

Mid-Range/Data Center Servers

Sun Enterprise Overview

Product specifications	Sun Enterprise™ 3500		Sun Enterprise 4500	
CPU	1–8		1–14	
Processor	UltraSPARC™-II			
CPU speed / external cache	336-MHz /4MB or 400-MHz/8MB			
Board slots	5		8	
CPU for performance ¹	1	8	6	12
SPECint_rate95	165	1272	955	1887
SPECfp_rate95	267	1956	1519	2790
Relative OLTP Performance ²	1.25	8.22	6.42	11.28
SPECsfs97 (NFSv2/UDP) NFSops/sec @ msec/op	3827@3.92	18,431@4.33	15,421@4.20	23,815@4.39
Main memory	256 MB–16 GB		256 MB–28 GB	
Maximum disk capacity – Internal – External	145.6GB Over 10 TB		72.8GB Over 20TB	
I/O slots	3–12 (SBus) 2–8 (PCI)		3–21 (SBus) 2–12 (PCI)	
I/O channels	1–8 (SBus) 2-8 (PCI)		1–14 (SBus) 2-12 (PCI)	
I/O channel bandwidth	200 MBps each (SBus) 528 MBps each (PCI)			
System bus bandwidth (sustained/peak)	2.56 GBps @ 80-MHz 2.68 GBps @ 84-MHz 3.2 GBps @ 100-MHz			
Redundant power and cooling	Yes			
Hot plug system components	Power, Fans, I/O Boards, CPU/Memory Boards			
Hot swap system components	Power, Fans, I/O Boards (Dynamic Reconfiguration and Alternate Pathing - Solaris 2.6 HW 5/98), CPU/Memory Boards (Dynamic Reconfiguration for CPU/Memory available with Solaris 7 5/99 release)			
Operating system	Solaris™ 2.5.1 HW 11/97 or later Solaris™ 2.6 HW 3/98 or later Solaris™ 7			
System monitor	Sun Management Center			
Warranty ³	1 year hardware 90 days software 4-hour phone response Same business day onsite response		1 year hardware 90 days software 4-hour phone response Same business day onsite response	
Installation	Basic Sun Installation included		Basic Sun Installation included	

¹ 400-MHz with 8-Mbyte external cache, 100-MHz Gigaplane speed

² Relative Performance compared to a single 336-MHz UltraSPARC-II CPU with 4-Mbyte external cache (value = 1.0)

³ may vary by geography

Sun Enterprise Overview

Product specifications	Sun Enterprise 5500		Sun Enterprise 6500		
CPU's	1-14		1-30		
Processor	UltraSPARC™-II				
Clock speed / External Cache	336-MHz/4MB 400-MHz/8MB		336-MHz/4MB 400-MHz/8MB		
Board slots	8		16		
CPU for performance ¹	6	12	12	24	30
SPECint_rate95 ¹	955	1887	n/a	3492	4198
SPECfp_rate95 ¹	1519	2790	2704	4522	5289
Relative OLTP Performance ²	6.42	11.28	10.27	16.44	n/a
SPECsfs97 (NFSv2/UDP) ¹ NFSops/sec @ msec/op	3827@ 3.92	23,815@ 4.39	22,382@4.3 9	31,803@4.4 2	n/a
Main memory	256 MB-28 GB		256 MB-60 GB ⁴		
Maximum disk capacity					
– Internal	2693GB		2220GB		
– External	Over 20 TB		Over 30 TB		
I/O slots	3-21 (SBus) 2-12 (PCI)		3-45 (SBus) 2-12 (PCI)		
I/O channels	1-14 (SBus) 2-12 (PCI)		1-30 (SBus) 2-12 (PCI)		
I/O channel bandwidth	200 MBps each (SBus) 528 MBps each (PCI)				
System bus bandwidth (sustained/peak)	2.56 GBps @ 80-MHz 2.68 GBps @ 84-MHz 3.2 GBps @ 100-MHz		2.56 GBps @ 80-MHz 2.68 GBps @ 84-MHz		
Redundant power and cooling	Yes				
Hot plug system components	Power, Fans, I/O Boards, CPU/Memory Boards				
Hot swap system components	Power, Fans, I/O Boards (Dynamic Reconfiguration and Alternate Pathing - Solaris 2.6 HW 5/98), CPU/Memory Boards (Dynamic Reconfiguration for CPU/Memory available with Solaris 7 5/99 release)				
Operating system	Solaris™ 2.5.1 HW 11/97 or later Solaris™ 2.6 HW 3/98 or later Solaris™ 7 (No DR/AP for E10000)				
System monitor	Sun Management Center				
Warranty ³	1 year hardware 90 days software 4-hour phone response Same business day onsite response		1 year hardware 90 days software 4-hour phone response Same business day onsite response		
Installation	ServerStart Install Included		ServerStart Install Included		

¹ 400-MHz with 8-Mbyte external cache, 100-MHz Gigaplane speed (Enterprise 6500 numbers are based on 80-MHz Gigaplane speed)

² Relative Performance compared to a single 336-MHz UltraSPARC-II CPU with 4-Mbyte external cache (value = 1.0)

³ may vary by geography

⁴ Systems running Solaris 2.5.1 limited to 56GB total memory

Enterprise 3500 - 6500 Ordering Flow Chart for Factory-Configured System Building Blocks

Each step represents a **required/recommended** line item on a Sales Order

Step 1 - required

Server Base Package
or
Factory-Configurable Server Package

Note: Both the Server Base Packages and Factory-Configurable Server Packages may be ordered with additional factory-configured components.



Choose One Base Package:

E3502-C82 - Enterprise 3500 Base Pkg w/ 2 x 400MHz/8MB, 1-GB, 1 SBus I/O Board

E3502-C83 - Enterprise 3500 Base Pkg w/ 2 x 400MHz/8MB, 2-GB, 1SBus I/O Board

E4502 - Enterprise 4500 Base Package, 2 SBus I/O Boards

E4502-R - Enterprise 4500 Rack-Mounted Base Package, 2 SBus I/O Boards

E5502 - Enterprise 5500 Base Package, 2 SBus I/O Boards

E6502 - Enterprise 6500 Base Package, 2 SBus I/O Boards

E3501-C62 - E3500 Base Pkg w/ 2 x 336MHz/4MB

E3501-C82 - E3500 Base Pkg w/ 2x 400MHz/8MB

E4501 - Enterprise 4500 Base Package

E5501 - Enterprise 5500 Base Package

E6501 - Enterprise 6500 Base Package

or Choose One Factory-Configurable Server Package:

E3502-C84 - E3500 Base Pkg w/ 4 x 400MHz/8MB, 2x1GB memory, 1 SBus I/O Board, 4 18.2-GB 10,000 rpm FC-AL disk drives with FC-AL connections

E4502-C88 - E4500 Base Pkg w/ 8 x 400MHz/8MB, 8x1GB memory, 2 SBus I/O Boards

E5502-C88 - E5500 Base Pkg w/ 8 x 400MHz/8MB, 8x1GB memory, 2 SBus I/O Boards

E6502-C816 - E6500 Base Pkg w/ 16 x 400MHz/8MB, 16x1GB memory, 2 SBus I/O Boards



Step 2 - optional/required

Factory-Configured System Building Block
Optional for Factory-Configurable Server Packages and E3502-C8X base package
Minimum of one 4-CPU building block or two 2-CPU building blocks per E4500-E6500 base package when ordering system building blocks.



Choose from 4-CPU Building Blocks:

2602A-P84A - 2 CPU/Memory Boards w/ 4 x 400MHz/8MB, 4 x 1-GB Memory Option, 1 PCM

2602A-P84B - 2 CPU/Memory Boards w/ 4 x 400MHz/8MB, 4 x 1-GB Memory Option

2602A-P85A - 2 CPU/Memory Boards w/ 4 x 400MHz/8MB, 2 x 2-GB Memory Options

2602A-P85B - 2 CPU/Memory Boards w/ 4 x 400MHz/8MB, 2 x 2-GB Memory Options

and/or 2-CPU Building Blocks:

2602A-P82 - 1CPU/Memory Board w/ 2x 400MHz/8MB, 1-GB Memory

2602A-P83 - 1CPU/Memory Board w/ 2x 400MHz/8MB, 2-GB Memory

2602A-P62 - 1CPU/Memory Board w/ 2x 336MHz/4MB, 1-GB Memory

Note: Factory-Configured System Building Blocks may be ordered in combinations of 2-CPU and 4-CPU building blocks.



Enterprise 3500 - 6500 Ordering Flow Chart for Factory-Configured System Building Blocks *(continued)*

Each step represents a **required/recommended** line item on a Sales Order

Step 3 - optional

Memory
Included in Factory-Configured System Building Blocks.
Additional memory may be added if Factory-Configured System Building Block has available memory bank. May also add to E350X-CXX packages



7023A - 1GB Memory Expansion
7026A - 2GB Memory Expansion



Step 4 - optional/required

I/O Board
Required for EX501 base packages. SBus I/O Boards included in base EX502 and Factory-Configurable Server Packages. Additional I/O Boards optional. Maximum of 6 PCI I/O Boards per E4500-E6500. Maximum of 4 PCI I/O Boards per E3500. Max total of SBus + PCI I/O Boards = 4 for E3500, 7 for E4500.& E5500, 15 for E6500



Choose from:
2612A - SBus I/O Board w/ 100MB/s FC-AL
2622A - Graphics I/O Board w/ 100MB/s FC-AL
2632A - PCI I/O Board



Step 5 - optional

FC-AL Interface Board - E3500 only
Maximum of one per System. Does not use one of the 5 system slots for CPU/Memory and I/O Boards. Required in order to use internal FC-AL drives. This provides a single loop connection for up to 4 disk drives in one disk bank. For further details see ordering guidelines sections. One FC-AL Interface Board included in E3502-C84 package.



2652A - FC-AL Interface Board



Step 6 - optional

Power/Cooling Module
Minimum of one per System.
Maximum of 3 per E3500, 4 per E4500 and E5500, 8 per E6500. One included in E3501-CX2 Base Packages. Two included in the E3502-C8X, two included in the E4500-E6500 Base Packages, three included in E3502-C84, four included in E4502-C88 and E5502-C88, 6 included in E6502-C816.



954A - Power/Cooling Module, 300W



Enterprise 3500 - 6500 Ordering Flow Chart for Factory-Configured System Building Blocks *(continued)*

Each step represents a **required/recommended** line item on a Sales Order

Step 7 - optional

Second Peripheral Power Supply - E3500 only

Maximum of one per E3500 only. Included in E3502-C84.



9689A - *Second Peripheral Power Supply, 195W*



Step 8a - optional

Internal Disk Options - E3500 only

Maximum of eight optional internal disk drives. Four 6720A disk drives included in E3502-C84.



6710A - *9.1GB 10000 RPM Internal FC-AL Disk Drive*

6720A - *18GB 10,000 RPM Internal FC-AL Disk Drive*



Step 8b - optional

E4500 Internal Disk Options

Maximum of four Disk Boards.



5163A - *18.2 GB Disk Board*



Step 8c - optional

E5500/E6500 Internal Disk Storage options

Maximum of 4 Disk Boards in E5500, 2 in E6500 - and/or -
Maximum of 5 D1000's in E6501/02 cabinet and 6 D1000's in a E5501/02 cabinet - and/or -
Maximum of 4 A5X00's in E6501/02 cabinet and 5 A5X00's in a E5501/02 cabinet



Choose from:

5163A - *18.2 GB Disk Board*

SG-ARY147A-36GR4 - *36-Gbyte D1000*

SG-ARY154A-72GR4 - *72-Gbyte D1000*

SG-ARY164A-145GR4 - *145-Gbyte D1000*

SG-ARY522A-200GR4 - *200.2-Gbyte A5200*

SG-ARY542A-400GR4 - *400-Gbyte A5200*

SG-ARY552A-509GR4 - *509-Gbyte A5100*



Step 8d - optional

E4502-R Internal Disk Storage options

E4502-R Internal Disk Storage options
Maximum of 4 Disk Boards in E4502-R - and/or -
Maximum of 6 D1000s - and/or -
Maximum of 3 A5X00s



Choose from:

5163A - *18.2 GB Disk Board*

SG-ARY147A-36GR5 - *36-Gbyte D1000*

SG-ARY154A-72GR5 - *72-Gbyte D1000*

SG-ARY164A-145GR5 - *145-Gbyte D1000*

SG-ARY521A-200GR5 - *200.2-Gbyte A5200*

SG-ARY551A-509GR5 - *509-Gbyte A5100*



Enterprise 3500 - 6500 Ordering Flow Chart for Factory-Configured System Building Blocks *(continued)*

Each step represents a **required/recommended** line item on a Sales Order

Step 9a - optional

E3500/E4500/E4502R Internal Tape Options

Maximum of one Internal Tape Drive



Choose from:

- 6283A - Internal 4mm 12-24 GB DDS-3 Tape Drive
- 6213A - Internal 14 GB 8mm Tape Drive
- 6238A - Internal 20/40 GB 8mm Tape Drive



Step 9b - optional

E5500/E6500 Internal Tape Options

Maximum of one Internal Tape Drive.
Maximum of one StorEdge Library or one StorEdge FlexiPack removable tray with up to two FlexiPacks.



Choose one:

- 6283A - Internal 4mm 12-24 GB DDS-3 Tape Drive
- 6213A - Internal 8mm 7-14-Gbyte Tape Drive
- 6238A - Internal 8mm 20-40 Gbyte Tape Drive

and choose:

6062AR4 - StorEdge DLT7000 FlexiPack

with:

9640AR4 - FlexiPack removable tray for system rack

or choose:

6226AR4 - 400-Gbyte 8mm StorEdge Library



Step 10 - optional

Interfaces and Host Adapters

These options may be required to support configured mass storage and tape devices.
Refer to the Options section for complete SBus and PCI Bus Interfaces and Host Adapters.



Choose from:

- 6730A - FC-AL 100MB/s SBus Host Adapter
- 6731A - FC-AL GBIC Module
- 1062A - DWIS/S SBus Card
- 1065A - UDWIS/S SBus Card
- 1063A - SWIS/S SBus Card
- 1018A - SunSwift SBus Adapter



Step 11 - required

Power Cord/Country Kit

Order one kit at no charge. Order a Power Cord Kit when server does not include a monitor.
Order a Type 5 Country Kit when server includes a monitor. *See page 6-130.* Order a Power Cord Kit for each external peripheral if required. *See page 6-134.*



Enterprise 3500 and 4500, Choose from:

- X311L - North American/Asian
- X386L - Australian
- X383L - Danish, for E3002 and external peripherals
- X389L - Danish, for E4002 only

or:

- X3500A - North American
- X3579A - Canadian-Bilingual

Enterprise 5500 and 6500, Choose from:

- 3800A - Power Cord, U.S. Version
- 3848A - Power Cord, International Version

Enterprise 4502-R, Choose from:

- 3858A - Power Cord, U.S. Version
- 3859A - Power Cord, International Version



Step 12 - optional / E3500 only

Solaris PC NetLink

Order Solaris PC NetLink



For NT interoperability order Solaris PC NetLink (SLSIX-110-W999) at no charge when purchasing a new or upgrading to E3500.

