

SPARC Workgroup Servers

SPARC Workgroup Servers Product Line Overview

Product Specifications	Sun™ Enterprise™	
	Ultra™ 5S	Ultra 10S
Multiprocessing	No	
CPUs	1	
Processor	UltraSPARC™-IIi	
Clock speed	360 MHz	440 MHz
On-chip cache size	16 KB I-cache + 16 KB D-cache	
External cache	256 KB	2 MB
SPECint95	11.6	17.9
SPECfp95	13.0	22.7
LADDIS	N/A	2562
Main memory	64 MB–512 MB	128 MB–1 GB
Maximum internal disk capacity	8.4 GB 5400 RPM	18.2 GB 5400 RPM
Maximum external disk capacity	864 GB	864 GB
Backup	2.5-GB QIC, 14-GB 8mm, 12–24 GB 4mm DDS-3 tape, 72–144 GB 4mm DDS-3 autoloader; SPARCstorage™ Library Model 8/140 or 8/400, SPARCstorage DLT4000, DLT4700, and DLT7000	
Data interchange/ software distribution	ATAPI CD-ROM, 3.5 floppy	
I/O slots	3 PCI	4 PCI
Operating environment	Solaris™ 2.5.1 Hardware: 11/97 or later Solaris 2.6 Hardware: 3/98 or later Solaris 7	
Base configuration	64 MB RAM, 8.4 GB, CD-ROM, Floppy	128 MB RAM, 9.1 GB, CD-ROM, Floppy
Product Specifications	Sun™ Enterprise™	

SPARC Workgroup Servers Product Line Overview *(cont.)*

Product Specifications	Sun™ Enterprise™ 250	Sun™ Enterprise™ 450	Sun™ Enterprise™ 220R	Sun™ Enterprise™ 420R
Multiprocessing	Yes	Yes	Yes	Yes
CPUs	1-2	1-4	1-2	1-4
Processor	UltraSPARC™-II		UltraSPARC™-II	
Clock speed	300 MHz/400 MHz	300 MHz/400 MHz	360MHz/450 MHz	450 MHz
On-chip cache size	16 KB I-cache + 16 KB D-cache		16 KB I-cache + 16 KB D-cache	
External cache	2 MB	2 MB/4 MB	4 MB	4 MB
SPECint95 SPECfp95	16.8 26.4	17.4 40.6	19.7 35.5	19.7 44.6
SPECrate_int95 SPECrate_fp95	303 334	609 758	353 456	665 799
Main memory	256 MB–2 MB	256MB–4 GB	256 MB–2 GB	256 MB–4 GB
Max int disk capacity	109 GB Hot Plug	364 GB Hot Plug	36.4 GB Hot Plug	36.4 GB Hot Plug
Max ext disk capacity	3 TB	Multiple TB	1.94 TB	1.94 TB
Backup	SLR, 14-GB 8mm, 12-24 GB 4mm DDS-3 tape, 72-144 GB 4mm DDS-3 autoloader; SPARCstorage Library Model 8/140 or 8/400, SPARCstorage DLT 4000 and DLT7000		SLR, 14-GB 8mm, 12-24 GB 4mm DDS-3 tape, 72-144 GB 4mm DDS-3 autoloader; SPARCstorage Library Model 8/140 or 8/400, SPARCstorage DLT 4000 and DLT7000	
Data interchange/ software distribution	CD-ROM, 3.5 floppy		CD-ROM	
I/O slots	2 PCI buses, 4 slots (all 64 bit: three @ 33 MHz, one @ 66 MHz)	6 PCI buses, 10 slots (three 32 bit @ 33 MHz, four 32 or 64 bit @ 33 MHz, three 32 or 64 bit @ 33 or 66 MHz)	2 PCI buses, 4 PCI slots (all 32 or 64 bit: three @ 33 MHz and one @ 66 MHz)	2 PCI buses, 4 PCI slots (one 32 bit and three 32 or 64 bit: three @ 33 MHz and one @ 66 MHz)
Redundant power and cooling	Power	Power	Power	Power
Hot-swap system components	Power and Disks		Power and Disks	
System monitor	Sun Management Center	Sun Management Center	Sun Management Center	
Operating environment	Solaris™ 2.6 Hardware: 5/98 Solaris™ 2.5.1 Hardware: 97 (with extensions) Solaris 7		Solaris 2.6 Hardware: 5/98 Solaris™ 2.5.1 Hardware: 11/97 Solaris 7 HW 9/99	
Base Configuration	256 MB RAM. 18.2-GB disk, CD-ROM, Floppy	256 MB RAM. 18.2-GB disk, CD-ROM, Floppy	256 MB RAM, 18.2-GB disk, CD-ROM	256 MB RAM, 18.2-GB disk, CD-ROM

Sun Enterprise Ultra 5S Systems

Description	Order Number
Enterprise Ultra 5S with 360-MHz UltraSPARC-IIi Processor, with 256k Level II external cache	
Enterprise Ultra 5S System with PGX24 on-board graphics, 64-Mbyte RAM and CD-ROM	
Sun Enterprise Ultra 5S with 360-MHz UltraSPARC-IIi Processor and 256K Level II cache and 100 MB Ethernet, 3 PCI slots, 64-Mbyte memory, 8-Gbyte Internal Disk, CD-ROM, no country kit, 1.44MB Floppy, full Solaris 7 server license	A21UGE1Z9S-C64CR
Enterprise Ultra 5S System with PGX24 on-board graphics, 128-Mbyte RAM and CD-ROM	
Sun Enterprise Ultra 5S with 360-MHz UltraSPARC-IIi Processor and 256K Level II cache and 100 MB Ethernet, 3 PCI slots, 128-Mbyte memory, 8-Gbyte Internal Disk, CD-ROM, no country kit, 1.44MB Floppy, full Solaris 7 server license	A21UGE1Z9S-C128CR
Enterprise Ultra 5S System with PGX24 on-board graphics, 256-Mbyte and CD-ROM	
Sun Enterprise Ultra 5S with 360-MHz UltraSPARC-IIi Processor and 256K Level II cache and 100 MB Ethernet, 3 PCI slots, 256-Mbyte memory, 8-Gbyte Internal Disk, CD-ROM, No country kit, 1.44MB Floppy, full Solaris 7 server license	A21UGE1Z9S-C256CR

Ordering Note

- For NT interoperability order Solaris PC NetLink (SLSIX-110-W999) at no charge when purchasing a new or upgrading to Sun Enterprise Ultra 5S.

Sun Enterprise Ultra 5S Options

Description	Order Number
Memory	
64-Mbyte (2 x 32MB DIMMs) 50ns DRAM expansion for Ultra 5 and Ultra 10	X7036A
128-Mbyte (2 x 64MB DIMMs) 50ns DRAM expansion for Ultra 5 and Ultra 10	X7037A
Internal Disk	
Optional Internal 9-Gbyte 7200RPM Hard Drive for Ultra 5, Ultra 10 Enhanced IDE	X5236A

General Notes

- *All systems come with Solaris 2.7 pre-installed on the internal disk. JumpStart is used to configure system as a server. For Solaris media on CD-ROM, please order SOLMS-070W9999 and refer to the Solaris Media section.*
- *All systems ship with the appropriate Solaris Desktop or Server license. Read the Solaris licensing information before purchasing a system. See page 7-1.*

Sun Enterprise Ultra 10S Systems

Description	Order Number
Enterprise Ultra 10S with 440-MHz UltraSPARC-III Processor, with 2 MB external cache	
Enterprise Ultra 10S Systems with 128-Mbyte and CD-ROM	
Sun Enterprise Ultra 10 System, One 440-MHz UltraSPARC-III Processor with 2-Mbyte cache, 100Mbit Ethernet, 4 PCI slots, 128-Mbytes memory, 9.1GB IDE, Internal disk drive, CD-ROM drive, No country kit, 1.44MB Floppy, onboard PGX24 graphics, full Solaris 2.7 server license	A22UKC1Z9S-C128CP
Enterprise Ultra 10S Systems with 256-Mbyte and CD-ROM	
Sun Enterprise Ultra 10 System, One 440-MHz UltraSPARC-III Processor with 2-Mbyte cache, 100Mbit Ethernet, 4 PCI slots, 256-Mbytes memory, 9.1GB IDE, Internal disk drive, CD-ROM drive, No country kit, 1.44MB Floppy, onboard PGX24 graphics, full Solaris 2.7 server license	A22UKC1Z9S-C256CP
Enterprise Ultra 10S Systems with 512-Mbyte and CD-ROM	
Sun Enterprise Ultra 10 System, One 440-MHz UltraSPARC-III Processor with 2-Mbyte cache, 100Mbit Ethernet, 4 PCI slots, 512-Mbytes memory, 9.1GB IDE, Internal disk drive, CD-ROM drive, No country kit, 1.44MB Floppy, onboard PGX24 graphics, full Solaris 2.7 server license	A22UKC1Z9S-C512CP

Ordering Note

- For NT interoperability order Solaris PC NetLink (SLSIX-110-W999) at no charge when purchasing a new or upgrading to Sun Enterprise Ultra 10S.

Sun Enterprise Ultra 10S Options

Description	Order Number
Memory	
64-Mbyte (2 x 32MB DIMMs) 50ns DRAM expansion for Ultra 5 and Ultra 10	X7036A
128-Mbyte (2 x 64MB DIMMs) 50ns DRAM expansion for Ultra 5 and Ultra 10	X7037A
256-Mbyte (2 x 128MB DIMMs) 50ns DRAM expansion for Ultra 5 and Ultra 10	X7038A
512-Mbyte (2 x 256MB DIMMs) 50ns DRAM expansion for Ultra 10 only	X7039A
Internal Disk	
Optional Internal 9-Gbyte 7200RPM Hard Drive for Ultra 5, Ultra 10 Enhanced IDE	X5236A

General Notes

- *All systems come with Solaris 2.7 pre-installed on the internal disk. JumpStart is used to configure system as a server. For Solaris media on CD-ROM, please order SOLMS-070W9999 and refer to the Solaris Media section.*
- *All systems ship with the appropriate Solaris Desktop or Server license. Read the Solaris licensing information before purchasing a system. See page 7-1.*

Sun Enterprise 250 Ordering Flow Chart

Each step represents a **required/optional** selection within a line item on a Sales Order

Step 1 - required

Specify Family Part Number

A26- Enterprise 250 Server



Step 2 - required

Select Server Base Package

A26-AA - E250 tower version server base
A26-AA-R - E250 rack version server base



Step 3 - required

UltraSPARC CPU Modules

Minimum of one, maximum of 2 per system; all must be identical.

