

FAQ: 3rd Gen Intel® Xeon® Scalable processor-based servers

1. What's new with 3rd Generation Intel® Xeon® Scalable processor-based servers?

It starts with performance—as in, more performance and capacity, balanced across the platform. Only Intel can deliver significant server innovation across every major server resource, including compute, memory and storage.



On the compute side, you get up to 40 cores and outstanding per-core performance for popular cloud databases, HPC, virtualization and AI workloads. In fact, no other data center CPU has AI acceleration built in—with leading AI software frameworks that have been performance-optimized to take advantage of those features.

3rd Gen Intel® Xeon® Scalable processors also have many new, built-in performance and security enhancements to speed and better protect your applications and data.



So, what's new with Intel server memory innovation? The latest Intel® Optane™ persistent memory 200 series lets you significantly extend system memory capacity per processor—up to 12 TB on a 2-socket server. And, the new memory delivers 32% higher bandwidth on average versus first generation¹.



These servers offer breakthrough storage performance with support for the new Intel® Optane™ SSD P5800X. And, they support the ultra-dense Intel® SDD D5-P5316, which enables an incredible 1-petabyte of storage capacity per 1U server. Combined, these storage innovations deliver an unprecedented combination of performance and density for today's data-intensive workloads.

2. What is the value of performance flexibility across workloads?



There are not only more types of workloads than ever before, but today's workloads also vary significantly in terms of which system resources they strain the most.

Deploying servers that don't provide significant and balanced performance and capacity means they often become one-trick ponies—great at running one type of workload—but not so great at others.



You could deploy custom infrastructure to ensure you can achieve the required performance across various types of workloads. But deploying and managing multiple, disparate types of infrastructure is costly—both in capital and operating expenses. And scaling siloed infrastructure as needs change—throughout any given day, or due to longer-term changes in business demands—is incredibly inefficient, easily resulting in overutilizing one infrastructure silo, while underutilizing another.



That's why Intel innovates across the server architecture—optimizing performance and capacity across every major resources.



Regardless of whether your workloads demand industry-leading per-core performance, highly parallel compute, AI acceleration, greater memory capacity, or accelerated memory bandwidth, storage or I/O performance, 3rd Gen Intel Xeon Scalable processor-based servers can meet those demands.



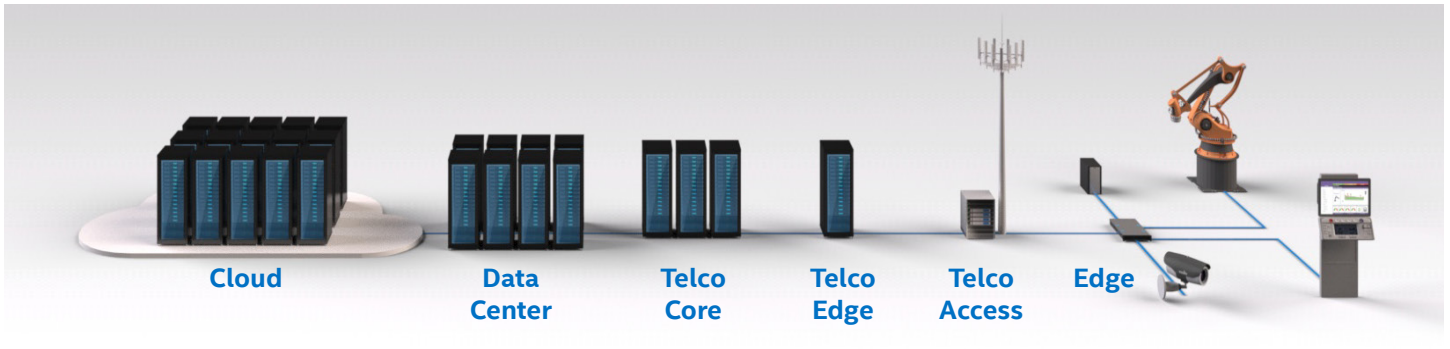
Having one common, high-performance platform across workloads reduces data center sprawl complexity, power and operating costs. And it provides greater flexibility and adaptability for your ever-changing needs.

3. Why is it valuable to have a common platform deployed from edge to cloud

Modern infrastructures are highly distributed. And organizations want to run cloud-native workloads everywhere across the distributed infrastructure, which includes the data center, public cloud, the edge and on telco provider network infrastructure.

There are enormous advantages to deploying and running workloads on 3rd Gen Intel Xeon Scalable processor-based platforms, everywhere across your infrastructure.

Why? It primarily comes down to performance predictability and silicon-enhanced security.



Great digital experiences for customers and users are everything in today's digital world and can be a competitive differentiator. And responsive, predictable performance is critical to powering that differentiation.

The ability to run all your major workloads on performance-optimized 3rd Gen Intel Xeon Scalable processor-based servers across the infrastructure helps ensure predictable, high-quality digital experiences everywhere you need them, with consistent, hardened security to better protect sensitive data and applications.

4. How do 3rd Gen Intel Xeon Scalable processor-based servers enhance security?

When it comes to optimizing security on your server infrastructure, it really comes down to working to better protect three key IT resources: your data, your applications and your server platforms.

3rd Gen Intel Xeon Scalable processors integrate many of the silicon-hardened security innovations that Intel has designed over the years, but also include a number of important new or enhanced features that help better protect your data, applications and platforms. These include:

- **Intel® Crypto Acceleration**
Greatly accelerates a variety of cryptography tasks to speed data encryption and decryption.
- **Intel® Software Guard Extensions (Intel® SGX)**
Processor-created, secured and isolated enclaves for sensitive apps and data that provide true confidential computing capabilities, helping protect data and code even if the system's software stack has been compromised.
- **Intel® Total Memory Encryption (Intel® TME)**
Delivers full physical memory encryption support to enhance data and virtualized workload protection.
- **Intel® Platform Firmware Resilience (Intel® PFR)**
An Intel FPGA-based solution that can help protect platform firmware, detect corruptions, and restore back to a known-good state.



1 Source: Based on testing by Intel as of April 27, 2020 (Baseline) and March 23, 2021 (New). Baseline configuration: 1-node, 1 x Intel Xeon Platinum 8280L processor (28 cores at 2.7 GHz) on Neon City with a single Intel Optane PMem module configuration (6 x 32 GB DRAM; 1 x {128 GB, 256 GB, 512 GB} Intel Optane PMem module), ucode rev: 04002F00 running Fedora 29 kernel 5.1.18-200.fc29.x86_64 and Intel Memory Latency Checker (Intel MLC) version 3.8 with App Direct Mode. New Configuration: 1-node, 1 x Intel Xeon pre-production ICX-XCC processor (38 cores at 2.0 GHz) on Wilson City with a single Intel Optane PMem module configuration (8 x 32 GB DRAM; 1 x {128 GB, 256 GB, 512 GB} Intel Optane PMem module), ucode rev: 8d000270 running RHEL 8.1 kernel 4.18.0-147.el8.x86_64 and Intel MLC version 3.9 with App Direct Mode.

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