

General Specifications	
Name	AMD Ryzen™ 9 9950X3D
Family	Ryzen
Series	Ryzen 9000 Series
Form Factor	Desktops, Boxed Processor
Market Segment	Enthusiast Desktop
AMD PRO Technologies	No
Regional Availability	Global
Former Codename	Granite Ridge AM5
Processor Architecture	Zen 5
# of CPU Cores	16
Multithreading (SMT)	Yes
# of Threads	32
Max. Boost Clock [1]	Up to 5.7 GHz
Base Clock [2]	4.3 GHz
L1 Cache	1280 KB
L2 Cache	16 MB
L3 Cache	128 MB
Default TDP	170W
Processor Technology for CPU Cores	TSMC 4nm FinFET
Processor Technology for I/O Die	TSMC 6nm FinFET
Package Die Count	3
Unlocked for Overclocking [3]	Yes
AMD EXPO™ Memory Overclocking Technology	Yes
Precision Boost Overdrive	Yes
Curve Optimizer Voltage Offsets	Yes
AMD Ryzen™ Master Support	Yes
CPU Socket	AM5
Supporting Chipsets	A620 , X670E , X670 , B650E , B650 , X870E , X870 , B840 , B850
CPU Boost Technology	Precision Boost 2
Instruction Set	x86-64
Supported Extensions	AES , AVX512 , AVX2 , AVX , FMA3 , MMX-plus , SSE2 , SSE4.2 , SSE4A , SSE4.1 , SSE3 , SSSE3 , SSE , x86-64
Thermal Solution (PIB)	Not Included
Recommended Cooler	Liquid cooler recommended for optimal performance
Max. Operating Temperature (Tjmax)	95°C
Launch Date	03/12/2025
*OS Support	Windows 11 - 64-Bit Edition , Windows 10 - 64-Bit Edition , RHEL x86 64-Bit , Ubuntu x86 64-Bit

[1] Max boost for AMD processors is the maximum frequency achievable by a single core on the processor running a bursty single-threaded workload. Max boost will vary based on several factors, including, but not limited to: thermal paste; system cooling; motherboard design and BIOS; the latest AMD chipset driver; and the latest OS updates. GD-150.

[2] Represents the average effective base frequency of all cores.

[3] AMD's product warranty does not cover damages caused by overclocking, even when overclocking is enabled via AMD hardware and/or software. GD-26.

Connectivity	
Native USB 3.2 Gen 2 (10Gbps)	4
Native USB 2.0 (480Mbps)	1
PCI Express® Version	PCIe® 5.0
Native PCIe® Lanes (Total/Usable)	28 , 24
NVMe Support	Boot , RAID0 , RAID1 , RAID5 , RAID10
System Memory Type	DDR5
Memory Channels	2
Max. Memory	192 GB
System Memory Subtype	UDIMM
Max Memory Speed	2x1R DDR5-5600 2x2R DDR5-5600 4x1R DDR5-3600 4x2R DDR5-3600
ECC Support	Yes (Requires mobo support)

Graphics Capabilities	
Graphics Model	AMD Radeon™ Graphics
Graphics Core Count	2
Graphics Frequency	2200 MHz
USB Type-C® DisplayPort™ Alternate Mode	Yes

Product IDs	
Product ID Boxed	100-100000719WOF
Product ID Tray	100-000000719

Key Features	
Supported Technologies	AMD EXPO™ Technology , AMD Ryzen™ Technologies

