Oracle Database Appliance X8-2-HA

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DATABASE APPLIANCE

Oracle Database Appliance X8-2-HA is an Oracle Engineered System that saves time and money by simplifying deployment, management, and support of high availability database solutions. Optimized for the world's most popular database— Oracle Database—it integrates software, compute, storage, and network resources to deliver high availability database services for a wide range of custom and packaged online transaction processing (OLTP), in-memory database, and data warehousing applications. All hardware and software components are engineered and supported by Oracle, offering customers a reliable and secure system with built-in automation and best practices. In addition to accelerating the time to value when deploying high availability database solutions, Oracle Database Appliance X8-2-HA offers flexible Oracle Database licensing options and reduces operational expenses associated with maintenance and support.

Fully Redundant Integrated System

Providing access to information 24/7 and protecting databases from unforeseen as well as planned downtime can be a challenge for many organizations. Indeed, manually building redundancy into database systems can be risky and error-prone if the right skills and resources are not available in-house. Oracle Database Appliance X8-2-HA is designed for simplicity and reduces that element of risk and uncertainty to help customers deliver higher availability for their databases.

The Oracle Database Appliance X8-2-HA hardware is an 8U rack-mountable system containing two Oracle Linux servers and one storage shelf. Each server features two 16-core Intel® Xeon® Gold 5218 processors, 384 GB of memory, and choice of either a dual-port 25-Gigabit Ethernet (GbE) SFP28 or a quad-port 10GBase-T PCIe network adapter for external networking connectivity with the option to add up to two additional dual-port 25GbE SFP28 or quad-port 10GBase-T PCIe network adapters. The two servers are connected together via a 25GbE interconnect for cluster communication and share direct-attached high performance SAS storage. The storage shelf in the base system is partially populated with six 7.68 TB solid-state drives (SSDs) for data storage, totaling 46 TB of raw storage capacity.

Oracle Database Appliance X8-2-HA runs Oracle Database Enterprise Edition or Oracle Database Standard Edition and offers customers the option of running single-instance databases as well as clustered databases utilizing Oracle Real Application Clusters

KEY FEATURES

- Fully integrated and complete database and application appliance
- Oracle Appliance Manager
- Browser User Interface (BUI)
- Oracle Database Enterprise Edition and Standard Edition
- Oracle Real Application Clusters or Oracle Real Application Clusters One Node
- Oracle Automatic Storage Management
- Oracle ASM Cluster File System
- Oracle Linux and Oracle VM
- Two servers
- Up to two storage shelves
- Solid-state drives (SSDs) and hard disk drives (HDDs)
- 10GBase-T or 10/25 GbE SFP28 networking ports

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(Oracle RAC) or Oracle RAC One Node for "active-active" or "active-passive" database server failover.

Optional Storage Expansion

Oracle Database Appliance X8-2-HA offers the flexibility to expand the storage shelf that comes with the base system by adding up to eighteen additional SSDs or hard disk drives (HDDs) for data storage. A fully populated storage shelf contains either twenty-four SSDs or six SSDs and eighteen HDDs for data storage, for a total of 184 TB SSD or 46 TB SSD and 252 TB HDD raw storage capacity, respectively. Customers can also optionally add a second storage shelf to double the storage capacity of the system. And, to expand storage outside of the appliance, external NFS storage is supported for online backups, data staging, or additional database files.

Ease of Deployment, Management, and Support

To help customers easily deploy and manage their databases, Oracle Database Appliance comes with Appliance Manager software to simplify the administration and diagnosis of the system. The Appliance Manager feature greatly simplifies the deployment process and ensures that the system and database configuration adheres to Oracle's best practices. The browser user interface quickly gathers all the configuration parameters to streamline both system and database provisioning with a few easy steps. The Appliance Manager also drastically simplifies maintenance by patching the entire appliance, including all firmware and software, using an Oracle-tested patch bundle engineered specifically for the appliance. Simply select the appropriate patch bundle in the browser user interface to validate it and update the entire system. Database backup and recovery is integrated into the Appliance Manager with the option to backup locally, to external storage, or to the Oracle Cloud directly through the browser user interface. The Appliance Manager also tracks system and database information and displays the information in the browser user interface. Built-in diagnostics continually monitor the appliance and detect component failures, configuration issues, and deviations from best practices. In addition, Oracle Database Appliance Auto Service Request (ASR) feature can automatically log service requests with Oracle Support to help speed resolution of issues.

Flexible Oracle Database Software Licensing

Oracle Database Appliance X8-2-HA supports both Oracle Database Enterprise Edition and Standard Edition. Enterprise deployments that require the enhanced feature set of Oracle Database Enterprise Edition can take advantage of a unique capacity-on-demand database software licensing model to quickly scale utilized processor cores without any hardware upgrades. Customers can deploy the system and license as few as 2 processors cores to run their database servers, and incrementally scale up to the maximum of 64 processor cores. This enables customers to deliver the performance and reliability that enterprise business users demand, and align software spend with business growth. Small enterprises, line-of-business departments, and branch office deployments that don't require enterprise class features can license Oracle Database Standard Edition, allowing them to realize the benefits of Oracle Database Appliance to reduce costs and improve productivity.

