HP ORACLE EXADATA STORAGE SERVER

FEATURES AND FACTS

FEATURES

- 12 x 3.5 inch SAS or SATA disks
- 2 Intel 2.66 Ghz quad-core processors
- 8 GB memory
- Dual InfiniBand ports
- Redundant power supplies
- Oracle Exadata Storage Server Software
- Oracle Enterprise Linux

FACTS

- User data capacity up to 1.5 TB (SAS) or up to 3.3 TB (SATA) per server
- I/O bandwidth of 1 GB/sec (SAS) or 750 MB/sec (SATA) per server
- Software pre-installed

The HP Oracle Exadata Storage Server is a storage product highly optimized for use with the Oracle database and is the storage building block of the HP Oracle Database Machine. It uses a massively parallel architecture to dramatically speed up Oracle data warehouses by offloading data-intensive query processing from Oracle Database Servers and doing the processing closer to the data. Simple to deploy and manage, the Oracle Exadata Storage Server provides unlimited I/O scalability and mission-critical reliability in addition to extremely fast query processing for your large data warehouse.

HP Oracle Exadata Storage Server

The HP Oracle Exadata Storage Server is a fast, reliable, high capacity, industry standard storage building block based on the HP ProLiant DL180 G5 server. Each server comes preconfigured with two Intel 2.66 Ghz quad-core processors, twelve 3.5-inch disks, 8 GB memory, and dual InfiniBand ports, and redundant power supplies.

The Oracle Exadata Storage Server Software enables the Exadata Storage Server to quickly process database queries and only return the relevant rows and columns to the database server. By pushing SQL processing to the Oracle Exadata Storage Server all the disks can operate in parallel, reducing database server CPU consumption while consuming much less bandwidth to move data between storage and database servers. The Oracle Exadata Storage Server returns a query result set rather than entire tables, eliminates network bottlenecks, and frees up database server resources. This means business users often see a performance increase of 10x, when analyzing data stored in their data warehouses.

Customers have a choice of Oracle Exadata Storage Servers. The first is based on 450 GB Serial Attached SCSI (SAS) drives. This provides up to 1.5 TB of uncompressed user data capacity, and up to 1 GB/second of data bandwidth. The second server is based on 1 TB Serial Advanced Technology Attachment (SATA) drives and provides up to 3.3 TB of uncompressed user data capacity, and 750 MB/second data bandwidth. When data is stored in compressed format, the amount of user data and the amount of data bandwidth delivered by each cell often increases 2 to 3 times. User data capacity is computed after mirroring all the disks space, and after space is set aside for database structures like logs, undo, and temp space. Actual user data varies by application.

KEY BENEFITS:

- Extreme performance
- Scalable I/O
- Enterprise ready

RELATED PRODUCTS:

- HP Oracle Database Machine
- Oracle Advanced Compression
- Oracle OLAP
- Oracle Data Mining
- Oracle Warehouse Builder
- Oracle Business Intelligence Suite

Building Scalable Storage Grids

Oracle Exadata Storage Servers can be installed into a standard 19-inch rack and are connected to database servers via InfiniBand. Oracle Exadata Storage Servers have dual 20 Gigabit InfiniBand links which provide connectivity many times faster than traditional storage or server networks. Further, Oracle's interconnect protocol uses direct data placement to ensure very low CPU overhead by directly moving data from the wire to database buffers with no extra data copies being made.

Oracle Exadata Storage Servers are architected to scale-out to any level of performance. To achieve higher performance and greater storage capacity, additional Oracle Exadata Storage Servers are added to the system. Scaling out is easy, and as more Oracle Exadata Storage Servers are added, capacity and performance increases linearly. This coupled with faster InfiniBand interconnect and the reduction of data transferred due to the offload processing yields very large performance improvements. A 10x speed up in query performance is often achieved compared to traditional data warehouse storage architectures, and 50x improvement or greater is achievable.

