

Overview and Frequently Asked Questions About Oracle Exadata Products

Overview

The Exadata product family consists of two products:

- Oracle Exadata
- HP Oracle Database Machine (which is powered by Oracle Exadata)

This FAQ covers both products, with questions that apply to the entire family as well as questions that only apply to one product or the other.

General Information on Oracle Exadata

What is Oracle Exadata?

Oracle Exadata is a new storage product which is highly optimized for the Oracle database. It is a combination of hardware (HP Exadata Storage Server Hardware) and software (Oracle Exadata Storage Server Software).

What is the HP Exadata Storage Server Hardware?

The HP Exadata Storage Server Hardware is the hardware component of the Oracle Exadata Storage. It is a highly optimized configuration of the HP DL180 G5 server which consists of the following:

- 2 Quad-Core Intel® Xeon® Processors E5430 (2.66GHz, 80 Watts, 1333 FSB)
- 8 GB Memory
- HP Smart Array P400 Controller with 512MB Battery Backed Cache
- HP IB 4X DDR Connect-X PCI-e Dual Port HCA
- HP Lights Out 100c Remote Management Card
- HP 1 GB Internal USB 2.0 Floppy Drive Key

- 12 Hard Disk Drives (either all 450GB 15k RPM SAS drives or all 1TB 7.2K RPM SATA (MDL SAS) drives)
- Redundant Power Supplies

It comes with all the software, Oracle Exadata Storage Server Software and Oracle Enterprise Linux, installed and can be installed in a standard 19-inch rack.

Can I specify the disks in the HP Exadata Storage Server Hardware?

You can choose between two models of the HP Exadata Storage Server Hardware. One model, the HP Exadata Storage Server Hardware SAS, has twelve 450GB 15,000 RPM (Revolutions Per Minute) SAS disks. The other model, the HP Exadata Storage Server Hardware SATA, has twelve 1TB 7,200 RPM SATA disks. These SATA disks have SATA mechanics and SAS electronics and are known as Midline SAS drives (MDL SAS).

What is the Oracle Exadata Storage Server Software?

The Oracle Exadata Storage Server Software is the software component of the Oracle Exadata Storage Server that provides enhanced storage services and Smart Scan offload functionality.

What are the power and cooling requirements for the HP Exadata Storage Server Hardware?

The typical power and cooling requirements for the HP Exadata Storage Server is 550 watts and 3100 BTU/hr respectively. For more information, please refer to the HP DL180 G5 technical specifications at <http://www.hp.com>.

Can I use the Oracle Exadata Storage for general purpose storage?

The Oracle Exadata Storage can only store the Oracle Database. It cannot be used to store data or files that are not in the Oracle Database.

Do I need to license the Oracle Exadata Storage Server Software? What is the licensing model?

Yes. Oracle Exadata Storage Server Software license is needed in order to take full advantage of Oracle Exadata storage. Oracle Exadata Storage Server Software is licensed per Disk. For example, you will need 12 ‘Disks’ of Exadata Storage Server Software for each unit of the HP Exadata Storage Server Hardware (SAS or SATA models). These Oracle Exadata Storage Server Software licenses can be bought as a perpetual license or a term license. These licenses are transferable to other Exadata Storage Server Hardware units.

Is the Oracle Exadata Storage Server Software pre-installed on the HP Exadata Storage Server Hardware?

Yes, the Oracle Exadata Storage Server Software will come pre-installed. In addition, you can also download the Oracle Exadata Storage Server Software from Oracle.

Will Oracle continue to support traditional non-Exadata storage products?

Yes, Oracle will continue to support the Oracle database on traditional non-Exadata storage products.

Is my database application or database-based tool certified for use on top of Oracle Database with Exadata storage?

Yes, every application or tool that is certified to run on top of an Oracle Database Enterprise Edition Version 11.1.0.7 is certified to run on top of an Oracle Database with Exadata storage, or on top of an HP Oracle Database Machine. From the application perspective, the presence of Exadata technology is completely transparent and no application changes are required.

Where do I get more information on Exadata Storage?

You can find more information on the Exadata Storage technology at <http://www.oracle.com/exadata>.

