

# Oracle Database Appliance X6-2-HA



The Oracle Database Appliance X6-2-HA is an Engineered System that saves time and money by simplifying deployment, maintenance, 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, the Oracle Database Appliance X6-2-HA offers flexible Oracle Database licensing options and reduces operational expenses associated with maintenance and support.



## KEY FEATURES

- Fully integrated and complete database and application appliance
- Oracle Database Enterprise 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
- InfiniBand interconnect
- Solid-state drives (SSDs)

## 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. The Oracle Database Appliance X6-2-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 X6-2-HA hardware is a 6U rack-mountable system containing two Oracle Linux servers and one storage shelf. Each server features two 10-core Intel® Xeon® processors E5-2630 v4, 256 GB of memory, and 10-Gigabit Ethernet (10GbE) external networking connectivity. The two servers are connected together via a redundant InfiniBand or optional 10GbE interconnect for cluster communication and share direct-attached high performance solid-state SAS storage. The storage shelf in the base system is half populated with ten solid-state drives (SSDs) for data storage, totaling 12 TB of raw storage capacity. The storage shelf in the base system also includes four 200 GB high endurance SSDs for database redo logs to improve performance and reliability.

The Oracle Database Appliance X6-2-HA runs Oracle Database Enterprise Edition, and customers have the choice of running single-instance databases as well as clustered databases utilizing Oracle Real Application Clusters (Oracle RAC) or Oracle RAC One Node for “active-active” or “active-passive” database server failover.

**KEY BENEFITS**

- World's #1 database
- Simple, optimized, and affordable
- Ease of deployment, patching, management, and diagnostics
- High availability database solutions for a wide range of applications
- Reduced planned and unplanned downtime
- Cost-effective consolidation platform
- Capacity-on-demand licensing
- Rapid provisioning of test and development environments with database and VM snapshots
- Single-vendor support

## Optional Storage Expansion

The Oracle Database Appliance X6-2-HA offers the flexibility to fully populate the storage shelf that comes with the base system by adding ten additional SSDs for data storage, totaling twenty SSDs and 24 TB of raw storage capacity. Customers can also optionally add a second storage shelf to further increase the storage capacity of the system. With the optional storage expansion shelf, the raw data storage capacity of the appliance increases to a total of 48 TB. There are also four 200 GB SSDs in the storage expansion shelf that expands the storage capacity for the database redo logs. 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, the Oracle Database Appliance X6-2-HA features the Appliance Manager software to simplify the provisioning, patching, and diagnosing of database servers. The Appliance Manager feature greatly simplifies the deployment process and ensures that the database configuration adheres to Oracle's best practices. It also drastically simplifies maintenance by patching the entire appliance, including all firmware and software, in one operation, using an Oracle-tested patch bundle engineered specifically for the appliance. Its built-in diagnostics also monitor the system and detect component failures, configuration issues, and deviations from best practices. Should it be necessary to contact Oracle Support, the Appliance Manager collects all relevant log files and environmental data into a single compressed file. In addition, the Oracle Database Appliance X6-2-HA Auto Service Request (ASR) feature can automatically log service requests with Oracle Support to help speed resolution of issues.

## Capacity-On-Demand Licensing

The Oracle Database Appliance X6-2-HA offers customers a unique capacity-on-demand database software licensing model to quickly scale from 2 to 40 processor cores without any hardware upgrades. Customers can deploy the system and license as few as 2 processor cores to run their database servers, and incrementally scale up to the maximum of 40 processor cores. This enables customers to deliver the performance and high availability that business users demand, and align software spending with business growth.

## Solution-In-A-Box Through Virtualization

The Oracle Database Appliance X6-2-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 X6-2-HA Specifications

### System Architecture

- Two servers and one storage shelf per system
- Optional second storage shelf may be added for storage expansion

### Processor

- Two Intel® Xeon® processors per server
- E5-2630 v4 2.2 GHz, 10 cores, 85 watts, 25 MB L3 cache, 8.0 GT/s QPI, DDR4-2133

### Cache per Processor

- Level 1: 32 KB instruction and 32 KB data L1 cache per core
- Level 2: 256 KB shared data and instruction L2 cache per core
- Level 3: 25 MB shared inclusive L3 cache per processor

### Main Memory

- 256 GB (8 x 32 GB) per server
- Optional memory expansion to 512 GB (16 x 32 GB) or 768 GB (24 x 32 GB) per server
- Both servers must contain the same amount of memory

## STORAGE

### Storage Shelf (DE3-24C)

Data Storage	SSD Quantity	Raw Capacity	Usable Capacity (Double Mirroring)	Usable Capacity (Triple Mirroring)
Base System	10 x 1.2 TB	12 TB	6 TB	4 TB
Full Shelf	20 x 1.2 TB	24 TB	12 TB	8 TB
Double Shelf	40 x 1.2 TB	48 TB	24 TB	16 TB

