

HP ORACLE DATABASE MACHINE

FEATURES AND FACTS

FULL RACK FEATURES

- 8 HP Database Servers: (DL360 G5 servers)
- 14 Exadata Storage Servers (software sold separately)
- 4 Infiniband Switches
- Oracle Database 11g Enterprise Edition with Real Application Clusters and Partitioning (sold separately)
- Oracle Enterprise Linux
- Integrated in one standard rack

FACTS

- User data capacity of up to 21TB (SAS) or up to 46TB (SATA) per rack ¹
- Raw storage capacity of 75TB (SAS) or 168TB (SATA) per rack
- I/O bandwidth of up to 14GB/sec (SAS) or up to 10.5GB/sec (SATA) per rack
- Scale by adding HP Oracle Database Machines; up to 8 machines can be clustered without requiring additional Infiniband switches
- Pre-configured system optimized for data warehousing
- Four InfiniBand network ports are available for connecting to external servers for very fast connectivity to data sources or application servers

RELATED PRODUCTS:

- Oracle Advanced Compression
- Oracle OLAP
- Oracle Data Mining
- Oracle Warehouse Builder
- Oracle BI Suite

RELATED SERVICES

- Oracle Premier Support
- Oracle Consulting

The HP Oracle Database Machine is built for extreme performance for data warehouses. Designed for multi-terabyte data warehouses with I/O-intensive workloads and built using industry-standard hardware from HP and smart storage software from Oracle, the HP Oracle Database Machine is a complete, optimized and preconfigured package of software, servers, and storage. Simple and fast to implement, the HP Oracle Database Machine is ready to tackle your large-scale business queries immediately—and often run them 10x faster or more.

Extreme Performance for Data Warehousing

The HP Oracle Database Machine delivers extreme performance gains for large-scale data warehouse queries, but what does this mean for your business? Questions that used to take hours now only require minutes or seconds. An analyst who could previously ask 2-3 questions per day can now ask dozens of questions per day. Terabytes to petabytes of data that were previously impossible to manage and analyze can now become important information to feed into your business processes.

The unique technology driving these performance gains is the Exadata Storage Server. As data volumes have continued to grow exponentially, conventional storage arrays have struggled to efficiently read terabytes of data from disks, and push that data through storage networks to achieve the performance necessary for IO-intensive data warehouse operations. The HP Oracle Database Machine includes 14 Exadata Storage Servers that provide a high-bandwidth, massively parallel storage solution, delivering up to 14 GB per second of raw I/O bandwidth. When accessing compressed data, the effective throughput for a single rack can be 50 GB per second or more. Each Exadata Storage Server has “Smart Scan” software built-in to execute rapid table scans, sending only required rows and columns through a fast Infiniband network for processing by database servers. This eliminates network bottlenecks and frees database server resources so you can run even more queries faster.



HP Oracle Database Machine Full Rack

FEATURES AND FACTS**HALF RACK FEATURES**

- 4 HP Database Servers: (DL360 G5 servers)
- 7 Exadata Storage Servers (software sold separately)
- 2 Infiniband Switches
- Oracle Database 11g Enterprise Edition with Real Application Clusters and Partitioning (sold separately)
- Oracle Enterprise Linux
- Integrated in one standard rack

FACTS

- User data capacity of up to 10.5TB (SAS) or up to 23TB (SATA) per rack ¹
- Raw storage capacity of 38TB (SAS) or 84TB (SATA) per rack
- I/O bandwidth of up to 7GB/sec (SAS) or up to 5.5GB/sec (SATA) per rack
- Two Half Racks can be clustered for larger systems
- Preconfigured system optimized for data warehousing
- Four InfiniBand network ports are available for connecting to external servers for very fast connectivity to data sources or application servers

KEY BENEFITS:

- Extreme performance
- Enterprise ready

Scaling to Petabytes

Utilizing a building-block methodology, the HP Oracle Database Machine provides a quick and easy way to scale. As new racks of HP Oracle Database Machines are incrementally added to a system, the storage capacity and performance of the system grows; a two-rack system is simply twice as powerful as a single rack. Scaling out is easy; the additional HP Oracle Database Machine is connected to the InfiniBand interconnect in existing racks, and Oracle automatically rebalances the database to fully utilize all of the storage and processing power of all racks. Up to eight Database Machines can be networked together without requiring additional InfiniBand switches, and larger configurations can be built with the addition of external switches.

