ASUS

RS700-E6/RS4

Configuration Guide

E4359

First Edition V1
February 2009

Chapter 1: Product introduction

Contents

Revision history

Revision	Revision history	Date
V1	First release of RS700-E6/RS4 configuration guide	February 2009

Safety information

Electrical Safety

- Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.

- When adding or removing any additional devices to or from the system, contact a qualified service technician or your dealer. Ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you service.

- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your dealer.

Operation Safety

- Servicing of this product or units is to be performed by trained service personnel only.

- Before operating the server, carefully read all the manuals included with the server package.

- Before using the server, make sure all cables are correctly connected and the power cables are not damaged. If any damage is detected, contact your dealer as soon as possible.

- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.

- Avoid dust, humidity, and temperature extremes. Place the server on a stable surface.

This product is equipped with a three-wire power cable and plug for the user's safety. Use the power cable with a properly grounded electrical outlet to avoid electrical shock.

Lithium-Ion Battery Warning

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

CD-ROM Drive Safety Warning

CLASS 1 LASER PRODUCT

Heavy System

CAUTION! This server system is heavy. Ask for assistance when moving or carrying the system.

Chapter 1

This chapter describes the key features of RS700-E6/RS4. It includes the product overview and general specifications.

Product introduction

1.1　Key features

As one of the Taiwan Excellence Winners in 2006, ASUS Server RS700-E6/RS4 is based on two Dual-Core or Quad-Core Intel® Xeon® processor 5500 Sequence and QPI 4.8 / 5.86 / 6.4 GT/s. Running on the Intel® Tylersburg-36D MCH and Intel® ICH10R I/O Controller Hub chipset, it supports 64-bit computing to deliver outstanding performance upgrade. The RS700-E6/RS4 also supports 4 hot-swap SAS (ASUS PIKE card required)or SATA2 HDDs within the limited 1U server space. The 12 DIMM slots enable DDR3 1066/1333 memory up to 48GB (UDIMM) or 96GB (RDIMM), significantly raising memory performance of server systems. RS700-E6/RS4 provides the high performance brought by the latest technology and ASUS unique features.

Professional Cable-Less Design

- Best air flow for heat dissipation
- Easy maintenance

Energy Saving

- High power efficiency design—ASUS EPU and 80+ Bronze power supply

High I/O Expansibility in 1U Form Factor

- Four (3+1) I/O expansion cards are supported

High Availability and Reliability

- Hot-swap 1+1 redundant power supply and HDD
- Hot-swap system FAN with fault resilience

As a leading provider of performance and quality server solutions, ASUS server and server board products are recognized by the international market depending on its powerful R&D strength and solid quality. With the excellent representation of stability, compatibility and cooling capability, RS700-E6/RS4 is one of the best choices for enterprises to build an electronic environment.

