

# Sun Fire™ E20K Server



**Extreme high-end computing at an affordable price with exceptional investment protection.**

Based on the new UltraSPARC® IV+ processor with Chip Multithreading (CMT) technology, the enhanced Sun Fire™ E20K server delivers sophisticated availability, scalability, and manageability features to meet the highest levels of mission-critical computing.

An ideal platform for enterprise consolidation and mainframe migration, the Sun Fire E20K server is a 36-processor (up to 72 threads) datacenter system optimized for large-scale DSS/DW as well as OLTP databases, ERP, CRM, SCM, and other mission-critical business applications. The Sun Fire E20K can also grow with your business—it has the capacity to expand your headroom up to eighteen Uniboards, giving you up to 72 processors and up to 144 threads for maximum compute power.

The Sun Fire E20K server is designed to deliver the highest levels of reliability and availability through full hardware redundancy, Dynamic Reconfiguration, and Predictive Self-Healing. With up to 9 fault-isolated domains and thousands of Solaris™ Containers, the Sun Fire E20K server provides unprecedented virtualization capabilities for enterprise consolidation. The Sun Fire E20K server utilizes Sun's Predictive Self-Healing capabilities to support high reliability and data integrity, as well as Dynamic Tracing to optimize application performance—as high as 300% in certain customer scenarios. The Solaris OS and Sun Fire E20K server platform offers a balanced system architecture with robust throughput capabilities underwritten by the industry-unique Solaris Application Compatibility Guarantee.

The Sun Fire E4900–E25K servers are the only servers in the industry to offer common CPU/Memory Uniboards across the product line, allowing you to provision extra boards to address peak demands across multiple applications when needed. You can also maintain

current hardware investments by running mixed generations of UltraSPARC IV+, IV, and III processors seamlessly in the same server, minimizing costly migrations. And of course, adding, moving, or re-provisioning of Uniboards may be done online using Dynamic Reconfiguration.

The Sun Fire E20K server offers a balanced compute platform by combining the CPU/Memory Uniboards with an integrated, industry-standard PCI subsystem for excellent I/O bandwidth. Sun's proven multithreaded Solaris OS also offers additional high-end features such as Memory Placement Optimization, which, when coupled with superior hardware technologies such as the UltraSPARC IV+ processor and the Sun Fireplane interconnect, deliver maximum levels of value and performance. With Capacity on Demand (COD) 2.0, the Sun Fire E20K server offers “on demand” resources to meet changing business requirements—pay only when extra capacity is needed. Pre-installed Solaris OS and Java™ Enterprise System software also help organizations quickly deploy mission-critical applications.



## Key Feature Highlights

- Delivers up to 5 times the performance of UltraSPARC III servers and nearly double the performance of UltraSPARC IV servers in the same footprint.
- Scales up to 36 processors with 72 threads and up to 288GB memory for heavily threaded commercial applications.
- Unique Solaris OS application compatibility guarantee enables seamless migration to newer processor technologies.
- Mix and match UltraSPARC IV+, IV, and III processors in the same system for in-chassis upgrades to faster processors, without forced hardware migrations.
- Unique Uniboard technology common across Sun Fire E4900–E25K servers enables provisioning of extra resources when required.
- New RAS and security capabilities further enhance system uptime. Predictive Self-Healing predicts and prevents faults automatically.
- Unique Dynamic Reconfiguration capability saved customers nearly 1000 hours of planned downtime, for a conservative estimate of \$47M savings in one 90-day period.
- Dynamic System Domains technology—electrically fault-isolated hard partitions—and Solaris Containers can increase utilization up to 80%, making this an ideal platform for consolidation.
- Respond flexibly to changing business requirements with Capacity on Demand for “pay as you grow” computing options.

# Sun Fire E20K Server Specifications

## Processor

Number	Up to 36
Architecture	1.5GHz UltraSPARC IV+ and/or 1.05GHz/1.2GHz/1.35GHz UltraSPARC IV and/or 1.2GHz UltraSPARC III processors; Superscalar SPARC V9, ECC protected
Cache per processor	Level 1: 64 KB data and 64 KB instruction per pipeline Level 2: 2 MB on-chip Level 3: 32 MB external
System interconnect	150 MHz Sun Fireplane redundant 18x18 data, address, and response crossbar interconnect

## System

Processor/memory boards	Up to 9 Uniboard CPU/memory boards with four processors each, and up to 32 GB per board; maximum 288 GB per domain
I/O	Up to 36 hot-swappable PCI+ I/O slots; 27 slots are 66 MHz; 9 slots are 33 MHz; supports 10/100 BaseT Ethernet, Gigabit Ethernet, UltraSCSI (LVD and HVD), ATM, FC-AL, and HiPI

