Stiletto Platform

Sun Fire™ B1600

Sun Fire™ B100s

Just the Facts

Reseller Version

The product information contained in this Just the Facts will be announced to the general public on February 10th, 2003. Until that time, this information is considered Sun confidential. It may be used with individuals who have signed nondisclosure agreements.

Final

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Document Revision History

Dash	*Rev*	*Date*	*Description of Change*	*Originator*
1	A	10/7/02	Initial version including input from Puma & Cougar	S.K. Vinod
2	A	10/16/01	Added Introduction, Key Messages, Target Markets, Users, Applications, Competitive Information. Added Service and Support section, and Systems Management section.	S.K. Vinod
3	B	2/2/03	Several revisions to text. Added upgrade information	S.K. Vinod
4		2/11/03	Final edits including legal review	S.K. Vinod
5		4/1/03	Final Reseller Version	S.K. Vinod

Reference Documents

Reference Document	Document Version	Version Date	Source Location

Positioning

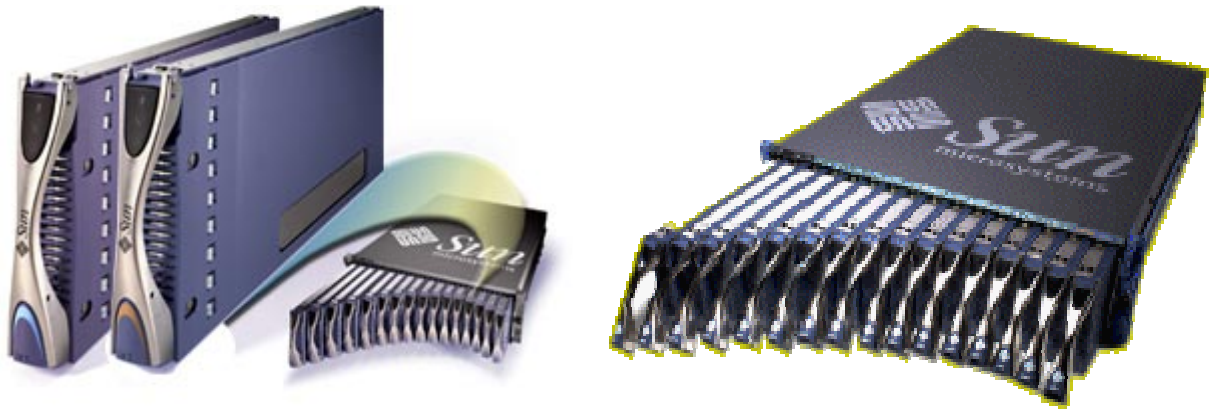

Figure 1. View of the Stiletto Blades andPlatform

Introduction

Blade Servers are the next evolutionary step in horizontal computing. As such they complement VSP's product portfolio. Blade Servers are designed to be more efficient and economical than existing 1U/1P products. Blade Servers can help customers accommodate growth, use computing resources more efficiently, reduce time-to-market by shortening deployment cycles, increase availability and lower operational costs. Target markets are Enterprise, Financial, Service Provider and Technical Computing markets. The Blade Platform consists of an Intelligent Shelf (Stiletto) and serveal different kinds of Blades including server blades and specialty blades. Stiletto in this document refers to the Shelf or Chassis and the SPARC/Solaris Blades.

New Features

- Foot print cost: 5.33 CPUs per rack unit compared to a rack-optimized 1U/1P servers.
- 3U chassis with a built in switch and system controller (SSC): the SSC incorporates dual layer 2 network switches and redundant system controllers to manage and monitor all of the components in the chassis, including the Blade Servers, while administering network traffic.
- Improved flexibility: mix and match solution Blade Servers (SSL or load balancing Blades), general purpose Blade Servers (SPARC or x86) and operating systems (Solaris or Linux).
- Ease of use: simplified deployment and serviceability
- Optimization of rack environment: integrated switches, system controller and Blade Servers are in the chassis
- Simplified cable management: easy to deploy platform. All Blade Servers plug into a common midplane; combined switch and system controller provides customers with a direct connection to the Intelligent Shelves.

Key Messages

1. Heterogenous Platform
    - SPARC/Solaris and x86 Linux & Solaris Blades

2. Intelligent Shelf
    - Built in system controllers for shelf administration & monitoring
    - Built in layer 2 switches support flexible VLAN configurations & provide a link to data networks

3. Enhanced System Management
    - Layered approach to system management makes it esay for customers to configure, manage and provision Blades

4. Solutions Community
    - Provides tested, documented solutions that are ready to deploy
    - Features Sun ONE
    - Includes IHV Blade development kit
    - Leverages Iforce partners, programs and solution centers

Proof Points

- 1st Enterprise Blade Platform to support SPARC & x86 Blades
- 1st platform to support N1
- 5x density over a 1P/1U server
- 10x network performance over current 1U systems that uses a 10/100 Ethernet connection
- Increased serviceability; all components are CRUs

SPARC Blade Server – Sun Fire B100s (Stiletto)

- 1P Blade Server - up to 16 per 3U chassis
- UltraSPARC IIi 650MHz
- Solaris OS
- 512MB, 1GB, 2GB memory options
- 2 Gigabit Ethernet interfaces
- Advanced Lights Out Manager
- Single Slot, 3U self-enclosed Blade Server
- Avg. 30-40 Watts/Blade Server
- Fault, power, ready to remove lights

- Unique FRU ID per Blade Server
- Each Blade Server includes a 30 GB, 2.5" Ultra ATA 100 (24x7) hard disk drive
- The internal storage can accommodate the OS, application software, and swap

Intelligent Shelf – Sun Fire B1600 (Stiletto):

- Integrated Layer 2 Switches & System Controller (SSC)
- Power supplies
- Fans
- Can support up to 16 single processor Blade Servers

Product Family Placement

The Sun Fire B100s Blade Server fits within the VSP product line of entry general purpose servers. It is designed to complement discrete 1P and 2P servers by providing customers with a platform that is higher in density and richer in the available options for both Tier0 and Tier1 computational requirements.

Availability

The planned RR/GA date for Sun Fire B1600 and Sun Fire B100s, the chassis and SPARC/Solaris blades, is April 30th 2003. Other special purpose and X86 blades are expected to follow. Sun expects to ship its Blade Server Platform in Q2CY03. Sun's Blade Server Platform should feature an Intelligent Shelf which includes dual switches, redundant PSUs, and dual system controllers. A layered system management software should support Sun's Blade Server Platform and communicate to enterprise system management tools. The Sun Fire B1600 chassis should initially feature a single Switch/System Controller. Support for failover and the second Switch/System Controller will take about 1 quarter after GA.

Target Users

Blade Servers represent the next leap in compute density, flexibility and rapid deployment. They offer high-density computing power in a compact chassis with improved environmentals, reduced cabling, redundant power supplies and failover capability all at a low cost. Another key value for Blade Servers is their inherent modularity and flexibility. Blade Servers can help customers accommodate growth, use computing resources more efficiently, reduce time-to-market by shortening deployment cycles, increase availability and lower operational costs.

Customers demand solutions that give them a competitive advantage. Sun's Blade Server Platform optimizes the way customers deploy and manage services and solutions by increasing resource utilization and maximizing efficiency.

Target Markets

Below is an example of the industry and key features to highlight. Include features that are appropriate for your product.

Audience	Audience Motivators	Key Features
Enterprise	Utilization of resources and simplified management	Heterogeneous, comprehensive management platform
Finance	Security and Redundancy	Total solution (servers, switches, management) that is fully redundant at competitive prices
Service Provider	Density and cost	5.33CPUs per RU. Utilizes space, power, and HVAC. Ease of management solution
Technical Computing	Increased compute power per cubic foot	5.33 CPUs per RU. Low cost total solution

Selling Highlights

Market Value Proposition

Sun's Blade Platform and Blade Servers are designed to help customers optimize the way they deploy their services and solutions in the Tier 0 and Tier 1 horizontally scaled environments.

