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# Intel® Xeon® W-3300 Processors

## Uncompromising Performance for Expert Workstation Users

Built for advanced workstation professionals, Intel® Xeon® W-3300 processors offer uncompromised performance, expanded platform capabilities, and enterprise-grade security and reliability in a single-socket solution.

These processors are built for next-gen professional applications with heavily threaded, I/O-intensive workloads across artificial intelligence (AI) architecture, engineering, construction (AEC), and media and entertainment (M&E). With new processor core architecture to transform efficiency and advanced technologies to support data integrity, Intel® Xeon® W-3300 processors are equipped to deliver uncompromising workstation performance.

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# Uncompromising Performance

## Intel® Xeon® W-3365 Processor versus AMD Threadripper Pro 3975WX Processor

Up to
### 27%
**Faster**
Product Development
Workloads[6]

Up to
### 47%
**Faster**
Energy, Oil, and
Gas Workloads[7]

Up to
### 10%
**Faster**
General Operations
Workloads[8]

## Intelligent Engineering

Intel® Xeon® W-3300 processors feature a NEW processor core architecture.

- **NEW** Up to 4TB DDR4-3200 8-channel memory support[◊]
- **NEW** Increased core count: up to 38
- **NEW** Increased cache size: up to 1.5MB per core
- Up to 4.0 GHz with Intel® Turbo Boost Technology 2.0[2]

## Advanced Accelerators

Push the frontiers of AI and data science with accelerated performance from Intel® Deep Learning Boost[1,⊥] and Intel® AVX-512.[3]

Intel® AVX-512 (Advanced Vector Extensions) is a set of new instructions that can accelerate performance for workloads such as scientific simulations, financial analytics, AI, deep learning, 3D modeling and analysis, image and audio/video processing, cryptography, and data compression.[3]

## Empowering Data Scientists

With support for up to 4TB of DDR4-3200 8-channel memory, Intel® Xeon® W-3300 processors are designed to have the memory span and speed for data science, deep learning, and machine learning workloads.◊

## Enhanced Platform

Up to
### 2.5x
**Maximum Memory Capacity Support⁺**
Intel® Xeon® W-3300 processors 8-channel 4TB (2DPC) versus Intel® Xeon® W-3200 processors 2TB (2DPC)

Up to
### 31%
**Memory Bandwidth Increase⁺**
Intel® Xeon® W-3300 processors 8-channel 3200 MT/s (2DPC) versus
Intel® Xeon® W-3200 processors 6-channel 2666 MT/s (2DPC)

## Built for Large Data Sets

| Intel® Xeon® W-3375 Processor VS Intel® Xeon® W-3275 Processor | Intel® Xeon® W-3365 Processor VS AMD Threadripper Pro 3975WX Processor | Intel® Xeon® W-3335 Processor VS Intel® Xeon® W-2295 Processor |
|---|---|---|
| Up to **19%** Faster | Up to **36%** Faster | Up to **26%** Faster |

Performance in Data Science Operations in SciKit Learn[13,14,15]

| | | |
|---|---|---|
| Up to **38%** Faster | Up to **35%** Faster | Up to **34%** Faster |

in Scientific Compute in NumPy/SciPy[16,17,18]

# Enhanced Platform

## Media & Entertainment
## Architecture, Engineering, Construction

Intel® Xeon® W-3300 processors are designed for the most demanding workloads and applications such as 8K video editing, simulations, and advanced CAD, CAE, and MCAD.

## Intel® Xeon® W-3375 Processor versus Intel® Xeon® W-3275 Processor

Up to

### 26%
**Faster**

Preview Rendering in AutoDesk Maya[9]

Up to

### 20%
**Faster**

Editing/Encoding Performance in Adobe Premiere Pro Workloads[10]

Up to

### 45%
**Faster**

Multi-Threaded Performance in Cinebench R23 Workloads[11]

## Advanced Expandability

- **NEW** Up to 64 CPU PCIe 4.0 lanes
  *Increase PCIe bandwidth and flexibility for more I/O throughput, enabling the next generation of storage, accelerators, graphics, and networking.*

- **NEW** Intel® Optane™ SSD P5800X support[12]

- **NEW** Discrete Intel® Wi-Fi 6E support

- Up to 20 platform PCIe 3.0 lanes

For workloads and configurations visit www.Intel.com/PerformanceIndex. Results may vary.

