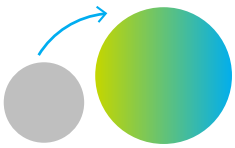
FACT SHEET

HOW TO DELIVER DATABASE WORKLOADS AT LOW TCO

Discover the advantages of choosing Amazon EC2* instances featuring the Intel® Xeon® Scalable processor

Intel® Xeon® Scalable processors offer:

Up to



2.84x

higher performance/$ for MongoDB* database workloads[1]

Upgrade from older Intel® processor-based instances to newer Intel processors to save up to

$72,000

per year in license costs for Microsoft SQL Server*[2]

Find out more about building value on your critical workloads by reading this Intel eGuide.

Achieve incredible performance per dollar on database workloads with AWS* and Intel

Hosting your database in the cloud gives you the reliability, scalability and flexibility you want. But you also need to keep a close eye on the budget.

To get more value for money, choose an Amazon EC2 memory-optimized instance featuring the Intel® Xeon® Scalable processor. For **HammerDB* and PostgreSQL* workloads, it delivers up to 1.85x the performance per dollar, and for MongoDB***, it can achieve **up to 2.84x the performance per dollar**[1].

There are further benefits too: if you can do more with fewer vCPUs, you may be able to make additional **savings on your software licensing costs**. Moving from c4.8xlarge instances featuring the Intel® Xeon® processor E5-2666 v3 to c5.4xlarge instances featuring the Intel Xeon Scalable processor **can cut the core count for a workload by up to 40**[3]. If a commercial database is licensed at a cost of $1,800 per core annually, that **adds up to $72,000**[2].

Whatever database platform you're using, it pays to check you are using the right cloud instance for it. New Amazon EC2 instances featuring the Intel Xeon Scalable processor and 2nd Generation Intel Xeon Scalable processor are available now. Achieve great value with your data on Intel.

[1] Results calculated by Intel using AWS pricing ($/hour, standard 1-year term, no up-front) as of 12th January, 2019.
Performance per dollar testing done on Amazon EC2* R5 and R5a instances (https://aws.amazon.com/ec2/instance-types/), comparing 96 vCPU Intel® Xeon® Scalable processor performance per dollar to Competitor processor performance per dollar.
AWS pricing as of 12th January 2019 Standard 1-Year term Reserved Instance Pricing (https://aws.amazon.com/ec2/pricing/reserved-instances/pricing/) On Demand Linux/Unix Usage Pricing per hour (https://aws.amazon.com/ec2/pricing/on-demand/)

Workload: HammerDB* PostgreSQL* Results: Competitor processor performance per dollar = baseline of 1; Intel® Xeon® Scalable processor performance per dollar = 1.85X (higher is better)
Database: HammerDB – PostgreSQL (higher is better):
Amazon EC2 r5.24xlarge (Intel) Instance, HammerDB 3.0 PostgreSQL 10.2, Memory: 768GB, Hypervisor: KVM; Storage Type: EBS io1, Disk Volume 200GB, Total Storage 200GB, Docker version: 18.06.1-ce, RedHat* Enterprise Linux 7.6, 3.10.0-957.el7.x86_64, 6400MB shared_buffer, 256 warehouses, 96 users. Score "NOPM" 439931, measured by Intel on 12/11/18-12/14/18.
Amazon EC2 r5.24xlarge (Competitor processor) Instance, HammerDB 3.0 PostgreSQL 10.2, Memory: 768GB, Hypervisor: KVM; Storage Type: EBS io1, Disk Volume 200GB, Total Storage 200GB, Docker version: 18.06.1-ce, RedHat* Enterprise Linux 7.6, 3.10.0-957.el7.x86_64, 6400MB shared_buffer, 256 warehouses, 96 users. Score "NOPM" 212903, measured by Intel on 12/20/18.

Workload: MongoDB* Results: Competitor processor performance per dollar = baseline of 1; Intel® Xeon® Scalable processor performance per dollar = 2.84X (higher is better)
Database: MongoDB (higher is better):
Amazon EC2 r5.24xlarge (Intel) Instance, MongoDB v4.0, journal disabled, sync to filesystem disabled, wiredTigeCache=27GB, maxPoolSize = 256; 7 MongoDB instances, 14 client VMs, 1 YCSB client per VM, 96 threads per YCSB client, RedHat* Enterprise Linux 7.5, Kernel 3.10.0-862.el7.x86_64, Score 1229288 ops/sec, measured by Intel on 12/10/18.
Amazon EC2 r5.24xlarge (Competitor processor) Instance, MongoDB v4.0, journal disabled, sync to filesystem disabled, wiredTigeCache=27GB, maxPoolSize = 256; 7 MongoDB instances, 14 client VMs, 1 YCSB client per VM, 96 threads per YCSB client, RedHat* Enterprise Linux 7.5, Kernel 3.10.0-862.el7.x86_64, Score 388596 ops/sec, measured by Intel on 12/10/18. For more details visit www.intel.com/benchmarks

[2] Licensing cost of $1,800 per core annually results in saving of $72,000 per year when migrating from a c4.8xlarge Amazon EC2 instance to a c5.4xlarge instance for a workload tested by TSO Logic. Source: TSO Logic / Intel research report: "New Advances by Intel, Amazon Web Services, Drive Major Cloud Savings" https://www.intel.com/content/dam/www/public/us/en/documents/reports/tso-logic-research.pdf?spredfast-trk-id=sf215253580

[3] Source: TSO Logic / Intel research report: "New Advances by Intel, Amazon Web Services, Drive Major Cloud Savings" https://www.intel.com/content/dam/www/public/us/en/documents/reports/tso-logic-research.pdf?spredfast-trk-id=sf215253580

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 complete information visit www.intel.com/benchmarks

Performance results are based on testing as of the date set forth in the configurations and may not reflect all publicly available security updates. See configuration disclosure for details. No product or component can be absolutely secure.

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