P1-102A2M

MS - 9249 1U Rackmount Server

User's Guide

G52-S9249X1

Manual Rev: 1.0
Release Date: February 2004

CE N1996

FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Notice 1
The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2
Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

FC Micro-Star International
MS-9249

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Copyright Notice

Trademarks

Revision History

Revision	Revision History	Date
V1.0	First release	February 2004

Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

- Visit the MSI website for FAQ, technical guide, BIOS updates, driver updates, and other information: **http://www.msi.com.tw/**
- Contact our technical staff at: **support@msi.com.tw**

Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
8. Always Unplug the Power Cord before inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening that could damage or cause electrical shock.
11. If any of the following situations arises, get the equipment checked by a service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment has not work well or you can not get it work according to User's Manual.
    - The equipment has dropped and damaged.
    - The equipment has obvious sign of breakage.
12. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60^0C (140^0F), IT MAY DAMAGE THE EQUIPMENT.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成無線電干擾，在這種情況下，使用者會被要求採取某些適當的對策。

CONTENTS

Getting Started

Congratulations on your purchase of the MS-9249 1U Rackmount Server. This high-performance barebone system supports the powerful Intel® Pentium® 4 processor and the industry-leading hardwares and provides the most efficient and professional solution to meet your needs.

Mainboard Specifications

CPU
- Supports Intel® P4 (Northwood/Prescott) processors
- Supports 533/800MHz FSB
- Meets thermal requirements
- Onboard voltage regulator module

Chipset
- Intel® Canterwood-ES + Hance Rapids
- LPC Super I/O controller
- 4Mbit Flash EEPROM

MainMemory
- Supports 4GB ECC memory
- 4 DDR DIMM sockets
- Supports PC3200 ECC, unbuffered

OnboardVGA
- ATI Rage XL with 8MB SDRAM

OnboardLAN
- Intel 82547GI Gigabit LAN
- Intel 82541GI Gigabit LAN
- Programmed Ethernet MAC address and EEPROM

MSI Server Management: (Optional)
- mBMC and MSI iConsole support IPMI 1.5

OnboardI/O
- On-Board Peripherals include:
  - 1 x PS/2 Keyboard/Mouse Port
  - 1 serial port & 1 VGA port
  - 1 x parallel port
  - 2 x USB2.0 ports (rear)
  - 2 x USB 2.0 ports (front)
  - 2 x RJ-45

Slot
- 1 PCI 64bit/66MHz slot

OnboardIDE
- 2 IDE connector to support ATA 100/66/33

OnboardSATA
- 2 SATA connectors to support RAID 0, RAID 1

BIOS
- PCI 2.2 compliant, VPD and DMI
- PnP 1.0A, SMBIOS 2.3, ACPI 2.0
- Supports PXE boot protocol
- APM 1.2
- WOL
- WOR
- USB keyboard and mouse
- PC 2001 system design compliant
- BIOS Flash Write Protect
- BBS
- Event Log
- USB Legacy Support KB & Mouse
- Chassis Intrusion
- Console Redirection
- AC Recovery (back to original status)
- RTC alarm and wake up
- Boot Block
- Remote Diag.

Power Management Features
- RTC alarm and wake up
- Wake up on LAN (WOL)
- Wake up on serial ring
- Wake up on Keyboard/Mouse from S1
- Wake up on USB from S1
- Wake up on PCI
- Supports ACPI S1/S4/S5 functions

Regulatory
- FCC Class B

- EMC
- CE

Board Size

- ATX compatible form factor with 9 mounting holes

Devices

- 2 3.5" IDE or SATA HDD cages
- 1 Slim CD-ROM drive (optional)
- 1 6x2 LCD Display Panel

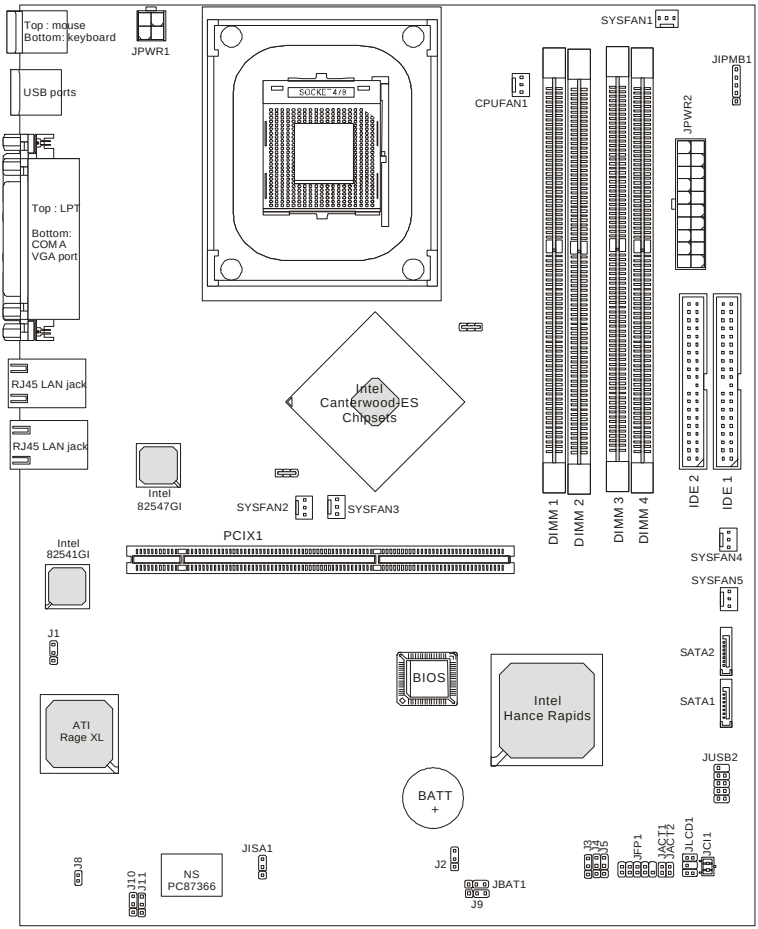
Power Supply

- 250W Max. output
- Active PFC
- Full range 100~240V

Server Management (optional)

- National Semiconductor PC87431HM mBMC (mini-Baseboard Management Controller)
  - Incorporates an embedded microcontroller, three System Management Bus (SMBus) interfaces, a Chassis Management interface, an integrated EEPROM, Fan control, 12 ADC channels, and Digital Input Event and General-Purpose Output pins
  - Interfaces with the host via a slave SMBus interface; it interfaces with the LAN on Motherboard (LOM) and with peripherals via two independent master SMBus interfaces

Mainboard Layout



E7210 Master-FARM (MS-9149 v1.X) ATX Server Board

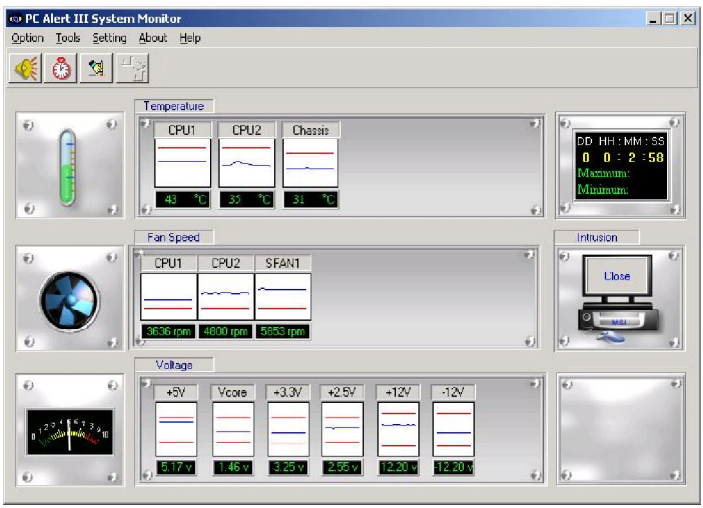
MSI Special Features

PC Alert™ III

The PC Alert™ III is a utility you can find in the CD-ROM disk. The utility is just like your PC doctor that can detect the following PC hardware status during real time operation:

- ✦ monitor CPU & system temperatures
- ✦ monitor fan speed(s)
- ✦ monitor system voltage
- ✦ monitor chassis intrusion

If one of the items above is abnormal, the program main screen will be immediately shown on the screen, with the abnormal item highlighted in red. This will continue to be shown until user disables the warning.



MSI Reminds You...

1. Items shown on PC Alert™ III vary depending on your system status.

2. The mainboard with mBMC chipset (Server Management Features) won't support PC Alert™ III.

LCD Front Panel Control

Installing the LCD Control Service

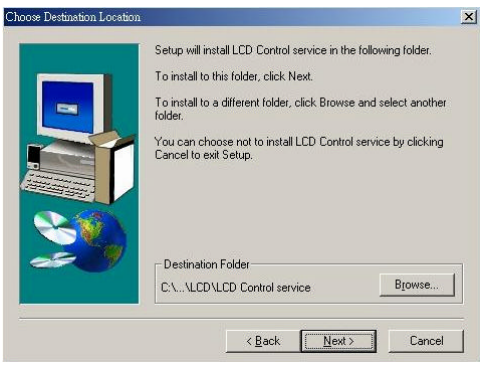
Version: V2.2

OS supported: Windows NT 4 with Service Pack 4 or latest version
Windows 2000, Windows XP

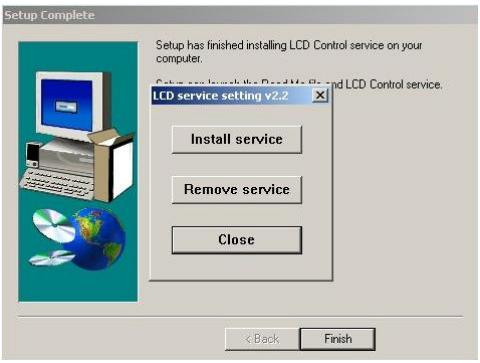
Step 1: Insert the installation CD into the CD-ROM drive. Browse to the CD-ROM drive and double-click the executable file "setup.exe" to start the Setup program.

Step 2: The screen will show the **Welcome** dialog box as shown below. Click **Next** to continue.

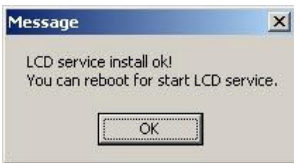
Step 3: To install the LCD Control Service, click **Next** to use the default folder or **Browse** to install to another designated folder. Click **Cancel** to exit the Setup program.



Step 4: Setup has finished installing the LCD Control service on your computer. Click **Install service** to enable the LCD Control service.



Step 5: Click **OK** to continue. You can restart the computer now.



Un-installing the LCD Control Service

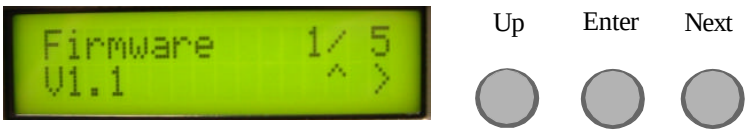
Step 1: Click **Start**, and then point to **Programs**.
Under **Programs**, Click **LCD Control Panel** and the following screen will pop up. Click **Remove service** to disable the LCD Control service.

Step 2: Click **OK** to continue.

Step 3: Under **Control Panel,** click **Add/Remove Programs**. Follow the on-screen instructions to complete the un-installation process.

