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intel
**Phase 2 Core
Ultra Processors**

intel Phase 2 Core Ultra Processors User Guide

Contents

intel Phase 2 Core Ultra Processors

OVERVIEW
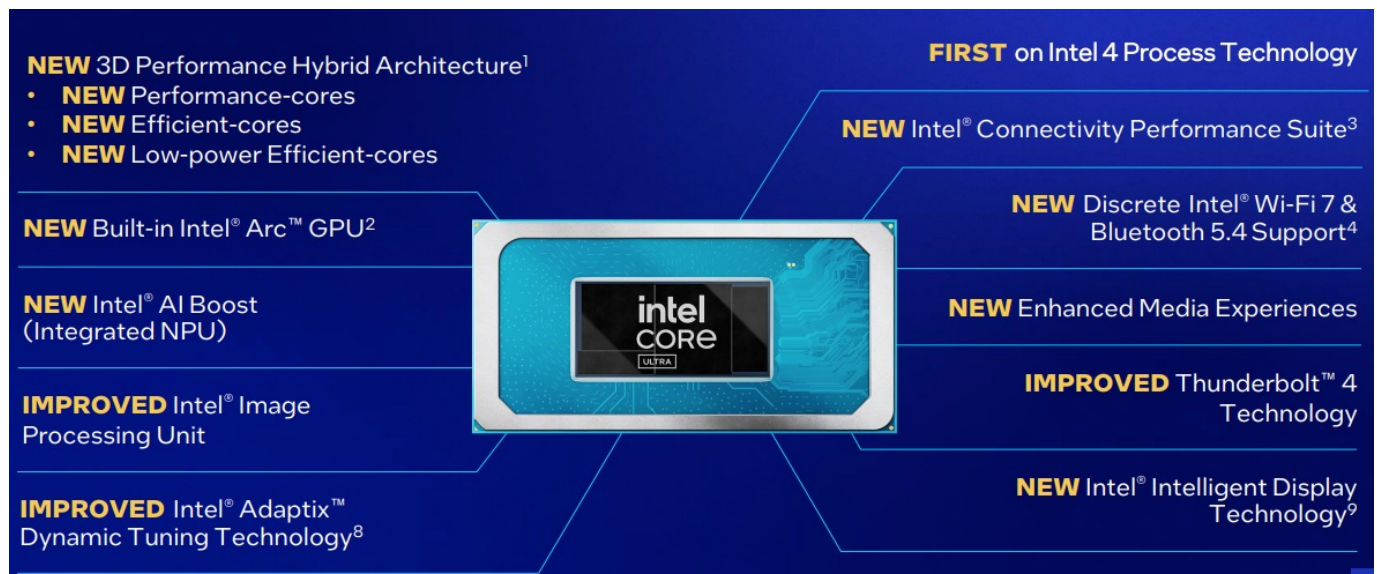
Product Usage Instructions

Installation

1. Ensure that the product is powered off and unplugged.
2. Locate the installation area and prepare it for the product.
3. Carefully insert the product into the designated slot or socket, following manufacturer guidelines.
4. Secure the product in place according to the installation instructions.
5. Connect any necessary cables or components to the product.
6. Power on the system and follow any additional setup instructions provided.

Maintenance

To ensure optimal performance and longevity of the product:

- Regularly clean the product using a soft, dry cloth.
- Avoid exposing the product to extreme temperatures or moisture.
- Keep the product away from dust and debris.
- Update any relevant software or drivers as recommended by the manufacturer.

Troubleshooting

If you encounter any issues with the product, refer to the user manual for troubleshooting steps. Common issues may include connectivity problems, performance issues, or error messages on the display.

Specifications

Processor Number	Processor Cores (P-cores + E-cores + LP E-cores)5	Processor Threads	Intel® Smart Cache (LLC)	Max Turbo Frequency6		Graphics Max Frequency2	Processor Graphics2	Total PCIe Lanes	Max Memory Speed7	Maximum Memory Capacity	Processor Base Power	Maximum Turbo Power
				P-core	E-core							
Intel® Core™ Ultra 9 processor 185H	16 (6+8+2)	22	24 MB	Up to 5.1 GHz	Up to 3.8 GHz	Up to 2.35 GHz					45 W	115 W
Intel® Core™ Ultra 7 processor 165H	16 (6+8+2)	22	24 MB	Up to 5.0 GHz	Up to 3.8 GHz	Up to 2.3 GHz		1×8 Gen5	DDR5-5600 LPDDR5/x-7467	64 GB (LP5) 96 GB (DDR5)	28 W	64 W, 115 W
Intel® Core™ Ultra 7 processor 155H	16 (6+8+2)	22	24 MB	Up to 4.8 GHz	Up to 3.8 GHz	Up to 2.25 GHz	Intel® Arc™ GPU	3×4 Gen4 8 Gen 4 Lanes (x1,x2,x4)				
Intel® Core™ Ultra 5 processor 135H	14 (4+8+2)	18	18 MB	Up to 4.6 GHz	Up to 3.6 GHz	Up to 2.2 GHz		Configurable				
Intel® Core™ Ultra 5 processor 125H	14 (4+8+2)	18	18 MB	Up to 4.5 GHz	Up to 3.6 GHz	Up to 2.2 GHz						

