



Transition Guide

2ND GENERATION INTEL® XEON® SCALABLE PROCESSOR



It's a new era of datacentric computing fueled by cloud, 5G edge computing, and artificial intelligence. Intel has an unparalleled portfolio of leadership products optimized for the 2nd Generation Intel® Xeon® Scalable processor that accelerate insights and business agility. The opportunities from server modernization are massive.

- Maximize the value of data with faster analytics
- Deploy and scale AI workloads on a single architecture
- Boost hybrid cloud scalability, performance, and efficiency

Intel is delivering comprehensive and industry leading platform capabilities to address the broadest spectrum of data center workload demands. Now is the time to modernize core data center infrastructure and ultimately drive business transformation.

What's New with the 2nd Gen Intel® Xeon® Scalable Processor?

- Improved Turbo frequencies, up to 4.4 GHz
- Enhanced Memory Support
 - Support for Intel® Optane™ DC persistent memory
 - Enhanced DDR4 performance support
- AI acceleration with Intel® Deep Learning Boost (VNNI)
- Intel® Security Essentials, a built-in foundation of core security capabilities
- Enhanced Intel® Infrastructure Management Technologies
- Integrated hardware-based security mitigations

The 2nd Gen Intel Xeon Scalable processor delivers compelling performance gains and TCO benefit for systems based on the Intel Xeon Silver and Intel Xeon Gold processors, creating a significant refresh opportunity. The original Intel Xeon Scalable platform delivered the biggest performance and TCO benefit for systems based on the Intel Xeon Platinum processor and continue to offer performance gains in the 2nd Generation as well.

