

**ASUS<sup>®</sup>**

**TS300-E7 / PS4**

*Configuration Guide*



E6469

First Edition

May 2011

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## Revision history

Revision	Revision history	Date
V1	First release of TS300-E7/PS4 configuration guide	May 2011

# 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, ensure 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.



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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.

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### 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 TS300-E7/PS4. It includes the product overview and general specifications.

# Product introduction

## 1.1 Key features

The TS300-E7/PS4 is a single-socket pedestal server system based on quad/dual-Core Intel® E3-1200/ Core™ i3-2100 processors and the Intel® C204PCH chipset with support for up to 32GB DDR3 1333MHz unbuffered ECC memory. This provides immediate performance upscaling and higher processing speeds. With 2 native SATA 6Gb/s ports, 4 hot-swap hard drive trays and ASUS PIKE cards, the TS300-E7/PS4 delivers improved data transfer rates, more flexible storage expansion and complete RAID for SMB users.

### The latest Intel® CPUs

The TS300-E7/PS4 is ready for the latest generation of Intel® Xeon® 32nm quad/dual-core UP processors, which offer a significant performance improvement over previous generation CPUs. Meanwhile, Intel® Turbo Boost Technology 2.0 provides an efficient, dynamic and intelligent way to enhance performance on demand.

### Quad Intel® server-class Gigabit LAN

Quad Intel® Gigabit LAN with teaming doubles bandwidth over standard dual LAN servers and supports better fault tolerance technology. Also, load balancing handles traffic for stronger and faster networking. IPv6 readiness resolves upcoming IPv4 address shortages even before they occur, hassle-free.

### ASUS PIKE upgrade kit for SAS storage

The TS300-E7/PS4 offers optional and exclusive PIKE upgrade kits for users to boost storage from SATA to SAS. Multiple I/O options and the slim, flexible PIKE card let users switch to SAS RAID without sacrificing expansion capabilities.

### Flex-E technology for server/workstation dual use

ASUS Flex-E provides flexible PCI-E configurations and auto-switching between a single PCI-E x16 link (graphics card supported) and twin PCI-E x8 link (for I/O expansion), allowing the product to work as a workstation for servers. FCC Class B certification and the optional rack mount kit make the TS300-E7/PS4 perfect as either a pedestal or 5U rack, and suitable for personal use or office applications.

### Considerate tool-less design

To minimize maintenance hassles, the TS300-E7/PS4 uses a tool-less design in several components, including back fan module, optical devices, and PCI-E/hard drive cages. These reduce the time and effort MIS needs to allocate for maintenance.

### Optional ASMB5-iKVM upgrade kit for easy management

Optional ASMB5-iKVM upgrade kits provide BIOS-level remote real-time control of the system via keyboard, monitor and mouse (KVM over Ethernet) from any local computer.

### **Optional ASUS TPM module**

Supporting TXT technology, the ASUS TPM module helps stop Trojan and malware incursions. With Hypervisor active on start-up, users are protected from software attacks and data stays safe from memory snooping.

### **80+ energy saving power supply**

The TS300-E7/PS4 ships with an 80+ bronze power supply to reduce power loss and power consumption, saving users money through lower energy bills.