Choose from:

1191A - 300 MHz, 2-Mbytes external cache
1194A - 400 MHz, 2-Mbytes external cache



Step 4 - required

Add Memory

Memory options must be added two at a time.
Minimum of 2 options, maximum of 8 options may be added. See configuration rules.

Choose from:

7003A - 128MB ECC (2 x 64MB DIMMs)
7004A - 256MB ECC (2 x 128MB DIMMs)



Step 5 - required

Order E250 Software Supplement CD

The E250 server base comes with foot glides.
Factory installed floor casters are available.

250M9-100-W999 - Supplement CD

9604A - Floor Caster Option



Step 6 - required

Internal Disk Drives

Order minimum of one, maximum of six per system
(see config rules)

5234A - 9.1-GB 10000rpm UltraSCSI disk drive
5237A - 18-GB 10000rpm UltraSCSI disk drive



Step 7 - optional

Add Internal Tape Drive Option

Maximum of one per system.

6286A - Internal 4mm 12-24 GB DDS-3 Tape Drive
6213A - Internal 7-14 GB 8mm Tape Drive

Sun Enterprise 250 Ordering Flow Chart (continued)

Each step represents a **required/optional** selection within a line item on a Sales Order



Step 8 - optional

Add PCI Interfaces and Host Adapters



Choose from:

Maximum of 4:

6540A - Dual-channel SE UltraSCSI Host Adapter

6541A - Dual-channel Diff UltraSCSI Host Adapter

1032A - SunSwift, PCI (FastEthernet + UltraSCSI)

1152A - Sun FDDI, single-attach, PCI

1153A - Sun FDDI, dual-attach, PCI

2154A - Sun Token Ring Interface, PCI

2156A - Sun Multiport Serial Interface, PCI

1033A - Sun Fast Ethernet Card, PCI

6729A - Single Loop PCI FC-AL host adapter

Maximum of 3:

1155A - Sun High Speed Serial Interface, PCI

3668A - PGX32 Graphics Option, PCI

1157A - Sun ATM/P-155MMF Card, PCI

1159A - Sun ATM/P-622MMF Card, PCI

Maximum of 2:

1034A - Sun Quad Fast Ethernet Card, PCI

1158A - Sun ATM/P-155UTP Card, PCI

1141A - Sun Gigabit Ethernet Card, PCI

Maximum of 1:

X2069A - Sun Gigabit Ethernet plus FC-AL Card, PCI



Step 9 - optional/required

Add additional Power Supply

Maximum of one additional power supplies per system for N+1 redundancy.



9683A - 360W Power Supply



Step 10 - required

Specify Power Cord/Country Kit

Order one kit at no charge. Order a Power Cord Kit when the server does not require a local graphics console. Order a Type 6 Country Kit when server includes a local graphics console. Order a Power Cord Kit for each external peripheral if required.



Choose one:

X311L - North American/Asian Power Cord

X386L - Australian

or:

X3508A - North American Type-6 Country Kit

X3579A - Canadian-Bilingual



Step 11- optional

Add External Disk Storage Options

See Configuration Rules.
Other options are available.



Choose from:

SG-XDSK060C-109G - 109.2GB Sun StorEdge Multipack

SG-XARY145A-109G - 109GB Sun StorEdge D1000

SG-XARY145A-36G - 36GB Sun StorEdge D1000

SG-XARY151A-72G - 72GB Sun StorEdge A1000

Sun Enterprise 250 Ordering Flow Chart *(continued)*

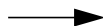
Each step represents a **required/optional** selection within a line item on a Sales Order



Step 12 - optional

Add External Tape Storage Options

See configuration rules.
Other options are available.



Choose from:

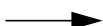
SG-XTAP4MM-011A - *4mm DDS-3 Tape*
SG-XTAP4MM-031A - *4mm DDS-3 Autoloader*
SG-XTAPDDS4-012A - *4mm DDS-4 Tape*
SG-XTAP8MM-021A - *8mm Tape Drive*
SG-XLIB8MM1-400G - *8mm Sun StorEdge L400*
SG-XTAPDLT-021A - *DLT7000 FlexiPack Tape Drive*
SG-XLIBDLT1-280G - *StorEdge DLT7000 Tape AL*



Step 13 - optional

Select Other Options

Other options are available.
See configuration rules.



Choose from:

X7143A - *17" Entry Color Monitor*
X7127A - *18.1" TFT LCD Color Monitor*
X7135A - *19" Flat Screen Color Monitor*
X7136A - *21" Flat Screen Color Monitor*
X7124A - *24" Wide Screen Color Monitor*
X9691A - *Enterprise 250 Tower to Rack Conversion Kit*
X9696A - *Enterprise 250 Rack to Deskside Conversion Kit*
SG-XARY030A - *72-inch StorEdge Expansion Rack*
X3830A - *4m SCSI cable, 68pin to VHDC*
X3831A - *10m SCSI cable, 68pin to VHDC*
X3800A - *Power Cord for EE Cabinet, U.S.*
X3848A - *Power Cord for EE Cabinet, Int'l.*
X9602A - *Enterprise Cabinet Floor Brackets*
X985A - *Serial Port "Y" Splitter Cable*



Step 14 - optional

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 E250.

Sun Enterprise 250 Sample Configurations

Typical Enterprise 250 configuration

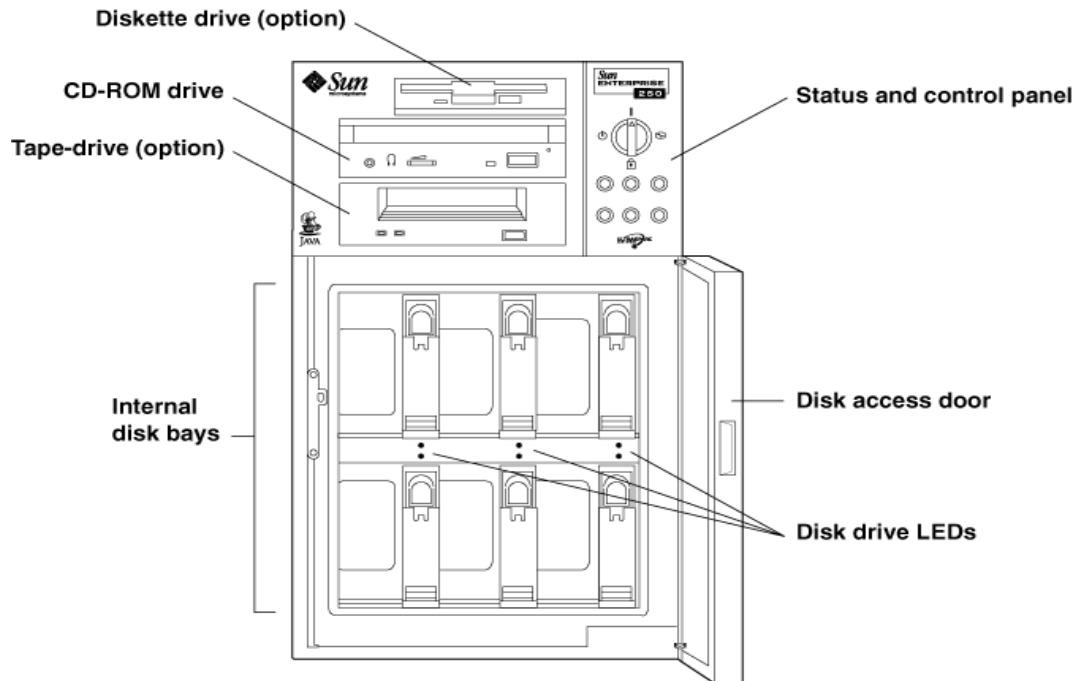
<i>Quantity</i>	<i>Base System + Options Order Number</i>	<i>Description</i>
1	A26	Enterprise 250 Server Family
1	A26-AA	Enterprise 250 server, zero-base; SunCD 32, 360 W power supply, foot glides, Solaris Server license; no CPU, memory, disk, tower configuration
2	1191A	UltraSPARC-II CPU Module, 300MHz, 2Mbyte External Cache
4	7003A	128Mbyte Memory (2 x 64-Mbyte DIMMs)
6	5237A	18.2-Gbyte internal Hot Plug Disk Drive, 10000 RPM, 1" high
1	6213A	Internal 14Gbyte 8mm Tape Drive
1	3668A	PGX32 Graphics Option
1	9683A	360W Power Supply
1	X7143A	17-inch Entry Color Monitor
1	X3508A	Type-6 Country Kit, U.S.
1	9604A	Floor Caster Option
1	X311L	North American/Asian Power Cord
1	SLSIX-110-W999	Solaris PC NetLink
Enterprise 250 with two 300MHz UltraSPARC-2 processors, 512MB main memory, internal SunCD32, 54.6GB internal disk storage, internal 7–14GB 8mm tape drive, local color graphics console with 17-inch monitor, two power supplies		

Enterprise 250 maximum configuration

1	A26	Enterprise 250 Server Family
1	A26-AA-R	Enterprise 250 server - rack version, zero-base; SunCD32, 360 W power supply, Solaris Server license; no CPU, memory, disk, rack ready configuration
2	1194A	UltraSPARC-II CPU Module, 400MHz, 2Mbyte External Cache
8	7004A	256Mbyte Memory (2 x 128Mbyte DIMMs)
6	5237A	18Gbyte internal Hot Plug Disk Drive, 10000 RPM, 1" high
1	6213A	Internal 14Gbyte 8mm Tape Drive
1	3668A	PGX32 Graphics Option
1	9683A	360W Power Supply
1	X7143A	17inch Entry Color Monitor
1	X3508A	Type-6 Country Kit, U.S.
1	SG-XARY030A	72-inch StorEdge Expansion Rack
1	X3800A	Power Cord for Enterprise Expansion Cabinet
1	X311L	North American/Asian Power Cord
Enterprise 250 rack version which includes rack mounting kit, two 400MHz UltraSPARC-2 CPUs, 2GB main memory, 108GB disk storage, internal SunCD32, 7–14GB 8mm tape drive, fully redundant power supplies, local graphics console with 17-inch monitor		

