**NVIDIA.**

# NVIDIA RTX 4000 SFF Ada Generation

## Power for endless possibilities.

The NVIDIA RTX™ 4000 SFF Ada Generation packs a powerful punch, delivering full-size performance in a compact form factor. Designed for professionals who demand performance but without the footprint of full-sized workstations to achieve outstanding results across industries. The RTX 4000 SFF provides excellent performance and capabilities essential for design, real-time rendering, AI, and high-performance compute workflows in a small form factor.
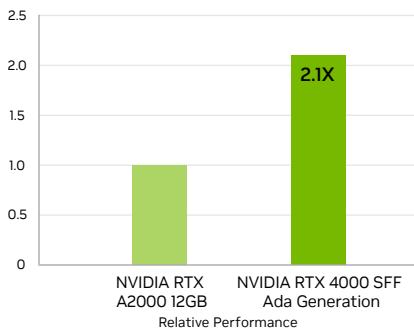
Built on the NVIDIA Ada Lovelace architecture, the RTX 4000 SFF combines 48 third-generation RT Cores, 192 fourth-generation Tensor Cores, and 6,144 CUDA® cores with 20GB of error correction code (ECC) graphics memory. The RTX 4000 SFF delivers incredible acceleration for rendering, AI, graphics, and compute workloads.

NVIDIA RTX professional graphics cards are certified with a broad range of professional applications, tested by leading independent software vendors (ISVs) and workstation manufacturers, and backed by a global team of support specialists. Get the peace of mind to focus on what matters with the premier visual computing solution for mission-critical business.
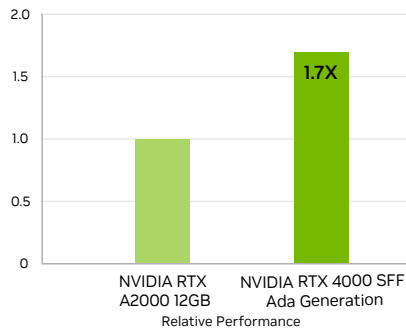
## Key Features

> Four mini DisplayPort 1.4a

> AV1 encode and decode support

> DisplayPort with audio

> NVIDIA Quadro® Sync II[1] compatibility

> 3D stereo support with stereo connector

> NVIDIA GPUDirect® for Video support

> NVIDIA GPUDirect Remote Direct Memory Access (RDMA) support

> NVIDIA RTX Experience™

> NVIDIA RTX Desktop Manager software

> NVIDIA RTX IO support

> HDCP 2.2 support

> NVIDIA Mosaic[2] technology

**Graphics**

Bar chart — Relative Performance. NVIDIA RTX A2000 12GB: 1.0. NVIDIA RTX 4000 SFF Ada Generation: 2.1X.
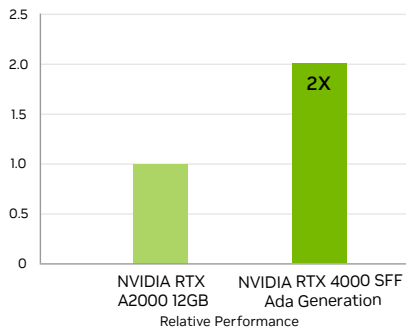
Tests run on an Intel® Core™ i9-12900K Processor @ 3.20GHz (5.20GHz Turbo), 64GB RAM, Windows 11 Enterprise x64, SPECviewperf 2020, NVIDIA Driver 528.35. Relative speedup for 4K energy composite score.

**CAD**

Bar chart — Relative Performance. NVIDIA RTX A2000 12GB: 1.0. NVIDIA RTX 4000 SFF Ada Generation: 1.7X.
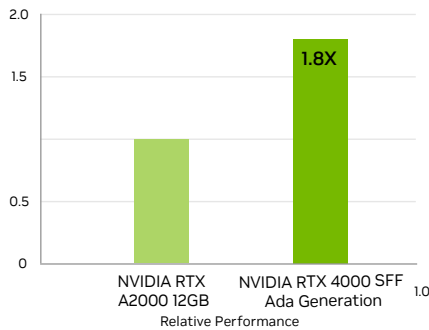
Tests run on an Intel® Core™ i9-12900K Processor @ 3.20GHz (5.20GHz Turbo), 64GB RAM, Windows 11 Enterprise x64, SPECviewperf 2020, CATIA v6, NVIDIA Driver 528.35. Relative speedup for 4K Siemens NX composite score.