## Storage

Standard	250+ TB direct connect storage—Fibre Channel (1 GB and 2 GB) and UltraSCSI. For boot: Sun StorEdge™ 3120, Sun StorEdge S1, Sun StorEdge D240, Sun StorEdge 3510, Sun StorEdge 3310, and Sun StorEdge 9990. Direct attach to Sun StorEdge tape libraries and disk arrays, including: Sun StorEdge 3000, 6000, and 9000 families, providing excellent linear scalability.
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## Performance

Overall system bandwidth	Up to 86.4-GB/sec. aggregate, up to 57.6-GB/sec. peak, up to 21.6-GB/sec. sustained
Overall I/O bandwidth	Up to 12.6-GB/sec. sustained

## Availability

Standard	Hot-swap CPU, memory, I/O, power, fans, online upgrades, journaling file system, redundant network connections, redundant storage connections, hardened operating system kernel, hardened I/O drivers
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## Security

Domain management	Dedicated network connections (SC to 18 domains) inside Sun Fireplane interconnect
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## Resource Management

Standard	Sun's fifth-generation Dynamic System Domains, Solaris Resource Manager, and Bandwidth Manager
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## Software

Operating system (minimum version)	The minimum OS version for 1.5GHz UltraSPARC IV+ processors is Solaris 9/05 and Solaris 10 3/05 HW1  The minimum OS version for UltraSPARC IV processors is Solaris 8 2/04, Solaris 9 4/04, and Solaris 10 3/05
Languages	C, C++, Pascal, FORTRAN, Java
Networking	ONC™/NFS, TCP/IP, SunNet™ OSI, X.25 Start, DCE, Netware
System management	Sun MC 3.5 Version 4; SMS 1.4.1 (or later)
Network/file system	Sun QFS, Sun ZFS (future Solaris 10 release), VERITAS Volume Manager, VERITAS File System

## Environmental

AC power	200–240 single-phase VAC, 47–63 Hz. Two N+1 power grids, each using six 30-Amp circuits. Second power grid provided for redundancy
Optimum	22° C (72° F) at 45% noncondensing humidity
Range	10° C to 35° C (50° F to 90° F) at 20% to 80% noncondensing humidity
Altitude	Up to 3048 m (10000 ft.)

## Regulations (meets or exceeds the following requirements)

Safety	UL 60950, USA CAN/CSA-C22.2 No 60950, Canada EN 60950, Europe GOST-R, Russia CB Scheme with national differences
Additional Power Supply Safety	S Mark, Argentina CCC, China
Emissions	EN55022, Europe EN61000-3-2 & 3-3, Europe FCC Class A, USA ICES-003 Class A, Canada VCCI Class A, Japan CNS-13438 (BSMI), Taiwan AS/NZ 3548 (C-tick), Australia Gost-R, Russia MIC, Korea
Immunity	All European requirements EN55024 EN61000-4-2, -4-3, -4-5, -4-5, -4-6, -4-8, -4-11, EN300-386
Regulatory markings	FCC, ICES-003, CE, C-tick, VCCI, GOST-R, BSMI, UL/cUL, TUV-GS, MIC

## Key RAS Features

Full hardware redundancy, fault-isolated Dynamic System Domains, Dynamic Reconfiguration (DR), auto diagnosis and recovery, proactive self diagnostics, online upgrades, concurrent maintenance, end-to-end data integrity including ECC, redundant network connections, redundant storage connections, kernel hot patching, hardened operating system kernel, live operating system upgrades, journaling file system, hardened I/O drivers, CPU off-lining, memory page retirement, after-kernel hot patching, and cluster support.

## Upgrades

The Sun Upgrade Advantage Program (UAP) offers trade-in value for qualified Sun and competitive servers toward the purchase of replacement Sun Fire E20K server(s). Whether upgrading one system or consolidating many systems to one, Sun UAP offers the flexibility to trade in and receive credit toward the new Sun system purchased. Upgrades are also available for Sun Fire server system components, including processor/memory boards and I/O.

## Dimensions and Weight

Height	191 cm (74.75 in.)
Width	85 cm (33.25 in.)
Depth	166 cm (65.0 in.)
Weight	1122 kg (2468 lb.) fully configured

## Remote Services

SRS Net Connect

## Services

Sun provides a worldwide services portfolio that helps enable customers to develop a Sun Fire E20K solution designed for reliability, availability, serviceability, and growth. Sun can assist you to build an architecture plan, assess your current IT infrastructure, improve staff skills and efficiencies, and properly install your Sun Fire E20K system in your environment. Services highlights include: Sun Preventive Services, Enterprise Installation Services, Learning Services, Architecture Services, Migration/Consolidation Services, Sun Managed Services, and the Accredited Installation Provider program. For more information on Sun Services, please visit [www.sun.com/service](http://www.sun.com/service).

Get the details on how the Sun Fire E20K combines extreme high-end computing at an affordable price with exceptional investment protection. Contact your Sun Representative at 1-800-555-9SUN, or visit [sun.com/servers/highend/sunfire\\_E20K](http://sun.com/servers/highend/sunfire_E20K).