Deploy scalable performance, reliable security, and high energy efficiency right out of the box with the Oracle Exadata* Database Machine based on the Intel® Xeon® processor 7500 and 5600 series. High optimization puts your business ahead of the curve for mission-critical online transaction processing (OLTP), data warehousing, and consolidation of mixed workloads.

The Oracle Exadata Database Machine puts the power of Intel Xeon processors to work to meet your most demanding mission-critical workloads. Extreme performance and an intelligent storage system allow you to adapt to changes in short-term business demands and address requirements for longer-term business growth. Advanced reliability and security features help maintain data integrity, accelerate encrypted transactions, and maximize the availability of mission-critical applications, while automated energy efficiency helps decrease operating expense.

Oracle is offering a fully integrated platform for hosting all your database applications. The Exadata Database Machine is an easy-to-deploy, out-of-the-box solution for hosting the Oracle Database. Ready to go from day one, much of the integration effort, cost, and time associated with database deployment has been eliminated. Whether you are supporting OLTP, data warehousing, or mixed application workloads, a common deployment creates a tremendous opportunity for consolidation and economies of scale in the data center. And all this comes with breakthrough performance.

The unique technology driving the performance advantages of the Exadata Database Machine is the Oracle Exadata Storage Server. As data volumes continue to grow exponentially, conventional storage arrays struggle to efficiently process terabytes of data and push that data through storage networks to achieve the performance necessary for demanding database applications. By pushing SQL processing to the Exadata Storage Server, all the disks can operate in parallel, reducing the load of the database server processor while minimizing bandwidth requirements to move data between storage and database servers.
The Oracle Exadata Database Machine is engineered to allow existing Oracle-based applications to run unchanged, and the overall solution can be ready in just days. It is a complete package of servers, storage, networking, and software that is massively scalable, secure, and redundant. Multiple Exadata systems may be linked together, providing massive scalability:

- **Oracle Exadata Database Machine X2-8** includes two eight-socket database servers based on the Intel Xeon processor 7500 series, 14 Oracle Exadata Storage Servers based on the Intel Xeon processor 5600 series, and InfiniBand* switches. It offers an excellent consolidation platform for very large OLTP and data warehousing applications.

- **Oracle Exadata Database Machine X2-2** (formerly known as V2) includes eight two-socket database servers and 14 Oracle Exadata Storage Servers, all based on the Intel Xeon processor 5600 series, plus InfiniBand switches. It is available in a choice of configurations that scale from a quarter rack to multiple full racks.

Oracle Exadata draws from a collaborative engineering relationship between Oracle and Intel that stretches back decades. Oracle develops its products with upcoming generations of pre-release Intel-based servers in the lab, and by the time customers deploy the solutions in their own environments, they get a fine-tuned solution stack built of components that were born to work together, taking full advantage of the Intel Xeon processors under the hood:

- **The Intel Xeon processor 7500 series** delivers scalable performance on servers with four or more sockets, with advanced reliability that protects your most data-demanding applications. Intelligent performance automatically adapts to the changing needs of Exadata environments.

- **The Intel Xeon processor 5600 series** provides efficient performance on two-socket servers. The next generation of intelligent server processors automatically regulates power consumption to combine industry-leading energy efficiency with intelligent performance that adapts to your workload.

Intelligent Performance to Drive Demanding Exadata Workloads

The world’s most demanding businesses are now deploying the next generation of Oracle Exadata solutions with Intel Xeon processors, and the performance benefits are being felt across industries. World-record processor performance enables more transactions per server for scalable, data-demanding enterprise applications.

The Oracle Exadata Database Machine is available with either the Intel Xeon processor 7500 or 5600 series. As a complete solution stack of servers, storage, networking, and software, Oracle Exadata is an excellent means of consolidating onto grids or private clouds.

Members of the Oracle Exadata product team at Oracle are in constant contact with their colleagues at Intel, providing each other with the engineering assistance and insight that drive early co-validation of emerging solutions. Customers reap the rewards of that relationship through performance innovations delivered with the Oracle Exadata Database Machine:

- **Extreme performance for data warehouses.** Exadata Smart Scan improves query performance by offloading resource-intensive query processing and data mining scoring to scalable, intelligent storage servers.

- **Extreme performance for OLTP applications.** Exadata Smart Flash Cache transparently caches data to fast solid-state storage, improving query response times and throughput.

- **Extreme performance for consolidated workloads.** Exadata’s massively parallel grid is ideally suited for consolidating data warehousing and OLTP applications, and Exadata quality-of-service resource management capabilities help ensure fast response times.

Members of the Oracle Exadata product team at Oracle are in constant contact with their colleagues at Intel, providing each other with the engineering assistance and insight that drive early co-validation of emerging solutions. Customers reap the rewards of that relationship through performance innovations delivered with the Oracle Exadata Database Machine:

- **Extreme performance for data warehouses.** Exadata Smart Scan improves query performance by offloading resource-intensive query processing and data mining scoring to scalable, intelligent storage servers.

