AMD RYZEN™ 3000 AND 5000 SERIES PROCESSORS

AMD RYZEN PERFORMANCE FOR DEDICATED HOSTING SERVERS

AT A GLANCE

AMD Ryzen™ 3000 and 5000 series processors are a perfect match for dedicated hosting environments. AMD Ryzen processor–powered servers offer high clock speeds, high core counts, and power efficiency that can accelerate time to profit for hosters. End customers enjoy high performance and low latency for e-commerce, code-development, cloud gaming, content-creation, and virtual private server (VPS) workloads.

LEADERSHIP PERFORMANCE

High core counts and frequencies open the door to high performance

Dedicated hosting customers rely on high performance to get the job done. And AMD Ryzen processors deliver. These processors offer up to 16 high-performance cores for powerful parallel processing. High frequencies of up to 4.9GHz help to ensure low-latency responses for applications like cloud gaming.[1] High-speed input/output (I/O) enables fast storage.

SERVER-GRADE PLATFORMS

Error correcting code (ECC) and baseboard management controller (BMC) capabilities for 24/7 operations

AMD Ryzen processors provide support for an ECC-enabled memory subsystem that can automatically correct data errors to protect your customers' systems from potential crashes or inadvertent changes to data. Customers can remotely manage servers with BMC and iKVM (remote control capabilities for keyboard, video, and mouse). Both standard and density-optimized rackmount platform options are available from ASRock® Rack and GIGABYTE™ Technology.

LOW TOTAL COST OF OWNERSHIP (TCO)

Low infrastructure costs help hosters monetize assets faster

AMD Ryzen processors help enable a low-cost infrastructure for outstanding performance-per-dollar. An innovative chiplet processor design helps improve efficiency, which, in turn, can lower operating expenses (OPEX) and accelerate the time to profit of your dedicated server offerings.

SMALL FOOTPRINT

Power-efficient servers optimize hoster rack space

Based on the same advanced architecture as AMD EPYC™ server processors, AMD Ryzen processors offer endless possibilities. Processor thermal design power (TDP) as low as 65W helps to reduce power usage, support sustainability efforts, and optimize rack utilization.

BUILT-IN SECURITY FEATURES

A modern, multi-layered approach helps protect sensitive data

Dedicated hosting customers can benefit from the security capabilities that come from the integrated AMD Secure Processor, an AES-128 encryption key for enhanced memory protection, and NIST SP 800-90 compliance.

AMD RYZEN™ 3000 AND 5000 SERIES PROCESSORS

MODEL	OPN	CORES/ THREADS	BASE FREQ. (GHZ)	UP TO MAX. BOOST FREQ. (GHZ)[1]	TDP (W)	PCIe® SUPPORT[2]	L3 CACHE (MB)
AMD Ryzen 9 5950X	100-000000059A	16/32	3.4	4.9	105	Gen 4	64
AMD Ryzen 9 5900X	100-000000061A	12/24	3.7	4.8	105	Gen 4	64
AMD Ryzen 7 5800X	100-000000063A	8/16	3.8	4.7	105	Gen 4	32
AMD Ryzen™ 7 5700X	100-000000926A	8/16	3.4	4.6	65	Gen 4	32
AMD Ryzen 5 5600X	100-000000065A	6/12	3.7	4.6	65	Gen 4	32
AMD Ryzen 5 5600	100-000000927A	6/12	3.5	4.4	65	Gen 4	32
AMD Ryzen 5 5500	100-0000000457A	6/12	3.6	4.2	65	Gen 4	16
AMD Ryzen 9 3950X	100-000000051A	16/32	3.5	4.7	105	Gen 4	64
AMD Ryzen 9 3900X	100-000000023A	12/24	3.8	4.6	105	Gen 4	64
AMD Ryzen 9 3900	100-000000070A	12/24	3.1	4.3	65	Gen 4	64
AMD Ryzen 9 PRO 3900	100-000000072A	12/24	3.1	4.3	65	Gen 4	64
AMD Ryzen 7 3800X	100-000000025A	8/16	3.9	4.5	105	Gen 4	32
AMD Ryzen 7 3700X	100-000000071A	8/16	3.6	4.4	65	Gen 4	32
AMD Ryzen 7 PRO 3700	100-000000073A	8/16	3.6	4.4	65	Gen 4	32
AMD Ryzen 5 3600X	100-000000022A	6/12	3.8	4.4	95	Gen 4	32
AMD Ryzen 5 3600	100-000000031A	6/12	3.6	4.2	65	Gen 4	32