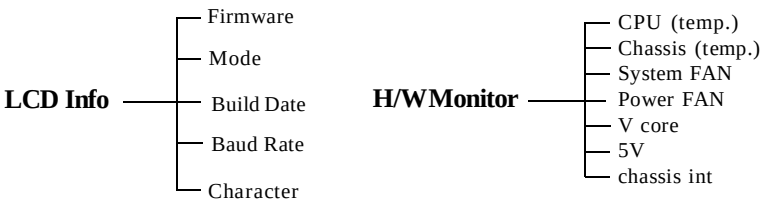
LCD Function Menu

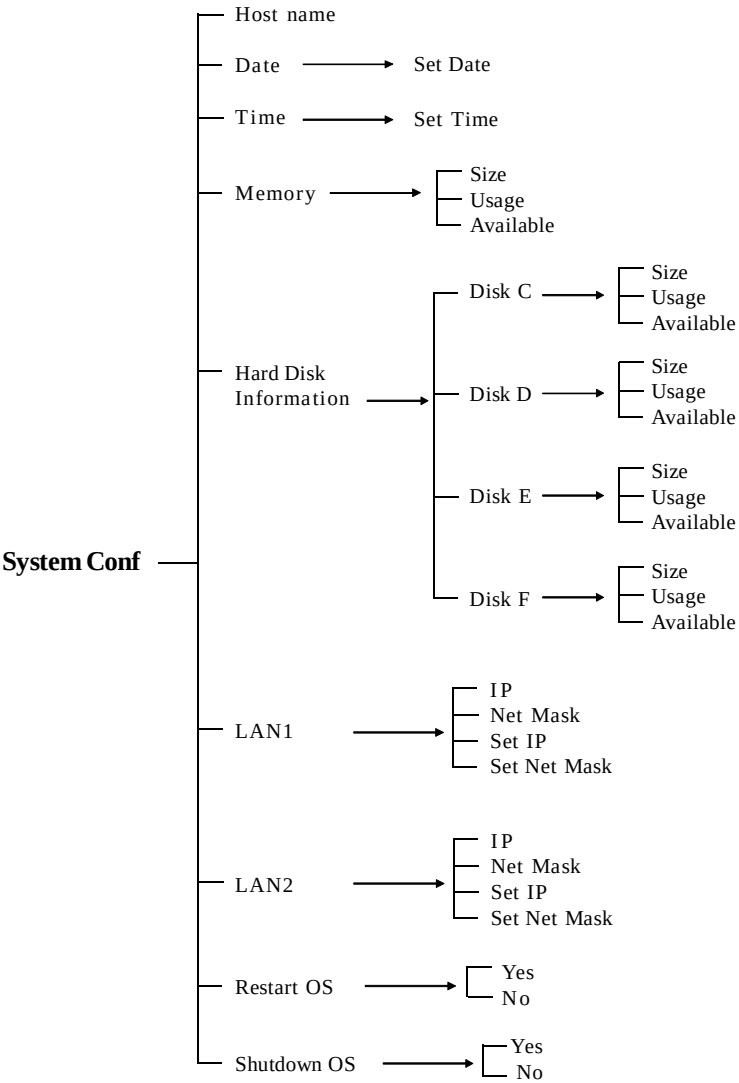
Here shows the LCD Front Panel and its three control buttons.



Up	Go to the previous selection.
Enter	Execute the command.
Next	Go to the next selection.

After you have installed the LCD Control Panel Service, you can simply use the LCD Front Panel Control buttons to get access to the information under *LCD Info, H/W Monitor and System Conf* menus.




System Conf
Host name
Date
Set Date
Time
Set Time
Memory
Size
Usage
Available
Hard Disk Information
Disk C
Size
Usage
Available
Disk D
Size
Usage
Available
Disk E
Size
Usage
Available
Disk F
Size
Usage
Available
LAN1
IP
Net Mask
Set IP
Set Net Mask
LAN2
IP
Net Mask
Set IP
Set Net Mask
Restart OS
Yes
No
Shutdown OS
Yes
No

Before Boot to OS (Debug Function)	
Function	**Description**
LCD Panel v1.1 Show Initialize OK	product information and version
BIOS POST: C1 Msg: Mem Sizing	If the system has memory issues, it will stop at C1.
BIOS POST: C3 Msg: BIOS chsum	If the system has BIOS issues, it will stop at C3.
BIOS POST: 18 Msg: CPU Init.	If the system has CPU issues, it will stop at 18.
BIOS POST: 2B Msg: VGA Init.	If the system has VGA issues, it will stop at 2B.
BIOS POST: 2D Msg: Sign-on Msg.	It shows information about logo processor brand name.
BIOS POST: 52 Msg: Ext. Mem Test	If the system has memory issues, it will stop at 52.
BIOS POST: 75 Msg: IDE Init.	If the system has IDE issues, it will stop at 75.
BIOS POST: 8B Msg: PCI ROM Init.	If the system has PCI issues, it will stop at 8B.
BIOS POST: 94 Msg: disp summary	
<Boot to OS>	If the system is problem free, it will boot to OS.

LCDInfo	
Function	**Description**
Firmware 1/5 V1.1	Show LCD Firmware version
Mode 2/5 Communication	Show LCD working mode
Build date 3/5 2002/03/25	Show LCD Firmware build date
Baud Rate 4/5 9600	Show LCD communication speed with COM port For PC and LCD link
Character 5/5 16X2	Show LCD characters

H/WMonitor	
Function	**Description**
CPU 1/15 42C	Show CPU temperature information
Chassis 2/15 28C	Show chassis temperature information
System FAN 3/15 0 RPM	Show System FAN speed information
Power FAN 4/15 4219 RPM	Show Power FAN speed information
V core 6/15 1.46V	Show V core voltage information
+5V 9/15 5.07V	Show +5V voltage information
Chassis int 15/15 OFF	Show chassis intrusion detect information

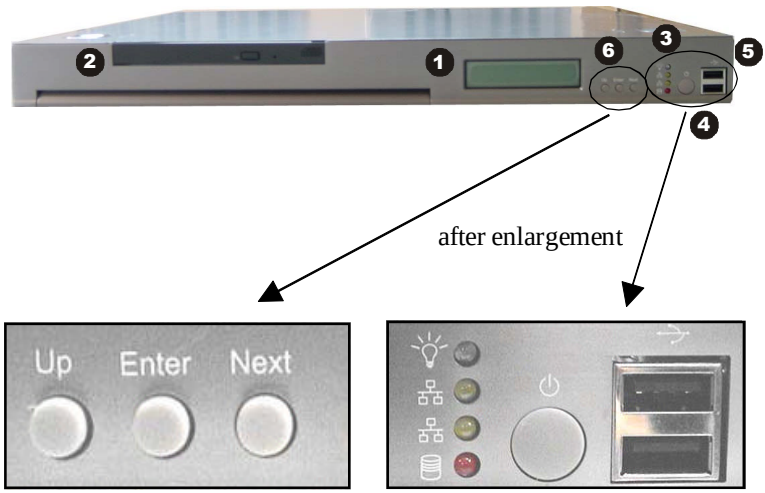
System Conf		
Function	**Description**	
Host name 1/9	Show system's host name	
Date 2/9 2002.8.21	Set Date 1/1	Show the date and allow to set the date
Time 3/9 13:24:50	Set Time 1.1	Show the time and allow to set the time
Memory 4/9	Size 1/3 511MB	Show memory's size
	Usage 2/3 153MB	Unable to show used memory size
	Available 3/3 358MB	Unable to show available memory size
Hard Disk 5/9 Information	It can detect 4 disks on this system.	
Disk C 1/4 3698MB	Size 1/3 3698MB	Show this partition's size
	Usage 2/3 1485MB	Unable to show the used size
	Available 3/3 2213MB	Unable to show the available size
Disk D 2/4 15393MB	Size 1/3 15393MB	Show this partition's size
	Usage 2/3 494MB	Unable to show the used size
	Available 3/3 14899MB	Unable to show the available size
Disk E 3/4 0MB	Size 1/3 0MB	Show this partition's size
	Usage 2/3 0MB	Unable to show the used size

System Conf (continued)	
Function	**Description**
	Available 3/3 Unable to show the available size 0MB
Disk F 4/4 0MB	Size 1/3 Show this partition's size 0MB
	Usage 2/3 Unable to show the used size 0MB
	Available 3/3 Unable to show the available size 0MB
LAN1 6/9 100.100.100.101	IP 1/4 Show the system IP information 100.100.100.101
	Netmask 2/4 Show the system Net Mask information 255.255.255.0
	Set IP Allow users to set the system's IP 000.000.000.000
	Setmask Allow users to set the system's Net Mask 000.000.000.000
LAN2 7/9 100.100.100.101	IP 1/4 Show the system IP information 100.100.100.101
	Netmask 2/4 Show the system Net Mask information 255.255.255.0
	Set IP Allow users to set the system's IP 000.000.000.000
	Setmask Allow users to set the system's Net Mask 000.000.000.000
Restart 8/9 Restart OS	Yes/No Restart your Windows OS
Shutdown 9/9 Shutdown OS	Yes/No Shut down your Windows OS

System Configuration

This section shows the configuration of the MS-9249 from different angles, and the connectors and buttons on the front and back panel.

Front View



1. LCD Front Panel
2. Slim CD-ROM Drive
3. LED Indicators
4. Power Button
5. USB Ports
6. LCD Control Buttons

Power Button

This main power button is used to turn on or off the system.

Power Indicator

This indicator shows the power status of the system. It glows when the main power is turned on.

LAN Status Indicators

These two LED indicators flash to show the activity status on LAN1 and LAN2.

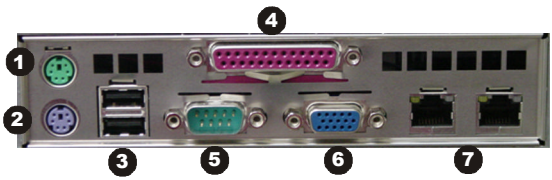
Hard Disk Drive In-use Indicator

This indicator shows the activity status of the hard disk drive. It flashes when the system is accessing data on the hard disk.

USB Ports

With the four USB port (2 in the front, 2 in the rear) design, you can easily add new capacities to your PC like never before.