- **Extreme performance for OLTP applications.** Exadata Smart Flash Cache transparently caches data to fast solid-state storage, improving query response times and throughput.

- **Extreme performance for consolidated workloads.** Exadata’s massively parallel grid is ideally suited for consolidating data warehousing and OLTP applications, and Exadata quality-of-service resource management capabilities help ensure fast response times.
Reliability and Security to Protect Mission-Critical Applications

Protect your business-critical data assets with the world-class reliability and security features built into the Oracle Exadata Database Machine that automatically manage hardware errors and guard against malicious software attacks. Smart companies across the full range of business verticals rely on the Intel Xeon processor to automatically manage hardware errors and guard against malicious software attacks.

Cost-effective, standards-based server platforms based on the Xeon processor are a perfect fit for the Oracle Exadata Database Machine to drive profitability in your enterprise. The Intel Xeon processor 7500 series provides a level of reliability, availability, and serviceability (RAS) that was previously associated only with more expensive, proprietary architectures.

Exadata solutions are engineered to take excellent advantage of security features built into the hardware, so in addition to keeping systems up and running, data is protected from being lost or compromised. The Oracle Exadata Database Machine is built with redundancy in InfiniBand connectivity, power distribution units, and hot-swappable power supplies to support the needs of mission-critical deployments. Oracle Real Application Clusters (RAC) helps protect against database failure, and the system also provides disk mirroring to help guard data.
The combination of Oracle software and Intel hardware is extremely resilient, providing multi-level protection for the data and processes that drive your business.

### Energy Efficiency to Control Everyday Operating Expenses

Decrease operating costs and effectively meet green computing goals with the Oracle Exadata Database Machine. The solution stack dynamically puts processor and memory resources into the lowest available power state suitable to meet the demands of the workload. Intel® Intelligent Power Technology reduces overall energy consumption, improving ROI.

The high level of optimization for Intel Xeon processors built into Oracle Exadata means it runs frugally, taking as much advantage as possible of the hardware’s energy efficiency. As a result, customers get an integrated approach to addressing the increasingly severe energy-cost challenges they face.

Co-engineering between Oracle and Intel helps to ensure that Oracle Exadata takes maximum advantage of platform energy efficiency, including innovative features such as those described above. Customers realize both strategic and tactical advantages that will carry through well into the future:

- **Higher efficiency** decreases power consumption and cooling requirements.
- **Return on investment** is accelerated by handling large workloads while lowering operating costs.
- **Low power requirements** help organizations meet green computing goals.

<table>
<thead>
<tr>
<th>Intel Energy Efficiency Features</th>
<th>Real-World Benefits to Oracle Exadata® Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated low-power states allow the platform to change automatically among operating power states with very low latency.</td>
<td>The Oracle Exadata Database Machine can change individual system components frequently, helping business applications minimize overall energy usage.</td>
</tr>
<tr>
<td>Integrated power gates allow processor cores to power down individually and consume nearly zero power when idle.</td>
<td>Power usage for Oracle Exadata workloads that vary significantly in resource demands over time can be tailored as workloads fluctuate.</td>
</tr>
<tr>
<td>Power-efficient memory subsystem includes support for low-power memory and the option for new low-voltage memory buffers.</td>
<td>The large amounts of physical memory provisioned in Oracle Exadata Database Machines operate with a high degree of energy efficiency.</td>
</tr>
</tbody>
</table>

### Take the Next Step

The Oracle Exadata Database Machine takes advantage of servers based on the Intel Xeon processor 7500 and 5600 series to deliver a future-defining foundation for business computing.

**Learn more about Intel® Xeon® processors:**
[www.intel.com/xeon](http://www.intel.com/xeon)

**Learn more about the Oracle Exadata Database Machine:**
[www.oracle.com/exadata](http://www.oracle.com/exadata)

---


INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHT IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL’S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY RELATING TO SALE AND/OR USE OF SUCH PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT, OR OTHER INTELLECTUAL PROPERTY RIGHT.

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark® and MobileMark®, are measured using specific computer systems, components, software, operations, and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information go to [http://www.intel.com/performance](http://www.intel.com/performance).

Intel products are not intended for use in medical, life saving, life sustaining, critical control or safety systems, or in nuclear facility applications. Performance will vary depending on the specific hardware and software used. All plans, dates, features, pricing, and information are subject to change without notice. Intel internal testing and estimate. Power consumption will vary depending on the specific hardware and software used. Individual service times and prices may vary depending on the specific hardware and software used.

Intel, the Intel logo, and Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

*Other names and brands may be claimed as the property of others.*

Copyright © 2011 Intel Corporation. All rights reserved. 0411/LS/MESH/PDF 325363-001US