Applications

Since Sun's initial Blade Server Platform is designed to run horizontally scaled applications, our solution stacks and partners are focused on delivering the following types of applications to our target markets:

Target Market	Application
Financial Services	1. Predictive Derivatives modeling on a farm of Blade Servers 2. Web banking services - client layer 3. Online loan processing 4. Online insurance claims processing 5. Stock trading
Enterprise	1. Web services client layer e.g., automotive web site 2. Commercial real estate deal processing and asset monitoring- ERP presentation layer with Apache and Java 3. Data analysis and consulting services for the pharmaceutical, biotechnology, and healthcare industries. Using Grid Engine and a farm of Blade Servers 4. Application development hosting 5. Gaming servers with multimedia and streaming capabilities 6. Web front end for personal security systems
Technical Computing	1. Human genome mapping farm 2. Particle physics 3. Seismic data processing 4. Chemical assaying in bioinformatic applications 5. Astronomy
Service Provider	1. Hosted iPBX to enable ISP's to offer telephony 2. Unified messaging services 3. Hosted ASP services 4. Streaming multimedia services especially for mobile platform 5. Web hosting

Compatibility

Discuss what other systems your product works with; either Sun products or products from third-party vendors.

Security	Provisioning	Enterprise Management & Reporting	Traffic Management	Streaming Media	Storage & Database
Checkpoint	Opsware	BMC Patrol	F5 Networks	Real Networks	Coalsere
Recourse	Jareva	Aprisma	Resonate	Kasenna	Oracle
Trend Micro		Micromuse			
Sanctum					
Symantec					

Additional Sections

Tier-0 service blades

Tier-0 service blades are special purpose networking and security blades that provide Tier-0 functionality. Tier-0 refers to the layer of intelligent traffic management functions that reside between Tier-1 servers and the router. Current plans for Tier-0 blades include a content load balancing solution (Puma) and a SSL/Proxy solution (Cougar).

Puma

Puma is an intelligent blade solution that provides essential traffic and content management functions in the Stiletto environment. Puma is form factored and optimized for Stiletto. As part of the Stiletto shelf, Puma connects to the Stiletto backplane via two 1 gigabit ethernet interfaces.

Puma adds value in the Stiletto environment in the following ways:

- Provides a hardware solution to scale Tier-1 servers which lowers total cost of ownership
- Provides high performance-to-price ratio through custom hardware components
- Provides a highly reliable service by supporting traffic from both the gigabit ethernet links in Stiletto and by supporting a redundant load balancer configuration
- Increases the efficiency of operation by providing a common interface

Key Features:

- Content load balancing based on URL, Cookie, CGI
- Server load balancing based on load, weighted round robin and response time

- Server to client direct response
- Active-active blade configuration and link fail-over
- Management via CLI and SNMP

Targeted Performance:

- Throughput: 2 Gbps
- Requests per second: 80 K
- Persistence: 500k sessions
- Layer 7 rules: 500

Cougar

Cougar is a specialized networking blade product that will provide a SSL Proxy option for Stiletto blade based servers and other Sun horizontally scaled platforms. The SSL Proxy function provides packets in the clear for content load balancing and intrusion detection. Cougar uses a unique packet by packet technique rather than a full proxy which allows high performance in a small form factor for blades. This can allow a cost performance advantage for Sun based systems.

Key Features:

1. 2500 (500Mps/sec) and 5000 (500 Mbps/sec) session establishment/Second
2. Higher performance Vs standard SSL proxy implementation by not terminating TCP session.
3. Secure key storage
4. High availability & scalability addressed through the usage of multiple blades on the Stiletto Shelf
5. Multi-tenancy support

Targeted Performance:

Cougar 2500	Cougar 5000
2500 Ops/Sec	5000 Ops/sec
500 Mbps	500 Mbps

Enabling Technology

Technology Overview

The Stiletto platform uses industry standard technologies to deliver a cost effective, efficient solution to customers. As mentioned previously, Blade computing is not a revolution in technology. It is the natural evolution using existing technologies such as SPARC/Solaris, x86, and Ethernet.

The value in Blade computing is derived from the entire platform as a whole. It is a heterogeneous platform and allows for the sharing of components. This leads to increased utilization and efficiency of compute resources. In addition, the components of the chassis are all redundant which provide customers with greater uptime. The platform has dual power supplies, gigabit Ethernet switches, and system controllers. When the system was being designed, fault tolerant engineers were paired with the low end entry server engineers to develop a low cost resilient server. These benefits all equals lower TCO for customers.

All components of the Blade Sever platform are hot pluggable and are customer replaceable, providing an easy to service solution.The only part of the chassis that is not removable is the backplane, but the chance of that failing in next to none since it is passive. LEDs have been placed on all of the components to visually tell the customer if a component is powered on and operating normally, if the component has a fault, and to signify when a component is ready to remove.

The SPARC Blade Server itself is a single processor server. It is the same as a Sun Fire V100 with the following exceptions: Stiletto has GbE interconnects while the V100 only has 10/100, Stiletto does not have PCI expandability, Stiletto requires the chassis for power and I/O. However, it is important to note that with Stiletto, two power supplies now power 16 servers. Not only is less power used, but it decreases the nest of cables required to power individual servers. Finally, lower power means lower heat dissipation which mean lower HVAC costs for customers.

Out of band management for the Blades is the same as with other Sun Fire servers; Advanced Lights Out Management. The advantage of the Blade Platform is one serial connector can now provide management for up to 16 servers as well as the chassis instead of having to connect serial to each individual server.

The Blade Platform uses industry standard Gigabit Ethernet which provides 10 times the bandwidth found on most servers. Ethernet is known and trusted throughout the industry. Customer infrastructures are ready to deploy and integrate GbE. In addition to the extra bandwidth, the benefit of GbE to customers is that they will not have to purchase additional hardware or software and no new training is required .

Each chassis contains dual GbE switches. The switches allow for the consolidation of network cables, can support up to 256 VLANS, and allow for dedicated bandwidth to NAS. Finally, each switch in manageable via industry standard SNMP or via command line interface.

Overall System Architecture

Introduction

Stiletto is a network-centric, SPARC/Solaris server farm which is the first Sun product in the developing blade server genre. Network centric means that the primary, if not only, means by which Stiletto delivers services and communicates with the clients of those services is via ethernet/IP network(s). Furthermore

Stiletto relies on the network to communicate with its peers, access additional resources such as storage and backup, and it is through a network that the system is managed.

A Stiletto is a 3U high, rack mounting enclosure which contains up to 16 complete SPARC/Solaris server blades with built-in disk drive and lights out management controller, dual redundant Layer 2 gigabit ethernet switches, dual redundant system controllers and dual redundant power supplies. Each server blade runs its own copy of Solaris and applications, and is essentially independent of each other with respect to its basic operation. Stiletto can be also be thought of as a building block for constructing virtually any scale of server farm using both the internal network fabric and switches together with an external fabric and switches as needed.

Scalability & Horizontal Scaling

Stiletto is designed from the outset to be an excellent platform for hosting horizontally scaleable applications i.e. those which do not depend upon symmetric multi.processing to provide increased performance in a multiprocessor environment. Horizontally scaled systems achieve high performance by dividing the application load from the clients between replicated application instances each running on its own server. Each Stiletto blade is a server meeting this requirement running its own instance of Solaris and applications.