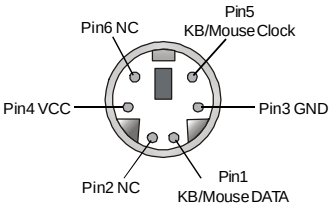
Rear View



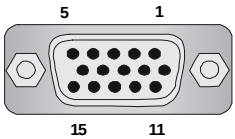
1. PS/2 Keyboard Connector
2. PS/2 Mouse Connector
3. USB Ports 1 & 2
4. Parallel Port
5. Serial Port
6. VGA Port
7. LAN Jacks 1 & 2

The Rear Panel provides the following connectors:

KB/Mouse Connector

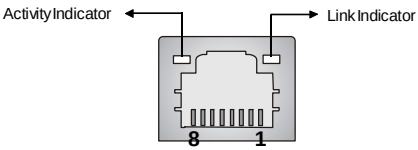


VGA Port

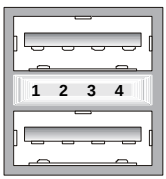


VGA Connector
(DB 15-pin)

RJ-45 LAN Jack



USB Ports

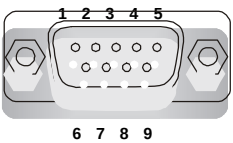


Gigabit LAN Pin Definition

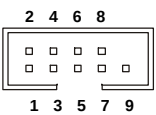
PIN	SIGNAL	DESCRIPTION
1	D0P	Differential Pair 0+
2	D0N	Differential Pair 0-
3	D1P	Differential Pair 1+
4	D2P	Differential Pair 2+
5	D2N	Differential Pair 2-
6	D1N	Differential Pair 1-
7	D3P	Differential Pair 3+
8	D3N	Differential Pair 3-

PIN	SIGNAL
1	VCC
2	-Data
3	+Data
4	GND

Serial Ports

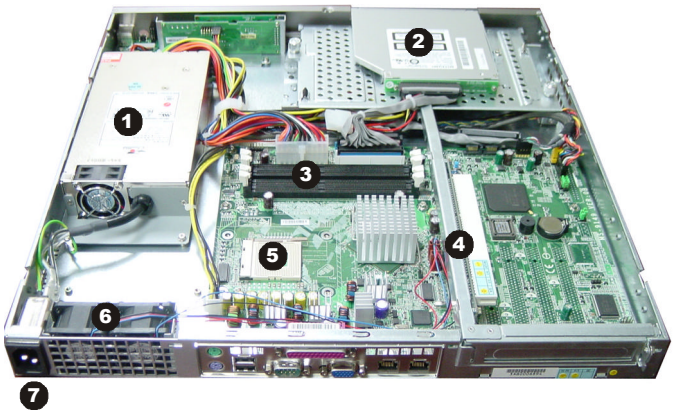


COM2



PIN	SIGNAL
1	DCD
2	SIN
3	SOUT
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Top View



1. 1U Power Supply
2. Slim CD-ROM Drive
3. DIMM Slots
4. Riser Card Bracket
5. CPU Socket
6. Rear Fan
7. AC Power Connector

Packing Checklist

Unpack the package and check if all items listed below are present. If any item contained in the package is damaged or missing, please contact your local dealer for replacement. In addition, keep the box and packing materials for possible future use.

Your MS-9249 1U Rackmount Server Barebone package should contain the following items:

*** MS-9249 1U Rackmount Server**	**x 1**
(including a MS-9149 mainboard and a Power Supply)	
*** Heatpipe and Fan Duct**	**x 1**
*** Fan**	**x 2**
*** Riser Card (MS-9582)**	**x 1**
*** Rail Kit**	**x 1**
*** User's Guide**	**x 1**
*** S-ATA Cable**	**x 2**
*** IDE Cable**	**x 1**
*** CD-ROM Cable**	**x 1**
*** Server Driver CD**	**x 1**
*** iConsole Suite CD (optional)**	**x 1**

Hardware Setup

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

Central Processing Unit: CPU

The mainboard supports Intel® Pentium® 4 Northwood / Prescott processor in the 478 pin package. The mainboard uses a CPU socket called PGA478 for easy CPU installation. When you are installing the CPU, **make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating.** If you do not find the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

CPU Core Speed Derivation Procedure

If	CPU Clock	=	100MHz
	Core/Bus ratio	=	17
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	100MHz x 17
		=	1.7GHz

MSI Reminds You...

Overheating

Overheating will seriously damage the CPU and system, always make sure the cooling fan can work properly to protect the CPU from overheating.

Replacing the CPU

While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from grounded outlet first to ensure the safety of CPU.

CPU Installation Procedures for Socket 478

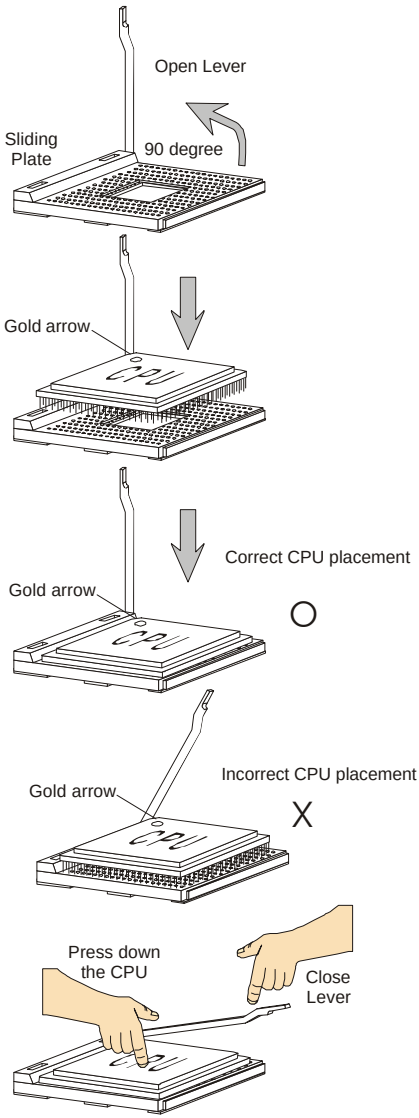
1. Please turn off the power and unplug the power cord before installing the CPU.

2. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90-degree angle.

3. Look for the gold arrow. The gold arrow should point towards the lever pivot. The CPU can only fit in the correct orientation.

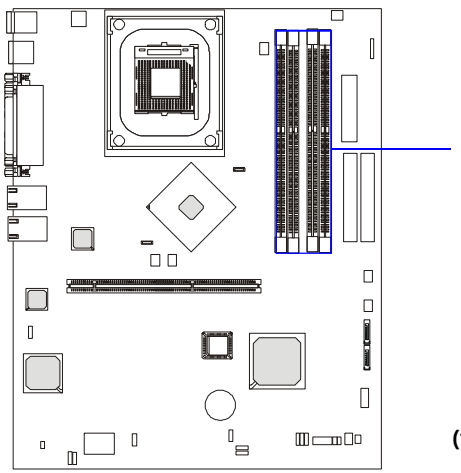
4. If the CPU is correctly installed, the pins should be completely embedded into the socket and can not be seen. Please note that any violation of the correct installation procedures may cause permanent damages to your mainboard.

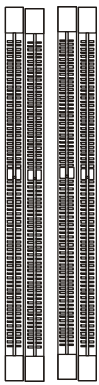
5. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.



Memory

The mainboard provides four 184-pin ECC non-registered DDR266/ DDR333/DDR400 SDRAM with the maximum memory size up to 4GB. To operate properly, install at least one memory module on the slot. To achieve the optimal efficiency of dual channel, install memory modules on Channel A (DIMM 1 & 2) and Channel B (DIMM3 & 4). Make sure that you install memory modules of the same type and density on the same channel.





DIMM1 ~ DIMM4 (from left to right)

Memory Speed/CPU FSB Support Matrix

CPU FSB \ Memory	DDR266	DDR333	DDR400
533MHz	Yes	Yes	No
800MHz	Yes	Yes	Yes

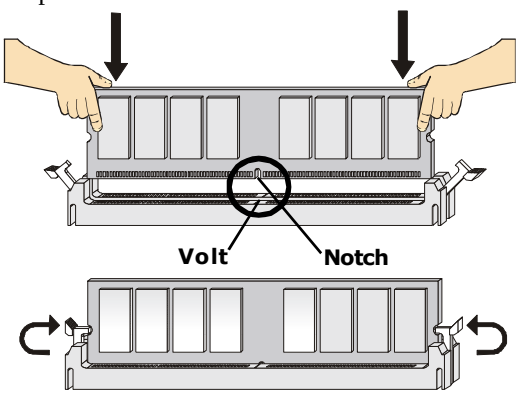
DIMM Module Combination

The memory modules can be installed in the following combination:

DIMM1	DIMM2	DIMM3	DIMM4	Total Memory
128MB~1GB				128MB~1GB
	128MB~1GB			128MB~1GB
		128MB~1GB		128MB~1GB
			128MB~1GB	128MB~1GB
128MB~1GB	128MB~1GB			256MB~2GB
128MB~1GB		128MB~1GB		256MB~2GB
128MB~1GB			128MB~1GB	256MB~2GB
	128MB~1GB	128MB~1GB		256MB~2GB
	128MB~1GB		128MB~1GB	256MB~2GB
		128MB~1GB	128MB~1GB	256MB~2GB
128MB~1GB	128MB~1GB	128MB~1GB		384MB~3GB
128MB~1GB	128MB~1GB		128MB~1GB	384MB~3GB
128MB~1GB		128MB~1GB	128MB~1GB	384MB~3GB
	128MB~1GB	128MB~1GB	128MB~1GB	384MB~3GB
128MB~1GB	128MB~1GB	128MB~1GB	128MB~1GB	512MB~4GB

Installing DDR Modules

1. The DDR DIMM has only one notch on the center of module. The module will only fit in the right orientation.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the socket.
3. The plastic clip at each side of the DIMM slot will automatically close.



MSI Reminds You...

You can barely see the golden finger if the module is properly inserted in the socket.

Power Supply

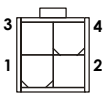
The mainboard supports SSI power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 20-Pin Power Connector: JPWR2

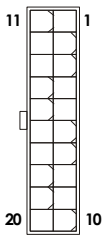
This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

ATX 12V Power Connector: JPWR1

This 12V power connector is used to provide power to the CPU.



JPWR1



JPWR2

JPWR1 Pin Definition

PIN	SIGNAL
1	GND
2	GND
3	12V
4	12V

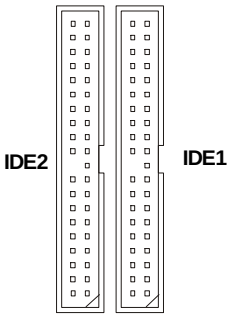
JPWR2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

Connectors, Jumpers & Slots

Hard Disk Connectors: IDE1/2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices. These connectors support the provided IDE hard disk cable.



IDE1 (Primary IDE Connector)

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure second hard drive to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.

MSI Reminds You...

If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.

SATA Connectors Supported by ICH-HR: SATA1 & SATA2

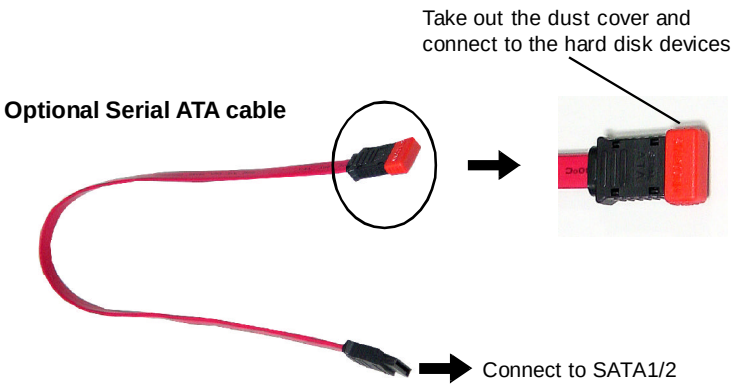
The ICH-HR chipset supports two serial IDE connectors (SATA1 & SATA2).

SATA connectors are dual high-speed Serial ATA interface ports. Each supports 1st generation serial ATA data rates of 150 MB/s. All connectors are fully compliant with Serial ATA 1.0 specifications. Each Serial ATA connector can connect to 1 hard disk device.

SATA1/2

SATA Pin Definitions

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP
7	GND		

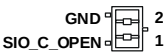


MSI Reminds You...

Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, the loss of data may occur during transmission.

Chassis Intrusion Switch Connector: JCI1

This connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.



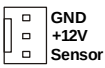
JCI1

ISA Bridge Control Connector: JISA1 (Optional)

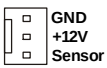
JISA1

Fan Power Connectors: SYSFAN2/3

The SYSFAN2/3 (system fans) support system cooling fan with +12V. It supports three-pin head connector. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



SYSFAN3



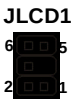
SYSFAN2

MSI Reminds You...

Always consult the vendors for proper CPU cooling fan.

LCD Panel Connector: JLCD1 (Optional)

The connector is additionally provided for connection to a LCD panel, which shows information on the panel for you to identify the current status or mode of the connected system.



PIN	SIGNAL
1	SOUT
2	SIN
3	NC
4	GND1
5	GND0
6	VCC

I2C Bus Connector: JIPMB1 (Optional)

The mainboard provides one I2C (also known as I^2C) Bus connector for users to connect to System Management Bus (SMBus) interface.

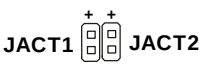
JIPMB1 Pin Definition

PIN	SIGNAL
1	SMBCLK
2	SMBDATA
3	SMBALERT#
4	GND
5	VCC3

82547 GI LAN Active LED Connector: JACT1

82541 GI LAN Active LED Connector: JACT2

The LAN LED connectors are used to connect to LAN LEDs, which show the activity of the LAN. JACT1 is for LAN1 jack and the JACT2 is for LAN2 jack. Both LAN1 & LAN2 jacks are located on the back panel.

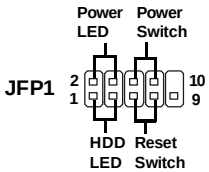


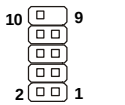
Front Panel Connector: JFP1

The mainboard provides one front panel connector for electrical connection to the front panel switches and LEDs. JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

Front USB Connector: JUSB2

The mainboard provides one USB 2.0 pin header *JUSB2* that is compliant with Intel® I/O Connectivity Design Guide. USB 2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as **USB HDD**, **digital cameras**, **MP3 players**, **printers**, **modems and the like**.





JUSB2
(USB 2.0/Intel spec)

JUSB2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key	10	NC

JFP1 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	HD_LED_P	Hard disk LED pull-up
2	FP PWR/SLP	MSG LED pull-up
3	HD_LED_N	Hard disk active LED
4	FP PWR/SLP	MSG LED pull-up
5	RST_SW_N	Reset Switch low reference pull-down to GND
6	PWR_SW_P	Power Switch high reference pull-up
7	RST_SW_P	Reset Switch high reference pull-up
8	PWR_SW_N	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

Enable/Disable PROMISE SATA Header: J2

J2

Enable SATA IDSEL (default)

Disable SATA IDSEL

PCI-X Devices Header: J4

J4

PCI-X Device (default)

Not PCI-X Device

PCI-X Bus Speed Header: J5

J5

PCI-X Bus Speed is 66MHz (default)

PCI-X Bus Speed is 33MHz

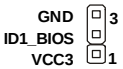
FWH Write Protect Connector: J9

J9

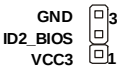
Enable FWH Write Protect

Disable FWH Write Protect (default)

ID Header for BIOS Version: J10 & J11



J10



J11

Enable/Disable VGA Jumper: J8

This jumper is used to enable or disable VGA IDSEL.

J8

VGAIDSEL
Disabled

VGAIDSEL
Enabled
(default)

Enable/Disable 82541 GI LAN Jumper: J1

The LAN controller integrated on the motherboard varies depending on the model you have purchased. The default factory settings are properly configured for optimal system performance and thus should be left unchanged.

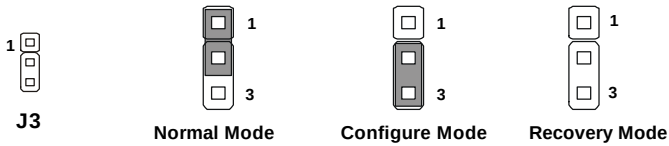
J1

Enable LAN IDSEL
(default)

Disable LAN IDSEL

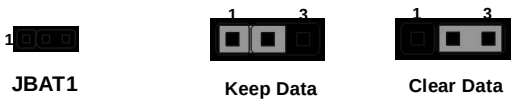
System Configure Jumper: J3

The J3 jumper determines which mode the system will enter while powered on. During *Normal Mode*, the system will enter the assigned OS as usual. During *Configure Mode*, the system will directly enter BIOS setup utility. This enables you to modify the BIOS configurations. During *Recovery Mode*, you have to insert certain boot disk into the floppy drive before powering on the system. After powered on, the system will read the boot disk and enter DOS. This enables you to update the BIOS with a Flash utility if necessary.



Clear CMOS Jumper: JBAT1

There is a CMOS RAM on board that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:



MSI Reminds You...

You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

PCI Slot

64-bit PCI bus: The bus has 64 data lines and runs at 33, 66MHz. With twice data lines and much faster PCI clock, the 64-bit PCI bus increases the throughput and overall system performance.

PCI-32 IRQ Routing (for ICH-HR)

PCI Device	INT A	INT B	INT C	INT D
VGA	PIRQ#G			
82541 GI LAN	PIRQ#H			

Primary IDE Interrupt: IRQ14 (for ICH-HR)
Secondary IDE Interrupt: IRQ15 (for ICH-HR)

PCIX-64 IRQ Routing (for ICH-HR)

PCI Device	INT A	INT B	INT C	INT D
PCIX-64 Slot1	PX_IRQ#0	PX_IRQ#1	PX_IRQ#2	PX_IRQ#3

CSA Interface IRQ routing (for Canterwood-ES)

PCI Device	INT A	INT B	INT C	INT D
82547 GI LAN	PIRQ#F			

BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use. You may need to run the Setup program when:

- An error message appears on the screen during the system booting up, and requests you to run SETUP.
- You want to change the default settings for customized features.

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

```
Press DEL to enter SETUP
```

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
<F7>	Load Optimized defaults
<F10>	Save all the CMOS changes and exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

General Help <F1>

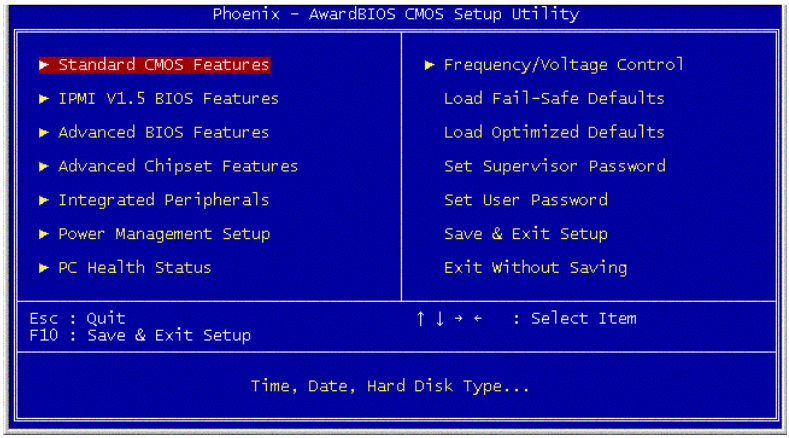
The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

NOTE

The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.

The Main Menu

Once you enter Phoenix-AwardBIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu displays twelve configurable functions and two exit choices. Use arrow keys to move among the items and press <Enter> to enter the sub-menu.



Standard CMOS Features
Use this menu for basic system configurations, such as time, date etc.

IPMI V1.5 BIOS Features *(for mainboards with mBMC chip)*
Use this menu to configure the Platform Event Filter (PEF) status and WatchDog TimeOut features.

Advanced BIOS Features
Use this menu to configure the special enhanced features.

Advanced Chipset Features
Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals
Use this menu to specify your settings for integrated peripherals.

Power Management Setup
Use this menu to specify your settings for power management.

PC Health Status (for mainboard without mBMC chip)
This entry shows your PC health status.

Frequency/Voltage Control
Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults
Use this menu to load the BIOS default values for minimal but stable system performance.

Load Optimized Defaults
Use this menu to load the BIOS default values that are factory settings for optimal system operations.

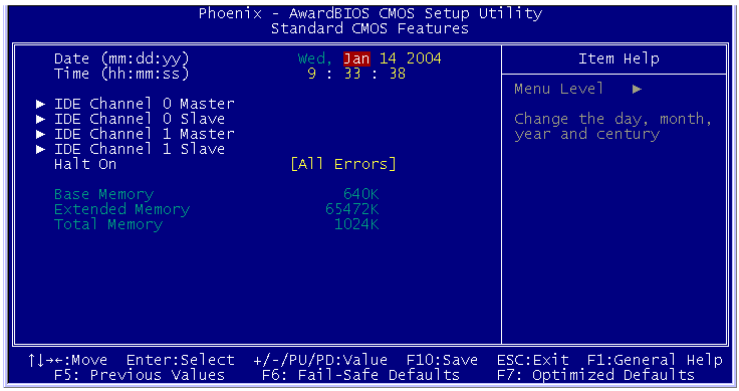
Set Supervisor/User Password
Use this menu to set user and supervisor passwords.

Save & Exit Setup
Save changes to CMOS and exit setup.

Exit Without Saving
Abandon all changes and exit setup.

Standard CMOS Features

The items inside Standard CMOS Features menu are divided into 10 categories. Each category includes none, one or more setup items. Use the arrow keys to highlight the item you want to modify and use the <PgUp> or <PgDn> keys to switch to the value you prefer.



Date (mm:dd:yy)

This allows you to set the system to the date that you want (usually the current date). The format is <day><month> <date> <year>.

day	Day of the week, from Sun to Sat, determined by BIOS. Read-only.
month	The month from Jan. through Dec.
date	The date from 1 to 31 can be keyed by numeric function keys.
year	The year can be adjusted by users.

Time (hh:mm:ss)

This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

IDE Primary/Secondary Master/Slave

Press PgUp/<+> or PgDn/<-> to select *Manual*, *None*, *Auto* type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If

your hard disk drive type is not matched or listed, you can use *Manual* to define your own drive type manually.

If you select *Manual*, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be "*None*". If the controller of HDD interface is CD-ROM, the selection shall be "*None*".

Access Mode	The settings are *CHS*, *LBA*, *Large*, *Auto*.
Capacity	The formatted size of the storage device.
Cylinder	Number of cylinders.
Head	Number of heads.
Precomp	Write precompensation.
Landing Zone	Cylinder location of the landing zone.
Sector	Number of sectors.

