

# Fujitsu SPARC M12-1 Server

Oracle's Fujitsu SPARC M12-1 server is a high-performance, compact, entry-level server with high reliability that is ideal for data center integration and virtualization. Its SPARC64 XII processor core is up to 2.3 times faster than previous-generation SPARC64 X+ cores. Its single processor supports as many as six cores, a memory capacity up to 1 TB, and a large-capacity mass storage in a space-saving one-rack-unit (1U) chassis. The Fujitsu SPARC M12-1 server is optimized for entry and midrange enterprise applications. In addition, customers can enjoy the benefits of Capacity on Demand with core-level activation, as well as a suite of built-in virtualization technologies included at no cost.



## Key Benefits

- High performance for ERP, BIDW, OLTP, CRM, big data, and analytics workloads
- High availability to support demanding 24/7 mission-critical applications
- Fast and economical system capacity growth in small increments with no downtime
- Dramatic acceleration of Oracle Database In-Memory performance with new SPARC64 XII processor's Software on Chip capabilities
- Higher levels of system utilization and cost reduction through flexible resource configurations.

## PRODUCT OVERVIEW

The Fujitsu SPARC M12-1 server offers high reliability and outstanding processor core performance. It is an ideal entry-level server for traditional enterprise-class workloads such as online transaction processing (OLTP), business intelligence and data warehousing (BIDW), enterprise resource planning (ERP), and customer relationship management (CRM), as well as new environments in cloud computing or big data processing.

The Fujitsu SPARC M12 family of servers incorporate the SPARC64 XII ("twelve") processor, which features improved throughput performance with eight threads per core and significantly faster memory access through the use of DDR4 memory. Moreover, Fujitsu SPARC M12 servers deliver dramatic in-memory database performance increases by implementing key software processing functions onto the processor itself, a functionality called Software on Chip. These Software on Chip

features include single instruction, multiple data (SIMD) and decimal floating-point arithmetic logical units (ALUs).

Additional Software on Chip technology is implemented to accelerate cryptographic processing using the Oracle Solaris encryption library. This reduces the overhead of encryption and decryption dramatically.

### Keep Pace with Expanding Needs

The Fujitsu SPARC M12-1 server is designed to reduce total cost of ownership (TCO), rapidly deploy new business services, and reduce server sprawl by consolidating existing systems more cost-effectively and more reliably. IT managers can take advantage of enterprise-class reliability, availability, and scalability (RAS) features in this compact server and can incrementally grow capacity to meet their business requirements as they change.

### Oracle Solaris: the World's Most Advanced Enterprise Operating System

Only Oracle offers the Oracle Solaris binary application guarantee, which provides guaranteed binary and source-code compatibility for legacy applications. The Fujitsu SPARC M12-1 server supports Oracle Solaris 11 and 10, which offer the powerful Oracle Solaris ZFS file system, and unmatched capabilities such as dynamic tracing (the DTrace feature of Oracle Solaris), a cryptographic infrastructure, user and process rights management, and the Oracle Solaris IP Filter feature. In addition, Oracle Solaris 9 and 8 are supported using Oracle Solaris Legacy Containers.

### Advanced Virtualization and Consolidation

SPARC-based servers are the industry's most advanced consolidation and virtualization platforms. Oracle VM Server for SPARC software enables as many as 256 logical domains to be deployed in a single Fujitsu SPARC M12-1 server. The logical domains can be further virtualized with Oracle Solaris Zones, a feature of Oracle Solaris, which supports thousands of virtual machines.

### Key Features

- The SPARC64 XII processor core is up to 2.3 times faster than previous-generation SPARC64 X+ processor cores.
- The system supports up to six processor cores and 1 TB of memory.
- Software on Chip instructions on the SPARC64 XII processors accelerate key database functions.
- Per-core activation allows granular and agile response to changes in business requirements.
- Layered virtualization includes Oracle VM Server for SPARC and Oracle Solaris Zones technologies.
- Server management is done through the independent service processor's eXtended System Control Facility (XSCF).