General Questions About HP Oracle Database Machine

What is the HP Oracle Database Machine?

The HP Oracle Database Machine is a complete pre-optimized and pre-configured bundle of software, servers, and storage, built for large-scale data warehousing. Built upon the Oracle Database, Oracle Exadata technology and hardware from HP, the Database Machine delivers breakthrough performance for IO-intensive data warehouses and virtually unlimited scalability.

What products comprise the HP Oracle Database Machine?

The recommended configuration of the HP Database Machine consists of:

- HP Oracle Database Machine Hardware (SAS or SATA)
- Oracle Enterprise Linux
- Oracle Exadata Storage Server Software
- Oracle Database Enterprise Edition with Real Application Clusters and Partitioning

Is the HP Oracle Database Machine a “Data Warehouse Appliance”?

Many customers will rightly view the HP Oracle Database Machine as a data warehouse appliance, since it combines hardware and database software into an integrated bundle optimized for data warehouse workloads. However, unlike DW appliances and appliance-like competitors, the HP Oracle Database Machine not only speeds individual queries but also offers the reliability, high availability, security, manageability, and support for concurrency and complex workloads that Oracle Database 11g is famous for.

What is the difference between the SAS and SATA-based Database Machine?

The SAS-based Database Machine is designed for the highest levels of performance for data warehousing, while the SATA-based Database Machine is designed for a higher-capacity data warehouse that still delivers strong performance.

Does the HP Oracle Database Machine come with software installed and configured?

A customer who purchases an HP Oracle Database Machine Hardware product will receive a system in which the Oracle Exadata Storage Server Software has been installed, and the Oracle Database (with RAC and Partitioning) software and the entire system has been configured for high-performance data warehousing. Some installation and configuration steps will occur at the customer site as part of an included service offering. Note that even though the software components are installed with the hardware product, they are not included in the purchase price of the HP Oracle Database Machine Hardware and must be licensed separately.

How does the HP Oracle Database Machine relate to Oracle Exadata?

Oracle Exadata is the storage for the HP Oracle Database Machine.

Is HP the only hardware for which there is an Oracle Database Machine?

HP is the only hardware manufacturer of the Oracle Database Machine hardware.

Can I purchase hardware from HP instead of Oracle, and assemble an identical system to the HP Oracle Database Machine?

Yes. Oracle documents the certified hardware solution from HP, so that a customer can purchase the identical hardware configuration directly from HP or from HP resellers. Note, however, that a customer-built system does not include the Oracle Exadata Storage Server Software, Oracle services for installation and configuration of the system, or Oracle’s integrated support.

Why should I purchase HP Oracle Database Machine Hardware from Oracle?

The HP Oracle Database Machine SAS or SATA models include a complete rack of hardware with server and networking components from HP. In addition to the hardware components, the HP Oracle Database Machine Hardware products include:

- Integration and wiring of all hardware components in a single rack

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- Installation and configuration of all hardware and software components: the system will be ready to run and load data after configuration by an onsite engineer (a service that is included in the purchase price)
 - Single-line support for the entire solution provided by Oracle

A customer who purchases hardware directly from HP would not receive any of these added benefits. For the best customer experience, for the fastest, lowest-risk deployments, and for the highest levels of support, Oracle strongly recommends that customers purchase the HP Oracle Database Machine Hardware from Oracle rather than assembling their own system from identical HP components.

Can I build my own data warehouse configuration that is similar to the HP Oracle Database Machine?

Yes, a customer can purchase Oracle Exadata products, and then configure the Exadata storage in conjunction with their preference of database server hardware. Such a system, when appropriately configured with sufficient CPU and memory capabilities, can deliver the same performance and scalability as the HP Oracle Database Machine. The specifications of the HP Oracle Database Machine provide good general guidelines for configuring a custom system.

Will Oracle continue to support data warehouse platforms other than the HP Oracle Database Machine?

Absolutely yes. Oracle will continue to provide solutions on multiple hardware platforms. The Oracle Optimized Warehouse Initiative provides specific information on these platforms for data warehousing. More information on the Optimized Warehouse Initiative can be found at:
http://www.oracle.com/solutions/business_intelligence/optimized-warehouse-initiative.html

Can I run an OLTP application on the HP Oracle Database Machine?