Halt On

The setting determines whether the system will stop if an error is detected at boot. Available options are:

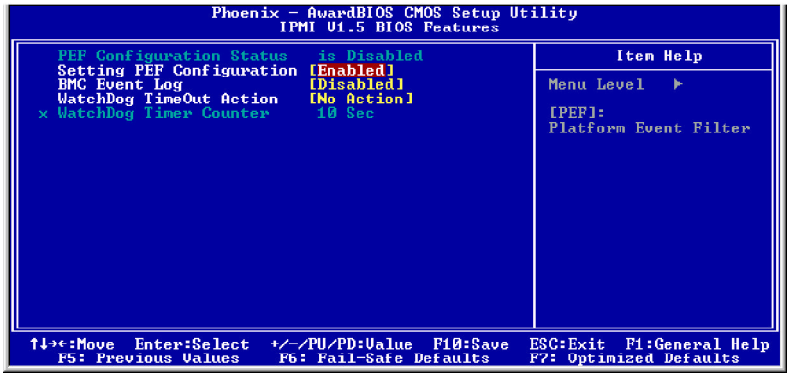
All Errors	The system stops when any error is detected.
Disabled	The system doesn't stop for any detected error.
All, But Keyboard	The system doesn't stop for a keyboard error.
All, But Diskette	The system doesn't stop for a disk error.
All, But Disk/Key	The system doesn't stop for either a disk or a keyboard error.

Base/Extended/Total Memory

The three items show the memory status of the system. (read only)

IPMI V1.5 BIOS Features

This setup screen appears ***only when the mBMC chip (for Server Management) is integrated on the mainboard***.



PEF Configuration Status
This option shows the current Platform Event Filter (PEF) configuration status. (Read only)

Setting PEF Configuration
This setting is used to set the Platform Event Filter (PEF) configuration. When [Enabled] is selected, the server will send the event signal to the BMC. Setting options: *Enabled, Disabled.*

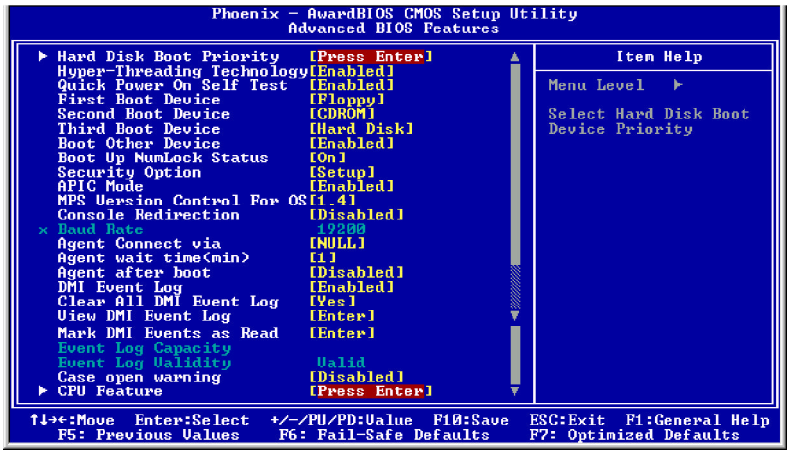
BMC Event Log
Select [Enabled] to store POST error or initial messages to the BMC Event log. If you don't want to store POST error or initial messages to the DMI Event log, select [Disabled]. When [Cleared] is selected, the BMC event log will be cleared at next POST stage. Setting options: *Disabled, Enabled, Cleared.*

WatchDog TimeOut Action
The Watch Dog Timer (WDT) is a special hardware device to monitor if the computer system works normally. If the system does not work normally, it will have some measures to fix up the system. The following actions are avail-

able on expiration of the Watchdog Timer: *No Action, Hard Reset, Power Down, Power Cycle.*

WatchDog Timer Counter
This feature allows users to set the time interval to reboot the computer if a timeout event occurs. Setting options: *10 Sec, 20 Sec, 30 Sec, 40 Sec.*

Advanced BIOS Features



Hard Disk Boot Priority

This setting determines the boot priority of the installed hard disks.

Hyper-Threading Technology

The Intel processor uses Hyper-Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions. Settings: *Enabled, Disabled.*

NOTE

Enabling the functionality of Hyper-Threading Technology for your computer system requires ALL of the following platform Components:

**CPU: An Intel® Pentium® 4 Processor with HT Technology;*

**Chipset: An Intel® Chipset that supports HT Technology;*

**BIOS: A BIOS that supports HT Technology and has it enabled; and*

**OS: An operating system that supports HT Technology.*

For more information on Hyper-threading Technology, go to:

www.intel.com/info/hyperthreading

Quick Power On Self Test
The option speeds up Power On Self Test (POST) after you power on the computer. When setting the item to *Enabled*, BIOS will shorten or skip some check items during POST. Settings: *Enabled*, *Disabled*.

First/Second/Third Boot Device
The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system.

Boot Other Device
Setting the option to *Enabled* allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device.

Boot Up NumLock Status
This setting is to set the Num Lock status when the system is powered on. Setting to *On* will turn on the Num Lock key when the system is powered on. Setting to *Off* will allow users to use the arrow keys on the numeric keypad. Setting options: *On*, *Off*.

Security Option
This specifies the type of BIOS password protection that is implemented. Settings are described below:

Option	Description
Setup	The password prompt appears only when end users try to run Setup.
System	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

APIC Mode
This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance to PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQs resources for the system. Settings: *Enabled*, *Disabled*.

MPS Version Control For OS
This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS

version supported by your operating system. To find out which version to use, consult the vendor of your operating system. Settings: *1.4, 1.1*.

Console Redirection
Console Redirection operates in host systems that do not have a monitor and keyboard attached. This setting enables/disables the operation of console redirection. When set to *Enabled*, BIOS redirects and sends all contents that should be displayed on the screen to the serial COM port for display on the terminal screen. Besides, all data received from the serial port is interpreted as keystrokes from a local keyboard. Setting options: *Enabled, Disabled*.

Baud Rate
This setting specifies the transfer rate (bits per second) of *Console Redirection*. Setting options: *9600, 19200, 38400, 57600, 115200*.

Agent Connect via
To operate the system's console redirection, you need a terminal supporting ANSI terminal protocol and a RS-232 null modem cable connected between the host system and terminal(s). This field is a read-only field, which is used to indicate the type of device connected between the host system and terminal (s). NULL stands for a null modem.

Agent wait time (min)
This setting controls the timeout for terminals' (console redirection) connection to the host system. Setting options: *1, 2, 4, 8* (Min).

Agent after boot
This setting determines whether or not to keep terminals' console redirection running after the OS has booted. Setting options: *Disabled, Enabled*.

DMI Event Log
This setting disables or enables the BIOS to log DMI (Desktop Management Interface) events. Setting options: Enabled, Disabled.

Clear All DMI Event Log
When this setting is set to Yes, the DMI event log will be cleared at next POST stage. Then, the BIOS will automatically set this option to No.
Setting options: *Yes, No*.

View DMI Event Log
Press <Enter> to view all DMI event logs.

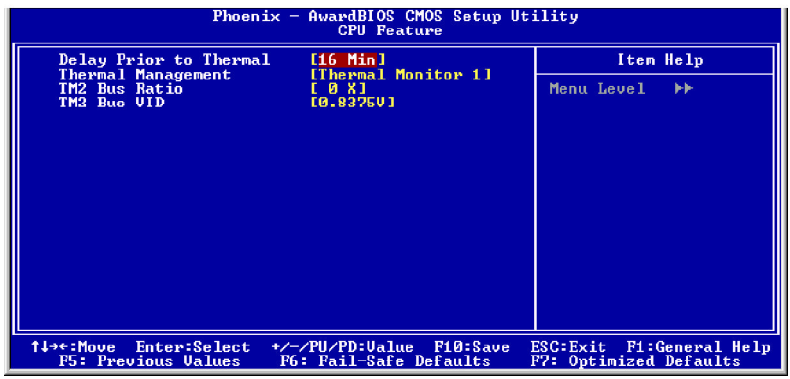
Mark DMI Events as Read
Press <Enter> and a screen pops up, asking users to confirm whether or not to clear all DMI event logs immediately. Press <Y> and <Enter>, the BIOS will clear all DMI event logs right away.

Event Log Capacity
The item allows the system to show if there is enough space for event logs.

Event Log Validity
The item allows the system to show if the event logs are valid.

Care Open Warning
The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to *Reset*. The setting of the field will automatically return to *Enabled* later. Settings: *Enabled*, *Reset*, *Disabled*.

CPU Feature
Press <Enter> to enter the following sub-menu screen.



Delay Prior to Thermal
When the CPU temperature reaches a factory preset level, a thermal monitoring mechanism will be enabled following the appropriate timing delay specified in

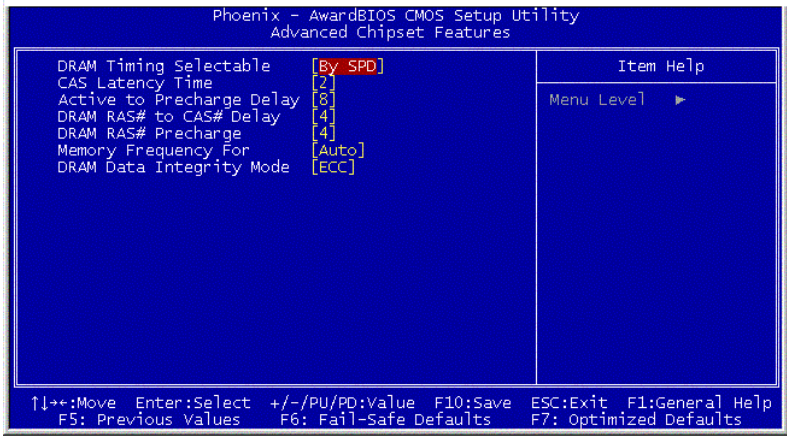
this field. With the thermal monitoring enabled, clock modulation controlled by the processor's internal thermal sensor is also activated to keep the processor within allowable temperature limit. Setting options: *4 Min, 8 Min, 16 Min, 32 Min*.

Thermal Management
This feature allows you to specify the thermal monitoring system. Settings are:
Thermal Monitoring 1 on die throttling
Thermal Monitoring 2 Ratio & VID transition

TM2 Bus Ratio (hidden for Prescott processor)
It represents the frequency (bus ratio) of the throttled performance state that will be initiated when the on die sensor goes from not hot to hot. Key in a DEC number between 0 and 255.

TM2 Bus VID (hidden for Prescott processor)
It represents the voltage of the throttled performance state that will be initiated when the on die sensor goes from not hot to hot. Settings range from *0.8375V* to *1.6000V*.

Advanced Chipset Features



NOTE
Change these settings only if you are familiar with the chipset.

DRAM Timing Selectable
Selects whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to *By SPD* enables DRAM timing to be determined automatically by BIOS based on the configurations on the SPD. Selecting *Manual* allows users to configure these fields manually.

CAS Latency Time
This controls the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Settings: *2, 2.5, 3* (clocks). *2* (clocks) increases the system performance the most while *3* (clocks) provides the most stable performance.

Active to Precharge Delay
The field specifies the idle cycles before precharging an idle bank. Settings: *8, 7, 6, 5* (clocks).

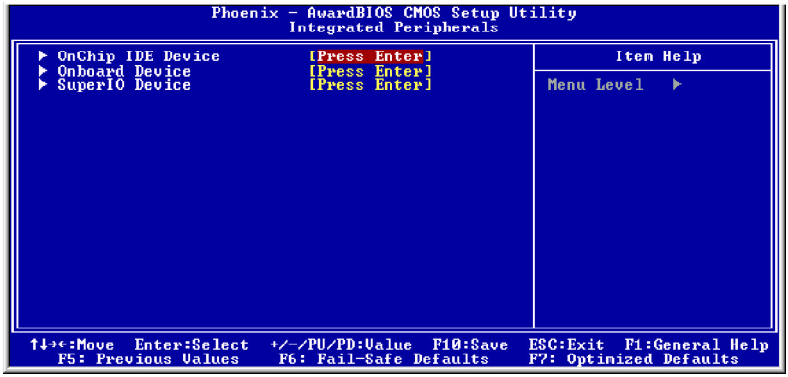
DRAM RAS# to CAS# Delay
This field allows you to set the number of cycles for a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from or refreshed. Fast speed offers faster performance while slow speed offers more stable performance. Settings: *4*, *3*, *2* (clocks).

