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Intel Xeon Scalable 3rd Generation

(Ice Lake Series)

intel®

April 2021

Intel 3rd Gen Xeon Scalable

Intel has released their new refresh in Intel Scalable processors with the Intel 3rd Gen “Ice Lake” Xeon Scalable, featuring 8 to 40 cores, a wide range of frequencies, new features and power-consumption advantages.

Expect core-for-core industry leading performance on popular databases, HPC workloads, virtualisation and AI with new features such as PCIe Gen 4 support, increased memory bandwidth, memory capacity per processor up to 6TB per processor/socket and additional AVX-512.

3rd Gen Xeon Scalable “Ice Lake” Family

Model	Cores	Threads	Base (GHz)	Single Core Turbo (GHz)	All Core Turbo (GHz)	Cache (MB)	TDP (W)	Support for Intel Optane Persistent Memory 200 Series	Intel SGX Envlave capacity per processor	Features
8380HL	28	56	2.9	4.3	3.8	38.5	250	Yes	512 GB	4 and 8 Socket Scalable Performance
8380H	28	56	2.9	4.3	3.8	38.5	250	Yes	512 GB	4 and 8 Socket Scalable Performance
8380	40	80	2.3	3.4	3	60	270	Yes	512 GB	Optimised for highest-per-core scalable performance and supports maximum Intel SGX Enclave Capacity
8376HL	28	56	2.6	4.3	3.5	38.5	205	Yes		4 and 8 Socket Scalable Performance
8376H	28	56	2.6	4.3	3.5	38.5	205	Yes		4 and 8 Socket Scalable Performance
8368Q	38	76	2.6	3.7	3.3	57	270	Yes	512 GB	Liquid Cooled, Supporting Maximum Intel SGX Enclave Capacity
8368	38	76	2.4	3.4	3.2	57	270	Yes	512 GB	Optimised for highest-per-core scalable performance and supports maximum Intel SGX Enclave Capacity
8362	32	64	2.8	3.6	3.5	48	265	Yes	64GB	Optimised for highest-per-core scalable performance
8360Y	36	72	2.4	3.5	3.1	54	250	Yes	64GB	Optimised for highest-per-core scalable performance
8360HL	24	48	3	4.2	3.8	33	225	Yes		4 and 8 Socket Scalable Performance
8360H	24	48	3	4.2	3.8	33	225	Yes		4 and 8 Socket Scalable Performance
8358P	38	76	2.6	3.7	3.3	57	270	Yes	512 GB	Cloud Optisized for VM Utilisation
8358	32	64	2.6	3.4	3.3	48	250	Yes	64GB	Optimised for highest-per-core scalable performance
8356H	8	16	3.9	4.4	4.3	35.75	190	Yes		4 and 8 Socket Scalable Performance
8354H	18	36	3.1	4.3	4	24.75	205	Yes		4 and 8 Socket Scalable Performance
8353H	18	36	2.5	3.8	3.3	24.75	150	Yes		4 and 8 Socket Scalable Performance
8352M	32	64	2.3	3.5	3.1	54	225	Yes	64GB	Media Processing Optimized
8352Y	32	64	2.2	3.4	2.8	48	205	Yes	64GB	Scalable Performance