The HP Oracle Database Machine is designed and optimized for complex large scale data warehousing workloads. Since it is an Oracle database, the system can certainly be tuned to support OLTP workloads, but this system has not been optimized for such workloads.

General Information About the Exadata Product Family (Oracle Exadata and HP Oracle Database Machine)

Who sells Exadata products? Is it Oracle, HP, or resellers?

Oracle sells and supports the optimized, configured and branded HP Oracle Exadata products.

How do I order Exadata products?

Contact your Oracle Technology Sales Representative to order Oracle Exadata products.

Where can I demo or try Exadata products before purchasing them?

Contact your Oracle Technology Sales Representative to learn more about Exadata products.

Is there a return period for the HP Exadata Storage Server Hardware or the HP Oracle Database Machine Hardware?

No, there is no return period for HP Exadata Storage Server Hardware or HP Oracle Database Machine Hardware. Any defective components will be covered under the hardware warranty.

Technical Information About Oracle Exadata

What versions of the Oracle Database are supported on the Oracle Exadata Storage Server?

The Oracle Exadata Storage Server requires the Oracle Database Enterprise Edition version 11.1.0.7 and higher. It also requires the Oracle ASM Instance version 11.1.0.7 and higher.

Can the Oracle Database use Exadata Storage simultaneously with traditional non-Exadata storage products?

Yes, databases can be concurrently deployed on Exadata storage and non-Exadata storage. Tablespaces can exist on Exadata storage, non-Exadata storage, or a combination of the two, and is transparent to database application. However, Exadata smart scans require the entire tablespace(s), being queried, to reside entirely on Exadata storage.

What are the differences between SAS and SATA based Exadata Storage Servers?

The SAS-based Exadata Storage Server is used for High Performance while the SATA-based Exadata Storage Server is used when you need High Capacity. For random I/O intensive workloads, SAS disks are typically two to three times faster than SATA disks.

The SAS-based Exadata Storage Server can typically store 1 TB of uncompressed user data. The SATA-based Exadata Storage Server can typically store 3.3 TB of uncompressed user data.

User data is counted after single mirroring and after allowing space for database structures such as temp tablespace, logs, and undo. The actual user data capacity will vary by application.

What InfiniBand protocol is used by the Exadata Storage Servers to communicate with the Oracle Database?

The Zero-loss Zero-copy Datagram Protocol (ZDP) protocol is used to communicate between the Exadata Storage Servers and the Oracle Database. It is based on the Reliable Datagram Sockets (RDS) version 3 (OFED version 1.3.1).

How do I backup my Oracle Database using Oracle Exadata Storage?

Recovery Manager (RMAN) is the backup tool to backup an Oracle database using Exadata storage. Oracle Secure Backup (OSB) or third party backup tools validated to work with RMAN can continue to be used for Exadata based databases. In addition, disaster protection can be achieved using Data Guard.

Can the Oracle Database handle disk and Exadata Storage Server hardware failures?

The Exadata Storage is managed by the Automatic Storage Management (ASM), which single or double mirrors the data across the Exadata Storage Servers. It can handle the failure of a single disk or a Exadata Storage Server.

How do I migrate my Oracle Database to Exadata Storage?

If you are already using the Oracle Database Version 11.1.0.7 and use ASM to manage your storage with either normal or high redundancy, then you can migrate your database online to the Exadata Storage. There are other online and offline

migration methods to Exadata Storage using Oracle Logical Standby, Oracle Streams, and Oracle Data Pump.

For more information on the best practices for migration to Exadata storage, please refer to the whitepaper at <http://www.oracle.com/technology/products/bi/db/exadata/pdf/migration-to-exadata-whitepaper.pdf>

Technical Information About HP Oracle Database Machine

What products comprise the HP Oracle Database Machine?

The recommended configuration of the HP Database Machine consists of:

- HP Oracle Database Machine Hardware (SAS or SATA)
- Oracle Exadata Storage Server Software
- Oracle Database Enterprise Edition with Real Application Clusters and Partitioning

What is the HP Oracle Database Machine Hardware SAS or SATA?

