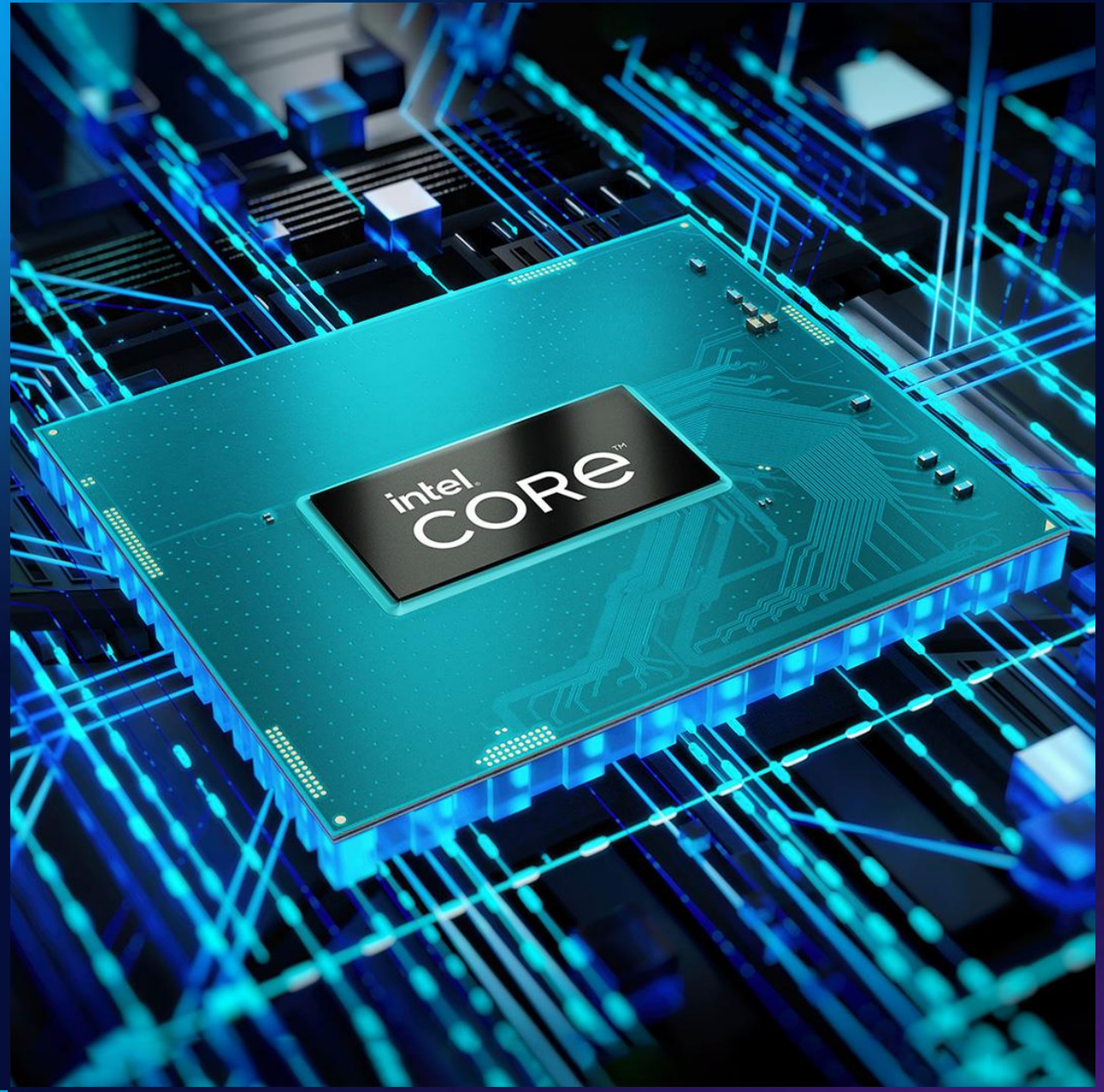

12th Gen Intel® Core™ HX Processors

May 10, 2022

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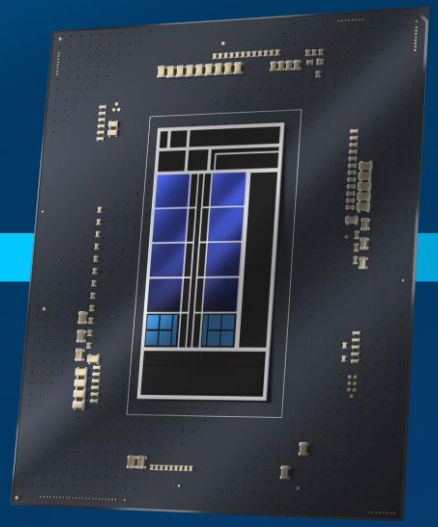
Expanding

