Address
IP Address Subnet Mask Default Gateway	No options.	Display/Set IP Address, Subnet Mask, and Gateway.
System Event Logging	Disabled Enabled	Enable/Disable IPMI event logging. Disabling will still log events received via the system interface.
SYS Firmware Progress	Disabled Enabled	Enabling this selection will log POST Progress.
BIOS POST Errors	Disabled Enabled	Enabling this selection will log POST errors.



To learn more about the IPMI selections, refer to a separate Arima IPMI manual for detailed usage.

3.10 Exit Menu:

PhoenixBIOS Setup Utility							
Main	Advanced	Security	Power	Boot	Server	Exit	
							Item Specific Help
Exit Saving Changes Exit Discarding Changes Load Setup Defaults Discard Changes Save Changes							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				

The following sections describe each of the options on this menu. Note that <Esc> does not exit this menu. You must select one of the items from the menu or menu bar to exit.

Saving Changes

After making your selections on the Setup menus, select "Exit Saving Changes" or "Save Changes" to see a screen similar to the following:

Setup Confirmation	
Save configuration changes and exit now?	
[Yes]	[No]

Select Yes and press <Enter> to save the changes.

Both procedures store the selections displayed in the menus in CMOS (short for "battery-backed CMOS RAM") a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS.

During boot up, PhoenixBIOS attempts to load the values saved in CMOS. If those values cause the system boot to fail, reboot and press <F2> to enter Setup. In Setup, you can get the Default Values (as described below) or try to change the selections that caused the boot to fail.

Exit Discarding Changes

Use this option to exit Setup without storing in CMOS any new selections you may have made. The selections previously in effect remain in effect.

Load Setup Defaults

To display the default values for all the Setup menus, select "Load Setup Defaults" from the Main Menu. The program displays this message:

Setup Confirmation	
Load default configuration now?	
[Yes]	[No]

Select Yes and press <Enter> to load the default configuration.

If, during boot up, the BIOS program detects a problem in the integrity of values stored in CMOS, it displays these messages:

System CMOS checksum bad - run SETUP Press <F1> to resume, <F2> to Setup

The CMOS values have been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS.

Press <F1> to resume the boot or <F2> to run Setup with the ROM default values already loaded into the menus. You can make other changes before saving the values to CMOS.

Discard Changes

If, during a Setup Session, you change your mind about changes you have made and have not yet saved the values to CMOS, you can restore the values you previously saved to CMOS.

Selecting “Discard Changes” on the Exit menu updates all the selections and displays this message:

Setup Confirmation
Load previous configuration now?
[Yes] [No]

Select Yes and press <Enter> to load the previous configuration.

Save Changes

Selecting “Save Changes” saves all the selections without exiting Setup.

Setup Confirmation
Save configuration changes now?
[Yes] [No]

Select Yes and press <Enter> to save configuration changes and continue working in BIOS Setup. You can return to the other menus if you want to review and change your selections.

3.11 About the Boot Utilities

The MainBoard comes with the following boot utilities:

Phoenix QuietBoot™: Phoenix QuietBoot displays a graphic illustration rather than the traditional POST messages while keeping you informed of diagnostic problems.

Phoenix MultiBoot™: Phoenix MultiBoot is a boot screen that displays a selection of boot devices from which you can boot your operating system.

3.11.1 Using Phoenix QuietBoot

Right after you turn on or reset the computer, Phoenix QuietBoot displays the QuietBoot Screen, a graphic illustration created by the computer manufacturer instead of the text-based POST screen, which displays a number of PC diagnostic messages.

To exit the QuietBoot screen and run Setup, display the MultiBoot menu, or simply display the PC diagnostic messages, you can simply press one of the hot keys described below.

The QuietBoot Screen stays up until just before the operating system loads unless one of the following actions occurs:

Press <ESC> to display the POST screen

Press <F2> to enter Setup

POST issues an error message

The BIOS or an option ROM requests keyboard input

The following explains each of these situations.

When <ESC> is pressed	<p>Press <ESC> switch to the POST screen and take one of two actions:</p> <ol style="list-style-type: none"> 1. If MultiBoot is installed, the boot process continues with the POST screen until the end of POST, and then displays the Boot First Menu, text-based with these options: A: Load the operating system from a boot device of your choice. B: Enter Setup. C: Exit the Boot First Menu (with <Esc>) and load the operating system from the boot devices in the order specified in Setup. 2. If MultiBoot is not installed, the boot process continues as usual.
Press <F2> to enter Setup	Press <F2> at any time during POST switch to the POST screen (if not already displayed) and enters Setup.
POST issues an error message	<p>Whenever POST detects a non-fatal error, QuietBoot switches to the POST screen and displays the errors. It then displays this message:</p> <div data-bbox="548 835 1240 940" style="border: 1px solid black; padding: 5px;"> <p>Press <F1> to resume, <F2> to Setup Press <F1> to continue with the boot. Press <F2> if you want to correct the error in Setup.</p> </div>
The BIOS or an option ROM requests keyboard input	If the BIOS or an Option ROM (add-on card) requests keyboard input, QuietBoot switches over to the POST screen and the Option ROM displays prompts for entering the information. POST continues from there with the regular POST screen.