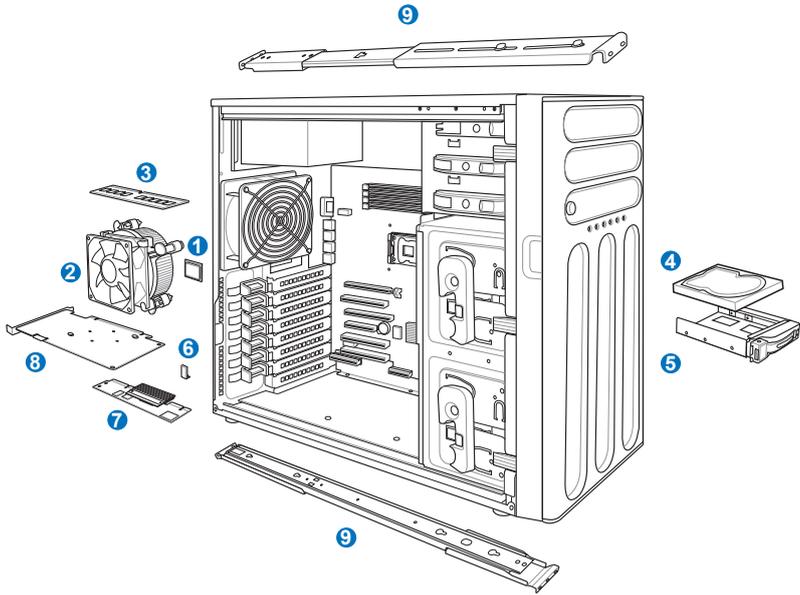
### **RoHS and Energy Star compliance**

Both product and packaging meet the strictest environmental standards in line with the ASUS vision of creating green, environmentally-friendly and recyclable technology to safeguard consumer health while minimizing ecological impact.

### **Designed for virtualization**

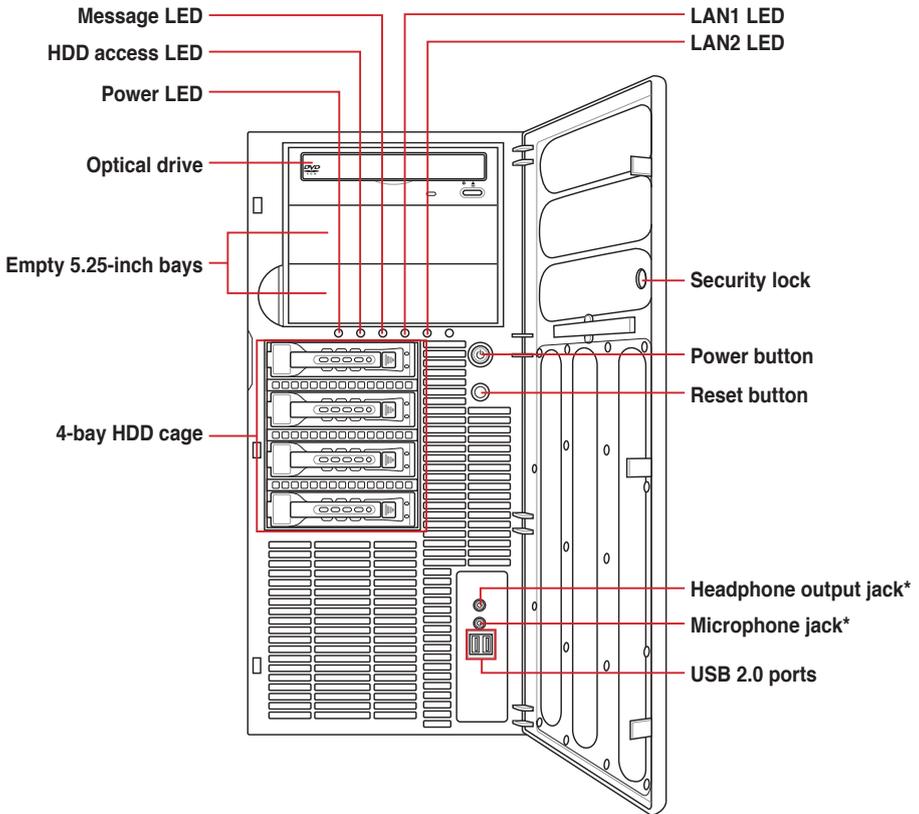
Virtualization provides central management, reducing power consumption, cooling costs and space requirements. With an onboard vertical USB connector designed for VMWare® ESXi, it's easy to make the most of virtualization.