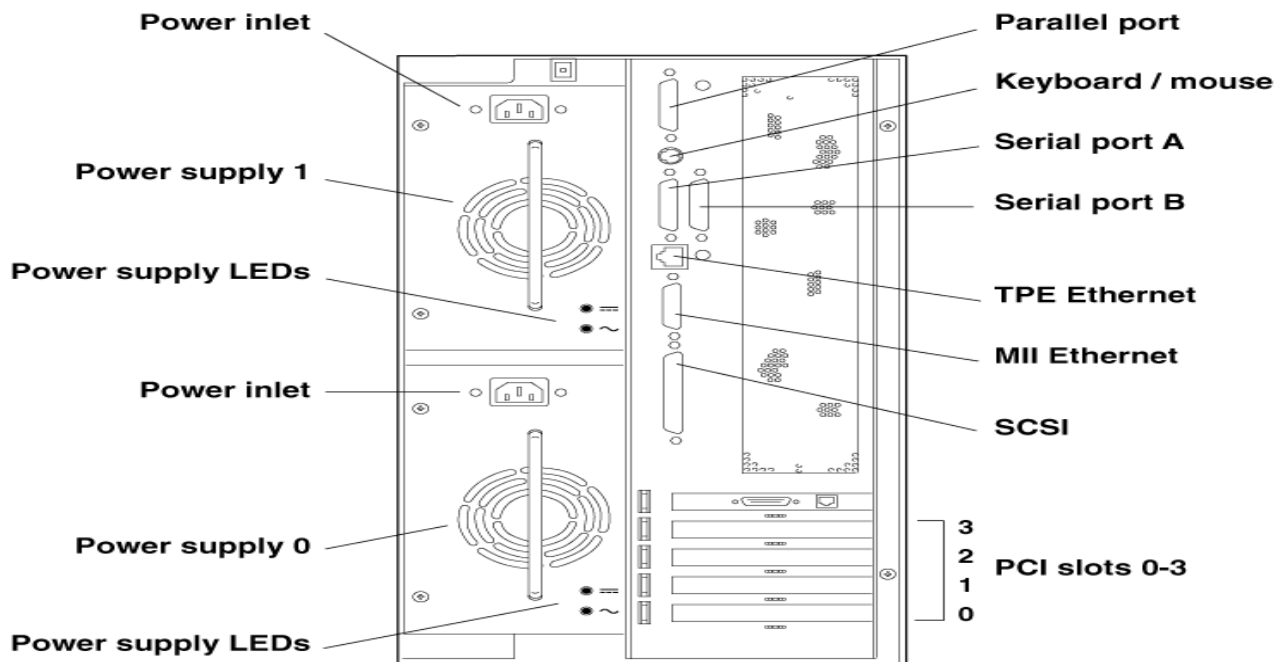
Sun Enterprise 250 Configuration Overview

Enterprise 250 System Enclosure



Front View

Enterprise 250 System Enclosure



Rear View

Sun Enterprise 250

Description	Order Number
Base Systems	
Enterprise 250 Server Base Configuration. Six internal UltraSCSI disk bays, one 360W power supply, SunCD (tm) 32, 10/100 Ethernet with RJ45 and MII connectors, two serial ports, one parallel port with DB25 connector, one external SCSI port and Solaris (tm) server license.	A26-AA ¹
Enterprise 250 Server Base Configuration rack version. Six internal UltraSCSI disk bays, one 360W power supply, SunCD (tm) 32, 10/100 Ethernet with RJ45 and MII connectors, two serial ports, one parallel port with DB25 connector, one external SCSI port and Solaris (tm) server license.	A26-AA-R ¹
Standard Configurations	
Enterprise 250 Server, one 300MHz UltraSPARC-II processor, 2MB E-cache, 256MB memory, 18GB 10,000rpm 1-inch high internal Ultra SCSI, internal SunCD (tm) 32. Solaris PC Netlink 1.1 (Standard Configuration)	A26-UEC1-9S-256CX ^{3,4}
Enterprise 250 Server, one 400MHz UltraSPARC-II processor, 2MB E-cache, 256MB memory, 18GB 10,000rpm 1-inch high internal Ultra SCSI, internal SunCD (tm) 32, Solaris PC Netlink 1.1 (Standard Configuration)	A26-UJC1-9S-256CX ^{3,4}
Sun Enterprise 250 Server includes two 400MHz CPUs, each with 2-MB cache, 1GB memory; two 18GB 10,000 rpm drives and two power supplies, Solaris PC Netlink 1.1 (Standard Configuration)	A26-UJC2-9S-001EJ ^{3,4}
Sun Enterprise 250 Server includes two 400MHz CPUs, each with 2-MB cache, 2GB memory; four 18GB 10,000 rpm drives and two power supplies, Solaris PC Netlink 1.1 (Standard Configuration)	A26-UJC2-9S-002FA ^{3,4}
UltraSPARC Modules	
Maximum of two	
UltraSPARC-II 300MHz processor module w/ 2MB cache	1191A ²
UltraSPARC-II 400MHz processor module with 2MB cache for E250 only.	1194A ²
<i>Notes</i>	
<ul style="list-style-type: none"> All CPUs ordered for one system must be the same part number. 	

Footnotes

1. Requires Solaris 2.5.1 or later Solaris 2.x release or Solaris 7.
2. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
3. Options are field installable. Standard configurations have a leadtime advantage over ATO orders.
4. Standard Configurations are Sun's recommended configurations.

Sun Enterprise 250 *(continued)*

Description	Order Number
Memory	
Must be ordered in pairs	
Sun Ultra Systems Memory 128-Mbyte Memory Expansion (2 x 64-Mbyte DIMMs)	7003A ¹
Sun Ultra Systems Memory 256-Mbyte Memory Expansion (2 x 128-Mbyte DIMMs)	7004A ¹
<i>Notes</i>	
<ul style="list-style-type: none">• Each system must be configured with a minimum of 4 identical memory DIMMs.• Sixteen memory DIMM slots are available (4 groups of 4).• Each memory option includes two DIMMs.• DIMMs must be added in matched groups of four (e.g. 2, 4, 6 or 8 x 7002A).• Order memory options in pairs.• For best performance, systems should be configured with 8 or 16 identical DIMMs.	

Footnote

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

Sun Enterprise 250 Options

Description	Order Number
Internal Disks	
Internal 9.1-Gbyte, 10000 RPM 1" high, UltraSCSI disk drive	5234A ¹
Internal 18.2-Gbyte, 10000 RPM UltraSCSI disk drive, 1" high	5237A ¹
<i>Notes</i>	
<ul style="list-style-type: none"> • A minimum of one disk must be ordered with every base package. • Internal disks may be added individually and may be mixed. • Maximum configuration: 6 internal disks. 	
Internal Tape Drive Options	
12GB 4mm DDS-3 internal tape for Ultra 150 and Netra 150 systems and Enterprise 250 & 450 systems	6286A ¹
7-Gbyte 8mm Internal Tape Drive	6213A ¹
<i>Note: Maximum of one internal 5.25-inch HH tape drive may be installed.</i>	
Internal PCI Host Adapters and Network Interface Cards	
Dual-channel single-ended UltraSCSI host adapter, PCI; factory installed includes two 2m SCSI cables	6540A ¹
Dual-channel differential UltraSCSI host adapter, PCI; factory installed includes two 2m SCSI cables	6541A ¹
S/B PCI FC-AL single-loop host adapter, 100MB/s optical interface factory installed option.	6729A ¹
10/100BaseT F/W UltraSCSI PCI Adapter 1.0	1032A ¹
10/100Base FastEthernet PCI Adapter 2.0 w/MII Sun FastEthernet 2.0 PCI is a 10/100 Ethernet Network interface card supporting the 33 Mhz PCI interface standard. The Sun FastEthernet 2.0 PCI also offers a MII interface to support external peripheral devices. Factory installed option	1033A ¹
Quad FastEthernet PCI Card (QFE) Quad FastEthernet is a high performance, high density network interface card. QFE provides immediate increase in bandwidth to the user in the PCI interface format. Factory installed option	1034A ^{1,2}
FDDI Single-Attach PCI Bus Interface Adapter 2.0 installed in system chassis Factory Installed Option	1152A ¹
FDDI Dual-Attach PCI Bus Interface Adapter 2.0 Factory Installed Option	1153A ¹
Token Ring Interface PCI Bus Adapter 5.0 for Solaris 8 and earlier releases. Factory Installed Option	2154A ¹
High Speed Serial Interface PCI Bus Adapter 2.0 (PCI card, cable with four RS-449 connectors, Media, Docs and Single PCI license) Factory Installed Option	1155A ¹
Serial Asynchronous Interface PCI Bus Adapter 3.0 (PCI card, cable and external eight-port I/O box with RS-232 connectors, Media, and Docs) for Solaris 8 and earlier releases - Factory Installed Option	2156A ¹
Sun Gigabit Ethernet plus FC-AL Combination adapter (PCI)	X2069A ³
<i>Notes</i>	
<ul style="list-style-type: none"> • Maximum configuration: 4 PCI Cards. • See Options chapter for maximum supported number. 	

Footnotes

1. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
2. This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.
3. Requires Solaris 7 11/99 or later release.

Sun Enterprise 250 Options *(continued)*

Description	Order Number
Internal PCI Host Adapters and Network Interface Cards <i>(continued)</i>	
Sun GigabitEthernet PCI Adapter 2.0	1141A ¹
SunATM PCI Adapter 4.0 Update 1 PCI Bus Card, Documentation, and Single-PCI Bus License	1157A ^{1,2}
SunATM-155/MFiber PCI Adapter 4.0 - Factory Installed Option	
SunATM PCI Adapter 4.0 Update 1 PCI Bus Card, Documentation, and Single-PCI Bus License	1158A ¹
SunATM-155/UTP PCI Adapter 4.0 - Factory Installed Option	
SunATM PCI Adapter 4.0 Update 1 PCI Bus Card, Documentation, and Single-PCI Bus License	1159A ^{1,2}
SunATM-622/MFiber PCI Adapter 4.0 - Factory Installed Option	
PGX32 8&24 Color Frame Buffer, Software on CD, Video adapter cable (Only for PCI systems)	3668A ¹
2-meter 68-pin to VHDC UltraSCSI cable	X3832A
<i>Notes</i>	
<ul style="list-style-type: none"> • <i>Maximum configuration: 4 PCI Cards.</i> • <i>See Options chapter for maximum supported number.</i> 	

Footnotes

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

Sun Enterprise 250 Options *(continued)*

Description	Order Number
Power Supply	
Maximum of two	
Redundant power supply option for E250	X9683A
<i>Notes</i>	
<ul style="list-style-type: none">• <i>Maximum configuration: 2 power supplies (one is standard).</i>• <i>A fully configured system will operate on one power supply. The second power supply provides redundancy for greater system availability.</i>	
Floor Caster Option	
Optional set of 4 casters for base of tower system	X9604A
Power Cord/Country Kit	
Must order at least one	
<i>Notes</i>	
<ul style="list-style-type: none">• <i>Order one Localized Power Cord Kit (i.e. X3xxL) if no monitor is included, see Options section. See page 6-146.</i>• <i>Order one Type 5 Country Kit (i.e. X35xxA) if a monitor is included, see Options section. See page 6-141.</i>	
Sidegrade mounting kit (Tower to Rack)	
E250 server tower to rack conversion kit. Includes new cover, rack slides, brackets and associated hardware needed for installation.	X9691A
Sidegrade mounting kit (Rack to Tower)	
Enterprise 250 Server rack to deskside conversion kit. Includes side panels, foot glides and associated hardware for installation.	X9696A
Localized Owner's Manuals	
Chinese (simplified) language version of Enterprise 250 Server Owner's Guide	E250-44-D
Korean language version of Ultra Enterprise 250 Server Owner's Guide	E250-45-D
Chinese (traditional) language version of Enterprise 250 Server Owner's Guide	E250-47-D
External storage	
<ul style="list-style-type: none">• <i>External disk and tape options can be found in the Disk Array and Options sections with ordering information.</i>	
General Note	
<ul style="list-style-type: none">• <i>Refer to the Options section for additional system options. See page 6-55.</i>	

Sun Enterprise 450 Ordering Flow Chart

Each step represents a **required/optional** selection within a line item on a Sales Order

Step 1 - required

Specify Family Part Number

A25- Enterprise 450 Server



Step 2 - required

Select Server Base Package

A25-BA - E450 server base



Step 3 - required

UltraSPARC CPU Modules

Minimum of one, maximum of 4 per system; all must be identical.

