

# Intel launches its first Core Ultra processor line with a focus on AI

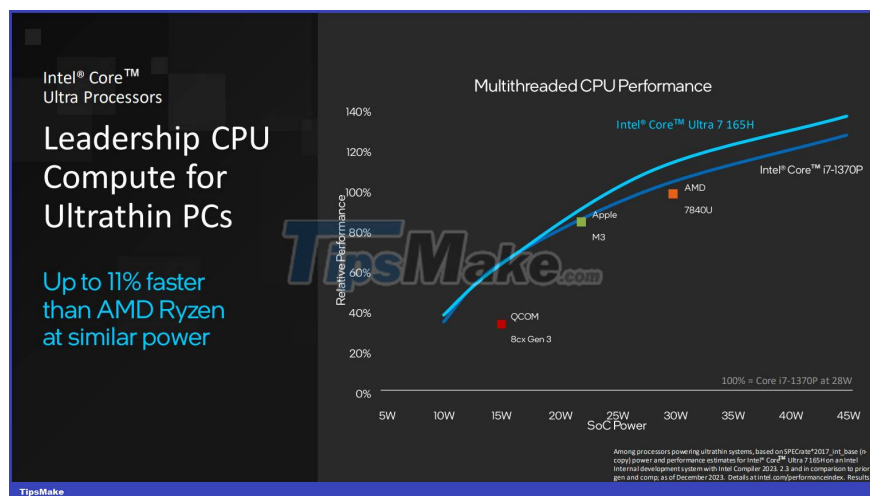
Intel previously announced that it would rebrand its CPUs with the new Core and Core Ultra branding, removing the letter i from the brand name.

During the AI Everywhere event, Intel officially announced the new Core Ultra product line for laptops and tablets, including 11 models with different designs and prices. The new CPU line is developed based on the Meteor Lake architecture and promises significant improvements in performance and power savings, especially better integrated graphics with a focus on artificial intelligence.

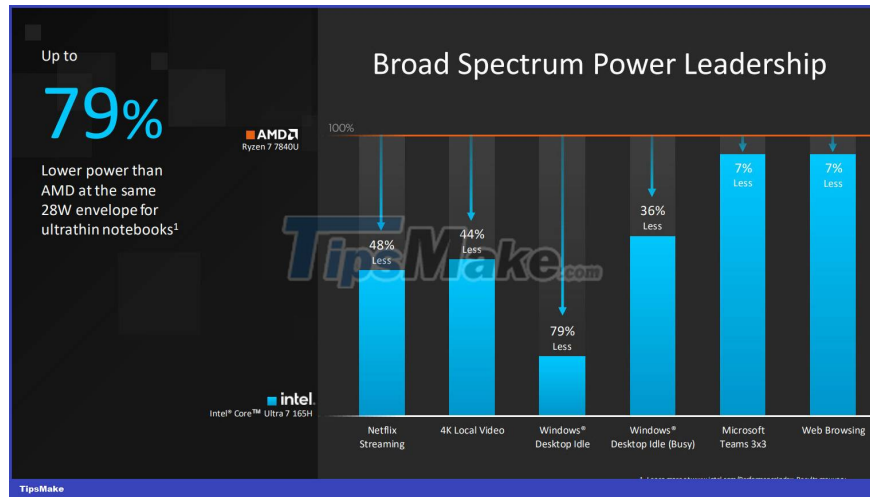
Intel previously announced that it would rebrand its CPUs with the new Core and Core Ultra branding, removing the letter "i" in the brand name, which has existed for more than 10 years on Intel Core CPU lines. This brand change will serve as a special milestone in Intel's product innovation roadmap.

'The launch of Intel Core Ultra demonstrates the unprecedented scale and speed with which Intel is advancing AI on PCs. By 2028, PC AI will account for 80% of the PC market, and with its broad ecosystem of hardware and software partners, Intel will be the brand best positioned to deliver world-class computing solutions. This next generation on the market'.

Intel Core Ultra is developed on Intel's 4 process technology (formerly known as 7nm) and Foveros 3D packaging. According to Intel, the Core Ultra line marks the biggest architectural change in the company's 40 years of chip manufacturing. The redesigned P-core architecture delivers better performance thanks to improved instructions-per-cycle (IPC), while the new E-core also enables improved power efficiency.



