

Oracle MiniCluster S7-2

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MINICLUSTER



Oracle MiniCluster S7-2 is an extremely simple and efficient engineered system designed to run enterprise databases and applications with uncompromising security. Its simplicity, out-of-the-box performance and reliability, and small form factor make it an excellent choice for remote offices, small offices, and agile software development (DevOps) environments. It is ideal for highly security-sensitive applications, such as managing patient medical records, processing financial transactions, handling secure communications, running mission-critical enterprise resource planning (ERP) applications, and hosting security-related services.

Oracle MiniCluster S7-2 makes it easy for users to install, configure, patch, tune, and secure the system with no special training and with minimal effort. The system integrates and automates hundreds of unique security technologies and controls such as memory intrusion protection, data encryption, a software firewall, and read-only virtual machines (VMs). Oracle MiniCluster S7-2 incorporates fully redundant, high-performance shared flash storage and active/active electrically isolated compute nodes with redundant network connectivity for a highly available architecture that is appropriate for extremely performance-sensitive, mission-critical applications. The system is powered by Oracle's SPARC S7 processor, which delivers higher baseline per-core performance than x86 processors and features Silicon Secured Memory, Data Analytics Accelerators (DAX), Cryptographic Acceleration, and In-Line Memory Decompression for unprecedented levels of security and analytics performance. The extreme efficiency of the system means workloads can be run with less hardware and software and with less administrative time and effort, resulting in lower operational costs, and faster time to value.

KEY FEATURES

- Oracle MiniCluster S7-2 Virtual Assistant
- Thirty-two SPARC S7 processor cores
- Silicon Secured Memory and DAX
- Near-zero-overhead encryption
- 1 TB of memory, 16.8 TB of raw flash-based storage, and 48 TB of raw disk-based storage
- Zero-overhead virtualization and automated application VM provisioning
- Built-in high availability
- Security and compliance automation
- Automated installation and zero-downtime patching
- Automated Oracle Database and Oracle RAC deployment
- Performance self-tuning

KEY BENEFITS

- Oracle MiniCluster S7-2 is a simple, secure, and efficient machine for database and applications.
- Oracle MiniCluster S7-2 is a single preintegrated system, from compute and storage to virtualization, operating system, and management.
- The Virtual Assistant makes installation and deployment of complex Oracle RAC database clusters, setting up application VMs, managing security and compliance, and deploying full-system patches push-button simple.
- Hundreds of security technologies and controls are integrated by default, providing ultrastrong PCI-DSS or CIS-equivalent compliance through a single menu selection.
- Oracle MiniCluster S7-2 features on-demand or scheduled compliance reporting, an encryption status dashboard, and a system health monitor with self-tuning performance optimizer.
- The SPARC S7 processor, all-flash database storage, and system-wide automation deliver outstanding operational, software, hardware, and data center resource efficiency.

Simple

The Oracle MiniCluster S7-2 operational suite dramatically reduces risk, required training, and administrator effort resulting in lower operational costs.

- **Run** virtually any Oracle workload, database, and applications at optimal performance out of the box.
- **Simplify day-to-day operations** with the Virtual Assistant, which abstracts the hardware and software stack and eliminates the need for specialized OS skills and training.
- **Deploy turn-key, error-free configurations** of Oracle Database. The Virtual Assistant automates the deployment of an Oracle RAC cluster and provides an easy, error-free approach to implementing highly available Oracle Database instances. Oracle Database 11g Release 2 and 12c databases are supported. Database instances can be single-instance, Oracle Real Application Clusters (Oracle RAC), or Oracle RAC One Node.
- **Use the Virtual Tuning Assistant to eliminate effort** and guesswork by automatically implementing, monitoring, and tuning system settings.
- **Keep your system up to date** using a unified full-system update bundle that can run in an automated, rolling manner.
- **Accelerate** application test and development by rapidly bringing up and resetting the system. Few or no system administration skills are required.

Secure

Oracle MiniCluster S7-2 integrates a range of unique technologies and approaches in order to provide a highly secure infrastructure with minimal effort and risk.