Enterprise 3500 - 6500 System Configuration Guidelines

General Comments

- Qualified service personnel must use the approved cushioned Sun ESD Mat to provide proper protection when installing options and memory on the CPU/Memory or I/O Boards. Contact your Sun sales representative for information.

Factory-Configurable Server Package

- E3502-C84: Tower Enclosure, 5-slot Card Cage, one SunCD 32, three Power/Cooling Modules, two CPU/Memory Boards with four 400-MHz/8-MB UltraSPARC CPU modules, two 1-GB memory options, one SBus I/O board, one FC-AL Interface Board, four GBIC Modules, two 2-meter FC-AL cables, four 18.2-GB 10,000 rpm FC-AL disk drives, Solaris Server License.
- E4502-C88: Standalone Enclosure, 8-slot Card Cage, one SunCD 32, four Power/Cooling Modules, four CPU/Memory Boards with eight 400-MHz/8-MB UltraSPARC CPU modules, eight 1-GB memory options, two SBus I/O boards, Solaris Server License.
- E5502-C88: Data Center System Cabinet, 8-slot Card Cage, one SunCD 32, four Power/Cooling Modules, four CPU/Memory Boards with eight 400-MHz/8-MB UltraSPARC CPU modules, eight 1-GB memory options, two SBus I/O boards, Solaris Server License.
- E6502-C816: Data Center System Cabinet, 16-slot Card Cage, one SunCD 32, six Power/Cooling Modules, eight CPU/Memory Boards with sixteen 400-MHz/8-MB UltraSPARC CPU modules, sixteen 1-GB memory options, two SBus I/O boards, Solaris Server License.

Base Package

- E3502-C82: Tower Enclosure, 5-slot Card Cage, one SunCD 32, two Power/Cooling Modules, one CPU/Memory Board with two 400-MHz/8-MB UltraSPARC CPU modules, one 1-GB memory option, one SBus I/O board, Solaris Server License.
- E3502-C83: Tower Enclosure, 5-slot Card Cage, one SunCD 32, two Power/Cooling Modules, one CPU/Memory Board with two 400-MHz/8-MB UltraSPARC CPU modules, one 2-GB memory options, one SBus I/O board, Solaris Server License.
- E4502: Standalone Enclosure, 8-slot Card Cage, one SunCD 32, two Power/Cooling Modules, two SBus I/O Boards, Solaris Server License, no CPU/Memory Board, no UltraSPARC modules.
- E4502-R: Enterprise 4500 Server Base Package Rackmounted in 72" StorEdge Rack, one SunCD 32, two Power/Cooling Modules, two SBus I/O Boards, Solaris Server License. Configuration also includes fan tray.
- E5502/E6502: Data Center System Cabinet, 8-slot (Enterprise 5500) or 16-slot (Enterprise 6500) Card Cage, one SunCD 32, two Power/Cooling Modules, two SBus I/O Boards, Solaris Server License.
- E3501-CX2: Tower Enclosure, 5-slot Card Cage, one SunCD 32, one Power/Cooling Module, one CPU/Memory Board with two UltraSPARC CPU modules pre-installed, Solaris Server License.
- E4501: Standalone Enclosure, 8-slot Card Cage, one SunCD 32, two Power/Cooling Modules, Solaris Server License, no CPU/Memory Board, no UltraSPARC modules.
- E5501/E6501: Data Center System Cabinet, 8-slot (Enterprise 5500) or 16-slot (Enterprise 6500) Card Cage, one SunCD 32, two Power/Cooling Modules, Solaris Server License.
- Includes the Clock Board that provides two serial ports and one keyboard/mouse port.

Enterprise 3500 - 6500 System Configuration Guidelines

(continued)

Factory-Configured System Building Blocks

- 2602A-P84A: One Power/Cooling Module, two CPU/Memory Boards with four 400-MHz/8-MB UltraSPARC CPU modules pre-installed, four 1-GB memory options pre-installed.
- 2602A-P84B: Two CPU/Memory Boards with four 400-MHz/8-MB UltraSPARC CPU modules pre-installed, four 1-GB memory options pre-installed.
- 2602A-P85A: One Power/Cooling Module, two CPU/Memory Boards with four 400-MHz/8-MB UltraSPARC CPU modules pre-installed, two 2-GB memory options pre-installed.
- 2602A-P85B: Two CPU/Memory Boards with four 400-MHz/8-MB UltraSPARC CPU modules pre-installed, two 2-GB memory options pre-installed.
- 2602A-P82: One CPU/Memory Board with two 400-MHz/8-MB UltraSPARC CPU modules pre-installed, one 1-GB memory option pre-installed.
- 2602A-P83: One CPU/Memory Board with two 400-MHz/8-MB UltraSPARC CPU modules pre-installed, one 2-GB memory option pre-installed.
- 2602A-P62: One CPU/Memory Boards with two 336-MHz/4-MB UltraSPARC CPU modules pre-installed, one 1-GB memory option pre-installed.
- When ordering Factory-Configured System Building Blocks, individual CPU/Memory Boards and individual CPU Modules may not be ordered. Additional memory options may be configured into the system if Factory-Configured System Building Blocks with available memory banks (2602A-PXX) are chosen.
- The Factory-Configured System Building Blocks are the only factory-configured options that may be used to add CPU modules to a EX502 base package or Factory-Configurable Server Package.

UltraSPARC Module

- Minimum of one UltraSPARC Module per system. No minimum requirement per CPU/Memory Board. Maximum of two per CPU/Memory Board.

General Comments

- Mixing of 167-MHz, 250-MHz, 336-MHz, 400-MHz/4MB, and 400MHz/8MB modules in a single system is not supported. Mixing same speed modules with different external cache sizes on a single system board is supported, except for 167-MHz modules. When using these modules it is required that both modules on a single board have the same external cache sizes.
- Support for the 400MHz/8MB module on an 80MHz Gigaplane requires the Clock Board that can support a 5-TO-1 CPU-TO-Gigaplane ratio.

Memory

- All memory options include eight memory modules, and occupy one memory bank.
- Minimum of one memory option per system (memory included in Factory-Configured System Building blocks). No minimum requirement of memory per CPU/Memory Board. Maximum of two per CPU/Memory Board.
- Three memory options are available. Mixing memory options is supported as long as all memory modules in one memory bank are the same.

Enterprise 3500 - 6500 System Configuration Guidelines

(continued)

Board Slots

- Five system board slots in Enterprise 3500 and eight in Enterprise 4500 and 5500, sixteen board slots in Enterprise 6500.
- Minimum of 1 board slot for CPU/Memory Board. Minimum of 1 board slot for I/O Board.
- A CPU/Memory, I/O or Disk Board (Enterprise 4500-6500 only) can occupy any board slot.
- I/O Board must go in slot #1 in order to provide the SCSI connection for the internal CD-ROM and tape devices.

CPU/Memory Board

- Two empty UltraSPARC Module slots, two empty memory banks, no UltraSPARC Modules, no memory.
- Minimum of one per system. Maximum number of CPU/Memory Boards is four in Enterprise 3500, seven in Enterprise 4500 and 5500, fifteen in Enterprise 6500.

I/O Boards

- The (X)2612A SBus I/O Board has two SBus channels supporting three empty SBus slots, two empty 100-Mbyte FC-AL Sockets, one Fast/Wide SCSI Interface, one 10/100Mbit Ethernet (Twisted Pair or MII) Interface. A5000 you must order the appropriate number of GBIC modules (X)6731A to populate the empty FC-AL sockets.
- The (X)2622A Graphics I/O Board has one empty UPA slot and one SBus channel supporting two empty SBus slots, two empty 100-Mbyte FC-AL Sockets, one Fast/Wide SCSI Interface, one 10/100Mbit Ethernet (Twisted Pair or MII) Interface.
- The (X)2632A PCI I/O Board has two PCI-66 Channels and two standard PCI channels supporting two empty PCI slots, one Fast/Wide SCSI Interface, and one 10/100 Mbit Ethernet (Twisted Pair) Interface.
- There is a required minimum of one I/O Board per system. Maximum number of I/O Boards is four in Enterprise 3500, seven in Enterprise 4500 and 5500, fifteen in Enterprise 6500. Maximum Number of PCI I/O Boards is four in Enterprise 3500, six in Enterprise 4500-6500. I/O Boards of different types (SBus, Graphics, PCI) may be mixed within a server.
- The on-board SCSI Host Adapter of the first I/O Board (slot# 1) in the Enterprise 5500 and Enterprise 6500 supports only the internal CD-ROM and one optional tape drive. No devices can be connected using the on-board SCSI connector of the first I/O Board (in slot# 1).
- The on-board SCSI connector of the first I/O Board in Slot #1 in the Enterprise 4500 can support (in addition to the internal CD-ROM and optional tape drive) either up to 2 Disk Boards or one external device.
- The on-board SCSI connector of the first I/O Board in Slot #1 in the Enterprise 3500 can support (in addition to the internal CD-ROM and optional tape drive) up to two UniPacks, two FlexiPacks or one MultiPack with 6 drives or less.

FC-AL Interface Board - Enterprise 3500 only

- FC-AL Interface Board is required in order to use internal FC-AL drives.
- The (X)2652A FC-AL Interface Board includes one FC-AL Interface Board, 2 GBICs, and one 2 meter fiber cable.
- The Interface Board Kit supplies the necessary components for a single loop configuration of up to four of the eight internal drive bays. In order to dual loop this configuration or single loop the remaining four drive bays, you need to order an additional two GBICs (X6731A) and one more fiber cable (X973A).
- There are two empty GBIC sockets on an SBus or Graphics I/O Board with FC-AL. If you have more than 2 loops to FC-AL devices, you must have a FC-AL SBus host adapter (X6730A) or a second SBus or Graphics I/O Board.r (X6730A).

Power/Cooling Module (PCM)

- One required for every two adjacent CPU/Memory and/or I/O Boards. Ensure that a PCM is adjacent to every board.
- An extra PCM provides redundant power for the boards (not peripherals).
- Power Express Server Packages, Factory-Configurable Server Packages, and Base Packages include Power/Cooling Modules. See product details later in section.
- N+1 power is not supported in an Enterprise 4500 or 5500 with 400MHz modules (either 4MB or 8MB external cache) and seven CPU/Memory boards (regardless of the number of Power/Cooling Modules). This limitation only occurs when configured with seven CPU/Memory boards.

Enterprise 3500 - 6500 System Configuration Guidelines

(continued)

Peripheral Power Supply (PPS) - Enterprise 3500 only

- One included in the Base Package. The first PPS supports all internal peripherals (SunCD 32, Tape Drive and up to 8 disks) and provides the AC power inlet. Not hot-pluggable.
- Second hot-pluggable PPS is optional and provides redundant power for the peripherals and also supplies N+1 power for the system boards in a maximum (5 board) configuration.

Internal Disk Board - Enterprise 4500-6500 only

- Maximum of 2 Disk Boards are supported in the Enterprise 6500.
- Maximum of 4 Disk Boards are supported in the Enterprise 4500 and 5500.
- Disk Board is not supported in the Enterprise 3500.
- Daisy-chaining other devices with the Disk Board is not supported.
- Maximum of 2 Disk Boards can be daisy-chained off the same SCSI Host Adapter.
- Other external SCSI devices are not supported on the same SCSI Host Adapter with a Disk Board. This is true regardless whether the SCSI Host Adapter is on-board or on a SBus card.
- In the Enterprise 4500 and 5500, Disk Board can be mounted in any slot (front or rear).
- In the Enterprise 6500, Disk Board is supported only in slot# 15 (rear) and slot# 14 (front).
- In the Enterprise 4500 and 6500, a maximum of one 2-meter SCSI Cable (902A) per SCSI Host Adapter can be used to connect a Disk Board that is located on the opposite side of the SCSI Host Adapter. The daisy-chained Disk Boards can be mounted on opposite sides.
- The 2-meter SCSI Cable (902A) cannot be used in the Enterprise 5500 because the cable route is too long to reach from one side to the other.
- The 80cm SCSI Cable (included in the 5163A) can be used to daisy-chain if the Disk Boards are mounted on the same side. (in the Enterprise 4500 and 5500).

Internal Disk Drives - Enterprise 3500 only

- Total of 8 internal hot pluggable 100MB/sec FC-AL Disk Drives can be mounted in Enterprise 3500.
- Internal Disk Drives are highly recommended, although it is possible to boot the system from external disk drives.

Internal Tape Options

- Uses the on board Fast/Wide SCSI-2 Host Adapter of the first I/O Board (in Slot #1).
- Enterprise 3500 and 4500: Maximum of one per system.
- Enterprise 5500 and 6500: One optional half-height internal Tape Drive can be mounted next to the SunCD 32 in the SCSI Tray that is included in the Base Package.
- Enterprise 5500 and 6500: Factory installed StorEdge FlexiPack removable storage tray and StorEdge Library options require the R4 part number suffix to indicate they are for the System Cabinet.
- See Interfaces and Host Adapters for more details.

Sun StorEdge A5X00 Options - Enterprise 3500 and 4500

- In order to connect to a Sun StorEdge A5X00 you must order the appropriate number of GBIC modules (X)6731A to populate the empty FC-AL sockets on either a SBus or Graphics I/O Board or SBus host adapter. Ensure that one GBIC module is provided per FC-AL loop.

Rules

- Maximum of 4 x A5000 or A5100 Arrays per FC-AL Loop or Hub.
- Maximum of 3 x A5200 Arrays per FC-AL Loop or Hub.

Enterprise 3500 - 6500 System Configuration Guidelines

(continued)

Recommendations:

- It is recommended that no more than 2 FC-AL Loops be connected to an FC-AL SBus Host Adapter.
- For best redundancy, configure two Host Adapters on separate I/O boards providing dual loops to all disk drives.
- Configure no more than 2 Sun StorEdge A5X00's per SBus channel.

Enterprise 4502-R Support Matrix/72-inch Enterprise Expansion Cabinet

The matrix below indicates the MAXIMUM number of StorEdge devices that can be supported in the 72" StorEdge Expansion Cabinet with one E4500 server. The quantities in each row are based on the assumption that no other devices will be installed in the cabinet other than the device(s) in the row AND E4500 server.

Note: The E4502-R contains ONLY 1 factory-configured E4500 server. Additional factory-configured E4500 Servers are NOT supported in the rack at this time.