Key application architecture features to achieving high scalability in such an architecture are:

1. stateless applications & static data
2. partitionable applications/data

Stateless applications permit scalability because successive or multiple concurrent requests may be served by multiple application instances. Static data and low or zero coupling between instances enable the requests to be processed in parallel. Partitionable applications/data offer an alternative architecture to the above whereby specific application instances deal with a portion of the request space. Scaling here implies subdivision of the request space into, relatively, smaller and smaller pieces. In practice many applications are not entirely stateless, rather their state is short.lived, and a combination of the two architectural features are needed to deliver performance and scalability.

Density

Stiletto will provide 16 server blades in a 3RU shelf. First product can provide 1x650 Mhz processor in each blade yielding a density of 5.33 p/RU or, perhaps more meaningfully, 3,680 specweb99 per RU (assuming all blades dedicated to service provision). Stiletto 2 should deliver a 2p 900 MHz blade yielding a density of 10.67 P per RU and >10,000 specweb99 per RU.

Total Cost of Ownership

Stiletto is targetted at an extremely low price point however initial purchase is not the only, or even the major, factor in the total cost of ownership of a solution. One of the major contributions to lowering the cost of ownership for Stiletto and, in particular, customer acceptance, will be the provision of higher-level management services that simplify and, in some cases, automate the administrative processes associated with hardware and software provisioning, configuration, repair and maintenance.

All these services are intended to be provided for Stiletto systems by the companion product the System Management Server (SMS) which is not defined in this document.

An important factor in the cost of ownership is that of sparing. By minimising the variants of the components we should ease the sparing burden on the customer. This is achieved by implementing general purpose blades and adapting them to their specialised roles as load balancers, firewalls, application servers etc primarily through the software loaded.

Another means of providing lower cost of ownership is by maximising the use of the system at all times. This can require rapid reconfiguration of resources to meet fluctuating service demands. The key to enabling such flexibility is in minimising the state held by each blade both with regards to the data and software images.Through the use of external storage to provide file systems served via the network Stiletto blades can be booted as "diskless" servers and their local disks used as "pure" bulk caches utilising the Solaris CacheFS.

Rack/External Dependencies

Stiletto was conceived to primarily target Tier 1 or similar applications where the data is either created dynamically such as in a portal, or cached on its way to an application server in Tier 2 or on its way out from a Tier 3 content server. Not all applications fit this model exactly nor will customers necessarily wish to partition their systems along these lines. Future blades can increase the computing density and hence the range of applications that can be run on a blade. Also in the future we plan to provide a managed NAS solution to compliment the Stiletto shelf.

Stiletto server blades contain a single disk which may be used to store the vertical solution stack for the application and provide volatile or temporary storage for the applications transient data. Where applications require persistent storage, that has to be provided externally to Stiletto and hence connected via the network.

Stiletto, through the shelf System Controllers, provides management functionality equivalent to a multi-domain mid-range service processor primarily meeting the needs of lights out management, environmental monitoring and console access to the blades and switches.

Physical & Logical Components

Stiletto consists of the following physical components, each of which are CRUs (Customer Replaceable Units):

- Chassis with passive midplane
- Blade comprising processor, memory, disk, BSC (LOM) and network interfaces
- PSU
- Combined Switch and System Controllers (SSC)

Figure 2. Stiletto Chassis Front View

As shown in Figure 2, the front of the Stiletto Chassis holds up to 16 single-slot blades. These blades have a quick-release handle mechanism for insertion and removal from the chassis. They are color coded to indicate the type of blade i.e, whether it is a SPARC blade or an X86 blade etc.

The chassis is 3 rack-units high and 24 inches deep (26.5 inches with the handles). It is designed to fit in standard 19 inch racks and will be shipped with a 19 inch 4-post rack mounting kit. The chassis is cooled from front to back. Connectivity is provided with dual Gigabit Ethernet via the passive midplane. There is a separate set of interfaces for system management.

There are service indicator LEDs on the front and back of the chassis.

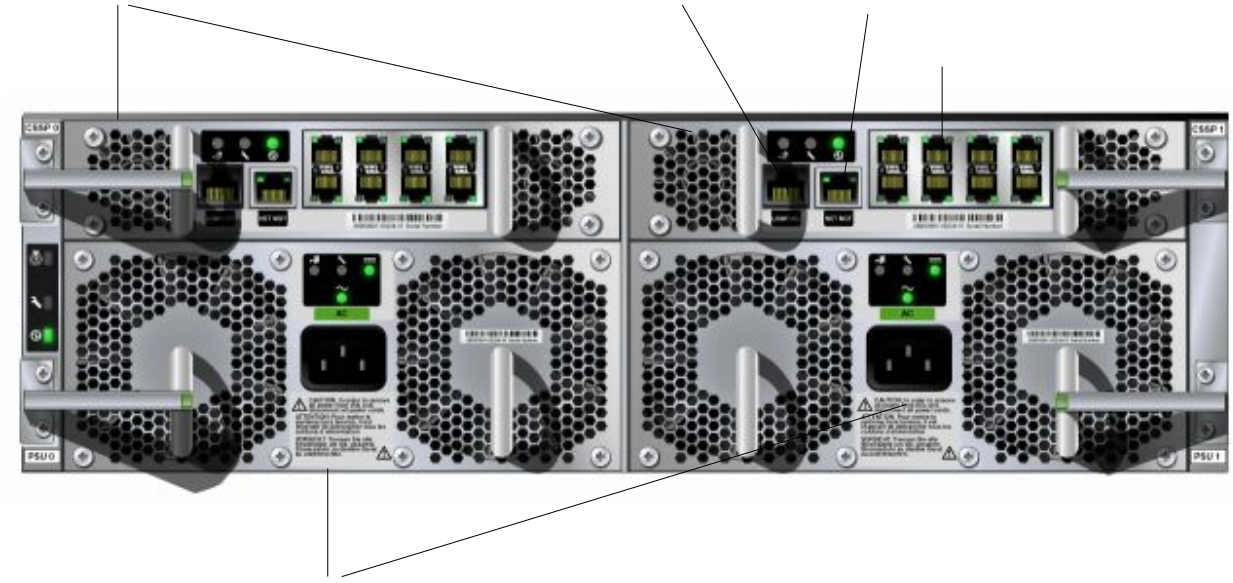

Figure 3. Stiletto Chassis Rear View

Figure 3 shows the rear of the chassis incorprating the communication and management interfaces that make it easy to connect blades into existing networks. The chassis incorporates redundant components for improved manageability and uptime.

Shown on the top of the chassis are two SSC's (Switch with System Controllers). This unit as with all other major components in the chassis is hot-pluggable and Customer Replaceable (CRU). It includes two logical devices, one a System Controller and the other a Layer 2 Switch.

The System Controller is accessed either locally via the console port or remotely via the 10/100 Ethernet port. It acts as the administrative interface for the entire shelf and is used to setup the shelf including the blades and switches, reconfigure the components, identify faults and monitor all the components, and control the service indicator LEDs on all the elements.

The Layer 2 Switch is essentially a 24-port Gigabit Ethernet switch with 8 uplinks and Gigabit connections to all 16 blades. It supports flexible VLAN configurations, is fully SNMP compliant and is managed via a Command Line Interface (CLI) or SNMP.

As can be seen, Stiletto does not fit the mould of any of Sun's existing servers. It is more like a 'Network in a Box' providing a high-speed, reliable infrastructure for devices that sit on the edge of the datacenter or in Tier 1 and provide services to that environment.