The HP Oracle Database Machine Hardware provides the following (all within a standard 19-inch 42U tall rack pre-wired and pre-cabled):

- 8 Database Servers: each is a HP DL360-G5 with
- Two Quad-Core Intel® Xeon® Processor E5430 (2.66GHz)
- 32 GB Memory
- One HP 4X DDR InfiniBand Connect-X Dual Port HCA
- 4 146GB SAS 10K RPM disk drives
- 4 24-port 4X DDR InfiniBand switches
- 1 48-port Gigabit Ethernet switch
- Keyboard, Video, Mouse (KVM) hardware
- 14 Exadata Storage Server Hardware units

What software is recommended for the HP Oracle Database Machine Hardware?

Oracle has pre-configured and optimized the HP Oracle Database Machine Hardware to run with a specific set of recommended software:

- Oracle Enterprise Linux Release 5 Update 1
- Oracle Database 11g Enterprise Edition
- Oracle Real Application Clusters

- Oracle Partitioning
- Oracle Exadata Storage Server Software

The installation of these software components is included when a customer purchases HP Oracle Database Machine Hardware.

What benefits can I expect from the HP Oracle Database Machine?

A single building block of the High Performance Database Machine (HP Oracle Database Machine Hardware SAS) should deliver

- Up to 14 GB/sec of raw, uncompressed I/O throughput per rack
- Up to 1 TB/hour data loading
- Up to 21 TB of uncompressed user data

A single building block of the High Capacity Database Machine (HP Oracle Database Machine Hardware SATA) should deliver

- Up to 10.5 GB/sec of raw, uncompressed I/O throughput per rack
- Up to 1TB/hour data loading
- Up to 46 TB of uncompressed user data

Oracle's preconfigured systems have been optimized for data warehouse workloads to achieve these characteristics. Although the peak I/O rates of both configurations are similar, the SAS configuration is better suited for random I/O workloads and will outperform the SATA configuration by 2x to 3x on random I/O intensive workloads. The typical compression ratios achieved by Oracle 11g ranges from 2:1 to 4:1.

How do I scale my data warehouse using the HP Oracle Database Machine?

The HP Oracle Database Machine scales incrementally by adding additional racks. As a new rack is added, the InfiniBand networks are connected between the racks. The Database Machine then automatically rebalances the data across the new racks, seamlessly and without downtime.

Can I connect SAS and SATA based Database Machine racks into a single data warehouse?

No, a single Database Machine configuration may consist of multiple racks, but all racks must be the same type.

Can I migrate my current Oracle data warehouse to the HP Oracle Database Machine?

Yes, you can migrate all your current Oracle workloads onto the HP Oracle Database Machine without any modifications to the schema or applications.

Can I deploy other 3rd party software on the HP Oracle Database Machine?

For optimal data warehouse performance, it is not recommended to install non-Oracle software on the HP Oracle Database Machine.

How does the HP Oracle Database Machine interact with 3rd party tools and applications?

The HP Oracle Database Machine interacts with other software packages in exactly the same manner as any other Oracle database. All applications and tools that are supported with the Oracle database are supported with the HP Oracle Database Machine.

Support Information

How are patches and updates delivered to Exadata Storage?

Patches and upgrades will be delivered via Metalink.

What is the warranty on the HP Exadata Storage Server Hardware and HP Oracle Database Machine Hardware?

The HP Exadata Storage Server Hardware and HP Oracle Database Machine Hardware come with an Extended Warranty that provides 3 year parts/3 year labor/3 year on-site, 4 HR, 24X7 response. There may be different actual response times may vary in different geographic support coverage areas. Details of coverage areas for each region are outlined in Oracle's Technical Support Policies.

Who provides hardware support for the Exadata products? Can I contact HP directly?

Oracle is the first point of contact for all hardware and software issues related to the Exadata Storage Server and HP Oracle Database Machine, and will manage the problem through to resolution. Oracle will work with HP to provide hardware support for the Exadata Storage Server Hardware and the HP Oracle Database Machine.



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