## 1.2 System overview



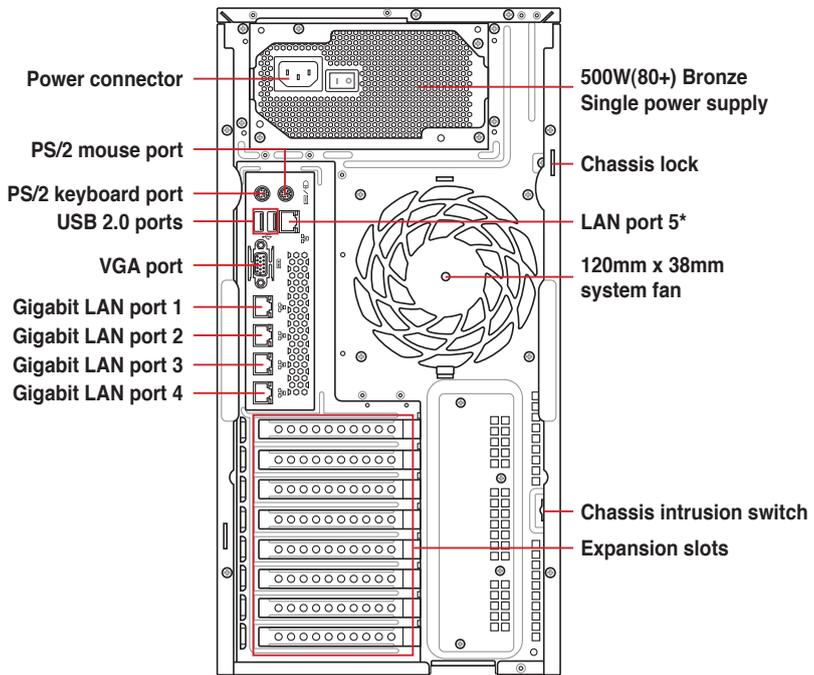
Items	Items
1. Central processing unit (CPU)	6. ASUS Server management board (optional)
2. CPU heatsink and fan	7. ASUS PIKE SAS RAID card (optional)
3. System memory	8. Expansion card
4. Hard disk drives	9. Rackmount rail kit (optional)
5. HDD trays	

## 1.3 Front panel features



\*The function of front panel audio I/O ports is available only when the sound card is installed.

# 1.4 Rear panel features



\*The port is for ASUS ASMB5-iKVM controller card only.

## 1.5 System specifications

<b>Model Name</b>		<b>TS300-E7/PS4</b>
<b>Processor / System Bus</b>		1 x Socket LGA1155 Intel® Xeon® E3-1200 Processor Family Intel® Core™ i3-2100 Processor Family
<b>Core Logic</b>		Intel® C204 chipset
<b>ASUS Features</b>	Smart Fan	√
	ASWM Enterprise	√
<b>Memory</b>	Total Slots	4 DIMMs (2 Channels)
	Capacity	Maximum up to 32GB
	Memory Type	DDR3 1066/1333 ECC UDIMM
	Memory Size	1GB, 2GB, 4GB and 8GB
<b>Expansion Slots</b>	Total PCI/PCI-X/PCI-E Slots	6
	Slot Type	1 x PCI-E 2.0 x16 slot (x16/x8 link) -- (Flex-E) 1 x PCI-E 2.0 x16 slot (x8 link) 1 x PCI-E 2.0 x8 slot (x4 link) 3 x PCI 32bit / 33MHz
	Additional Slot 1	1 x PIKE slot for Storage Enhancement
<b>Storage</b>	SATA Controller	<b>Intel® C204:</b> - 2 x SATA 6Gb/s ports - 4 x SATA 3Gb/s ports - Intel® Rapid Storage Technology (RST) supports software RAID 0, 1, 10 & 5 (Windows)  <b>LSI MegaRAID driver:</b> - Supports software RAID 0, 1 & 10 (Windows & Linux)
	SAS Controller	Optional: ASUS PIKE 2108 8-port SAS2 6G RAID card ASUS PIKE 2008/IMR 8-port SAS2 6G RAID card ASUS PIKE 2008 8-port SAS2 6G RAID card ASUS PIKE 1068E 8-port SAS RAID card ASUS PIKE 6480 8-port SAS RAID card
<b>HDD Bays</b>	I = internal A or S = hot-swappable	4 x Hot-swap 3.5" HDD Bays
<b>Networking</b>	LAN	4 x Intel® 82574L + 1 x Mgmt LAN
<b>Graphic</b>	VGA	Aspeed AST2050 16MB

(continued on the next page)

<b>Auxiliary Storage FDD / CD / DVD</b>		3 x 5.25" media bays (Options: No device / DVD-RW)
<b>Onboard I/O</b>		5 x RJ-45 ports (1 for ASMB5-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
<b>OS Support</b>		Windows® Server 2008 R2 Windows® Server 2008 Enterprise 32/64-bit Windows® Server 2003 R2 Enterprise 32/64-bit RedHat® Enterprise Linux AS5.5/6.0 32/64-bit SuSE® Linux Enterprise Server 10 SP3/11 32/64-bit (Subject to change without any notice)
<b>Anti-virus Software</b>		Optional anti-virus CD Pack
<b>Management Solution</b>	<b>Out of Band Remote Hardware</b>	Optional ASMB5-iKVM for KVM-over-IP support
	<b>Software</b>	ASWM Enterprise
<b>Dimension (HH x WW x DD)</b>		445mm x 217.5mm x 545mm
<b>Net Weight Kg (CPU, DRAM &amp; HDD not included)</b>		20 Kg
<b>Power Supply</b>		500W(80+) Bronze Single Power Supply
<b>Power Rating</b>		Input: 100-240Vac, 6-3A, 50-60Hz, Class I
<b>Environment</b>		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.