Solution-In-A-Box Through Virtualization

Oracle Database Appliance X8-2-HA enables customers and ISVs to quickly deploy both database and application workloads in a single appliance on a virtualized platform, based on Oracle VM. Support for virtualization adds additional flexibility to the already complete and fully integrated database solution. Customers and ISVs benefit from a complete solution that efficiently utilizes resources and takes advantage of capacity-on-demand licensing for multiple workloads by leveraging Oracle VM hard partitioning.

Oracle Database Appliance X8-2-HA Specifications

ARCHITECTURE

System

- *Two 2U X8-2L servers and one 4U DE3-24C storage shelf per system*
- *Optional second storage shelf may be added for storage expansion*

Processor

- *Two Intel® Xeon® processors per server*
- *Intel® Xeon® Gold 5218 2.3 GHz, 16 cores, 125 watts, XCC, 22 MB L3 cache*

Cache

- *Level 1: 32 KB instruction and 32 KB data L1 cache per core*
- *Level 2: 1 MB shared data and instruction L2 cache per core*
- *Level 3: Up to 1.375 MB shared inclusive L3 cache per core*

Main Memory

- *384 GB (12 x 32 GB) per server*
- *Optional memory expansion to 768 GB (24 x 32 GB) per server*
- *Both servers must contain the same amount of memory*

STORAGE

Storage Shelf (DE3-24C)

High Performance

Data Storage	Quantity	Raw Capacity	Usable Capacity (Double Mirroring)	Usable Capacity (Triple Mirroring)
Base System	6 x 7.68 TB SSD	46 TB	23 TB	15 TB
Plus 6 SSDs	12 x 7.68 TB SSD	92 TB	46 TB	30 TB
Plus 6 SSDs	18 x 7.68 TB SSD	138 TB	69 TB	46 TB
Full Shelf	24 x 7.68 TB SSD	184 TB	92 TB	61 TB
Double Shelf	48 x 7.68 TB SSD	369 TB	184 TB	122 TB

High Capacity

Data Storage	Quantity	Raw Capacity	Usable Capacity (Double Mirroring)	Usable Capacity (Triple Mirroring)
Full Shelf (SSDs Plus HDDs)	6 x 7.68 TB SSD	46 TB	23 TB	15 TB
	18 x 14 TB HDD	252 TB	126 TB	84 TB
Double Shelf (SSDs Plus HDDs)	12 x 7.68 TB SSD	92 TB	46 TB	30 TB
	36 x 14 TB HDD	504 TB	252 TB	168 TB

- *Base system storage shelf contains six solid-state drives (SSDs)*
- *Additional SSDs must be added in groups of six*
- *Hard-disk drives (HDDs) must be added in groups of eighteen to fully populate the entire storage shelf*
- *Optional second storage shelf for storage expansion must be fully populated*
- *Storage capacity is based on storage industry conventions where 1 TB equals $1,000_4$ bytes*

Server Storage

- *Two internal 480 GB M.2 SSDs (mirrored) per server for Operating System and Oracle Database software*

INTERFACES

Standard I/O

- *One GbE port and one serial RJ45 port per server*
- *Two USB 3.0 ports (one rear, one internal) per server*
- *PCIe slot 1: dual-port 25 GbE (SFP28) card (Interconnect)*
- *PCIe slot 2: Choice of quad-port 10GBase-T card or dual-port 10/25 GbE (SFP28) card (Optional)*
- *PCIe slot 3: dual-port external SAS HBA*
- *PCIe slot 7: Choice of quad-port 10GBase-T card or dual-port 10/25 GbE (SFP28) card*
- *PCIe slot 8: dual-port external SAS HBA*
- *PCIe slot 10: Choice of quad-port 10GBase-T card or dual-port 10/25 GbE (SFP28) card (Optional)*
- *Note: All PCIe network cards must be the same type and no additional PCIe cards can be added in the non-mentioned slots*

SYSTEMS MANAGEMENT

Interfaces

- *Dedicated 10/100/1000 M Base-T network management port*
- *In-band, out-of-band, and side-band network management access*
- *RJ45 serial management port*

Service Processor

Oracle Integrated Lights Out Manager (Oracle ILOM) provides:

- *Remote keyboard, video, and mouse redirection*
- *Full remote management through command-line, IPMI, and browser interfaces*
- *Remote media capability (USB, DVD, CD, and ISO image)*
- *Advanced power management and monitoring*
- *Active Directory, LDAP, and RADIUS support*
- *Dual Oracle ILOM flash*
- *Direct virtual media redirection*
- *FIPS 140-2 mode using OpenSSL FIPS certification (#1747)*