- **Secure your applications with hundreds of security controls** that are integrated into the system by default:
 - Encrypted data at rest, by default
 - Ready-to-use hardened and minimized VMs and secure access via SSH, TLS, and IPSec
 - Secure Oracle Integrated Lights Out Manager (Oracle ILOM) and verified boot environment
 - Role-based access control with least privileges
 - Centralized key management with PKCS#11, KMIP, and FIPS support
 - Comprehensive audit policy with centralized audit logs
- **Easily comply** with PCI-DSS or CIS security standards with the push of a button.
- **Verify the compliance** of VMs automatically either monthly or on demand through the built-in compliance verification tools. This allows security experts and system administrators to quickly and easily verify that IT systems are secure and compliant with mandated standards and best practices.
- **Actively protect data in memory** from security exploits, such as Heartbleed, with the SPARC S7 processor's **Silicon Secured Memory** capabilities. SPARC S7 processors have the unique ability to prevent software programs from gaining unintended or unauthorized access to physical system memory. This eliminates the risk that data held in memory can be compromised through well-known exploits, even when software programs have defects that would be relatively easy to exploit on other platforms.

RELATED PRODUCTS

- Oracle SuperCluster M7
- Oracle's SPARC S7-2 server
- Oracle Solaris
- Oracle Database 11g and 12c
- Oracle RAC
- Oracle Optimized Solutions

RELATED SERVICES

- Oracle Premier Support for Systems
- Oracle Consulting services
- Oracle University courses

- **Encrypt end-to-end data** with near-zero overhead through the SPARC S7 processor's **Cryptographic Acceleration** feature. By adding a broad range of enhanced cryptographic acceleration capabilities to the design of the SPARC S7 processor, Oracle has made it possible to fully secure data that is stored on disks or transmitted over networks with virtually no perceptible impact on application or database performance and efficiency.
- **Through read-only VMs, ensure application administrators** and compromised applications are unable to accidentally or deliberately alter the configuration of VMs in ways that would expose systems to attack.
- **Determine the root cause** of problems and take corrective action immediately, without lengthy and error-prone forensic analysis, through end-to-end audit trails, which are enabled by default.

Efficient

Oracle MiniCluster S7-2 is built with Oracle's SPARC S7 processor, all-flash database storage, and virtualization technologies that offer bare-metal performance and unique capabilities for accelerating in-memory databases and applications.

- **Improve efficiency** across the board with the **SPARC S7 high-performance microprocessor**, which has additional performance enhancements for cryptographic acceleration and Oracle Database 12c query acceleration integrated directly into the processor design.
- **Accelerate Oracle Database 12c performance** by storing databases many times larger than the physical memory in the system, thanks to a highly compressed format using the SPARC S7 processor's **In-Line Decompression**.
- **Dramatically speed up analytics** with the SPARC S7 processor's **SQL in Silicon**, a feature that offloads key parts of SQL operations to Data Analytics Accelerators. This drives simultaneous real-time analytics and transaction processing performance to levels that cannot be matched by any standard x86 or IBM Power system. By offloading these operations, compute cores are also freed to do other work.
- **With all-flash storage, achieve high transaction processing** and batch performance on Oracle Database workloads with.
- **Through subcapacity software licensing, reduce costs** by licensing software on only the specific processors that are actually running the software at any given time. As your software workload grows, simple configuration tools make it possible to add more processors to your deployment in a matter of moments.

