

TUD-4010 High Performance Blade Server

(preliminary Spec - Tatung Confidential)



The high performance blade server for enterprise, data center and HPC applications

TUD-4010 System Highlights

- Accommodates up to 10 independent server blades in a 4U chassis with integrated switch blades and management blades; delivering up to 100 high performance dual CPU server blade per rack
- Modular design helps to reduce the total cost of ownership.
- Breakthrough levels of manageability delivered by Amphus' ManageSite™ solution
- Reduce weight up to 2.6 times per server
- Ideal for front-end data center applications, application servers, server farms, grid computing and compute cluster applications
- Dual Gigabit Ethernet-Switch Blades enable
 - 10:1 Ethernet cable consolidation; eliminating the cable management problem for IT administrators
 - Separation of front-end client traffic from back-end storage traffic
- 3+1 maximum 1800Watts redundant Power Supplies; designed for peak power consumption
- Dual high performance fan modules with dual fans each
- All blades, power supplies and fan modules are hot-swappable
- Inherent Scalability and Serviceability by virtue of modular bladed design and hot-swappability
- High Availability built in—multiple server blades, dual switch blades, management blades, power supplies and fan modules, means *no single point of failure*
- Support Linux and Windows 2000 and Windows server 2003
- Lowest TCO high performance platform for data centers and high performance computing

THE TUD-4010 DEFINES THE SUPERLATIVE, NEXT-GENERATION, HIGH PERFORMANCE BLADE SERVER PLATFORM. Tatung proudly announces our new Blade server, TUD-4010, to meet the challenging requirements of data center market. The TUD-4010 has been designed to deliver the **high CPU density, high performance, low power consumption, and high manageability** products for data center and enterprise customers.

High Performance and density —TUD-4010 integrates 10 server blades in a 4U chassis, delivering the computing power of 200 Xeon processors in a standard 42U height rack—up to 2.4 times what is currently achievable with the “thinnest” 1U servers today. Effective density is even higher since the TUD-4010 also integrates dual Gigabit Ethernet switches and dual Management blades, each of which would normally consume an additional 1U of rack space.

Low Power Consumption and high performance — Based on Intel's LV Xeon 2.4GHz processors, each TUD-4010 server blade consumes low power but with the high performance of a Xeon processor. This power efficiency not only yields a direct savings in power costs for the data center, but also reduces air conditioning costs by a similar factor and minimizes UPS or backup generator provisioning.

Highest Manageability—TUD-4010-based blade servers deliver unmatched levels of manageability, through the use of Amphus' **ManageSite™** product. Consisting of the Management blade (that “plugs-in” to the server chassis just like a server blade) and network-based management software, ManageSite delivers integrated

- **Deployment management**
- **Platform Management**

ManageSite will enable data centers to: (a) reduce capital expenditure on servers; (b) minimize recurring power costs; and (c) increase server uptime and availability.

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TUD-4010 Specifications



Chassis Overall

- Accommodates hot-pluggable slots: TUD-4010 Rear View
 - 10 Server Blades at the front
 - 2 Switch Blades at the rear
 - 2 Management Blades at the rear
 - 3+1 redundant power supplies at the rear
 - 2 (1+1) high performance fan modules at the rear
- Passive mid-plane supports dual gigabit LAN and dual AMPC management
- (3+1) Power Supply maximum output: 1800W+600W
 - Auto-sensing 110-240V AC
 - 600W maximum rate power per power supply
- Rack mountable 4U chassis: 6.88”(H) x 16.7”(W) x 27.5”(D)
- Weight: 128lbs (Full load); 80lbs (Base unit)

Server Blade Specification (SB4010Xe)

- CPU: High performance and low power consumption Intel LV Xeon processor running at 2.4GHz
- Memory: Supports up to 8GB of ECC registered DDR266 memory (Four DIMM slots)
- Intel chipset: E7501
- One low-profile PCI-X Slot
- Accommodates single IDE, 2.5” hard disk drive
- Dual 1Gbs Ethernet NICs—Connect to 2 switch blades
- Integrated MCOP (Management CO-Processor): Custom chip facilitating server blade management by ManageSite
- Video controller with VGA and SVGA resolutions
- Integrated KVM (USB Keyboard, Video, USB mouse) connector at front—enables attended installation of OS and applications
- Supports external USB CDROM, flash memory and FDD
- Activity indicator LEDs—for CPU, primary and secondary networks, and HDD
- Dimensions: 6.5”(H) x 1.65”(W) x 15.6”(D)

Software

- OS support: Windows™ 2000, Windows Server 2003 and Linux.
Rapid deployment support: Windows® 2000, Windows Server 2003 and Linux Redhat™9.0, AS2.1 and AS3.0
- PXE-enabled BIOS—facilitates network-based OS and application installation
- Server Management Agent (SMA): Optional software component works in conjunction with MCOP chip to facilitate server blade management by ManageSite™



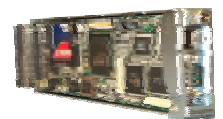
Switch Blades Specification

- IEEE Layer 2 Ethernet switch
- Supports VLAN, trunking and mirroring
- The VLAN and trunking configuration can be done through a local serial port or remote management software (ManageSite)
- Delivers 10:1 Ethernet cable consolidation for TUD-4010 based servers, eliminating the cable management problem for data centers
- 1Gbs ports support:
 - 3 RJ45 external uplink ports
 - 10 Ser/Des to Server Blades
 - 2 Ser/Des to Management Blades
 - 1 Ser/Des to the other switch blades
- Supports half-duplex and full-duplex communication
- Auto-negotiation for speed, flow and duplex control for 1Gbs ports
- Supports IEEE 802.1 and IEEE 802.3x flow control
- Up to 2 redundant, hot-swap switch blades
- Same switch blade with TUD-3114



