FAST FORWARD TO YOUR <NEXT> CREATION

THE ULTIMATE PROFESSIONAL WORKSTATIONS POWERED BY INTEL® XEON® PROCESSORS

7 SEPTEMBER 2017

WHAT'S NEW

INTRODUCING THE NEW INTEL® XEON® SCALABLE PROCESSOR
BREAKTHROUGH PERFORMANCE FOR EXPERT WORKSTATIONS†

INTRODUCING THE NEW INTEL® XEON® W PROCESSOR
PERFORMANCE OPTIMIZED FOR MAINSTREAM WORKSTATIONS†

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BREAKTHROUGH PERFORMANCE FOR EXPERT WORKSTATIONS†

WORLD RECORD PERFORMANCE

UP TO 2.71X PERFORMANCE IMPROVEMENT 4-YEAR REFRESH[1]

UP TO 1.65X PERFORMANCE IMPROVEMENT GEN-ON-GEN[2]

UP TO 56 CORES

UP TO 112 THREADS

UP TO 4.2 GHZ WITH INTEL® TURBO BOOST TECHNOLOGY 2.0

UP TO 3 TB DDR4 2666 MHZ

ULTIMATE ACCELERATOR THROUGHPUT WITH EXPANDABILITY, RELIABILITY, SECURITY†

INFORMATION BASED ON DUAL-SOCKET CONFIGURATION

New Intel® Xeon® Scalable Processor

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. Configuration: Refer to Performance Benchmark Disclosure slide. 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. *Other names and brands may be claimed as the property of others.

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PERFORMANCE OPTIMIZED FOR MAINSTREAM WORKSTATIONS†

UP TO **1.87X** PERFORMANCE IMPROVEMENT 4-YEAR REFRESH[3]

UP TO **1.38X** PERFORMANCE IMPROVEMENT GEN-ON-GEN[4]

UP TO **4.5** GHZ WITH INTEL® TURBO BOOST TECHNOLOGY 2.0

UP TO **512 GB** DDR4 2666 MHZ

UP TO **18 CORES**

UP TO **36 THREADS**

OPTIMIZED MAINSTREAM PERFORMANCE WITH EXPANDABILITY, RELIABILITY, SECURITY†

AVAILABLE IN SINGLE-SOCKET CONFIGURATION ONLY

New Intel® Xeon® W Processor

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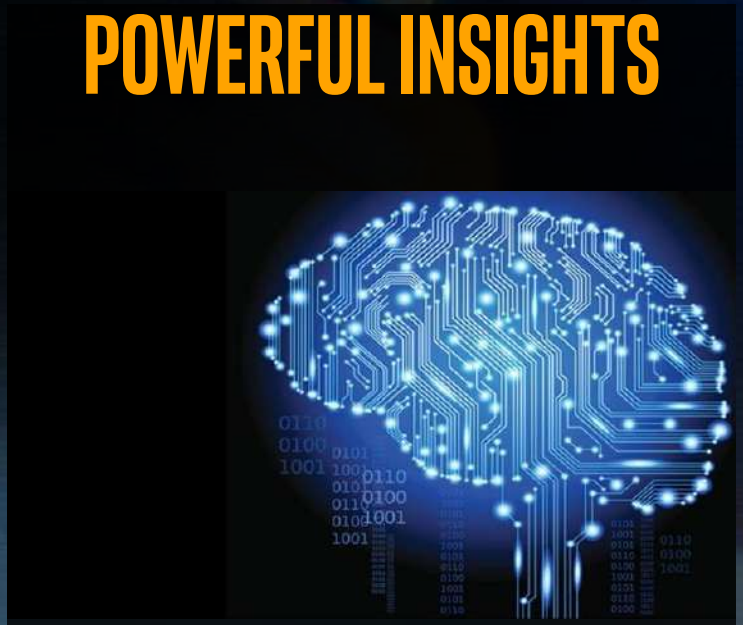
ACCELERATING CREATION

IMMERSIVE VR

A revolution in design and content creation.
Delivering real-life in real-time.