Choose from:

2240A - 300 MHz, 2-Mbytes external cache

2244A - 400 MHz, 4-Mbytes external cache



Step 4 - required

Add Memory

Memory options must be added two at a time. Minimum of 2 options, maximum of 8 options may be added. See configuration rules.

Choose from:

7003A - 128MB ECC (2 x 64MB DIMMs)

7004A - 256MB ECC (2 x 128MB DIMMs)

7005A - 512MB ECC (2 x 256MB DIMMs)



Step 5 - required/optional

Add Internal Storage Expansion Option

Maximum of two per system. One required to support 5-12 internal disks. Two required to support 13-20 internal disks.

6601A - 8-bay Storage Expansion Option



Step 6 - required

Internal Disk Drives

Order minimum of one, maximum of twenty per system (see config rules)

5234A - 9.1-GB 10000rpm UltraSCSI disk drive

5237A - 18.2-GB 10000rpm UltraSCSI disk drive



Step 7 - optional

Add Internal Tape Drive Option

Maximum of one per system.

Choose one:

6286A - Internal 4mm 12-24 GB DDS-3 Tape Drive

6213A - Internal 7-14 GB 8mm Tape Drive

Sun Enterprise 450 Ordering Flow Chart *(continued)*

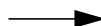
Each step represents a **required/optional** selection within a line item on a Sales Order



Step 8 - optional

Add PCI Interfaces and Host Adapters

Maximum of ten per system.
Each 6601A uses one PCI slot.
See configuration rules.



Choose from:

6540A - Dual-channel SE UltraSCSI Host Adapter
6541A - Dual-channel Diff UltraSCSI Host Adapter
6729A - Single Loop PCI FC-AL host adapter
1032A - SunSwift, PCI (FastEthernet + UltraSCSI)
1033A - Sun Fast Ethernet Card, PCI
1034A - Sun Quad Fast Ethernet Card, PCI
1152A - Sun FDDI, single-attach, PCI
1153A - Sun FDDI, dual-attach, PCI
2154A - Sun Token Ring Interface, PCI
1155A - Sun High Speed Serial Interface, PCI
2156A - Sun Multiport Serial Interface, PCI
1141A - Sun Gigabit Ethernet Card, PCI
1157A - Sun ATM/P-155MMF Card, PCI
1158A - Sun ATM/P-155UTP Card, PCI
1159A - Sun ATM/P-622/MFiber Card, PCI
3668A - PGX32 Graphics Option, PCI
X2069A - Sun Gigabit Ethernet plus FC-AL combination adapter, PCI



Step 9 - optional/required

Add additional Power Supply

Maximum of one additional power supply per system.



9682A - 560W Power Supply



Step 10 - required

Specify Power Cord/Country Kit

Order one kit at no charge. Order a Power Cord Kit when the server does not require a local graphics console. Order a Type 6 Country Kit when server includes a local graphics console. Order a Power Cord Kit for each external peripheral if required.



Choose one:

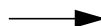
X311L - North American/Asian Power Cord
X386L - Australian
or:
X3508A - North American Type-6 Country Kit
X3579A - Canadian-Bilingual



Step 11- optional

Add External Disk Storage Options

See Configuration Rules.
Other options are available.



Choose from:

SG-XDSK060C-109G - Sun StorEdge Multipack
SG-XARY145A-109G - 109GB Sun StorEdge D1000
SG-XARY145A-36G - 36GB Sun StorEdge D1000
SG-XARY144A-36G - Sun StorEdge A1000
SG-XARY151A-218G - Sun StorEdge A1000

Sun Enterprise 450 Ordering Flow Chart *(continued)*

Each step represents a **required/optional** selection within a line item on a Sales Order



Step 12 - optional

Add External Tape Storage Options

See configuration rules.
Other options are available.



Choose from:

SG-XTAP4MM-011A - 4mm DDS-3 Tape
SG-XTAP4MM-031A - 4mm DDS-3 Autoloader
SG-XTAPDDS4-012A - 4mm DDS-4 Tape
SG-XTAP8MM-021A - 8mm Tape Drive
SG-XLIB8MM1-400G - 8mm Sun StorEdge L400
SG-XTAPDLT-021A - DLT7000 FlexiPack Tape Drive
SG-XLIBDLT1-280G - StorEdge DLT7000 Tape AL



Step 13 - optional

Select Other Options

Other options are available.
See configuration rules.



Choose from:

X7143A - 17" Entry Color Monitor
X7135A - 19" Flat Screen Color Monitor
X7136A - 21" Flat Screen Color Monitor
X7124A - 24" Wide Screen Color Monitor
X9690A - Enterprise 450 Rack Mounting Kit
SG-XARY030A - 72-inch Expansion Cabinet
X3830A - 4m SCSI cable, 68pin to VHDC
X3831A - 10m SCSI cable, 68pin to VHDC
X3800A - Power Cord for EE Cabinet, U.S.
X3848A - Power Cord for EE Cabinet, Int'l.
X9602A - Enterprise Cabinet Floor Brackets
X985A - Serial Port "Y" Splitter Cable



Step 14 - optional

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 E450.

Sun Enterprise 450 Sample Configurations

Typical Enterprise 450 configuration

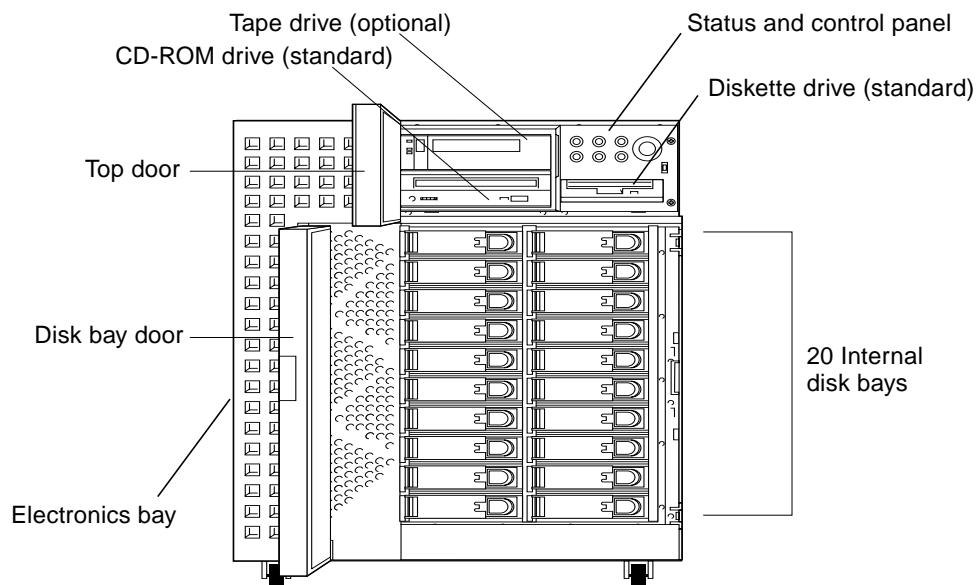
<i>Quantity</i>	<i>Base System + Options Order Number</i>	<i>Description</i>
1	A25	Enterprise 450 Server Family
1	A25-BA	Enterprise 450 server, zero-base; SunCD 32, floppy, two 560 W power supplies, Solaris Server license; no CPU, memory, disk
2	2244A	UltraSPARC-II CPU Module, 400MHz, 4Mbyte External Cache
4	7003A	128Mbyte Memory (2 x 64Mbyte DIMMs)
1	6601A	8bay Storage Expansion Option
8	5237A	18.2-Gbyte internal Hot Plug Disk Drive, 10000 RPM, 1" high
1	6213A	Internal 14Gbyte 8mm Tape Drive
1	3668A	PGX32 Graphics Option
1	X7143A	17-inch Entry Color Monitor
1	X3508A	Type-6 Country Kit, U.S.
1	SLSIX-110-W999	Solaris PC NetLink
Enterprise 450 with two 400MHz UltraSPARC-2 processors, 512MB main memory, internal SunCD32, floppy, 12 internal disk bays with 72.8GB internal disk storage, internal 7–14GB 8mm tape drive, local color graphics console with 17inch monitor, two power supplies		

Enterprise 450 maximum configuration

1	A25	Enterprise 450 Server Family
1	A25-BA	Enterprise 450 server, zero-base; SunCD 32, floppy, two 560 W power supplies, Solaris Server license; no CPU, memory, disk
4	2244A	UltraSPARC-II CPU Module, 400MHz, 4Mbyte External Cache
8	7005A	512Mbyte Memory (2 x 256-Mbyte DIMMs)
20	5237A	18.2Gbyte internal Hot Plug Disk Drive, 10000 RPM, 1" high
1	6213A	Internal 14Gbyte 8mm Tape Drive
1	3668A	PGX32 Graphics Option
1	9682A	560W Power Supply
1	X7143A	17inch Entry Color Monitor
1	X3508A	Type-6 Country Kit, U.S.
1	SG-XARY030A	72inch Sun StorEdge Expansion Cabinet
1	X9690A	Enterprise 450 Rack Mounting Kit
Enterprise 450 with four 400MHz UltraSPARC-2 CPUs, 4GB main memory, 20 internal disk bays, 364GB disk storage, internal SunCD 32, floppy, 7–14GB 8mm tape drive, fully redundant power supplies, local graphics console with 17inch monitor, and cabinet with rack mounting kit		