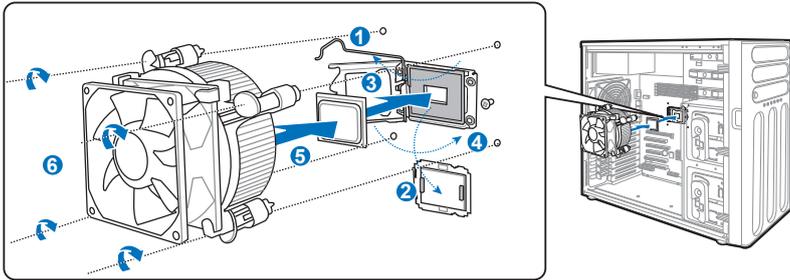
# Chapter 2

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

# Components

## 2.1 Upgrading CPU and CPU heatsink

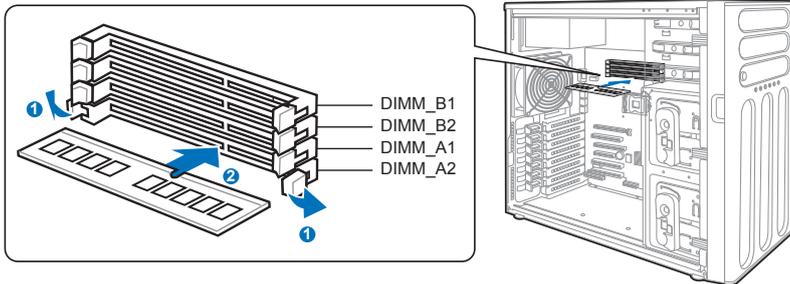
The ASUS TS300-E7/PS4 supports Dual-core / Quad-core Intel® LGA1155 Xeon® E3-1200 / Core™ i3-2100 processors.



Order P/N	Description
90-S000U09Y1T	Quad Core Intel Xeon E3-1220, 3.10GHz, 8MB L2 (Single pack, w/o cooler)
90-S000U09Z1T	Dual Core Intel Xeon E3-1220L, 2.20GHz, 3MB L2 (Single pack, w/o cooler)
90-S000U0A11T	Quad Core Intel Xeon E3-1225, 3.10GHz, 6MB L2 (Single pack, w/o cooler)
90-S000U0A21T	Quad Core Intel Xeon E3-1230, 3.20GHz, 8MB L2 (Single pack, w/o cooler)
90-S000U0A31T	Quad Core Intel Xeon E3-1235, 3.20GHz, 8MB L2 (Single pack, w/o cooler)
90-S000U0A41T	Quad Core Intel Xeon E3-1240, 3.30GHz, 8MB L2 (Single pack, w/o cooler)
90-S000U0A51T	Quad Core Intel Xeon E3-1245, 3.30GHz, 8MB L2 (Single pack, w/o cooler)
90-S000U0A61T	Quad Core Intel Xeon E3-1260L, 2.40GHz, 8MB L2 (Single pack, w/o cooler)
90-S000U0A71T	Quad Core Intel Xeon E3-1270, 3.40GHz, 8MB L2 (Single pack, w/o cooler)
90-S000U0A81T	Quad Core Intel Xeon E3-1275, 3.40GHz, 8MB L2 (Single pack, w/o cooler)
90-S000U0A91T	Quad Core Intel Xeon E3-1280, 3.10GHz, 12MB L2 (Single pack, w/o cooler)
90-S000U0BR0T	Quad Core Intel Xeon E3-1290, 3.10GHz, 12MB L2 (Single pack, w/o cooler)

## 2.2 Upgrading system memory

The motherboard comes with four Double Data Rate 3 (DDR3) Dual Inline Memory Modules (DIMM) sockets.