POWERFUL INSIGHTS



AI analytics driving innovation in research and development

RAPID DELIVERY

Mega-tasking performance.
Accelerating ideas to product delivery.

New Intel® Xeon® Scalable Processor

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IMMERSIVE VR
DESIGN & CREATION

UP TO **2.71X**

FASTER[1]
vs. four-year-old
expert workstation

New Intel® Xeon® Scalable Processor

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technicolor

MARCIE JASTROW

SENIOR VICE PRESIDENT IMMERSIVE MEDIA AND HEAD OF THE TECHNICOLR EXPERIENCE CENTER

“Intel® Xeon® Scalable processors represent the ultimate in what is possible in VR today and it also makes me feel very hopeful about what will happen tomorrow in immersive VR media.”

New Intel® Xeon® Scalable Processor

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ANSYS®

DR. WIM SLAGTER
DIRECTOR OF HPC MARKETING, ANSYS

“ … [Intel Xeon Scalable processors] is a testament of impressive overall performance gains achieved for customers who want to increase their engineering productivity.”

New Intel® Xeon® Scalable Processor

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FAST FORWARD TO YOUR <NEXT> CREATION

INTEL® XEON® SCALABLE PROCESSOR

BREAKTHROUGH PERFORMANCE FOR EXPERT WORKSTATIONS†

INTEL® XEON® W PROCESSOR

PERFORMANCE OPTIMIZED FOR MAINSTREAM WORKSTATIONS†

INTEL® XEON® PROCESSOR-BASED WORKSTATIONS: PERFORMANCE. PROFESSIONAL-GRADE. BUILT FOR TODAY'S PROS.

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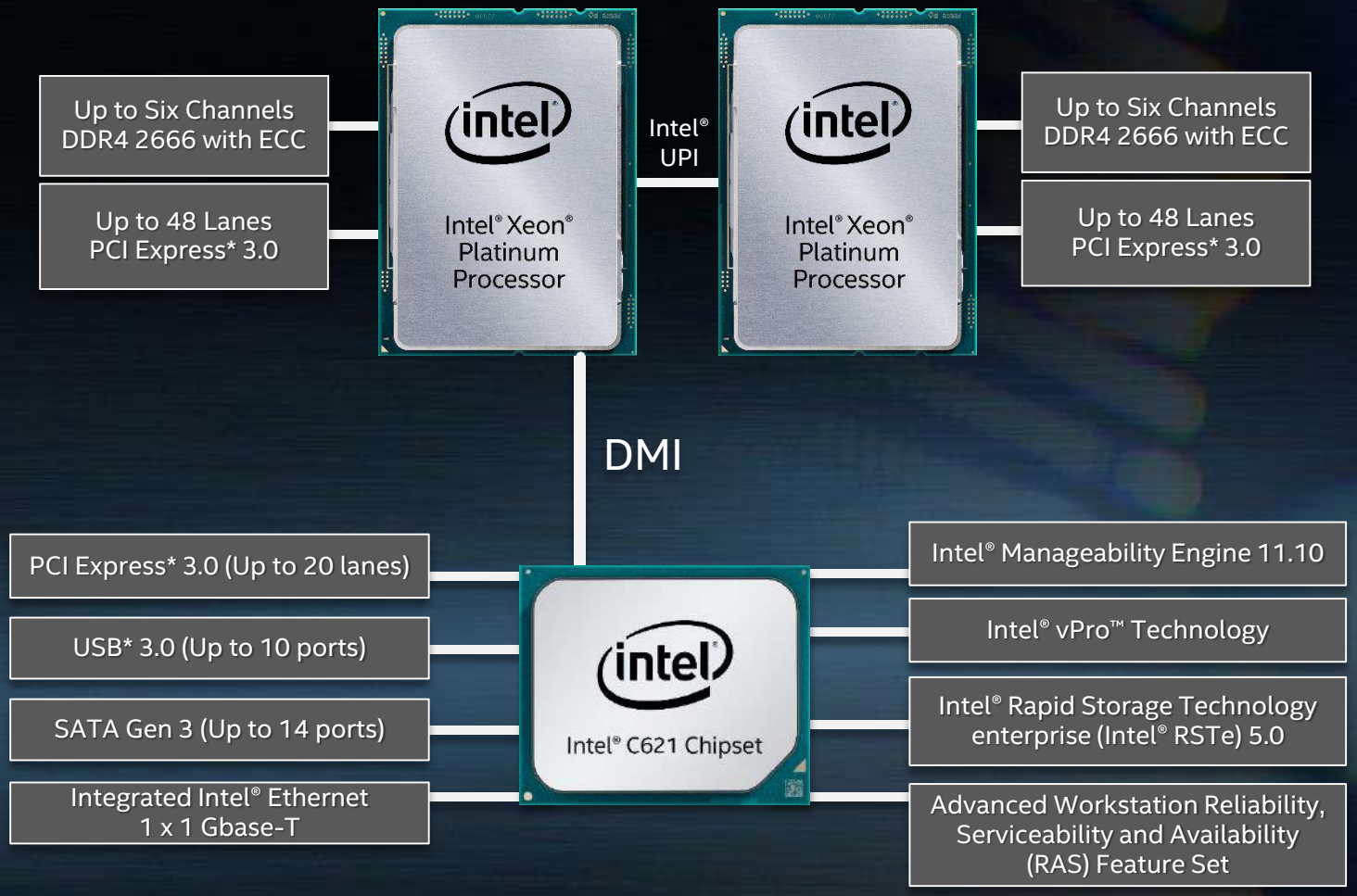
NEW INTEL® XEON® SCALABLE PROCESSORS