8352V	36	72	2.1	3.5	2.5	54	1995	Yes	8 GB	Cloud Optisized for VM Utilisation
8352S	32	64	2.2	3.4	2.8	48	205	Yes	512 GB	Supporting Maximum Intel SGX Enclave Capacity
8351N	36	72	2.4	3.5	3.1	54	225	Yes	64GB	Single Socket Optimized, Networking/NFV Optimized
6348H	24	48	2.3	4.2	3.1	33	165	Yes		4 and 8 Socket Scalable Performance
6348	28	56	2.6	3.5	3.4	42	235	Yes	64 GB	Optimised for highest-per-core scalable performance
6354	18	36	3	3.6	3.6	39	205	Yes	64 GB	Optimised for highest-per-core scalable performance
6346	16	32	3.1	3.6	3.6	36	205	Yes	64 GB	Optimised for highest-per-core scalable performance
6342	24	48	2.8	3.5	3.3	36	230	Yes	64 GB	Optimised for highest-per-core scalable performance
6338	32	64	2	3.2	2.6	48	205	Yes	64 GB	Scalable Performance
6338T	24	48	2.1	3.4	2.7	36	165	Yes	64 GB	Long-life use and NEBS-Thermal Friendly
6338N	32	64	2.2	3.5	2.7	48	185	Yes	64 GB	Networking/NFV Optimized
6336Y	24	48	2.4	3.6	3	36	185	Yes	64 GB	Scalable Performance
6334	18	36	3.6	3.7	3.6	18	165	Yes	64 GB	Optimised for highest-per-core scalable performance
6330	28	56	2	3.1	2.6	42	205	Yes	64 GB	Scalable Performance
6330N	28	56	2.2	3.4	2.6	42	165	Yes	64 GB	Networking/NFV Optimized
6330H	24	48	2	3.7	2.8	33	150	Yes		4 and 8 Socket Scalable Performance
6328HL	16	32	2.8	4.3	3.7	22	165	Yes		4 and 8 Socket Scalable Performance
6328HL	16	32	2.8	4.3	3.7	22	165	Yes		4 and 8 Socket Scalable Performance
6326	16	32	2.9	3.5	3.3	24	185	Yes	64 GB	Optimised for highest-per-core scalable performance
6314U	32	64	2.3	3.4	2.9	48	205	Yes	64 GB	Single Socket Optimized
6312U	24	48	2.4	3.6	3.1	36	185	Yes	64 GB	Single Socket Optimized
5320	26	52	2.2	3.4	2.8	39	185	Yes	64 GB	Scalable Performance
5320H	20	40	2.4	4.2	3.3	27.5	150	Yes		4 and 8 Socket Scalable Performance
5320T	20	40	2.3	3.5	2.9	30	150	Yes	64 GB	Long-life use and NEBS-Thermal Friendly
5318Y	24	48	2.1	3.4	2.6	36	165	Yes	64 GB	Scalable Performance
5318H	18	36	2.5	3.8	3.3	24.75	150	Yes		4 and 8 Socket Scalable Performance
5318N	24	48	2.1	3.4	2.7	36	150	Yes	64 GB	Networking/NFV Optimized
5318S	24	48	2.1	3.4	2.6	36	165	Yes	512 GB	Supporting Maximum Intel SGX Enclave Capacity
4316	20	40	2.3	3.4	2.8	30	150		8 GB	Scalable Performance
4314	16	32	2.4	3.4	2.9	24	135	Yes	8 GB	Scalable Performance
4310	12	24	2.1	3.3	2.7	18	120		8 GB	Scalable Performance
4310T	10	20	2.3	3.4	2.9	15	105		8 GB	Long-life use and NEBS-Thermal Friendly
4309Y	8	16	2.8	3.6	3.4	12	105		8 GB	Scalable Performance