Monitoring

- *Comprehensive fault detection and notification*
- *In-band, out-of-band, and side-band SNMP monitoring v2c and v3*
- *Syslog and SMTP alerts*
- *Automatic creation of a service request for key hardware faults with Oracle auto service request (ASR)*

SOFTWARE

Oracle Software

- *Oracle Linux (Pre-Installed)*
- *Appliance Manager (Pre-Installed)*
- *Oracle VM (Optional)*

Oracle Database Software (Licensed Separately)

- *Choice of Oracle Database software, depending on the desired level of availability:*
    - *Oracle Database 19c Enterprise Edition, Standard Edition 2*
    - *Oracle Database 18c Enterprise Edition, Standard Edition 2*
    - *Oracle Database 12c Enterprise Edition Release 1, Release 2, Standard Edition 2*
    - *Oracle Database 11g Enterprise Edition Release 2, Standard Edition and Standard Edition One*
    - *Oracle Real Application Clusters One Node*
    - *Oracle Real Application Clusters*
- *Support for:*
    - *Oracle Database options*
    - *Oracle Enterprise Manager Management Packs for Oracle Database Enterprise Edition*

Capacity-On-Demand Software Licensing for Oracle Database Enterprise Edition

- *Bare Metal and Virtualized Platform: Enable and license 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, or 32 cores per server*
- *Note: Both servers must have the same number of cores enabled, however, it is possible to license software for only one of the servers or both servers, depending on the high availability requirements*

ENVIRONMENT

Environmental Server (Max Memory)

- *Maximum power usage: 522W, 1781 BTU/Hr*
- *Active Idle power usage: 217W, 740 BTU/Hr*

Environmental Storage Shelf (DE3-24C: 24 x 7.68 TB SSDs)

- *Maximum power usage: 452W, 1,542 BTU/Hr*
- *Typical power usage: 257W, 877 BTU/Hr*

Environmental Storage Shelf (DE3-24C: 6 x 7.68 TB SSDs, 18 x 14 TB HDDs)

- *Maximum power usage: 421W, 1,437 BTU/Hr*
- *Typical power usage: 261W, 891 BTU/Hr*

Environmental Temperature, Humidity, Altitude

- *Operating temperature: 5°C to 35°C (41°F to 95°F)*
- *Nonoperating temperature: -40°C to 70°C (-40°F to 158°F)*
- *Operating relative humidity: 10% to 90%, noncondensing*
- *Nonoperating relative humidity: Up to 93%, noncondensing*
- *Operating altitude: up to 9,840 feet (3,000 m*) maximum ambient temperature is derated by 1°C per 300 m above 900 m (*except in China where regulations may limit installations to a maximum altitude of 6,560 feet or 2,000 m)*
- *Nonoperating altitude: up to 39,370 feet (12,000 m)*
- *Acoustic noise: 8.1 Bels A-weighted operating, 5.8 Bels A-weighted idling*

POWER

- *Two 1,200 watt hot-swappable and redundant power supplies, rated 96% efficiency*
    - *Rated line voltage: 100 to 240 VAC*
    - *Rated input current 100 to 127 VAC 7.2 A and 200 to 240 VAC 3.4 A*
- *Two 580 Watt hot-swappable, redundant power supplies per storage shelf, rated 88% efficiency*
    - *Rated line voltage: 100 to 240 VAC*
    - *Rated input current: 100 VAC 8A and 240 VAC 3A*

REGULATIONS [1]

- *Product safety: UL/CSA-60950-1, EN60950-1-2006, IEC60950-1 CB scheme with all country differences*
- *EMC*
    - *Emissions: FCC CFR 47 Part 15, ICES-003, EN55022, EN55032, KN32, EN61000-3-2, and EN61000-3-3*
- *Immunity: EN55024, KN35*

CERTIFICATIONS[1]

- *North America Safety (NRTL)*
- *European Union (EU)*
- *International CB Scheme*
- *BIS (India)*
- *BSMI (Taiwan)*
- *RCM (Australia)*
- *CCC (PRC)*
- *MSIP (Korea)*
- *VCCI (Japan)*
- *Morocco*
- *Republic of Srpska*

EUROPEAN UNION DIRECTIVES

- *2014/35/EU Low Voltage Directive*
- *2014/30/EU EMC Directive*
- *2011/65/EU RoHS Directive*
- *2012/19/EU WEEE Directive*

DIMENSIONS AND WEIGHT

- *Height: 86.9 mm (3.4 in.) per server; 175 mm (6.9 in.) per storage shelf*
- *Width: 445.0 mm (17.5 in.) per server; 483 mm (19.0 in.) per storage shelf*
- *Depth: 759.4 mm (29.9 in.) per server; 630 mm (24.8 in.) per storage shelf*
- *Weight: 28.6 kg (63 lb.) per server; 38 kg (84 lbs) per storage shelf*

INCLUDED INSTALLATION KITS

- *Rack-mount Slide Rail Kit*
- *Cable Management Arm*

[1] 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.

CONTACT US

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