1.2 System overview
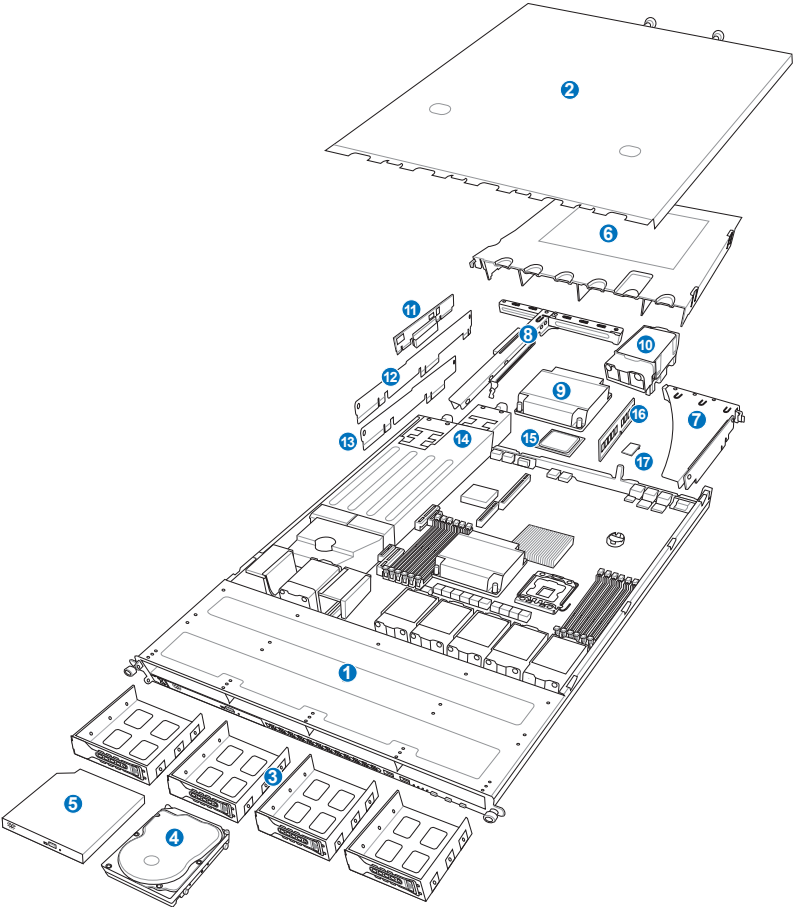
Items	Items
1. Front cover	2. Top cover
3. Hard disk drive bays	4. Hard disk drive
5. Optical disc drive	6. Airduct
7. PCI-E 2.0 x16 riser card	8. PCI-E 2.0 x16 / x8 riser card
9. CPU heatsink	10. System fans
11. ASUS PIKE SAS controller card	12. SATA bridge card
13. SAS bridge card	14. 770W Redundant Power Supply
15. CPU	16. DDR3 DIMM
17. ASMB4-iKVM controller card	

1.3   Front panel features

Rack screw   Hot-swap HDD bays   Rack screw

Optical drive

USB ports
HDD Access LED
LAN2 LED
LAN1 LED
Message LED
Reset button
Location LED
Location switch

Power
button

Power
LED

1.4   Rear panel features

Serial port

LAN ports

USB ports

Location LED

Location button

VGA port

PS/2 mouse port

PS/2 keyboard port

Redundant PSU cover

Power supply fan

Power cord connector
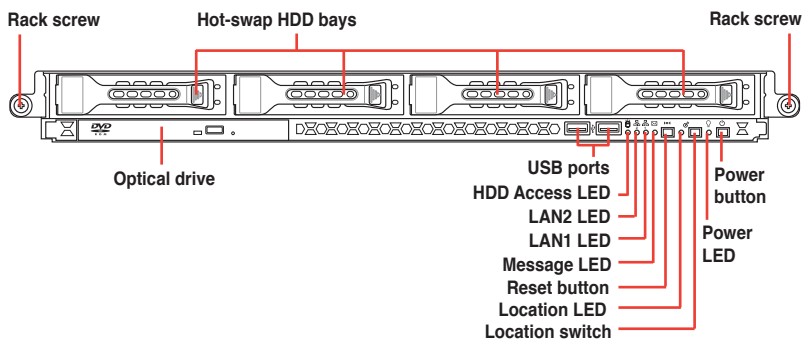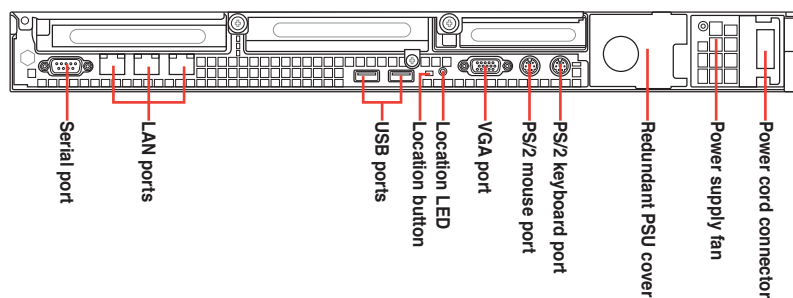
1.5   System specifications