What's new with 3rd Gen Intel Xeon Scalable processor-based servers?

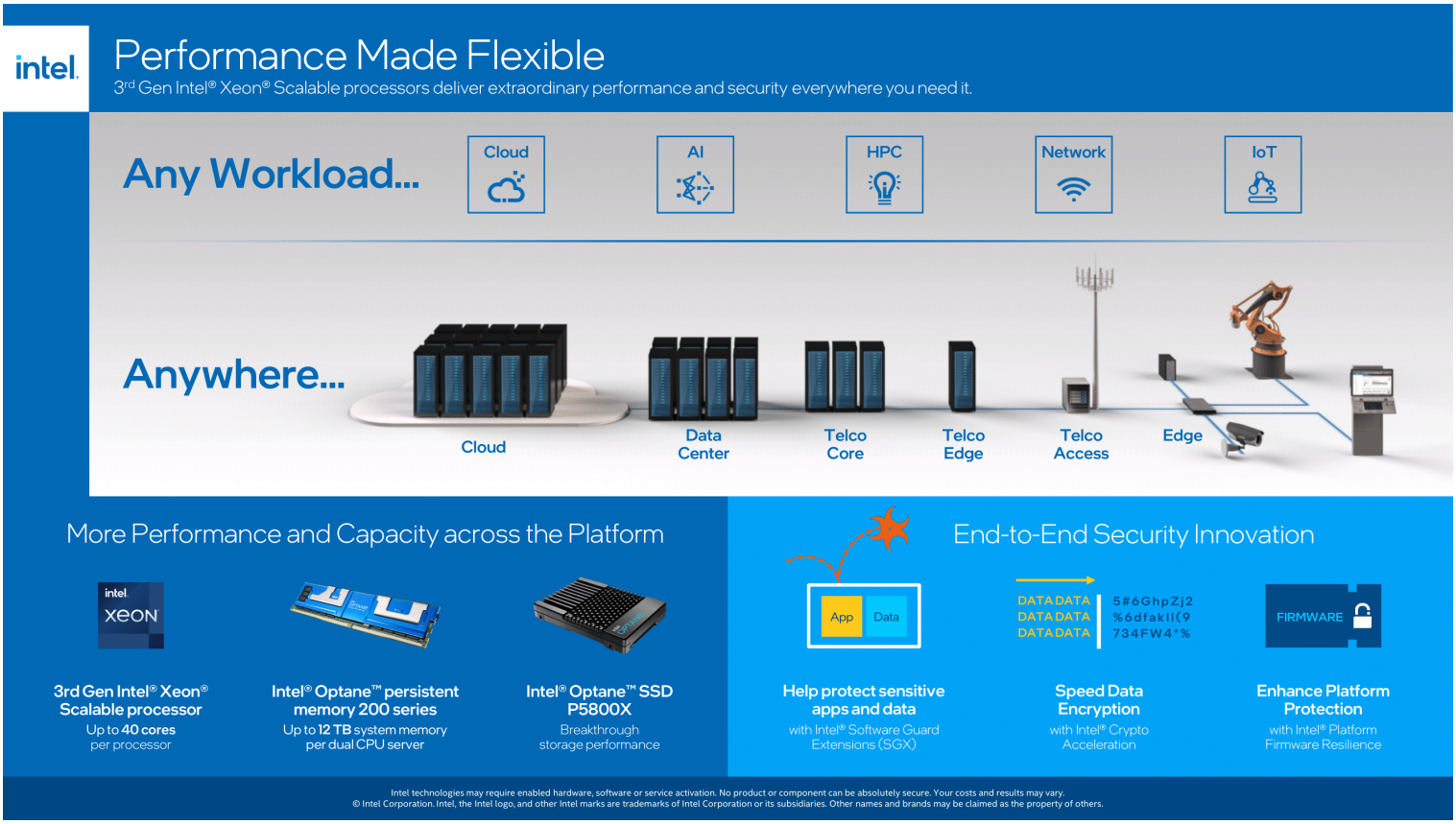
The new Intel Ice Lake 3rd Gen series processors are highly optimised for use with the new generation of Intel Optane persistent memory 200 series. It is the only data-centre CPU with built-in AI acceleration, supported by Intel's wide ecosystem of smart solutions, with many new, built-in performance and security enhancements to improve speed and better protect your applications and data.

These new features include:

Integration with Intel SGX - helps to protect data and application code in real time from the edge to the data centre and multi public clouds. This creates simple collaboration using shared data without compromising privacy.

Intel Crypto Acceleration – Increases the performance on encryption-intensive workloads such as SSL web serving, 5G infrastructure, VPN/firewalls, while reducing the performance impact of pervasive encryption.

Improved connectivity, storage, software and oneAPI cross-architectural tools – enhancing workload optimised solutions to do more, store more and process more.



How Intel 3rd Gen Scalable Processors Can Benefit Your Application

For Cloud

The new Ice Lake series processors enable seamless migration with acceleration in the deployment of repeated cloud use cases.

Highlighting up to 40% higher performance on specific workloads such as MySQL, Redis, and Nginx.

For AI

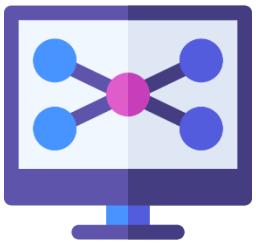
The only data centre CPU with built-in AI acceleration, hardware-enhanced security and software optimisations. Powered by open oneAPI standards.

Pre-integrated and verified enterprise solutions for data analytics & AI.

For 5G

Designed to support diverse operator network environments through accelerated qualification and shortened time-to-deployment in vRAN, NFVI, virtual CDN.

Delivering up to 62% more performance on various broadly-deployed network and 5G workloads compared to previous generations.



For Digital Transformation

Designed for the enterprise with built-in acceleration technologies that provide performance in applications that process data at scale, regardless of location.

Delivering 41-72% more performance compared to the previous CPU series in key enterprise applications and frameworks such as database, hyper-converged infrastructure, virtualisation and AI.

For IoT

Delivers performance, security and operation control required for workloads at the edge; powerful AI, complex image or video analytics workloads.

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Delivering up to 56% more AI performance than previous CPU series for advanced edge image and video analytics systems.

For HPC

Delivers an 18-50% competitive lead for HPC, financial, manufacturing workloads.