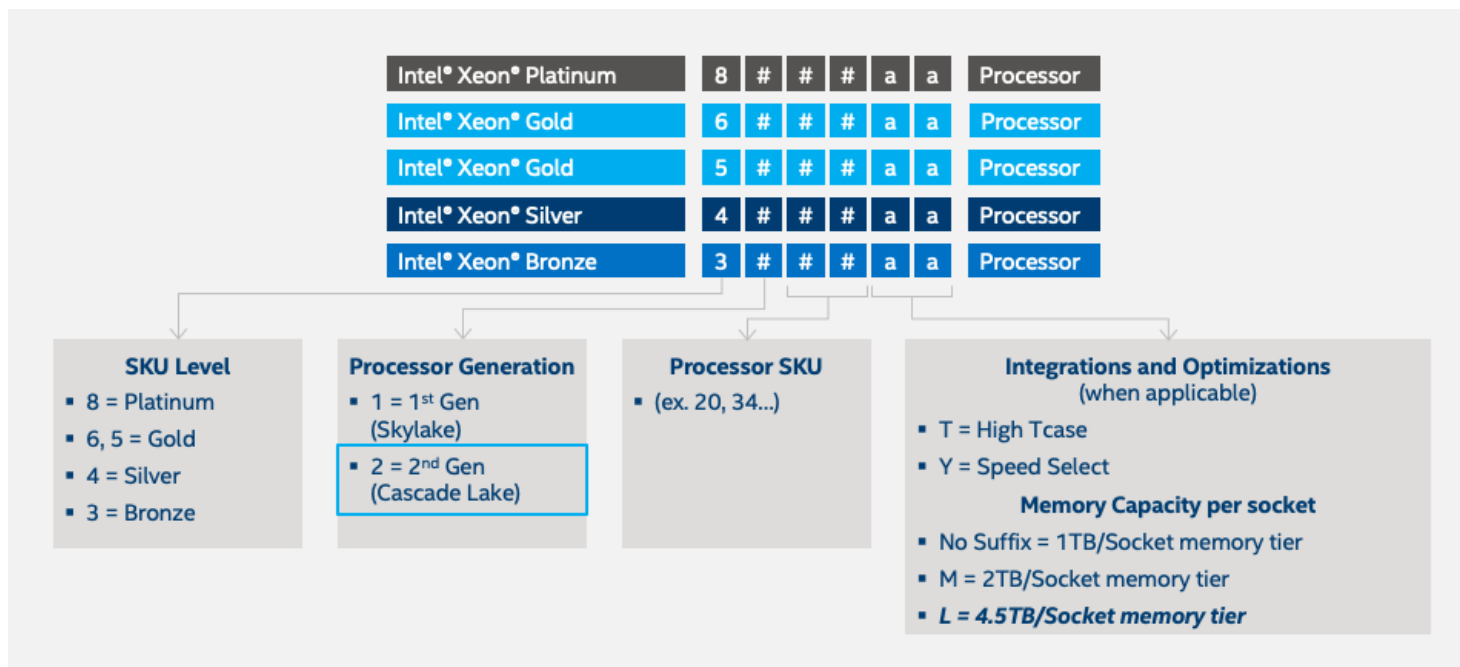
Next Gen Performance Gains

		Perf Gains	2933	VNNI	AEP
Biggest Opportunity	Platinum-82xx: Performance leadership and unique features	5%	×	×	×
	Gold-62xx: Performance leadership on demanding workloads	5%	×	×	×
	Gold-52xx: Leadership perf and system perf/\$ Compelling gen-to gen performance	22%		×	×
	Silver-42xx: Leadership perf and system perf/\$ Compelling gen-to gen performance	35%		×	1 SKU
	Bronze-32xx: Attractive Xeon-SP entry price point	25%		×	
		10%			

SKU Decoder

Help customers transition to 2nd Gen Intel Xeon Scalable processors. Familiarize yourself with the product numbering convention and understand which SKUs represent the biggest opportunity for your customers.

2nd Gen Intel® Xeon® Processor Scalable Family Product Numbering Convention



SKU list

Intel® Xeon® Scalable Processor Name	Product Code	Clock Speed	Intel® UPI Speed	Intel® smart cache	Max memory speed	No of cores/ threads	Intel® HT	Intel® Turbo boost technology	Power	Intel® Optane™ DC persistent memory
Platinum 8280	CD8069504228001	2.7	10.40GT/sec	38.5M	DDR4-2933	28/56	Yes	2	205W	Yes
Platinum 8276	CD8069504195501	2.2	10.40GT/sec	38.5M	DDR4-2933	28/56	Yes	2	165W	Yes
Platinum 8270	CD8069504195201	2.7	10.40GT/sec	35.75M	DDR4-2933	26/52	Yes	2	205W	Yes
Platinum 8268	CD8069504195101	2.9	10.40GT/sec	35.75M	DDR4-2933	24/48	Yes	2	205W	Yes
Platinum 8260	CD8069504201101	2.4	10.40GT/sec	35.75M	DDR4-2933	24/48	Yes	2	165W	Yes
Platinum 8256	CD8069504194701	3.8	10.40GT/sec	16.5M	DDR4-2933	4/8	Yes	2	105W	Yes
	BX806958256									
Platinum 8253	CD8069504194601	2.2	10.40GT/sec	22M	DDR4-2933	16/32	Yes	2	125W	Yes
Gold 6254	CD8069504194501	3.1	10.40GT/sec	24.75M	DDR4-2933	18/36	Yes	2	200W	Yes
Gold 6252	CD8069504194401	2.1	10.40GT/sec	35.75M	DDR4-2933	24/48	Yes	2	150W	Yes
	BX806956252									
Gold 6248	CD8069504194301	2.5	10.40GT/sec	27.5M	DDR4-2933	20/40	Yes	2	150W	Yes
	BX806956248									
Gold 6244	CD8069504194202	3.6	10.40GT/sec	24.75M	DDR4-2933	8/16	Yes	2	150W	Yes
Gold 6242	CD8069504194101	2.8	10.40GT/sec	22M	DDR4-2933	16/32	Yes	2	150W	Yes

