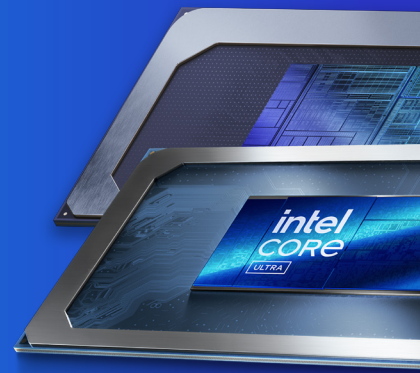




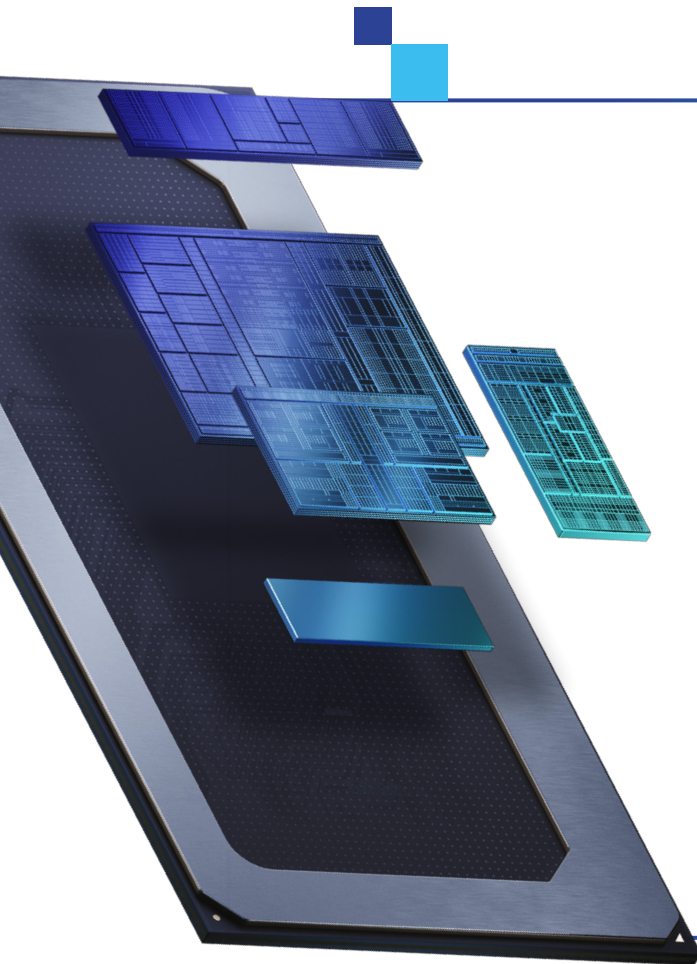
Product Brief

Intel® Core™ Ultra 200H and 200U series processors for the Edge

Get the performance and efficiency needed for precision edge AI



Deploy visual inferencing, rich media, and emerging generative AI use cases with greater ease, without the need of entry-level discrete graphics at the edge. With up to 99 total platform TOPS¹ Intel® Core™ Ultra processors (Series 2) can scale performance and take AI acceleration to a new level to supercharge edge computing in the era of AI. Accelerate real-time data processing and minimize latency with new CPU cores, a built-in, next-generation Intel® Arc™ GPU² and a neural processing unit (NPU)—all in a BGA package.



Support generative AI with a purpose-built processor

Deliver advanced AI performance at the edge with Intel® Core™ Ultra processors, which boast a comprehensive suite of integrated compute engines tailored for AI. These advanced processors, which feature up to 16 CPU cores, a neural processing unit (NPU), and a built-in Intel® Arc™ GPU,¹ offer up to 99 total platform TOPS² to support diverse inferencing workloads, including generative AI. This flexible lineup delivers improved AI performance compared to the previous generation,³ giving you more effective solutions to respond to the evolving demands of AI workloads.

Build the next generation of consumer visual experiences

Create eye-catching, engaging media experiences with enhanced graphics capabilities — including a built-in Intel® Arc™ GPU¹—in a BGA package. Support for up to four 4K or two 8K displays with Pipelock synchronization and bezel correction ensures smooth, impactful imagery while integrated Wi-Fi 7 helps improve media processing performance and delivery.