## FUJITSU SPARC M12-1 SERVER SPECIFICATIONS

ARCHITECTURE
Processor
<ul style="list-style-type: none"><li>• 6-core, 3.2 GHz SPARC64 XII processor</li><li>• Dual-instruction pipeline per core</li><li>• 48 threads per processor (8 threads per core)</li><li>• 48 integer execution units per processor (8 per core)</li><li>• 48 floating-point units per processor (8 per core)</li><li>• 1 random number generator (1 per processor)</li></ul>
Cache per Processor
<ul style="list-style-type: none"><li>• Level 1: instruction: 64 KB; data: 64 KB per core</li><li>• Level 2: 512 KB per core</li><li>• Level 3: 16 MB per processor</li></ul>

## System Configuration

- Fujitsu SPARC M12-1 servers are always configured with one SPARC64 XII processor
- 16 dual inline memory module (DIMM) slots per processor support half and fully populated memory configurations using 16, 32, or 64 GB DDR4-2400 DIMMs
  - 1 TB maximum memory configuration with 64 GB DIMMs

## System Architecture

- SPARC V9 architecture, ECC protected

## INTERFACES

- Network: Four 10 GbE (100 Mb/sec/1 Gb/sec/10 Gb/sec), IEEE 802.3an (10GBASE-T) standards, auto-negotiation
- Disks and internal storage: One SAS-2 controller providing hardware RAID 0, 1, and 1E/10 (ZFS file system provides higher levels of RAID)
- Expansion bus: Three low-profile PCIe 3.0 (3 x8) slots
- PCI Expansion Units: Up to 33 slots (with three PCI expansion units connected)
- Ports: Two external USB (one front USB 2.0 and one rear USB 3.0)
- Administration interface: Two 1000Base-T (RJ45) network ports, one RJ45 serial management port, One USB port (for maintenance only)

## MASS STORAGE AND MEDIA

### Internal storage:

- Up to eight 2.5-inch SAS-2 drives
  - 600 GB or 1.2 TB hard disk drives (HDD)
  - 400 GB or 800 GB solid state drive (SSD)
- Fujitsu flash accelerator NVMe PCIe 3.0 cards
  - Fujitsu 3.2 TB Flash Accelerator, maximum of three

### External storage:

- External DVD drive available
- Oracle offers a complete line of best-in-class, innovative storage, hardware, and software solutions, along with renowned world-class service and support. For more information, please refer to [oracle.com/storage](https://oracle.com/storage)

## POWER SUPPLIES

- Two hot-swappable AC 770 W redundant (1 + 1) power supplies
- Voltage 100 to 120 VAC, 200 to 240 VAC, frequency 50/60 Hz
- Maximum operating input current at 100/200 VAC: 8.1/4.0 A
- Maximum operating input power at 100/200 VAC: 785/774 W

## KEY RAS FEATURES

- End-to-end ECC protection
- Guaranteed data path integrity
- Automatic recovery with instruction retry
- Dynamic L1, L2, and L3 cache way degradation
- ECC and extended ECC protection for memory, memory mirroring, periodic memory patrol, and Predictive Self Healing (a feature of Oracle Solaris)

- Hardware redundancy in memory (when mirroring), HDD/SSD, PCI cards (multipath configuration), power system, power supply unit (PSU), and fan
- Hot-pluggable HDD/SSD, PSU, and fan. Hot plugging of PCI cards supported with the PCI Expansion Unit
- Live operating system upgrades
- Firmware updates during system operation

## SOFTWARE

### Operating System

Oracle recommends the latest version of Oracle Solaris 11.4 for enhanced performance and functionality, including features enabled by Software on Chip technology

- Control domain:
    - Oracle Solaris 11.3 + SRU11.3.17.5.0 or later
    - Oracle Solaris 11.2 + SRU11.2.15.5.1
    - Oracle Solaris 11.1 + SRU11.1.21.4.1
    - Oracle Solaris 10 1/13 plus required patches
  - The following versions are supported within guest domains:
    - Oracle Solaris 11.1 or later Oracle Solaris 10 1/13\*
    - Oracle Solaris 10 8/11\*
    - Oracle Solaris 10 9/10\*
- \* Plus required patches

Applications certified for Oracle Solaris 9 or 8 only may run in an Oracle Solaris 9 or 8 branded zone running within an Oracle Solaris 10 domain.