RESOURCES

AMD Ryzen Solutions for Dedicated Hosting: www.amd.com/en/solutions/hosting
ASRock Rack Solutions using AMD Ryzen Processors: www.asrockrack.com/general/products.asp#AMD

FOOTNOTES

1. Maximum boost for AMD Ryzen processors is the maximum frequency achievable by a single core on the processor running a bursty single-threaded workload. Maximum 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. Learn more.
2. Specific PCIe generation and number of lanes on the AMD Ryzen™ processor–based platforms can vary depending on each motherboard design and chipset implementation.

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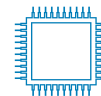# Engineered to Excel.
Designed to Impress.

STUNNING DESIGN

Starting at 3.9lbs, this 100% aluminum workstation is available in two colors, and is a sleek, compact design that fits a 15.6-inch InfinityEdge display into a 14-inch chassis. Experience better contrast ratios, touch support and picture quality with new IGZO 4 display options or our first OLED display. Also includes a backlit keyboard and an HD camera at the top of the display.

POWERFUL PERFORMANCE

Deliver the power for maximum performance for demanding professional software with 9th Gen Intel® Core™ and Xeon®, up to 8-core processors. Boost performance and your creative application's with next generation professional graphics, up to a NVIDIA Quadro T2000 (4GB).

AMAZING STORAGE AND COOLING

Access, transfer and store large 3D, video and multimedia files quickly and easily with up to 4TB of storage in this small, yet powerful mobile workstation. Accelerate heavy workflows with up to 64GB of 2666MHz memory. A revolutionary cooling system features dual fans for improved airflow to keep your system cool, while running at peak performance.

TESTED AND OPTIMIZED

Dell Precision Optimizer software comes on every Precision workstations and will tune your workstation to provide the best performance for the applications you use most. Optional Dell Precision Optimizer Premium is the only AI-based performance optimizer software in the industry to automatically adjust your workstation settings not only for the applications you use, but how you use them - truly customizing your system's performance for you. All Dell workstations are Independent Software Vendor (ISV) certified to ensure the high-performance applications you rely on every day run smoothly.

Recommended Accessories

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ON-THE-GO

DELL USB-C MOBILE ADAPTER DA300

Connect your Precision to almost any device with a convenient 6 -in-1 compact adapter, to collaborate from any location.

DELL PORTABLE THUNDERBOLT 3 SSD, 1TB

One of the world's fastest portable SSD storage devices, the Dell Portable Thunderbolt™ 3 SSD 512GB & 1TB versions let you backup or transfer all your large files at lightning fast speeds of 2800 MB/s.

TIMBUK2 - AUTHORITY FOR DELL - 15"

Designed specifically for Dell, the Timbuk2-Authority backpack is built to carry and protect everything you need for the workday. The internal organizer provides ample space for laptop accessories and any extra items you need to carry.

AT THE DESK

DELL THUNDERBOLT™ DOCK | WD19TB

Work at full speed with Dell's powerful Thunderbolt Dock. Charge your system faster, support up to three 4K displays and connect to your peripherals via a single cable.

DELL ULTRASHARP 27 MONITOR WITH PREMIER COLOR | U2718Q

The world's first 27" 4K monitor with InfinityEdge that supports HDR content playback.See stunning colors and details on a virtually borderless display

DELL PREMIER WIRELESS KEYBOARD AND MOUSE | KM717

Enhance productivity and enjoy its elegant design that will fit into virtually any workspace. For increased productivity you can simultaneously pair up to two compatible devices with Bluetooth LE.