12th Gen Intel Core Mobile Processor Family

H-series
Enthusiast

55W



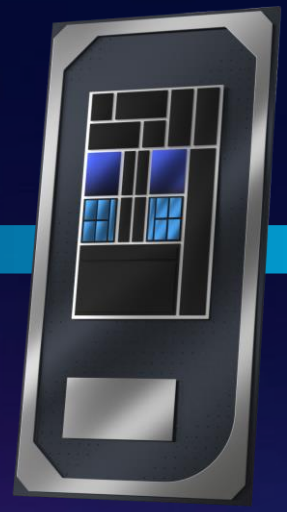
45W

P-series
Performance Thin & Light

28W

U-series
Modern Thin & Light

15W



9W

Scalable Architecture For All Laptop Segments

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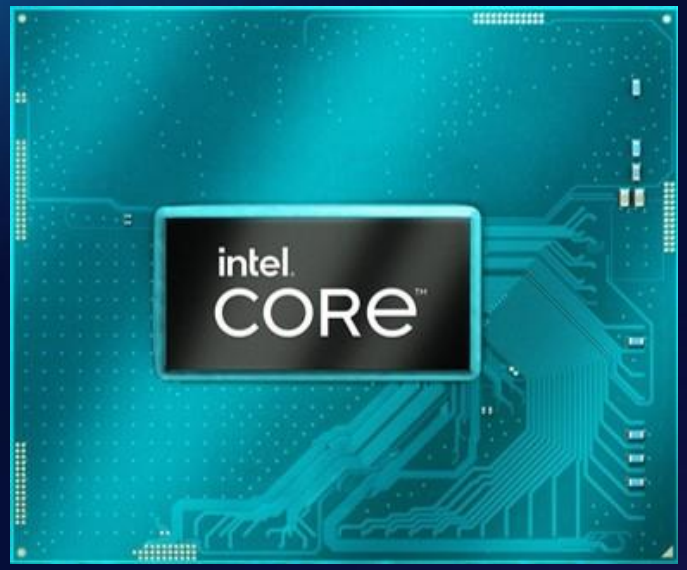
Introducing

12th Gen Intel® Core™ HX Processors



Unrivaled Mobile Performance [1]

World's Best Mobile Workstation Platform [2]

Built for Engineers, Scientists & Enthusiasts

1 – Source: Intel. Based on performance estimated with measurements on 12th Gen Intel Core i9-12900HX with RTX 3080Ti against Intel Core i9-11980HK with RTX 3080, Intel Core i9-12900HK with RTX 3080Ti, AMD Ryzen 9 6900HX with RTX 3060, AMD Ryzen 9 6900HS with Radeon 6700S, Intel Core i7-12700H with RTX 3050Ti and Apple M1 Max MacBook Pro with 32 core integrated GPU. Best available compilers selected for all processors. Binaries compiled with ICC for Intel/AMD, binaries compiled with Xcode 13.1 for Apple. The metric used is the geometric mean of C/C++ integer benchmarks in SPEC*int_rate_base2017 2021.2 LLVM (1-copy) and SPEC*int_rate_base2017 2021.2 LLVM (n-copy).

2 - Source Intel: Based on unique features and estimates derived from SPECworkstation™ v3.1 CPU Scores: Media and Entertainment, product development, life sciences, financial services and energy measurements on 12th Gen Intel Core i9-12900HX with RTX 3080ti vs 11th Gen Intel Core i9-11980HK with RTX 3080 , vs 12th Gen Intel Core i9 12900HK with RTX 3080Ti and AMD Ryzen R9 6900HX with RTX 3060. OS:Win 11

For all workload and configuration details, see www.intel.com/PerformanceIndex. Results may vary.