Smaller configurations can be supported with the HP Oracle Database Machine Half Rack. With exactly half as many servers as the full-rack Database Machine, the Half Rack is based on a 22U cabinet with 4 database servers, 7 Exadata Storage Servers and two InfiniBand switches. Two Half Racks can be combined to scale for larger data volumes.



HP Oracle Database Machine Half Rack

Enterprise Ready

Oracle Database is proven to be the database of choice for customers' data warehousing applications, and the HP Oracle Database Machine is built upon Oracle Database 11g and Oracle Real Application Clusters. While large I/O bandwidth is crucially important for a successful data warehouse, other ingredients are necessary as well. Oracle Database 11g provides the complete platform for data warehousing and business intelligence, with highly sophisticated features, such as:

- Bitmap indexes, advanced partitioning, and multidimensional cubes
- Advanced analytical capabilities with OLAP, data mining, and statistics
- Data integration and data quality capabilities
- Workload management

The HP Oracle Database Machine can support the demands of your business users 24/7, with complete redundancy built in throughout. This ensures that the system remains continuously available in the case of disk, database server, storage server, or network switch failures.

Hardware from HP, Software from Oracle,

The HP Oracle Database Machine is a joint engineering development effort between HP and Oracle that builds upon years of solving customers' business and technical challenges. By combining leading, industry-standard hardware from HP with the intelligence built into Oracle Database 11g and the Oracle Exadata Storage Server Software, the HP Oracle Database Machine delivers the highest levels of performance and support across both hardware and software.