Product	1 E4502-R
D1000	6
A5X00 1 Array	3

How to Install Devices

In order to insure proper cooling, it is important to mount the supported products according to their method of cooling. Please follow installation rules for the following situations:

1. All side-cooled (Type B) devices in a single rack.
 - a.Top two (2) rack units must ALWAYS be left blank.
 - b.Front door X9818A is required (for EMI) if mounting more than two (2) A5x00 into cabinet.
 - c.For A5x00 (configurations requiring hubs), allocate 2 rack units for each hub tray.
 - d.Cabinet must maintain 2" clearance between next cabinet or wall.
 - e.An air baffle (9660a), which occupies 1U, must be mounted directly above the Sun Enterprise E4500 server.
 - f.If A5x00 is combined with Sun Enterprise E4500 server, a second air baffle (9660a) is required to separate E4500 server from the A5x00. For specific placement of the second air baffle, please see Rackmount Placement Matrix.
 - g.A5x00s should be loaded in the rack from bottom to top without extra empty space between units.
 - h.The Sun Enterprise E4500 server must have board slot number seven (7) populated with any one of the following:
 - CPU/memory board (any Sun Enterprise 3X00-6X00 CPU/memory board)
 - PCI I/O board (any Sun Enterprise 3X00-6X00 PCI I/O board)
 - Disk Board (any Sun Enterprise 4X00-6X00 disk board)
 - filler panel

The slot cannot be populated with an SBus I/O board or Graphics I/O board (this applies to all Sun Enterprise 3X00-6X00 Sbus/Graphics I/O boards), and it cannot be left empty.

Enterprise 3500 - 6500 System Configuration Guidelines (continued)

How to Install Devices (continued)

Combining both side-cooled (Type B) and front-to-back cooled (Type A) devices.

- a. Top two (2) rack units must ALWAYS be left blank.
- b. Front door X9818A is required (for EMI) if mounting more than two (2) A5x00 into cabinet.
- c. For A5x00 (configurations requiring hubs), allocate 2 rack units for each hub tray.
- d. Cabinet must maintain 2" clearance between next cabinet or wall.
- e. An air baffle (9660a), which occupies 1U, must be mounted directly above the Sun Enterprise E4500 server.
- f. If A5x00 is combined with Sun Enterprise E4500 server, a second air baffle (9660a) is required to separate E4500 server from the A5x00. For specific placement of the second air baffle, please see Rackmount Placement Matrix.
- g. A5x00s should be loaded in the rack from bottom to top without extra empty space between units.
- h. If only D1000s are combined with Sun Enterprise E4500 server, D1000s should be loaded in the rack from the E4500 server to the bottom of the rack. So the first D1000 should be directly underneath the E4500 server. Then put the second D1000 under the first D1000.
- i. With five (5) or more D1000s combined with E4500 server, the first four D1000s should be loaded according to above rule (rule h), the fifth D1000 should be loaded above the air baffle which is above the E4500 server. The sixth D1000 should be above the fifth D1000.
- j. When A5x00s and D1000s are combined with E4500 server, follow placement rule for A5x00 (rule g), and placement rule for D1000 (rule h). For specific placement of the mixed configuration, please see Rackmount Placement Matrix.
- k. The Sun Enterprise E4500 server must have board slot number seven (7) populated with any one of the following:
 - CPU/memory board (any Sun Enterprise 3X00-6X00 CPU/memory board)
 - PCI I/O board (any Sun Enterprise 3X00-6X00 PCI I/O board)
 - Disk Board (any Sun Enterprise 4X00-6X00 disk board)
 - filler panel

The slot cannot be populated with an SBus I/O board or Graphics I/O board (this applies to all Sun Enterprise 3X00-6X00 Sbus/Graphics I/O boards), and it cannot be left empty.

Note: Configurations that do not follow the guidelines above are NOT supported and could cause reduced performance or permanent damage to the devices.

Enterprise 3500 - 6500 System Configuration Guidelines

(continued)

Sun StorEdge A5X00 Options - Enterprise 5500 and 6500

- In order to connect to a Sun StorEdge A5X00 you must order the appropriate number of GBIC modules (X)6731A to populate the empty FC-AL sockets on either a SBus or Graphics I/O Board or SBus host adapter. Ensure that one GBIC module is provided per FC-AL loop.
- A maximum of four StorEdge A5X00's and one hub tray can be installed in the Enterprise 6500 cabinet. The new E6501/E6502 cabinet has an enhanced top Bezel which can accommodate an A5X00 array above the card cage, whereas the original E6500 cabinet cannot. Therefore the maximum number of StorEdge A5X00's supported in the original E6500 cabinet is only three.
- A maximum of five StorEdge A5X00's and one hub tray can be installed in the Enterprise 5500 cabinet. The new E5501/E5502 cabinet has an enhanced top Bezel which can accommodate an A5X00 array above the card cage, whereas the original E5500 cabinet cannot. Therefore the maximum number of StorEdge A5X00's supported in the original E5500 cabinet is only four.
- An Air Baffle (9622A) is required with two A5X00's in a 6500 system cabinet (below the card cage) or three A5X00's in a 5500 system cabinet (below the card cage).
- An A5X00 Screen Door (9623A) is required when installing two or more A5X00's in a 5500 or 6500 system cabinet.

Rules:

- Only one A5X00 per Enterprise 5000 and 6000 system cabinet.
- Maximum of 4 x A5000 or A5100 Arrays per FC-AL Loop or Hub.
- Maximum of 3 x A5200 Arrays per FC-AL Loop or Hub.
- A5X00 arrays cannot be installed above the card cage in the Enterprise 5500 or 6500 unless the area below the card cage is completely occupied by A5X00 arrays.

Recommendations:

- It is recommended that no more than 2 FC-AL Loops be connected to an FC-AL SBus Host Adapter.
- For best redundancy, configure two Host Adapters on separate I/O boards providing dual loops to all disk drives.
- Configure no more than 2 Sun StorEdge A5X00's per SBus channel.

Sun StorEdge D1000 Options

- A maximum of six StorEdge D1000's can be installed in a Enterprise 5500 cabinet. The new E5501 and E5502 cabinet has an enhanced top Bezel which can accommodate a D1000 disk tray above the card cage, whereas the original E5500 cabinet cannot. Therefore the maximum number of StorEdge D1000's supported in the original E5500 cabinet is only five.
- A maximum of five StorEdge D1000's can be installed in a Enterprise 6500 cabinet. The new E6501 and E6502 cabinet has an enhanced top Bezel which can accommodate a D1000 disk tray above the card cage, whereas the original E6500 cabinet cannot. Therefore the maximum number of StorEdge D1000's supported in the original E6500 cabinet is only four.
- A second power sequencer (9620A) and mounting bracket (9626A) are required with five D1000's in an Enterprise 5500 and 6500 cabinets.

Disk Trays

- A maximum of six StorEdge RSM Disk Trays can be installed in a Enterprise 6500 system cabinet and seven trays in a Enterprise 5500 system cabinet. (Refers to the new E5501/E5502 and E6501/E6502 cabinets.)
- A DWIS/S Host Adapter (1062A) is required for StorEdge RSM Disk Trays.
- StorEdge RSM Disk Trays cannot be daisy-chained.

Interfaces and Host Adapters (Enterprise 5500 and 6500)

- A DWIS/S card (1062A) is required for the StorEdge RSM Disk Tray and the StorEdge Library Model 8/400. StorEdge RSM Disk Trays can not be daisy-chained.
- A 68pin SCSI Connector is required per every StorEdge Library. This can be provided with the SWIS/S card (1063A) or SunSwift card (1018A).

Enterprise 3500 - 6500 System Configuration Guidelines

(continued)

Caster Base - Enterprise 4500 only

- The Caster Base for the Enterprise 4500 (X952A) supports one Enterprise 4500 and up to two peripheral enclosures (StorEdge Library and SPARCstorage Array Model 100) on top. A maximum of one StorEdge Library is supported and it must be the top most enclosure. One Locking Module (X953A) must be ordered for each enclosure that is stacked on top of the Enterprise 4500. A maximum of one Enterprise 4000 is supported with the Caster Base.

Locking Module - Enterprise 4500 only

- The Locking Module for the Enterprise 4500 (X953A) is used to stack one enclosure on top of the Enterprise 4500. This second enclosure can either be another Enterprise 4500 or StorEdge Library.

Floor Bracket - Enterprise 3500 only

- The Enterprise 3500 Floor Bracket (X968A) consists of two restrainers that attach the Enterprise 3500 to the floor. This helps prevent the system from shifting on the floor.
- Enterprise 5500 and 6500: The Enterprise Cabinet Floor Bracket (X9602A) attach the Enterprise Cabinet to the floor. This helps prevent the system from shifting on the floor.

Power Cord

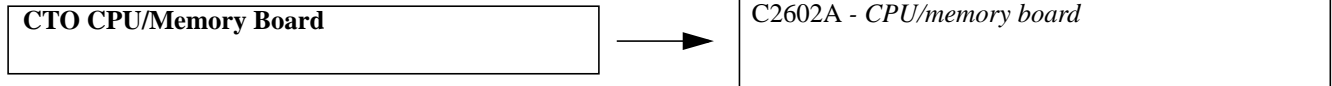
- One required per every System or Enterprise Expansion Cabinet.
- U.S. and International Versions available.

Enterprise 3500-6500 CTO CPU/Memory Board Flowchart

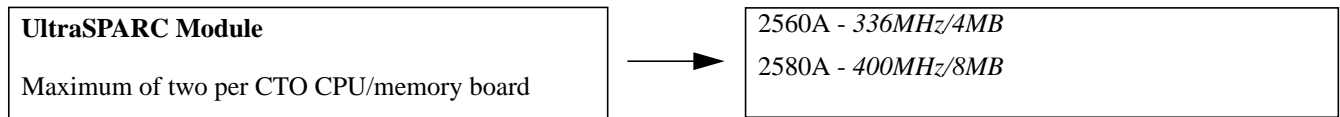
Each step represents a **required/recommended** line item on a Sales Order

Note: CTO CPU/Memory Boards should be ordered only when Power Express System Building Block configurations do not satisfy customer requirements. See details later in this section.

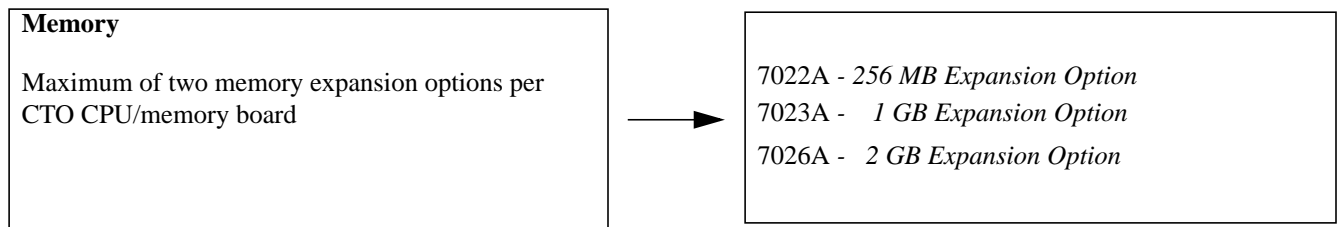
Step 1 - required



Step 2 - optional *



Step 3 - optional *



* Each CTO CPU/memory board must contain at least one configured UltraSPARC module or one Memory expansion option. If an empty standalone CPU/memory board is desired, order the existing X2602A.

Enterprise 3500-6500 Configure-to-Order CPU/Memory Boards

General Comments

- CTO CPU/Memory Boards should be ordered only when Power Express System Building Block configurations do not satisfy customer requirements. See details later in this section.
- The Configure-to-Order (CTO) CPU/memory board option (C2602A) allows Enterprise 3X00-6X00 customers to expand their existing systems by purchasing factory-configured and tested add-on boards. The controlled assembly and test process reduces the risk of failures. No new hardware or software is required with this option.
- The rules for CTO CPU/memory boards are identical to those for CPU/memory boards that are factory-configured in the Enterprise 3500-6500 server systems today:
 - All currently supported combinations of CPUs and/or memory for CPU/memory boards that are factory-configured in the Enterprise 3500-6500 servers today are also supported on the CTO boards. This includes the ability to order:
 - CTO CPU/memory board with one or two CPUs and no memory options
 - CTO CPU/memory board with one or two memory options and no CPUs
 - As with the existing factory-configured CPU/memory boards, if two CPUs are installed on a single CTO CPU/memory board, both CPUs must be identical.
- The CTO CPU/memory board option can only be ordered if CPUs and/or memory are to be factory-configured on the board. Customers who wish to purchase empty standalone CPU/memory boards must order the X2602A.
- A maximum of 20 CTO CPU/memory boards is allowed per line item on a sales order.
- CTO I/O boards are not available for the Enterprise 3X00-6X00 servers.

Enterprise 3500 and 4500 Sample Configurations

Enterprise 3500 configuration with redundancy

<i>Quantity</i>	<i>Base System + Options Order Number</i>	<i>Description</i>
1	E3502-C84	Enterprise 3500 Server Base Package, Tower Enclosure, 5-slot Card Cage, one SunCD 32, three Power/Cooling Modules, two CPU/Memory Boards with four 400-MHz/8-MB UltraSPARC CPU modules pre-installed, two 1-GB memory options, one SBus I/O board, one FC-AL Interface Board, four GBIC Modules, two 2-meter FC-AL cables, four 18.2-GB 10,000 rpm FC-AL disk drives, Solaris Server License.
1	6213A	Internal 14-Gbyte 8mm Tape Drive
1	X311L	Power Cord Kit, U.S./Asia
<hr/> Enterprise 3500 with 4 UltraSPARC processors, 2-Gbyte main memory, Internal SunCD 32, 72.8-Gbytes internal disk dual-looped, Internal 8mm Tape Drive, redundant power for system.		