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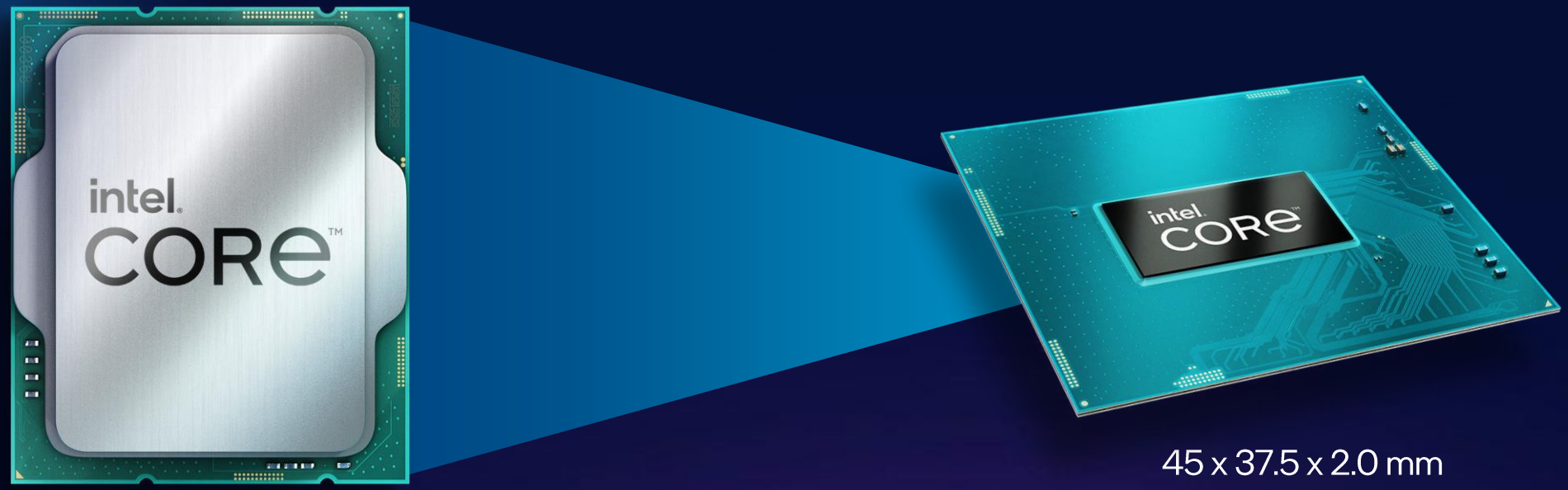
12th Gen Intel Core HX Processors

Desktop-caliber technology in a mobile package



45 x 37.5 x 4.4mm
LGA package

45 x 37.5 x 2.0 mm
BGA package

for the world's most advanced mobile workstations

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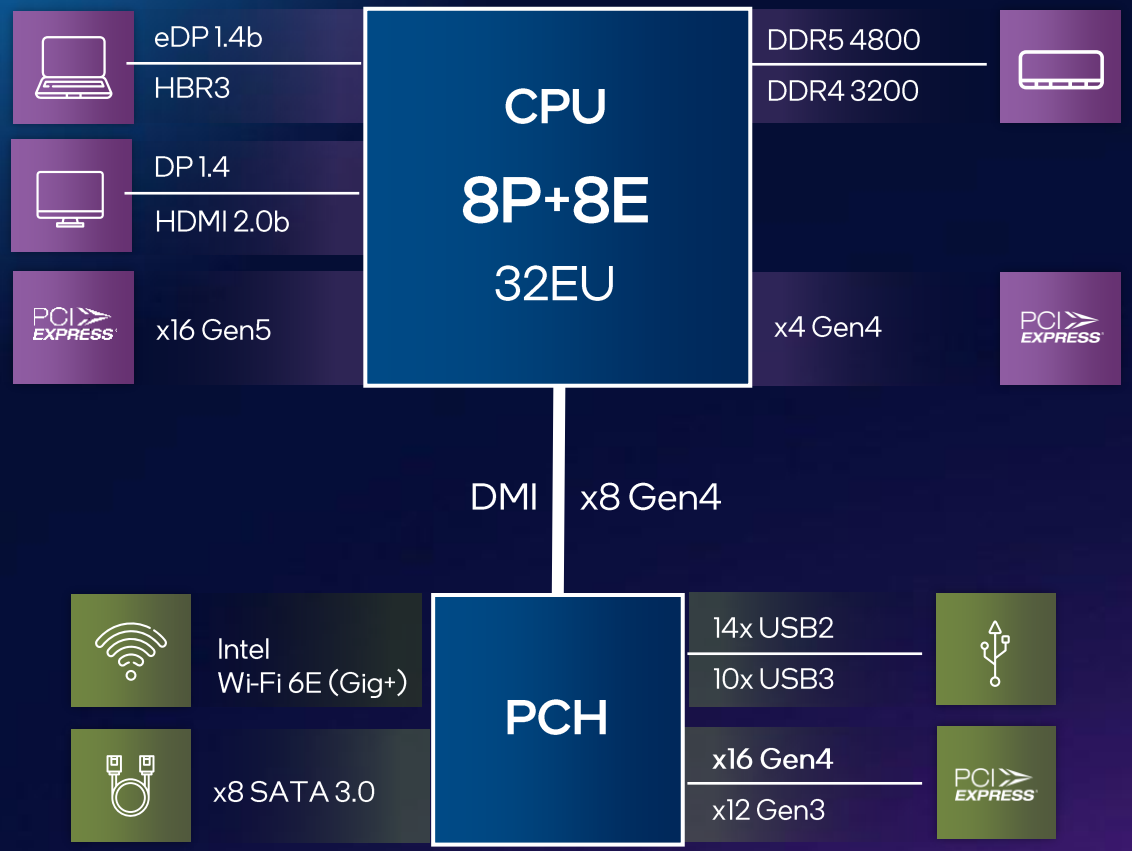
Key Features

12th Gen Intel® Core™ HX Platform



New Core Architecture

- Up to 16-core: 8 P-cores + 8 E-cores
- Intel® Thread Director
- Overclocking support on all SKUs