Intel confidently asserts that the new Core Ultra chips can provide up to 79% lower power consumption at the same 28W power level compared to AMD's Ryzen 7 7840U when operating in idle state on the computer. Windows desktop. In other aspects, users can also expect improvements, such as 48% better power efficiency when streaming Netflix, 44% when playing local 4K videos or 7% better when browsing the web.



The series offers up to 16 cores/22 threads clocked at up to 5.1 GHz and supports up to 64GB LPDDR5x RAM or 96GB DDR5 memory. Like other latest Intel processors, the Core Ultra line also supports discrete Wi-Fi 6E and Wi-Fi 7, Thunderbolt 5, and Bluetooth 5.4 with LE Audio.

**Intel® Core™ Ultra Processor**  
H-Series Key Platform Features

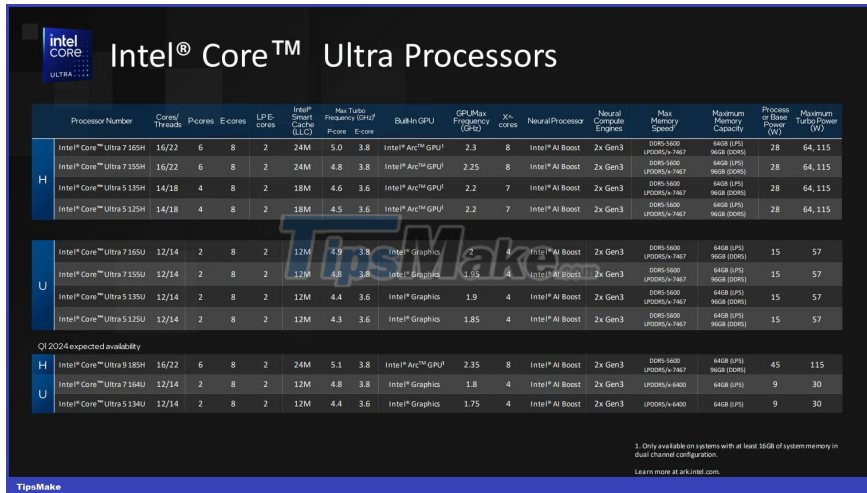
- New Core Architecture**
  - P-cores + E-cores + LP E-cores
  - Intel® Thread Director optimized scheduling
- Intel® X® LPG GPU**
  - Intel® Adaptix™ Power share
  - Endurance Gaming mode
  - Four simultaneous 4K encode streams
- Intel NPU**
  - 2x Gen3 Neural Compute Engines
  - Power optimized AI acceleration
- Connectivity**
  - Up to 16 Core (GP+BE+LP)
  - eDP 1.4b HBR3
  - DP 2.1 (USB-C) HDMI 2.1
  - WiFi 7/6E & Bluetooth 5.4/5.3
  - SPI eSPI i219 LAN ISH MPI CSI (PU) SPI W/THC
  - LP5 5x 7407 Support for DDR5-5600
  - 1x8 PCIe Gen5<sup>1</sup> x8 lanes dSFX
  - 3x4 PCIe Gen4 x2 lanes SSD
  - 4x TBT4 (USB-C)
  - 10x USB2 2x USB3
  - x8 PCIe Gen4 x2 SATA 3.0
- Imaging Processing Unit 6**
  - High image quality
  - Thin bezel
- 4x Thunderbolt™ 4**
  - 40Gbps bi-directional, per port
  - Certified E2E
- Intel® Wi-Fi 7 (5Gig)/ 6E (Gig+) <sup>2</sup>**
  - Uncumbered speed/latency in clean, 6GHz spectrum
  - BT 5.4/ 5.3, LE Audio

50 x 25 x 1.35 BGA Type3

1. Includes Fixed Rate Link (FRL) mode with support up to 120Gbps.  
2. Supports Wi-Fi 7 and 6E connectivity, subject to OEM enablement and OS support. For OS considerations, consult processor datasheet.  
3. USB 2.0/3.0/3.1/3.2 Gen1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100

Intel also improved its integrated graphics, equipping new processors with up to 8 Xe cores with support for DX12 Ultimate and XeSS. The company claims customers can expect twice the graphics performance compared to previous generation processors with iGPU. Other features include hardware-accelerated Ray Tracing, AV1 encoding/decoding, and support for HDMI 2.1 and DisplayPort 2.1.

