

PRIMEPOWER 450 4U

4-way Rack Server – Reliable and powerful workhorse for Solaris server farms

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PRIMEPOWER servers are proven Unix computers based on the latest high performance processor architecture (SPARC64™V) and running the worldwide No #1 Solaris™ Operating Environment. PRIMEPOWER gives you the confidence that your IT business processes are always up and running. PRIMEPOWER servers make sure that dynamically changing IT production tasks will always be finished in time, by effectively using all of the system resources – with no resources wasted and with unique flexibility to adopt to changing priorities.

PRIMEPOWER rack-servers are the perfect answers for an IT strategy that aims to downsize datacenter infrastructure costs. Simplified operation, cost-effective scaling and enhanced quality of datacenter IT production are the main benefits. The PRIMEPOWER ServerView Suite management functions care for less troubleshooting efforts and access from anywhere at any time, to provide a stable and reliable system performance.

PRIMEPOWER 450 4U

Consolidation strategies for corporate business applications in datacenter server farms need reliable and powerful building blocks which provide continuous operation and favourable cost of ownership. With up to four SPARC64™ V processors and up to 32 GB main memory the server represents the cadre for your datacenter. Build your adaptive enterprise with PRIMEPOWER 450 servers which offer all the functionality and reliability for your individual applications production platform. The model can handle every business application to get the job done quickly. In addition to its only 4 U size, up to six PCI-slots and redundant components the server is ideal adapted for application workloads requiring high availability and performance bandwidth. The fail-save system design with unique error checking and correcting (ECC) features in processor, cache and memory ensures superior continuity for your business logic applications. PRIMEPOWER 450 servers are powerful workhorse which offers businesses the performance commonly associated with larger systems; this helps to lower your production costs and increase the quality of IT operation.



Key Features	Benefits
<ul style="list-style-type: none"> Redundant components (power supply/fan) and disk-mirroring features allow vital components (power supply/fan/disk drive/built-in tape drive) to have hot-swap capability 	<ul style="list-style-type: none"> Fail-safe system design for business continuity and error avoidance
<ul style="list-style-type: none"> High performance through 1st and 2nd level caches on-chip, low memory latency and fast crossbar switch 	<ul style="list-style-type: none"> Highest performance and great bandwidth
<ul style="list-style-type: none"> High level of manageability by single and comprehensive system management tool PRIMEPOWER ServerView 	<ul style="list-style-type: none"> Cost efficiency in operation

PRIMEPOWER 450 4U Technical characteristics

- XA system architecture with up to 4 SPARC64™V processors with 1.65GHz or 1.98 GHz and 3MB level-2 cache on-chip
- Up to 32 GB DDR-SDRAM main memory conditioned to system versions, 4-way
- Up to 6 PCI controllers
- High-speed interconnect (crossbar) with 4 processors.
- Redundant hard disks (as option), fans (standard), power supply units (as option) and/or power phases (optional)
- Hot-swap components: hard disks, DAT drive, power supply units and fans
- Monitoring of operating status of system units in real time on system management console.
- 19-inch rack system units (4HU)
- New eXtended System Control Facility, XSCF, with:
 - Controlling and diagnostics when power is on.
 - Diagnostics when power is off.
 - Power on/off by command.
 - LAN console connection through LAN direct to XSCF LAN port.
 - Serial port (tty-a) for use with a console attached via RCA4.

SPARC64™ V – Processor Functions

- Super-scalar processing
- VIS™ – Visual Instruction Set
- 64-bit virtual address space
- 7 Execution Units (2 Load Store, 2 Fixed Point, 2 Floating Point, 1 Branch)
- Up to 4 instructions can be ended with each CPU-Clock cycle
- SMP – cache coherency support (MOESI-Protokoll)
- 2x128 KB on-chip Level1 low latency cache
- 4 way 16K entries branch history table
- optimized Branch Prediction method
- Concurrent out-of-order execution
- ECC (Error Correction Code) for
 - Level-1 data cache
 - Level-2 cache
 - High speed interconnect
 - Memory
- Parity for
 - CPU register
 - CPU core (data pathes and all ALU's)
 - TLB (Translation Look-aside Buffer)
 - Level-1 instruction cache
- Duplication of tags for level-1 instruction- and data- cache
- Automatic, in hardware implemented instruction recovery in case sporadic one-bit error of the CPU-core (AIR = Automatic Instruction Retry)
- Automatic degradation of parts of individual CPU subcomponents (ways) of level-1, level-2cache and TLB in the event of sporadic single-bit errors during operation
- Instruction TLB:
 - 1024 entry, 2 way, 8KB pages
 - + 1024 entry, 2 way, 4MB pages
 - + 32 entry, full associative 64KB, 512KB and locked page
- Data TLB:
 - 1024 entry, 2 way, 8KB pages
 - + 1024 entry, 2 way, 4MB pages
 - + 32 entry, full associative 64KB, 512KB and locked page
- 3 MB 3-way joint low latency on-chip level-2 Cache
- 400 Mio. Transistors, 90nm copper technology