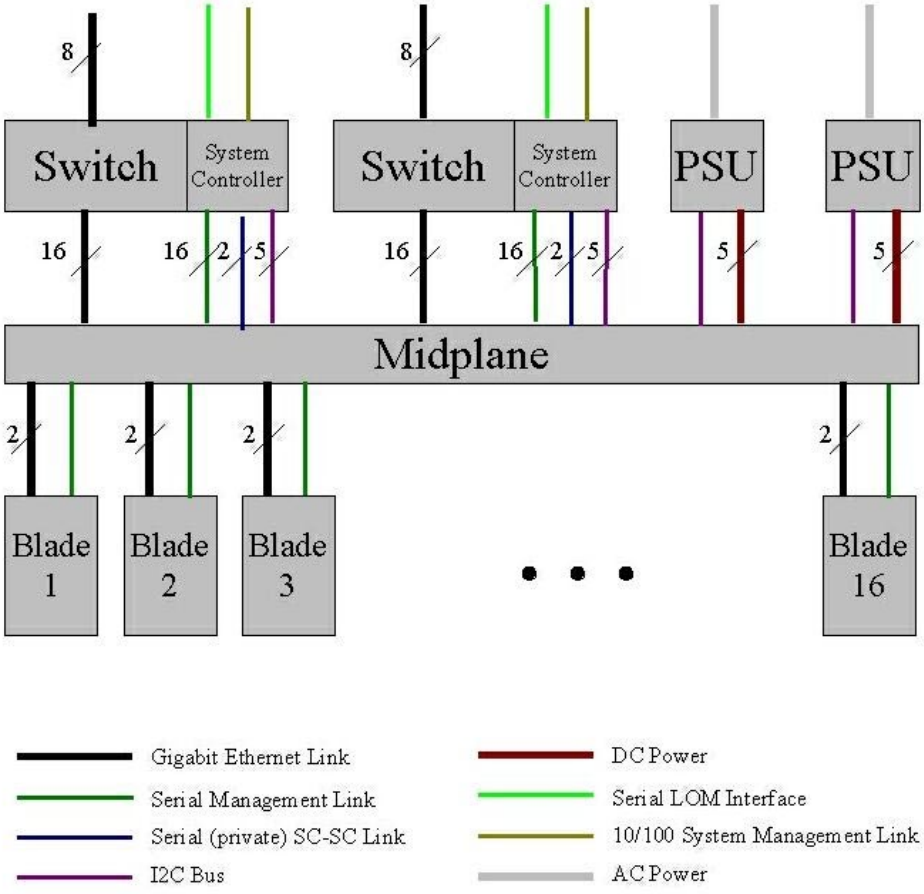

Figure 4. System Architecture

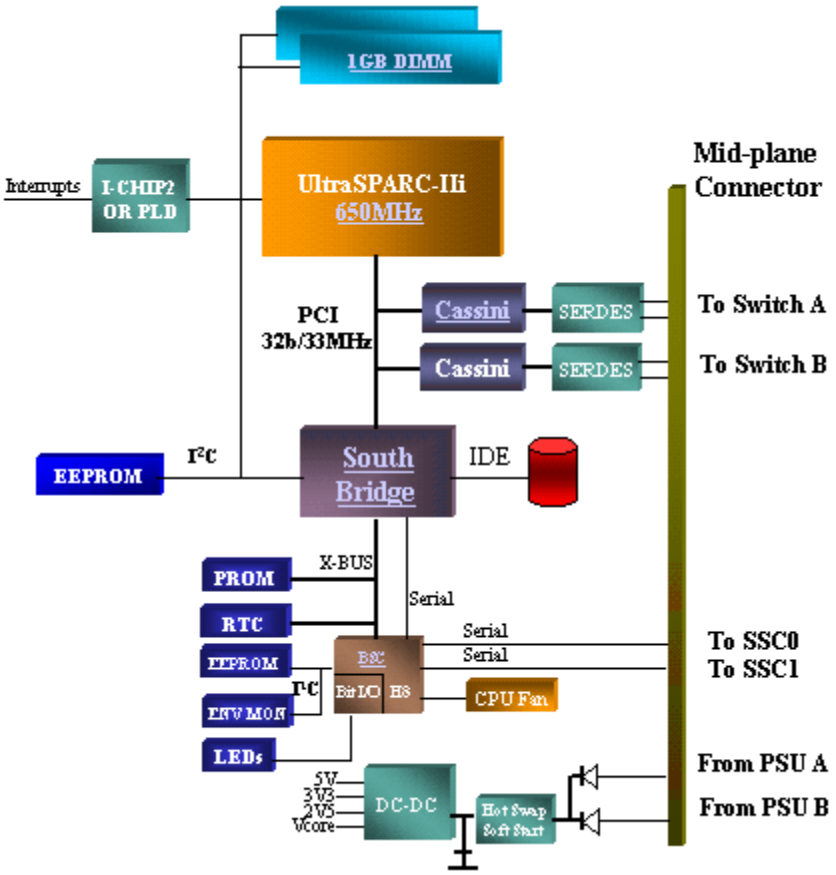

Figure 5. Detailed Block Diagram of Stiletto SPARC Blades

Figure 5 shows a block diagram of the SPARC blade. It consists of a 64-bit UltraSPARC-IIi (Phantom) CPU running initially at 650 Mhz with two PC-133 DIMM slots holding up to 2 GB of memory. The blade has two Gigabit Ethernet connections via the two switches, two connections to the SSC's and two inputs from the power supplies. All these are redundant and available through the passive midplane. There in a 30GB disk on board the blade and Advanced Lights Out Management capabilities via the BSC (Blade Support Chip). This blade runs Solaris 8. Each blade has a unique FRU ID and LEDs on the front to indicate power or active status, fault and 'ready to remove'.

Features, Functions, and Benefits

The Feature is the hardware, software, or technology that you are marketing with this product (the noun); the Function is what that feature is designed to do or how it is put to use (the verb); the Benefit is why the customer would want that feature or what the result of the function is (the adjective).

Feature	Function	Benefit
• Network in a Box	• Complete Tier 0/1 infrastructure in a single chassis	• Reduced cabling
• High performance server on a blade	• General purpose server for edge computing	• Higher density than current Sun offerings (over 5 times current 1P servers)
• Dual Gigabit Ethernet switches	• Network connection to and from the chassis	• 10x network performance; easier repair due to reduced cabling and lower required skill level
• Dual, Redundant System Controllers	•	• Complete built-in management of the entire system
• System management solution to setup, provision, configure and manage blades and the chassis	•	• Speeds server deployment, updates and configuration
• SPARC/Solaris and X86 Solaris and Linux blades	•	• Customer has a choice of the best platform for their application
• Shelf SNMP & SunMC Platform Agent	• SNMP and SunMC agents that access the System Controller and provide rich instrumentation	• Ability to use enterprise tools to monitor and manage multiple chasses
•	•	•

Reliability, Availability, and Serviceability (RAS)

Availability

Stiletto provides a platform which can be configured to meet a wide range of availability and capacity requirements as desired. The architectural features that contribute to high-availability of the platform are as follows:

- No single point of failure
- Highly reliable, passive midplane
- Dual, redundant PSU's
- Dual, redundant switches & blade network interfaces
- Dual, redundant system controllers (integrated into combined switch/SC FRU – SSC)
- All FRUs are hot.swap minimizing system impact for replacement operations
- Lights.out management, including environmental monitoring, provided on all blades and, through SSP for other FRUs
- Blade is essentially stateless allowing rapid reconfiguration of spares from deployment server
- Blades utilize the watchdogs to operate in a fail fast mode
- Load balancer, where deployed, makes scheduling decisions based on server response and load so service availability/capacity can be maintained during failure of individual servers
- Monitoring and reporting of environmental information as well as resource utilisation to remote managers to provide early warning and improved diagnosis
- Strong security and partitioning model minimises risks of attacks and administrative errors impacting service

Security

Stiletto provides strong primary security through the provisioning of separate management and data networks. This allows many of the core administration tasks for the shelf to be carried out exclusively over the management network. However not all of the management and administrative traffic can be confined to the management network. In particular some management of the blades themselves including OS and application.level management has to be carried out through the data network interfaces. To support this management path the Stiletto switch incorporates a packet-filter which may be configured to route all identified management traffic to and from the blades through the switch processor and thence to the management network. The PF can meet stringent constraints to help maintain th security of the system. In particular:

- No external (to the shelf) traffic can be routed to the management network via the PF
- Configuration and management of the PF can only be performed from the management network
- The PF will confirm that the source address of a packet is consistent with the interface/port that it was received on

- Packet filtering will additionally be configurable to discriminate by source and destination IP address, protocol and port (TCP/IP).