3.11.2 Phoenix MultiBoot

Phoenix MultiBoot expands your boot options by letting you choose your boot device, which could be a hard disk, floppy disk, or CD ROM. You can select your boot device in Setup, or you can choose a different device each time you boot during POST by selecting your boot device in The Boot First Menu. MultiBoot consists of:

The Setup Boot Menu

The Boot First Menu

Refer to the Boot menu in BIOS setup for more information on Setup Boot Menu. The following describes the Boot First Menu.

The Boot First Menu

Display the Boot First Menu by pressing <ESC> during the POST. In response, the BIOS first displays the message, "Entering Boot Menu ..." and then displays the Boot Menu at the end of POST. Use the menu to select any of these options:

* Override the existing boot sequence (for this boot only) by selecting another boot device. If the specified device does not load the operating system, the BIOS reverts to the previous boot sequence.

* Enter Setup.

* Press <Esc> to continue with the existing boot sequence.

Boot Menu	
1.	+Removable Devices
2.	CD-ROM Drive
3.	+Hard Drive
4.	Network Boot
5.	MBA v8.1.54 Slot 0218
6.	MBA v8.1.54 Slot 0219
<Enter Setup>	

If there is more than one bootable hard drive, the first one in the Setup Boot menu is the one represented here.

3.12 BIOS Flash Upgrade Utility

Phoenix Phlash gives you the ability to update your BIOS from a floppy disk without having to install a new ROM BIOS chip.

Phoenix Phlash is a utility for "flashing" (copying) a BIOS to the Flash ROM installed on your computer from a floppy disk. A Flash ROM is a Read-Only Memory chip that you can write to using a special method called "flashing." Use Phoenix Phlash for the following tasks:

Update the current BIOS with a new version.

Restore a BIOS when it has become corrupted.

3.12.1 Executing Phoenix Phlash

You can run Phoenix Phlash to update or replace your current BIOS in Command Line Mode. To execute Phlash in this mode, move to the directory into which you have installed Phoenix Phlash and type "Phlash" at the prompt:

```
C:\PHLASH16 [filename] /BBL /C /Mode=3
```

Phoenix Phlash automatically updates or replaces the current BIOS with the one which your OEM or dealer supplies you.

Phlash may fail if your system is using memory managers, in which case the utility displays the following message:

Cannot flash when memory managers are present.

If you see this message after you execute Phlash, you must disable the memory manager on your system.

To do so, follow the instructions in the following sections.

Disabling Memory Managers

To avoid failure when flashing, you must disable the memory managers that load from CONFIG.SYS and AUTOEXEC.BAT. There are two recommended procedures for disabling the memory managers. One consists of pressing the <F5> key (only if you are using DOS 5.0 or above), and the other requires the creation of a boot diskette.

DOS 5.0 (or later version)

For DOS 5.0 and later, follow the two steps below to disable any memory managers on your system. If you are not using at least DOS 5.0, then you must create a boot diskette to bypass any memory managers (See Create a Boot Diskette, below).

1. Boot DOS 5.0 or later version. (In Windows 95, at the boot option screen, choose Option 8, "Boot to a previous version of DOS.")
2. When DOS displays the "Starting MS-DOS" message, press <F5>.

After you press <F5>, DOS bypasses the CONFIG.SYS and AUTOEXEC.BAT files, and therefore does not load any memory managers.

You can now execute Phlash.

Create a Boot Diskette

To bypass memory managers in DOS versions previous to 5.0, follow this recommended procedure:

1. Insert a diskette into your A: drive.
2. Enter the following from the command line: Format A: /S
3. Reboot your system from the A: drive.

Your system will now boot without loading the memory managers, and you can then execute Phlash.

Command:

```
A:\> PHLASH16 HDAMA-I.100 /BBL /C /Mode=3
```

Where:

PHLASH16	Phlash command name
HDAMA-I.100	Filename of new BIOS ROM supplied by dealer
/BBL	Flash the Boot Block
/C	Clear CMOS
/Mode=3	Update both the BIOS and DMI information (reset system DMI strings).

