# Intel

# Intel Xeon Gold 6438Y+ Processor (PK8071305120701)

## Datasheet

## Product Overview

- The Intel Xeon Gold 6438Y+ is a 4th Gen Intel Xeon Scalable processor for high-performance enterprise, cloud, and general-purpose server platforms.
- It provides 32 cores and 64 threads, with a 2.00 GHz base frequency, up to 4.00 GHz Intel Turbo Boost frequency, 60 MB cache, and a 205 W TDP.
- Built on Intel 7 process technology, the processor supports 2S scalability and up to 4 TB of ECC memory.
- It supports DDR5-4800 at 1DPC or DDR5-4400 at 2DPC, with eight memory channels and 80 PCI Express 5.0 lanes for network adapters, storage, and accelerators.
- Intel QAT, DLB, DSA, IAA, Intel AMX, and Intel DL Boost support selected security, load-balancing, data-movement, analytics, and inference workloads.
- Hardware security features include Intel SGX with Intel SPS, Total Memory Encryption, Boot Guard, Control-Flow Enforcement Technology, and Intel virtualization technologies.

## Product Highlights

- **32-Core Server Compute:** 32 cores and 64 threads provide high parallel processing capacity for enterprise servers, cloud infrastructure, virtualization, and general-purpose workloads.
- **2.00 to 4.00 GHz Frequency Range:** The processor combines a 2.00 GHz base frequency with up to 4.00 GHz Intel Turbo Boost frequency for responsive server performance.
- **DDR5-4800 and PCIe 5.0 I/O:** DDR5-4800 at 1DPC, DDR5-4400 at 2DPC, eight memory channels, and 80 PCIe 5.0 lanes support high-throughput server designs.
- **Configurable Performance Profiles:** Intel Speed Select Technology Performance Profile supports three documented configurations with different active-core, base-frequency, and TDP combinations.

## Detailed Features




### Intel Xeon Gold 6438Y+ Processor (PK8071305120701)

Quote | Help

| Component | Specification |
|---|---|
| Processor | Intel Xeon Gold 6438Y+, 32 cores / 64 threads |
| Ordering Information | PK8071305120701, FC-LGA16A Tray, Spec Code SRMGM |
| Frequency and Cache | 2.00 GHz base, up to 4.00 GHz turbo, 60 MB cache |
| Memory | Up to 4 TB ECC memory, DDR5-4800 1DPC or DDR5-4400 2DPC, 8 channels |
| Power and Expansion | 205 W TDP, 2S scalability, PCIe 5.0 with 80 lanes, 16 GT/s UPI, 3 UPI links |

### 32-Core Server Compute

The 6438Y+ combines 32 physical cores with 64 threads, a 2.00 GHz base frequency, and up to 4.00 GHz turbo frequency. Its profile suits enterprise servers, cloud infrastructure, virtualization, and general-purpose workloads.

### 2S Platform Support

Intel specifies 2S scalability, 16 GT/s UPI, and three UPI links. This supports dual-socket server platforms designed for higher compute capacity and inter-socket bandwidth.

### High-Capacity Server Platform

The processor combines a 32-core design, 60 MB cache, 205 W TDP, 80 PCIe 5.0 lanes, and eight memory channels for high-density server deployments.

### PCIe 5.0 I/O Expansion

Eighty PCIe 5.0 lanes provide direct expansion capacity for Ethernet adapters, storage controllers, accelerators, and other high-bandwidth server devices.

### Flexible ECC Memory Speeds

The processor supports up to 4 TB of ECC memory across eight channels, with DDR5-4800 at 1DPC and DDR5-4400 at 2DPC. This supports server systems with different DIMM population requirements.

### High-Bandwidth PCIe 5.0 Connectivity

Eighty PCIe 5.0 lanes provide direct expansion capacity for Ethernet adapters, storage controllers, accelerators, and other high-bandwidth devices. The lane budget supports balanced I/O across a dual-socket platform.

### Acceleration for Network and Data Workloads

Intel QAT, DLB, DSA, and IAA provide documented acceleration resources for selected security, load-balancing, data-movement, and in-memory analytics operations. Intel AMX and DL Boost support selected AI and inference workloads.

### Security and Virtualization Foundation

The processor includes Intel SGX with Intel SPS, Total Memory Encryption, Boot Guard, Control-Flow Enforcement Technology, AES instructions, VT-x, VT-d, and Extended Page Tables. These capabilities help protect workloads and support virtualized server platforms.

## Technical Specifications

### Product Specifications

| Feature | Value |
|---|---|
| User SKU | INTL-6438Y+ |
| Intel ordering code | PK8071305120701 |
| Intel Spec Code | SRMGM |
| Processor model | Intel Xeon Gold 6438Y+ Processor |
| Product collection | 4th Gen Intel Xeon Scalable Processors |
| Code name | Products formerly Sapphire Rapids |
| Vertical segment | Server |
| Processor number | 6438Y+ |
| Lithography | Intel 7 |
| Marketing status | Launched |
| Launch date | Q1 2023 |
| Embedded Options Available | No |
| Use conditions | Server/Enterprise |

