



# MAJOR PERFORMANCE/PRICE ADVANTAGE, SCALABILITY GAINS WITH INTEL® OPTANE™ PERSISTENT MEMORY 100 SERIES FOR HPE ON GRAPHX WORKLOAD

Comparing GraphX workloads with Intel Optane PMem 100 series for HPE to all-DRAM workloads on the HPE ProLiant DL380 Gen10 server



### Key takeaways



#### HPE ProLiant DL380 Gen10 with Intel Optane PMem 100 series for HPE has:

- Up to 48% improved performance/price
- Larger scale factor

#### HPE ProLiant DL380 Gen10 server configurations

##### With all-DRAM DIMMs only:

4 HPE DL380 Gen10 SFF with 128 GB DIMM, Intel Xeon 8280L processors; 12 x 128 GB DDR4 DRAM DIMMs; 4 x 1.2 GB SFF NVMe drives; HPE Smart Array P480i-a SR Controller; Cloudera Enterprise Basic Edition; and Red Hat Enterprise Linux 7.6

##### With Intel Optane PMem 100 for HPE:

4 HPE ProLiant DL380 Gen10 with Intel Xeon 8280L processors; 12 x Intel Optane 128 GB PMem 100 for HPE; 12 x 32 GB DDR4 DRAM DIMMs; 4 x 1.2 GB SFF NVMe drives; HPE Smart Array P480i-a SR Controller; Cloudera Enterprise Basic Edition; and Red Hat Enterprise Linux 7.6

The HPE ProLiant DL380 Gen10 server is adaptable for diverse workloads and environments. The secure 2P, 2U HPE ProLiant DL380 Gen10 delivers world-class performance with the right balance of expandability and scalability. The rack server is designed for supreme versatility and resiliency while backed by a comprehensive warranty.

All results as of June 2, 2019

Partnership: HPE partnered with Intel for this comparison.

## EXECUTIVE SUMMARY

As customers move into a more connected world, they need larger capacity memory to meet the needs of ever-growing data. Intel® Optane™ persistent memory 100 series for HPE provides that and more.

In a recent performance benchmark, HPE found a significant performance/price advantage using larger capacity Intel Optane PMem 100 series for HPE on a GraphX pharmaceutical workload as compared to the same workload configuration but using all-DRAM memory instead.<sup>1</sup> Intel Optane PMem 100 for HPE, at 1.5 TB of 128 GB modules, showed up to 48% improved performance/price versus using 1.5 TB of 128 GB DDR4 DRAM DIMMs. In addition, using the larger 256 GB and 512 GB of Intel Optane PMem 100 series for HPE modules allow for a larger scale factor. The additional memory footprint allows the same number of server nodes instead of needing to add more.

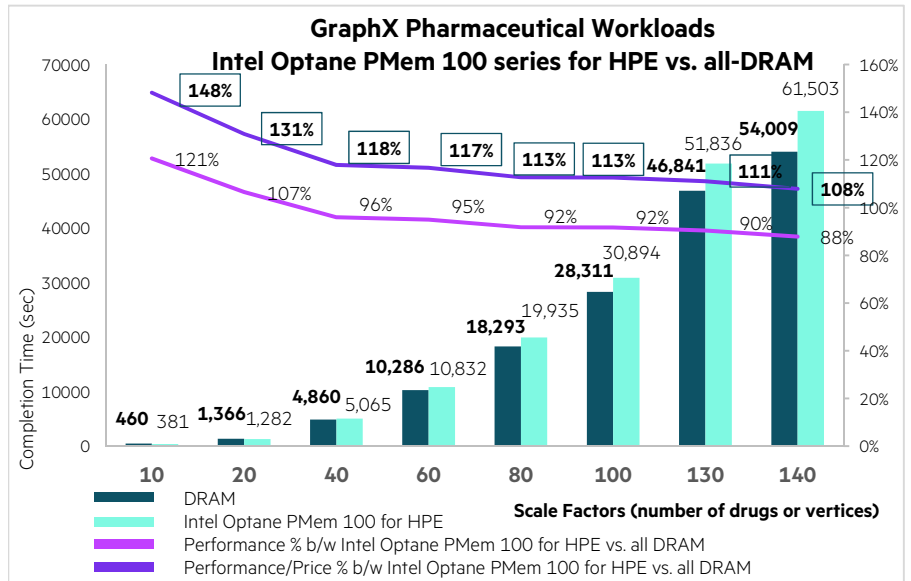


FIGURE 1. Results of SF 130 using 12 x 32 GB DRAM and 12 x Intel Optane 128 GB PMem 100 for HPE.

## Performance solution brief

**TABLE 1.** Performance and performance/price percentages on multiple-scale factor results.

GraphX Scale Factor	10	20	40	60	80	100	130	140
DRAM	460	1366	4860	10,286	18,923	28,311	46,841	61,503
Intel Optane PMem 100 series for HPE	381	1282	5065	10,832	19,935	30,894	51,836	61,503
Performance % between Intel Optane PMem 100 for HPE vs. all-DRAM (higher is better)	1.21	1.07	0.96	0.95	0.92	0.92	0.90	0.88
Performance/Price % between Intel Optane PMem 100 series for HPE vs. all-DRAM (higher is better)	1.48	1.31	1.18	1.17	1.13	1.13	1.11	1.08

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