Enterprise 4500 configuration with redundancy

<i>Quantity</i>	<i>Base System + Options Order Number</i>	<i>Description</i>
1	E4502-C88	Enterprise 4500 Server Base Package, Standalone Enclosure, 8-slot Card Cage, one SunCD 32, four Power/Cooling Modules, four CPU/Memory Boards with eight 400-MHz/8-MB UltraSPARC CPU modules pre-installed, eight 1-GB memory options, two SBus I/O boards, Solaris Server License.
2	5163A	18.2-Gbyte Disk Board (two 9.1-Gbyte Fast/Wide SCSI Disk Drives)
1	6238A	Internal 20/40-Gbyte 8mm Tape Drive
1	SG-XARY520A-200G	200.2-Gbyte Sun StorEdge A5200 (22 x 9.1GB, 10000rpm FC-AL drives) with 2 meter Fibre Channel cable
2	6731A	100-Mbyte/s FC-AL GBIC Module
1	X311L	Power Cord Kit, U.S./Asia
<hr/> Enterprise 4500 with 8 UltraSPARC processors, 8-Gbytes main memory, Internal SunCD 32, 36.4-Gbytes internal disk, 200.2-Gbyte Sun StorEdge A5200, Internal 8mm Tape Drive, redundant SBus I/O Boards, redundant FC-AL SBus Host Adapters, redundant power for system boards, dual Disk Boards for system disks with individual SCSI Host Adapters		

Enterprise 3500 and 4500 Sample Configurations *(continued)*

Enterprise 4502-R configuration with redundancy

<i>Quantity</i>	<i>Base System + Options Order Number</i>	<i>Description</i>
1	E4502-R	Enterprise 4500 Server Base Package Rackmounted in 72" StorEdge Rack, one SunCD 32, two Power/Cooling Modules, two SBus I/O Boards, Solaris Server License. Configuration also includes fan tray.
2	2602A-P84A	Two EXX00 CPU/Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, four 1-GB memory options, one Power/Cooling Module, available as factory-configured option for EXX00 servers.
1	X9818A	Front door assembly for 72-inch StorEdge cabinet
2	9660A	One rack-unit air baffle for 72-inch StorEdge cabinet
2	SG-ARY551A-509GR5	509-Gbyte Sun StorEdge A5100 (14 x 36.4GB, 10000rpm FC-AL drives) with 2 meter Fibre Channel cable
1	VMS9S-260-R999	Sun StorEdge Volume Manager 2.6 for A5000s Media and documentation
4	6731A	100-Mbyte/s FC-AL GBIC Module
2	3858A	Power Cord Kit, U.S./Canada
<hr/> Rack-Mounted Enterprise 4500 with 8 UltraSPARC processors, 8-Gbytes main memory, Internal SunCD 32, 1019.2-Gbyte Sun StorEdge A5100, redundant SBus I/O Boards, redundant power for system boards		

Enterprise 5500 and 6500 Sample Configurations

Enterprise 5500 Configuration with Redundancy

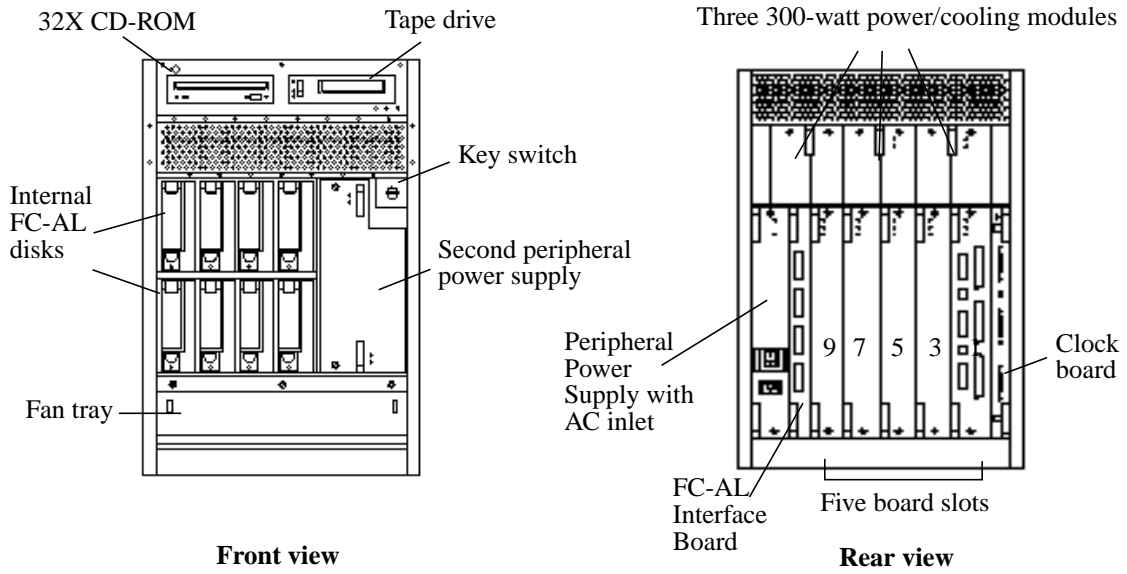
<i>Quantity</i>	<i>Base System + Options Order Number</i>	<i>Description</i>
1	E5502-C88	Enterprise 5500 Server Base Package, Data Center System Cabinet, 8-slot Card Cage, one SunCD 32, four Power/Cooling Modules, four CPU/Memory Boards with eight 400-MHz/8-MB UltraSPARC CPU modules pre-installed, eight 1-GB memory options, two SBus I/O boards, Solaris Server License.
2	SG-ARY522A-200GR4	200.2-Gbyte Sun StorEdge A5200 installed in system cabinet
4	6731A	100-Mbyte/s FC-AL GBIC Module
1	9622A	Air Baffle for StorEdge A5000 in Enterprise 5500 and 6500 System Cabinet
1	9623A	A5000 screen door for Enterprise 5500 and 6500 System Cabinet
2	6062AR4	35-70GB DLT7000 Tape Drive FlexiPack for use in FlexiPack removable Storage Tray
1	9640AR4	StorEdge FlexiPack Removable Storage Tray
1	1063A	SBus Single-Ended Fast/Wide Intelligent SCSI-2 Host Adapter (SWIS/S)
1	3800A	Power Cord, U.S. Version
<hr/> Enterprise 5500 with 8 400-MHz UltraSPARC Processors, 8-Gbytes of Memory, CD-ROM, 600.6-Gbyte Sun StorEdge A5200 in system cabinet, dual StorEdge DLT7000 Tape Drive FlexiPacks, redundant SBus I/O Boards, redundant power for the system boards		

Enterprise 6500 Configuration with Redundancy

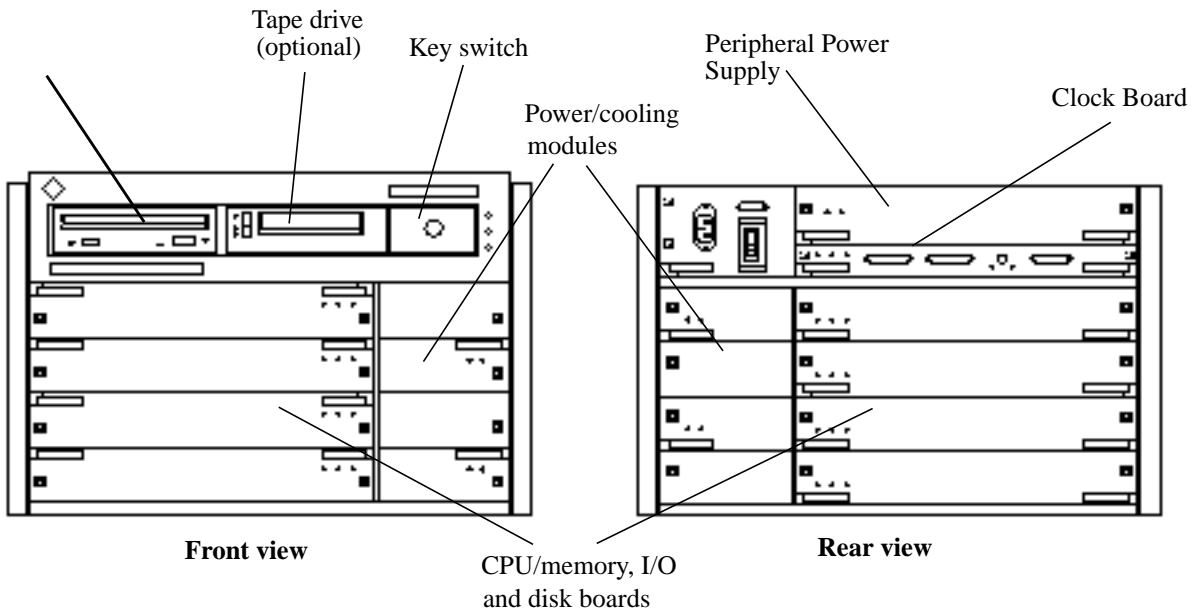
<i>Quantity</i>	<i>Base System + Options Order Number</i>	<i>Description</i>
1	E6502-C816	Enterprise 6500 Server Base Package, Data Center System Cabinet, 16-slot Card Cage, one SunCD 32, six Power/Cooling Modules, eight CPU/Memory Boards with sixteen 400-MHz/8-MB UltraSPARC CPU modules pre-installed, sixteen 1-GB memory options, two SBus I/O boards, Solaris Server License.
2	2612A	SBus I/O Board, two SBus Channels, three empty SBus slots, two empty 100-Mbyte/s FC-AL Sockets, one Fast/Wide SCSI Interface, one 10/100Mb/s Ethernet (Twisted-Pair or MII) Interface
1	6226AR4	400-Gbyte 8mm StorEdge Library, for the System Cabinet
1	1062A	SBus Differential StorEdge Fast/Wide Intelligent SCSI-2 Host Adapter (DWIS/S)
2	SG-ARY552A-509GR4	509-Gbyte Sun StorEdge A5100 installed in system cabinet
4	6731A	100-Mbyte/s FC-AL GBIC Module
1	9622A	Air Baffle for StorEdge A5000 in Enterprise 5500 and 6500 System Cabinet
1	9623A	A5000 screen door for Enterprise 5500 and 6500 System Cabinet
1	954A	Power/Cooling Module, 300W
1	3800A	Power Cord, U.S. Version
<hr/> Enterprise 6500 with 16 400-MHz UltraSPARC Processors, 16-Gbytes of Memory, CD-ROM, 1018-Gbyte Sun StorEdge A5100 in system cabinet, 400-Gbyte StorEdge Library, redundant FC-AL SBus Host Adapters, N+1 power		

