Accelerate Online Transaction Processing with Oracle® Database 19c

In collaboration with: intel

Tech Note by

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Summary

This joint paper outlines a brief discussion on the key hardware considerations when configuring Oracle 19c as a transactional database based on the most recent 15th Generation PowerEdge Server portfolio offerings.

Reliable and fast access to data is increasingly critical for every business. Relational database management systems (RDBMSs) play a vital role in providing data to enterprises, and Oracle® Database is one of the most popular RDBMSs.[i]

Oracle Database 19c is a complete platform and toolbox for business applications. It provides the power and flexibility that enterprises need for online analytical processing (OLAP) and online transaction processing (OLTP), including multitenant architecture, SQL query and data optimizations, high availability, security and data warehousing and big data support.

Upgrading to the latest Oracle software and Dell EMC™ PowerEdge™ servers with 3rd Generation Intel® Xeon® Scalable processors can yield high performance and low total cost of ownership (TCO) for enterprises. Dell Technologies offers three configurations for Dell EMC PowerEdge servers, built and tested on Intel® architecture, that optimize performance per core for low costs. Deciding whether to use the small, medium or large configuration depends on expected customer throughput requirements and database sizes.

Key Considerations

- Lower TCO. Due to its multitenant architecture, Oracle Database 19c allows hosting many pluggable databases on fewer cores for lower licensing costs. Dell EMC PowerEdge servers are built on 3rd Generation Intel Xeon Scalable processors that provide more performance per core. In addition, Intel® Optane™ persistent memory (PMem) helps lower TCO by providing scale-up memory at less cost than DRAM.
- Fast in-memory performance. Intel Optane PMem provides 2 to 8 TB of total system memory, which can improve Oracle Database 19c in-memory performance by an order of magnitude.[ii] This improvement helps accelerate real-time analytics and OLTP app performance.
- Comprehensive, easy-to-manage solution. The Dell EMC PowerEdge configurations have been predefined and pretested for modern Oracle environments. Oracle Database 19c is also offered as a long-term release, providing seven years of support, which makes it suitable for production environments.

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Available Configurations

	Small Configuration	Medium Configuration	Large Configuration
Platform	Dell EMC™ PowerEdge™ R650, supporting up to 10 NVM Express® (NVMe®) drives (direct connection with no Dell™ PowerEdge RAID Controller [PERC]), 1 RU	Dell EMC PowerEdge R750 supporting up to 16 NVMe drives (direct connection with no Dell PERC), 2 RU	
CPU	2 x Intel® Xeon® Gold 6334 processor (8 cores at 3.6 GHz)	2 x Intel® Xeon® Gold 6346 processor (16 cores at 3.1 GHz)	2 x Intel® Xeon® Platinum 8362 processor (32 cores at 2.8 GHz) or 2 x Intel Xeon Platinum 8358 processor (32 cores at 2.6 GHz)
DRAM	512 GB (16 x 32 GB DDR4-3200)		1 TB (32 x 32 GB DDR4-3200) or 1 TB (16 x 64 GB DDR4-3200) when used with Intel® Optane™ PMem[iii]
Intel Optane PMem[iv]	2 TB (16 x 128 GB Intel Optane PMem 200 series)		4 TB (16 x 256 GB Intel Optane PMem 200 series)
Boot device	Dell EMC™ Boot Optimized Server Storage (BOSS)-S2 with 2 x 480 GB M.2 Serial ATA (SATA) SSD (RAID1)		
Storage adapter	*Not required for an all-NVMe configuration*		
Redo log drives	2 x 3.2 TB Intel SSD P5600 (PCIe® Gen4, mixed-use)		
Data drives	2 x (up to 8 x) 3.2 TB Intel SSD P5600 (PCIe® Gen4, mixed-use)		2 x (up to 14 x) 3.2 TB Intel SSD P5600 (PCIe Gen4, mixed-use)
Network interface controller (NIC)	Intel® Ethernet Network Adapter E810-XXV for OCP3 (dual-port 25 Gb)		

Learn More

Contact your Dell or Intel account team for a customized quote 1-877-289-3355

Read about "Oracle Database In-Memory Use Cases with Intel Optane Persistent Memory (PMem)."

[i] DB-Engines. "DB-Engines Ranking." May 2020. https://db-engines.com/en/ranking.

[ii] Intel. "High-Performance Oracle Database and Applications on Intel Architecture." January 2020.

[iii] On systems with Intel® Optane™ PMem, only 16 DIMM slots can be populated with DRAM, so larger modules must be used.

[iv] Intel® Optane™ PMem in Memory Mode is recommended for the in-memory database option and for analytics-heavy workloads. The DRAM-to-PMem ratio should be 1:4. More information about using Oracle Database with Intel Optane PMem is available in this whitepaper: "Oracle Database In-Memory Use Cases with Intel Optane Persistent Memory (PMem)."

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