In Oracle's new X9 generation, there is a 30% higher performance on certain HPC workloads compared to existing X7 Generation.

Intel Mainstream Servers

M50CYP (Coyote Pass)

Intel's high-performance mainstream complete build systems for the broadest array of data-centre workloads with a powerful combination of performance, security and flexibility.

- **Supports 3rd Gen Intel Xeon Scalable "Ice Lake" processors.**
  - Air-cooled support for all Ice Lake processor offerings (up to 270W TDP)
- **Even Higher Memory Bandwidth and Capacity**
  - Supporting the new Intel Optane persistent memory 200 series
  - High memory capacity (up to 12TB), 32DIMMs per system
  - Significant memory bandwidth (3200MT/s), **8 memory channels per CPU**
- **Highly Flexible and Configurable**
  - High performance SATA/SAS/NVMe storage, with up to 24x 2.5" SSD's or 12x 3.5" HDD.
  - New PCIe G4 Midplane Switch & Storage Controller options
  - Multiple riser options, up to 8 PCIe slots + Type 1 OCPv3 slot in 2U chassis
- **Enhanced I/O Balance & Performance**
  - Balanced I/O architecture – processor to PCIe slots
  - Full PCIe Gen 4 bandwidth with ICX, 80 PCIe lanes routed to AIC slots
  - Flexible Ethernet with Type 1 OCPv3 modules.

M50CYP1U (COMPLETE BUILD SYSTEM)

Use case: Wide range of hyper-converged infrastructure, AI, SDS, HPC, and CSP applications.

1U form factor dual socket system supports the following:
CPU: Dual Intel 3rd Gen Xeon Scalable Series Processor, Up to 270W TDP
RAM: 32 DIMMs; DDR4 RDIMM
PCIE: Supports up to 10 PCIe NVMe slots
Drive: 4x or 12x 2.5" SAS/SATA/NVMe Hot-swap drives
Networking: Onboard OCP 3.0 Mezzanine connector
Power Supply: 1300/1600/2100W Power supply options

M50CYP2U (COMPLETE BUILD SYSTEM)

Use case: Wide range of hyper-converged infrastructure, AI, SDS, HPC, and CSP applications.

2U form factor dual socket system supports the following:
GPU: Supports 2x full-height, double-width GPGPU
CPU: Dual Intel 3rd Gen Xeon Scalable Series Processor, Up to 270W TDP
RAM: 32 DIMMs; 8x Intel Optane PMM capable DIMMs per CPU
PCIE: Supports up to 10 PCIe NVMe slots
Drive: 12x 3.5" SAS/SATA or 24x 2.5" SAS/SATA/NVMe Hot-swap drives
Networking: Type 1 OCPv3 for up to 100GBE Ethernet
Power Supply: 1300/1600/2100W Power supply options

M70KLP (Kelton Pass)

Validation on: Windows, SLES, RHEL, Ubuntu, Oracle Linux, VMWare, ESXi, vSAN, SAP HANA

Use Case: Optimised for scale-up or scale-out consolidation, mainstream data-intensive workloads, enterprise RAS features, cloud

2U form factor 4-socket system supports the following:
CPU: 3rd Gen Intel Xeon Scalable processors, 4 sockets for up to 112 cores per server
RAM: 48 DIMMs, 15 TB with Optane Persistent Memory up to DDR4-3200MHz
PCIe: Up to 12 PCIe Gen 3 slots
Node-Based Storage: 2x M.2
Drive: Up to 24x SAS/SATA/NVMe drive bays
Networking: 1x OCP3.0, 1 1GB, Dedicated Management Port
Power Supply: 2000W Power Supply

Our Partnership with Intel

Intel offers a new generation of data-centre solutions with the newly released 3rd Gen Xeon Scalable processors. With the help of DiGiCOR, you can customise your own server and choose your Ice Lake processors which can have up to 40 cores, access to 6 TB of total system memory per socket across 8 channels of DDr4-3200 memory and up to 64 lanes of PCIe Gen4 connectivity per socket.

- DiGiCOR partners with Intel to provide its embedded technology into our range of systems.
- We offer you flexibility in configuring and building your own system that are highly compatible with 3rd generation Intel Xeon Scalable processors
- DiGiCOR provides warranty and services for each product to support you better with your choice.