You may install 1GB, 2GB, 4GB and 8GB Unbuffered with ECC DDR3 DIMMs into the DIMM sockets using the memory configurations in this section.

UDIMM				
DIMM Slot Per Channel	DIMM Populated per Channel	DIMM Type	Speed	Rank per DIMM
2	1	Unbuffered DDR3 ECC	1066/1333	Single Rank, Dual Rank
2	2	Unbuffered DDR3 ECC	1066/1333	Single Rank, Dual Rank

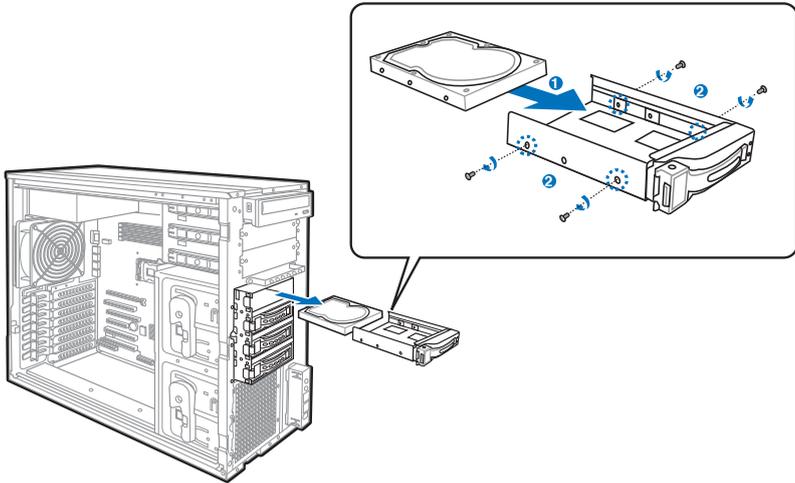


- Start installing the DIMMs from slot A2 and B2 (orange).
- Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.

Order P/N	Description
90-S000105M0T	DDR3 1333 ECC UNB 2G 240P SINGLE PACK
90-S00010570T	DDR3 1333 ECC UNB 4G 240P SINGLE PACK

## 2.3 Upgrading hard disk drives

The system supports four hot-swap SATAII/SAS hard disk drives.

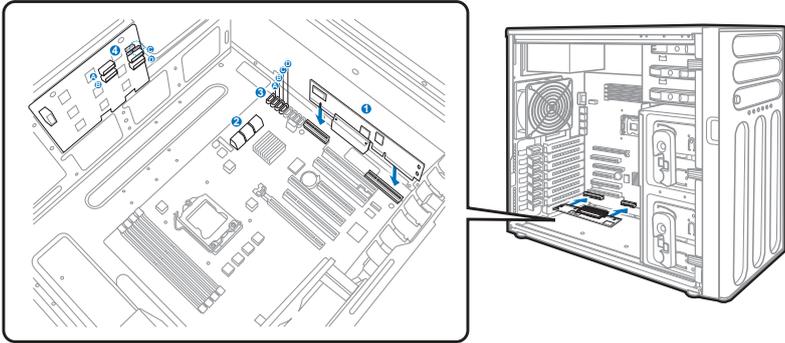


We recommend that you install identical drives of the same model and capacity for RAID configuration.

Order P/N	Description
90-S000H65D1T	SATA3 500G 7200rpm with tray (single pack)
90-S000H65C1T	SATA3 750G 7200rpm with tray (single pack)
90-S000H65B1T	SATA3 1TB 7200rpm with tray (single pack)
90-S000H64R0T	SAS 6G 300G 15Krpm with tray (single pack)
90-S000H64S0T	SAS 6G 450G 15Krpm with tray (single pack)
90-S000H64T0T	SAS 6G 600G 15Krpm with tray (single pack)

## 2.4 Installing ASUS PIKE SAS RAID card

The ASUS PIKE SAS RAID card allows users to create SAS RAID sets from SAS hard disk drives connected to the SAS connectors on the motherboard.