CREATORS AND ENGINEERS

DELL CANVAS

Bring your ideas to life with the groundbreaking new workspace tool that uses an intuitive touch screen, pen and totem to enable natural digital creation.

3DCONNEXION SPACEMOUSE WIRELESS

3Dconnexion's patented 6-Degrees-of-Freedom (6DoF) sensor is specifically designed to manipulate digital content or camera positions in the industry-leading CAD applications. Simply push, pull, twist or tilt the 3Dconnexion controller cap to intuitively pan, zoom and rotate your 3D drawing.

X-RITE COLORIMETER i1DISPLAY PRO

The i1Display Pro ensures a perfectly calibrated and profiled display while delivering the speed, options and flexibility needed to maintain color accuracy.

Built for business

Dell Technologies Unified Workspace

Dell Technologies Unified Workspace is the most comprehensive solution to deploy, secure, manage and support virtually all devices from the cloud. We designed this revolutionary solution with intelligence and automation providing you with visibility across the entire endpoint environment. We help you save time, improve user experience, optimize resources and strenthen security.

DEPLOY

Our modern deployment solution, ProDeploy in the Unified Workspace allows you to revolutionize the way deployment gets done. By spending just one hour for set up , IT can then hand deployment to Dell and have preconfigured systems shipped directly to the end users--wherever they are.

SECURE

Dell Endpoint Security for the Unified Workspace helps you manage growing cyber risks while embracing workforce transformation. With Dell SafeGuard and Response powered by Secureworks, you gain actionable insight to help you quickly and efficiently prevent, detect and respond to cyber-attacks - keeping your environment free from harm.

MANAGE

We integrated our hardware management solution Dell Client Command Suite with VMware Workspace ONE, allowing you to take advantage of unified endpoint management (UEM) and manage the firmware, operating system and applications for all devices from the Workspace ONE console. UEM simplifies the management of the entire environment saving IT time from having to work between separate consoles for PCs and phones.

SUPPORT

ProSupport Plus continues to be the only predictive and proactive support in the market. When compared to key competitors, ProSupport Plus with SupportAssist reduced time to resolve a failed hard drive with up to 11x faster time to resolution[*]