BREAKTHROUGH PERFORMANCE FOR EXPERT WORKSTATIONS†



Processors, chipset and diagram provided for illustration purposes only

Processor Manufacturing Process	Intel's optimized 14nm+ process technology featuring Intel® Mesh Architecture
Maximum Core Count Supported	Up to 28
Maximum Base Frequency Supported	Up to 3.6 GHz
Maximum Intel® Turbo Boost Technology 2.0 Frequency Supported	Up to 4.2 GHz
Processor Cache Memory Support	Up to 38.5 MB of L3 Cache featuring rebalanced Intel® Cache hierarchy
Processor Performance Support	Intel® Turbo Boost 2.0 Technology, Intel® Hyper-Threading Technology (Intel® HT), Intel® Speed Shift Technology
Intel® Advanced Vector Extension 512 (Intel® AVX-512) Support	Intel® AVX-512 with up to 2 FMA support
Maximum Number of Processor Sockets Supported	Up to Two Sockets for Expert Workstations
Thermal Design Point (TDP)	Approximately 240 Watts
Socket Type	LGA-3647
System Memory Support	6 channels of DDR4 2666 MHz with ECC support, per socket
Maximum System Memory Supported	Up to 3 TB in a dual-socket configuration
Supported Chipset	Intel® C621 Chipset
PCH I/O	PCI Express* 3.0 – Up to 20 lanes USB* 3.0 – Up to 10 ports SATA* 3.0 – Up to 14 ports DMI – Up to 4 lanes, Gen 3
Intel® Manageability Engine (Intel® ME)	Intel® ME v11.11 with Intel® Active Management Technology (Intel® AMT) and Intel® vPro™ Technology
Intel® Rapid Storage Technology enterprise (Intel® RSTe)	Intel® RSTe 5.0 and Intel® Virtual RAID on CPU (Intel® VROC)