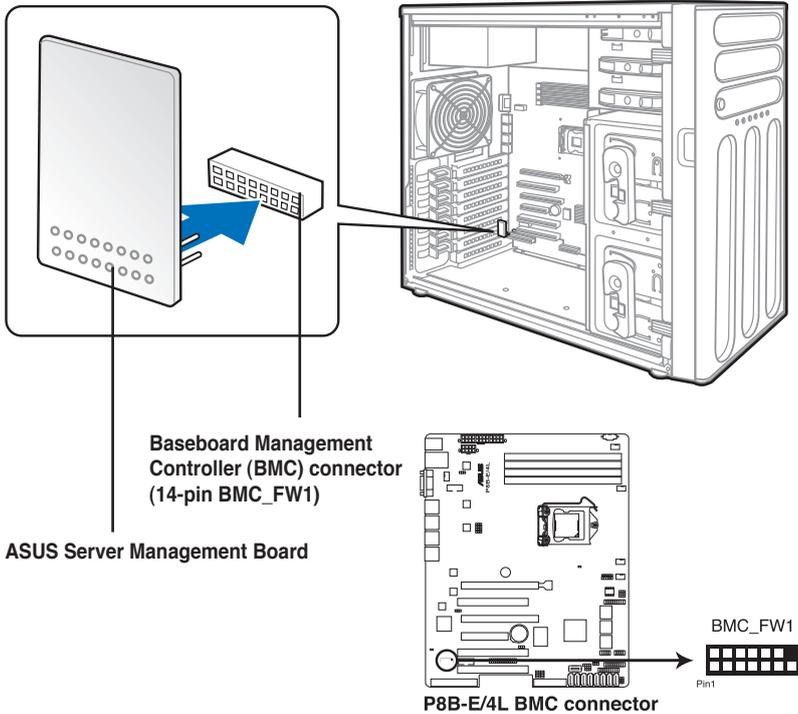


1. Insert the PIKE SAS RAID card into the PIKE card slot, ensuring that it is completely seated on the PIKE card slot.
2. Remove the data cables connected to the SATA connectors on the motherboard.
3. Connect the data cables, by numerical order, to the SAS connectors labeled SAS1-4 (blue) on the motherboard.
4. Set the SGPIO\_SEL1 jumper on the backplane to pins 2-3 when connecting data cables to the SAS connectors on the motherboard.

Order P/N	Description
90-C1SE10-00UAY20Z	PIKE 2008 8-port SAS 6G RAID Kit (RAID 0, 1, 1E)
90-C1SE15-00UAY00Z	PIKE 2008/IMR 8-port SAS 6G RAID Kit (RAID 0, 1, 5)
90-C1SEF0-00UAY00Z	PIKE 2008 8-port SAS 6G RAID Kit (RAID 0, 1, 5,6,10, 50, 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).

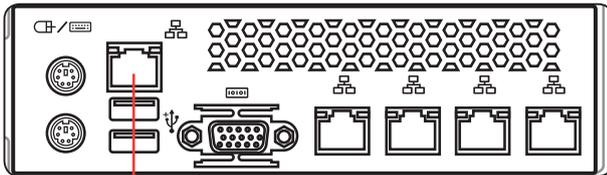


## ASMB5-iKVM

- Remote real-time access to servers with full control by keyboard, video monitor and mouse (KVM) of a single local computer from anywhere at any time. In addition, KVM function is based on BIOS-level access, therefore, even the server OS is down, the KVM module can still work to provide around-the-clock remote monitor and diagnosis through GUI (Web-based Graphical User Interface).
- Advanced server management functions including “remote power on/off/reset”, “remote hardware health monitoring” and “system event log”.
- Allows administrators to share the data saved in a local drive (floppy, CD/DVD-ROM, flash device, HDD) to target servers, which makes data-sharing convenient.