Model Name		RS700-E6/RS4
Processor / System Bus		2 x Socket LGA1366
		Intel® Xeon® 5500 series processors (45nm)
		Quad-Core/Dual-Core
		QPI 4.8 / 5.86 / 6.4 GT/s
Core Logic		Intel® 5520 I/O Hub Intel® ICH10R I/O Controller
ASUS Features	Smart Fan	√
	ASWM2.0	√
Memory	Total Slots	12 (3-channel per CPU, 6 DIMMs per CPU)
	Capacity	Maximum up to 96GB (RDIMM) Maximum up to 48GB (UDIMM)
	Memory Type	DDR3 1333 / 1066 Reg DIMM / Unbuffered DIMM with ECC
	Memory Size	1GB, 2GB, 4GB and 8GB
Expansion Slots	Total PCI/PCI-X/ PCI-E Slots	3
	Slot Type	1 x PCIe 2.0 x16 slot (x16 link) (Full-Height / Half-Length) (PCIe1) 1 x PCIe 2.0 x16 slot (x8 link) (Full-Height / Half-Length) (PCIe2) 1 x PCIe 2.0 x8 slot (x8 link) (Low profile / Half-Length) (PCIe3)
	Additional Slot	1 x PIKE Slot for storage enhancement

Storage	SATA Controller	Intel® ICH10R:
		    6 x SATA2 300MB/s ports
		    Intel Matrix Storage (for Windows only)
		    - Supports software RAID 0, 1, 10 & 5
		    LSI MegaRAID (for Linux / Windows)
		    - Supports software RAID 0, 1 & 10

	SAS Controller	**Optional:** ASUS PIKE 1064E 4-port SAS RAID card ASUS PIKE 1078 8-port SAS HW RAID card
HDD Bays	I = internal A or S will be hot-swappable	4 x Hot-swap 3.5" HDD Bays
Networking	LAN	2 x Intel® 82574L PCIE GbE LANs
Graphic	VGA	Aspeed AST2050 8MB
Auxiliary Storage FDD / CD / DVD		1 x Slim-type Optical Device Bay Options: No Device / DVD-RW

(continued on the next page)

Onboard I/O	1 x External Serial Port 3 x RJ-45 ports (1 for ASMB4-iKVM) 4 x USB 2.0 ports (Front x 2, Rear x 2) 1 x VGA port 1 x PS/2 keyboard port 1 x PS/2 mouse port	
Anti-virus Software	Optional anti-virus software	
Management Solution	**Out of Band Remote Hardware**	Optional ASMB4-iKVM for KVM-over-IP support
	Software	ASUS ASWM 2.0
Dimension (HH x WW x DD)	687.8mm x 444mm x 43.4mm	
Net Weight Kg (CPU, DRAM & HDD not includeed)	15 Kg	
Power Supply	770W (80+) 1+1 Redundant Power Supply (Default with one Power Supply Module)	
Environment	Operation temperature: 10°C~35°C Non operation temperature: -40°C~70°C Non operation humidity: 20%~90% (Non-condensing)	

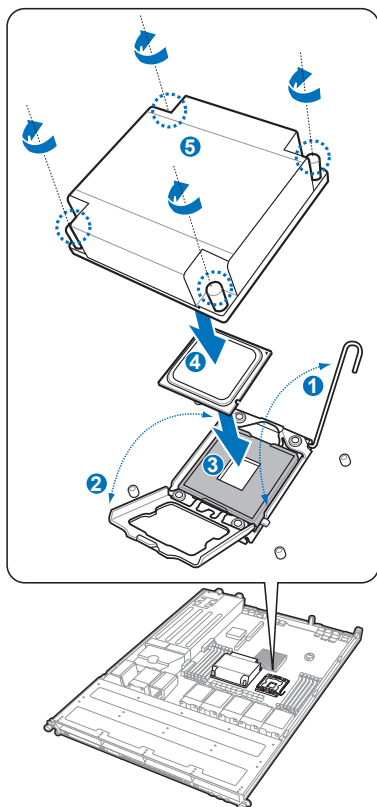***Specifications are subject to change without notice.**

Chapter 2

This chapter lists the key components and optional accessories for the server system.