Additionally it is possible to configure a blade as a firewall between the other blades, the data network and, via the PF, the management network. Stiletto is intended to be deployable in hosting environments where more than one customer has services running on a shelf. This is referred to elsewhere as multi-tenancy. In this environment it is of paramount importance to separate the network traffic of each customer from the others and to provide separated, differentiated domains of authority for management and administrative operations. The traffic separation will be achieved by the provision of VLANs which will be enforced in the switch. This will help prevent broadcasts from propagating beyond the appropriate VLAN and, essentially, virtually eliminate any way of addressing a resource that exists in a separate VLAN.

NOTE: Only limited support for configuration and administration of multi-tenancy as described above will be available in the first release of Stiletto.

It is intended that the management solutions, both agents and applications running on the SMS, will also support a strong, differentiated authority model by allowing authenticated administrators access to and knowledge of only those resources defined as being in their view. Authentication and view restriction will also be applied to the access mechanisms for all OOB management paths such as to the consoles of the blades, switch and SCs and to the blade BSCs.

Serviceability

Stiletto is inherently much easier to service because every major component in the system is a Customer Replaceable Unit (CRU). These include the SSC's, PSU's, and the blades. The rest is just sheet metal and a passive midplane that have a very high MTBF.

Specifications

Physical Specifications

Description	U.S.	International
Height: Blade Chassis	 4.5 inches 5.25 inches (3U)	 114.8 mm 134.4 mm (3U)
Width: Blade Chassis	 1 inch 17.2 inches	 26 mm 448 mm
Depth Blade Chassis	 12.5inches 26.5 inches	 338.7 mm 681 mm
Weight Blade Chassis (with 2 SSCs and PSUs) Chassis (fully loaded with 16 Blades)	 2.5 lbs 53.5 lbs 93.5 lbs	 1.15Kg 18.5Kg 42.5 Kg

Environment

Feature	U.S.	International
Power • Operating • Tolerance	110-240V AC, 47-63Hz	
Temperature • Operating • Nonoperating	5C to 35C non-condensing -40C to 65C non-condensing	
Relative Humidity • Operating • Nonoperating	10% to 90% RH, non-condensing 93% RH, non-condensing	
Altitude	Up to 3000m elevation, (70kPa)	
Vibration		
Shock		
Threshold Impact		

Feature	U.S.	International
Noise (in accordance with ISO 9296) • Operating acoustic noise • Idling acoustic noise		

Compliance

This product meets or exceeds the following requirements.

Standard	Specifications
Safety	
IEC 60950 (C22.2-60950) (EN60950) (UL60950)	Get CUL Notice of Authorization Get CB scheme test report for worldwide list of countries:
EMC and Safety	Telecordia GR-1089-CORE test report
Emissions and Immunities	
RF Radiated Emissions	CISPR22 (EN55022), Class B – European Union FCC Part 15, Class B – USA, Industry of Canada Product meets Sun margin required of -6db form limit line
Conducted Emissions	CISPR22 (EN55022), Class B – European Union FCC Part 15, Class B – USA, Industry of Canada Product meets Sun margin required of -3db from limit line
Harmonic Emissions	IEC 61000-3-2:2000 (No Limits) – European Union Product meets requirements
Voltage Flicker	IEC 61000-3-3:1995/A1:2001 (No Limits) Product meets requirements
ESD Immunity	CISPR 24 (EN55024; 8kV Contact, 15kV Air) IEC 61000-4-2 Product meets EN55024/EN300-386:2001 to +/- 15kV Air and +/- 8kV contact
RF Field Immunity	CISPR 24 (EN55024, 10V/m) IEC 61000-4-3 Product meets EN55024/EN300-386:2001 to Sun target of 10 v/m field immunity
Electrical Fast Transient/Burst Immunity	CISPR 24 (EN55024; 1kV I/O, 2kV Power) IEC 61000-4-5 Product meets EN55024 for power lines and signal lines
Surge Immunity	CISPR 24 (EN55024; 1kV I/O, 1kV Power L-L, 2kV Power L-G) IEC 61000-4-5 Product meets EN55024/EN300-386:2001 for power lines tested at 2kV L-L and 3kV L-Gnd (Sun Target)

Standard	Specifications
RF Conducted Immunity	CISPR 24 (EN55024; 3V I/O and Power) IEC 61000-4-6 Product meets EN55024/EN300-386:2001 to Sun target of 10V rms

Requirements and Configuration

System Requirements

Stiletto blades are supported by the Solaris Platform Specific Release (PSR1) for Solaris 8. It is expected to later be supported by Solaris 9 from an April 2003 release.

System Configuration

Stiletto is essentially more than just a single server system as is the case with currently shipping Sun servers. It is more like a rack of servers tightly configured in a dense chassis. Therefore, the available configurations and options are different than with standalone systems. In the 'standard configuration' model, there is no way to look at a rack of servers as one but we have attempted to provide a lot of flexible configurations for customers.

Firstly, the chassis itself is a standard configuration. This means that customers can order a single or multiple chassis by themselves without including any blades. In this configuration the chassis simply contains the SSC's, the PSU's and 16 blank blades.

Customers can then order any configuration and number of various blades, including the SPARC/Solaris blade, the Puma or Cougar blades or Scimitar which is the X86 blade.

The other standard configuration is a chassis pre-installed with a fixed number and configuration of blades. This too is available as an orderable part number.

Finally, customers have the option of ordering XATO (External Assembly To Order). In this model, customers order a base configuration consisting of the chassis with 2 PSU's and 2 SSC's. This is then complemented with additional orders of blades such as the SPARC blades or others.

At the time of RR/GA, the chassis will contain a single SSC. The dual SSC option will be supported at a later date.

System Management

System Administration

The design and complexity of this product leads to numerous access methods and requires many variables to be configured.

System Controller:

The System Controller in the Sun Fire B1600 Chassis can be accessed via a Command Line Interface (CLI). This CLI provides the following capabilities:

- Account Management (for management interfaces to the System Controller)
- Network Configuration (of the SC)
- Power Management
- Monitoring

There are up to two System Controllers in a Sun Fire B1600 Chassis. When dual SSCs are installed, any activities/changes occurring on one System Controller are automatically duplicated on the second (i.e. They operate as a master and slave).

Switches:

Access to the Switches on the Sun Fire B1600 Chassis can be via CLI or a web browser-based Graphical User Interface (GUI). Direct SNMP access is also provided. Each Switch can be configured differently, therefore each switch needs to be configured separately. The CLI and GUI provide the following capabilities:

- Switch basic setup and configuration
- VLAN configuration
- Up Link/Down Link configuration
- Monitoring statistics and logging

Individual Sun Fire B100s Blade Servers:

It is also possible to access individual Blade Servers via a CLI. Access is gained by connecting to the Service Controller on the required Chassis, then logging onto the Blade itself. Users can:

- Gain access/control of the server
- View console logs
- View FRUID, logfiles
- Send breaks
- Upgrade BSC firmware

This is by no means an exhaustive list of the capabilities of the sun Fire B1600's management interfaces, further information can be found in the Sun Fire B1600 Administrators Guide and the Sun Fire B1600 Administrators Guide to the Switch.

Monitoring

Monitoring the Sun Fire B1600 Chassis:
SNMP and SunMC Agent programs are available for the Sun Fire B1600 Chassis. In order to monitor the chassis, the relevant agent(s) must be installed on a Sparc Solaris Server. This Agent then communicates with the Chassis components and provides SNMP or SunMC monitoring capabilities for all the chassis components, including the System Controllers, Switches, Power Supplies, and any installed Blade servers.