TALK TO US TODAY

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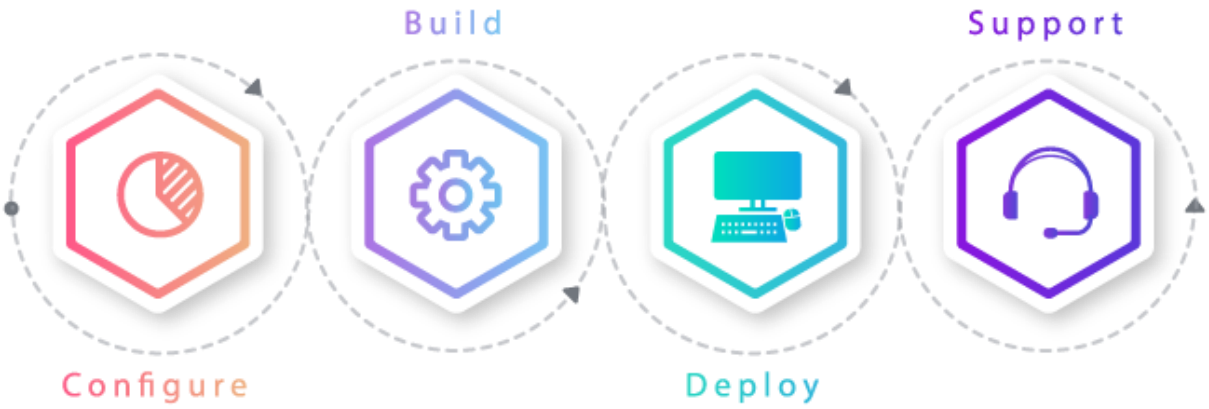

Configure

- Our system configurator helps customers design a computing solution that best fits their needs.
- The smart configurator provides helpful prompts to ensure that any design is validated.

Build

- Our strict quality assurance process during assembly and testing ensures that systems leaving our build centre are free-from-defect and are operating as designed.

Deploy

- Our Australia & New Zealand wide deployment services and support network means that where ever you are, you experience a smooth deployment.

Support

- Our support team is available to assist in resolving and troubleshooting any issues with additional warranty support options such as Next Business Day or 24/7 service are available should you need it.

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Model	Cores	Threads	Base (GHz)	Single Core Turbo (GHz)	All Core Turbo (GHz)	Cache (MB)	TDP (W)	Support for Intel Optane Persistent Memory 200 Series	Intel SGX Envlave capacity per processor	Features
8380HL	28	56	2.9	4.3	3.8	38.5	250	Yes	512 GB	4 and 8 Socket Scalable Performance
8380H	28	56	2.9	4.3	3.8	38.5	250	Yes	512 GB	4 and 8 Socket Scalable Performance
8380	40	80	2.3	3.4	3	60	270	Yes	512 GB	Optimised for highest-per-core scalable performance and supports maximum Intel SGX Enclave Capacity
8376HL	28	56	2.6	4.3	3.5	38.5	205	Yes		4 and 8 Socket Scalable Performance
8376H	28	56	2.6	4.3	3.5	38.5	205	Yes		4 and 8 Socket Scalable Performance
8368Q	38	76	2.6	3.7	3.3	57	270	Yes	512 GB	Liquid Cooled, Supporting Maximum Intel SGX Enclave Capacity
8368	38	76	2.4	3.4	3.2	57	270	Yes	512 GB	Optimised for highest-per-core scalable performance and supports maximum Intel SGX Enclave Capacity
8362	32	64	2.8	3.6	3.5	48	265	Yes	64GB	Optimised for highest-per-core scalable performance
8360Y	36	72	2.4	3.5	3.1	54	250	Yes	64GB	Optimised for highest-per-core scalable performance
8360HL	24	48	3	4.2	3.8	33	225	Yes		4 and 8 Socket Scalable Performance
8360H	24	48	3	4.2	3.8	33	225	Yes		4 and 8 Socket Scalable Performance
8358P	38	76	2.6	3.7	3.3	57	270	Yes	512 GB	Cloud Optisized for VM Utilisation
8358	32	64	2.6	3.4	3.3	48	250	Yes	64GB	Optimised for highest-per-core scalable performance
8356H	8	16	3.9	4.4	4.3	35.75	190	Yes		4 and 8 Socket Scalable Performance
8354H	18	36	3.1	4.3	4	24.75	205	Yes		4 and 8 Socket Scalable Performance
8353H	18	36	2.5	3.8	3.3	24.75	150	Yes		4 and 8 Socket Scalable Performance
8352M	32	64	2.3	3.5	3.1	54	225	Yes	64GB	Media Processing Optimized
8352Y	32	64	2.2	3.4	2.8	48	205	Yes	64GB	Scalable Performance
8352V	36	72	2.1	3.5	2.5	54	1995	Yes	8 GB	Cloud Optisized for VM Utilisation
8352S	32	64	2.2	3.4	2.8	48	205	Yes	512 GB	Supporting Maximum Intel SGX Enclave Capacity
8351N	36	72	2.4	3.5	3.1	54	225	Yes	64GB	Single Socket Optimized, Networking/NFV Optimized