Components

2.1 Upgrading CPU and CPU heatsink

ASUS RS700-E6/RS4 supports two Intel® Xeon® Quad-Core / Dual-Core 5500 series processors.
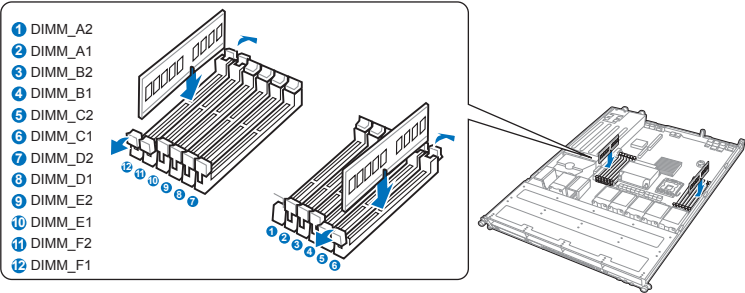

We recommend to install CPUs with the same frequency.

Order P/N	Description
90-S000U0590T	Dual-Core Intel Xeon E5502, 1.86G, QPI 4.8GT/s, 4MB L2, Single Pack with 1U Heatsink
90-S000U0600T	Quad-Core Intel Xeon E5504, 2.00G, QPI 4.8GT/s, 4MB L2, Single Pack with 1U Heatsink
90-S000U0610T	Quad-Core Intel Xeon E5506, 2.13G, QPI 4.8GT/s, 4MB L2, Single Pack with 1U Heatsink
90-S000U0620T	Quad-Core Intel Xeon E5520, 2.26G, QPI 5.86GT/s, 8MB L2, Single Pack with 1U Heatsink
90-S000U0630T	Quad-Core Intel Xeon E5530, 2.40G, QPI 5.86GT/s, 8MB L2, Single Pack with 1U Heatsink
90-S000U0640T	Quad-Core Intel Xeon E5540, 2.53G, QPI 5.86GT/s, 8MB L2, Single Pack with 1U Heatsink
90-S000U0650T	Quad-Core Intel Xeon X5550, 2.66G, QPI 6.4GT/s, 8MB L2, Single Pack with 1U Heatsink
90-S000U0660T	Quad-Core Intel Xeon X5560, 2.80G, QPI 6.4GT/s, 8MB L2, Single Pack with 1U Heatsink
90-S000U0670T	Quad-Core Intel Xeon X5570, 2.93G, QPI 6.4GT/s, 8MB L2, Single Pack with 1U Heatsink
90-S000U0680T	Quad-Core Intel Xeon W5580, 3.20G, QPI 6.4GT/s, 8MB L2, Single Pack with 1U Heatsink
90-S000U0690T	Quad-Core Intel Xeon L5506, 2.13G, QPI 4.8GT/s, 4MB L2, Single Pack with 1U Heatsink
90-S000U0700T	Quad-Core Intel Xeon L5520, 2.26G, QPI 5.86GT/s, 8MB L2, Single Pack with 1U Heatsink

2.2   Upgrading system memory

The motherboard comes with twelve (12) Double Data Rate 3 (DDR3) Dual Inline Memory Modules (DIMM) slots.

1. DIMM_A2
2. DIMM_A1
3. DIMM_B2
4. DIMM_B1
5. DIMM_C2
6. DIMM_C1
7. DIMM_D2
8. DIMM_D1
9. DIMM_E2
10. DIMM_E1
11. DIMM_F2
12. DIMM_F1