Monitoring a Sun Fire B100s Blade Server directly:
SNMP software and SunMC Agent components will be available for the Sun Fire B100s. The customer must include one or both of these Agents on the Blade's hard drive and run them if he wants to monitor this component via SNMP or SunMC. It is possible to monitor a Sun Fire B100s Blade through either of these components. If there are several Blades then each will need to be monitored as separate items. This would be done with a SunMC Server (using the SunMC Agent) or a third party tool that handles SNMP (using the SNMP Agent).

Ordering Information

Sun Stiletto Ordering Flow Chart STD CONFIGS & (xATO/CTO)

MODEL FOR STANDARD CONFIGS

Step 1 - For Standard configs :

Order a base configuration	→	**Pick one of the following 2 Standard Configurations:** A44-BC-GB-03-16-01 – System shelf only with 0 Blades, 2 PSUs, single SSC & 16 blade blanks A44-SCONF4-8X102S – System shelf with 8 Stiletto 1GB Blades, 2 PSUs, single SSC and 8 blanks

Step 2 - Optional:

Order Blade X-Options (spares/customer installable)	→	**Order any qty of:** X7501A – Stiletto 512 MB Blade X7502A – Stiletto 1GB Blade X7503A – Stiletto 2GB Blade

Step 3 - Optional:

Order Rack mount kits (other than 19" 4 post rackmount kit) (ie X7592A included in system shipkit)	→	**Order one of:** X7591A – 19" 2 post kit X7594A – 23" 4 post kit X7593A – 23" 2 post kit

Step 4 - Required:

Add Power cord Order power cord kit	→	**Order one of:** X386L - Australian Power cord kit X312L - Continental Europe Power cord kit X383L - Danish Power cord kit X384L - Italian Power cord kit X311L - North American/Asian Power cord kit X314L - Swiss Power cord kit X317L - UK Power cord kit

Step 5 – Optional:

Order Solaris Media Kit	→	**Order one of:** SOLZS-08IB9AYC - Solaris 8 HW12/02 Media Kit - Japanese SOLZS-08IB9AYM - Solaris 8 HW12/02 Media Kit – English

NOTE: ALL X-OPTION BLADES WILL BE SHIPPED SEPARATELY FROM SHELF SYSTEM AND WILL NEED TO BE INSTALLED AND CONFIGURED BY THE CUSTOMER

Family part name: A44-SF-B1600

Step 1 - For Configure to Order:

Order a base configuration	→	**Pick one of the configurations** BS-A44 (links to A44-AA base chassis) Single SSC, 2xPSU and midplane pre-fitted with the plastics and the shelf

Step 2 - Required for CTO

Number of Blades (pre-fitted at Sun factory)	→	**Order between 0 and 16: (in ATO Options table A44-AA-OPT)** 7501A - 512 MB Solaris/Sparc Blade (596-3745-01 to 540-5078-01) 7502A - 1GB Solaris/Sparc Blade (596-3744-01 to 540-5079-01) 7503A - 2 GB Solaris/Sparc Blade (596-3746-01 to 540-5454-01) *Balance left from total of 16 will be blank blades pre-fitted*

Step 3 - Optional:

Order Rack mount kits (other than 19" 4 post rackmount kit) (ie X7592A included in shipkit)	→	**Order one of:** X7591A – 19" 2 post kit X7594A – 23" 4 post kit X7593A – 23" 2 post kit

Step 4 - Required:

Add Power cord Order power cord kit	→	**Order one of:** X386L - Australian Power cord kit X312L - Continental Europe Power cord kit X383L - Danish Power cord kit X384L - Italian Power cord kit X311L - North American/Asian Power cord kit X314L - Swiss Power cord kit X317L - UK Power cord kit

Step 5 – Optional:

Order Solaris Media Kit	→	**Order one of:** SOLZS-08IB9AYC - Solaris 8 HW12/02 Media Kit – Japanese SOLZS-08IB9AYC - Solaris 8 HW12/02 Media Kit – English

Upgrades

Sun Upgrade Allowance Program (Sun UAP)

Sun Upgrade Advantage Program is available for the Sun Fire B1600 and Sun Fire B100 architecture products. Upgrade from the Ultra 1, Ultra5, Ultra 10, E250, E220R, E450, E420R, or Sun Fire 280R by trading one of these systems for either one pre-configured or custom configured B1600 chassis with blades, or a single Sun Fire B100s blade.

TRADE	Purchase:	Sun Fire B1600	Sun Fire B100
Ultra 1		X	X
Ultra 2, 5, 10		X	X
Ultra E250, E220R,		X	X
Ultra E450, E420R,		X	X
Sun Fire 280		X	X
1998-2000 non Sun systems		X	X
2000+ non Sun systems		X	X

This is a full system for blade replacement. No components migrate from existing Sun or non-Sun systems to the Sun Fire B1600 or Sun Fire B100s. Customers must return a complete functioning system.

The system being traded must be owned by, used by, and in the possession of the customer a least (90) days prior to upgrading. To qualify for the trade-in allowance, customers must return a full functioning system to Sun within 90 days of shipment of the Sun Fire B1600 or Sun Fire B100s.

To determine the value of the trade-in, apply the allowance to the Sun Fire B1600 chassis blade configuration or the Sun Fire B100s Blade Server. RMA kits (UG-RMA) must be ordered with the allowance code. UG_RMA kits provide customer instructions on where to return the used (residual) equipment.

Further information on Sun UAP, the Sun Upgrade Pathfinder and to estimate the trade-in value go to www.sun.com/upgrades.

Upgrade Ordering

ALW-02-B-U1-A44

From: One Ultra 1 System

To:Sun Fire B100s, one pack or B1600 ATO and preconfigured SPARC Architecture Blade Servers

Order: UG-RMA with this allowance.

Return: Customer must return complete configured and operating Ultra 1 system.

ALW-05-B-U5-A44

From: One Ultra 2, 5 or 10 Netra T1 and X1 System

To:Sun Fire B100s, one pack or B1600 ATO and preconfigured SPARC Architecture Blade Servers

Order: UG-RMA with this allowance.

Return: Customer must return complete configured and operating Ultra 2, 5 or 10 system.

ALW-10-B-WGS-A44

From: One E250, E220R, E450, E420R or Sun Fire 280R, Netra 140X and Netra 112X System.

To:Sun Fire B100s, one pack or B1600 ATO and preconfigured SPARC Architecture Blade Servers.

Order: UG-RMA with this allowance.

Return: Customer must return complete configured and operating E250, E220R, E450, E420R or Sun Fire 280R System

ALW-04-B-Z1-A44

From: One 1998 to 2000 non Sun server System

To:Sun Fire B100s, one pack or B1600 ATO and preconfigured SPARC Architecture Blade Servers.

Order: UG-RMA with this allowance.

Return: Customer must return complete configured and operating 1998 to 2000 non Sun server System

ALW-10-B-Z2-A44

From: One 2000 and newer non Sun server System

To:Sun Fire B100s, one pack or B1600 ATO and preconfigured SPARC Architecture Blade Servers.

Order: UG-RMA with this allowance.

Return: Customer must return complete configured and operating 2000 and newer non Sun server System

Ordering Notes:

1. Allowances are non-discountable and are percentages applied to list price of the new system configuration. Allowance values vary based on the platform configuration purchased. Customer must return a completely configured and functioning system to comply with this program offer.

2. Sun Spectrum support applies to the Sun system being purchased and not the UAP allowances.

Service and Support

As part of the customer's blade solution, Sun Services provides an integrated portfolio of services to assist customers in simplifying and effectively managing their blade computing environment.