HP Oracle Database Machine Hardware Full Rack (all hardware components in a 42U rack)	HP Oracle Database Machine Hardware Half Rack (all hardware components in a 22U rack)
8–HP ProLiant DL360 G5 database servers, with	4–HP ProLiant DL360 G5 database servers, with
<ul style="list-style-type: none"> • 2 quad-core Intel Xeon Processor E5430 (2.66GHz) 	<ul style="list-style-type: none"> • 2 quad-core Intel Xeon Processor E5430 (2.66GHz)
<ul style="list-style-type: none"> • 32GB memory 	<ul style="list-style-type: none"> • 32GB memory
<ul style="list-style-type: none"> • 1–HP InfiniBand Dual Port HCA 	<ul style="list-style-type: none"> • 1–HP InfiniBand Dual Port HCA
<ul style="list-style-type: none"> • 4–146GB SAS 10K hard disk drives 	<ul style="list-style-type: none"> • 4–146GB SAS 10K hard disk drives
4–24-port InfiniBand switches	2–24-port InfiniBand switches
14–HP Exadata Storage Server Hardware—each is an HP ProLiant DL180 G5, with	7–HP Exadata Storage Server Hardware—each is an HP ProLiant DL180 G5, with
<ul style="list-style-type: none"> • 2 quad-core Intel Xeon Processor E5430 (2.66GHz) 	<ul style="list-style-type: none"> • 2 quad-core Intel Xeon Processor E5430 (2.66GHz)
<ul style="list-style-type: none"> • 8GB memory 	<ul style="list-style-type: none"> • 8GB memory
<ul style="list-style-type: none"> • 1–HP InfiniBand Dual Port HCA 	<ul style="list-style-type: none"> • 1–HP InfiniBand Dual Port HCA
<ul style="list-style-type: none"> • 12–450GB SAS or 12–1TB SATA disk drives 	<ul style="list-style-type: none"> • 12–450GB SAS or 12–1TB SATA disk drives
1 48-port Gigabit Ethernet switch (used for management connectivity to servers and switches)	1 48-port Gigabit Ethernet switch (used for management connectivity to servers and switches)
Keyboard, video, mouse (KVM) hardware	Keyboard, video, mouse (KVM) hardware
Oracle Enterprise Linux Release 5.1	Oracle Enterprise Linux Release 5.1
HP Hardware Warranty, 3 year parts/3 year labor/3 year onsite, 4 hour, 24x7	HP Hardware Warranty, 3 year parts/3 year labor/3 year onsite, 4 hour, 24x7
On-site installation and configuration	On-site installation and configuration
Specifications	
<ul style="list-style-type: none"> • Height: 42U 	<ul style="list-style-type: none"> • Height: 22U
<ul style="list-style-type: none"> • Width: 613 mm (with side panels) 	<ul style="list-style-type: none"> • Width: 613 mm (with side panels)
<ul style="list-style-type: none"> • Depth: Front to rear door: 1,015 mm 	<ul style="list-style-type: none"> • Depth: Front to rear door: 1,015 mm
<ul style="list-style-type: none"> • Flooring requirements: 1350 lbs 	<ul style="list-style-type: none"> • Flooring requirements: 820 lbs
<ul style="list-style-type: none"> • System inlet temperature (Operating): 10° to 35° C (50° to 95° F) at sea level 	<ul style="list-style-type: none"> • System inlet temperature (Operating): 10° to 35° C (50° to 95° F) at sea level
Key Capabilities (per rack)	
HP Oracle Database Machine Hardware Full Rack SAS 450	HP Oracle Database Machine Hardware Half Rack SAS 450
<ul style="list-style-type: none"> • Up to 14 GB/sec of raw, uncompressed I/O throughput 	<ul style="list-style-type: none"> • Up to 7 GB/sec of raw, uncompressed I/O throughput
<ul style="list-style-type: none"> • Up to 1 TB/hour data loading 	<ul style="list-style-type: none"> • Up to 500 GB/hour data loading
<ul style="list-style-type: none"> • Up to 21 TB of user data¹ 	<ul style="list-style-type: none"> • Up to 10.5 TB of user data¹
HP Oracle Database Machine Hardware Full Rack SATA 1000	HP Oracle Database Machine Hardware Half Rack SATA 1000
<ul style="list-style-type: none"> • Up to 10.5 GB/sec of raw, uncompressed I/O throughput 	<ul style="list-style-type: none"> • Up to 5.3 GB/sec of raw, uncompressed I/O throughput
<ul style="list-style-type: none"> • Up to 1 TB/hour data loading 	<ul style="list-style-type: none"> • Up to 500 GB/hour data loading
<ul style="list-style-type: none"> • Up to 46 TB of user data¹ 	<ul style="list-style-type: none"> • Up to 23 TB of user data¹

¹ User data capacity is computed after mirroring and after allowing space for database structures such as temp, logs, undo, and indexes. User data capacity is uncompressed; with compression, 2x to 4x more data can often be stored. Actual user data capacity varies by application.

HP Oracle Database Software (sold separately)

- For database servers: Oracle Database 11g Enterprise Edition, Oracle Real Application Clusters and Oracle Partitioning
- For storage servers: Oracle Exadata Storage Server Software

High-Availability Features

- Redundant power supplies for all servers
- Redundant InfiniBand switches
- Oracle Automatic Storage Management: All database files mirrored; disk failures do not interrupt query processing
- Oracle Real Application Clusters: database server failures are tolerated
- Oracle Exadata Storage Server Software: storage server failures are tolerated
- Backup is performed using Oracle Recovery Manager
- Point in time restores are performed using Oracle Flashback Technologies

Manageability Features

- HP Lights-Out hardware management
- Oracle Enterprise Manager Database Control

Contact Us

For more information about the HP Oracle Database Machine please visit oracle.com/exadata or call +1.800.ORACLE1 to speak to an Oracle representative.

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