Technical specifications PRIMEPOWER 450 4U

Server	GP450-GR4xEy	GP450-GR4xFy
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Processor

Type	SPARC64™V (equivalent to SPARC V9)	
CPUs	1-4 per Server	
Level-1 Cache, (I/D)	128KB / 128KB	
Level-2 Cache	3MB / CPU	
Clock Speed	1,65 GHz	1,98 GHz
SPECint_rate2000	55.4	64.6
SPECfp_rate2000	72.7	79.9

Main memory configuration

Type	Synchronous DDR SDRAM with ECC (even single-chip failure will be corrected)	
min. capacity	1 GB / server	
max. capacity	32 GB / server	
Expansion unit	1 GB or 2 GB or 4 GB	

I/O ports (Standard)

LAN	1 x Ethernet (10baseT / 100baseTX) 1 x Ethernet (10baseT / 100baseTX / 1000base TX)	
V.24 (RS232C)	1 x	
console port	1 x RS232C (on XSCF) 1 x Ethernet (10baseT / 100baseTX on XSCF)	
SCSI bus (for int. disks)	2 per Server (LVD U320)	
RCI	1 port (RJ45 6-pin)	
UPS	1 port / Server (D-sub 9-pin)	

PCI slots

PCI (64 bit)	6 slots (4x33 MHz, 2x33/66 MHz)
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PCI-controller

Ultra Dual SCSI	Ultra SCSI, 16 bit, D, 2 channels
LVD U320 Dual SCSI	U320 SCSI, 16bit, 2 channels
Fibre Channel	2 Gbit/s, Non-OFC
Fast Ethernet	10base-T/100base-TX, 1 or 4 channels
Gigabit Ethernet	1000 base-SX, 1 channel
Gigabit Ethernet	10baseT/100baseTX/1000 base-TX, 1 channel
Token Ring	100 / 16 / 4 Mbit/s
WAN	V.24, X.21, V.35, 2 Mbps
ISDN	S ₀ , S _{2m}

Mass storage (hard disks)

Type	LVD U320
Data rate	320 MB/s (sync, max)
Min. capacity	73 GB (U320) ¹⁾
Expansion unit	73 GB / 147 GB (U320) ¹⁾
Total capacity	588 GB (internal) / 12.9 TB (incl. 6 DN4x disk boxes) ¹⁾

DN4x disk box 3HU (1 per PCI adapter)

Hard disk bays	14 bays (2 x 7)
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BG57 peripheral box 3HU

Peripheral bays	4 bays (1,6" high) 1 to 4 SCSI strings
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Console

LAN-Console	1 x per server / mandatory in a network or a SMC from an Enterprise system
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Software

Operating system	Solaris™ 8 02/02, 9 und 10
Networking	ONC/NFS, TCP/IP, OSI, X.25
Compiler	C/C++, Fortran-90, COBOL, Java
System management	PRIMEPOWER ServerView Suite
Storage management	VERITAS Volume Manager & File System, PRIMECLUSTER

¹⁾ 1 MB = 10⁶ Byte, 1 GB = 10⁹ Byte

Installation specifications PRIMEPOWER 450 4U

		PW450 4HU rack version Up to 4-way
Width		445 mm
Depth		681 mm (728 mm over all)
Height		174 mm
Maintenance area		Maintenance area is specified in rack description
Weight		45 kg *1)
Rated voltage		200-240 VAC +/-10%
Mains connections		max. 3 x IEC320-C14
Frequency		50/60Hz +2%/-4%
Power consumption, max.		1150VA (1090 Watt)
Heat output, max.		3924 kJ/h
Operating temperature / Operating altitude		from 5 to 35 ° C / 0 – 1.500 m from 5 to 31° C / 1.501 – 3.000 m
Relative humidity		20 % - 80 %, no condensation
Electrical standards:	Safety	IEC60950 ; C22.2 No.60950 ; ICES003 (CSA 108.8) ; UL60950
	EMC	EN55022 / CISPR22 Class B ; EN61000-3-2 / EN61000-3-3
	Immunity	EN55024 / CISPR24
Environmental conditions:	Operation	EN60721-3-3, 3K2, 3M2, 3C2, 3S2
	Storage	EN60721-3-1, 1K2, 1M3, 1C2, 1S2
	Transport	EN60721-3-2, 2K2, 2M2, 2C2, 2S1
Ecology		ECO ; FSC 03230

*1) without the necessary mounting rails and supports