Fujitsu M10-4 Server Powered by the SPARC64™ X and X+ Processor – Frequently Asked Questions

Overview

The Fujitsu M10-4 server is a high performance and high reliability mid-range server, and is the best choice for data center integration and virtualization.
The Fujitsu M10-4 server can be configured with up to 64 cores, large-capacity memory and disk. CPU resources can be expanded in stages by core-based CPU Activation after starting with the minimum number of 4 CPU cores.
The Fujitsu M10-4 uses the new 8-core 3.7GHz SPARC64 X+ ("ten plus") processor, the 16-core 3.4 GHz SPARC64 X+ or the16-core 2.8GHz SPARC64 X ("ten") processor. Innovative Software on Chip capabilities deliver dramatic performance increases by implementing key software functions directly in hardware. The Fujitsu M10-4 is highly flexible with two built-in no-cost virtualization technologies, Oracle VM Server for SPARC and Oracle Solaris Zones.

Customer Benefits

Increased Performance

Processor and system design improvements and innovations such as 8-core or 16-core processors, 24MB of Level 2 cache, PCIe Gen3 I/O, DDR3-1600 memory, Software on Chip, System on Chip, and Liquid Loop Cooling dramatically improve the performance with enterprise workloads.

Increased Capacity

The Fujitsu M10-4 server can be extended from a minimum of 4 cores to a maximum of 64 cores (or 32 cores with the 8-core 3.7GHz SPARC64 X+ processor) in stages by purchasing CPU Activation licenses in two-core increments reducing the initial investments.

Increased Flexibility

To enhance flexibility, multiple and independent logical domains can be configured by Oracle VM Server for SPARC. For additional flexibility, multiple Oracle Solaris Zones can be configured in a logical domain. Resource allocation of CPU/memory can be changed dynamically.

Improved Reliability

Many mainframe class reliability, availability and serviceability (RAS) features come standard in the Fujitsu M10-4 server, including automatic recovery with instruction retry, up to 4TB of system memory with error-correcting code (ECC) protection with extended ECC support, guaranteed data path integrity, and configurable memory mirroring. Plus, the disks, power supply, and fans are redundant and hot-swappable, and the I/O cards are also hot-swappable.

Expandability

Users can easily optimize server resource with core-based CPU Activation. I/O capacity can be scaled up to 71 slots by connecting external PCI Expansion Units, which enables mid-range class scalability.

Unmatched Investment Protection

Oracle Solaris 8 and 9 run on the Fujitsu M10-4 server using Oracle Legacy Solaris Containers. Oracle provides the Solaris Binary Application Guarantee which means the Fujitsu M10-4 supports legacy SPARC/Oracle Solaris applications. Customers can easily migrate from physical servers to Oracle Solaris Zones using the Oracle P2V tools. This also maximizes ROI and minimizes investment risks.

Target Market and Uses

The Fujitsu M10-4 server is ideal for application and database deployments as well as server consolidation. Mission-critical applications can take full advantage of the Fujitsu M10-4 server's advanced RAS features, no-cost built-in virtualization and CPU Activation for fast and economical resource growth.

Frequently Asked Questions

What is Fujitsu M10-4 server?
The Fujitsu M10-4 server is a highly flexible system powered by the latest SPARC64 X / X+ processors. The Fujitsu M10-4 server can be extended from a minimum of 4 cores to a maximum of 64 cores (or a maximum of 32 cores with the 3.7GHz SPARC64 X+ processor) in stages by using CPU Activation. CPU Activation reduces the initial investment and allows for easy and economical growth. The Fujitsu M10-4 supports up to 4TB of main memory using 64GB DIMMs. The Fujitsu M10-4 server supports eleven PCI Express 3.0 short low-profile slots and up to 71 PCI Express slots with the optional PCI Expansion Units.

What are the changes in the SPARC64X/X+ processors that lead to the dramatic improvements in the performance of Fujitsu M10-4 server?
The SPARC64 X /X+ processor on the Fujitsu M10-4 has 16 dual-thread cores and 24MB of L2 cache or 8 dual-thread cores and 24MB of L2 cache compared to the 4 dual-thread cores and 11MB of L2 cache of the SPARC64 VII+ in the previous generation of SPARC M-Series servers. The SPARC64 X /X+ processor applies supercomputer technology to business applications, achieving dramatically higher performance. Software on Chip and System on Chip technologies include the following innovations:

Software on Chip
Software on Chip features are designed to accelerate specific workloads involving large scale data processing, decimal number execution, and cryptographic processing. Application developers can take advantage of these innovations through the familiar Oracle Solaris Studio Compilers and Oracle Solaris facilities. Software on Chip technology enables significant performance improvements by implementing functions previously performed by software into the CPU hardware in the following areas:

- Single Instruction Multiple Data (SIMD) instructions:
  SIMD instructions are supported in the SPARC64 X /X+ processor. Up to eight 8-bit data can be compared at the same time. This function will accelerate searching large amounts of data, compressing/decompressing data, in-memory database operations, etc.
- Decimal floating-point operation:
  The SPARC64 X /X+ processor has a decimal floating-point operation unit that can directly and quickly execute decimal floating-point operations that were previously executed by software. Oracle Number and the IEEE754-2008 standard operations are supported.
- Encryption arithmetic:
  The SPARC64 X /X+ processor includes an encryption processing unit which enables high-speed encryption/decryption processing without external adaptors or complex software. The SPARC64 X/X+ encryption unit supports AES, DES, 3DES, RSA and SHA. The SPARC64 X /X+ processor can improve data security with full database encryption.