# Reliability & Security

## Reliability, Availability, & Serviceability (RAS) Technology

When productivity loss from system downtime could cost thousands or even millions, you want technology to help reliably avoid, diagnose, and repair system-level faults. That's why Intel® Xeon® W-3300 processors come with RAS technologies like (but not limited to):

- DDR4 Command/Address Parity Check and Retry
- Out-of-band access to error logs
- PCIe Card Hot Plug (add/remove/swap)
- Predictive Failure Analysis

## Data Integrity

Error-correcting code (ECC) memory support augments system memory to help detect and correct errors and ensure the integrity of essential data without interruption of workflow.

This technology helps prevent 99% of soft memory errors, such as unintended bit flips.[4]

## Trusted Technology

## Industry Leadership

Intel's massive ecosystem of hardware and software partners means that the world builds their products to run well on Intel. Our leadership with standards certifications, validation programs, and optimization tools means that hardware, software, and OS developers work with Intel to ensure your customers avoid compatibility issues.

# Tech Explainer

| | |
|---|---|
| **New Core Architecture** | Deliver uncompromising performance and transform what your customers can accomplish on a workstation. |
| **Intel® Deep Learning Boost** | Accelerates AI inference—vastly improving performance for deep-learning workloads.[1] |
| **Intel® AVX-512** | With ultra-wide 512-bit vector operations capabilities, Intel® AVX-512 can handle your most demanding computational tasks. |
| **Intel® Optane™ SSD P5800X support**[12] | The next-generation Intel® Optane™ SSD P5800X provides the performance needed to support your most data-intensive workloads. |
| **Large Memory Footprint** | Critical for data science and machine learning training. |
| **PCIe 4.0** | Enabling the next generation of storage, accelerators, graphics, and networking. |
| **Intel® Turbo Boost Technology 2.0** | Intelligently boosts the processor to run faster than its rated frequency as power, heat, and workload allow. |
| **Intel® Hyperthreading Technology** | Run demanding apps at the same time as background tasks like virus scans without impacting performance. |
| **ECC Memory Enablement** | Augment system memory to detect and correct errors, helping ensure the integrity of essential data without interruption of workflow. |
| **Intel® Ethernet 800 Series** | Next-gen Intel® Ethernet Series for cloud, comms, and enterprise. |
| **Intel® Wi-Fi 6E** | Enable the fastest wireless speeds for PCs, gaining more responsive performance with enhanced security and reliability.[5] |

For workloads and configurations visit www.Intel.com/PerformanceIndex. Results may vary.

# Intel® Xeon® W-3300 Processors

| Processor Number | Intel® Xeon® W-3375 Processor | Intel® Xeon® W-3365 Processor | Intel® Xeon® W-3345 Processor | Intel® Xeon® W-3335 Processor | Intel® Xeon® W-3323 Processor |
|---|---|---|---|---|---|
| Cores/Threads Per Socket | 38/76 | 32/64 | 24/48 | 16/32 | 12/24 |
| Base Clock Speed | 2.5 GHz | 2.7 GHz | 3.0 GHz | 3.4 GHz | 3.5 GHz |
| Intel® Turbo Boost Single Core Turbo Frequency | Up to 4.0 GHz | Up to 4.0 GHz | Up to 4.0 GHz | Up to 4.0 GHz | Up to 3.9 GHz |
| Intel® Turbo Boost All Core Turbo Frequency | Up to 3.3 GHz | Up to 3.5 GHz | Up to 3.7 GHz | Up to 3.7 GHz | Up to 3.7 GHz |
| Intel® Smart Cache | 57 MB | 48 MB | 36 MB | 24 MB | 21 MB |
| Total Processor PCIE* 4.0 Lanes | 64 | 64 | 64 | 64 | 64 |
| TDP | 270 W | 270 W | 250 W | 250 W | 220 W |
| Memory Capacity | 4 TB | 4 TB | 4 TB | 4 TB | 4 TB |
| Memory Support | 8 Channel DDR4-3200 | 8 Channel DDR4-3200 | 8 Channel DDR4-3200 | 8 Channel DDR4-3200 | 8 Channel DDR4-3200 |
| Error Correcting Code (ECC) Memory Support | ✔ | ✔ | ✔ | ✔ | ✔ |
| Reliability, Availability, and Serviceability (RAS) | ✔ | ✔ | ✔ | ✔ | ✔ |

# Notices & Disclaimers

Intel does not control or audit third-party data. You should consult other sources to evaluate accuracy.

Performance varies by use, configuration and other factors.
Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See backup for configuration details. No product or component can be absolutely secure.
Your costs and results may vary.
Intel technologies may require enabled hardware, software or service activation.