ORACLE MINICLUSTER S7-2 HARDWARE SPECIFICATIONS

Component	Description
System Architecture	Two SPARC S7-2 servers from Oracle with one storage shelf per system
SPARC S7-2 Servers	<p>Each SPARC S7-2 server is configured with the following:</p> <ul style="list-style-type: none"> • Two eight-core SPARC S7 processors (4.27 GHz) • 512 GB (16 x 32 GB) of memory • Standard I/O <ul style="list-style-type: none"> » One quad port 10 Gb Ethernet adapter (Fibre Channel) from Oracle » Four on-board 100/1000/10000 Mb/sec Base-T ports » Two 12 Gb SAS PCIe HBAs from Oracle for external storage connectivity • Storage <ul style="list-style-type: none"> » Two 2.5-inch 1.2 TB 10K rpm HDDs per server for the OS » Four 2.5-inch 1.2 TB 10K rpm HDDs per server for local storage
Oracle Storage Drive Enclosure DE3-24C	<p>One Oracle Storage Drive Enclosure DE3-24C. Each is configured with the following:</p> <ul style="list-style-type: none"> • Fourteen 3.5-inch 1.6 TB SSDs (partitioned as 1.2 TB) <ul style="list-style-type: none"> » 16.8 TB raw; 7.2 TB (double-mirrored) or 4.5 TB (triple-mirrored) usable capacity • Four 2.5-inch (3.5-inch bracket) 200 GB SSDs for database redo logs • Six 3.5-inch 8 TB 7.2K rpm HDDs • External NFS storage support
Systems Management Interfaces	<ul style="list-style-type: none"> • Dedicated 10/100/1000Base-T network management port • In-band, out-of-band, and side-band network management access • RJ45 serial management port
Service Processor	<p>Oracle ILOM, which provides the following:</p> <ul style="list-style-type: none"> • Remote keyboard, video, mouse redirection • Full remote management through command-line, IPMI, and browser interfaces • Remote media capability (USB, DVD, CD, ISO image) • Advanced power management and monitoring • Active Directory, LDAP, RADIUS support • Dual Oracle ILOM flash • Direct virtual media redirection • FIPS 140-2 mode using OpenSSL FIPS certification (#1747)

ORACLE MINICLUSTER S7-2 SOFTWARE

Component	Description
Oracle Software (Included)	<ul style="list-style-type: none"> • Oracle Solaris 11.3 • Oracle MiniCluster S7-2 Virtual Assistant • Oracle Solaris Zones • Oracle Engineered Systems Health Manager
Oracle Software (Sold Separately)	<p>Choice of Oracle Database software, depending on the desired level of availability:</p> <ul style="list-style-type: none"> • Oracle Database 11g Release 2 Enterprise Edition or Oracle Database 12c Enterprise Edition • Oracle Real Application Clusters One Node • Oracle Real Application Clusters

ORACLE MINICLUSTER S7-2 SUPPORT

Component	Description
Oracle Software (Included)	<ul style="list-style-type: none"> Oracle Premier Support for Systems <ul style="list-style-type: none"> » Essential support services including 24x7 support with two-hour onsite hardware service response time (subject to proximity to service center), proactive tools, and online resources Oracle Auto Service Request

ORACLE MINICLUSTER S7-2 ENVIRONMENTAL SPECIFICATIONS

Component	Description
Dimensions	<ul style="list-style-type: none"> 1.7" H x 17.2" W x 29" D per SPARC S7-2 server 6.89" H x 17.64" W x 21.96" D for Oracle Storage Drive Enclosure DE3-24C
Weight	<ul style="list-style-type: none"> 153 lb.
Power	<ul style="list-style-type: none"> 1,760 VA max; 1,097 VA typical 1,672 W max; 1,042 W typical
Cooling	<ul style="list-style-type: none"> 6,005 BTU/hour max; 3,742 BTU/hour typical 6,330 J/hour max; 3,944 J/hour typical
Airflow	<ul style="list-style-type: none"> 278 CFM max, 173 CFM typical
Operating Temperature/Humidity	<ul style="list-style-type: none"> 5° C to 35° C (41° F to 95° F), 10% to 90% relative humidity, noncondensing
Altitude Operation	<ul style="list-style-type: none"> Up to 9,840 feet (3,048 m)², maximum ambient temperature is derated by 1° C per 300 m above 900 m
Regulations ^{1,2,3}	<ul style="list-style-type: none"> Product safety: UL/CSA 60950-1, EN60950-1, IEC 60950-1 CB Scheme with all country differences EMC emissions: FCC 47 CFR 15, ICES-003, EN55022, EN61000-3-2, EN61000-3-3 EMC immunity: EN55024
Certifications ²	<ul style="list-style-type: none"> NRTL, EU, International CB Scheme, BIS, BSMI, RCM, MSIP, VCCI, Morocco, Republic of Srpska, Vietnam
Other ³	<ul style="list-style-type: none"> Complies with 2014/35/EU Low Voltage Directive, 2014/30/EU EMC Directive, 2011/65/EU RoHS Directive, 2012/19/EU WEEE Directive

¹ All referenced standards of certification are to the latest official version.

² Other county regulations/certifications may apply.





³ In some cases, as applicable, regulatory and certification compliance were obtained at the component level.

CONTACT US

For more information about Oracle MiniCluster S7-2, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



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