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INFORMATION BASED ON DUAL-SOCKET CONFIGURATION

INTEL® XEON® SCALABLE PROCESSORS FOR EXPERT WORKSTATIONS

Processor Number[1]	Base Clock Speed (GHz)	Intel® Turbo Boost Technology 2.0 Frequency (GHz)	Cores/ Threads	Intel® AVX-512	L3 Cache (MB)	PCI Express 3.0 Lanes	Memory Support	Thermal Design Power (TDP)	Socket (LGA)	Recommended Customer Pricing ($ US Dollars)
Intel® Xeon® Platinum 8180 Processor	2.5	3.8	28 / 56	2 512-bit FMA	38.5	48	Six channels DDR4-2666	205W	3647	$10,009
Intel® Xeon® Platinum 8168 Processor	2.7	3.7	24 / 48	2 512-bit FMA	33	48	Six channels DDR4-2666	205W	3647	$5,890
Intel® Xeon® Platinum 8158 Processor	3.0	3.7	12 / 24	2 512-bit FMA	24.75	48	Six channels DDR4-2666	150W	3647	$7,007
Intel® Xeon® Platinum 8156 Processor	3.6	3.7	4 / 8	2 512-bit FMA	16.5	48	Six channels DDR4-2666	105W	3647	$7,007
Intel® Xeon® Gold 6154 Processor	3.0	3.7	18 / 36	2 512-bit FMA	24.75	48	Six channels DDR4-2666	200W	3647	$3661
Intel® Xeon® Gold 6152 Processor	2.1	3.7	22 / 44	2 512-bit FMA	30.25	48	Six channels DDR4-2666	140W	3647	$3661
Intel® Xeon® Gold 6148 Processor	2.4	3.7	20 / 40	2 512-bit FMA	27.5	48	Six channels DDR4-2666	150W	3647	$3078
Intel® Xeon® Gold 6146 Processor	3.2	4.2	12 / 24	2 512-bit FMA	24.75	48	Six channels DDR4-2666	165W	3647	$3286
Intel® Xeon® Gold 6144 Processor	3.5	4.2	8 / 16	2 512-bit FMA	24.75	48	Six channels DDR4-2666	150W	3647	$2925
Intel® Xeon® Gold 6128 Processor	3.4	3.7	6 / 12	2 512-bit FMA	19.25	48	Six channels DDR4-2666	115W	3647	$1697

1. See intel.com/products/processor_number for details. The information above is based on individual processor information. Intel® Xeon® Scalable processors are designed for use in dual-socket (2 processor) expert workstation. This list is not comprehensive of all available Intel® Xeon® Scalable processor SKUs. Please visit intel.com/xeonscalable for the latest product information. Processor details, features, cost and availability are subject to change without notice.

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References: Intel® Advanced Vector Extensions 512 (Intel® AVX-512)

NEW INTEL® XEON® W PROCESSOR

Mainstream performance, enhanced memory capabilities, hardware-enhanced security and reliability features for professional workstations.

- Up to 18 cores, 36 threads
- Four channel DDR4-2666 ECC memory support
- Intel® Turbo Boost Technology 2.0
- Intel® AVX-512 acceleration with up to 2 FMA
- Support for LGA 2066 socket
- 48 PCI Express 3.0 lanes
- Intel® Mesh Architecture
- Intel optimized 14nm+ process technology
- Rebalanced Intel® smart cache hierarchy
- Intel® vPro™ Technology
- Intel® Hyper-Threading Technology (Intel® HT Technology)
- Intel® Virtual RAID on Chip (Intel® VROC)
- Integrated Intel® Ethernet: 1 Gigabit Ethernet