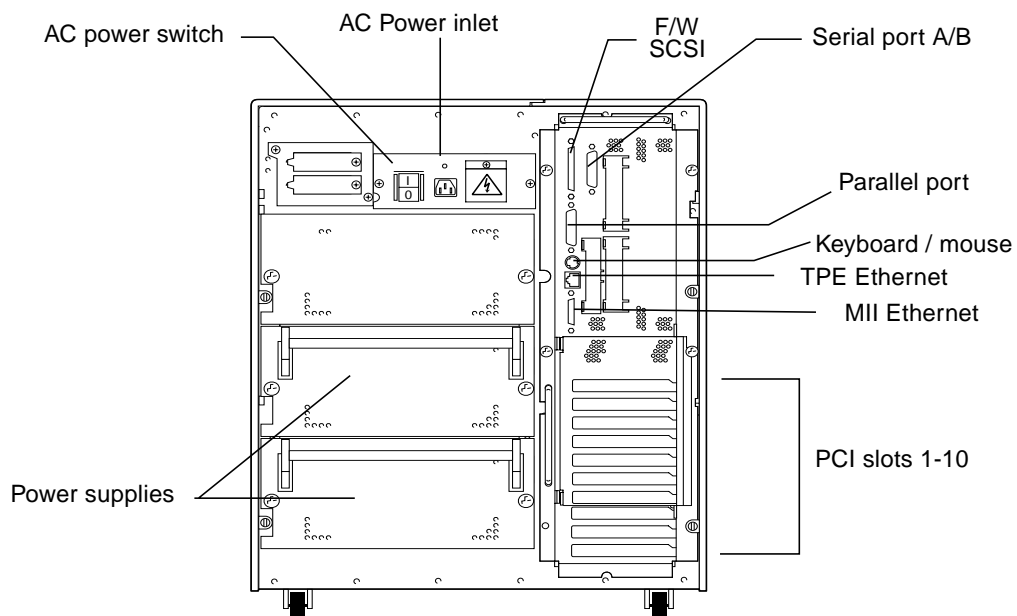
Sun Enterprise 450 Configuration Overview

Enterprise 450 System Enclosure



Front View

Enterprise 450 System Enclosure



Rear View

Sun Enterprise 450

Description	Order Number
Base System	
Sun Enterprise 450 Server in deskside tower, four CPU slots, 16 memory slots, 10 PCI I/O slots, 4 hot swap UltraSCSI disk bays, 32x CDROM, 1.44MB floppy drive, removable media bay, 10/100 Ethernet, two power supplies, Solaris server license, no CPU, memory, or disk included, rackmountable.	A25-BA ^{1,2}
Standard Configurations	
Sun Enterprise 450 Server in deskside tower; includes 400MHz CPU with 4-Mbyte cache, plus 3 open module slots, 512MB memory 10 PCI I/O slots, 32x CDROM, 2 power supplies, Solaris server license; 4 hot swap UltraSCSI disk bays, one 18GB 10,000 rpm drive, Solaris PC Netlink 1.1 (Standard Configuration)	A25-UJD1-9S-512CX ^{4,6}
Sun Enterprise 450 Server in deskside tower; includes two 400MHz CPUs, each with 4-MB cache 2GB memory, 10 PCI I/O slots, 32X CDROM; 1.44MB floppy drive, 10/100 Ethernet, two power supplies; Solaris server license; 4 hot swap UltraSCSI disk bays, two 18GB 10,000 rpm drives. Solaris PC Netlink 1.1 (Standard Configuration)	A25-UJD2-9S-002EJ ^{4,6}
Sun Enterprise 450 Server in deskside tower; includes four 400MHz CPUs, each with 4-MB cache 4GB memory, 10 PCI I/O slots, 32X CDROM; 1.44MB floppy drive, 10/100 Ethernet, two power supplies; Solaris server license; 4 hot swap UltraSCSI disk bays, four 18GB 10,000 rpm drives. (Standard Configuration)	A25-UJD4-9S-004CX ^{4,5,6}
UltraSPARC Modules	
Maximum of 4	
300MHz UltraSPARC2 CPU w/2MB E-cache & dc-dc converter for Ultra Enterprise 450 Server	2240A ³
400MHz UltraSPARC2 CPU w/4MB E-cache & dc-dc converter for Ultra Enterprise 450 Server	2244A ³
<i>Notes</i>	
<ul style="list-style-type: none"> All CPUs ordered for one system must be the same part number. If 4 CPUs are to be installed, a second power supply is required (standard in A25-BA). 	

Footnotes

- Requires Solaris 2.5.1 November 1997 or later, or Solaris 2.6 February 1998 release or later.
- Order A25-BAV for Denmark only.
- Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
- Options are field installable. Standard configurations have a leadtime advantage over ATO orders.
- Solaris PC NetLink 1.1 must be ordered separately.
- Standard Configurations are Sun's recommended configurations.

Sun Enterprise 450 *(continued)*

Description	Order Number
Memory	
Must be ordered in pairs	
Sun Ultra Systems Memory 128-Mbyte Memory Expansion (2 x 64-Mbyte DIMMs)	7003A ¹
Sun Ultra Systems Memory 256-Mbyte Memory Expansion (2 x 128-Mbyte DIMMs)	7004A ¹
512-Mbyte Memory Expansion (2 x 256-Mbyte DIMMs) for Enterprise 450 Only	7005A ¹
<i>Notes</i>	
<ul style="list-style-type: none">• Each system must be configured with a minimum of 4 identical memory DIMMs.• Sixteen memory DIMM slots are available (4 groups of 4).• Each memory option includes two DIMMs.• DIMMs must be added in matched groups of four (e.g. 2, 4, 6 or 8 x 7002A).• Order memory options in pairs.• For best performance, systems should be configured with 8 or 16 identical DIMMs.	

Footnote

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

Sun Enterprise 450 Options

Description	Order Number
Internal Storage Expansion Option	
Maximum of two	
Factory installed 8 bay internal storage expansion kit for Enterprise 450 Server; includes 8 slot disk backplane, PCI UltraSCSI controller, and cables	6601A ¹
<i>Notes</i>	
<ul style="list-style-type: none"> • One is required in order to install 5-12 internal disk drives. • Two are required in order to install 13-20 internal disk drives. • Maximum of two per system. • Each (X)6601A uses one PCI slot (either 32 or 64-bit). • A second power supply is a prerequisite for installing a (X)6601A. 	
Internal Disks	
Internal 9.1-Gbyte, 10000 RPM 1" high, UltraSCSI disk drive	5234A ¹
Internal 18.2-Gbyte, 10000 RPM UltraSCSI disk drive, 1" high	5237A ¹
<i>Notes</i>	
<ul style="list-style-type: none"> • A minimum of one disk must be ordered with every base package. • Internal disks may be added individually. • Maximum configuration: 2 internal disks. • One (X)6601A 8-bay Storage Expansion Option must be installed to support 5-12 disks. • Two (X)6601A 8-bay Storage Expansion Options must be installed to support 13-20 disks. • Two power supplies are required if a (X)6601A is installed. 	
Internal Tape Drive Options	
12GB 4mm DDS-3 internal tape for Ultra 150 and Netra 150 systems and Enterprise 250 & 450 systems	6286A ¹
7-Gbyte 8mm Internal Tape Drive	6213A ¹
<i>Note:</i> Maximum of one internal 5.25-inch HH tape drive may be installed by customer.	

Footnote

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

Sun Enterprise 450 Options *(continued)*

Description	Order Number
Internal PCI Host Adapters and Network Interface Cards	
Dual-channel single-ended UltraSCSI host adapter, PCI; factory installed includes two 2m SCSI cables	6540A ¹
Dual-channel differential UltraSCSI host adapter, PCI; factory installed includes two 2m SCSI cables	6541A ¹
S/B PCI FC-AL single-loop host adapter, 100MB/s optical interface factory installed option.	6729A ¹
10/100BaseT F/W UltraSCSI PCI Adapter 1.0	1032A ¹
10/100Base FastEthernet PCI Adapter 2.0 w/MII Sun FastEthernet 2.0 PCI is a 10/100 Ethernet Network interface card supporting the 33 Mhz PCI interface standard. The Sun FastEthernet 2.0 PCI also offers a MII interface to support external peripheral devices. Factory installed option	1033A ¹
Quad FastEthernet PCI Card (QFE) Quad FastEthernet is a high performance, high density network interface card. QFE provides immediate increase in bandwidth to the user in the PCI interface format. Factory installed option	1034A ^{1,2}
FDDI Single-Attach PCI Bus Interface Adapter 2.0 installed in system chassis Factory Installed Option	1152A ¹
FDDI Dual-Attach PCI Bus Interface Adapter 2.0 Factory Installed Option	1153A ¹
Token Ring Interface PCI Bus Adapter 5.0 for Solaris 8 and earlier releases. Factory Installed Option	2154A ¹
High Speed Serial Interface PCI Bus Adapter 2.0 (PCI card, cable with four RS-449 connectors, Media, Docs and Single PCI license) Factory Installed Option	1155A ¹
Serial Asynchronous Interface PCI Bus Adapter 3.0 (PCI card, cable and external eight-port I/O box with RS-232 connectors, Media, and Docs) for Solaris 8 and earlier releases - Factory Installed Option	2156A ¹
Sun GigabitEthernet PCI Adapter 2.0	1141A ¹
SunATM PCI Adapter 4.0 Update 1 PCI Bus Card, Documentation, and Single-PCI Bus License SunATM-155/MFiber PCI Adapter 4.0 - Factory Installed Option	1157A ^{1,2}
SunATM PCI Adapter 4.0 Update 1 PCI Bus Card, Documentation, and Single-PCI Bus License SunATM-155/UTP PCI Adapter 4.0 - Factory Installed Option	1158A ¹
SunATM PCI Adapter 4.0 Update 1 PCI Bus Card, Documentation, and Single-PCI Bus License SunATM-622/MFiber PCI Adapter 4.0 - Factory Installed Option	1159A ^{1,2}
PGX32 8&24 Color Frame Buffer, Software on CD, Video adapter cable (Only for PCI systems)	3668A ¹
2-meter 68-pin to VHDC UltraSCSI cable	X3832A
Sun Gigabit Ethernet plus FC-AI Combination adapter (PCI)	X2069A ³

Notes

- *Maximum configuration: 10 PCI Cards.*
- *See Options chapter for maximum supported number.*

Footnotes

1. *Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.*
2. *This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.*
3. *Requires Solaris 7 11/99 or later release.*