Recommended memory configurations for single CPU

	CPU1						CPU2					
	DIMM_C1	DIMM_C2	DIMM_B1	DIMM_B2	DIMM_A1	DIMM_A2	DIMM_D1	DIMM_D2	DIMM_E1	DIMM_E2	DIMM_F1	DIMM_F2
1 DIMM					V							
2 DIMMs			V		V							
3 DIMMs	V		V		V							
4 DIMMs	V*		V*		V*	V*						
5 DIMMs	V*		V*	V*	V*	V*						
6 DIMMs	V*	V*	V*	V*	V*	V*						
1 DIMM							V					
2 DIMMs							V		V			
3 DIMMs							V		V		V	
4 DIMMs							V*	V*	V*		V*	
5 DIMMs							V*	V*	V*	V*	V*	
6 DIMMs							V*	V*	V*	V*	V*	V*

Recommended memory configurations for dual CPUs

	CPU1						CPU2					
	DIMM_C1	DIMM_C2	DIMM_B1	DIMM_B2	DIMM_A1	DIMM_A2	DIMM_D1	DIMM_D2	DIMM_E1	DIMM_E2	DIMM_F1	DIMM_F2
1 DIMM					V							
2 DIMMs					V		V					
3 DIMMs	V		V		V							
4 DIMMs			V		V		V		V			
5 DIMMs	V		V		V		V		V			
6 DIMMs	V		V		V		V		V		V	
7 DIMMs	V*		V*		V*	V*	V*		V*		V*	
8 DIMMs	V*		V*		V*	V*	V*	V*	V*		V*	
9 DIMMs	V*		V*	V*	V*	V*	V*	V*	V*		V*	
10 DIMMs	V*		V*	V*	V*	V*	V*	V*	V*	V*	V*	
11 DIMMs	V*	V*	V*	V*	V*	V*	V*	V*	V*	V*	V*	
12 DIMMs	V*	V*	V*	V*	V*	V*	V*	V*	V*	V*	V*	V*

* The frequency of DDR3-1333 DIMMs will run at 1066MHz when four or more DIMMs are installed.

Order P/N	Description
90-S000I0300T	DDR3 1333 ECC REG 1G SINGLE PACK
90-S000I0310T	DDR3 1333 ECC REG 2G SINGLE PACK
90-S000I0320T	DDR3 1066 ECC REG 1G SINGLE PACK
90-S000I0330T	DDR3 1066 ECC REG 2G SINGLE PACK
90-S000I0340T	DDR3 1333 ECC UNB 1G SINGLE PACK
90-S000I0350T	DDR3 1333 ECC UNB 2G SINGLE PACK
90-S000I0360T	DDR3 1066 ECC UNB 1G SINGLE PACK
90-S000I0370T	DDR3 1066 ECC UNB 2G SINGLE PACK
90-S000I0380T	DDR3 1333 ECC REG 1G (10 in 1)
90-S000I0390T	DDR3 1333 ECC REG 2G (10 in 1)
90-S000I0400T	DDR3 1066 ECC REG 1G (10 in 1)
90-S000I0410T	DDR3 1066 ECC REG 2G (10 in 1)
90-S000I0420T	DDR3 1333 ECC UNB 1G (10 in 1)
90-S000I0430T	DDR3 1333 ECC UNB 2G (10 in 1)
90-S000I0440T	DDR3 1066 ECC UNB 1G (10 in 1)
90-S000I0450T	DDR3 1066 ECC UNB 2G (10 in 1)

2.3 Upgrading hard disk drives

The system supports eight hot-swap SATAII/SAS hard disk drives.
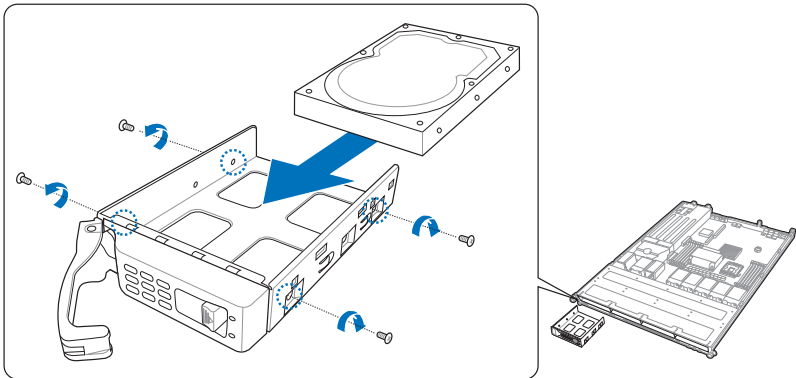
We recommend that you install identical drives of the same model and capacity for RAID configuration.