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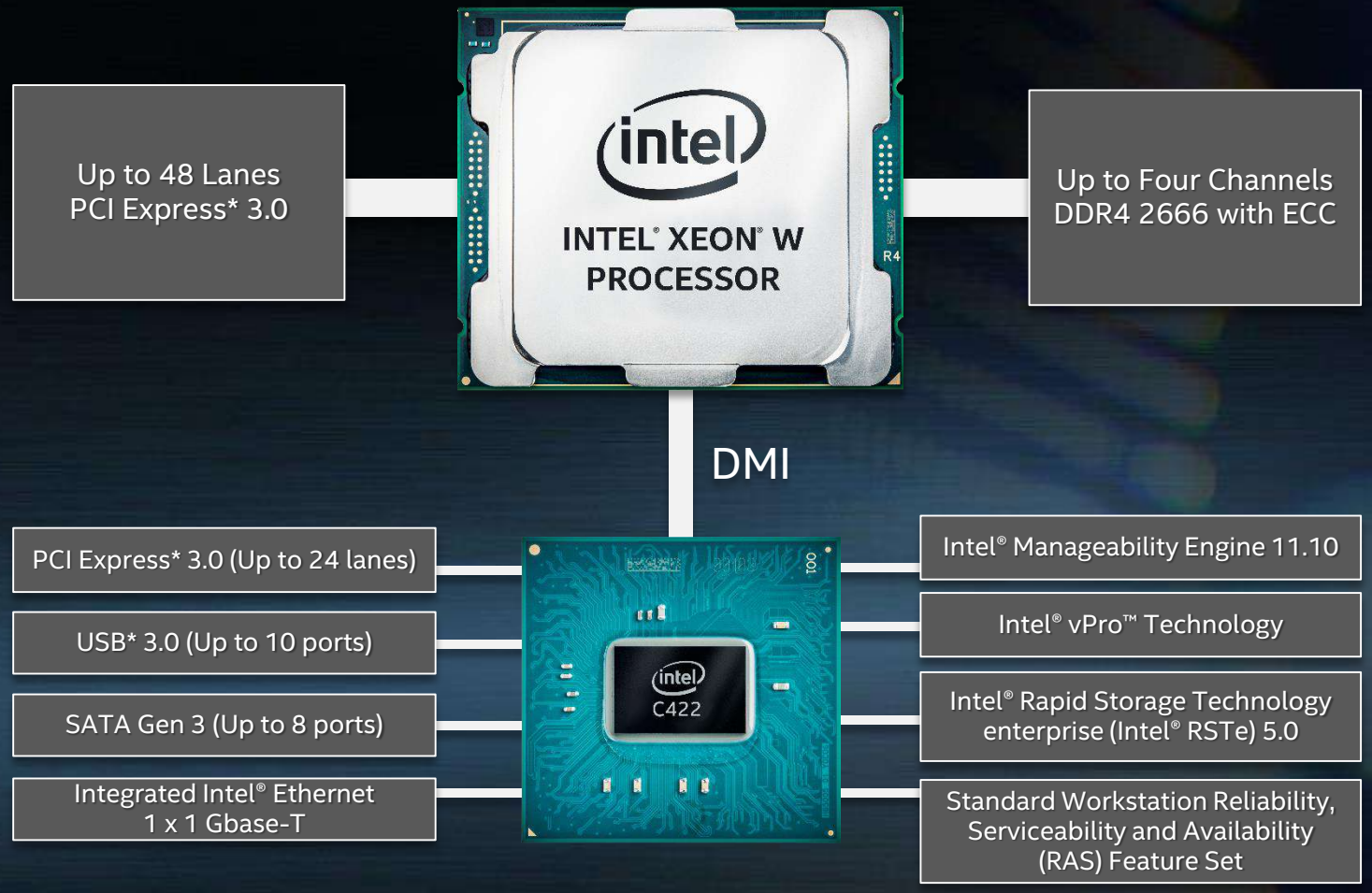
References: Intel® Advanced Vector Extensions 512 (Intel® AVX-512)

NEW INTEL® XEON® W PROCESSORS

PERFORMANCE OPTIMIZED FOR MAINSTREAM WORKSTATIONS†



Processor, chipset and diagram provided for illustration purposes only

Processor Manufacturing Process	Intel's optimized 14nm+ process technology featuring Intel® Mesh Architecture
Maximum Core Count Supported	Up to 18
Maximum Base Frequency Supported	Up to 4.0 GHz
Maximum Intel® Turbo Boost Technology 2.0 Frequency Supported	Up to 4.5 GHz
Processor Cache Memory Support	Up to 24.75 MB of L3 Cache featuring rebalanced Intel® Cache hierarchy
Processor Performance Support	Intel® Turbo Boost 2.0 Technology, Intel® Hyper-Threading Technology (Intel® HT), Intel® Speed Shift Technology
Intel® Advanced Vector Extension 512 (Intel® AVX-512) Support	Intel® AVX-512 with up to 2 FMA support
Maximum Number of Processor Sockets Supported	One Socket
Thermal Design Point (TDP)	Approximately 140 Watts
Socket Type	Socket R4 (LGA-2066 Socket)
System Memory Support	4 channels of DDR4 2666 MHz 2 DPC RDIMM and LRDIMM with ECC support
Maximum System Memory Supported	Up to 512GB
Supported Chipset	Intel® C422 Workstation Chipset
PCH I/O	PCI Express* 3.0 – Up to 24 lanes USB* 3.0 – Up to 10 ports SATA* 3.0 – Up to 8 ports DMI – Up to 4 lanes, Gen 3
Intel® Manageability Engine (Intel® ME)	Intel® ME 11.11 with Intel® Active Management Technology (Intel® AMT) and Intel® vPro™ Technology
Intel® Rapid Storage Technology enterprise (Intel® RSTe)	Intel® RSTe 5.0 and Intel® Virtual RAID on CPU (Intel® VROC)