Management Blades

- High performance embedded processor / IO processors for hardware and routing control
- Internal AMPC serial channel (star network) communication controller to monitor voltage, temperature, speed of each blade and module. It has the capability to cycle power, shut down and reset any module.
- Two internal Ethernet ports to provide redundant communication to internal and external networks. One external Ethernet for remote out of band control
- Automatic switch over for high availability
- Redirect serial console of any server blade over Ethernet for remote terminal server function
- One DB9 serial port for software installation
- Supports Wake on LAN
- Up to 2 redundant, hot-swap
- Supported by ManageSite™ Software
- Same management blade with TUD-3114



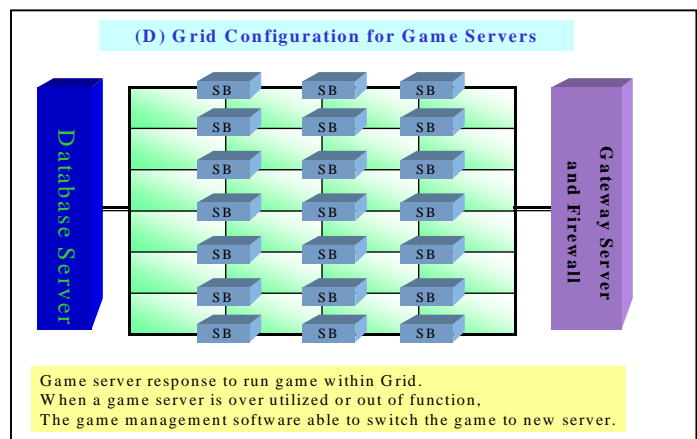
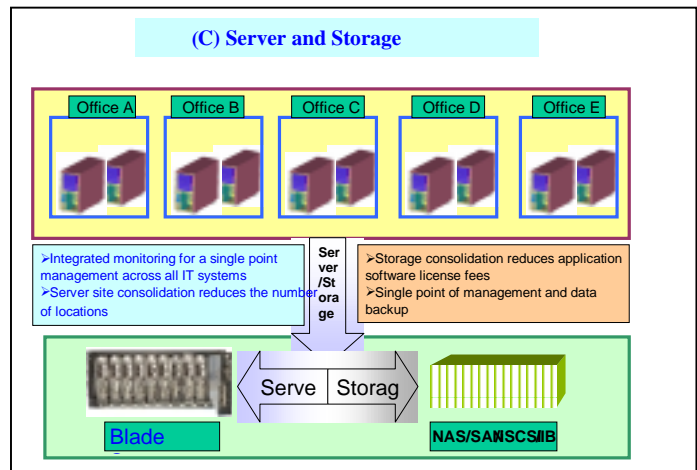
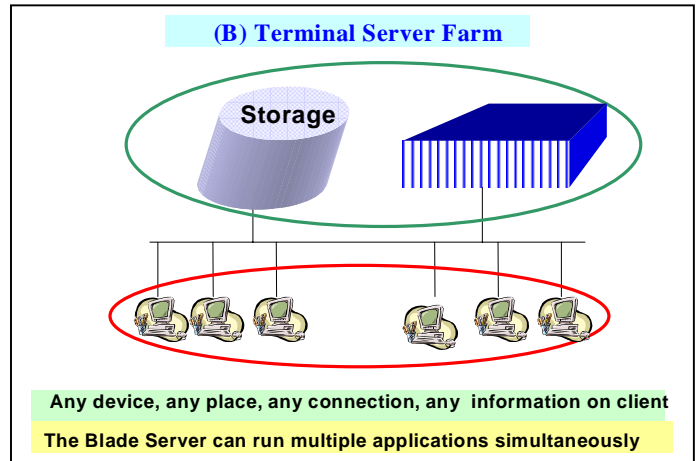
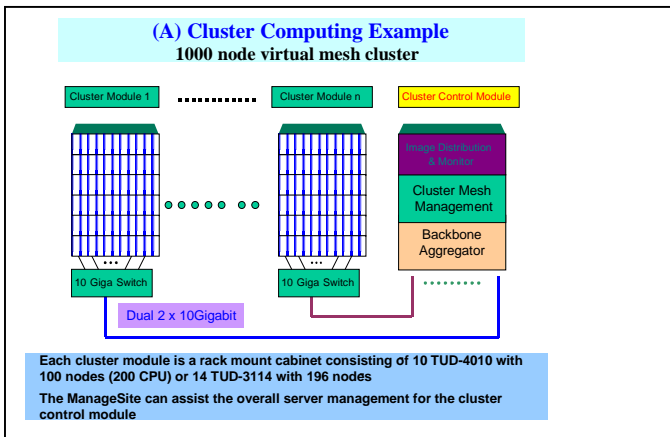
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Application of Blade Server

- ✧ Enterprise Computing
- ✧ High Performance Computing
 - Bio-informatics and Computational Biology Solutions
 - Computational Search Solutions
 - Modeling and Simulation Solution
- ✧ Utility Computing
 - Computing on Demand
- ✧ Grid Computing
- ✧ Game Server
- ✧ Terminal Server Farm
- ✧ Distributed Database Server
- ✧ Stream Media Application
 - Video On Demand, Music On Demand
- ✧ Internet Server Application
 - Security, Virus, SPAM, Content Filtering Gateway
- ✧ Application and Database Server
 - ERP, SCM, BI, ECAD, MCAD, GIS
- ✧ Front End Server
 - Web Server, Mail Server, Ftp Server, etc.

Application Examples

The following are a few examples which can illustrate the advantages of using blade servers to save space, power, weight and remote management to have a significant saving in the total cost of ownership (TCO) for corporations and data centers.



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