Broad Memory Support

- Support for DDR4-3200 and DDR5-4800
- Up to 128GB (4 DIMM, 2DPC)
- Error Correcting Code (ECC)*

Advanced PCI Express

- Support for PCIe Gen5 (x16 or 2x8)
- Up to 4x SSDs
- Up to 2x discrete Thunderbolt Controllers

*Optional Error Correcting Code (ECC) Memory only on select SKUs

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For engineers, data scientists, and other in-field professionals

Intel-based Mobile Workstation

Pro Performance

- 12th Gen Intel® Core™ HX Processors – up to 16-core
- Support for DDR5 2DPC – up to 128GB
- PCIe Gen5 – up to 2X faster

Data Integrity

- Error Correcting Code (ECC) memory*
- RAID 1, 0, and 5 for data redundancy or speed

Certified Software

- Ensuring stability and compatibility with applications such as AutoCAD, Revit, and Premier Pro through OEM platform certifications

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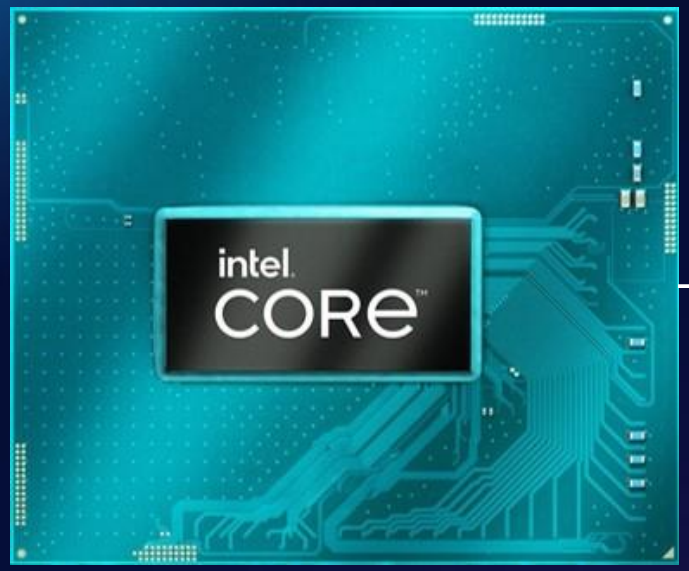
*Error Correcting Code (ECC) Memory only on select SKUs

12th Gen Intel Core HX Processors

Built for Computing with Large Datasets



Extreme Storage

- 48 total lanes PCIe: x16 Gen5 + x20 Gen4 + x12 Gen3
- Up to 4 SSDs for 16TB local storage

Advanced Memory

- Support for DDR5 2DPC – up 128GB
- ECC support for enhanced data integrity*

Fastest Connectivity

- Up to 2x discrete Thunderbolt™ 4 Controllers
- Up to 40Gbps each with full display mux

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At 40 Gps, Thunderbolt™ 4 delivers the best—the fastest, simplest and most reliable—cable solution. See www.intel.com/PerformanceIndex (connectivity) for details. Results may vary.

*Error Correcting Code (ECC) Memory only on select SKUs

12th Gen Intel Core HX Processors

Unrivaled Mobile Performance [1]

Single Thread Performance

SPECint*_rate_base2017 IC 2021.2 (1-copy estimated)

Multi Thread Performance

SPECint*_rate_base2017 IC 2021.2 (n-copy estimated)

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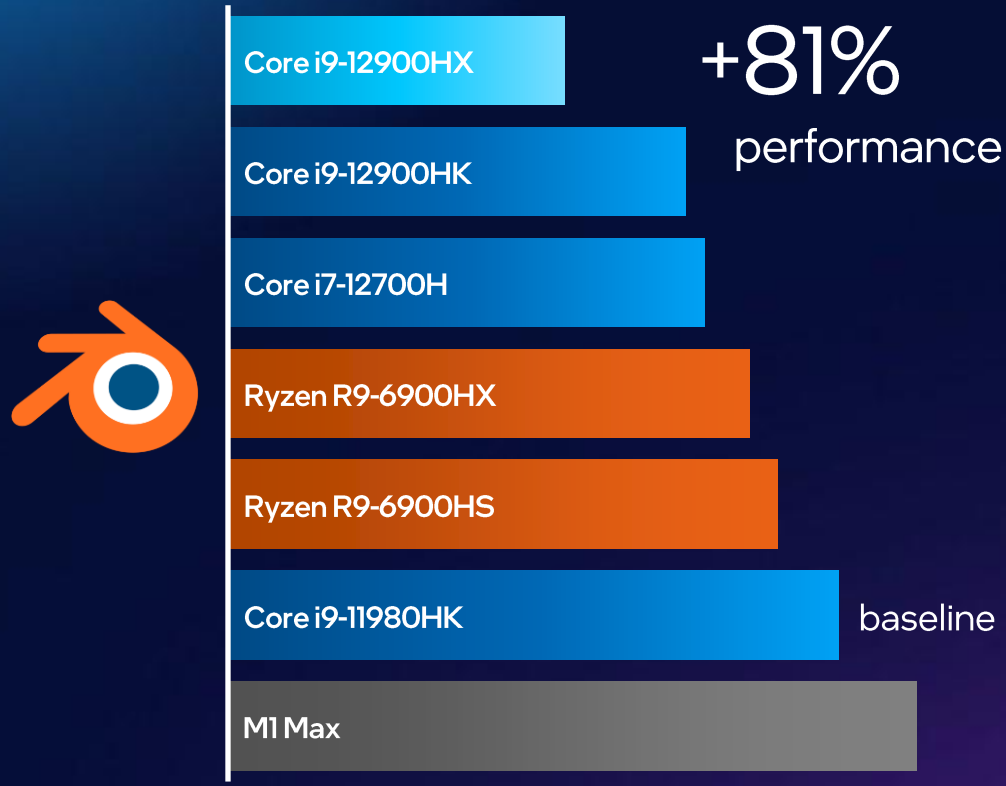
For all workload and configuration details, see www.intel.com/PerformanceIndex. Results may vary.

