

Revolutionary architecture for performance, AI, graphics, and media at the edge

12th Gen Intel® Core™ processors



New performance hybrid architecture delivers Intel's largest leap in Intel® Core™ processor performance in years. 12th Gen Intel® Core™ processors provide accelerated AI and support advanced graphics and media for IoT applications.

12th Gen Intel® Core™ mobile processors*



12th Gen Intel® Core™ desktop processors**

Up to **1.07x** faster single-thread performance¹

Up to **1.36x** faster single-thread performance¹

Up to **1.29x** faster multithread performance¹

Up to **1.35x** faster multithread performance¹

Up to **2.47x** faster graphics performance¹

Up to **1.94x** faster graphics performance¹

Up to **2.77x** faster in GPU image classification inference performance¹

Up to **2.81x** faster in GPU image classification inference performance¹

*Measured performance vs. 11th Gen Intel® Core™ processors. For workloads and configurations, visit intel.com/PerformanceIndex. Results may vary.

**Measured performance vs. 10th Gen Intel® Core™ processors. For workloads and configurations, visit intel.com/PerformanceIndex. Results may vary.

Choose the right processor for a tailored solution

12th Gen Intel® Core™ mobile processors

Up to **14** cores, **20** threads

12th Gen Intel® Core™ desktop processors

Up to **16** cores, **24** threads

Intel® Iris® Xe Graphics

Up to **96** execution units (EUs)

Up to **4** displays 4K60 HDR or an 8K display

Up to **2 video decode boxes**

Pipelock video synchronization and **SR-IOV**



Intel® UHD Graphics 770

Up to **32** execution units (EUs)

Up to **4** displays 4K60 HDR or an 8K display

Up to **2 video decode boxes**

Genlock video synchronization and **SR-IOV**

Up to **28** PCIe lanes

Up to **16** lanes PCIe 4.0 on the CPU

Up to **12** lanes PCIe 3.0 on the PCH



Up to **48** PCIe lanes

Up to **16** lanes PCIe 5.0 and up to **4** lanes PCIe 4.0 on the CPU

Up to **12** lanes PCIe 4.0 and up to **16** lanes PCIe 3.0 on the PCH

Up to DDR5-4800 and LP5-5200

Up to **DDR4-3200** and **LP4x-4267** memory



Up to DDR5-4800 and up to DDR4-3200

Soldered-down BGA package

For small form factor IoT applications



Real-time capability

On select SKUs



LGA socket scalability

Flexibility to choose any **IoT CPU** and **IoT PCH** combination for your applications

Accelerated AI

Intel® Distribution of OpenVINO™ toolkit and Intel® Deep Learning Boost

Software tools

Intel® oneAPI Toolkit with write-once, deploy-everywhere flexibility

OS support

Windows 10 IoT Enterprise 2021 LTSC, Yocto Project Linux, Celadon (Android) in VM

Long-life availability and embedded-conditions offerings²

More value from platform validation cycles

Enhance your results in key industries



Retail, banking, hospitality, education

Build video walls with up to four 4K60 HDR concurrent displays and AI capabilities for analytics.

Point of sale (POS), kiosks, video walls, digital security, and digital signage

Healthcare

Accelerate AI to assist with medical advances. Improve graphics for enhanced imaging.

Ultrasound imaging, medical carts, endoscopy, and medical devices



Industrial

Converge infrastructure and deploy machine vision/AI on the factory floor. Support real-time features on the desktop platform.

Assembly-line defect detection, human-machine interfaces, and industrial PCs

Video

Deploy fast object recognition, high-channel density for AI video analytics.

AI video at the edge and network video recorders (NVRs)



Explore the capabilities of 12th Gen Intel® Core™ processors



Mobile platform >

Desktop platform >

1. Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. For more complete information about performance and benchmark results, visit intel.com/PerformanceIndex.
2. Intel does not commit or guarantee product availability or software support by way of road map guidance. Intel reserves the right to change road maps and software are intended only to be used in applications that do not cause or contribute to a violation of an internationally recognized human right. Intel® processors of the same SKU may vary in frequency or power as a result of natural variability in the production process. Your costs and results may vary. Intel® technologies may require enabled hardware, software, or service activation. Customer is responsible for safety of the overall system, including compliance with applicable safety-related requirements or standards. Performance hybrid architecture combines two new core microarchitectures, Performance-cores (P-cores) and Efficient-cores (E-cores), on a single processor die. Select 12th Gen Intel® Core™ processors (certain 12th Gen Intel® Core™ i5 processors and lower) do not have performance hybrid architecture, only P-cores. Built into the hardware, Intel® Thread Director is provided only in performance hybrid architecture configurations of 12th Gen Intel® Core™ processors; OS enablement is required. Available features and functionality vary by OS. © Intel Corporation. Intel, the Intel logo, and other Intel marks are trademarks of Intel Corporation or its subsidiaries. Other names and brands may be claimed as the property of others. 0322/BC/CMD/PDF