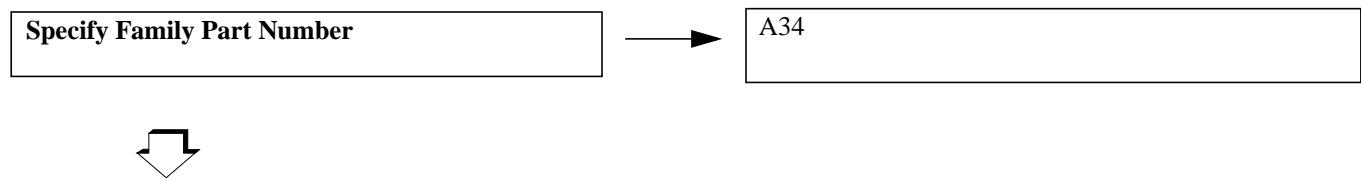
Sun Enterprise 450 Options *(continued)*

Description	Order Number
Power Supply	
Maximum of three	
560W power supply for Ultra Enterprise 450 Server	9682A ¹
<i>Notes</i>	
<ul style="list-style-type: none">• <i>Maximum configuration: 3 power supplies (two are standard in A25-BA).</i>• <i>A fully loaded system will operate on two power supplies. The third power supply provides redundancy for greater system availability.</i>• <i>A third power supply is required for redundancy if four CPUs or more than four internal disks are ordered.</i>	
Power Cord/Country Kit	
Must order at least one	
<i>Notes</i>	
<ul style="list-style-type: none">• <i>Order one Localized Power Cord Kit (i.e. X3xxL) if no monitor is included, see Options section. See page 6-146.</i>• <i>Order one Type 5 Country Kit (i.e. X35xxA) if a monitor is included, see Options section. See page 6-141.</i>	
Rack mounting kit	
Rackmounting kit for E450; permits installation of tower enclosure in standard 19 inch rack	X9690A
Serial Splitter	
Country Kit Accessory Desktop Cable Serial Port Splitter Cable	X985A
Localized Owner's Manuals	
Simplified Chinese language version of Ultra Enterprise 450 Server Owner's Guide	E450-44-D
Korean language version of Ultra Enterprise 450 Server Owner's Guide	E450-45-D
Traditional Chinese language version of Ultra Enterprise 450 Server Owner's Guide	E450-47-D
External storage	
<ul style="list-style-type: none">• <i>External disk and tape options can be found in the Disk Array and Options sections with ordering information.</i>	
General Note	
<ul style="list-style-type: none">• <i>Refer to the Options section for additional system options. See page 6-55.</i>	
Footnote	
<ol style="list-style-type: none">1. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.	

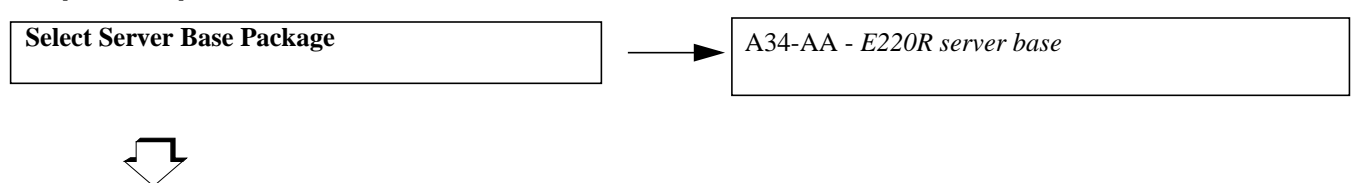
Sun Enterprise 220R Ordering Flow Chart

Each step represents a **required/optional** selection within a line item on a Sales Order

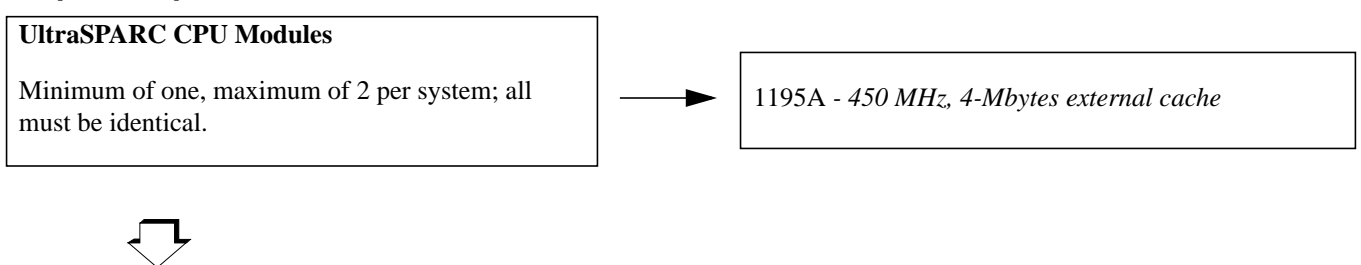
Step 1 - required



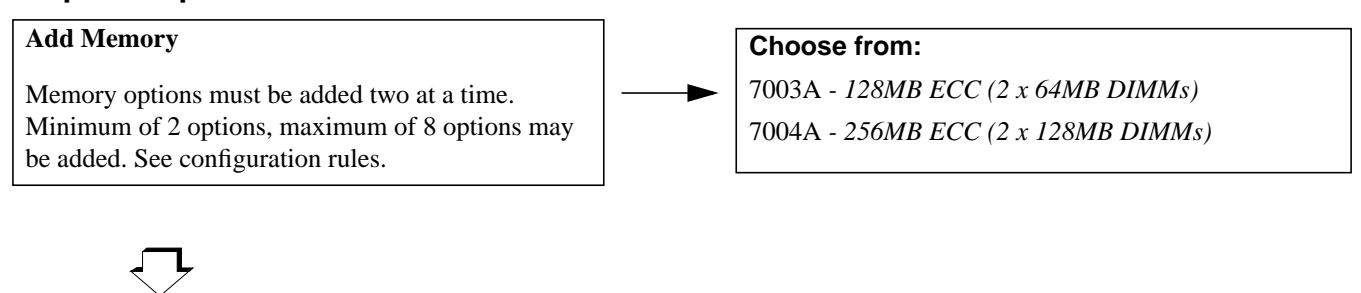
Step 2 - required



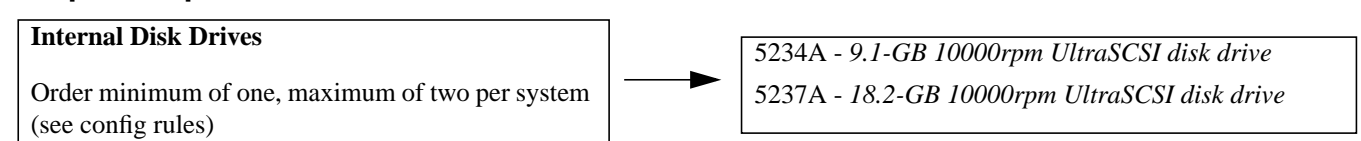
Step 3 - required



Step 4 - required



Step 5 - required



Sun Enterprise 220R Ordering Flow Chart *(continued)*

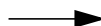
Each step represents a **required/optional** selection within a line item on a Sales Order



Step 6 - optional

Add PCI Interfaces and Host Adapters

Maximum of 4 per system.
See configuration rules.



Choose from:

Maximum of 4:

6540A - Dual-channel SE UltraSCSI Host Adapter
6541A - Dual-channel Diff UltraSCSI Host Adapter
1032A - SunSwift, PCI (FastEthernet + UltraSCSI)
1033A - Sun Fast Ethernet Card, PCI
2154A - Sun Token Ring Interface, PCI
2156A - Sun Multiport Serial Interface, PCI
3668A - PGX32 Graphics Option, PCI

Maximum of 3:

1152A - Sun FDDI, single-attach, PCI
1153A - Sun FDDI, dual-attach, PCI
1155A - Sun High Speed Serial Interface, PCI
X6729A - Single Loop PCI FC-AL host adapter

Maximum of 2:

1034A - Sun Quad Fast Ethernet Card, PCI
X1157A - Sun ATM/P-155MMF Card, PCI
X1158A - Sun ATM/P-155UTP Card, PCI
X1159A - Sun ATM/P-622/MFiber Card, PCI
X1141A - Sun Gigabit Ethernet Card, PCI



Step 7 - optional

Add additional Power Supply

Maximum of one additional power supply per system.



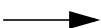
9684A - 380W Power Supply



Step 8 - required

Specify Power Cord/Country Kit

Order one kit at no charge. Order a Power Cord Kit when the server does not require a local graphics console. Order a Type 6 Country Kit when server includes a local graphics console. Order a Power Cord Kit for each external peripheral if required.



Choose one:

X311L - North American/Asian Power Cord
X386L - Australian

or:

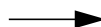
X3508A - North American Type-6 Country Kit
X3579A - Canadian-Bilingual



Step 9 - optional

Add External Disk Storage Options

See Configuration Rules.
Other options are available.



Choose from:

SG-XDSK060C-109G - 109.2GB Sun StorEdge Multipack
SG-XARY145A-109G - 109GB Sun StorEdge D1000
SG-XARY145A-36G - 36GB Sun StorEdge D1000
SG-XARY151A-72G - 72GB Sun StorEdge A1000

Sun Enterprise 220R Ordering Flow Chart *(continued)*

Each step represents a **required/optional** selection within a line item on a Sales Order



Step 10 - optional

Add External Tape Storage Options

See configuration rules.
Other options are available.



Choose from:

SG-XTAP4MM-011A - *4mm DDS-3 Tape*
SG-XTAP4MM-031A - *4mm DDS-3 Autoloader*
SG-XTAPDDS4-012A - *4mm DDS-4 Tape*
SG-XTAP8MM-021A - *8mm Tape Drive*
SG-XLIB8MM1-400G - *8mm Sun StorEdge L400*
SG-XTAPDLT-021A - *DLT7000 FlexiPack Tape Drive*
SG-XLIBDLT1-280G - *StorEdge DLT7000 Tape AL*



Step 11 - optional

Select Other Options

Other options are available.
See configuration rules.

Choose from:

X7143A - *17" Entry Color Monitor*
X7135A - *19" Flat Screen Color Monitor*
X7136A - *21" Flat Screen Color Monitor*
X7124A - *24" Wide Screen Color Monitor*
SG-XARY030A - *72-inch Expansion Cabinet*
X3830A - *4m SCSI cable, 68pin to VHDC*
X3831A - *10m SCSI cable, 68pin to VHDC*
X3800A - *Power Cord for EE Cabinet, U.S.*
X3848A - *Power Cord for EE Cabinet, Int'l.*
X9602A - *Enterprise Cabinet Floor Brackets*
X985A - *Serial Port "Y" Splitter Cable*



Step 12 - optional

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 E220R.