Sun Services offers the tools, people, and processes to help companies quickly and cost-effectively configure and deploy Blade Servers. By offering the Blade Manager and other consulting, learning, and support services, Sun can help businesses take advantage of simplified management of resources, lower total cost of ownership, improved scalability, and flexibility.

The services portfolio for blade environment includes the following:

- NEW! SunPS Blade Manager (Official Name TBD)
- NEW! Sun Fire B1600 Component Replacement course
- Technical consulting services for architecting and implementing complex Blade Server environments.
- Flexible training and support to help improve system maintenance and maximize availability.

Service Solutions for Blade Computing Environments

NEW! Blade Manager (OFFICIAL NAME TBD)

*NOTE: This is an Americas only, fixed price offering, GA: Q3

Designed to meet the needs of Blade computing, the Blade Manager is a system management tool that helps simplify configuration and maintenance. A package of hardware, software and services designed to address the complexities in integrating, managing and monitoring Blade server environments.

The Blade Manager may include the following components:

- **P**roposed Hardware: Netra 20 (TBD)
- Software:

  Aprisma Spectrum network monitoring and management software

  Sun Management Center for Availability Monitoring

  iCenter Dynamic Run Book (operational run book for blade chassis/blade server)

  Opsware[tm] software provisioning capabilities for Blade Manager (Reseller agreement to be finalized for Sun to resell Opsware)

  FREE! 30 Day Trial License: Sun ONE Knowledge Modules for BMC Patrol
- Services

  On-site implementation service from Sun consultants (2 week service engagement featuring implementation and configuration of blade manager, licensing and installation of software components including third party software)

  Customer Training: Aprisma and Opsware will provide own product specific training for customers

  Internal Technical Training for Sun Consultants to be provided by Sun PS

Note: Warranty and additional support information for the Blade Manager are still being determined.

NEW! Sun Fire B1600 Component Replacement Course (SM-285)

NOTE: Worldwide Availability: Expected end of Q3FY03

This one day course provides students with the information and interactive exercises needed for developing the skills used to replace the product's components. The course provides interactive, hands-on and practical exercises on component replacement and functional verification on the Sun Fire B1600. The course has been designed in four modules covering SunFire B1600 Overview, Architecture, Installation and the Replacement of Various Hardware Components.

WHO CAN BENEFIT?

- OEMs, Self-Sustaining Customers
- FEs and Partner FEs

SKILLS GAINED

Upon completion of this course, students should be able to:

- Identify the major features of the Sun Fire B1600
- Compare and contrast the Sun Fire B1600 to similar products
- Identify the HW components of the Sun Fire B1600 and state the function of each, to include the system chassis, blades, Switch and System Controller and power supplies.
- Describe the System Architecture
- Describe the Blade Architecture
- Describe the SSC Architecture
- Locate and identify available documentation for installation, configuration administration and maintenance purposes
- List and describe ESD and environmental requirements for installing the Sun Fire B1600
- Describe the procedure for mounting the system chassis in a rack
- Install the PSUs
- Install the SSCs
- Install the blades
- Apply power and verify that PSU LED's are active
- Make the LAN Connections (physical) to the management and data ports
- List the FRUs and CRUs
- Replace a blade
- Replace a SSC
- Replace a PSU

- Replace the System Chassis

Professional Consulting Services

Architecture Services

Sun's Architecture Services assist customers in identifying new IT solutions from concept, design to deployment that are built against the customer's long-term technology strategy and architected for sustained business growth.

Architecture Services are comprised of an architecture workshop, assessment, and roadmap services.

- Architecture Workshop- emphasizes the importance of building architectures with service-level requirements such as reliability, availability, scalability, and securability, and can help customers accomplish their business goals, and provide them with a high-level action plan for next steps.
- Architecture Assessment - -examines the technology stack from data center to applications to determine the architecture's ability to operate against a desired set of service level requirements.
- Architecture Roadmap - - focuses on identifying, prioritizing and documenting functional and service level requirements of the customer's architecture.

Enterprise Security Assessment Service

Sun's Security Services provide customers with the tools and expertise to assess, architect, implement, and manage the security needs for creating their security framework. Sun can help customers protect the integrity and confidentiality of information by establishing a security infrastructure that meets their business requirements. The Enterprise Security Assessment Service provides a comprehensive security review and assessment of the customers' current security environment to identify security exposures and risks within their policies, processes, procedures, networks, and systems.

Storage Services

Sun's Storage Services can help customers to quickly determine storage issues that may be impacting their ability to meet Service Level Agreements or other goals. Sun can help customers improve total storage utilization across the enterprise as well as their ability to share data between applications.

Performance and Capacity Planning Services

Sun's consultants can help customers evaluate their server environment and develop a plan to help meet their current and future business needs. By understanding current system performance and capacity needs, customers can evaluate ways to improve server performance, enhance efficiency of their applications, and achieve a high-performance computing environment.

Application Readiness Service (ARS)

Application Readiness Service can help customers optimize availability and service levels for multiple deployments of the Sun Fire B1600 in their IT environment. This service focuses on the availability,

security and storage requirements of the customer's environment and enables faster time to production by helping to ensure that their system is ready to support specific applications [custom quote].

More information on Sun Professional Services can be found at: http://www.sun.com/service/sunps

Learning Solutions

Solaris[tm] Operating Environment Courseware and Certification

Sun offers flexible training options for the Solaris Operating Environment ranging from individual courses to certifications. Sun provides students with the knowledge to successfully install, manage, and troubleshoot the Solaris Operating Environment including the following courseware: (NOTE: This list of courses need to be confirmed)

- Fundamentals of Solaris for System Administrators
- Solaris Operating System Essentials for System Maintainers
- Solaris System Administration I
- Solaris System Administration II
- Solaris TCP/IP Network Administration
- Solaris System Performance Management

Sun Fire Skills Packages

Skills Packages are prepackaged training solutions which contain the recommended courseware that will deliver the skills needed to effectively manage and optimize the customer's Sun Fire B1600 server in their computing environment. Once a skills package order has been received, an education manager will contact the customer to develop a tailored training program. Please contact a local Sun Education representative for details on availability and pricing of these learning solutions.

Education Consulting Services

Education Consulting Services allows customers to make the most out of training and provide optimal return on total IT investment by assessing requirements, delivering solutions, and measuring results. And, customers can bridge the gap between training and organizational goals by aligning IT structure, people, and skills with business objectives. Sun's Education Consulting Services help companies change the way learning takes place by creating custom training solutions that allow people to develop the right skills at the right time.

More information on Sun Educational Services can be found at: http://www.suned.sun.com

Support and Warranty Services

Sun provides customers with proactive support, monitoring and sustaining services to help manage the customer's system availability uptime.

Warranty

The Sun Fire B1600

- Duration: 1 year

- Hardware Onsite Coverage: Business Hours
- Hardware Onsite Response Time: Next Business Day
- Hardware Phone Coverage: Business Hours
- Phone Response Time: 8 Hours

The Sun Fire B100s

- Duration: 1 year
- Hardware Coverage: Parts Exchange, 5-7 day average cycle time
- Hardware Onsite Coverage: N/A
- Hardware Phone Coverage: Business Hours
- Phone Response Time: 8 Hours

Solaris 8 HW 12/02 Operating Environment

- 90 days Installation and defective media support, upgrade available to Software Only Support

For additional information on warranty, please visit:

http://www.sun.com/service/support/warranty/features.html

Sun Software-Only Support[sm] service for Linux and the Solaris[tm] Operating Environment

Sun's Software-Only support gives customers access to a range of support levels and proactive services whether they are running on the Solaris OE or Linux platform. In addition to telephone support, customers also get access to online resources that allow them to download patches and entitled software releases, research technical issues, place and track service requests, and much more.