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AVAILABLE IN SINGLE-SOCKET CONFIGURATION ONLY

INTEL® XEON® W PROCESSORS FOR MAINSTREAM WORKSTATIONS

Processor Number[1]	Base Clock Speed (GHz)	Intel® Turbo Boost Technology 2.0 Frequency (GHz)	Cores/ Threads	Intel® AVX-512	L3 Cache (MB)	PCI Express 3.0 Lanes	Memory Support	Thermal Design Power (TDP)	Socket (LGA)	Recommended Customer Pricing ($ US Dollars)
Intel® Xeon® W-2195 Processor	2.3	4.3	18/36	2 512-bit FMA	24.75	48	Four channels DDR4-2666	140W	2066	TBA
Intel® Xeon® W-2175 Processor	TBA	TBA	14/28	2 512-bit FMA	19.25	48	Four channels DDR4-2666	140W	2066	TBA
Intel® Xeon® W-2155 Processor	3.3	4.5	10/20	2 512-bit FMA	13.75	48	Four channels DDR4-2666	140W	2066	$1,440
Intel® Xeon® W-2145 Processor	3.7	4.5	8/16	2 512-bit FMA	11	48	Four channels DDR4-2666	140W	2066	$1,113
Intel® Xeon® W-2135 Processor	3.7	4.5	6/12	2 512-bit FMA	8.25	48	Four channels DDR4-2666	140W	2066	$835
Intel® Xeon® W-2133 Processor	3.6	3.9	6/12	2 512-bit FMA	8.25	48	Four channels DDR4-2666	140W	2066	$617
Intel® Xeon® W-2125 Processor	4.0	4.5	4/8	2 512-bit FMA	8.25	48	Four channels DDR4-2666	120W	2066	$444
Intel® Xeon® W-2123 Processor	3.6	3.9	4/8	2 512-bit FMA	8.25	48	Four channels DDR4-2666	120W	2066	$294

1. See intel.com/products/processor_number for details. Intel® Xeon® W-2195 processor and Intel® Xeon® W 2-175 processor will be available in Q4 2017.
Processor details, features, cost and availability are subject to change without notice. Please visit intel.com/xeonw for the latest product information.

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References: Intel® Advanced Vector Extensions 512 (Intel® AVX-512)
TBA = To Be Announced in Q4 2017

DISCLOSURES

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PERFORMANCE BENCHMARK DISCLOSURES

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Results are based on internal testing and are provided to you for informational purposes. Any differences in your system hardware, software or configuration may affect your actual performance.

1: Up to 2.71X performance improvement versus a 4 year old workstation. Config: Based on best-published two-socket SPECfp*_rate_base2006 result submitted to/published at http://www.spec.org/cpu2006/results/ as of 11 July 2017. New configuration: 1-Node, 2 x Intel® Xeon® Platinum 8180 Processor on Huawei 2288H V5 with 384 GB total memory on SUSE Linux Enterprise Server 12 SP2 (x86_64) Kernel 4.4.21-69-default, using C/C++ and Fortran: Version 17.0.0.098 of Intel C/C++ and Intel Fortran Compiler for Linux. Source: submitted to www.spec.org, SPECfp*_rate_base2006 Score: 1850 compared to 1-Node, 1 node, 2x Intel® Xeon® E5-2697 v2 on Cisco Systems Cisco UCS C220 M3 using 128 GB total memory on Red Hat Enterprise Linux Server release 6.4 (Santiago) 2.6.32-358.el6.x86_64 C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux; Fortran: Version 4.0.0.080 of Intel Fortran Studio XE for Linux. Source: https://www.spec.org/cpu2006/results/res2013q4/cpu2006-20130923-26455.html SPECfp*_rate_base2006 Score: 682