Sun Enterprise 220R Sample Configurations

Typical Enterprise 220R configuration

<i>Quantity</i>	<i>Base System + Options Order Number</i>	<i>Description</i>
1	A34	Enterprise 220R Server Family
1	A34-AA	Enterprise 220R server, zero-base; SunCD 32, one 380W power supply, Solaris Server license; no CPU, memory, disk
2	1195A	UltraSPARC-II CPU Module, 450MHz, 4Mbyte External Cache
4	7003A	128Mbyte Memory (2 x 64Mbyte DIMMs)
2	5237A	18.2-Gbyte internal Hot Plug Disk Drive, 10K RPM, 1" high
1	3668A	PGX32 Graphics Option
1	X7143A	17-inch Entry Color Monitor
1	X3508A	Type-6 Country Kit, U.S.
Enterprise 220R with two 450MHz UltraSPARC-2 processors, 512MB main memory, internal SunCD32, floppy, 2 internal disk drives, local color graphics console with 17inch monitor, two power supplies		

Enterprise 220R maximum configuration

1	A34	Enterprise 220R Server Family
1	A34-AA	Enterprise 220R server, zero-base; SunCD 32, one 380W power supply, Solaris Server license; no CPU, memory, disk
2	1195A	UltraSPARC-II CPU Module, 450MHz, 4Mbyte External Cache
8	7004A	256Mbyte Memory (2 x 128-Mbyte DIMMs)
2	5237A	18.2Gbyte internal Hot Plug Disk Drive, 10000 RPM, 1" high
1	3668A	PGX32 Graphics Option
1	9684A	380W Power Supply
1	X7143A	17inch Entry Color Monitor
1	X3508A	Type-6 Country Kit, U.S.
1	SG-XARY030A	72inch Sun StorEdge Expansion Cabinet
Enterprise 220R with two 450MHz UltraSPARC-2 CPUs, 2GB main memory, 2 internal disk drives, internal SunCD 32, fully redundant power supplies, local graphics console with 17inch monitor, and cabinet		

Sun Enterprise 220R

Description	Order Number
Base System	
Enterprise 220R Server Base Configuration, one power supply, 32x CD ROM, Solaris server license, 10/100 Ethernet	A34-AA
Standard Configuration	
Enterprise 220R Server, one 360MHz UltraSPARC-II processor, 4MB E-cache, 256MB memory, 18.2GB 10,000rpm 1-inch high internal Ultra SCSI, internal SunCD (tm) 32, one power supply, Solaris server license, 10/100 Ethernet (Standard Configuration)	A34-UGD1-9S-256CX ¹
Enterprise 220R Server, one 450MHz UltraSPARC-II processor, 4MB E-cache, 512MB memory, 18GB 10,000rpm 1-inch high internal Ultra SCSI, internal SunCD (tm) 32, one power supply, 10/100 Ethernet Solaris PC Netlink 1.1 (Standard Configuration)	A34-ULD1-9S-512CX ^{1,2}
Enterprise 220R Server, one 450MHz UltraSPARC-II processor, 4MB E-cache, 1GB memory, 2-18GB 10,000rpm 1-inch high internal Ultra SCSI, internal SunCD (tm) 32, one power supply, 10/100 Ethernet Solaris PC Netlink 1.1 (Standard Configuration)	A34-ULD1-9S-001EJ ^{1,2}
Enterprise 220R Server, two 450MHz UltraSPARC-II processors, 4MB E-cache, 2GB memory, two 18GB 10,000rpm 1-inch high internal Ultra SCSI drives, internal SunCD (tm) 32, two power supplies 10/100 Ethernet, Solaris PC Netlink 1.1 (Standard Configuration)	A34-ULD2-9S-002EJ ^{1,2}

Footnotes

1. Options are field installable. Standard configurations have a leadtime advantage over ATO orders.
2. Standard Configurations are Sun's recommended configurations.

Sun Enterprise 220R Options

Description	Order Number
UltraSPARC Modules	
Maximum of 2	
UltraSPARC-II 450MHz processor module with 4MB cache for Sun Enterprise 420R Server and Sun Enterprise 220R Server	1195A ¹
UltraSPARC-II 360MHz processor module w/ 4MB L2 cache for Ultra 60	X1192A ²
<i>Notes</i>	
<ul style="list-style-type: none"> All CPUs ordered for one system must be the same part number. 	

Memory

Must be ordered in pairs

Sun Ultra Systems Memory 128-Mbyte Memory Expansion (2 x 64-Mbyte DIMMs) 7003A¹

Sun Ultra Systems Memory 256-Mbyte Memory Expansion (2 x 128-Mbyte DIMMs) 7004A¹

Notes

- Each system must be configured with a minimum of 4 identical memory DIMMs.
- Sixteen memory DIMM slots are available (4 groups of 4).
- Each memory option includes two DIMMs.
- DIMMs must be added in matched groups of four (e.g. 2, 4, 6 or 8 x 7002A).
- Order memory options in pairs.
- For best performance, systems should be configured with 8 or 16 identical DIMMs.

Internal Disks

Internal 9.1-Gbyte, 10000 RPM 1" high, UltraSCSI disk drive 5234A¹

Internal 18.2-Gbyte, 10000 RPM UltraSCSI disk drive, 1" high 5237A¹

Notes

- A minimum of one disk must be ordered with every base package.
- Internal disks may be added individually.
- Maximum configuration: 2 internal disks.

Footnotes

- Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
- Options are field installable only.

Sun Enterprise 220R Options *(continued)*

Description	Order Number
Internal Tape Drive Options	
12GB 4mm DDS-3 internal tape for Ultra 150 and Netra 150 systems and Enterprise 250 & 450 systems	X6286A ³
7-Gbyte 8mm Internal Tape Drive	X6213A ³
<i>Note: Maximum of one internal 5.25-inch HH tape drive may be installed by customer.</i>	
Internal PCI Host Adapters and Network Interface Cards	
Dual-channel single-ended UltraSCSI host adapter, PCI; factory installed includes two 2m SCSI cables	6540A ¹
Dual-channel differential UltraSCSI host adapter, PCI; factory installed includes two 2m SCSI cables	6541A ¹
PCI FC-AL single-loop host adapter 100MB/s optical interface.	X6729A
10/100BaseT F/W UltraSCSI PCI Adapter 1.0	1032A ¹
10/100Base FastEthernet PCI Adapter 2.0 w/MII Sun FastEthernet 2.0 PCI is a 10/100 Ethernet Network interface card supporting the 33 Mhz PCI interface standard. The Sun FastEthernet 2.0 PCI also offers a MII interface to support external peripheral devices. Factory installed option	1033A ¹
Quad FastEthernet PCI Card (QFE) Quad FastEthernet is a high performance, high density network interface card. QFE provides immediate increase in bandwidth to the user in the PCI interface format. OEM ready - 07/97	X1034A ²
FDDI Single-Attach PCI Bus Interface Adapter 2.0 installed in system chassis Factory Installed Option	1152A ¹
FDDI Dual-Attach PCI Bus Interface Adapter 2.0 Factory Installed Option	1153A ¹
Token Ring Interface PCI Bus Adapter 5.0 for Solaris 8 and earlier releases. Factory Installed Option	2154A ¹
High Speed Serial Interface PCI Bus Adapter 2.0 (PCI card, cable with four RS-449 connectors, Media, Docs and Single PCI license) Factory Installed Option	1155A ¹
Serial Asynchronous Interface PCI Bus Adapter 3.0 (PCI card, cable and external eight-port I/O box with RS-232 connectors, Media, and Docs) for Solaris 8 and earlier releases - Factory Installed Option	2156A ¹
Sun Gigabit Ethernet plus FC-AI Combination adapter (PCI)	X2069A ⁴
<i>Notes</i>	
<ul style="list-style-type: none"> • <i>Maximum configuration: 4 PCI Cards.</i> • <i>See Options chapter for maximum supported number.</i> 	
Power supply - Maximum of two	
Redundant power supply for E420R AND E220R	9684A
<i>Notes</i>	
<ul style="list-style-type: none"> • <i>Maximum configuration: 2 power supplies (one is standard)</i> • <i>A fully configured system will operate on one power supply. The second power supply provides redundancy for greater system availability.</i> 	

Footnotes

1. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
2. This product is OEM-Ready, please refer to the "Ordering Policies and Guidelines" section page 1-1.
3. When ordering an internal tape drive x-option, the CD-ROM drive must be removed to install the tape drive. An internal tape drive and CD-ROM drive cannot both be in the system at the same time.
4. Requires Solaris 7 11/99 or later release.

Sun Enterprise 420R Ordering Flow Chart

Each step represents a **required/optional** selection within a line item on a Sales Order

Step 1 - required

Specify Family Part Number

A33



Step 2 - required

Select Server Base Package

A33-AA - E420R server base



Step 3 - required

UltraSPARC CPU Modules

Minimum of one, maximum of 4 per system; all must be identical.

1195A - 450 MHz, 4-Mbytes external cache



Step 4 - required

Add Memory

Memory options must be added two at a time. Minimum of 2 options, maximum of 8 options may be added. See configuration rules.

Choose from:

7043A - 128MB ECC (2 x 64MB DIMMs)

7005A - 512MB ECC (2 x 256MB DIMMs)



Step 5 - required

Internal Disk Drives

Order minimum of one, maximum of two per system (see config rules)

5234A - 9.1-GB 10000rpm UltraSCSI disk drive

5237A - 18.2-GB 10000rpm UltraSCSI disk drive

Sun Enterprise 420R Ordering Flow Chart *(continued)*

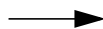
Each step represents a **required/optional** selection within a line item on a Sales Order



Step 6 - optional

Add PCI Interfaces and Host Adapters

Maximum of four per system.
See configuration rules.



Choose from:

Maximum of 4:

6540A - Dual-channel SE UltraSCSI Host Adapter
6541A - Dual-channel Diff UltraSCSI Host Adapter
1032A - SunSwift, PCI (FastEthernet + UltraSCSI)
1033A - Sun Fast Ethernet Card, PCI
2154A - Sun Token Ring Interface, PCI
2156A - Sun Multiport Serial Interface, PCI
3668A - PGX32 Graphics Option, PCI

Maximum of 3:

1034A - Sun Quad Fast Ethernet Card, PCI
X1141A - Sun Gigabit Ethernet Card, PCI
1152A - Sun FDDI, single-attach, PCI
1153A - Sun FDDI, dual-attach, PCI
1155A - Sun High Speed Serial Interface, PCI
X1157A - Sun ATM/P-155MMF Card, PCI
X1158A - Sun ATM/P-155UTP Card, PCI
X1159A - Sun ATM/P-622/MFiber Card, PCI
X6729A - Single Loop PCI FC-AL host adapter



Step 7 - optional/required

Add additional Power Supply

Maximum of one additional power supply per system.



9684A - 380W Power Supply



Step 8 - required

Specify Power Cord/Country Kit

Order one kit at no charge. Order a Power Cord Kit when the server does not require a local graphics console. Order a Type 6 Country Kit when server includes a local graphics console. Order a Power Cord Kit for each external peripheral if required.