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 loses 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.

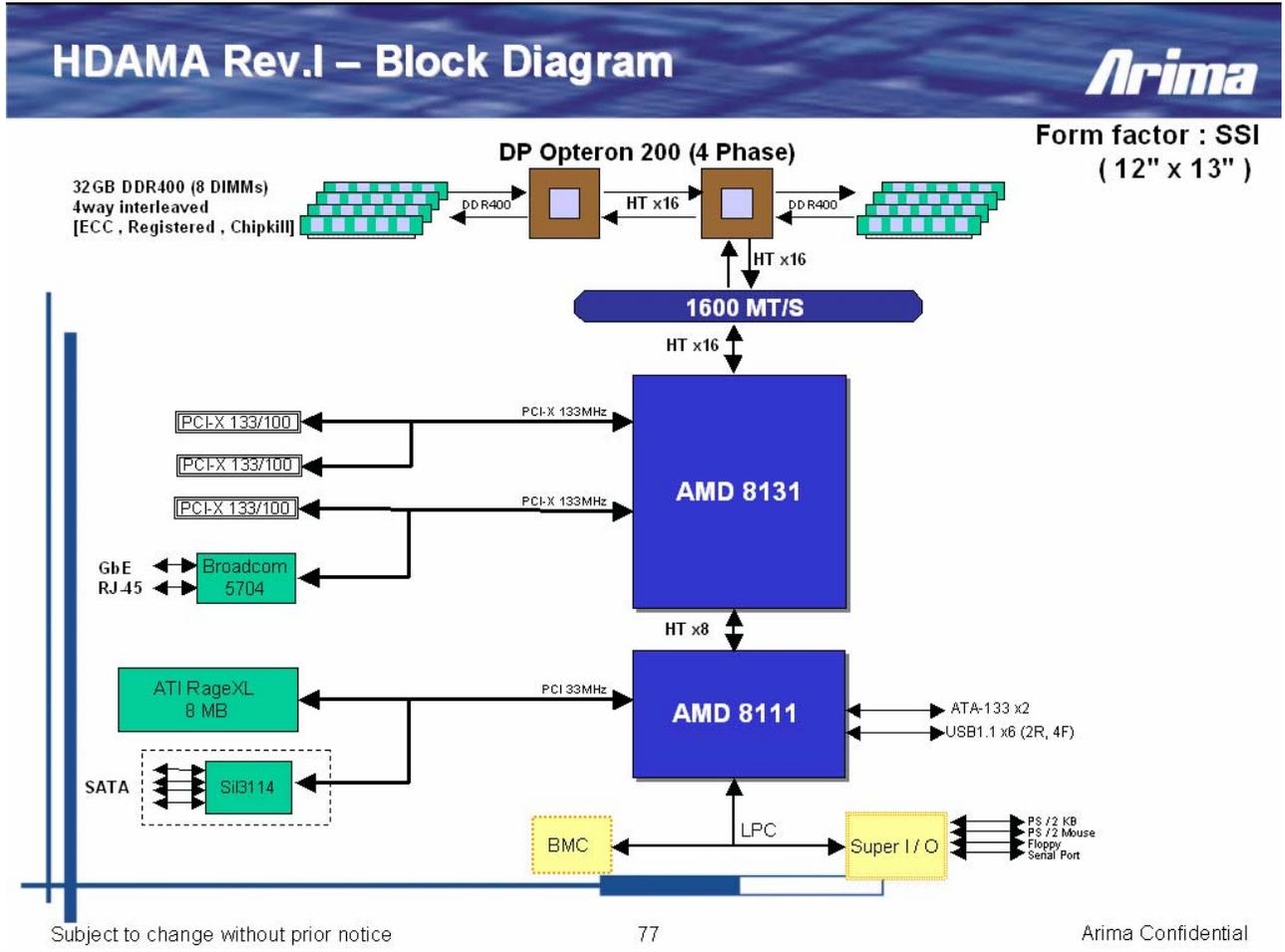
UltraDMA-33/66/100: a fast version of the old DMA channel. UltraDMA is also called UltraATA. Without a proper UltraDMA controller, your system cannot take advantage of higher data transfer rates of the new UltraDMA/UltraATA hard drives.

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

APPENDIX II: Block Diagram

For your convenience, we have included this block diagram to show the internal design of the motherboard in order to better aid you in troubleshooting. This diagram shows the bus and the channel of data flow. A good understanding of this diagram can help you clarify the configuration choices for your own optimization.



APPENDIX III: FAQ