| Feature | Value |
|---|---|
| Total cores | 32 |
| Total threads | 64 |
| Processor base frequency | 2.00 GHz |
| Max turbo frequency | 4.00 GHz |
| Cache | 60 MB |
| Intel UPI speed | 16 GT/s |
| Max UPI links | 3 |
| TDP | 205 W |
| Intel DL Boost | Yes |
| Scalability | 2S |
| Memory types | Up to DDR5-4800 MT/s 1DPC; up to DDR5-4400 MT/s 2DPC |
| Max memory size | 4 TB |
| Max memory channels | 8 |
| ECC memory supported | Yes |
| PCI Express revision | 5.0 |
| Max PCI Express lanes | 80 |
| Sockets supported | FCLGA4677 |
| Package carrier | E1B |
| Package size | 77.5 mm x 56.5 mm |
| DTS max | 87 °C |
| TCASE | 76 °C |
| Intel On Demand Activation Model | No |
| Intel QuickAssist Technology | 1 default device |
| Intel Dynamic Load Balancer | 1 default device |
| Intel Data Streaming Accelerator | 1 default device |
| Intel In-memory Analytics Accelerator | 1 default device |
| Intel Advanced Matrix Extensions | Yes |
| Intel Speed Select Technology - Core Power | Yes |
| Intel Speed Select Technology - Turbo Frequency | Yes |
| Intel Speed Select Technology - Performance Profile | Yes |

| Feature | Value |
|---|---|
| Intel Speed Select Technology - Base Frequency | Yes |
| SST-PP Configuration 0 | 32 active cores, 2.00 GHz base, 205 W TDP |
| SST-PP Configuration 1 | 28 active cores, 2.20 GHz base, 205 W TDP |
| SST-PP Configuration 2 | 24 active cores, 2.10 GHz base, 185 W TDP |
| High Priority Cores | 12 |
| High Priority Core Frequency | 2.10 GHz |
| Low Priority Cores | 20 |
| Intel Resource Director Technology | Yes |
| Intel Speed Shift Technology | Yes |
| Intel Turbo Boost Technology | 2.0 |
| Intel Hyper-Threading Technology | Yes |
| Intel Transactional Synchronization Extensions | Yes |
| Intel 64 | Yes |
| Instruction set extensions | Intel AMX, Intel SSE4.2, Intel AVX, Intel AVX2, Intel AVX-512 |
| AVX-512 FMA units | 2 |
| Intel QuickAssist Software Acceleration | Yes |
| Intel Control-Flow Enforcement Technology | Yes |
| Intel Total Memory Encryption | Yes |
| Intel AES New Instructions | Yes |
| Intel Software Guard Extensions | Yes with Intel SPS |
| Default maximum SGX EPC size | 128 GB |
| Intel Trusted Execution Technology | Yes |
| Intel OS Guard | Yes |
| Execute Disable Bit | Yes |
| Intel Boot Guard | Yes |
| Intel Platform Firmware Resilience | Yes |
| Intel Run Sure Technology | Yes |
| Mode-based Execute Control | Yes |
| Intel Crypto Acceleration | Yes |
| Intel Virtualization Technology | VT-x, VT-d, and VT-x with EPT |

| Feature | Value |
| --- | --- |
| Shipping media | Tray |
| Stepping | S3 |

## Product Comparison

| Feature | Intel Xeon Gold 6438Y+ / PK8071305120701 | Intel Xeon Gold 6438M / PK8071305122301 | Intel Xeon Gold 6438N / PK8071305122101 |
|---|---|---|---|
| Processor family | 4th Gen Intel Xeon Scalable | 4th Gen Intel Xeon Scalable | 4th Gen Intel Xeon Scalable |
| Positioning in this comparison | 32-core performance-oriented processor with configurable profiles | 32-core processor with configurable performance profiles | 32-core processor with network and data-plane acceleration |
| Total cores | 32 | 32 | 32 |
| Total threads | 64 | 64 | 64 |
| Processor base frequency | 2.00 GHz | 2.20 GHz | 2.00 GHz |
| Max turbo frequency | 4.00 GHz | 3.90 GHz | 3.60 GHz |
| Cache | 60 MB | 60 MB | 60 MB |
| TDP | 205 W | 205 W | 205 W |
| Scalability | 2S | 2S | 2S |
| Intel UPI | 16 GT/s; 3 links | 16 GT/s; 3 links | 16 GT/s; 3 links |
| Max memory size | 4 TB | 4 TB | 4 TB |
| Memory channels | 8 | 8 | 8 |
| Memory support | DDR5-4800 1DPC; DDR5-4400 2DPC | DDR5-4800 1DPC; DDR5-4400 2DPC | DDR5-4800 1DPC; DDR5-4400 2DPC |
| ECC memory | Yes | Yes | Yes |
| PCI Express | 5.0, 80 lanes | 5.0, 80 lanes | 5.0, 80 lanes |
| Intel SST Performance Profile | Yes | Yes | Yes |
| Intel AMX | Yes | Yes | Yes |
| Intel DL Boost | Yes | Yes | Yes |
| Best-fit role | High-performance enterprise and cloud compute | High-capacity enterprise and cloud compute with configurable profiles | Network, edge, and communications server workloads |

## Accessories

| Category | Accessories |
| --- | --- |
| Included Accessories | - Intel Xeon Gold 6438Y+ processor<br>- Tray shipping media |
| Optional Accessories | - FCLGA4677-compatible server board and CPU heatsink solution<br>- DDR5 ECC memory and PCIe 5.0 network or storage adapters |

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# References

[1] Intel. (2026). Intel Xeon Gold 6438Y+ Processor Specifications. https://www.intel.com/content/www/us/en/products/sku/232382/intel-xeon-gold-6438y-processor-60m-cache-2-00-ghz/specifications.html

[2] Intel. (2026). Intel Xeon Gold 6438Y+ Processor Ordering and Spec Information. https://www.intel.com/content/www/us/en/products/sku/232382/intel-xeon-gold-6438y-processor-60m-cache-2-00-ghz/ordering.html