DRAM RAS# Precharge
This item controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system. Available settings: *4*, *3*, *2* (clocks).

Memory Frequency For
Use this item to configure the clock frequency of the installed DRAMs. Options: *Auto*, *DDR 266*, *DDR333*, *DDR320*, *DDR400*.

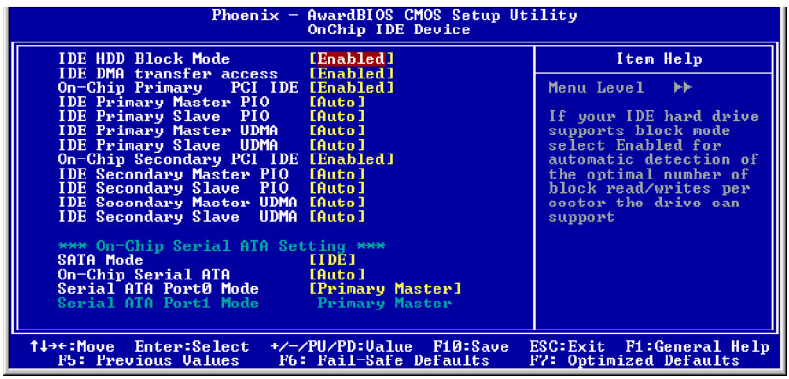
DRAM Data Integrity Mode
Select *ECC* (Error-Correcting Code) or *Non-ECC* according to the type of installed DRAM.

Integrated Peripherals



OnChip IDE Device

Press <Enter> to enter the following sub-menu screen.



IDE HDD Block Mode

This allows your hard disk controller to use the fast block mode to transfer data to and from the hard disk drive. Block mode is also called block transfer, multiple commands or multiple sector read/write. *Enabled* enables IDE controller to use block mode; *Disabled* allows the controller to use standard mode.

IDE DMA transfer access
Setting to *Enabled* will open DMA bus master and execute DMA action in DOS, which will make the data transferring faster. Settings: *Disabled, Enabled.*

On-Chip Primary/Secondary PCI IDE
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Choose *Enabled* to activate each channel separately.

IDE Primary/Secondary Master/Slave PIO
The four items allow you to set a PIO (Programmed Input/Output) mode for each of the four IDE devices that the onboard IDE interface supports. *Modes 0~4* provide increased performance. In *Auto* mode, BIOS automatically determines the best mode for each IDE device.

IDE Primary/Secondary Master/Slave UDMA
Ultra DMA implementation is possible only if your IDE device supports it and your operating environment contains a DMA driver. If both your hard drive and software support Ultra DMA 33 (or higher), select *Auto* to enable BIOS support.

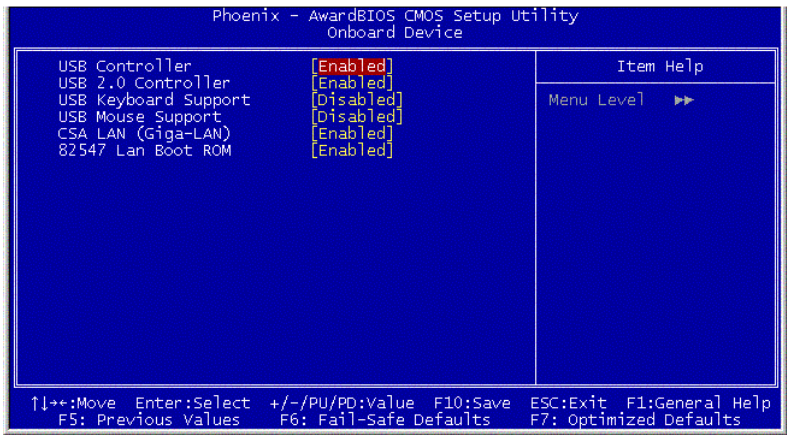
****On-Chip Serial ATA Setting****

On-Chip Serial ATA
This setting allows you to detemine how the RAID controller on the south bridge is going to switch to SATA controller. Options: *Manual*, *Disabled* or *Auto*. When set to [Auto], BIOS will automatically swtich RAID to SATA and vice versa. If [Disabled] is selected, only SATA controller will be enabled.

Serial ATA Port 0/1 Mode
Select a compatible mode for Port 0 and Port 1 from Award setting to the chipset settings:
1. *Primary Master*
=> Compatible Mode with Serial ATA Port 0 set to Primary Master
2. *Primary Slave*
=> Compatible Mode with Serial ATA Port 0 set to Primary Slave
3. *Secondary Master*
=> Compatible Mode with Serial ATA Port 0 set to Secondary Master

4. *Secondary Slave*
=> Compatible Mode with Serial ATA Port 0 set to Secondary Slave
5. *Logical Primary*
=> Compatible Mode with only Serial ATA Enabled and Port 0 set to Primary Master
6. *Logical Secondary*
=> Compatible Mode with only Serial ATA Enabled and Port 0 set to Secondary Master
7. *Enhance Mode Port 0 (Tertiary Master)*
=> Enhance Mode with Port 0 set to Native Mode Master
8. *Enhance Mode Port 1 (Quaternary Master)*
=> Enhance Mode with Port 1 set to Native Mode Master

Onboard Device
Press <Enter> to enter the following sub-menu screen.



USB Controller
Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. Setting options: *Enabled*, *Disabled*.

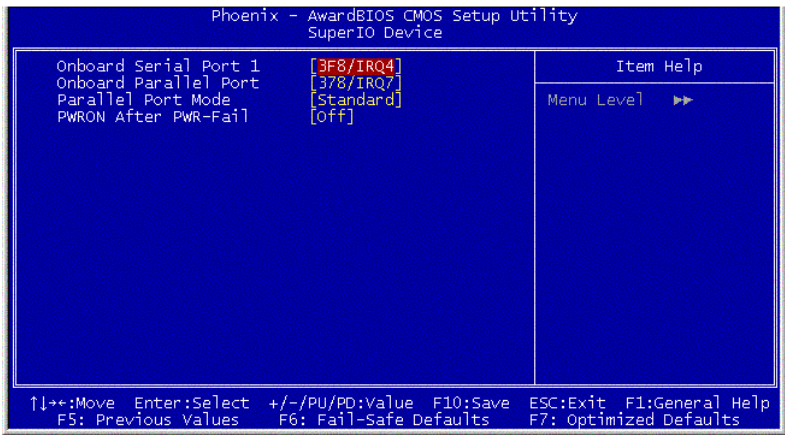
USB 2.0 Controller
Set to *Enabled* if you need to use any USB 2.0 device in the operating system that does not support or have any USB 2.0 driver installed, such as DOS and SCO Unix. Setting options: *Disabled*, *Enabled*.

USB Keyboard/Mouse Support
Select *Enabled* if you need to use a keyboard/mouse in the operating system. Setting options: *Enabled, Disabled.*

CSA LAN (Giga-LAN)
The field determines whether the onboard Giga-bit LAN controller is activated. Setting options: *Enabled, Disabled.*

82547 Lan Boot ROM
This setting enables/disables the initialization of the onboard LAN Boot ROM during bootup. Selecting *Disabled* will speed up the boot process.

Super IO Device
Press <Enter> to enter the following sub-menu screen.



Onboard Serial Port 1/2
The items specify the base I/O port address and IRQ for the onboard Serial Port 1 (COM 1)/Serial Port 2 (COM 2). Selecting *Auto* allows BIOS to automatically determine the correct base I/O port address. Settings: *Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.*

Onboard Parallel Port
This specifies the I/O port address and IRQ of the onboard parallel port. Settings: *378/IRQ7, 278/IRQ5, 3BC/IRQ7, Disabled.*

Parallel Port Mode

This item selects the operating mode for the parallel port: *SPP*, *EPP*, *ECP*, *ECP+EPP*.

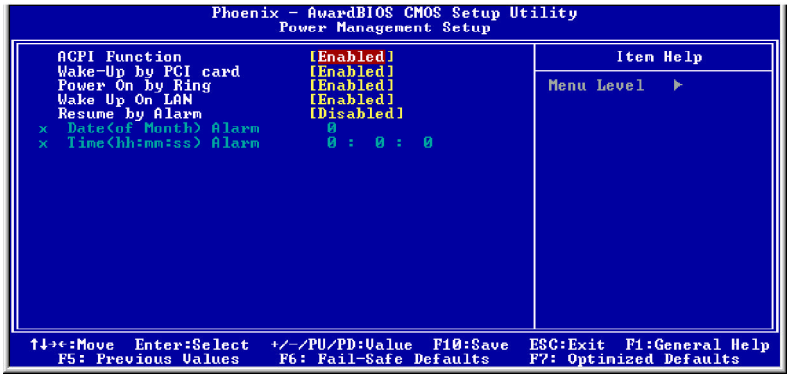
SPP: Standard Parallel Port
EPP: Enhanced Parallel Port
ECP: Extended Capability Port
ECP + EPP: Extended Capability Port + Enhanced Parallel Port

PWRON After PWR-Fail

This item specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

Off	Leaves the computer in the power off state.
On	Reboots the computer.
Former-Sts	Restores the system to the status before power failure or interrupt occurred.

Power Management Setup



NOTE
S3-related functions described in this section are available only when your BIOS supports S3 sleep mode.

ACPI Function
This item is to activate the ACPI (Advanced Configuration and Power Management Interface) function. If your operating system is ACPI-aware, such as Windows 98SE/2000/ME, select *Enabled*. Setting options: *Enabled, Disabled.*

Wake-Up by PCI Card, Power On by Ring, Wake Up On LAN
These fields specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

Resume By Alarm
The field is used to enable or disable the feature of booting up the system on a scheduled time/date.

Date (of Month) Alarm
The field specifies the date for *Resume by Alarm*. Settings: 0~31.

Time (hh:mm:ss) Alarm
The field specifies the time for *Resume by Alarm. F*ormat is <hour> <minute><second>.

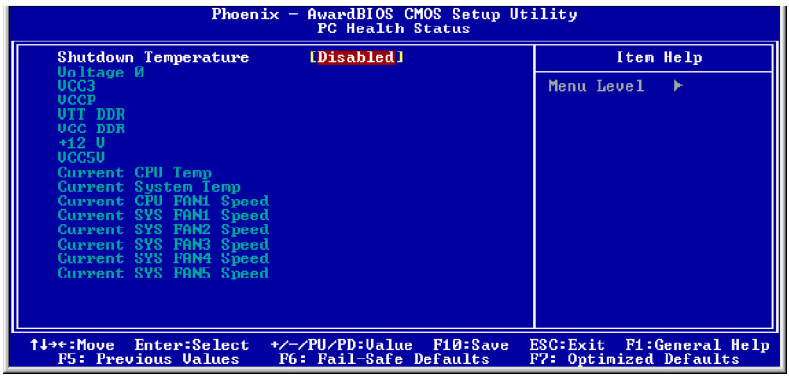
NOTE

If you have changed this setting, you must let the system boot up until it enters the operating system, before this function will work.