System on Chip
The SPARC64 X /X+ processor integrates CPU, four memory controllers, two IO controllers, and a high-speed interconnect into a single chip for higher bandwidth and reduced latency which improves performance. In addition, a reduction in the number of components improves reliability and reduces the system size.

Liquid Loop Cooling
Liquid Loop Cooling in Fujitsu M10-4 servers is an innovative high-efficiency hybrid air and liquid cooling technology that maximizes performance, minimizes space, and reduces noise. The coolant circulates using small pumps on each board moving the heat to a small heat exchanger on each board which is air-cooled. Liquid Loop Cooling reduces the size of the heat sink and fan, leading to space-savings and reduction of noise. It also dramatically improves the internal design of the server, allowing CPUs and memory to be packed closer together reducing memory latencies. Effective control of CPU temperatures improves the reliability of the components and the entire system.

Why should I use Fujitsu M10-4 server?
The Fujitsu M10-4 server is ideal for mission critical computing, scalability, and investment protection and is an ideal platform for single-threaded applications such as databases, business analytics and business intelligence (BA/BI) applications, data mining, and batch processing.

What virtualization technologies are available for the Fujitsu M10-4 server?
The no-cost virtualization of the Fujitsu M10-4 server enables configuration flexibility to improve server utilization. Multiple and independent logical domains can be configured using Oracle VM Server for SPARC. Also, multiple Oracle Solaris Zones can be configured inside a logical domain. Resource allocation of CPU/memory between zones can be changed dynamically.

What is CPU Activation?
The CPU Activation feature of SPARC 64 X/X+ processors, also known as “capacity on demand”, allows users to pay only for the processor cores that they need. The Fujitsu M10-4 server can be configured with as few as four processor cores out of a maximum of 64 (or 32 cores with the 8-core 3.7GHz SPARC64 X+ processor) and activation licenses can be purchased later as compute requirements grow. Processor core activation licenses can be purchased in pairs. CPU Activation optimizes the resources in a timely manner in accordance with workload requirements. New per core licenses can be activated using CPU Activation without stopping the system. Core activation licenses can be moved from one Fujitsu M10-4 server to other Fujitsu M10-4 servers. Furthermore, in the case of a CPU core failure unlicensed cores will automatically take the place of the failed core.

What is the memory, storage, and expansion options supported on the Fujitsu M10-4?
It supports up to 4TB of memory using 64GB DIMMs, eleven PCI Express I/O slots, and up to eight 900GB or 600GB internal, 2.5in SAS HDDs and 400GB SSD. Data on the internal disk can be further protected using the built-in HW RAID support. I/O connectivity can scale up to 71 slots by connecting external PCI Expansion Units, which enables mid-range class scalability.

What are the system management options available for the Fujitsu M10-4 server?
The Fujitsu M10-4 server includes the eXtended System Control Facility (XSCF), which is driven by an integrated system service processor that also has power management and power capping capability to help reduce energy consumption and costs. Oracle Enterprise Manager Ops Center is can be used to manage all aspects of hardware and virtualization configuration, maintenance and provisioning integrated with the complete Oracle stack. Oracle Enterprise Manager Ops Center is provided at no charge to customers that have Oracle support for their Fujitsu M10 servers.

What are the operating systems that have been certified to run on the Fujitsu M10-4 server?
The Fujitsu M10-4 server supports Oracle Solaris 11 and Oracle Solaris 10. Oracle Solaris 8 and 9 can run on the Fujitsu M10-4 server with Oracle Solaris Legacy Containers.

What software is pre-installed on the Fujitsu M10-4 server?
Oracle Solaris 11

What are the power and cooling requirements for the Fujitsu M10-4 server?
The online power calculator provides guidance for estimating the electrical and heat loads for typical operating conditions. Click here to access the requirements.
http://jp.fujitsu.com/platform/server/sparc/tool/power/m10-4-e.html

What are the service and support options?
Oracle offers tailored mission critical services and support options. Comprehensive product installation, configuration, optimization and on-going monitoring and tailored support are available from Oracle Advanced Customer Services. Oracle service professionals deliver the technical product expertise, tools, best practices and project management knowledge to help ensure a smooth and highly optimized implementation.

Can I choose my system configuration?
The Fujitsu M10-4 server is ordered as “Assemble to Order-ATO” which allows for customer control of the configuration.

Where can I get more information?

The Fujitsu M10-4 server data sheet provides additional detailed information:
http://www.oracle.com/us/products/servers-storage/servers/sparc/fujitsu-m10/fujitsu-m10-4/m10-4-ds-1924204.pdf or
http://www.oracle.com/goto/fujitsu-m10-4

Contact your Oracle Sales representative directly, call 1-800-Oracle1 or email acsdirect_us@oracle.com or visit oracle.com/acs for additional information about Oracle Advanced Customer Services.

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