12th Gen Intel Core HX Processors

Unrivaled Mobile Performance [1]

3D Rendering Performance

Blender 3.12 – Car Demo – Time (lower is better)



CrossMark Performance

Creativity Scenario (higher is better)

For all workload and configuration including Blender & CrossMark details, see www.intel.com/PerformanceIndex. Results may vary.

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Professional-Grade Performance

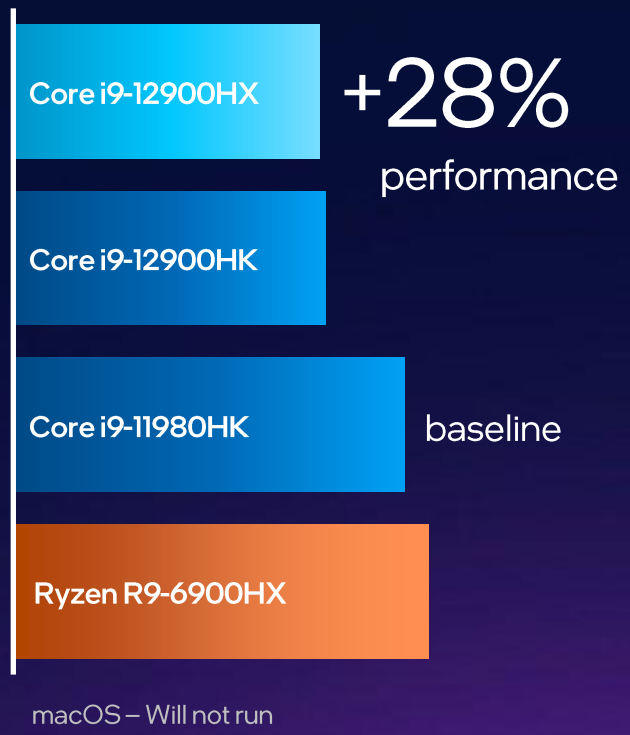
AUTODESK AutoCAD

Cadalyst - Total Index

macOS – Will not run

AUTODESK Revit

Model Creation – Total Score in Time (lower is better)



macOS – Will not run

AUTODESK Inventor

InvMark – Overall Score(higher is better)