2: Up to 1.65X performance improvement gen-on-gen. Config: Based on best-published two-socket SPECfp*_rate_base2006 result submitted to/published at http://www.spec.org/cpu2006/results/ as of 11 July 2017. New configuration: 1-Node, 2 x Intel® Xeon® Platinum 8180 Processor on Huawei 2288H V5 with 384 GB total memory on SUSE Linux Enterprise Server 12 SP2 (x86_64) Kernel 4.4.21-69-default, using C/C++ and Fortran: Version 17.0.0.098 of Intel C/C++ and Intel Fortran Compiler for Linux. Source: submitted to www.spec.org, SPECfp*_rate_base2006 Score: 1850 compared to 1 node, 2x x Intel® Xeon® E5-2699A v4 on Lenovo Group Limited Lenovo System x3650 M5 using 256 GB total memory on SUSE Linux Enterprise Server 12 (x86_64) Kernel 3.12.49-11-default C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux. Source: https://www.spec.org/cpu2006/results/res2016q4/cpu2006-20161129-45946.html; SPECfp*_rate_base2006 Score: 1120

3: Up to 1.87X performance improvement versus a 4 year old workstation. Config: 1-Node, 1 x Intel® Xeon® Processor E5-1680 v2 on Romley-EP with 64 GB Total Memory on CentOS release 6.9 2.6.32-431.el6.x86_64 using C/C++: Version 14.0.0.080 of Intel C/C++ studio XE for Linux, AVX Data Source: Request Number: 3822, Benchmark: SPECint*_rate_base2006, Score: 332 Higher is better; vs 1-Node, 1 x Intel® Xeon® W-2155 Processor on Basin Falls RVP with 128 GB Total Memory on Red Hat Enterprise Linux* 7.3 using CPU2006-1.2-ic17.0u3-lin-binaries-20170411. Data Source: Request Number: 3821, Benchmark: SPECint*_rate_base2006, Score: 622 Higher is better

4: Up to 1.38X performance improvement versus previous generation. Config: 1-Node, 1 x Intel® Xeon® Processor E5-1680 v4 on on Supermicro SYS_5038A-A with 128 GB Total Memory on Red Hat Enterprise Linux* 7.3 kernel 3.10.0-514.16.1.el7x86_64 using C/C++: Version 17.0.3.1919 of Intel C/C++ Compiler for Linux, AVX2 Data Source: Request Number: 3822, Benchmark: SPECint*_rate_base2006, Score: 449 Higher is better; vs 1-Node, 1 x Intel® Xeon® W-2155 Processor on Basin Falls RVP with 128 GB Total Memory on Red Hat Enterprise Linux* 7.3 using CPU2006-1.2-ic17.0u3-lin-binaries-20170411. Data Source: Request Number: 3821, Benchmark: SPECint*_rate_base2006, Score: 622 Higher is better

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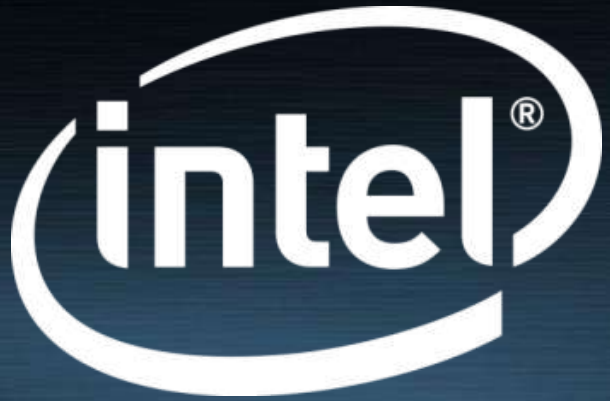
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