On the artificial intelligence (AI) front, Intel introduces a new Neural Processing Unit (NPU) called Intel AI Boost, promising "AI workloads that run longer" at low power combined with CPU and GPU for up to 2.5x better performance. You can expect these chips to work well with Microsoft's upcoming next-generation Windows client expected in the second half of 2024.



The image shows a detailed specification table for Intel Core Ultra processors. The table is organized into three main sections: H-Series, U-Series, and Q/2024 expected availability. Each row lists a processor model and its various specifications, including core counts, cache sizes, turbo frequencies, GPU performance, and power consumption. A large 'TipsMake' watermark is overlaid on the table.

	Processor Number	Cores/Threads	P-Cores	E-Cores	LPE-Cores	Intel® Smart Cache (L3)	Max Turbo Frequency (GHz)	Max Turbo E-Score	Built-In GPU	GPU Max Frequency (GHz)	X-Cores	Neural Processor	Neural Compute Engines	Max Memory Speed	Maximum Memory Capacity	Process at Base Power (W)	Maximum Turbo Power (W)
H	Intel® Core™ Ultra 7 165H	16/22	6	8	2	24M	5.0	3.8	Intel® Arc™ GPU <sup>1</sup>	2.3	8	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-7467	64GB (EPI) 96GB (DOR)	28	64, 115
	Intel® Core™ Ultra 7 155H	16/22	6	8	2	24M	4.8	3.8	Intel® Arc™ GPU	2.25	8	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-7467	64GB (EPI) 96GB (DOR)	28	64, 115
	Intel® Core™ Ultra 5 135H	14/18	4	8	2	18M	4.6	3.6	Intel® Arc™ GPU	2.2	7	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-7467	64GB (EPI) 96GB (DOR)	28	64, 115
	Intel® Core™ Ultra 5 125H	14/18	4	8	2	18M	4.5	3.6	Intel® Arc™ GPU	2.2	7	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-7467	64GB (EPI) 96GB (DOR)	28	64, 115
U	Intel® Core™ Ultra 7 155U	12/14	2	8	2	12M	4.9	3.8	Intel® Graphics	2	4	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-7467	64GB (EPI) 96GB (DOR)	15	57
	Intel® Core™ Ultra 7 155U	12/14	2	8	2	12M	4.8	3.8	Intel® Graphics	1.95	4	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-7467	64GB (EPI) 96GB (DOR)	15	57
	Intel® Core™ Ultra 5 135U	12/14	2	8	2	12M	4.4	3.6	Intel® Graphics	1.9	4	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-7467	64GB (EPI) 96GB (DOR)	15	57
	Intel® Core™ Ultra 5 125U	12/14	2	8	2	12M	4.3	3.6	Intel® Graphics	1.85	4	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-7467	64GB (EPI) 96GB (DOR)	15	57
Q/2024 expected availability																	
H	Intel® Core™ Ultra 9 185H	16/22	6	8	2	24M	5.1	3.8	Intel® Arc™ GPU <sup>1</sup>	2.35	8	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-7467	64GB (EPI) 96GB (DOR)	45	115
	Intel® Core™ Ultra 7 164U	12/14	2	8	2	12M	4.8	3.8	Intel® Graphics	1.8	4	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-6400	64GB (EPI) 96GB (DOR)	9	30
U	Intel® Core™ Ultra 5 134U	12/14	2	8	2	12M	4.4	3.6	Intel® Graphics	1.75	4	Intel® AI Boost	2x Gen3	DDR5-5600 LPDDR5x-6400	64GB (EPI) 96GB (DOR)	9	30

1. Only available on systems with at least 32GB of system memory in dual channel configuration. Learn more at [ark.intel.com](https://ark.intel.com).

Intel Core Ultra H and U-Series are commercially available now. Intel Core Ultra 9 185H with 45W TDP will be available in Q1 2024 with ultra-low power 9W models. Intel said its partners have prepared more than 230 PC designs compatible with the new processor line.

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