macOS – Will not run

Core i9 12900HX
MSI GT77 Titan* with RTX* 3080Ti, @175W

Core i9 12900HK
MSI GE76 Raider* with RTX* 3080Ti, @175W TDP

Core i9 11980HK
MSI GE76 Raider* with RTX* 3080, @165W TDP

Ryzen 9 6900HX
ASUS ROG G713* with RTX* 3060, @140W TDP

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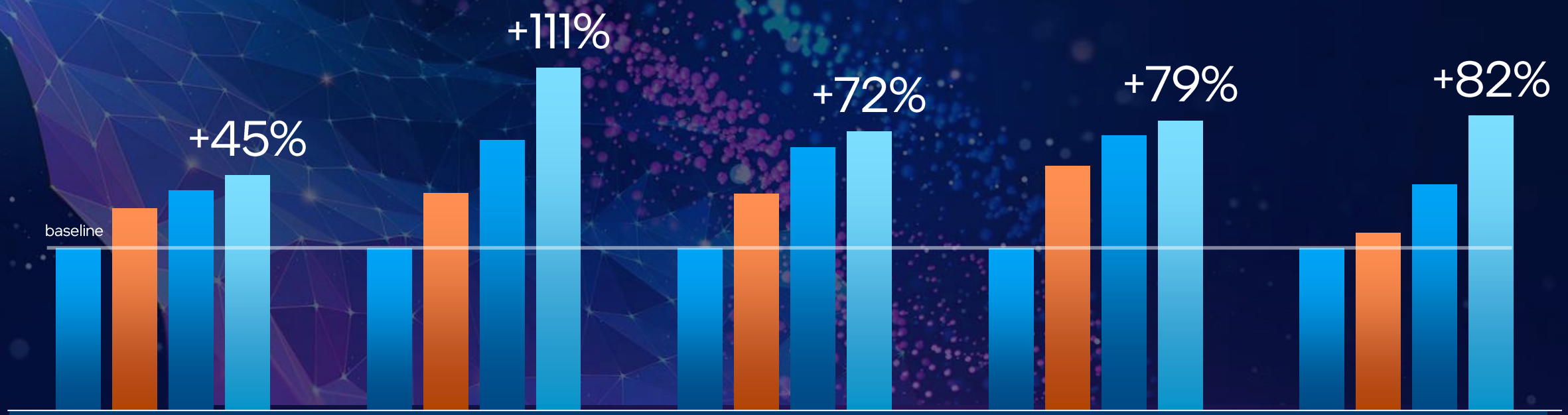
Measured on best available configurations at time of testing. Specific system features and thermal capabilities vary. For workload and configuration details, see www.intel.com/PerformanceIndex. Results may vary.

12th Gen Intel Core HX Processors

Professional-Grade Performance

SPECworkstation* 3.1 – CPU tests only

Core i9-11980HK Ryzen R9-6900HX Core i9-12900HK Core i9-12900HX **macOS:** SPECworkstation not supported



Media & Entertainment	Product Development	Life Sciences	Financial Services	Energy
Blender	Rodinia	LAMMPS	Monte Carlo	FFTW
Handbrake	WPCcfd	NAMD	Black-Scholes	Convolution
Lux Render	CalculiX	Rodinia	Binomial Options	SRMP
				Kirchhoff Migration
				Poisson

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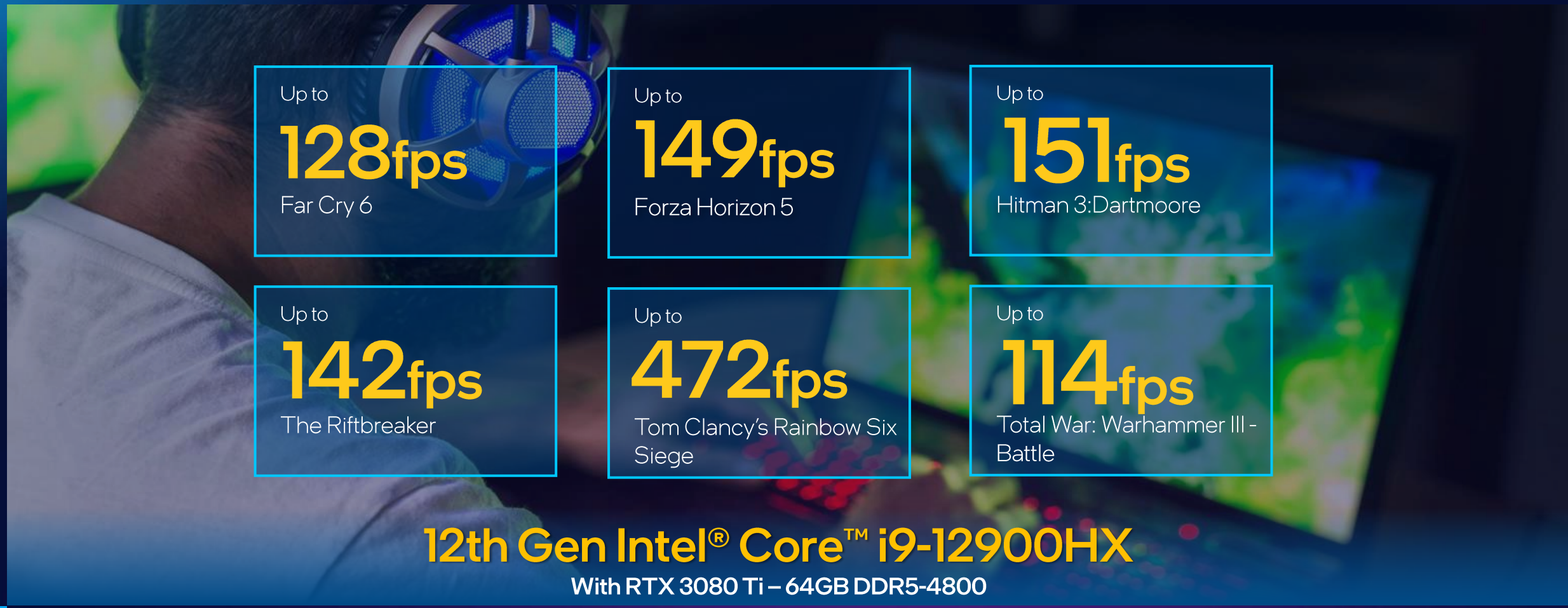
Measured on best available configurations at time of testing. Specific system features and thermal capabilities vary. For workload and configuration details, see www.intel.com/PerformanceIndex. Results may vary.

