

Intel Core i7-13700K Overview

General Description

The Intel Core i7-13700K is a 13th-generation Raptor Lake desktop processor launched in September 2022. It features high-performance and energy-efficient cores, ideal for multitasking, gaming, and content creation.

Processor Architecture & Specs

- Cores / Threads: 16 (8 P-cores + 8 E-cores) / 24 threads
- P-core base / boost freq: 3.4 GHz / up to 5.4 GHz
- E-core base / boost freq: 2.5 GHz / up to 4.2 GHz
- Cache: 30 MB L3
- TDP / PL2: 125 W / up to 253 W
- Process node: Intel 10 nm ("Intel 7")
- Socket: LGA-1700

Instruction Sets & Features

SSE4.1/4.2, AVX2, AES-NI, Hyper-Threading, Turbo Boost, Thread Director, Speed Shift, EIST, vPro

Intel Core i7-13700K Memory, I/O & Graphics

Memory Support

- Dual-channel DDR4-3200 / DDR5-5600
- Max supported RAM: 128 GB-192 GB
- Memory bandwidth: ~89.6 GB/s

Integrated Graphics: Intel UHD Graphics 770

- 32 Execution Units, up to 1.6 GHz
- DirectX 12, OpenGL 4.5, 4 displays
- Max resolution: 7680 × 4320 @ 60 Hz

Platform PCIe Support

- PCIe 5.0 (20 lanes), 4 lanes from chipset

Benchmark Highlights

- Cinebench R23: ~30,700 pts
- Geekbench 6: ~17,000 multi-core

NVIDIA GeForce RTX 4090 Specifications

General Information

- Architecture: ADA Lovelace, 5nm
- Launch date: Sept 2022
- MSRP: \$1,599

Core Configuration

- CUDA cores: 16,384
- Tensor cores: 512, RT cores: 128
- TMUs: 512; ROPs: 176
- Transistors: 76.3B; Die: ~609mm²

Clock & Memory

- Base/Boost: 2235/2520 MHz
- 24 GB GDDR6X, 384-bit, ~1000 GB/s

Power & Dimensions

- TDP: 450 W, PSU: 850 W
- Size: ~304 × 137 × 61 mm

Feature Set

- DirectX 12 Ultimate, Vulkan 1.3, OpenGL 4.6
- NVENC, NVDEC, AV1 support
- G-SYNC, HDCP 2.3, 4 displays

Performance

- FP32 peak: ~82.6 TFLOPS

- Ideal for 4K gaming and AI