### Software Included

- Oracle Solaris 11.4 (latest version), which includes Oracle VM Server for SPARC
- Oracle Solaris ZFS (default file system)

### Virtualization

Built-in, no-cost Oracle VM Server for SPARC provides the flexibility and power for running multiple logical domains in a single server. Multiple Oracle Solaris Zones may be run within a single Oracle VM Server for SPARC logical domain.

## ENVIRONMENT

### Operating temperature:

- 5° C to 35° C at 0 to 500 m (41° F to 95° F at 0 to 1,640 ft.)
- 5° C to 33° C at 501 to 1,000 m (41° F to 91° F at 1,641 to 3,280 ft.)
- 5° C to 31° C at 1,001 to 1,500 m (41° F to 88° F at 3,281 to 4,920ft.)
- 5° C to 29° C at 1,501 to 3,000 m (41° F to 84° F at 4,421 to 9,840 ft.)

### Nonoperating temperature:

- -25° C to 60° C (-13° F to 140° F) (packed)
- 0 to 50° C (32° F to 122° F) (nonpacked)

Operating relative humidity: 20% to 80% relative humidity, noncondensing

Nonoperating relative humidity: 8 to 80% relative humidity, noncondensing

Operating altitude: 0 m to 3,000 m (0 feet to 9,840 feet)

#### Acoustic noise

DESCRIPTION	ONE CPU INSTALLED
Sound power level	7.4 B
Sound pressure level	58 dB

#### REGULATIONS (MEETS OR EXCEEDS THE FOLLOWING REQUIREMENTS)

##### Safety:

- UL/CSA 60950-1, UL/CSA 62368-1, EN 60950-1, EN 62368-1, IEC 60950-1 CB scheme with all country differences, IEC 62368-1 CB scheme with all country differences

##### EMC:

- Emissions: FCC 47 CFR 15, ICES-003, EN 55032, KN32, VCCI V3, EN 61000-3-2, EN 61000-3-3, JIS C 61000-3-2
- Immunity: EN 55024, KN35

##### Certifications:

- North America Safety (NRTL), European Union (EU), International CB Scheme, BSMI (Taiwan), RCM (Australia), CCC (PRC), KCC (Korea), VCCI (Japan), EAC (Eurasian CU), BIS (India)

##### European Union directives:

- Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU as amended, Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, WEEE Directive 2012/19/EU, and Eco design Directive 2009/125/EC

All standards and certifications referenced are to the latest official version. For additional detail, please contact your sales representative.

Other country regulations/certifications may apply.

#### DIMENSIONS AND WEIGHT

- Height: 42.5 mm (1.67 inches); 1U
- Width: 431 mm (17.0 inches)
- Depth: 721 mm (28.4 inches)
- Weight: 18 kg (40 lb.)

## WARRANTY

The Fujitsu SPARC M12-1 server comes with a one-year warranty. Visit [oracle.com/us/support/policies/](https://oracle.com/us/support/policies/) for more information about Oracle's hardware warranty.

## COMPLETE SUPPORT

With Oracle Premier Support, you will get the services you need to maximize the return on your investment in the Fujitsu SPARC M12-1 server. Complete system support includes 24/7 hardware service, expert technical support, proactive tools, and updates to Oracle Solaris, Oracle VM, and integrated software (such as firmware)—all for a single price. Learn more at [oracle.com/support](https://oracle.com/support)

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