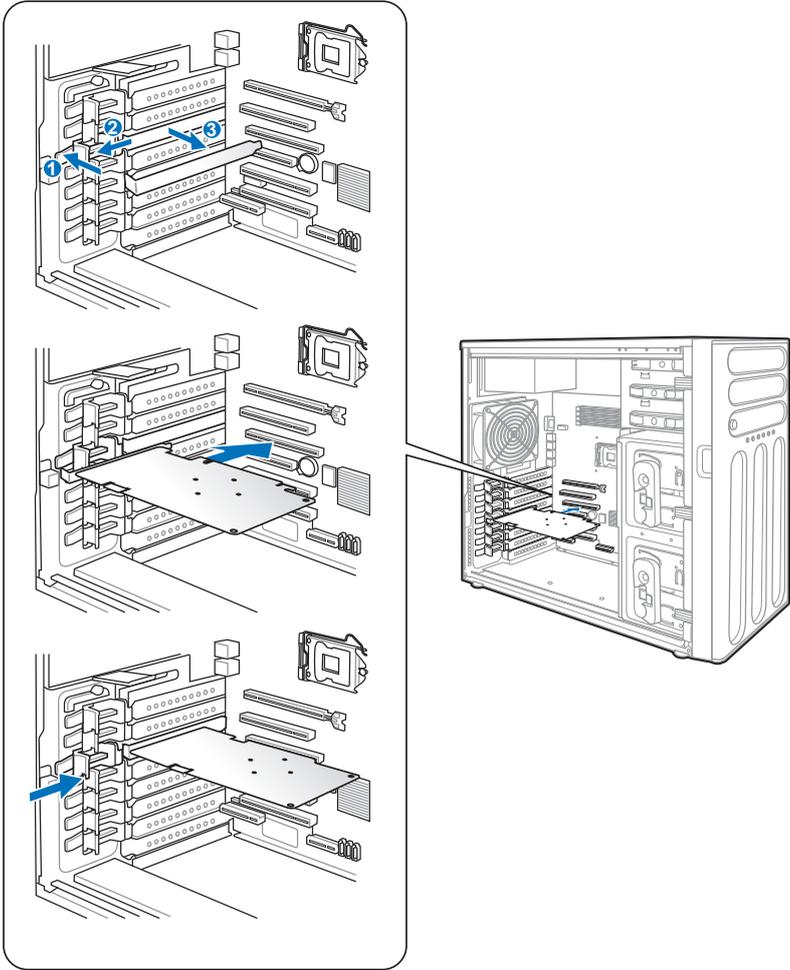
We recommend to use LAN port 5 for server management.



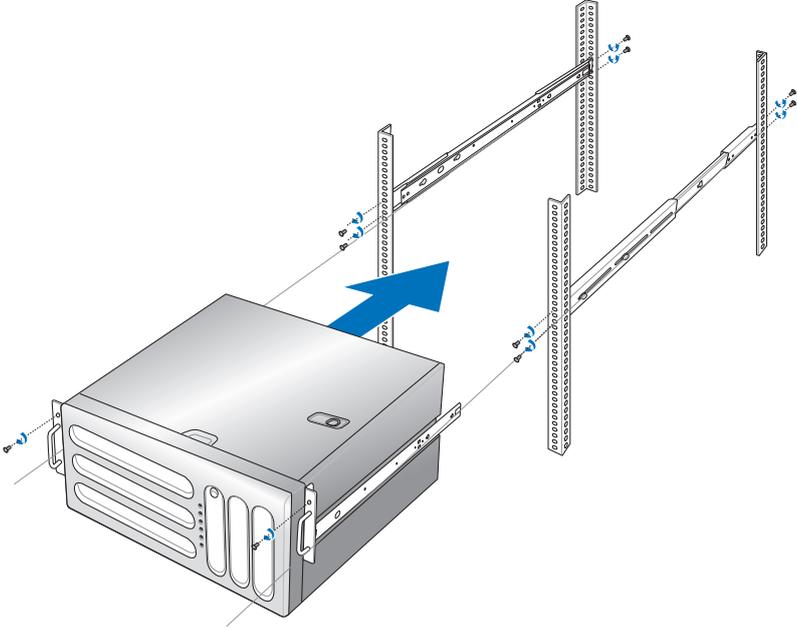
LAN port 5

Order P/N	Description
90-C1SEK0-00UAN00Z	ASMB5-iKVM Module (6 in 1)

## 2.6 Installing Expansion card



## 2.7 Rackmount rail kit



Order P/N	Description
90-S00SP0280T	Rail Kit (Ball Bearing) for TS300-E7 Series

## 2.8 OS support list

OS support list
Windows Server 2008 Enterprise Edition SP2 x86
Windows Server 2008 Standard Edition R2 x64
Windows 7 x86
Windows 7 x64
Red Hat Enterprise Linux AS 5.5 x86
Red Hat Enterprise Linux AS 5.5 x64
Red Hat Enterprise Linux AS 6.0 x86
Red Hat Enterprise Linux AS 6.0 x64
SuSE Linux Enterprise Server 11.1 x86
SuSE Linux Enterprise Server 11.1 x64
Cent OS 5.5 x86
Cent OS 5.5 x64