Intel® Xeon® Scalable Processor Name	Product Code	Clock Speed	Intel® UPI Speed	Intel® smart cache	Max memory speed	No of cores/ threads	Intel® HT	Intel® Turbo boost technology	Power	Intel® Optane™ DC persistent memory
	BX806956242									
Gold 6240	CD8069504194001	2.6	10.40GT/sec	24.75M	DDR4-2933	18/36	Yes	2	150W	Yes
	BX806956240									
Gold 6230	CD8069504193701	2.1	10.40GT/sec	27.5M	DDR4-2933	20/40	Yes	2	125W	Yes
	BX806956230									
Gold 5222	CD8069504193501	3.8	10.40GT/sec	16.5M	DDR4-2666	4/8	Yes	2	105W	Yes
Gold 5220	CD8069504214601	2.2	10.40GT/sec	24.75M	DDR4-2666	18/36	Yes	2	125W	Yes
	BX806955220									
Gold 5218	CD8069504193301	2.3	10.40GT/sec	22M	DDR4-2666	16/32	Yes	2	125W	Yes
	BX806955218									
Gold 5217	CD8069504214302	3	10.40GT/sec	11M	DDR4-2666	8/16	Yes	2	125W	Yes
Gold 5215	CD8069504214002	2.5	10.40GT/sec	13.75M	DDR4-2666	10/20	Yes	2	85W	Yes
Silver 4216	CD8069504213901	2.1	10.40GT/sec	22M	DDR4-2400	16/32	Yes	2	100W	
	BX806954216									
Silver 4215	CD8069504212701	2.5	10.40GT/sec	11M	DDR4-2400	8/16	Yes	2	85W	Yes
Silver 4214	CD8069504212601	2.2	10.40GT/sec	16.5M	DDR4-2400	12/24	Yes	2	85W	

Sales Support for the 2nd Gen Intel Xeon Scalable Platform

Training

Selling 2nd Generation Intel® Xeon® Scalable processors and the Latest Memory Innovations: http://channeltraining.intel.com/diweb/gateway/init/1/f/catalog*2Fitem*2Feid*2F295828

Selling 2nd Generation Intel® Xeon® Scalable processors Workload-Optimized SKUs: http://channeltraining.intel.com/diweb/gateway/init/1/f/catalog*2Fitem*2Feid*2F295828

Sales Tools & Resources

Selling Resources: intel.com/itp-xeonsp

Intel® Xeon® processor advisor tool suite: <https://xeonprocessoradvisor.intel.com/>

Tools for insight to help you transition customers to the right Intel® Xeon® Scalable processor for their workload.

Scale IT Up Tool: <http://scaleitup.intel.com>

Side by side comparisons demonstrate the total cost of ownership benefits and help you position the power of upgrading storage and networking as well as software to unleash the full potential of the CPU.

¹IDC 2015 (<https://www.emc.com/collateral/analyst-reports/idc-why-upgrade-server-infrastructure.pdf>)

²The Enterprise Strategy Group, 2017

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure.

Tests document performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. For more complete information about performance and benchmark results, visit <http://www.intel.com/benchmarks>.

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 <http://www.intel.com/benchmarks>.