Features include:

- Telephone Support (Business hours or 24/7 coverage)
- Customer-defined response times
- Unlimited calls during contract period
- Access to SunSolve, upgrades and patches, and international support

NOTE: A Customer kit of CRU's is expected to be offered to allow customers to enhance response times for Hardware-Only contract above. NO SunSpectrum contracts will be offered.

SunSpectrum[sm] Hardware-Only Support

For customers who prefer Sun engineers to provide the hardware service, the one year limited warranty can be upgraded to SunSpectrum Hardware-Only support which offers a next business day on-site response.

Sun[sm] Remote Services (SRS)

Sun Remote Services (SRS) is a suite of monitoring and management tools that can help customers achieve higher levels of systems support to maximize availability. SRS enables customers to proactively reduce unplanned downtime by helping to avoid problems, fix problems before they escalate, and track changes within their Sun environment.

Sun Online Support Center

The Sun Online Support Center empowers the customer with information and services through 24x7 access to resources, tools, and answers that help customers better manage their systems and resources. Whether customers need information, patches, self-monitoring tools, or the most convenient way to log a service request, the Online Support Center offers comprehensive self-support solutions for Sun products.*
**Availability of features varies by country.*

More information on Sun Support Services can be found at: http://www.sun.com/service/support

Service Facts

- For nearly 20 years, Sun Services has focused on one thing and one thing only: Providing services for systems that run the Solaris™ Operating Environment. Sun has more than 13,000 people dedicated to helping customers architect, implement, and manage their business on Sun.
- As one of the top UNIX® Platform Integrators in the world, Sun has deep experience. Cusotmers can count on Sun's architectural and deployment services to help consolidate servers, improve ROI, and obtain the maximum value from the customer's current and future IT infrastructure costs.
- Sun works with more than 400,000 independent technology consultants to build solutions for customers. Our best-of-breed approach gives customers choice, control, and flexibility. This strong partnership model offers customers a broad range of services and a clear advantage in open applications and services to build customized solutions with a competitive edge.
- Sun is one of the largest UNIX training organizations in the world, with more than 400,000 people trained per year on technologies such as Java™ Technology, Linux, Solaris Operating Environment, Sun™ Open Net Environment (Sun ONE), Web publishing technologies and server and storage curriculum at more than 400 direct and authorized training centers worldwide and on the Web.
- Sun's focus in providing proactive, not just reactive, services—combined with our virtual presence on site with Sun℠ Remote Services (SRS)—helps you to identify ahead of time the operational, environmental, and configuration issues that can affect your system's reliability, availability, and serviceability (RAS). Our unique patent pending Sun℠ RAS profile service is like having Sun engineers checking your configurations to help you find out what you need to do to improve operational efficiencies, increase system reliability, and reduce unscheduled outages.
- Sun's support services are ranked #1 in the Advanced Desktops, Workstations, Network Storage, and Enterprise Operating Platforms categories by VARBusiness. They also ranked #1 for hardware support, #2 in software support and the #1 vendor supplier over all of the 27 IT vendors measured in United Kingdom-based publication Computing's 2001 Supplier Survey.
- Sun's support services has been selected a reader's choice winner for the server category in PC Magazine's 15th Annual Reader Survey: Service and Reliability. Sun receives an A on the reader's report card grade for overall repair experience and technical support. (PC Magazine July 2002)

- Sun offers one-stop shopping for Linux services by **owning the entire support experience and not routing calls to third parties . Customers can gain peace of mind knowing that Sun delivers the service experience and support that they've come to expect and trust from Sun.**
- With more than 2.1 million UNIX systems at more than 100,000 customer sites in 125 countries worldwide, Sun has the depth of experience and the logistics to provide 24/7 support services almost anywhere your data center is located.
- Sun supports more than 3,500 Sun Enterprise™10000 servers in more than 60 countries. Sun supports more than 115 Sun Fire™ 15K servers worldwide.
- Sun supported seven petabytes of storage in January 2001. This grew to 15 petabytes by January of 2002 and - as of May 2002 - reached a total of 17 petabytes.
- Sun was chosen winner of the 2002 Internet Industry Award for Best Hardware Supplier. Sun Microsystems was noted by the judges for their customer service, accreditation scheme, services for ISPs and their focus on serving the UK market.

Glossary

Use the Glossary table for terms and definitions. Glossary terms should be in alphabetical order. Note that all acronym descriptions start with the full spelling of the acronym, followed by a period, and then followed by the regular description of the term.

Dial-up connection	A connection to a remote computer made using a modem and a regular voice-grade telephone line.
DNS	Domain name service. The network information service provided by the Internet for TCP/IP networks. Used to determine the IP address of a computer on the Internet from its domain name.
CIFS	Common Internet File System. Enhanced version of the SMB file sharing protocol for the Internet that allows Web applications to share data over the Internet and intranets; similar to WebNFS™ software.
FC-AL	Fibre Channel arbitrated loop, a loop topology used with Fibre Channel.
Latency	Latency is an expression of how much time it takes for a packet of data to get from one designated point to another on a network.
Network-attached storage (NAS)	Network-attached storage is a concept of shared storage on a network. A NAS device is typically a dedicated, high-performance, high-speed communicating, single-purpose server or device.
PCI	Peripheral component interconnect. An industry-standard for connecting peripherals such as disk drives, tape drives, and other devices used in the PCs.
RAID 5	RAID level 5, or striping with distributed parity. Both data and parity are distributed across disks. No single disk can compromise the integrity of the data. RAID 5 optimizes performance, reliability and cost.
Striping	Spreading or interleaving logical contiguous blocks of data across multiple independent disk spindles. Striping allows multiple disk controllers to simultaneously access data, improving performance.
SC	System Controller. This is the administrative interface to the shelf and is used to manage and monitor the shelf
SSC	Defines the physical element that holds both the Switch and the System Controller
BSC	Blade Support Chip. This is the Lights-Out Management device on the blades that communicate with the System Controller and provide active monitoring and management capabilities. The BSC also enables console access to the Operating Environment and Boot Environment.

Materials Abstract

Note: *Just the Facts documents must be submitted to Expert Support,* ***sun@xs.com****, who will forward these documents to SunWIN. Refer to Submission Guidelines at the beginning of this template for instructions and time line.*

All materials will be available on SunWIN except where noted otherwise.

Collateral	Description	Purpose	Distribution	Token # or COMAC Order #
Product Literature				
– *Sun Fire™ B1600, Sun Fire B100s Just the Facts*	Reference Guide (this document)	Training Sales Tool	SunWIN, Reseller Web	358370
– *Sun Product Name Customer Presentation*	Customer Presentation with Notes	Sales Tool	SunWIN, Reseller Web	
References				
– *Sun Intro*	E-mail Introduction	Sales Tool	SunWIN, Reseller Web, E-mail	368528
– *Sun Fire™ B1600 Data Sheet*	Data Sheet	Sales Tool	SunWIN, Reseller Web, COMAC	358430
– *The Next Wave: Blade Server Computing*	Technical Brief	Training	SunWIN, Reseller Web	ZE1463-0/ 337727
– *Improving The Economies of Scale with Blade Computing*	Technical Brief	Training	SunWIN, Reseller Web	368112
– *Architectures & Infrastructures for Blade Computing*	Technical Brief	Training	SunWIN, Reseller Web	368113
– *Complexity & Cost in the Data Center: Opportunities*	Technical Brief	Training	SunWIN, Reseller Web	368114
– *Quick Reference Card – Sun Fire™ B1600*	Quick Reference Card	Sales Tool	SunWIN, Reseller Web, COMAC	358431
– *Sun Fire™ B1600 Product Brief*	Overview of Product	Sales Tool	SunWIN, Reseller Web	358432
External Web Sites				
– *Sun Web Site*	http://www.sun.com/servers/entry/blade/			
–				