1    Intel® Deep Learning Boost 'Up To 3x Average Inference Performance Gains': As measured by the geomean across multiple deep learning framework workloads (Apache MXNet, TensorFlow, PyTorch, and Caffe). Results for Intel® Xeon® W-3300 processors have been estimated based on measured data comparing dual-socket Intel® Xeon® Platinum 8280 processor using 8-bit integer operations with Intel® Deep Learning Boost on ResNet-50 versus dual-socket Intel® Xeon® Platinum 8180 processor using 32-bit floating point operations. Test done by Intel as of 3/1/2019.

2    All SKUs, frequencies, and performance estimates are preliminary and can change without notice.

3    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 product or component can be absolutely secure.

4    Source: X. Li, M. Huang, K. Shen, and L. Chu. "A Realistic Evaluation of Memory Hardware Errors and Software System Susceptibility"

5    Select features only available certain SKUs. Check with manufacturer for details. For more Wi-Fi information please visit intel.com/wifi6disclaimers. Intel Wi-Fi 6: Intel® Wi-Fi 6 (Gig+) products support optional 160 MHz channels, enabling the fastest possible theoretical maximum speeds (2402 Mbps) for typical 2x2 802.11 AX PC Wi-Fi products. Premium Intel® Wi-Fi 6 (Gig+) products enable 2-4X faster maximum theoretical speeds compared 2x2 (1201 Mbps) or 1x1 (600 Mbps) 802.11 AX PC Wi-Fi products, which only support the mandatory requirement of 80 MHz channels.

6    Based on SPECworkstation 3 v3.1 Product Development score results on Intel® Xeon® W-3365 processor vs. AMD Threadripper Pro 3975WX processor. Performance results are based on results as of 05/20/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

7    Based on SPECworkstation 3 v3.1 Energy score results on Intel® Xeon® W-3365 processor vs. AMD Threadripper Pro 3975WX processor.

8    Based on SPECworkstation 3 v3.1 General Operations score results on Intel® Xeon® W-3365 processor vs. AMD Threadripper Pro 3975WX processor. Performance results are based on results as of 05/20/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

9    Based on the Fast time to render using the Arnold Renderer in AutoDesk Maya on Intel® Xeon® W-3375 processor vs. Intel® Xeon® W-3275 processor. Performance results are based on results as of 05/20/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

10   Based on PugetBench (0.95.1) – Adobe Premiere Pro (2021) 15.0 – Standard score results on Intel® Xeon® W-3375 processor vs. Intel® Xeon® W-3275 processor. Performance results are based on results as of 05/20/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

11   Based on Cinebench R23 Multi-Threaded (MT) score results on Intel® Xeon® W-3375 processor vs. Intel® Xeon® W-3275 processor. Performance results are based on results as of 05/20/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

12   Intel® Optane™ memory requires specific hardware and software configuration. Visit intel.com/OptaneMemory for configuration requirements.

13   Based on SciKitLearn performance across multiple data science algorithms results on Intel® Xeon® W-3375 processor vs. Intel® Xeon® W-3275 processor. Performance results are based on results as of 07/27/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

14   Based on  SciKitLearn performance across multiple data science algorithms results on Intel® Xeon® W-3365 processor vs. the AMD Threadripper Pro 3975WX  processor. Performance results are based on results as of 07/27/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

15   Based on  SciKitLearn performance across multiple data science algorithms results on Intel® Xeon® W-3335 processor vs. Intel® Xeon® W-2295 processor. Performance results are based on results as of 07/27/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

16  Based on  NumPy/SciPy – iBench performance across multiple scientific algorithms on Intel® Xeon® W-3375 processor vs. Intel® Xeon® W-3275 processor. Performance results are based on results as of 07/27/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

17  Based on  NumPy/SciPy – iBench performance across multiple scientific algorithms on Intel® Xeon® W-3365 processor vs. AMD Threadripper Pro 3975WX processor. Performance results are based on results as of 07/27/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

18  Based on  NumPy/SciPy – iBench performance across multiple scientific algorithms on Intel® Xeon® W-3335 processor vs. Intel® Xeon® W-2295 processor. Performance results are based on results as of 07/27/2021 and may not reflect all publicly available updates. See configuration disclosure for details. No product can be absolutely secure.

⊥  Results have been estimated or simulated based on internal Intel® analysis and are provided for informational purposes only. Any difference in system hardware or software design or configuration may affect actual performance.

◊  Up to 4TB of total system memory support using LRDIMM. Intel® Xeon® W-3300 processors support both RDIMM and LRDIMM memory.

+  Lower-than-expected memory bandwidth may be seen due to many system variables, such as software workloads and system power states.

Contact an Account Manager for more information.
1.800.800.0014  ▪  www.connection.com/Intel