Enterprise 3500 - 6500 Configuration Overview

Enterprise 3500 System Enclosure

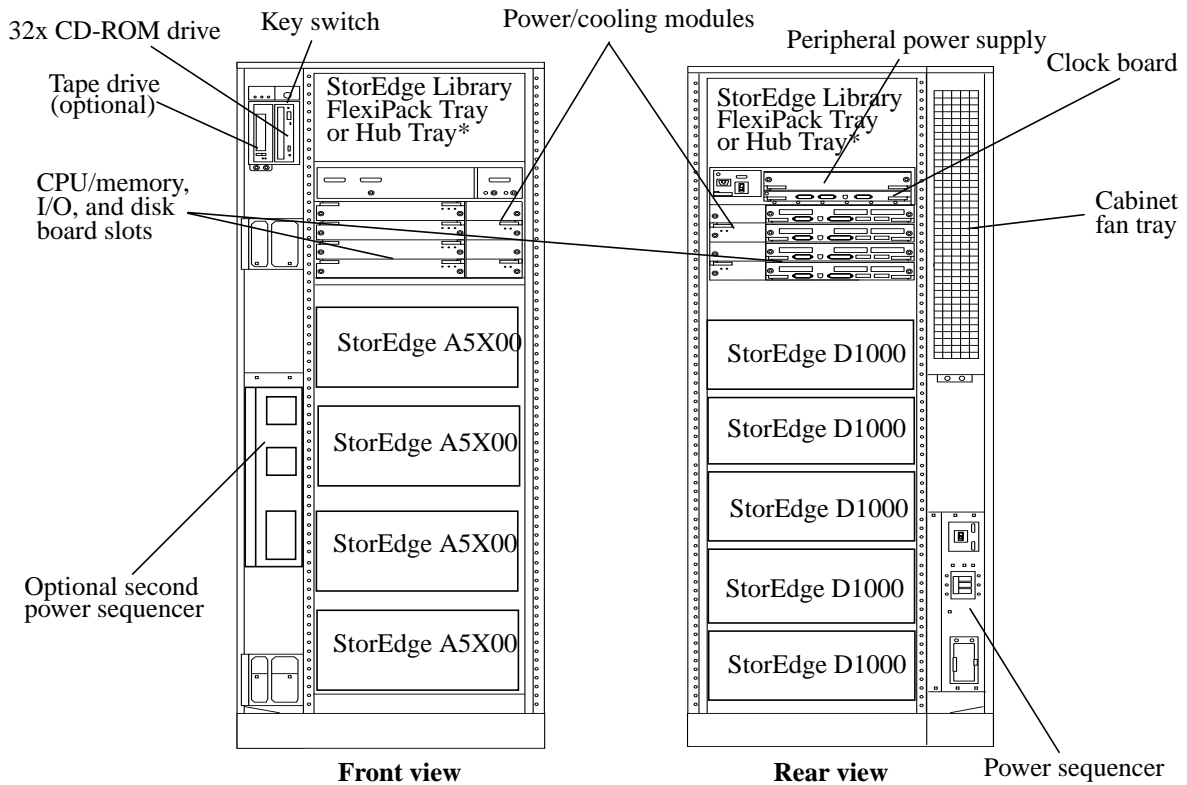


Enterprise 4500 System Enclosure

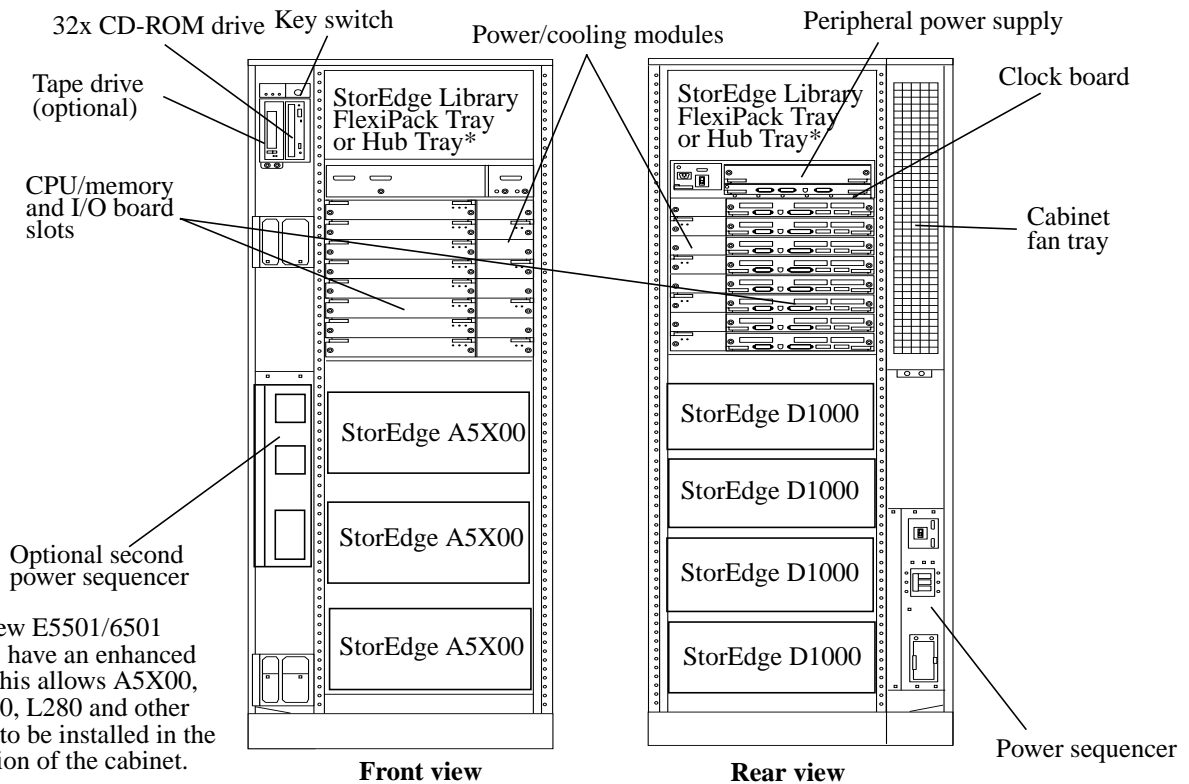


Enterprise 3500 - 6500 Configuration Overview *(continued)*

Enterprise 5500 System Cabinet



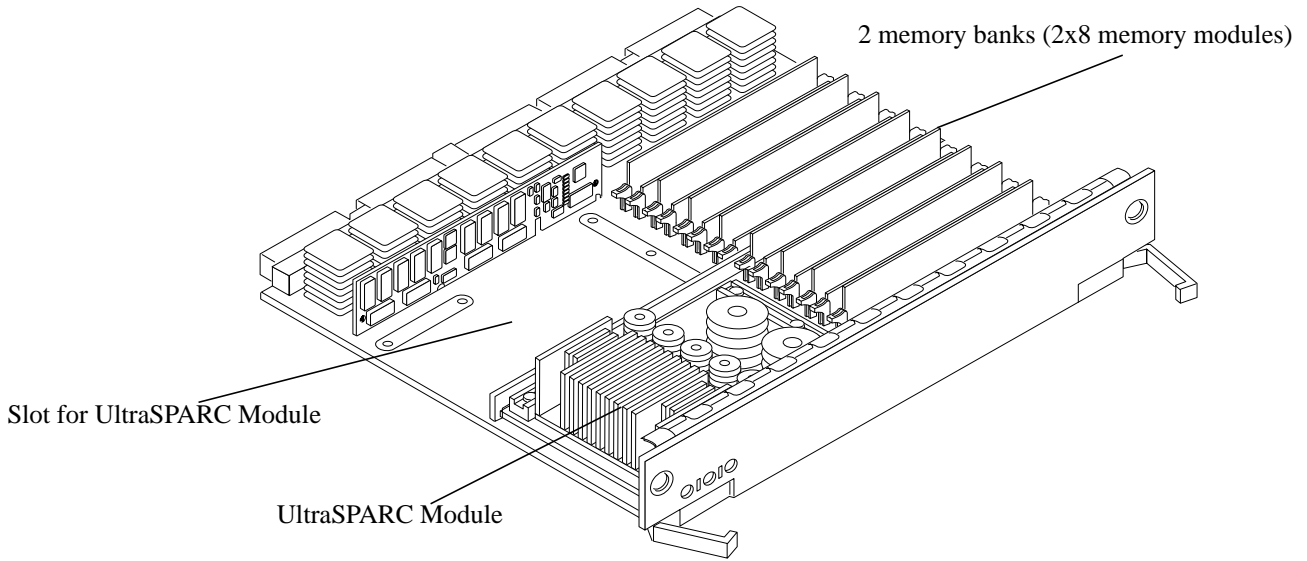
Enterprise 6500 System Cabinet



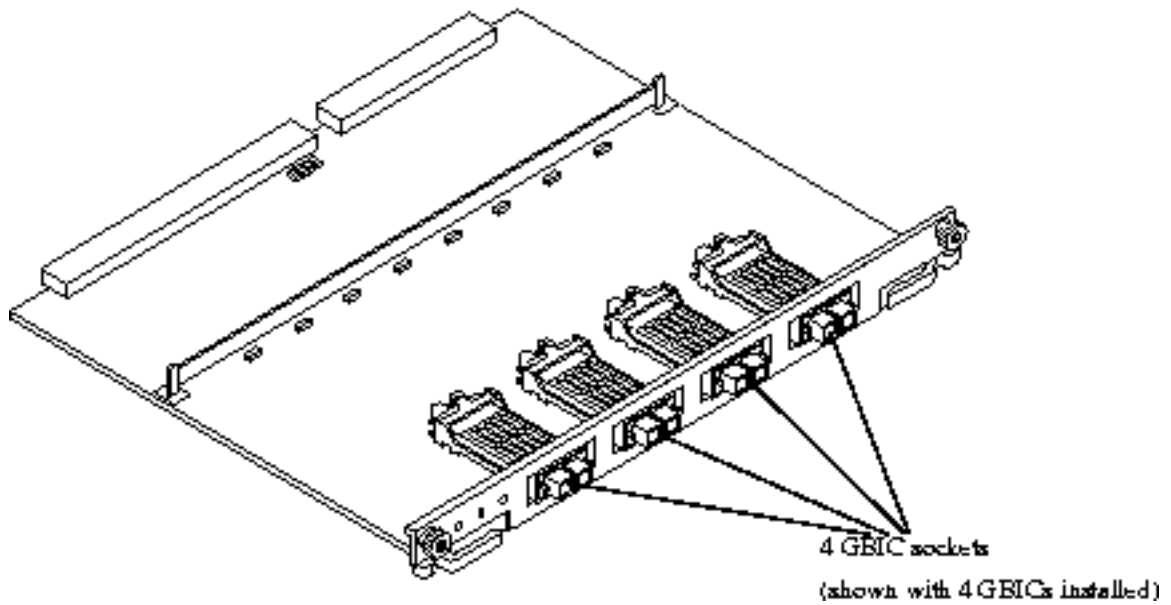
* The new E5501/6501 cabinets have an enhanced bezel. This allows A5X00, A/D1000, L280 and other devices to be installed in the top section of the cabinet.