12th Gen Intel Core HX Processors

Incredible Mobile Gaming Performance



12th Gen Intel® Core™ i9-12900HX

With RTX 3080 Ti – 64GB DDR5-4800

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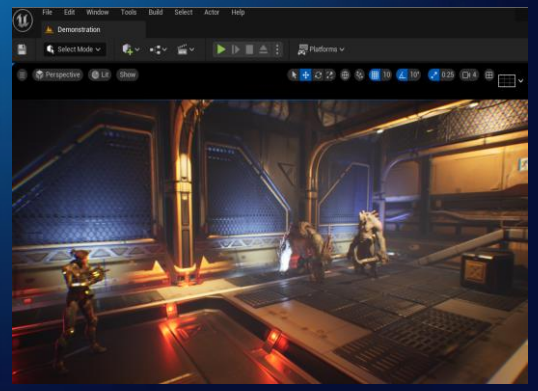
For workload and configuration details, see www.intel.com/PerformanceIndex. Results may vary. Framerates reported as averages.

12th Gen Intel Core HX Processors

Powerful Multitasking for Creative Professionals



Foreground

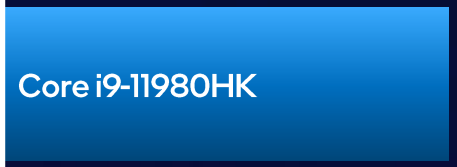
Unreal Engine 5.0

Update Texture and Bake Lights for the Scene

Update the blend mode of a character's texture, then build the lighting in the scene for a visual check.

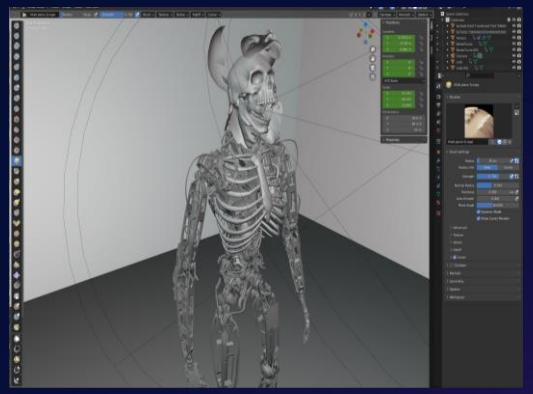
>4X faster

79% less time



baseline

+



Background

CPU 3D Render

Local CPU video render of a game asset for team assessment and approval.

1.7X faster

41% less time

baseline

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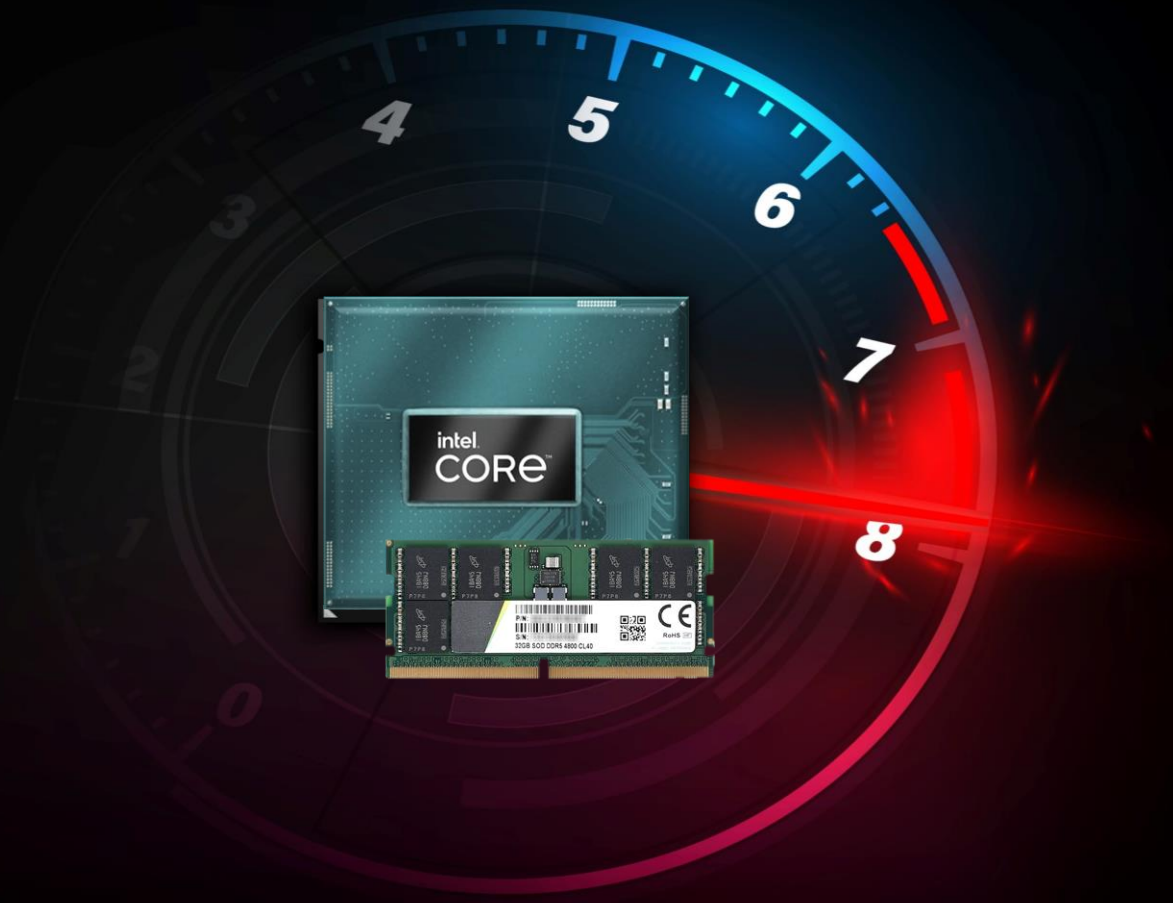
For workload and configuration details, see www.intel.com/PerformanceIndex. Results may vary.