Choose one:

X311L - North American/Asian Power Cord
X386L - Australian

or:

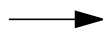
X3508A - North American Type-6 Country Kit
X3579A - Canadian-Bilingual



Step 9 - optional

Add External Disk Storage Options

See Configuration Rules.
Other options are available.



Choose from:

SG-XDSK060C-109G - Sun StorEdge Multipack
SG-XARY145A-109G - 109GB Sun StorEdge D1000
SG-XARY145A-36G - 36GB Sun StorEdge D1000
SG-XARY144A-36G - Sun StorEdge A1000
SG-XARY151A-218G - Sun StorEdge A1000

Sun Enterprise 420R Ordering Flow Chart *(continued)*

Each step represents a **required/optional** selection within a line item on a Sales Order



Step 10 - optional

Add External Tape Storage Options

See configuration rules.
Other options are available.



Choose from:

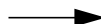
SG-XTAP4MM-011A - *4mm DDS-3 Tape*
SG-XTAP4MM-031A - *4mm DDS-3 Autoloader*
SG-XTAPDDS4-012A - *4mm DDS-4 Tape*
SG-XTAP8MM-021A - *8mm Tape Drive*
SG-XLIB8MM1-400G - *8mm Sun StorEdge L400*
SG-XTAPDLT-021A - *DLT7000 FlexiPack Tape Drive*
SG-XLIBDLT1-280G - *StorEdge DLT7000 Tape AL*



Step 11 - optional

Select Other Options

Other options are available.
See configuration rules.



Choose from:

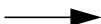
X7143A - *17" Entry Color Monitor*
X7135A - *19" Flat Screen Color Monitor*
X7136A - *21" Flat Screen Color Monitor*
X7124A - *24" Wide Screen Color Monitor*
SG-XARY030A - *72-inch Expansion Cabinet*
X3830A - *4m SCSI cable, 68pin to VHDC*
X3831A - *10m SCSI cable, 68pin to VHDC*
X3800A - *Power Cord for EE Cabinet, U.S.*
X3848A - *Power Cord for EE Cabinet, Int'l.*
X9602A - *Enterprise Cabinet Floor Brackets*
X985A - *Serial Port "Y" Splitter Cable*



Step 12 - optional

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 E450.

Sun Enterprise 420R Sample Configurations

Typical Enterprise 420R configuration

<i>Quantity</i>	<i>Base System + Options Order Number</i>	<i>Description</i>
1	A33	Enterprise 420R Server Family
1	A33-AA	Enterprise 420R server, zero-base; SunCD 32, one 380W power supply, Solaris Server license; no CPU, memory, disk
2	1195A	UltraSPARC-II CPU Module, 450MHz, 4Mbyte External Cache
4	7043A	128Mbyte Memory (2 x 64Mbyte DIMMs)
2	5237A	18.2-Gbyte internal Hot Plug Disk Drive, 10K RPM, 1" high
1	3668A	PGX32 Graphics Option
1	X7143A	17-inch Entry Color Monitor
1	X3508A	Type-6 Country Kit, U.S.
Enterprise 420R with two 450MHz UltraSPARC-2 processors, 512MB main memory, internal SunCD32, 2 internal disk drives, local color graphics console with 17inch monitor, two power supplies		

Enterprise 420R maximum configuration

1	A33	Enterprise 420R Server Family
1	A33-AA	Enterprise 420R server, zero-base; SunCD 32, one 380W power supplies, Solaris Server license; no CPU, memory, disk
4	1195A	UltraSPARC-II CPU Module, 450MHz, 4Mbyte External Cache
8	7005A	512Mbyte Memory (2 x 256-Mbyte DIMMs)
2	5237A	18.2Gbyte internal Hot Plug Disk Drive, 10000 RPM, 1" high
1	3668A	PGX32 Graphics Option
1	9684A	380W Power Supply
1	X7143A	17inch Entry Color Monitor
1	X3508A	Type-6 Country Kit, U.S.
1	SG-XARY030A	72inch Sun StorEdge Expansion Cabinet
Enterprise 420R with four 450MHz UltraSPARC-2 CPUs, 4GB main memory, 2 internal disk drives, internal SunCD 32, fully redundant power supplies, local graphics console with 17inch monitor, and cabinet		

Sun Enterprise 420R

Description	Order Number
Base System	
Enterprise 420R Server Base Configuration, one power supply, 32x CD ROM, Solaris server license	A33-AA
Standard Configuration	
Enterprise 420R Server, one 450MHz UltraSPARC-II processor, 4MB E-cache, 1GB memory, 18.2GB 10,000rpm 1-inch high internal Ultra SCSI, internal SunCD (tm) 32, One power supply, Solaris server license (Standard Configuration)	A33-ULD1-9S-001CX ^{1,3,4}
Enterprise 420R Server, two 450MHz UltraSPARC-II processor, 4MB E-cache, 2GB memory, two 18.2GB 10,000rpm 1-inch high internal Ultra SCSI drives, internal SunCD (tm) 32, one power supply, Solaris server license, Solaris PC Netlink 1.1 (Standard Configuration)	A33-ULD2-9S-002EJ ^{1,4}
Enterprise 420R Server, four 450MHz UltraSPARC-II processor, 4MB E-cache, 4GB memory, two 18GB 10,000rpm 1-inch high internal Ultra SCSI drives, internal SunCD (tm) 32, two power supplies, Solaris server license, Solaris PC Netlink 1.1 (Standard Configuration)	A33-ULD4-9S-004EJ ^{1,4}
UltraSPARC Modules	
Maximum of 4	
UltraSPARC-II 450MHz processor module with 4MB cache for Sun Enterprise 420R Server and Sun Enterprise 220R Server	1195A ²
<i>Notes</i>	
<ul style="list-style-type: none"> All CPUs ordered for one system must be the same part number. 	
Memory	
Must be ordered in pairs	
Sun Ultra 5V Memory 128-Mbyte Memory Expansion (2 x 64-Mbyte DIMMs)	7043A ²
512-Mbyte Memory Expansion (2 x 256-Mbyte DIMMs) for Enterprise 450 Only	7005A ²
<i>Notes</i>	
<ul style="list-style-type: none"> Each system must be configured with a minimum of 4 identical memory DIMMs. Sixteen memory DIMM slots are available (4 groups of 4). Each memory option includes two DIMMs. DIMMs must be added in matched groups of four (e.g. 2, 4, 6 or 8 x 7002A). Order memory options in pairs. For best performance, systems should be configured with 8 or 16 identical DIMMs. 	
Footnotes	
<ol style="list-style-type: none"> Options are field installable. Standard configurations have a leadtime advantage over ATO orders. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems. Solaris PC NetLink 1.1 must be ordered separately. Standard Configurations are Sun's recommended configurations. 	

Sun Enterprise 420R Options

Description	Order Number
Internal Disks	
Internal 9.1-Gbyte, 10000 RPM 1" high, UltraSCSI disk drive	5234A ²
Internal 18.2-Gbyte, 10000 RPM UltraSCSI disk drive, 1" high	5237A ²
<i>Notes</i>	
<ul style="list-style-type: none"> • A minimum of one disk must be ordered with every base package. • Internal disks may be added individually. • Maximum configuration: 2 internal disks. 	
Internal Tape Drive Options	
12GB 4mm DDS-3 internal tape for Ultra 150 and Netra 150 systems and Enterprise 250 & 450 systems	X6286A ²
7-Gbyte 8mm Internal Tape Drive	X6213A ²
<i>Note: Maximum of one internal 5.25-inch HH tape drive may be installed by customer.</i>	
Internal PCI Host Adapters and Network Interface Cards	
Dual-channel single-ended UltraSCSI host adapter, PCI; factory installed includes two 2m SCSI cables	6540A ¹
Dual-channel differential UltraSCSI host adapter, PCI; factory installed includes two 2m SCSI cables	6541A ¹
PCI FC-AL single-loop host adapter 100MB/s optical interface.	X6729A
10/100BaseT F/W UltraSCSI PCI Adapter 1.0	1032A ¹
10/100Base FastEthernet PCI Adapter 2.0 w/MII Sun FastEthernet 2.0 PCI is a 10/100 Ethernet Network interface card supporting the 33 Mhz PCI interface standard. The Sun FastEthernet 2.0 PCI also offers a MII interface to support external peripheral devices. Factory installed option	1033A ¹
Quad FastEthernet PCI Card (QFE) Quad FastEthernet is a high performance, high density network interface card. QFE provides immediate increase in bandwidth to the user in the PCI interface format. OEM ready - 07/97	X1034A ²
FDDI Single-Attach PCI Bus Interface Adapter 2.0 installed in system chassis Factory Installed Option	1152A ¹
FDDI Dual-Attach PCI Bus Interface Adapter 2.0 Factory Installed Option	1153A ¹
Token Ring Interface PCI Bus Adapter 5.0 for Solaris 8 and earlier releases. Factory Installed Option	2154A ¹
High Speed Serial Interface PCI Bus Adapter 2.0 (PCI card, cable with four RS-449 connectors, Media, Docs and Single PCI license) Factory Installed Option	1155A ¹
Serial Asynchronous Interface PCI Bus Adapter 3.0 (PCI card, cable and external eight-port I/O box with RS-232 connectors, Media, and Docs) for Solaris 8 and earlier releases - Factory Installed Option	2156A ¹
Sun Gigabit Ethernet plus FC-AI Combination adapter (PCI)	X2069A ³
<i>Notes</i>	
<ul style="list-style-type: none"> • Maximum configuration: 4 PCI Cards. • See Options chapter for maximum supported number. 	

Footnotes

1. Add "X" before the order number (e.g., XnnnA) to order as a standalone option for existing systems.
2. When ordering an internal tape drive x-option, the CD-ROM drive must be removed to install the tape drive. An internal tape drive and CD-ROM drive cannot both be in the system at the same time.
3. Requires Solaris 7 11/99 or later release.

Sun Enterprise 420R Options *(continued)*

Description	Order Number
Power supply - Maximum of two	
Redundant power supply for E420R AND E220R	9684A
<i>Notes</i>	
<ul style="list-style-type: none">• <i>Maximum configuration: 2 power supplies (one is standard)</i>• <i>A fully configured system will operate on one power supply. The second power supply provides redundancy for greater system availability.</i>	
Power supply - Maximum of two	
Redundant power supply for E420R AND E220R	9684A
<i>Notes</i>	
<ul style="list-style-type: none">• <i>Maximum configuration: 2 power supplies (one is standard)</i>• <i>A fully configured system will operate on one power supply. The second power supply provides redundancy for greater system availability.</i>	