Enterprise 3500 and 6500 Configuration Overview *(continued)*

CPU/Memory Board

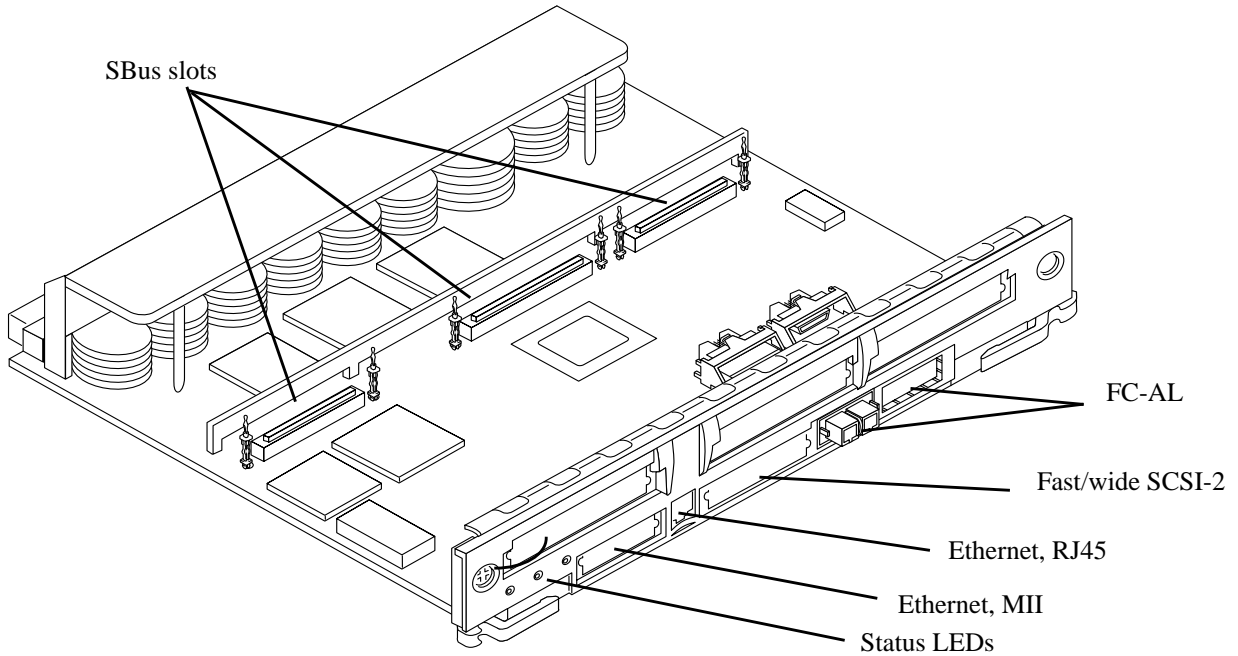


FC-AL Interface Board

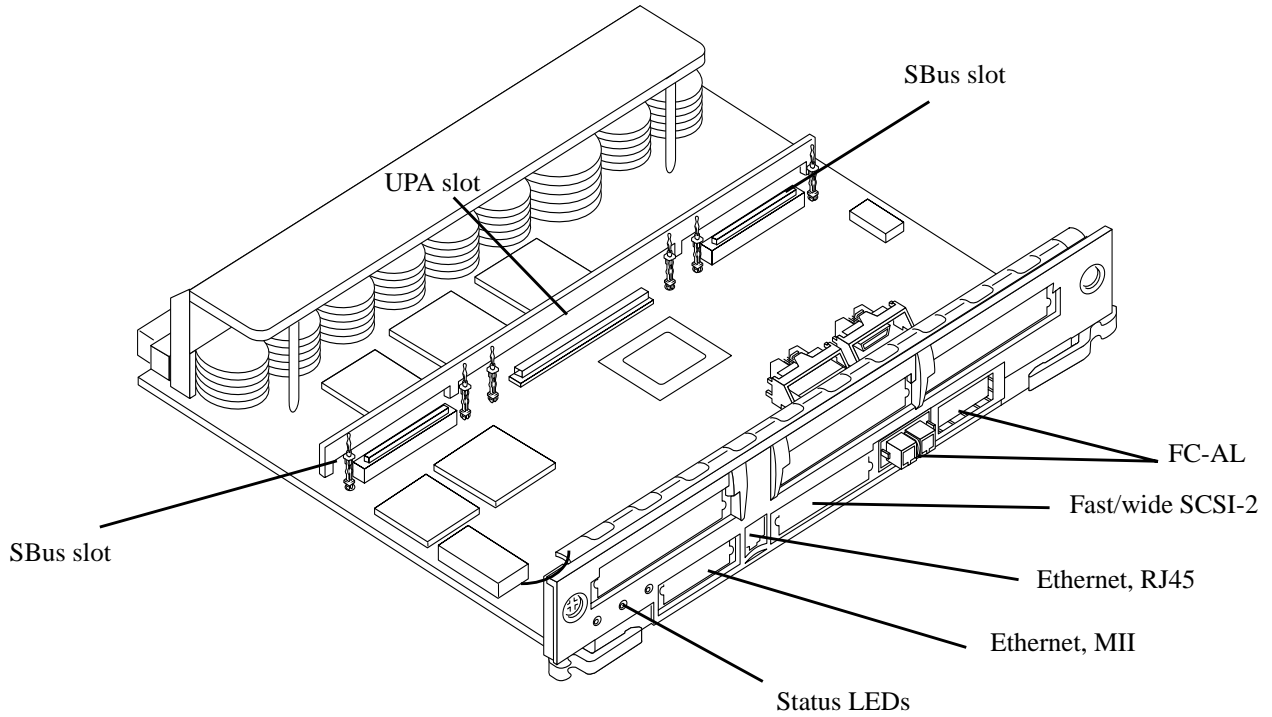


Enterprise 3500 - 6500 Configuration Overview *(continued)*

SBus I/O Board

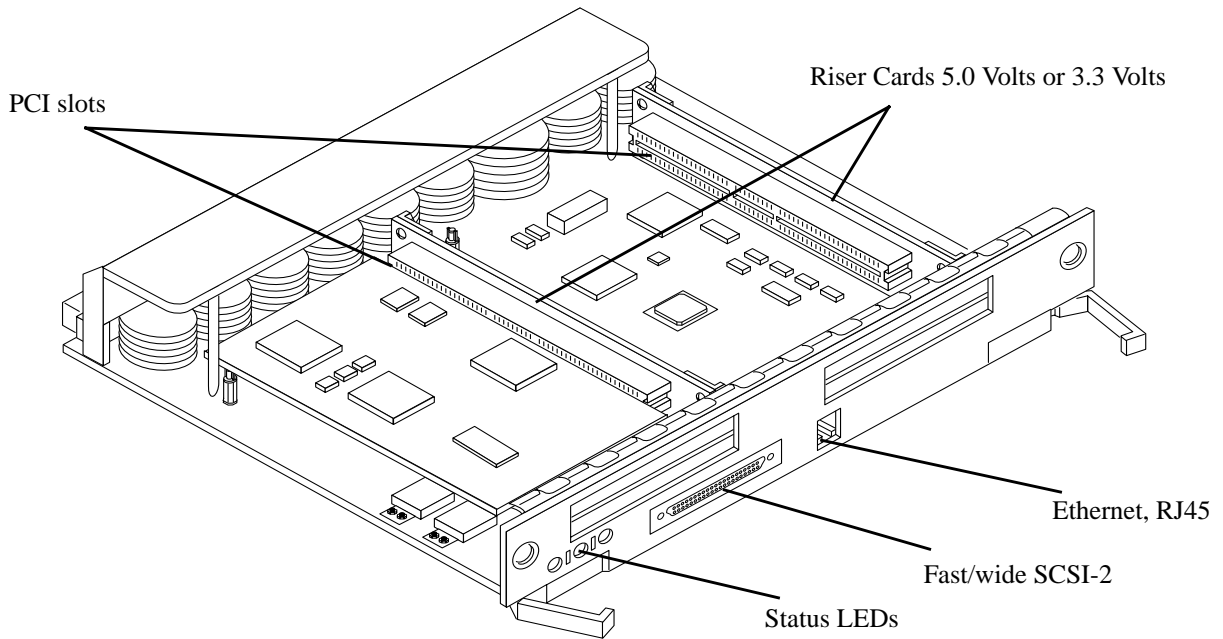


Graphics I/O Board

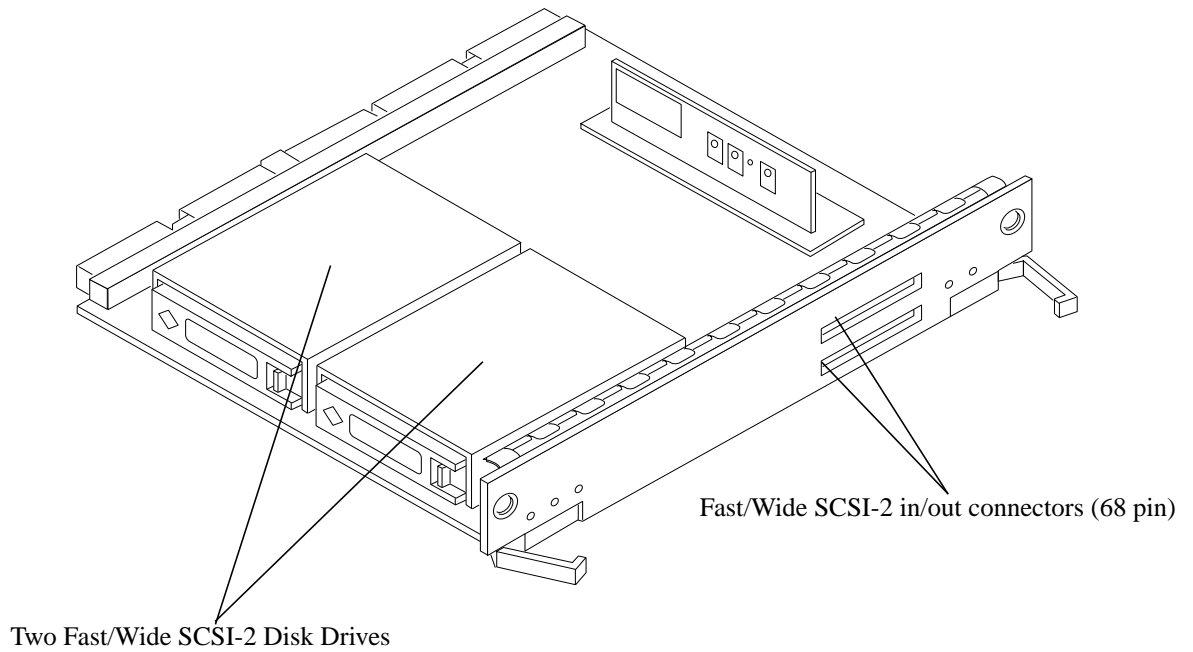


Enterprise 3500 - 6500 Configuration Overview *(continued)*

PCI I/O Board



Disk Board



Enterprise 3500 - 6500

Description	Order Number
Power Express Server Packages	
Enterprise 3500 Server Base Pkg, tower enclosure, one SunCD32, three Power/Cooling Modules, Second Peripheral Power Supply, two CPU/ Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, two 1-GB memory options, one SBus I/O board, one FC-AL Interface Board, four GBIC modules, two 2-meter FC-AL cables, four 18.2-GB 10,000 RPM FC-AL Disks, Solaris Server License (No additional factory-configured options allowed. Standard Configuration)	E3502-P84 ^{1,2}
Enterprise 4500 Server Base Package Standalone Enclosure, one SunCD32, four Power/Cooling Modules, four CPU/Memory Boards, eight 400-MHz/8-MB UltraSPARC Modules, eight 1-GB memory options, two SBus I/O boards, Solaris Server License (No additional factory-configured options allowed. Standard Configuration)	E4502-P88 ^{1,2}
Enterprise 5500 Server Base Package, Data Center System Cabinet, 8-slot Card Cage, one SunCD32, four Power/Cooling Modules, four CPU/Memory Boards, eight 400-MHz/8-MB UltraSPARC Modules, eight 1-GB memory options, two SBus I/O boards, Solaris Server License (No additional factory- configured options allowed. Standard Configuration)	E5502-P88 ^{1,2}
Enterprise 6500 Server Base Package, Data Center System Cabinet, 16-slot Card Cage, one SunCD32, six Power/Cooling Modules, eight CPU/Memory Boards, sixteen 400-MHz/8-MB UltraSPARC Modules, sixteen 1-GB memory options, two SBus I/O boards, Solaris Server License (No additional factory-configured options allowed. Standard Configuration)	E6502-P816 ^{1,2}

Note: These Server Packages CANNOT be factory-configured with additional options; power cord must be selected.

Footnotes

1. Requires Solaris 2.5.1 HW 11/97 or above, Solaris 2.6 HW 3/98 or above or Solaris 7.
2. Standard Configurations are Sun's recommended configurations.

Enterprise 3500 - 6500 *(continued)*

Description	Order Number
Factory-Configurable Server Packages	
Enterprise 3500 Server Base Pkg, tower enclosure, one SunCD32, three Power/Cooling Modules, Second Peripheral Power Supply, two CPU/ Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, two 1-GB memory options, one SBus I/O board, one FC-AL Interface Board, four GBIC modules, two 2-meter FC-AL cables, four 18.2-GB 10,000 RPM FC-AL Disks, Solaris Server License (Additional factory-configured options allowed. Standard Configuration)	E3502-C84 ^{1,2,3}
Enterprise 4500 Server Base Package Standalone Enclosure, one SunCD32, four Power/Cooling Modules, four CPU/Memory Boards, eight 400-MHz/8-MB UltraSPARC Modules, eight 1-GB memory options, two SBus I/O boards, Solaris Server License (Additional factory-configured options allowed. Standard Configuration)	E4502-C88 ^{1,2,3}
Enterprise 5500 Server Base Package, Data Center System Cabinet, 8-slot Card Cage, one SunCD32, four Power/Cooling Modules, four CPU/Memory Boards, eight 400-MHz/8-MB UltraSPARC Modules, eight 1-GB memory options, two SBus I/O boards, Solaris Server License (Additional factory- configured options allowed. Standard Configuration)	E5502-C88 ^{1,2,3}
Enterprise 6500 Server Base Package, Data Center System Cabinet, 16-slot Card Cage, one SunCD32, six Power/Cooling Modules, eight CPU/Memory Boards, sixteen 400-MHz/8-MB UltraSPARC Modules, sixteen 1-GB memory options, two SBus I/O boards, Solaris Server License (Additional factory-configured options allowed. Standard Configuration)	E6502-C816 ^{1,2,3}

Note: These Server Packages CAN be factory-configured with additional options. See flowchart in front of this section.

Footnotes

1. *Requires Solaris 2.5.1 HW 11/97 or above, Solaris 2.6 HW 3/98 or above or Solaris 7.*
2. *Only Factory-Configured Building Blocks can be used to add CPU/Memory Boards and CPU components to this package.*
3. *Standard Configurations are Sun's recommended configurations.*

Enterprise 3500 - 6500 (continued)

Description	Order Number
Base Packages	
Enterprise 3500 Server Base Pkg, tower enclosure, one SunCD32, two Power/Cooling Modules, one CPU/Memory Board, two 400-MHz/8-MB UltraSPARC Modules, one 1-GB memory option, one SBus I/O Board, Solaris Server License.	E3502-C82 ^{1,2,3}
Enterprise 3500 Server Base Pkg, tower enclosure, one SunCD32, two Power/Cooling Modules, one CPU/Memory Board, two 400-MHz/8-MB UltraSPARC Modules, one 2-GB memory option, one SBus I/O Board, Solaris Server License.	E3502-C83 ^{1,2,3}
Enterprise 4500 Server Base Package Standalone Enclosure, one SunCD 32, two Power/Cooling Modules, two SBus I/O boards, Solaris Server License	E4502 ^{1,2,3,5}
Enterprise 5500 Server Base Package System Cabinet, one SunCD 32, two Power/Cooling Modules, 2 SBus I/O Boards, Solaris Server License.	E5502 ^{1,3,5}
Enterprise 6500 Server Base Package System Cabinet, one SunCD 32, two Power/Cooling Modules, two SBus I/O Boards, Solaris Server License.	E6502 ^{1,3,5}
Enterprise 3500 Server Base Pkg, tower enclosure, one SunCD32, one Power/Cooling Module, one CPU/Memory Board, two 336-MHz/4-MB UltraSPARC Modules, Solaris Server License	E3501-C62 ^{1,2,4}
Enterprise 3500 Server Base Pkg, tower enclosure, one SunCD32, one Power/Cooling Module, one CPU/Memory Board, two 400-MHz/8-MB UltraSPARC Modules, Solaris Server License	E3501-C82 ^{1,2,4}
Enterprise 4500 Server Base Package Standalone Enclosure, one SunCD 32, two Power/Cooling Modules, Solaris Server License.	E4501 ^{1,2,4}
Enterprise 5500 Server Base Package System Cabinet, one SunCD 32, two Power/Cooling Modules, Solaris Server License.	E5501 ^{1,4}
Enterprise 6500 Server Base Package System Cabinet, one SunCD 32, two Power/Cooling Modules, Solaris Server License.	E6501 ^{1,4}

Note: The Base Packages MUST be configured with additional options (optional for E3502-C82). See flowchart in front of this section.

Footnotes

1. Requires Solaris 2.5.1 HW 11/97 or above, Solaris 2.6 HW 3/98 or above or Solaris 7.
2. Order E3502V5-C82, E3501V5-C62, E3501V5-C82, E4502V5, or E4501V5 for Denmark only. E4502V5 and E4501V5 require Danish Enterprise 4500 Power Cord (X389L).
3. Only Factory-Configured Building Blocks can be used to add CPU/Memory Boards and CPU components to this package.
4. This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.
5. Standard Configurations are Sun's recommended configurations.

Enterprise 3500 - 6500 *(continued)*

Description	Order Number
Power Express System Building Blocks	
Two EXX00 CPU/Memory Boards, four factory-configured 400-MHz/8-MB UltraSPARC modules, four factory-configured 1-GB memory options, one Power/Cooling Module, (No changes to CPU/Memory Board configuration allowed). OEM Ready - 02/00	X2602A-P84A ¹
Exx00 CPU/Memory Board, two factory-configured 400-MHz/8-MB UltraSPARC modules, one factory-configured 1-GB memory option, one empty memory bank (No additional factory-configured options allowed) OEM Ready - 02/00	X2602A-P82 ¹
EXX00 CPU/Memory Board, two factory-configured 336-MHz/4-MB UltraSPARC modules, one factory-configured 1-GB memory option, one empty memory bank (No additional factory-configured options allowed) OEM Ready - 02/00	X2602A-P62 ¹
Exx00 CPU/Memory Board, two factory-configured 400-MHz/8-MB UltraSPARC modules, one factory-configured 2-GB memory option, one empty memory bank (No additional factory-configured options allowed) OEM Ready - 03/00	X2602A-P83 ¹
Two EXX00 CPU/Memory Boards, four factory-configured 400-MHz/8-MB UltraSPARC modules, two factory-configured 2-GB memory options, one Power/Cooling Module, (No changes to CPU/Memory Board configuration allowed). OEM Ready - 03/00	X2602A-P85A ¹
<i>Note: 2602A-P84B and 2602A-P85B are not available as standalone options (x-option). They are intended for use only for factory-configured systems that cannot accommodate the additional Power/Cooling Module included in part number 2602A-P84A and 2602A-P85A.</i>	

Footnote

1. This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.

Enterprise 3500 - 6500 *(continued)*

Description	Order Number
Factory-Configured System Building Blocks	
Two EXX00 CPU/Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, four 1-GB memory options, one Power/Cooling Module, available as factory-configured option for EXX00 servers. OEM Ready - 02/00	2602A-P84A ^{1,2}
Two EXX00 CPU/Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, four 1-GB memory options, available as factory-configured option for EXX00 servers. OEM Ready - 02/00	2602A-P84B ^{1,2}
Two EXX00 CPU/Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, two 2-GB memory options, one Power/Cooling Module, available as factory-configured option for EXX00 servers. OEM Ready - 03/00	2602A-P85A ^{1,2}
Two EXX00 CPU/Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, two 2-GB memory options, available as factory-configured option for EXX00 servers. OEM Ready - 03/00	2602A-P85B ^{1,2}
EXX00 CPU/Memory Board, two 400-MHz/8-MB UltraSPARC Modules, one 1-GB Memory option, available as factory-configured option for EXX00 servers. OEM Ready - 02/00	2602A-P82 ^{1,2}
EXX00 CPU/Memory Board, two 400-MHz/8-MB UltraSPARC Modules, one 2-GB Memory option, available as factory-configured option for EXX00 servers. OEM Ready - 03/00	2602A-P83 ^{1,2}
EXX00 CPU/Memory Board, two 336-MHz/4-MB UltraSPARC Modules, one 1-GB Memory option, available as factory-configured option for EXX00 servers. OEM Ready - 02/00	2602A-P62 ^{1,2}
<i>Note: 2602A-P84B and 2602A-P85B are not available as standalone options (x-option). They are intended for use only for factory-configured systems that cannot accommodate the additional Power/Cooling Module included in part number 2602A-P84A and 2602A-P85A.</i>	

Footnotes

1. This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.
2. These options may not be ordered as Factory-Configured options in the same system as an empty CPU/Memory Board (2602A).

Enterprise 3500 - 6500 (continued)

Description	Order Number
UltraSPARC Modules	
250-MHz UltraSPARC Module with 4-Mbyte of external cache. OEM ready - 02/97	X2550A ^{1,4}
336/333-MHZ UltraSPARC Module with 4-Mbyte of external cache.	2560A ^{2,4}
400-MHZ UltraSPARC Module with 8-Mbyte of external cache. OEM ready - 05/99	2580A ^{2,4}
<i>Notes</i>	
<ul style="list-style-type: none"> Mixing of 167-MHz, 250-MHz, 336-MHz, and 400-MHz modules in a single system is not supported. Mixing same speed modules with different external cache sizes on a single CPU/Memory Board is supported, except for 167-MHz modules. When using 167-MHz modules it is required that both modules on a single board have the same external cache size. Individual UltraSPARC Modules may only be ordered as factory-configured options for EX501 base packages and CTO CPU/Memory Boards. Only Factory-Configured System Building Blocks can be used to add CPU and CPU/Memory Board components to EX502 Factory-Configurable Server Packages and EX502 Base Packages. 	

Memory

Must choose at least one when ordering EX501 Base Packages

256-Mbyte Memory Expansion (8 x 32MB memory modules) OEM ready - 05/96	7022A ^{2,4}
1-Gbyte Memory Expansion (8 x 128MB memory modules) OEM ready - 05/96	7023A ^{2,4}
2-Gbyte Memory Expansion (8 x 256MB memory modules) OEM ready - 03/00	7026A ²

Notes

- When ordering Factory-Configured System Building Blocks, memory option 7022A is not available as a factory-configured option--memory options 7023A and 7026A may be factory-configured if the chosen Factory-Configured System Building Blocks have available memory banks.
- One Memory Expansion occupies one memory bank. One memory bank consists of eight memory modules.
- Mixing memory options is supported as long as all memory modules in one memory bank are the same.

CPU/Memory Board

Exx00 CPU/memory Board, two empty CPU slots, two empty memory banks OEM ready - 04/98	2602A ^{2,3,4}
E3X00-6X00 Configure-to-order CPU/memory Board, two empty CPU slots, two empty memory banks OEM ready - 10/99	C2602A ⁵

Notes

- Individual CPU/Memory Boards may only be ordered as factory-configured options for EX501 base packages and CTO CPU/Memory Boards. Factory-Configured System Building Blocks may not be ordered in conjunction with the CPU/Memory/Board (2602A).le Server Packages and EX502 Base Packages.
- One CPU/Memory Board supports up to two Memory Expansion Options and up to two UltraSPARC Modules.

Footnotes

- Not orderable as a factory configured option.
- Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
- The total number of slots available for CPU/Memory and I/O Boards is five in Enterprise 3500 (one CPU/Memory board is included in base package). The total number of slots available for CPU/Memory, I/O and Disk Boards is eight in Enterprise 4500 and 5500, and sixteen in the Enterprise 6500.
- This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.
- Please see the CTO section for details. See page 4-91.