*Based on a Principled Technologies test report, "Spend Less Time and Effort Troubleshooting Laptop Hardware Failures" dated April 2018. Testing ommissioned by Dell, conducted in the United States. Actual results will vary. Full report: http://facts.pt/L52XKM
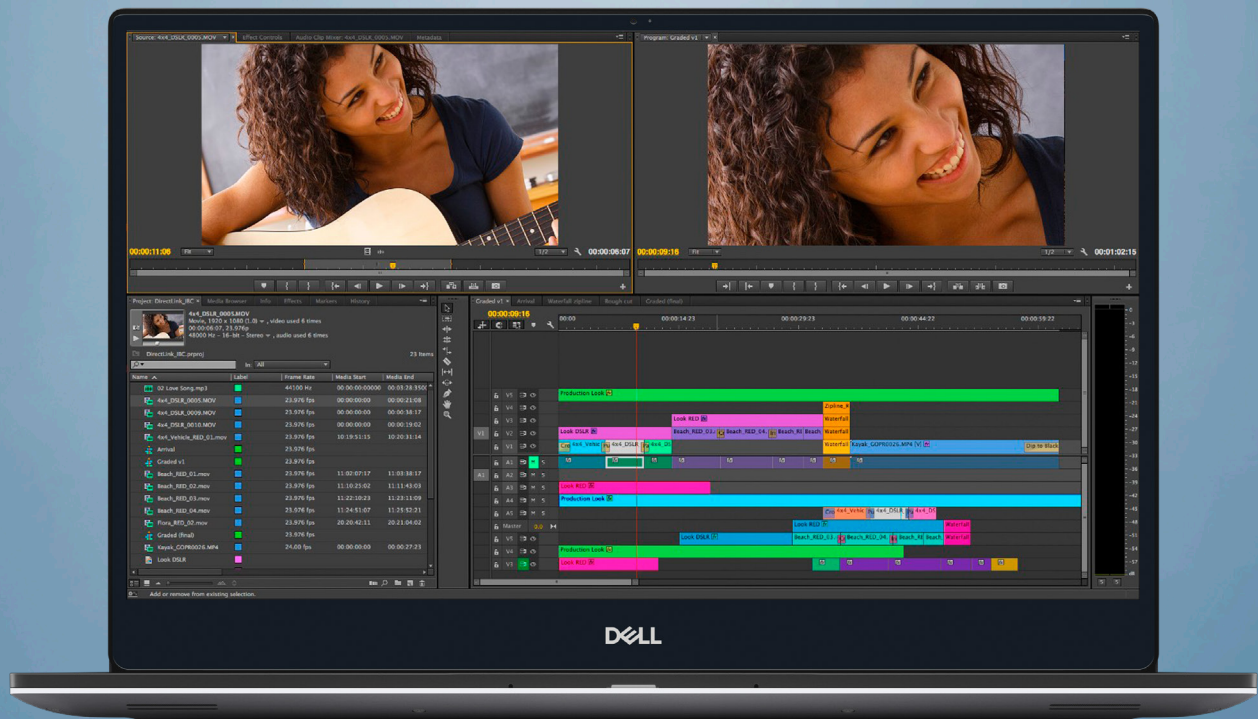
Features & Technical Specifications

Feature	Dell Precision 5540 Technical Specifications
Processor[1]	9th Generation Intel Processors, up to Xeon® and Core™ i9 Intel® Core™ Processor i9-9980HK, 8 Core, 16MB Cache, 2.40GHz up to 5.00GHz Turbo, 45W Intel® Core™ Processor i9-9880H, 8 Core, 16MB Cache, 2.30GHz up to 4.80GHz Turbo, 45W, vPro Intel® Xeon E-2276M, 6 Core Xeon, 12M Cache, 2.80GHz up to 4.70GHz Turbo, 45W, vPro Intel® Core™ Processor i7-9850H, 6 Core, 12M Cache, 2.60GHz up to 4.6GHz Turbo, 45W, vPro Intel® Core™ Processor i7-9750H, 6 Core, 12M Cache, 2.60GHz up to 4.5GHz Turbo, 45W Intel® Core™ Processor i5-9400H, 4 Core, 8M Cache, 2.50GHz up to 4.3GHz Turbo, 45W, vPro
Operating System[2]	Microsoft® Windows 10 Pro 64 bit Microsoft® Windows 10 Pro for Workstations 64 bit Microsoft® Windows 10 Home 64 bit Ubuntu 18.04 LTS 64-bit RedHat 8.0
Chipset	Intel Mobile CM246
Memory[3]	8 GB , 1x8 GB , DDR4 , 2666 MHz , Non-ECC SDRAM 16 GB , 2x8 GB , DDR4 , 2666 MHz , Non-ECC SDRAM 32 GB , 2x16 GB , DDR4 , 2666 MHz , Non-ECC SDRAM 64 GB , 2x32 GB , DDR4 , 2666 MHz , Non-ECC SDRAM
Graphics[3]	Intel® UHD Graphics P630 (on Xeon Onlly) Intel® UHD Graphics 630 NVIDIA Quadro® T1000 w/4GB GDDR5 NVIDIA Quadro® T2000 w/4GB GDDR5
Display Options	15.6", FHD, 1920 x 1280, Anti-Glare IPS, Non-touch, 100% sRGB color gamut 15.6", UHD, 3840 x 2160, IGZO, Touch, 100% Adobe color gamut 15.6", UHD, 3840 x 2160, OLED, Non-touch, 100% DCI-P3 color gamut, HDR 400
Storage Options[4]	Support for two storage devices: one M.2 PCIe NVMe solid state drive and one 2.5" HDD drive: Dell Fast Response Free Fall Sensor standard 2.5 in, 500 GB, 7200 RPM, SATA HDD FIPS 2.5 in, 500 GB, 7200 RPM, SATA HDD 2.5 in, 1 TB, 7200 RPM, SATA HDD 2.5 in, 2 TB, 5400 RPM, SATA HDD M.2 2280, 256 GB, PCIe, Class 40 SSD M.2 2280, 512 GB, PCIe, Class 40 SSD M.2 2280, 1 TB, PCIe, Class 40 SSD M.2 2280, 2 TB, PCIe, Class 40 SSD M.2 2280, 512 GB, PCIe, Class 40 SSD OPAL SED M.2 2280, 1 TB, PCIe, Class 40 SSD OPAL SED M.2 2280, 512 GB, PCIe, Class 50 SSD M.2 2280, 1 TB, PCIe, Class 50 SSD
Communication Options[5]	Qualcomm® QCA61x4A 802.11ac Dual Band (2x2) Wireless Adapter+ Bluetooth 4.2 Intel® Dual Band Wireless AC 9560 (802.11ac) 2x2 (No Bluetooth) Intel® Dual Band Wireless AC 9560 (802.11ac) 2x2 + Bluetooth 5.0 Intel® Wi-Fi 6 AX200 2x2 .11ax 160MHz + Bluetooth 5.0 Intel® Wi-Fi 6 AX200 2x2 .11ax 160MHz (No Bluetooth)
Multimedia	Dual integrated high quality speakers and dual integrated noise cancelling digital array microphones standard MaxxAudio® Pro by Waves Integrated light sensitive HD and IR video webcam
I/O Ports and Connectors	2 x USB 3.1 Gen 1 Ports w/Powershare Thunderbolt 3 type C port SD Card reader HDMI port 2.0 Headphone jack FingerPrint reader on power button (optional) Type C to Ethernet dongle