Redo Log Storage	SSD Quantity	Raw Capacity	Usable Capacity (Triple Mirroring)
Base System	4 x 200 GB	800 GB	266 GB
Full Shelf	4 x 200 GB	800 GB	266 GB
Double Shelf	8 x 200 GB	1.6 TB	533 GB

- 2.5-inch (3.5-inch bracket) 1.6 TB SAS SSDs (partitioned to 1.2 TB to improve performance) for data storage
- 2.5-inch (3.5-inch bracket) 200 GB high endurance SAS SSDs for database redo logs
- External NFS storage support
- Storage Capacity is based on storage industry conventions where 1 TB equals 1,000<sup>4</sup> bytes

### Server Storage

- Two 2.5-inch 480 GB SATA SSDs (mirrored) per server for Operating System and Oracle Database software

## INTERFACES

### Standard I/O

- USB: Six 2.0 USB ports (two front, two rear, two internal) per server
- Four onboard auto-sensing 100/1000/10000 Base-T Ethernet ports per server
- Four PCIe 3.0 slots per server:
  - PCIe internal slot: dual-port internal SAS HBA
  - PCIe slot 3: dual-port external SAS HBA
  - PCIe slot 2: dual-port external SAS HBA
  - PCIe slot 1: Optional dual-port InfiniBand HCA or 10GbE SFP+ PCIe card
- 10GbE SFP+ external networking connectivity requires 10GbE SFP+ PCIe card in PCIe slot 1

---

**Graphics**


---

- *VGA 2D graphics controller embedded with 8 MB of dedicated graphics memory*
  - *Resolution: 1,600 x 1,200 x 16 bits @ 60 Hz via the rear HD15 VGA port (1,024 x 768 when viewed remotely via Oracle ILOM)*
- 

**SYSTEMS MANAGEMENT**


---

**Interfaces**


---

- *Dedicated 10/100/1000 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 v1, v2c, and v4*
  - *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 11g Enterprise Edition Release 2 and Oracle Database 12c Enterprise Edition*
    - *Oracle Real Application Clusters One Node*
    - *Oracle Real Application Clusters*
  - *Support for:*
    - *Oracle Database Enterprise Edition database options*
    - *Oracle Enterprise Manager Management Packs for Oracle Database Enterprise Edition*
- 

**Capacity-On-Demand Software Licensing**


---

- *Bare Metal and Virtualized Platform: Enable and license 2, 4, 6, 8, 10, 12, 14, 16, 18, or 20 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*
- 

**POWER**


---

- *Two hot-swappable and redundant power supplies per server, rated 91% efficiency*
    - *Rated line voltage: 600W at 100 to 240 VAC*
    - *Rated input current 100 to 127 VAC 7.2A and 200 to 240 VAC 3.4A*
  - *Two hot-swappable, redundant power supplies per storage shelf, rated 88% efficiency*
    - *Rated line voltage: 580W at 100 to 240 VAC*
    - *Rated input current: 100 VAC 8A and 240 VAC 3A*
-

**ENVIRONMENT****Environmental Server (Max Memory)**

- *Maximum power usage: 336W, 1146 BTU/Hr*
- *Active Idle power usage: 142W, 485 BTU/Hr*

**Environmental Storage Shelf (DE3-24C)**

- *Maximum power usage: 453W, 1546 BTU/Hr*
- *Typical power usage: 322W, 1099 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)*

**REGULATIONS <sup>1</sup>**

- *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, EN61000-3-2, and EN61000-3-3*
- *Immunity: EM55024*

**CERTIFICATIONS <sup>1</sup>**

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

**EUROPEAN UNION DIRECTIVES**

- *2006/95/EC Low Voltage, 2004/108/EC EMC, 2011/65/EU RoHS, 2012/19/EU WEEE*

**DIMENSIONS AND WEIGHT**

- *Height: 42.6 mm (1.7 in.) per server; 175 mm (6.9 in.) per storage shelf*
- *Width: 436.5 mm (17.2 in.) per server; 446 mm (17.6 in.) per storage shelf*
- *Depth: 737 mm ( 29.0 in.) per server; 558 mm (22.0 in.) per storage shelf*
- *Weight: 16.1 kg (34.5 lbs) per server; 38 kg (84 lbs) per storage shelf*

**INCLUDED INSTALLATION KITS**

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

<sup>1</sup> 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

For more information visit [oracle.com](http://oracle.com) or call +1.800.ORACLE1 to speak to an Oracle representative.

#### CONNECT WITH US



#### Integrated Cloud Applications & Platform Services

Copyright © 2016, Oracle and/or its affiliates. All rights reserved. This document is provided for information purposes only, and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document, and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group. 1016