Enterprise 3500 - 6500 Options

Description	Order Number
I/O Boards	
Must choose at least one when ordering EX501 Base Packages	
EXX00 SBus I/O Board w/ three empty SBus slots, two empty 100 MB/sec FC-AL sockets, one 10/100 MB/sec Ethernet (Twisted pair or MII) Interface. OEM ready - 05/98	2612A ^{1,2,5}
EXX00 Graphics I/O Board w/ two empty SBus slots, two empty 100MB/sec FC-AL sockets, one empty UPA slot, one Fast/Wide SCSI Interface, one 10/100 MB/sec Ethernet (Twisted-pair or MII) Interface OEM ready - 05/98	2622A ^{1,2,5}
Exx00 PCI I/O Board w/ two empty 66 Mhz short PCI slots, on-board 10/100 Mbit Fast Ethernet and Fast/Wide SCSI, two 5.0 volt riser cards pre-installed, incl. 2 additional 3.3 volt riser cards Factory installed option OEM ready - 05/98	2632A ^{1,2,5}
FC-AL Interface Board - E3500 only	
Optional FC-AL Interface Board, includes two GBIC modules, one 2 meter FC-AL cable -Factory installed option OEM ready - 05/98	2652A ^{3,5}
Power Options	
Enterprise Power/Cooling Module, 300W	954A ¹
Second Peripheral Power Supply, 195W OEM ready - 05/98	9689A ^{1,3,5}
Internal Disk Options	
Enterprise 3500 only:	
FC-AL hot swap 9.1GB 10000rpm 1" disk drive for A5200	6710A ^{1,3}
FC-AL hot swap 18.2GB 10k rpm 1" disk drive	6720A ³
Enterprise 4500-6500 only:	
18.2-Gbyte (2 x 9.1GB, 7200 rpm UltraSCSI disk drives) Disk Board	5163A ^{1,4}
2-meter 68-pin External SCSI Cable OEM ready - 05/96	902A ^{1,5}
StorEdge D1000 installed into E4502-R Cabinet	
Configurable in Exp. rack in fact.: (3 trays minimum in rack) 36-Gbyte (4 x 9.1-Gbyte 10K RPM disks) Sun StorEdge D1000 for rack mounting in the StorEdge Expansion Rack w/1 Interface Card, 2 Power supplies, 2 fantrays (4 fans), 4 Differential UltraSCSI to host ports	SG-ARY147A-36GR5
Rack mountable 72-GByte D1000 (4 x 18GB 10,000 RPM drives). It includes redundant power supplies, fan trays and drives. This is configured into the StorEdge Expansion Rack.	SG-ARY154A-72GR5
145-Gbyte(4x36.4-Gbyte, 10K RPM disks) Sun StorEdge D1000 for rack mounting in the StorEdge or Enterprise Expansion Racks w/1Interface Card, 2 Power supplies 2 fantrays (4 fans), 4 Differential UltraSCSI to host ports	SG-ARY164A-145GR5

General Note

- Refer to the Options section for additional system options. See page 6-99.

Footnotes

1. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
2. The total number of slots available for CPU/Memory and I/O Boards is five in Enterprise 3500 (one CPU/Memory board is included in base package). The total number of slots available for CPU/Memory, I/O and Disk Boards is eight in Enterprise 4500 and 5500, and sixteen in the Enterprise 6500.
3. Supported on Enterprise 3500 only.
4. Supported on Enterprise 4500 and 6500 only.
5. This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.

Enterprise 3500 - 6500 Options *(continued)*

Description	Order Number
Internal Disk Options <i>(continued)</i>	
StorEdge D1000 installed into 5500 or 6500 System Cabinet	
Configurable w/ servers in factory: 36-Gbyte (4 x 9.1-Gbyte 10K RPM disks) Sun StorEdge D1000 for rack mounting in the StorEdge or Enterprise Expansion Racks w/1 Interface Card, 2 Power supplies, 2 fantrays (4fans), 4 Differential UltraSCSI to host ports	SG-ARY147A-36GR 4 ¹
Server-Rack Mount. 72-GByte D1000 (4 x 18GB 10,000 RPM disks), w/1 Interface Card, 2 Power supplies, 2 fantrays, factory configured in a system cabinet.	SG-ARY154A-72GR 4 ¹
145-Gbyte (4 X 36.4-Gbyte, 10K RPM disks) Sun StorEdge D1000 for rack mounting in the StorEdge or Enterprise Expansion Racks w/1Interface Card, 2 Power supplies, 2 fantrays (4 fans), 4 Differential UltraSCSI to host ports	SG-ARY164A-145G R4 ¹
<i>Note: Additional internal disk and tape options can be found in the Disk Array and Options sections with ordering information.</i>	
StorEdge A5X00 installed into E4502-R Cabinet	
200.2-Gbyte Sun StorEdge A5200 (22 x 9.1GB, 10,000rpm low profile FC-AL drives) 3 power supplies, two interface boards (one GBIC ea) two 2 meter fiber optic cables. Rackmounting kit installed for Sun StorEdge 72-inch expansion cabinet.	SG-ARY521A-200G R5
400-Gbyte Sun StorEdge A5200 Rackmountable Array (22 x 18.2GB, 10,000rpm low profile FC-AL drives) includes three power supplies, two interface boards (one GBIC ea), and two 2 meter fiber optic cables. Rackmounting kit installed for Factory Configuring into StorEdge 72" expansion cabinet.	SG-ARY541A-400G R5
509.6-Gbyte Sun StorEdge A5100 Rackmountable Array (14 x 36.4-GB, 10000rpm half-height FC-AL drives) includes 3 power supplies, 2 interface boards (1 GBIC each), two 2-meter fiber optic cables. Rackmounting kit installed for Factory Configuring into 72" Sun StorEdge expansion cabinet.	SG-ARY551A-509G R5

General Note

- Refer to the Options section for additional system options. See page 6-99.

Footnote

1. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.

Enterprise 3500 - 6500 Options *(continued)*

Description	Order Number
Internal Disk Options <i>(continued)</i>	
StorEdge A5X00 installed into 5500 or 6500 System Cabinet	
200.2-Gbyte Sun StorEdge A5200 (22 x 9.1GB, 10000rpm low profile FC-AL drives) 3 power supplies, 2 interface boards (1 GBIC each), and two 2 meter fiber optic cables with rackmounting kit installed for factory configuration into Enterprise System Cabinet	SG-ARY522A-200G R4 ¹
509.6-Gbyte Sun StorEdge A5100 Rackmountable Array (14 x 36.4-GB, 10000rpm half-height FC-AL drives) includes 3 power supplies, 2 interface boards (1 GBIC each), and two 2-meter fiber optic cables. Rackmounting kit installed for Factory Configured mounting in 68" Enterprise system cabinet.	SG-ARY552A-509G R4 ¹
400-Gbyte Sun StorEdge A5200 Rackmountable Array (22 x 18.2-GB, 10000rpm low profile FC-AL drives) includes 3 power supplies, two interface boards (1 GBIC each), and two 2 meter fiber optic cables. Rackmounting kit installed for for factory configuring into 68" Enterprise System Cabinet.	SG-ARY542A-400G R4 ¹
<i>Note: Additional internal disk and tape options can be found in the Disk Array and Options sections with ordering information.</i>	

General Note

- Refer to the Options section for additional system options. See page 6-99.

Footnote

1. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.

Enterprise 3500 - 6500 Options *(continued)*

Description	Order Number
Preinstalled Boot Image	
Preinstalled JumpStart Boot Image	JST-ENT ²
Internal Tape Options	
Ultra Enterprise X000 systems 12-24GB 4mm DSS-3 internal Tape Drive	6283A ¹
20-40 Gbyte 8mm internal Tape Drive for Ex500	6238A ¹
7-Gbyte 8mm Internal Tape Drive	6213A ¹
Tape Expansion Options for the StorEdge FlexiPack removable Storage Tray	
StorEdge FlexiPack Removable Storage Tray contains all necessary bracketing for attaching the tray to an Ultra Enterprise SYSTEM Rack	9640A ^{1,3}
35-70GB DLT 7000 Tape Drive FlexiPack for use in FlexiPack removable Storage Tray	6062A ^{1,3}
StorEdge Library	
400-Gbyte 8mm StorEdge Library Model L400, Rack-mountable Unit in Dark-Grey color with Tape Drives	6226AR4 ¹
External Storage	
<ul style="list-style-type: none"> External disk and tape options can be found in the Disk Array and Options sections with ordering information. 	
Interfaces and Host Adapters	
FC-AL 100MB/sec Dual Channel SBus host adapter w/1 GBIC module	6730A ¹
FC-AL 100MB/sec shortwave GBIC module factory installed option	6731A ¹
2-meter Fibre Optic Cable	973A ¹
SBus Differential Fast/Wide Intelligent SCSI-2 Host Adapter (DWIS/S)	1062A ¹
SBus Ultra Differential F/W Intelligent SCSI Host Adapter.	1065A ¹
SBus Single-Ended Fast/Wide Intelligent SCSI-2 Host Adapter (SWIS/S)	1063A ¹
SunSwift 100BaseT fast/wide SCSI SBus Adapter	1018A ¹
General Note	
<ul style="list-style-type: none"> Refer to the Options section for additional system options. See page 6-99. 	

Footnotes

1. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
2. Supported on Enterprise 3500 only.
3. This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.

Enterprise 3500 - 6500 Options *(continued)*

Description	Order Number
Packaging Options	
Enterprise Cabinet Floor Brackets for 56" and 68" System and Expansion Cabinet. OEM ready - 09/96	X9602A ⁴
Second Power Sequencer for 68-inch Enterprise System and Expansion Cabinet OEM ready - 05/98	9620A ^{1,4}
Rack mount rails for E4x00 server in 72" StorEdge Rack	X9659A ³
Rack-Mount Rails for Enterprise 4X00 servers in 68" Enterprise Expansion Cabinet	X9621A ³
A5000 screen door for 68-inch Enterprise Expansion Cabinet	X9624A
9" Air Baffle for StorEdge A5000 in Enterprise 5500 and 6500 System Cabinet and 68" Enterprise Expansion Cabinet OEM ready - 04/98	9622A ^{1,4}
6-inch Air Baffle for Enterprise Cabinet	X9625A
1RU Air Baffle for 72" StorEdge Rack	X9660A ³
Caster Base for Enterprise 4000	X952A ³
Locking Module for Enterprise 4000	X953A ³
Enterprise 3000 Floor Brackets OEM ready - 07/96	X968A ^{2,4}

Country Kits

- Order one Localized Power Cord Kit (i.e. X3xxL) if no monitor is included, see Options section. See page 6-146.
- Order one Type 5 Country Kit (i.e. X35xxA) if a monitor is included, see Options section. See page 6-141.

Power Cords for Enterprise Expansion Cabinet

Power Cord for 68"Enterprise System and Expansion Cabinet, U.S. Version (NEMA L6-30P Plug) OEM ready - 05/96	3800A ⁴
Power Cord for 68"Enterprise System and Expansion Cabinet,International Version (IEC 309, 32A, 250V Plug) OEM ready - 05/96	3848A ⁴
U.S./Canada power cord for 72" StorEdge expansion cabinet (NEMA L6-30P plug)	3858A
International power cord for 72" StorEdge expansion cabinet (IEC 309, 32A, 250V plug)	3859A

General Note

- Refer to the Options section for additional system options. See page 6-99.

Footnotes

1. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
2. Supported on Enterprise 3500 only.
3. Supported on Enterprise 4500 only.
4. This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.

Enterprise 3500 and 4500 Ordering Flow Chart

Each step represents a **required/recommended** line item on a Sales Order

Step 1 - required

Server Base Package



Step 2 - optional/required

UltraSPARC Module

None required for E3500. Minimum of one required for E4500. Maximum of two per CPU/Memory Board. Maximum of 8 per E3500, 14 per E4500. Two included in the E3501-CX2



Step 3 - required

Memory

Minimum of one per System.
Maximum of two per CPU/Memory Board.
Maximum of 8 per E3500, 14 per E4500.



Step 4 - optional/required

CPU/Memory Board - none required for E3500

Minimum of one required per E4500. Maximum of 4 per E3500, 7 per E4500. One included in E3501-CX2



Step 5 - required

I/O Board

Minimum of one per System.
Maximum of 6 PCI I/O Boards per E4500.
Maximum of 4 PCI I/O Boards per E3500.
Max total of SBus + PCI I/O Boards = 4 for E3500, 7 for E4500.



Step 6 - optional

FC-AL Interface Board - E3500 only

Maximum of one per System. Does not use one of the 5 system slots for CPU/Memory and I/O Boards. Required in order to use internal FC-AL drives. This provides a single loop connection for 4 disk drives. For further details see ordering guidelines sections.

Choose one:

- E3501-C62 - E3500 Base Pkg w/ 2 x 336MHz/4MB
- E3501-C82 - E3500 Base Pkg w/ 2x 400MHz/8MB
- E4501 - Enterprise 4500 Base Package

Note: If Factory-Configured System Building Blocks are desired, the flow chart in the front of this section should be used.

Choose from:

- 2560A - 336 MHz, 4-Mbyte external cache
- 2580A - 400 MHz, 8-Mbyte external cache

Choose from:

- 7022A - 256 MB Memory Expansion
- 7023A - 1 GB Memory Expansion
- 7026A - 2 GB Memory Expansion

2602A - CPU/Memory Board

Choose from:

- 2612A - SBus I/O Board w/ 100MB/s FC-AL
- 2622A - Graphics I/O Board w/ 100MB/s FC-AL
- 2632A - PCI I/O Board

2652A - FC-AL Interface Board

Enterprise 3500 and 4500 Ordering Flow Chart *(continued)*

Each step represents a **required/recommended** line item on a Sales Order

Step 7 - optional

Power/Cooling Module
Minimum of one per System.
Maximum of 3 per E3500, 4 per E4500.
One included in the E3501-CX2, Two included in the E4500 Base Package.

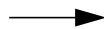


954A - *Power/Cooling Module, 300W*



Step 8 - optional

Second Peripheral Power Supply - E3500 only
Maximum of one per E3500 only.

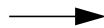


9689A - *Second Peripheral Power Supply, 195W*



Step 9a - optional

Internal Disk Options - E3500 only
Maximum of eight optional internal disk drives.

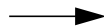


6710A - *9.1GB 10000 RPM Internal FC-AL Disk Drive*
6720A - *18GB 10,000 RPM Internal FC-AL Disk Drive*



Step 9b - optional

Internal Disk Options - E4500 only
Maximum of four Disk Boards.

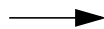


5163A - *18.2 GB Disk Board*



Step 10 - optional

Internal Tape Options
Maximum of one Internal Tape Drive



Choose from:
6283A - *Internal 4mm 12-24 GB DDS-3 Tape Drive*
6213A - *Internal 14 GB 8mm Tape Drive*
6238A - *Internal 20/40 GB 8mm Tape Drive*



Enterprise 3500 and 4500 Ordering Flow Chart *(continued)*

Each step represents a **required/recommended** line item on a Sales Order

Step 11 - optional

Interfaces and Host Adapters

These options may be required to support configured mass storage and tape devices. Refer to the Options section for complete SBus and PCI Bus Interfaces and Host Adapters.