- Core i9 12900HX
  MSI GT77 Titan* with RTX* 3080Ti, @ 175W
- Core i9 11980HK
  MSI GE76 Raider* with RTX* 3080, @165W

12th Gen Intel Core HX Processors

Memory & Core Overclocking



Memory Overclocking

DDR5 Overclocking, in addition to DDR4

Intel® XMP 3.0 support for DDR5

New Intel® Dynamic Memory Boost feature

Core Overclocking

New Efficient-core overclocking

Updated Intel® Speed Optimizer

Enhanced Intel® Extreme Tuning Utility

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12th Gen Intel Core HX Processors

Mobile Workstation and Gaming Laptops

Omen 17

ROG Strix Scar 17 SE

ExpertBook B6

Precision 7670/7770

HX

GIGABYTE™

Aorus 17X/15X

Lenovo

Legion 7i

msi

GT77 Titan

GE77/67 Raider

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...And More to Come

For Mobile Workstations and Gaming Laptops

12th Gen Intel® Core™ HX Processors

	Processor Number	Processor Cores	Processor Threads	Performance Cores	Efficient Cores	L3 Cache	Max Turbo Frequency P-cores	Max Turbo Frequency E-cores	Base Frequency P-cores	Base Frequency E-cores	Processor Graphics	Max Graphics Frequency	Processor Base Power	Max Turbo Power	Intel vPro®	ECC	Over Clock
intel CORE i9	i9-12950HX	16C	24T	8P	8E	30 MB	5.0 GHz	3.6 GHz	2.3 GHz	1.7 GHz	32 EU	1.55 GHz	55 W	157 W	Eligible	Yes	◓
	i9-12900HX	16C	24T	8P	8E	30 MB	5.0 GHz	3.6 GHz	2.3 GHz	1.7 GHz	32 EU	1.55 GHz	55 W	157 W			●
intel CORE i7	i7-12850HX	16C	24T	8P	8E	25 MB	4.8 GHz	3.4 GHz	2.1 GHz	1.5 GHz	32 EU	1.45 GHz	55 W	157 W	Eligible	Yes	◓
	i7-12800HX	16C	24T	8P	8E	25 MB	4.8 GHz	3.4 GHz	2.0 GHz	1.5 GHz	32 EU	1.45 GHz	55 W	157 W			●
	i7-12650HX	14C	20T	6P	8E	24 MB	4.7 GHz	3.3 GHz	2.0 GHz	1.5 GHz	32 EU	1.45 GHz	55 W	157 W			◓
intel CORE i5	i5-12600HX	12C	16T	4P	8E	18 MB	4.6 GHz	3.3 GHz	2.5 GHz	1.8 GHz	32 EU	1.35 GHz	55 W	157 W	Eligible	Yes	◓
	i5-12450HX	8C	12T	4P	4E	12 MB	4.4 GHz	3.1 GHz	2.4 GHz	1.8 GHz	16 EU	1.30 GHz	55 W	157 W			◓

Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.
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. Max Turbo Frequency for P-cores may include Intel Turbo Boost Max 3.0.
All SKUs listed above support up to DDR5 (4800 MT/S)/DDR4 (3200 MT/S) memory.
See ark.intel.com for more specification details

● Full Memory, Unlimited Core OC

◓ Full Memory, Limited Core OC

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Notice and Disclaimers

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

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See configuration disclosure for details. No product or component can be absolutely secure. Your costs and results may vary.

Intel technologies may require enabled hardware, software or service activation.
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.

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Thank You

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