PC Health Status

This setup screen appears ***only when the mBMC chip (for Server Management) is not integrated on the mainboard***.

This section shows the status of your CPU, fan, overall system status, etc. Monitor function is available only if there is hardware monitoring mechanism onboard.

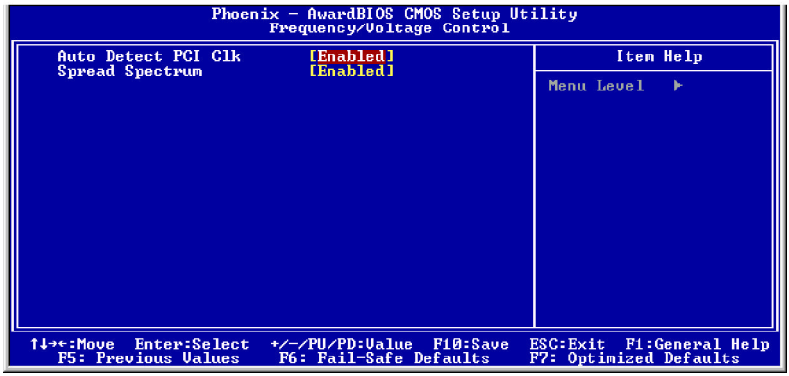


Shutdown Temperature
This option is for setting the shutdown temperature level for the processor. When the processor reaches the temperature you set, the system will be shut down. Options: *Disabled, 80°C/175°F, 85°C/1183°F, 90°C/191°F.*

Voltage 0, VCC3, VCCP, VTT DDR, VCC DDR, 12V, VCC5V, Current CPU/ System Temp, Current CPU FAN1 Speed, Current SYS FAN1/2/3/4/5 Speed
These items display the current status of all of the monitored hardware devices/components such as CPU voltages, temperatures and all fans' speeds.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.



Auto Detect PCI Clk

This item is used to auto detect the PCI slots. When set to *Enabled*, the system will remove (turn off) clocks from empty PCI slots to minimize the electromagnetic interference (EMI). Settings: *Enabled*, *Disabled*.

Spread Spectrum

When the motherboard clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at *Disabled* for optimal system stability and performance. But if you are plagued by EMI, setting to *Enabled* for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clockspeed which may just cause your overclocked processor to lock up.

Load Fail-Safe/Optimized Defaults

The two options on the main menu allow users to restore all of the BIOS settings to the default Fail-Safe or Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. The Fail-Safe Defaults are the default values set by the BIOS vendor for stable system performance.

When you select *Load Fail-Safe Defaults*, a message as below appears:

Pressing *Y* loads the BIOS default values for the most stable, minimal system performance.

When you select *Load Optimized Defaults*, a message as below appears:

Pressing *Y* loads the default factory settings for optimal system performance.

Set Supervisor/User Password

When you select this function, a message as below will appear on the screen:

Type the password, up to six characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also have Award BIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the *Security Option* of the *ADVANCED BIOS FEATURES* menu. If the *Security Option* is set to *System*, the password is required both at boot and at entry to Setup. If set to *Setup*, password prompt only occurs when you try to enter Setup.

NOTE

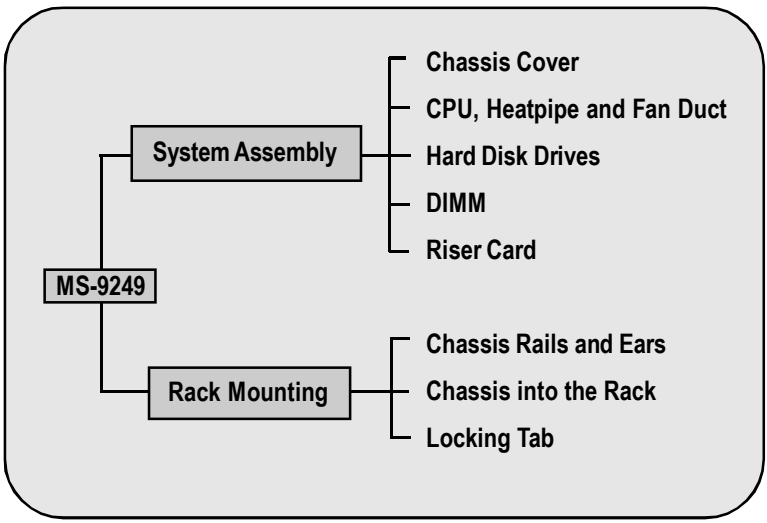
About Supervisor Password & User Password:

Supervisor password:	*Can enter and change the settings of the setup menu.*
User password:	*Can only enter but do not have the right to change the settings of the setup menu.*

4

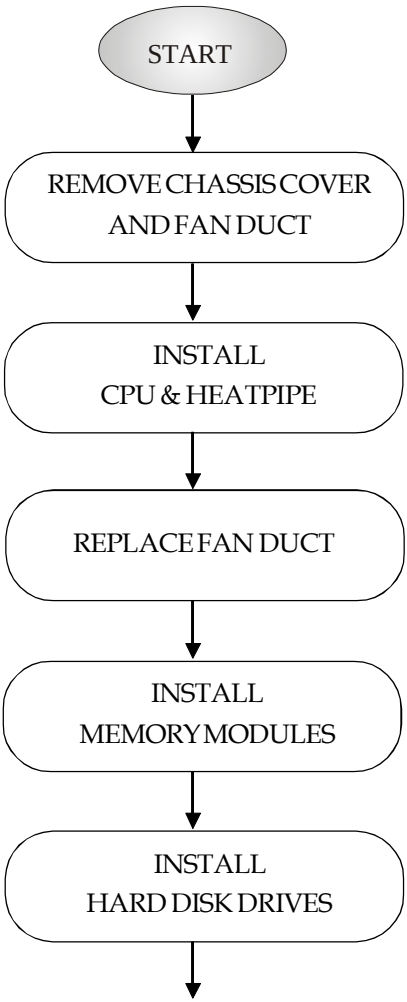
Chassis Installation

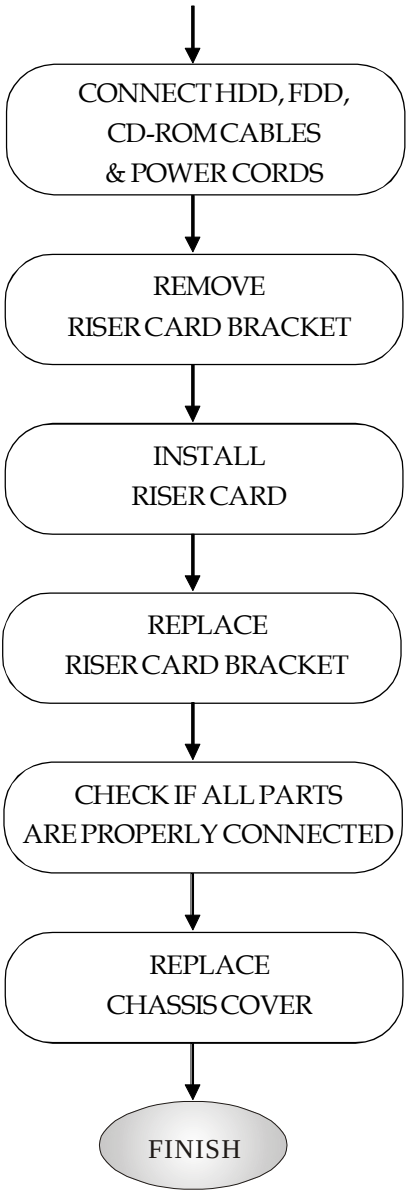
This chapter provides instructions on the hardware installation of the MS-9249 in two sections. ***System Assembly*** illustrates how to assembly each component of the MS-9249. ***Rack Mounting*** describes the procedures for mounting the unit into the rack in details. You can use the system assembly flowchart and the chart below to determine the proper sequence for removing or installing components to the server.



System Assembly Flowchart

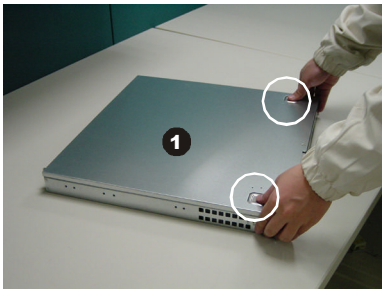
The following flowchart shows basic system assembly procedures. Please note that always wear anti-static gloves when handling electrical components and exercise caution during the installation process. For more information, contact your local dealer or experienced technician.



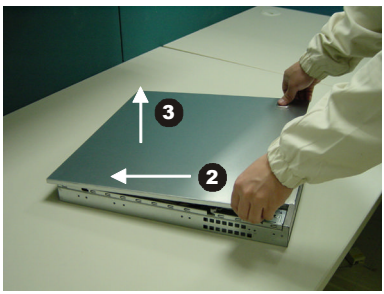

CONNECT HDD, FDD,
CD-ROM CABLES
& POWER CORDS
REMOVE
RISER CARD BRACKET
INSTALL
RISER CARD
REPLACE
RISER CARD BRACKET
CHECK IF ALL PARTS
ARE PROPERLY CONNECTED
REPLACE
CHASSIS COVER
FINISH

System Assembly

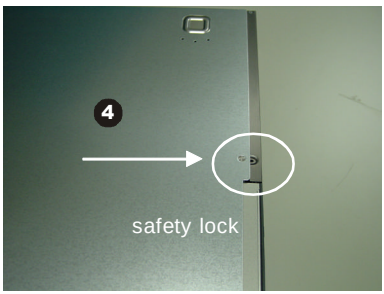
Removing and Replacing Chassis Cover



Locate the release buttons on the chassis cover.



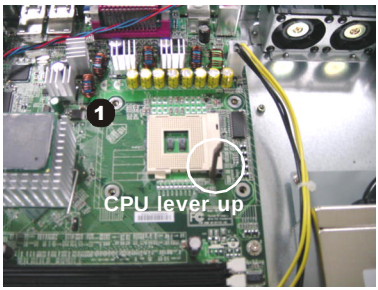
Press the release buttons and then push the cover backward to lift it up.



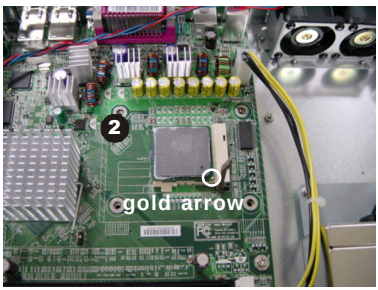
To replace the cover, slide the cover forward and make sure the safety lock fits firmly.

STOP ***WARNING!*** *Before you remove or install these modules, make sure the server is not turned on or connected to the AC power.*

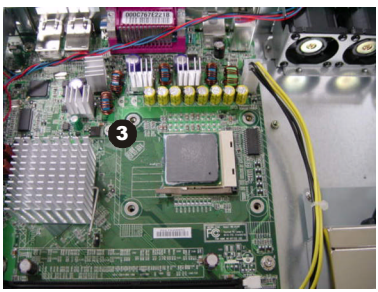
Installing CPU



Locate the CPU socket and lift the lever up to a 90 degree angle.