Processor Number	Processor Cores (P-cores + E-cores + LP E-cores)5	Processor Threads	Intel® Smart Cache (LLC)	Max Turbo Frequency6		Graphics Max Frequency	Processor Graphics	Total PCIe Lanes	Max Memory Speed7	Maximum Memory Capacity	Processor Base Power	Maximum Turbo Power
				P-core	E-core							
Intel® Core™ Ultra 7 165U	12 (2+8+2)	14	12 MB	Up to 4.9 GHz	Up to 3.8 GHz	Up to 2 GHz						
Intel® Core™ Ultra 7 155U	12 (2+8+2)	14	12 MB	Up to 4.8 GHz	Up to 3.8 GHz	Up to 1.95 GHz	Intel® Graphics	3 (x4) Gen 4 + 8 (x1, x2,x4) Gen4 Configurable	DDR5-5600 / LPDDR5/x-7467	64GB (LP5) / 96GB (DDR5)	15W	57W
Intel® Core™ Ultra 5 135U	12 (2+8+2)	14	12 MB	Up to 4.4 GHz	Up to 3.6 GHz	Up to 1.9 GHz						
Intel® Core™ Ultra 5 125U	12 (2+8+2)	14	12 MB	Up to 4.3 GHz	Up to 3.6 GHz	Up to 1.86 GHz						
Intel® Core™ Ultra 7 164U	12 (2+8+2)	14	12 MB	Up to 4.8 GHz	Up to 3.8 GHz	Up to 1.8 GHz		1 (x4) Gen 4 + 8 (x1, x2, x4) Gen4 Configurable	LPDDR5/x- 6400	64 GB (LP5)	9W	30W
Intel® Core™ Ultra 5 134U	12 (2+8+2)	14	12 MB	Up to 4.4 GHz	Up to 3.6 GHz	Up to 1.75 GHz						

Notices & Disclaimers

Performance varies by use, configuration, and other factors. Learn more on the Performance Index site. Performance results are based on testing as of dates shown in configurations and may not reflect all publicly

1. Performance hybrid architecture combines two core microarchitectures, Performance-cores (P-cores) and Efficient-cores (E-cores), on a single processor die first introduced on 12th Gen Intel® Core™ processors. Select 12th Gen and newer Intel® Core™ processors do not have performance hybrid architecture, only P-cores or E-cores, and may have the same cache size. See **ark.intel.com** for SKU details, including cache size and core frequency.

2. Intel® Arc™ GPUs are only available on select H-series Intel® Core™ Ultra processor-powered systems with at least 16 GB of system memory in a dual-channel configuration. OEM enablement is required; check with OEM or retailer for system configuration details.

3. Only available on Windows OS. See **intel.com/performance-wireless** for details.

4. Wi-Fi 7 is subject to regional availability and operation requires the use of Intel® Wi-Fi 7 (5 Gig) products in conjunction with operating systems and routers/APs/Gateways that support Wi-Fi 7. Learn more at **https://www.intel.com/performance-wireless**

5. Processor cores listed first are the total number of cores in the processor. The number of performance cores, Efficient-cores, and Low-power E-cores are listed in parentheses (P+E+LPE).

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

7. For the latest memory configurations and speeds, refer to **ark.intel.com**. DDR5 top speed is enabled with specific DIMMs, other DIMMs may operate with one-speed bin lower and different SAGV points. (1 SPC,1 DPC, 1R).

8. Performance varies by use, configuration, and other factors. Learn more at **www.Intel.com/PerformanceIndex**.

9. Intel® Core™ Ultra Processors enable Intel® Intelligent Display capabilities. System requirements must include a compatible TCON and display panel. Some features require vision inputs.

Frequently Asked Questions (FAQ)

Q: How do I check the processor cores and threads on my system?
A: You can check the processor cores and threads in the system settings or by using third-party software designed for monitoring hardware components.

Q: What is the recommended maximum memory capacity for optimal performance?
A: The recommended maximum memory capacity is 64 GB for LPDDR5 and 96 GB for DDR5 to ensure optimal performance and efficiency.

Q: How can I update the maximum turbo power settings for the processor?
A: Updating the maximum turbo power settings for the processor may require accessing the system BIOS or using specific software provided by the manufacturer to adjust power settings.

Documents / Resources

intel Phase 2 Core Ultra Processors [pdf] User Guide
Phase 2 Core Ultra Processors, Phase 2, Core Ultra Processors, Ultra Processors, Processors

References

- **intel Overview - 2 | Performance Index**
- **User Manual**