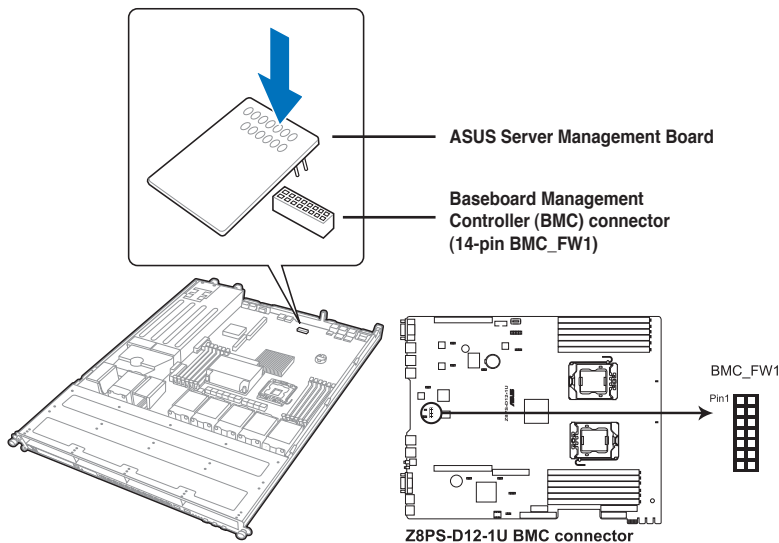| Order P/N	Description
90-S000H6210T	HDD SAS 450G 3.5" with tray (Single Pack)
90-S000H6220T	HDD SAS 300G 3.5" with tray (Single Pack)
90-S000H6230T	HDD SAS 146G 3.5" with tray (Single Pack)
90-S000H6240T	HDD SATA2 1T 3.5" with tray (Single Pack)
90-S000H6250T	HDD SATA2 750G 3.5" with tray (Single Pack)
90-S000H6260T	HDD SATA2 500G 3.5" with tray (Single Pack)
90-S000H6270T	HDD SATA2 320G 3.5" with tray (Single Pack)
90-S000H6280T	HDD SATA2 250G 3.5" with tray (Single Pack)

2.4   Installing ASUS PIKE SAS RAID card

The ASUS PIKE SAS RAID card allows users to create RAID 0, 1, 5, 10 and 50 from SAS hard disk drives connected to the SAS connectors on the motherboard.
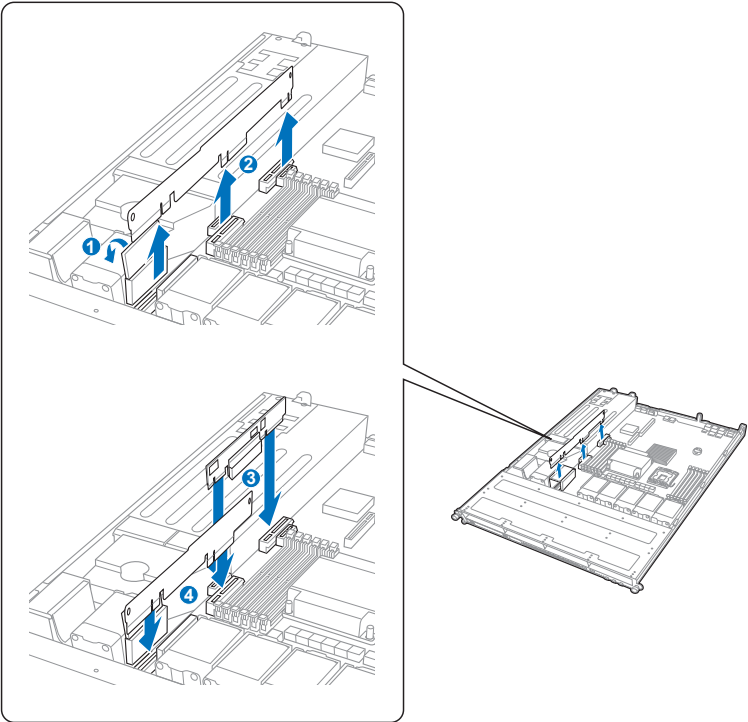
Order P/N	Description
90-C1SCM0-00UAY00Z	PIKE 1064E (4-port SAS support Firmware RAID 0,1,1E)
90-C1SCU0-00UAY00Z	PIKE 1068E (8-port SAS support Firmware RAID 0,1,1E)
90-C1SCN5-00UAY00Z	PIKE 1078 (8-port SAS support Hardware RAID 0,1,10,5,50,6,60)