Model	Cores	Threads	Base (GHz)	Single Core Turbo (GHz)	All Core Turbo (GHz)	Cache (MB)	TDP (W)	Support for Intel Optane Persistent Memory 200 Series	Intel SGX Envlave capacity per processor	Features
6348H	24	48	2.3	4.2	3.1	33	165	Yes		4 and 8 Socket Scalable Performance
6348	28	56	2.6	3.5	3.4	42	235	Yes	64 GB	Optimised for highest-per-core scalable performance
6354	18	36	3	3.6	3.6	39	205	Yes	64 GB	Optimised for highest-per-core scalable performance
6346	16	32	3.1	3.6	3.6	36	205	Yes	64 GB	Optimised for highest-per-core scalable performance
6342	24	48	2.8	3.5	3.3	36	230	Yes	64 GB	Optimised for highest-per-core scalable performance
6338	32	64	2	3.2	2.6	48	205	Yes	64 GB	Scalable Performance
6338T	24	48	2.1	3.4	2.7	36	165	Yes	64 GB	Long-life use and NEBS-Thermal Friendly
6338N	32	64	2.2	3.5	2.7	48	185	Yes	64 GB	Networking/NFV Optimized
6336Y	24	48	2.4	3.6	3	36	185	Yes	64 GB	Scalable Performance
6334	18	36	3.6	3.7	3.6	18	165	Yes	64 GB	Optimised for highest-per-core scalable performance
6330	28	56	2	3.1	2.6	42	205	Yes	64 GB	Scalable Performance
6330N	28	56	2.2	3.4	2.6	42	165	Yes	64 GB	Networking/NFV Optimized
6330H	24	48	2	3.7	2.8	33	150	Yes		4 and 8 Socket Scalable Performance
6328HL	16	32	2.8	4.3	3.7	22	165	Yes		4 and 8 Socket Scalable Performance
6328HL	16	32	2.8	4.3	3.7	22	165	Yes		4 and 8 Socket Scalable Performance
6326	16	32	2.9	3.5	3.3	24	185	Yes	64 GB	Optimised for highest-per-core scalable performance
6314U	32	64	2.3	3.4	2.9	48	205	Yes	64 GB	Single Socket Optimized
6312U	24	48	2.4	3.6	3.1	36	185	Yes	64 GB	Single Socket Optimized
5320	26	52	2.2	3.4	2.8	39	185	Yes	64 GB	Scalable Performance
5320H	20	40	2.4	4.2	3.3	27.5	150	Yes		4 and 8 Socket Scalable Performance
5320T	20	40	2.3	3.5	2.9	30	150	Yes	64 GB	Long-life use and NEBS-Thermal Friendly
5318Y	24	48	2.1	3.4	2.6	36	165	Yes	64 GB	Scalable Performance
5318H	18	36	2.5	3.8	3.3	24.75	150	Yes		4 and 8 Socket Scalable Performance
5318N	24	48	2.1	3.4	2.7	36	150	Yes	64 GB	Networking/NFV Optimized
5318S	24	48	2.1	3.4	2.6	36	165	Yes	512 GB	Supporting Maximum Intel SGX Enclave Capacity

Model	Cores	Threads	Base (GHz)	Single Core Turbo (GHz)	All Core Turbo (GHz)	Cache (MB)	TDP (W)	Support for Intel Optane Persistent Memory 200 Series	Intel SGX Envlave capacity per processor	Features
4316	20	40	2.3	3.4	2.8	30	150		8 GB	Scalable Performance
4314	16	32	2.4	3.4	2.9	24	135	Yes	8 GB	Scalable Performance
4310	12	24	2.1	3.3	2.7	18	120		8 GB	Scalable Performance
4310T	10	20	2.3	3.4	2.9	15	105		8 GB	Long-life use and NEBS-Thermal Friendly
4309Y	8	16	2.8	3.6	3.4	12	105		8 GB	Scalable Performance