ORACLE EXALOGIC ELASTIC CLOUD X5-2

Oracle Exalogic Elastic Cloud is a datacenter building block that integrates compute, networking and storage hardware with virtualization, operating system and management software. It provides breakthrough performance, reliability, availability, scalability and investment protection for the widest possible range of business application workloads, from middleware and custom applications to packaged applications from Oracle and hundreds of 3rd party vendors, in both conventional and cloud deployments. As an Oracle Engineered System, Oracle Exalogic delivers faster deployment, higher user productivity, lower TCO, reduced risk and one-stop support.

KEY FEATURES

- **Hardware:** Intel Xeon E5-powered compute nodes, InfiniBand and Ethernet switches, integrated storage system
- **Operating Systems:** Choice of Oracle Linux or Oracle Solaris
- **Cloud Software:** Complete Infrastructure-as-a-Service (IaaS) management
- **Server Virtualization:** High performance Type I hypervisor
- **Storage Software:** Complete storage management, including clones, snapshots and replication
- **Management Tools:** Configuration management, diagnostics and remote health monitoring
- **Oracle Enterprise Manger Integration:** Integrated support for end-to-end Oracle middleware and application management

Exalogic: The Logical Choice for Running Business Applications

Today many organizations have limited ability to process business transactions at a speed their business requires. This restricts their business choices and prevents them from seizing market opportunities. Oracle Exalogic addresses these problems by providing the performance and scalability that applications need, while supporting consolidation of multiple applications on the same system to reduce data center costs. Exalogic offers value to customers across three key dimensions:

Seize Market Opportunities

- For back office applications, close business up to 10X faster with applications tuned for blazing performance
- For front-office applications, improve the customer buying experience by dramatically reducing application response time and improving usability
- Respond rapidly to market needs by provisioning applications up to 5X faster than on traditional platforms

Lower Business Risk and Protect Your IT Investment

- Protect your sensitive data with true application isolation at the hardware and software levels
- Reduce application deployment and maintenance complexity while maximizing application availability and user productivity
- Enjoy peace of mind with the industry-leading Platinum Services for Engineered Systems, offering a 5-minute support SLA

Reduce Cost and Complexity of Application Deployments

- Deploy and/or consolidate mission-critical business applications and middleware with push-button simplicity onto a virtualized environment
- Simplify application delivery with easy-to-use, built-in load balancing
- Align application resources to business priorities with full built-in management, from applications to disk

Exalogic Elastic Cloud Software

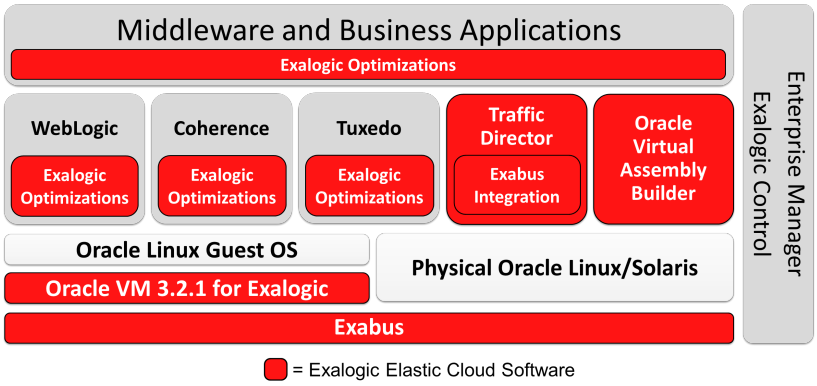

Figure 1: Key Components of Oracle Exalogic Elastic Cloud

Oracle Exalogic Elastic Cloud software includes:

- **Oracle Exabus**: A communication fabric connecting compute, storage and networking components of Exalogic. It is comprised of firmware, device drivers and application APIs built upon Oracle InfiniBand technology. Through special integration with Oracle Cloud Application Foundation middleware, Exabus provides ultra-low latency Remote Direct Memory Access.
- **Oracle VM Server for Exalogic:** Optimized Type I hypervisor that Exalogic uses to host virtual servers running an optimized version of Oracle Linux, with the highest performance and lowest overhead of any virtualization technology.
- **Oracle Traffic Director:** An integrated application delivery controller capable of everything from standard load-balancing to complex traffic shaping, traffic metering and security enforcement. It features native Oracle Exabus integration for maximum performance, manageability and security.
- **Exalogic Control:** Allows administrators to manage and monitor system hardware, perform firmware and software upgrades, create user accounts, manage virtual resources and monitor resource utilization. It runs directly on Exalogic and provides comprehensive cloud management capabilities.
- **Operating Systems**: Oracle Exalogic includes extensions to Oracle Linux and Oracle Solaris for enhanced application performance and manageability while maintaining compatibility with existing applications. All software certified for the appropriate Linux or Solaris versions is fully supported for Exalogic.
- **Storage Management Software:** Oracle Exalogic includes a complete storage management system that supports snapshots, volume cloning and remote replication for backup and disaster recovery.

Exalogic Elastic Cloud Hardware

Oracle Exalogic Elastic Cloud X5-2 hardware includes:

- **Converged Fabric**: The foundation of Oracle Exalogic is its ultra-high-performance, converged I/O backplane. Exalogic contains multiple QDR InfiniBand switches that connect the components inside the system and serve as gateways to the data center's Ethernet network. The Exalogic fabric offers extremely low latency, 40 Gb/s throughput, full redundancy, integrated end-point security and massive scalability up to thousands of virtual servers.
- **Compute Nodes**: Exalogic compute nodes are self-contained servers

containing Intel Xeon E5 CPUs, high-speed DIMM memory, redundant InfiniBand Host Channel Adapters and redundant solid state disks. Each node runs a single instance of Oracle Linux, Oracle Solaris or Oracle VM Server hypervisor. Nodes may be added or removed without any downtime.