1x inference throughput improvement in July 2017: Tested by Intel as of July 11th 2017: Platform: 25 Intel® Xeon® Platinum 8180 CPU @ 2.50GHz (28 cores), HT disabled, turbo disabled, scaling governor set to "performance" via intel_pstate driver, 384GB DDR4-2666 ECC RAM. CentOS Linux release 7.3.1611 (Core), Linux kernel 3.10.0-514.10.2.el7.x86_64. SSD: Intel® SSD DC S3700 Series (800GB, 2.5in SATA 6Gb/s, 25nm, MLC). Performance measured with: Environment variables: KMP_AFFINITY='granularity=fine, compact', OMP_NUM_THREADS=56, CPU Freq set with cpupower frequency-set -d 2.5G -u 3.8G -g performance. Caffe: (<http://github.com/intel/caffe/>), revision f96b759f71b2281835f690af267158b82b150b5c. Inference measured with "caffe time --forward_only" command, training measured with "caffe time" command. For "ConvNet" topologies, dummy dataset was used. For other topologies, data was stored on local storage and cached in memory before training. Topology specs from https://github.com/intel/caffe/tree/master/models/intel_optimized_models (ResNet-50), and https://github.com/soumith/convnet-benchmarks/tree/master/caffe_imagenet_winners (ConvNet benchmarks; files were updated to use newer Caffe prototxt format but are functionally equivalent). Intel C++ compiler ver. 17.0.2 20170213, Intel MKL small libraries version 2018.0.20170425. Caffe run with "numactl -l".

11X inference throughput improvement with 2nd Gen Intel® Xeon® Scalable processor: 2nd Gen Intel Xeon Scalable processor results have been estimated or simulated using internal Intel analysis or architecture simulation or modeling, and provided to you for informational purposes. Any differences in your system hardware, software or configuration may affect your actual performance vs Tested by Intel as of July 11th 2017: 25 Intel® Xeon® Platinum 8180 CPU @ 2.50GHz (28 cores), HT disabled, turbo disabled, scaling governor set to "performance" via intel_pstate driver, 384GB DDR4-2666 ECC RAM. CentOS Linux release 7.3.1611 (Core), Linux kernel 3.10.0-514.10.2.el7.x86_64. SSD: Intel® SSD DC S3700 Series (800GB, 2.5in SATA 6Gb/s, 25nm, MLC). Performance measured with: Environment variables: KMP_AFFINITY='granularity=fine, compact', OMP_NUM_THREADS=56, CPU Freq set with cpupower frequency-set -d 2.5G -u 3.8G -g performance. Caffe: (<http://github.com/intel/caffe/>), revision f96b759f71b2281835f690af267158b82b150b5c. Inference measured with "caffe time --forward_only" command, training measured with "caffe time" command. For "ConvNet" topologies, dummy dataset was used. For other topologies, data was stored on local storage and cached in memory before training. Topology specs from https://github.com/intel/caffe/tree/master/models/intel_optimized_models (ResNet-50), Intel C++ compiler ver. 17.0.2 20170213, Intel MKL small libraries version 2018.0.20170425. Caffe run with "numactl -l".

Intel® Advanced Vector Extensions (Intel® AVX)* provides higher throughput to certain processor operations. Due to varying processor power characteristics, utilizing AVX instructions may cause a) some parts to operate at less than the rated frequency and b) some parts with Intel® Turbo Boost Technology 2.0 to not achieve any or maximum turbo frequencies. Performance varies depending on hardware, software, and system configuration and you can learn more at <http://www.intel.com/go/turbo>.

Intel's compilers may or may not optimize to the same degree for non-Intel microprocessors for optimizations that are not unique to Intel microprocessors. These optimizations include SSE2, SSE3, and SSSE3 instruction sets and other optimizations. Intel does not guarantee the availability, functionality, or effectiveness of any optimization on microprocessors not manufactured by Intel. Microprocessor-dependent optimizations in this product are intended for use with Intel microprocessors. Certain optimizations not specific to Intel microarchitecture are reserved for Intel microprocessors. Please refer to the applicable product User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

Cost reduction scenarios described are intended as examples of how a given Intel-based product, in the specified circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.

The benchmark results may need to be revised as additional testing is conducted. The results depend on the specific platform configurations and workloads utilized in the testing, and may not be applicable to any particular user's components, computer system or workloads. The results are not necessarily representative of other benchmarks and other benchmark results may show greater or lesser impact from mitigations. Intel does not control or audit third-party benchmark data or the web sites referenced in this document. You should visit the referenced website and confirm whether referenced data are accurate.

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