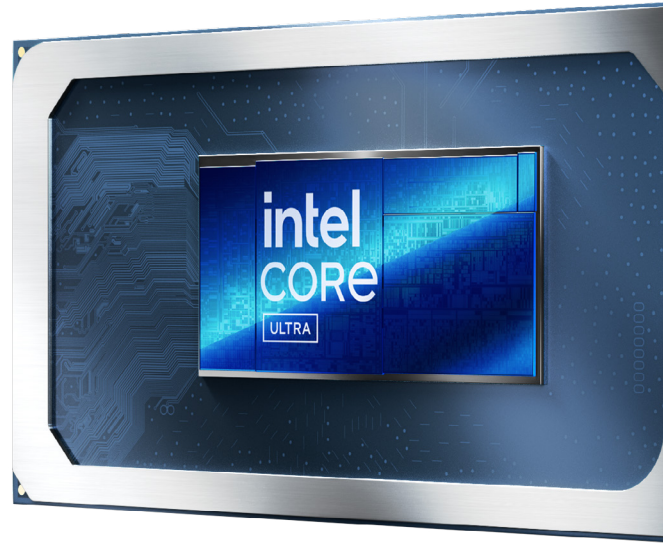
1. Intel® Arc™ GPU only available on H-SKU of Intel® Core™ Ultra processors.

2. Select H-SKUs of Intel Core Ultra processors (Series 2) can achieve up to 99 total platform TOPS. Results may vary.

3. See at intel.com/processorclaims: Intel Core Ultra processors (Series 2). Results may vary.

Scale edge solutions with enhanced flexibility

Maximize the impact and value of edge solutions while minimizing costs. Intel® Core™ Ultra processors enable efficient device designs with a flexible 12–65W TDP power range to help you innovate with confidence. Low power in a soldered-down BGA package can support fanless cooling options to fit powerful compute in hard-to-reach places. Pin compatibility with previous-generation processors to simplify upgrade paths, and long-term software support can drive more value from devices in the field.



Intel® Core™ Ultra 200H series processors for the edge

Up to 3.4x faster in video analytics end-to-end workload Media+AI Inference performance¹	Up to 8.2x better performance per watt per dollar¹	More than 5.8x faster in media performance¹
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¹Intel® Core™ Ultra 7 processor 265H VS NVIDIA® Jetson AGX Orin 64GB.

Results may vary. For more complete information about performance and benchmark results, visit intel.com/PerformanceIndex

The power of the edge

- Up to 8x PCIe 5 and 20x PCIe 4 allow for flexible designs and simple upgrades.
- A power range of 12–65W TDP means the same platform can enable both low-power and high-performance use cases.
- Support for Windows 11 IoT Enterprise LTSC and long-term support (LTS) Linux kernels help enhance long-term solution value.
- Leverage the Intel® Tiber™ Edge Platform to help build, deploy, run, manage, and scale edge and AI solutions on standard hardware with cloud-like simplicity.

¹. Select H-SKUs of Intel Core Ultra processors (Series 2) can achieve up to 99 total platform TOPS. Results may vary.

Adapt AI performance to evolving needs

Intel® Core™ Ultra processors boast a comprehensive suite of integrated compute engines tailored for AI, including the CPU, GPU, and NPU.

- Adapt performance to various types of AI, including emerging generative AI use cases, with support for diverse inferencing workloads.
- Help your customers overcome skilled labor shortages with AI automation systems.
- Help minimize R&D costs and validation efforts for designs without the need for a discrete GPU.
- OpenVINO™ helps enable efficient AI inference runtime to improve Generative AI performance on your device of choice.

Take immersive media and graphics to new levels

Empower next-generation graphics and media workloads at the edge with enhanced built-in Intel® Arc™ GPUs¹, which support up to four simultaneous 4K displays or two 8K displays with Pipelock synchronization. Enhance connectivity with discrete Thunderbolt™ 4 technology and integrated Wi-Fi 7 for accelerated media processing and delivery.

- Help reduce power consumption and bill of materials (BOM) cost with integrated graphics and connectivity.
- Make it easier to deploy complete digital signage with support for four 4K displays or two 8K displays.
- Enable low-cost classroom workstations or multiple kiosks running on a single SoC with SR-IOV GPU virtualization

1. Select H-SKUs of Intel Core Ultra processors (Series 2) can achieve up to 99 total platform TOPS. Results may vary.



Key features

Performance

- Up to 16 cores
- Up to 24 MB Intel® Smart Cache
- Processor base power from 12W to 65W

Accelerated AI

- Multiple compute engines in one SoC: P-cores, E-cores, Intel® Arc™ Graphics,¹ Intel® AI Boost, integrated NPU dedicated to AI
- Intel® Deep Learning Boost (Intel® DL Boost) with DP4A instructions and int8 support
- Fully supported by the Intel® Distribution of OpenVINO™ toolkit
- Intel® Xe Matrix Extensions (Intel® XMV)

Power efficiency

- Low-power domain CPU tile offload
- Two low-power E-cores
- Dual low-power embedded DisplayPort