- **Integrated Storage**: Exalogic features a fully integrated, enterprise-grade Oracle ZFS Storage Appliance, used as the primary shared storage for the system. It is designed to be fully redundant for maximum fault tolerance and serviceability and has high performance DIMM and flash memory for optimal read/write performance under the most demanding file storage workloads.

Exalogic X5-2 Hardware Specifications

Exalogic X5-2	Eighth Rack	Quarter Rack	Half Rack	Full Rack
Aggregate Specifications				
• Processor Cores	144	288	576	1080
• Memory	1 TB	2 TB	4 TB	7.5 TB
• Integrated Disk Storage	160 TB	160 TB	160 TB	160 TB
Power				
• Maximum	5.036 kW 5.137 kVA	7.732 kW 7.887 kVA	13.444 kW 13.713 kVA	23.520 kW 23.990 kVA
• Typical	3.525 kW 3.596 kVA	5.412 kW 5.521 kVA	9.411 kW 9.599 kVA	16.464 kW 16.793 kVA
Cooling				
• Maximum	17193 BTU/hour 18139 kJ/hour	26397 BTU/hour 27849 kJ/hour	45898 BTU/hour 48422 kJ/hour	80297 BTU/hour 84714 kJ/hour
• Typical	12035 BTU/hour 12697 kJ/hour	18478 BTU/hour 19494 kJ/hour	32128 BTU/hour 33896 kJ/hour	56208 BTU/hour 59300 kJ/hour
Airflow (front to back)				
• Maximum	796 CFM	1222 CFM	2125 CFM	3717 CFM
• Typical	557 CFM	855 CFM	1487 CFM	2602 CFM
Weight				
• Installed	550 kg 1213 lbs	630 kg 1389 lbs	810 kg 1786 lbs	1100 kg 2425 lbs
• Shipping	600 kg 1322 lbs	680 kg 1499 lbs	860 kg 1896 lbs	1150 kg 2535 lbs
10 GbE Network Uplinks (Max)	16	16	16	32
Power Distribution Units (PDU)				
• HV 3-Phase 24kVA	Y	Y	Y	Y
• LV 3-Phase 24kVA	Y	Y	Y	Y
• HV 1-Phase 22kVA	Y	Y	Y	N
• LV 1-Phase 22kVA	Y	Y	Y	N
• HV 3-Phase 15kVA	Y	Y	Y	N
• LV 3-Phase 15kVA	Y	Y	Y	N
• HV 1-Phase 15kVA	Y	Y	Y	N
• LV 1-Phase 15kVA	Y	Y	Y	N
Management Switch	1	1	1	1
• (48) GbE ports (BASE-T)				
Storage Subsystem	1	1	1	1
• (4) QDR InfiniBand ports (one active and one passive per storage head)				
• 6.4 TB solid state disk read cache				
• 800 GB solid state disk write cache				
• 160 TB Serial Attached SCSI (SAS) disks				
• (2) 10GbE remote replication ports (BASE-T)				
• (1) GbE management port (BASE-T)				
InfiniBand Spine Switch(es)**	0	0	1	1
• (36) QDR InfiniBand ports				
• (1) GbE management ports (BASE-T)				

Exalogic X5-2	Eighth Rack	Quarter Rack	Half Rack	Full Rack
InfiniBand Gateway Switch(es)	2	2	2	4
• (32) QDR InfiniBand ports (BASE-T) • (8) 10GbE ports (LC – SFP+) • (1) GbE management port (BASE-T)				
Compute Node(s)	4	8	16	30
• (2) Intel E5-2699V3 2.3 GHz Xeon (18-core) processors • (8) 32GB DDR4 2133 MHz RAM • (2) 400GB SSDs (RAID1) • (1) Dual-port QDR InfiniBand HCA (PCIe) • (1) GbE management port (BASE-T) • Redundant power supplies				
Operating Temperature				
• 5 degrees Celsius to 32 degrees Celsius (59 degrees Fahrenheit to 89.6 degrees Fahrenheit), 10 percent to 90 percent relative humidity, non-condensing • Altitude operating temperature: Up to 3048 m, maximum ambient temperature is de-rated by 1 degree Celsius for every 300 m above 900 m				
Physical Dimensions (Unpackaged)				
• Height: 42U, 78.66" - 1998 mm • Width: 23.62" – 600 mm • Depth: 47.24" – 1200 mm				
Pre-installed Software				
• Oracle Exalogic (Compute Node) Base Image • Storage System Software • Oracle Exalogic Configuration Utilities				
Regulations[1,2,3]				
• Product Safety: UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences • EMC: Emissions: FCC CFR 47 Part 15, ICES-003, EN55022, EN61000-3-11, EN61000-3-12, Immunity: EN55024 • Emissions and Immunity: EN300 386				
Certifications[2]				
North America (NRTL), European Union (EU), International CB Scheme, BIS HSE Exemption (India), BSMI (Taiwan), RCM (Australia), CCC (PRC), MSIP (Korea), VCCI (Japan)				
European Union Directives*				
• 2006/95/EC Low Voltage Directive • 2004/108/EC EMC Directive • 2011/65/EU RoHS Directive • 2012/19/EU WEEE Directive				
1) All standards and certifications referenced are to the latest official version. For additional detail, please contact your sales representative. 2) Other country regulations/certifications may apply. 3) In some cases, as applicable, regulatory and certification compliance were obtained at the component level only.				

Contact Us

For more information about Exalogic, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.

Oracle is committed to developing practices and products that help protect the environment

Hardware and Software, Engineered to Work Together