Choose from:

6730A - *FC-AL 100MB/s SBus Host Adapter*
6731A - *FC-AL GBIC Module*
1062A - *DWIS/S SBus Card*
1065A - *UDWIS/S SBus Card*
1063A - *SWIS/S SBus Card*
1018A - *SunSwift SBus Adapter*



Step 12 - required

Power Cord/Country Kit

Order one kit at no charge. Order a Power Cord Kit when server does not include a monitor. Order a Type 5 Country Kit when server includes a monitor. See page 6-141. Order a Power Cord Kit for each external peripheral if required. See page 6-146.



Choose from:

X311L - *North American/Asian*
.
X386L - *Australian*
X383L - *Danish, for E3002 and external peripherals*
X389L - *Danish, for E4002 only*
or:
X3500A - *North American*
.
X3579A - *Canadian-Bilingual*



Step 13 - optional / E3500 only

Solaris PC NetLink

Order Solaris PC NetLink



For NT interoperability order Solaris PC NetLink (SLSIX-110-W999) at no charge when purchasing a new or upgrading to E3500.

Enterprise 5500 and 6500 Ordering Flow Chart

Each step represents a **required/recommended** line item on a Sales Order

Step 1 - required

Server Base Package



Choose one:
E5501 - Enterprise 5500 Base Package
E6501 - Enterprise 6500 Base Package

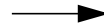
Note: If Factory-Configured System Building Blocks are desired, the flow chart in the front of this section should be used.



Step 2 - required

UltraSPARC Module

Minimum of one per System.
Maximum of two per CPU/Memory Board.
Maximum of 14 per E5500, 30 per E6500.



Choose from:

2560A - 336 MHz, 4-Mbyte external cache
2580A - 400MHz, 8-Mbyte external cache



Step 3 - required

Memory

Minimum of one per System.
Maximum of two per CPU/Memory Board.
Maximum of 14 per E5500, 30 per E6500.
400MHz/4-MB is not supported in the E6500.



Choose from:

7022A - 256 MB Memory Expansion
7023A - 1 GB Memory Expansion
7026A - 2 GB Memory Expansion



Step 4 - required

CPU/Memory Board

Minimum of one per System.
Maximum of 7 per E5500, 15 per E6500.



2602A - CPU/Memory Board



Step 5 - required

I/O Board

Minimum of one per System.
Maximum of 6 PCI I/O Boards per system.
Max total of SBus + PCI I/O Boards = 7 for E5500, 15 for E6500.



Choose from:

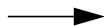
2612A - SBus I/O Board w/ 100MB/s FC-AL
2622A - Graphics I/O Board w/ 100MB/s FC-AL
2632A - PCI I/O Board



Step 6 - optional

Power/Cooling Module

Two included in base Package.
Maximum of 4 per E5500, 8 per E6500.
One per two adjacent system boards is required.



954A - Power/Cooling Module, 300W

Enterprise 5500 and 6500 Ordering Flow Chart *(continued)*

Each step represents a **required/recommended** line item on a Sales Order

Step 7 - optional

Internal Disk Storage options
Maximum of 4 Disk Boards in E5500, 2 in E6500
- and/or -
Maximum of 5 D1000's in E6500 cabinet and 6
D1000's in a E5500 cabinet
- and/or -
Maximum of 4 A5000's in E6500 cabinet and 5
A5000's in a E5500 cabinet

Choose from:
5163A - 18.2 GB Disk Board
SG-ARY147A-36GR4 - 36-Gbyte D1000
SG-ARY154A-72GR4 - 72-Gbyte D1000
SG-ARY164A-145GR4R4 - 145-Gbyte D1000
SG-ARY522A-200GR4 - 200.2-Gbyte A5200
SG-ARY542A-400GR4 - 400-Gbyte A5200
SG-ARY552A-509GR4 - 509-Gbyte A5100



Step 8 - optional

Internal Tape Options
Maximum of one Internal Tape Drive.
Maximum of one StorEdge Library or one StorEdge
FlexiPack removable tray with up to two
FlexiPacks.

Choose one:
6283A - Internal 4mm 12-24 GB DDS-3 Tape Drive
6213A - Internal 8mm 7-14-Gbyte Tape Drive
6238A - Internal 8mm 20-40 Gbyte Tape Drive
and choose:
6062AR4 - StorEdge DLT7000 FlexiPack
with:
9640AR4 - FlexiPack removable tray for system rack
or choose:
6226AR4 - 400-Gbyte 8mm StorEdge Library



Step 9 - optional

Interfaces and Host Adapters
These options may be required to support
configured mass storage and tape devices.
Refer to the SPARC Options section for available
PCI Bus Interfaces and Host Adapters.

Choose from:
6730A - FC-AL 100MB/s SBus Host Adapter
6731A - FC-AL GBIC Module
1065A - Ultra DWIS/S SBus Card
1062A - DWIS/S SBus Card
1063A - SWIS/S SBus Card
1018A - SunSwift SBus Adapter



Step 10 - required

Power Cord
Minimum of one.
Maximum of one per Cabinet.
One required per every Enterprise System or
Expansion Cabinet.

Choose one:
3800A - Power Cord, U.S. Version
3848A - Power Cord, International Version

Enterprise 3500 - 6500 Capacity-On-Demand Building Block Guidelines

General Comments

- The new Capacity-on-Demand (COD) building blocks allow customers to purchase a Sun Enterprise 3500-6500 server configuration for a low price, and then, by simply purchasing right-to-use licenses (RTUs), easily expand the server capacity to include more CPU/memory boards (CPUs and memory) into their configuration as needed. This lets customers effectively plan for - and quickly respond to - unexpected demands placed upon CPU and memory resources while minimizing system disruptions.

Capacity-On-Demand Building Block Components

- The COD Building blocks are identical to system building blocks that are already offered for Enterprise 3500-6500 servers.
 - Factory-configured and standalone (x-option) COD building blocks consist of the following components:
 - 2 x CPU/memory boards
 - 4 x 400MHz/8MB CPUs
 - 4-GB of memory (both 4 x 1GB or 2 x 2GB options are available)
 - 1 Power/cooling module **

Note: ** Factory-configured COD building block version without the power/cooling module should be ordered if all power/cooling module slots in the server are populated. Standalone (x-option) building blocks include the power/cooling module at no additional charge.

- The COD building blocks are only available with 400MHz/8MB UltraSPARC II CPUs. All of the CPUs in new or existing Enterprise 3500-6500 or 3000-6000 servers which are to include any COD building blocks must be running either 400MHz/4MB or 400MHz/8MB CPUs.

Enterprise 3500 - 6500 Capacity-On-Demand Requirements

Enterprise 3500-6500 server must include a minimum number of non-COD CPUs. This applies to all of the following:

- 1) New Enterprise 3500-6500 systems
- 2) Existing Enterprise 3500-6500 and 3000-6000 systems
- 3) Enterprise 3500-6500 system upgrades

The following table indicates the number of non-COD CPUs that must be included with each Enterprise 3500-6500 or 3000-6000 server platform.

Server Platform	Max CPU Capacity	Minimum # of CPUs (non-COD) required per system (either on a new sales order or installed and in use) prior to ordering any COD building blocks
Enterprise 3500	8	2
Enterprise 4500	14	4
Enterprise 5500	14	4
Enterprise 6500	30	8
Enterprise 3000	6	2
Enterprise 4000	14	4
Enterprise 5000	14	4
Enterprise 6000	30	8

Note: There is no limit to the number of COD building blocks that can be ordered per system, provided that the server can physically accommodate them.

Customers will be required to purchase a SunSpectrum Gold or Platinum Service Support contract for each new Enterprise 3500-6500 server that includes a COD building block. Existing Enterprise 3500-6500 or 3000-6000 server customers will be required to upgrade their Service contracts to either Gold or Platinum as a prerequisite for ordering the COD building blocks. Similarly, customers who wish to activate a COD CPU/memory board must purchase either SunSpectrum Gold or Platinum service contract for the COD CPU/memory board associated with the RTU license. Refer to Capacity-On-Demand addendum for further requirements.

Capacity-On-Demand Licensing

In order to activate and use these COD building blocks, the customer must purchase right-to-use licenses - one RTU license is required per COD CPU/memory board. Therefore, in order to activate one complete COD building block, the customer would be required to purchase 2 RTU licenses. Note that these RTU licenses can be purchased independently. The part number for the Enterprise 3500-6500 COD CPU/memory board RTU license is X2602A-P82-RTU.

Enterprise 3500-6500 Capacity-On-Demand Ordering Flow Chart

Each step represents a **required/recommended** line item on a Sales Order

Step 1 - required

Server Base Package
or
Factory-Configurable Server Package

Note: Both the Server Base Packages and Factory-Configurable Server Packages may be ordered with additional factory-configured components.



Choose One Base Package:
E3502-C82 - Enterprise 3500 Base Pkg w/ 2 x 400MHz/8MB, 1-GB, 1 SBus I/O Board
E3502-C83 - Enterprise 3500 Base Pkg w/ 2 x 400MHz/8MB, 2-GB, 1SBus I/O Board
E4502 - Enterprise 4500 Base Package, 2 SBus I/O Boards
E4502-R - Enterprise 4500 Rack-Mounted Base Package, 2 SBus I/O Boards
E5502 - Enterprise 5500 Base Package, 2 SBus I/O Boards
E6502 - Enterprise 6500 Base Package, 2 SBus I/O Boards
E3501-C62 - E3500 Base Pkg w/ 2 x 336MHz/4MB
E3501-C82 - E3500 Base Pkg w/ 2x 400MHz/8MB
E4501 - Enterprise 4500 Base Package
E5501 - Enterprise 5500 Base Package
E6501 - Enterprise 6500 Base Package

or Choose One Factory-Configurable Server Package:
E3502-C84 - E3500 Base Pkg w/ 4 x 400MHz/8MB, 2x1GB memory, 1 SBus I/O Board, 4 18.2-GB 10,000 rpm FC-AL disk drives with FC-AL connections
E4502-C88 - E4500 Base Pkg w/ 8 x 400MHz/8MB, 8x1GB memory, 2 SBus I/O Boards
E5502-C88 - E5500 Base Pkg w/ 8 x 400MHz/8MB, 8x1GB memory, 2 SBus I/O Boards
E6502-C816 - E6500 Base Pkg w/ 16 x 400MHz/8MB, 16x1GB memory, 2 SBus I/O Boards

Note: Factory-Configured System Building Blocks may be ordered in combinations of 2-CPU and 4-CPU building blocks



Step 2 - Optional/required*

Factory-Configured System Building Blocks

Minimum number of Factory-Configured non-COD CPUs required before including Capacity-On-Demand (COD) Building Blocks

E3500 requires a minimum of 2
E4500 and E5500 require a minimum of 4
E6500 requires a minimum of 8

* Optional for Factory-Configurable Server Packages and E3502-C8X base package

* Minimum of one-4-CPU building block or two 2-CPU building blocks per E4502 or E5502 base packages

* Minimum of two 4-CPU building blocks or four 2-CPU building blocks per E6502 base package



Choose from 4-CPU Building Blocks:
2602A-P84A - 2 CPU/Memory Boards w/4 x 400MHz/8MB, 4 x 1-GB Memory Option, 1 PCM
2602A-P85A - 2 CPU/Memory Boards w/4 x 400MHz/8MB, 2 x 2-GB Memory Option, 1 PCM

and/or 2-CPU Building Blocks:
2602A-P82 - 1 CPU/Memory Boards w/2 x 400MHz/8MB, 1-GB Memory Option
2602A-P83 - 1-CPU/Memory Boards w/2 x 400MHz/8MB, 2-GB Memory Option

Note: Factory-Configured System Building Blocks may be ordered in combinations of 2-CPU and 4-CPU building blocks

Enterprise 3500-6500 Capacity-On-Demand Ordering Flow Chart *(continued)*

Each step represents a **required/recommended** line item on a Sales Order

Step 3 - required*

Factory-Configured Capacity-On-Demand (COD) Building Block

Minimum of 1 per E3500-6500 COD System

Maximum of 1 per E3500
Maximum of 2 per E4500 or E5500
Maximum of 5 per E6500



Choose from 4-CPU COD Building Blocks:

2602A-P84A-COD - 2 CPU/Memory Boards w/4 x 400MHz/8MB, 4 x 1-GB Memory Option, 1 PCM

2602A-P84B-COD - 2 CPU/Memory Boards w/4 x 400MHz/8MB, 4 x 1-GB Memory Option

2602A-P85A-COD - 2 CPU/Memory Boards w/4 x 400MHz/8MB, 2 x 2-GB Memory Option, 1 PCM

2602A-P85B-COD - 2 CPU/Memory Boards w/4 x 400MHz/8MB, 2 x 2-GB Memory Option



Step 4 - required

Memory

Included in Factory-Configured System Building Blocks and COD Building Blocks

Additional memory may be added if Factory-Configured System Building Block or COD Building block has available memory bank(s). May also add to E3502-CXX packages



7023A - 1-GB Memory Expansion

7026A - 2-GB Memory Expansion



Step 5 - required

For next steps please refer to page 88 starting at step 4.

Enterprise 3500 - 6500 Capacity-On-Demand

Description	Order Number
Two EXX00 CPU/Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, four 1-GB memory options, one Power/Cooling Module, available as factory-configured option for EXX00 servers. (CAPACITY-ON-DEMAND ONLY) OEM Ready - 03/00	2602A-P84A-COD 1,2,3
Two EXX00 CPU/Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, four 1-GB memory options, available as factory-configured option for EXX00 servers. (CAPACITY-ON-DEMAND ONLY) OEM Ready - 03/00	2602A-P84B-COD 1,2,4
Two EXX00 CPU/Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, two 2-GB memory options, one Power/Cooling Module, available as factory-configured option for EXX00 servers. (CAPACITY-ON-DEMAND ONLY) OEM Ready - 03/00	2602A-P85A-COD 1,2,3
Two EXX00 CPU/Memory Boards, four 400-MHz/8-MB UltraSPARC Modules, two 2-GB memory options, available as factory-configured option for EXX00 servers. (CAPACITY-ON-DEMAND ONLY) OEM Ready - 03/00	2602A-P85B-COD 1,2,4
One Right-to-Use (RTU) license which allows customers to use one Capacity-on-Demand (COD) CPU/memory board on Enterprise 3X00-6X00 servers. (CAPACITY-ON-DEMAND ONLY) OEM Ready - 03/00	X2602A-P82-RTU ¹ ,2

Footnotes

1. Please see the Capacity-on-Demand section for details. See page 4-125.
2. This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.
3. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
4. This product is not orderable as a standalone option (x-option). It is intended for use only on factory-configured systems that cannot accommodate the additional Power/Cooling Module included in part numbers 2602A-P84A-COD and 2602A-P85-COD.