Graphics

- Integrated Intel® Arc™ Graphics¹ with up to eight Xe cores
- Hardware-accelerated AV1 encode
- Integrated DisplayPort 2.1 (USB-C) and HDMI 2.1
- Pipelock video synchronization for Windows with bezel correction and EDID management/lock display
- Up to 180 H264 1080p15 video streams
- Up to four concurrent 4K60 HDR displays or two 8K displays
- Integrated Intel® Image Processing Unit
- SR-IOV for GPU virtualization

Memory and I/O

- Up to DDR5-6400, LPDDR5x-8400
- Up to eight lanes PCIe 5.0 (H-SKU)
- Up to 20 lanes PCIe 4.0

Flexible deployments

- Soldered-down BGA package
- Up to five years' product availability²

Security and manageability

- Elemental security engine (ESE)
- NIST 800-88r1 (storage media sanitization)
- Support for Intel vPro® platform on select SKUs

Connectivity

- USB4/Thunderbolt™ 4
- Integrated Intel® Wi-Fi 7
- Validated discrete Intel® Wi-Fi 7/6E modules
- Integrated Bluetooth 5.4

Software and OS support

- Intel® Tiber™ Edge Platform
- OpenVINO™ toolkit
- Intel® one API Tools
- Windows 11 IoT Enterprise LTSC 2024
- Ubuntu, Red Hat Enterprise Linux, Wind River Linux, long-term support (LTS) Linux kernels²
- KVM hypervisor
- Intel® Slim Bootloader, UEFI BIOS

1. Intel® Arc™ GPU only available on H-SKU of Intel® Core™ Ultra processors

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 or discontinue products, software, and software support services through standard EOL/PDN processes. Contact your Intel account rep for additional information.

Use cases



Smart cities

Support for multiple cameras per device can help enable cost-effectiveness, manageability, and scalability in settings that need extensive video monitoring capabilities. Low power in a BGA package can also make it easier to deploy systems in hard-to-reach places.

Applications: Digital security and safety, network video recorders, roadside units

- Multiple compute engines along with Intel® Xe Matrix Extensions deliver up to 99 total platform TOPS¹ in one SoC, helping to enable and enhance powerful AI for object detection use cases without a discrete GPU.
- Integrated Intel® Arc™ Graphics² supports up to 180 H264 1080p15 video streams, accommodating multiple connected cameras to help enhance cost efficiency and manageability.
- A wide power range from 12–65W means the same platform can be used to deploy solutions with fanless cooling in constrained spaces and to power advanced and more-demanding solutions.



Industrial

Enhance productivity and safety on shop floors and support advanced Industry 4.0 use cases—including AI vision deployments—while helping to consolidate workloads on easy-to-manage systems in hard-to-reach places.

Applications: Autonomous mobile robots (AMRs), humanoid robots, stationary robots, industrial PCs, human-machine interfaces (HMI), AI-augmented industrial process control.

- Multiple compute engines deliver up to 99 total platform TOPS¹ in one SoC, enabling powerful AI inferencing in low-power environments and without a discrete GPU.
- Supports up to 180 H264 1080p15 video streams, accommodating multiple connected cameras to help enhance scalability for machine vision applications such as quality control, inventory management, and worker safety.
- The 12–65W platform power range and BGA packaging support innovative fanless cooling and designs that can fit in constrained spaces.



Retail, education, and hospitality

Transform retail, office, and educational spaces with multi-display interactive experiences and generative AI use cases that can increase productivity and drive results.

Applications: POS/kiosks, digital signage, interactive flat-panel display (IFPD), quick-service restaurant (QSR) AI vision accuracy systems, Gen AI-powered chatbot, and personalized customer service

- Integrated Intel® Arc™ Graphics² supports up to 4x 4K displays or 2x 8K displays per socket, with Pipelock synchronization and bezel correction.
- Multiple compute engines deliver up to 99 total platform TOPS¹ in one SoC, enabling powerful AI inferencing in low-power environments and without a discrete GPU.
- SR-IOV GPU virtualization enables up to four AI devices (e.g., classroom workstations, kiosks, POS, or signage), running on a single SoC with lower TCO.³



Healthcare and Life Sciences

Enable the latest AI-driven use cases in clinical data analytics and decision support to help enhance practitioner productivity and offset staffing shortages. Lab diagnostic systems may benefit from deploying AI workloads on companion compute devices with integrated Intel® Arc™ Graphics and a built-in neural processing unit (NPU).

Applications: Lab diagnostic equipment, workstation on wheels, nurse stations, genomic sequencers

- Multiple compute engines deliver up to 99 total platform TOPS¹ in one SoC, enabling powerful AI inferencing in low-power environments without a discrete GPU.
- New Intel® X® Matrix Extensions (Intel® XMX) can help enhance object detection use cases without an entry-level discrete GPU.
- A wide power range from 12–65W means the same platform can be used to deploy solutions with fanless cooling in constrained spaces and power advanced and more-demanding solutions.