Feature	Dell Precision 5540 Technical Specifications
Security[6]	Intel® vPro™ Technology (iAMT 12) (optional, requires Intel WiFi® Link WLAN and a vPro compatible processor), Dell Client Command Suite available (dell.com/command), Factory Installed Dell Client Command | Update, Dell Command | Power Manager Intel® Platform Trust Technology Trusted Platform Module (TPM) 2.0 Chassis wedge-shaped security lock Support for Computrace and SmartCard Reader Touch Fingerprint Reader with Control Vault 3.0 (Advanced Authentication with FIPS 140-2 Level 3 Certification)
Dimensions	Width X = 14.06" (357.23mm) Depth Y = 9.27" (235.47mm) Height Z = front 0.45" (11.48mm) – rear 0.66" (16.82mm)
Chassis color	Aluminum Platinum Silver Aluminum Titan Gray
Battery	3 Cell, 56 Whr Lithium Ion Polymer, ExpressCharge™ Capable Battery 6 Cell, 97 Whr Lithium Ion Polymer, ExpressCharge™ Capable Battery
Weight[7]	1.78kg (3.93lb) with FHD non-touch panel and SSD
Power Adaptor	130 Watt AC adapter (4.5mm barrel)
Regulatory and Environmental Compliance[8]	Regulatory Model: TBA Regulatory Type: TBA ENERGY STAR EPEAT Registered. For specific country participation and rating, please see www.epeat.net BFR/PVC free9 Trade Agreements Acts(TAA) configurations available
TAA Configurations available	YES (Check regional availability)

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Create without limits.