## Rendering

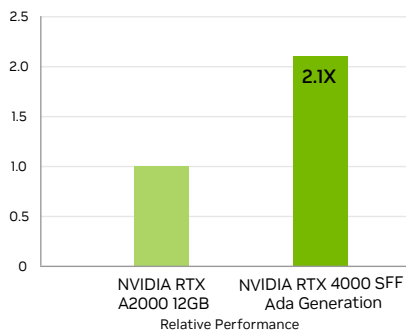| | |
|---|---|
| NVIDIA RTX A2000 12GB | 1.0 |
| NVIDIA RTX 4000 SFF Ada Generation | 2X |

Relative Performance

Tests run on an Intel® Core™ i9-12900K Processor @ 3.20GHz (5.20GHz Turbo), 64GB RAM, Windows 11 Enterprise x64, NVIDIA Driver 528.35. Relative speedup of Arnold render test score.

## AI Inferencing

| | |
|---|---|
| NVIDIA RTX A2000 12GB | 1.0 |
| NVIDIA RTX 4000 SFF Ada Generation | 1.8X |

Relative Performance

Tests run on an Intel® Core™ i9-12900K Processor @ 3.20GHz (5.20GHz Turbo), 64GB RAM, Windows 11 Enterprise x64, TensorRT 8.5, NVIDIA Driver 525.85. Relative speedup of ResNet-50 Inference mixed precision test score.

## High-Performance Computing

| | |
|---|---|
| NVIDIA RTX A2000 12GB | 1.0 |
| NVIDIA RTX 4000 SFF Ada Generation | 2.1X |

Relative Performance

Tests run on an Intel® Core™ i9-12900K Processor @ 3.20GHz (5.20GHz Turbo), 64GB RAM, Windows 11 Enterprise x64, LAMMPS, NVIDIA Driver 525.85. Relative speedup of Atomic Fluid Lennard-Jones 2.5 FP64 precision test score.

## Specifications

| Specifications | |
|---|---|
| GPU memory | 20GB GDDR6 |
| Memory interface | 160-bit |
| Memory bandwidth | 320 GB/s |
| Error correcting code | Yes |
| NVIDIA Ada Lovelace architecture-based CUDA Cores | 6,144 |
| NVIDIA fourth-generation Tensor Cores | 192 |
| NVIDIA third-generation RT Cores | 48 |
| Single-precision performance | 19.2 TFLOPS[3] |
| RT Core performance | 44.3 TFLOPS[3] |
| Tensor performance | 306.8 TFLOPS[4] |
| System interface | PCIe 4.0 x 16 |
| Power consumption | Total board power: 70 W |
| Thermal solution | Active |
| Form factor | 2.7" H x 6.6" L, dual slot |
| Display connectors | 4x Mini DisplayPort 1.4a |
| Maximum simultaneous displays | > 4x 4096 x 2160 @ 120 Hz<br>> 4x 5120 x 2880 @ 60 Hz<br>> 2x 7680 x 4320 @ 60 Hz |
| Encode/decode engines | 2x encode, 2x decode (+AV1 encode and decode) |
| VR ready | Yes |
| vGPU software support | No |
| Graphics APIs | DirectX 12, Shader Model 6.6, OpenGL 4.6[5], Vulkan 1.3[5] |
| Compute APIs | CUDA 11.6, OpenCL 3.0, DirectCompute |
| NVIDIA NVLink® | No |

# Ready to Get Started?

To learn more about the RTX 4000 SFF, visit:
**nvidia.com/rtx-4000-sff**

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