1. Select H-Series SKUs of Intel Core Ultra processors (Series 2) can achieve up to 99 total platform TOPS. Results may vary.

2. Intel® Arc™ GPU only available on H-Series Intel® Core™ Ultra processors.

3. Your costs and results may vary.

Intel® Core™ Ultra processors (H-SKU 45W/28W)

Brand	Processor Number	Processor Cores	Number of P-cores	Number of E-cores	Number of LPE-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz) ^A		Processor Base Frequency (GHz)		GFX Max Freq (GHz)	Intel vPro® Eligible ^B	Processor GFX	Number of Execution Units (EUs)	Video De-code Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	TCC/TSN	Extended Temp	Processor Base Power (W)
								P-core	E-core	P-core	E-core											
Intel® Core™ Ultra 9	285H	16	6	8	2	16	24 MB	5.4	4.5	2.5 (@45W)	1.9	2.35	Yes	Intel® ARC® GPU ^B	128	2	8 (CPU: 1x8 PCIe 5.0) 20 (PCIe 4.0)	DDR5-6400 LPD-DR5-6400 LPD-DR5x-8400 LPD-DR5x-7467	64 GB	No	No	45W (base power, Ultra 9 only)
Intel® Core™ Ultra 7	265H	16	6	8	2	16	24 MB	5.3	4.5	1.2 (@28W)	0.9	2.3	Yes		128	2				No	No	65W (max assured power) 28W (base power) 20W (min assured power)
Intel® Core™ Ultra 7	255H	16	6	8	2	16	24 MB	5.1	4.4	1.2 (@28W)	0.9	2.25	No		128	2				No	No	
Intel® Core™ Ultra 5	235H	14	4	8	2	14	18 MB	5.0	4.4	1.3 (@28W)	1.0	2.25	Yes		128	2				No	No	
Intel® Core™ Ultra 5	225H	14	4	8	2	14	18 MB	4.9	4.3	1.2 (@28W)	0.9	2.2	No		112	2						

Intel® Core™ Ultra processors (U-series 15W)

Brand	Processor Number	Processor Cores	Number of P-cores	Number of E-cores	Number of LPE-cores	Number of Threads	Intel® Smart Cache (L3)	Max Turbo Freq (GHz) ^A		Processor Base Frequency (GHz)		GFX Max Freq (GHz)	Intel vPro® Eligible ^B	Processor GFX	Number of Execution Units (EUs)	Video De-code Boxes	Total PCIe Lanes	Max Memory Speed	Max Memory Capacity	TCC/TSN	Extended Temp	Processor Base Power (W)
								P-core	E-core	P-core	E-core											
Intel® Core™ Ultra 7	265U	14	2	8	2	12	12 MB	5.3	4.2	1.8 (@15W)	1.5	2.1	Yes	Intel® Graphics ^B	64	2	20 PCIe 4.0	DDR5-6400 LPD-DR5-6400 LPD-DR5x-8400 LPD-DR5x-7467	64 GB	No	No	28W (Max Assured Power) 15W (Base Power) 12W (Min Assured Power)
Intel® Core™ Ultra 7	255U	14	2	8	2	12	12 MB	5.2	4.2	1.8 (@15W)	1.5	2.1	No		64	2				No	No	
Intel® Core™ Ultra 5	235U	14	2	8	2	12	12 MB	4.9	4.1	1.6 (@15W)	1.3	2.05	Yes		64	2				No	No	
Intel® Core™ Ultra 5	225U	14	2	8	2	12	12 MB	4.8	3.8	1.2 (@15W)	0.9	2.0	No		64	2				No	No	

A. The frequency of cores and core types varies by workload, power consumption, and other factors. Visit [intel.com/content/www/us/en/architecture-and-technology/turbo-boost/turbo-boost-technology-for-more-information](https://www.intel.com/content/www/us/en/architecture-and-technology/turbo-boost/turbo-boost-technology-for-more-information).

B. Intel® Arc™ GPU only available on select H-SKU, Intel® Core™ Ultra processor powered systems with at least 16GB of system memory in a dual-channel configuration. OEM enablement required; check with OEM for system configuration details. For product specifications, please refer to ark.intel.com

Unlock performance for AI at the edge.
**Learn more about the Intel® Core™ Ultra
Processors (Series 2) at intel.com/coreultra**

Intel® Core™
Ultra 200H
series processors



Intel® Core™
Ultra 200U
series processors



Notices and disclaimers

*Performance varies by use, configuration, and other factors. Learn more at intel.com/processorclaims: Intel® Core™ Ultra processors, Edge.

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