Enterprise Ready

The Oracle Exadata Storage Server has complete redundancy built in to support the demands of your business intelligence users running queries against their large data warehouses 24 x 7. Each Oracle Exadata Storage Server has dual port InfiniBand connections and redundant power supplies for high availability. Disk mirroring is provided by Automatic Storage Management; a feature of Oracle Database 11g. Hot swappable Exadata disks ensure the data warehouse can tolerate the failure of disk drives. In addition, data is mirrored across storage servers to ensure that the failure of storage servers will not cause loss of data, or inhibit data accessibility.

The Oracle Enterprise Manager 10g System Monitoring Plug-in for the Oracle Exadata Storage Server delivers comprehensive availability, performance, and configuration information for the Exadata environment. Using Enterprise Manager, administrators can perform proactive monitoring and detailed configuration analysis of the Exadata Storage Servers.

Hardware from HP, Software from Oracle,

The Exadata storage project between HP and Oracle builds upon years of solving customers' business and technical challenges. HP is providing the hardware technology and support services for the Exadata Storage Server. Oracle is providing the Exadata Storage Server Software which imparts database intelligence to the storage, and tightly integrates Exadata storage with the Oracle Database. By combining leading, industry-standard storage hardware from HP with the intelligence built into the Oracle Exadata Storage Server Software, the Oracle Exadata Storage Server delivers the highest levels of performance and support across both storage hardware and software.

HP Oracle Exadata Storage Server Hardware

The Oracle Exadata Storage Server is an HP ProLiant DL180 G5, with

- 2 quad-core Intel Xeon Processor E5430 (2.66GHz)
- 8GB memory
- HP Smart Array P400 Controller with 512MB Battery Backed Write Cache
- 1–HP 4X DDR InfiniBand Connect-X Dual Port HCA
- Redundant power supplies
- HP Lights Out 100c Remote Management Card
- 12 x 450 GB 15,000 RPM SAS or 12 x 1 TB 7,200 RPM SATA disk drives

  For disk drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.

Specifications

- Height: 3.44in (8.75cm)
- Width: 17.64in (44.80cm)
- Depth: 27.50in (69.88cm)
- Weight: 51.5 lb (19.22 kg)
- Operating temperature: 50° to 95°F (10° to 35°C) at sea level with an altitude derating of 1.8°F per every 1000 ft (1.0°C per every 305 m) above sea level to a maximum of 10,000 ft (3050 m), no direct sustained sunlight. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C).
- Voltage range: 100 - 240 VAC
- Current (per power supply): 9.10 A (at 100 VAC), 4.5 A (at 200 VAC)
- Rated Input Power (per power supply): 910 W (at 100 VAC), 900 W (at 200 VAC)
- Typical power usage: 550 watts
- BTU Rating (Maximum): 3107.82 BTU/hr (at 100 VAC), 3073.67 BTU/hr (at 200 VAC)
- Emissions Classification (EMC): FCC Rating A, Normative Standards CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22; K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
- More information on these and other specifications can be found on www.hp.com

Key Capabilities

HP Exadata Storage Server Hardware SAS

- Up to 1 GB/second of uncompressed I/O throughput per cell (SAS disks)
- Up to 1.5 TB of user data

HP Exadata Storage Server Hardware SATA

- Up to 750 MB/sec of uncompressed I/O throughput per cell (SATA disks)
- Up to 3.3 TB of user data

Oracle Exadata Storage Server Software

- Oracle Exadata Storage Server Software 11g
- Oracle Enterprise Linux Release 5.1
- Requires Oracle Database 11g Enterprise Edition 11.1.0.7 or later for the database accessing Exadata storage

High-Availability Features
• Redundant power supplies
• Redundant InfiniBand ports
• Hot swappable disk drives
• Oracle Automatic Storage Management: All database files either double or triple mirrored; Disk failures do not abort queries or transactions
• Oracle Exadata Storage Server Software: Storage server failure can be tolerated without data loss, and aborting queries or transactions
Manageability Features
• HP Lights-Out hardware management
• Oracle Enterprise Manager Grid Control and Exadata Plug-In
Support Services
• Integrated support provided by Oracle
• Hardware Warranty: 3 Year Parts/3 Year Labor/3 Year On-site 24x7, 4 Hour response time (where available)

Contact Us

For more information about the Oracle Exadata Storage Server please visit oracle.com/exadata or call +1.800.ORACLE1 to speak to an Oracle representative.