2.5 Installing ASUS Server Management Board

ASUS Server Management Board is an Intelligent Platform Management Interface (IPMI) 2.0-compliant board that allows users to monitor, control and manage a remote server from the local or central server in local area network (LAN).

ASUS Server Management Board

Baseboard Management Controller (BMC) connector (14-pin BMC_FW1)

BMC_FW1

Pin1

Z8PS-D12-1U BMC connector

ASMB4-iKVM

- Monitor the running status of major components via LAN or Serial Port, such as CPU and memory utilization, storage capacity and networking transfer rate.

- Advanced server management functions including "remote power on/off/reset", "remote control via SOL (Serial-over LAN)" and "remote SEL (system event log reading when the system is out-of-band)".

- Support Dynamic Host Configuration Protocol (DHCP), which avoids manually assigning IP address by setting DHCP mode to receive IP address automatically.
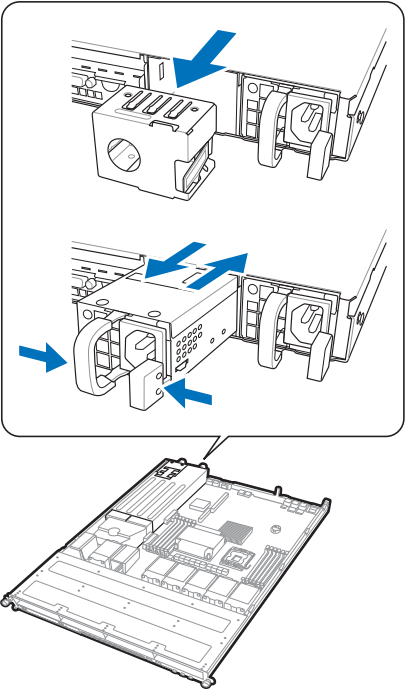
Use the LAN3 port for server management.

LAN3 port
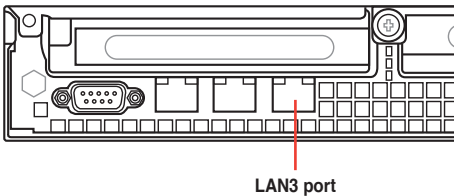
Order P/N	Description
90-C1SD80-00UAN00Z	ASMB4-iKVM Module (6 in 1)

2.6   Upgrading power supply unit

750W 1+1 hot-swap redundant power supply eliminate system and application downtime by redundancy power backup

Order P/N	Description
90-S00PW0100T	RPSU, 770W Redundant Power Supply Module

Remove the dummy power supply module before installing the second redundant power supply.

2.7 OS support list

OS support list
Windows® Server 2008 Enterprise 32/64-bit
Windows® Server 2003 Enterprise 32/64-bit
RedHat® Enterprise Linux AS5.0 32/64-bit
SuSE® Linux Enterprise Server 10 32/64-bit

Order P/N	Description
90-S00SW7140T	Windows® Server 2008 STD 64-bit ENG
90-S00SW7150T	Windows® Server 2008 STD 64-bit TCH