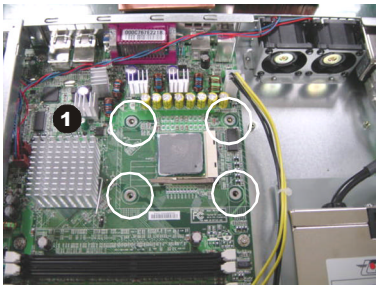


Place the CPU on top of the socket with the gold arrow pointing to the lever.

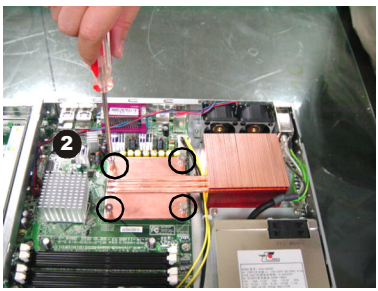


Push the lever down to secure the CPU in place.

Installing Heatsink and Fan Duct

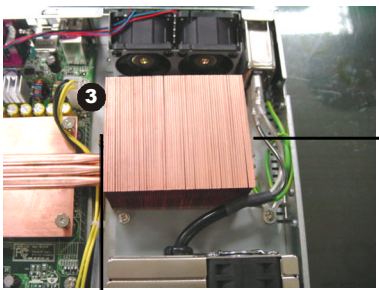


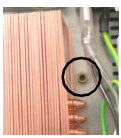
Locate the four points of the heatsink socket.



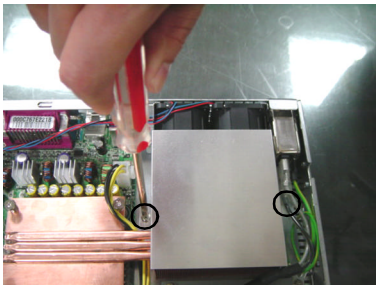
Position the heatsink onto the heatsink socket carefully to avoid damaging the components around.

Screw the heatsink to the chassis.





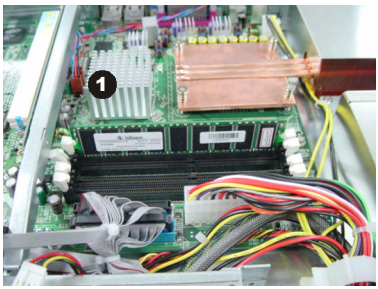
Locate the screw holes as shown in Figure 3 and place the fan duct onto the heatsink.



Screw the fan duct to the chassis.

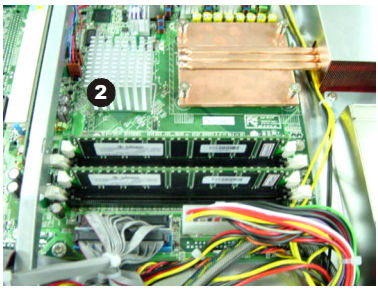
The installation of the heatsink and fan duct is now completed.

Installing Memory Modules



Locate the DIMM slots on the mainboard.

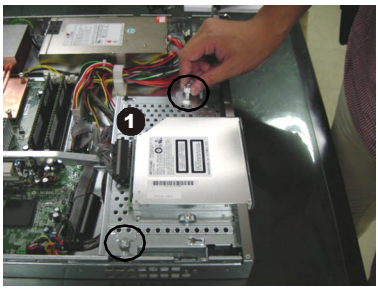
If a single DDR module is installed, always insert it in the first DIMM slot.



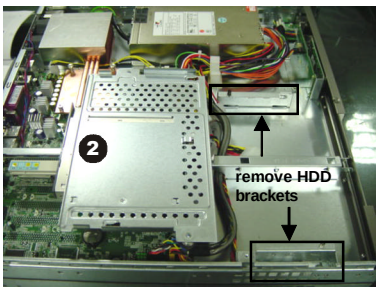
To achieve the optimal efficiency of dual channel, insert the DDR modules into Channel A (Slot 1 & 2) and Channel B (Slot 3 & 4).

For a complete memory module combination list, see ***DIMM Module Combination*** on pp. 2-4 ~ 2-5.

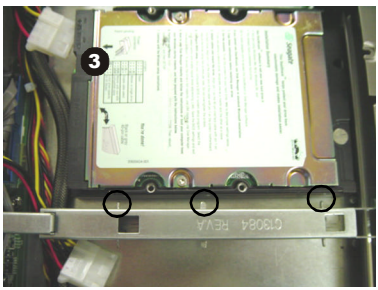
Installing HDDs



Unscrew the HDD cover plate.

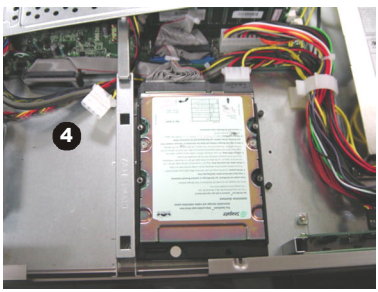


Turn over the HDD cover plate and remove the HDD brackets.

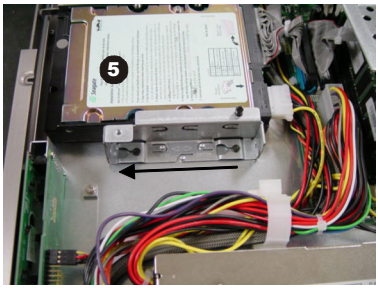


Place the first HDD into the chassis and make sure the HDD fits with the chassis.

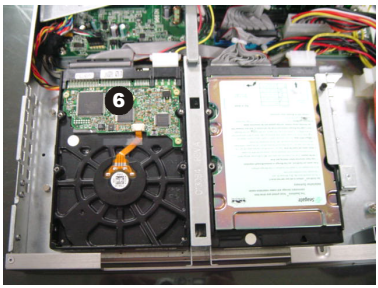
Note: The HDD has three screw holes to fit with the chassis.



Connect the HDD power cord and ATA100 cable.

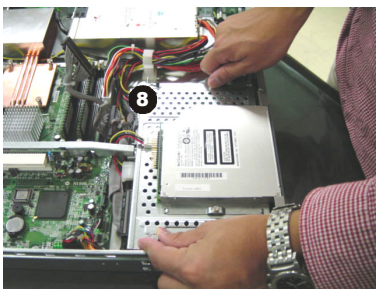


Push the HDD bracket forward to secure the HDD.



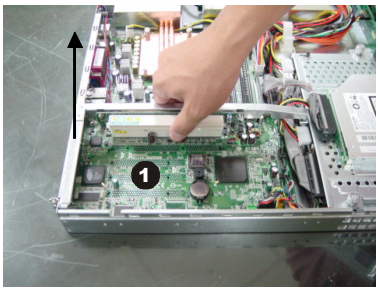
Follow the same procedures to install the second HDD.

Replace the HDD bracket.

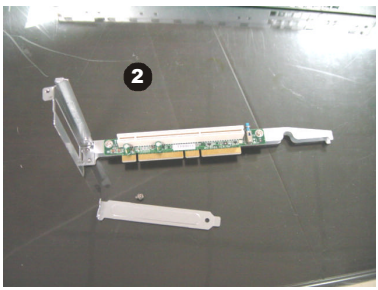


Replace the HDD cover plate and screw the HDD cover plate in place.

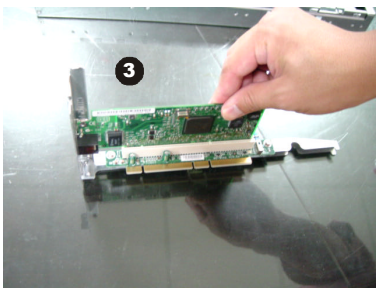
Installing Riser Card



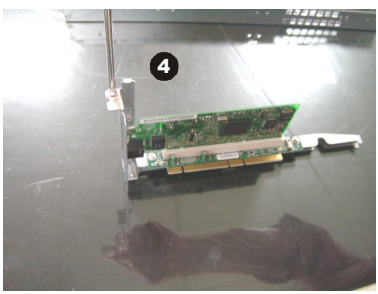
Remove the riser card bracket.



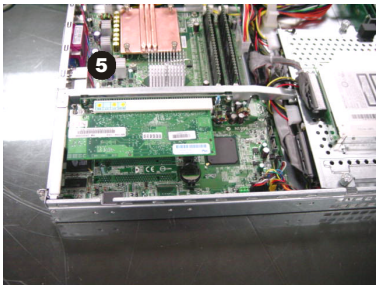
Unscrew the I/O shield from the riser card bracket. Save the screw for later use.



Insert the SCSI card into the bracket.



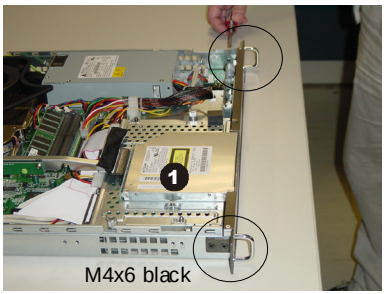
Screw the SCSI card firmly to the riser card bracket.



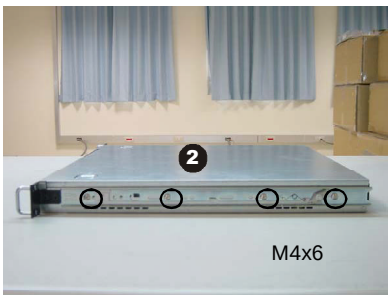
Replace the riser card bracket.

Rack Mounting

Chassis Rails and Ears



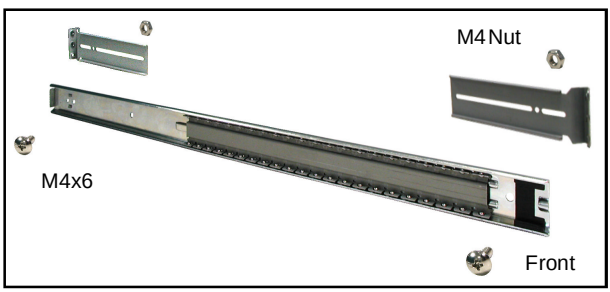
Screw the ears to both sides of the chassis.



Screw the side rails to both sides of the chassis.

TIPS

Attach the brackets (front and rear) onto the rails; the position of the rear bracket should be adjustable, which depends on the place where the system is installed into the rack.



Chassis into the Rack

Screw the rails onto the rack.

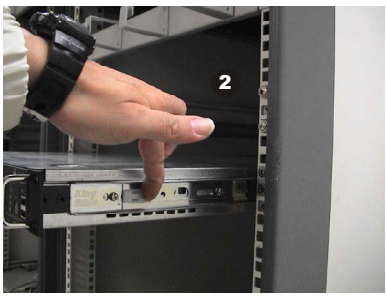
Align the chassis rails with the rack rails, and then push the system into the rack fully

Note: *The chassis rails must match the rack rails well, and the ball bearing set of the rack rails should clip into the fillister on the chassis rails.*

Secure the system with the screws.

Locking Tab

To slide the system into the rack, first align the chassis rails with the rack rails. Then simultaneously press the locking tabs on both sides of the chassis rails and slide the system backward.



The system will be locked halfway while pulling it out. Pull forward the locking tabs on both sides of the chassis rails to unlock the tab. You may now remove the system from the rack.

Note: *The chassis rail is designed with a locking tab which can (1) hold the system firmly to the rack, and (2) lock the system halfway without sliding out of the rack rails.*