PNY GEFORCE RTX™ 4060 8GB
VERTO Dual Fan Edition DLSS 3

NVIDIA Ada Lovelace Streaming Multiprocessors	**4th Generation Tensor Cores**
Up to 2x performance and power efficiency	Up to 4x performance with DLSS 3 vs. brute-force rendering

3rd Generation RT Cores
Up to 2x ray tracing performance

COLOSSAL PERFORMANCE AND SPEED

NVIDIA® GeForce RTX™ 40 Series GPUs are beyond fast for gamers and creators. They're powered by the ultra-efficient NVIDIA Ada Lovelace architecture which delivers a quantum leap in both performance and AI-powered graphics. Experience lifelike virtual worlds with ray tracing and ultra-high FPS gaming with the lowest latency. Discover revolutionary new ways to create and unprecedented workflow acceleration.

Game, stream, create. The GeForce RTX™ 4060 lets you take on the latest games and apps with the ultra-efficient NVIDIA Ada Lovelace architecture. Experience immersive, AI-accelerated gaming with ray tracing and DLSS 3, and supercharge your creative process and productivity with NVIDIA Studio.

The new NVIDIA® Ada Lovelace architecture delivers a quantum leap in performance, efficiency, and AI-powered graphics. It has new Streaming Multiprocessors, 3rd generation Ray Tracing Cores, and 4th generation Tensor Cores. It's built on a new custom TSMC 4N process, runs with blazing fast clocks, and features a large L2 cache. It enables fast ray tracing, new ways to create, and much more.

KEY FEATURES

- Powered by NVIDIA DLSS 3, ultra-efficient Ada Lovelace arch, and full ray tracing
- Dedicated Ray Tracing Cores
- Dedicated Tensor Cores
- NVIDIA DLSS 3
- Game Ready and NVIDIA Studio Drivers
- NVIDIA® GeForce Experience™
- NVIDIA Broadcast
- NVIDIA G-SYNC®
- NVIDIA GPU Boost™
- PCI Express® Gen 4
- Microsoft DirectX® 12 Ultimate
- Vulkan RT APIs, Vulkan 1.3, OpenGL 4.6
- HDCP 2.3
- DisplayPort 1.4a, up to 4K at 240Hz or 8K at 60Hz with DSC, HDR
- As specified in HDMI 2.1a: up to 4K 240Hz or 8K 60Hz with DSC, Gaming VRR, HDR

SYSTEM REQUIREMENTS

- PCI Express-compliant motherboard with one dual width x16 graphics slot (x8 active)
- One 8-pin supplementary power connectors
- 550 W or greater system power supply[2]
- Microsoft Windows® 11 64-bit, Windows 10 (November 2018 or later) 64-bit, Linux 64-bit
- Internet connection[1]

PRODUCT SPECIFICATIONS

NVIDIA® CUDA Cores	3072
Clock Speed	1830 MHz
Boost Speed	2460 MHz
Memory Speed (Gbps)	17
Memory Size	8GB GDDR6
Memory Interface	128-bit
Memory Bandwidth (Gbps)	272
TDP	115 W
NVLink	Not Supported
Outputs	DisplayPort 1.4 (x3), HDMI 2.1
Multi-Screen	4
Resolution	7680 x 4320 @120Hz (Digital)[3]
Power Input	One 8-Pin
Bus Type	PCI-Express 4.0 x16 (x8 active)

PRODUCT INFORMATION

PNY Part Number	VCG40608DFXPB1
UPC Code	751492778006
Card Dimensions	8.27" x 8.86" x 1.57"; Dual Slot 210 x 115 x 40mm; Dual Slot
Box Dimensions	12.64" x 7.13" x 2.6" 321 x 181 x 66mm

1   Graphics Card driver is not included in the box; GeForce Experience will download the latest GeForce driver from the Internet after install.

2   Minimum is based on a PC configured with a Ryzen 9 5900X processor. Power requirements can be different depending on system configuration.

3   Up to 4K 12-bit HDR at 240Hz with DP 1.4a + DSC or HDMI 2.1a + DSC. Up to 8K 12-bit HDR at 60Hz with DP 1.4a + DSC or HDMI 2.1a + DSC

ver. 05-18-23