AMD FirePro™ GPUs for HPE ProLiant Servers

The AMD FirePro™ Server GPU Advantage

The AMD FirePro™ S9150 and W7100 GPUs available on select HPE systems are designed for server environments to help accelerate HPC workflows found in academic and government clusters, oil and gas industries, and deep neural networks. Designed for large-scale multi-GPU support, AMD FirePro™ Server GPUs offer exceptional compute performance and performance-per-watt.

Also available for HPE is the AMD FirePro™ S7100X, equipped with Multiuser GPU (MxGPU) technology. MxGPU is the industry's first hardware-virtualized GPU solution that provides enterprise customers with precise performance in virtual desktop environments. Easy to set up and use, the MxGPU builds on industry standards to deliver enhanced security while lowering total cost of ownership.

AMD FirePro™ S9150 GPU

The most compute-intensive workloads are no challenge for the AMD FirePro™ S9150 server GPU. With support for OpenCL™ 2.0, 16 GB GDDR5 memory, and up to 2.53 TFLOPS of peak double-precision memory, the choice is clear.

AMD FirePro™ W7100 GPU

Those looking for great single-precision, and lower cost alternative to the AMD FirePro S9150 GPU can turn toward the AMD FirePro™ W7100 GPU, offering 3.3 TFLOPS of single-precision compute performance, all from a single slot form factor, drawing 150 watts of total board power.

AMD STREAM Technology

AMD STREAM Technology powers the ecosystem that enables AMD FirePro™ server cards to be used for compute-intensive workflows leveraging the massively parallel processing power of AMD FirePro GPUs, and to accelerate many applications beyond just graphics. AMD STREAM Technology is composed of fast single- and double-precision compute performance, P2P multi-GPU support, bi-directional PCIe® 3.0 data transfers, and GPU-optimized OpenCL™ libraries such as Bolt C++ Template Library available from developer.amd.com.

AMD Multiuser GPU (MxGPU) Technology

Enables consistent, predictable and secure performance from your virtualized workstation with the world's first hardware-based virtualized GPU solution, the AMD Multiuser GPU. This new virtualization solution from AMD can enable users to have workstation-class experiences with full ISV certifications and desktop-like performance.

AMD FirePro™ S7100X GPU

Available on the HPE ProLiant WS460c Gen9 Server Blade, the AMD FirePro™ S7100X GPU keeps user sessions isolated and secure with hardware-based Multiuser GPU technology. IT Managers can achieve cost savings by using AMD's GPU license-free virtualized solution. The AMD FirePro™ S7100X GPU represents an easy and safe way of virtualizing up to 16 users per GPU.

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HPE Servers

HPE ProLiant DL380 Gen9

Flexible 2U server, ideal for small rack server deployment

Form factor/chassis: 2U rack

GPUs Supported: Up to 2 AMD FirePro™ S9150 GPUs or AMD FirePro™ 7100 GPUs per server

CPUs Supported: Up to 2 Intel Xeon® E5-2600 v3/v4

Memory: Up to 3TB DDR4 SmartMemory

Storage: Up to 26 SFF (or up to 15 LFF) SAS/SATA/SSD

HPE ProLiant XL190r Gen9

Density optimized platform ideal for larger deployments

Form factor/chassis: 2U half-width tray for the HPE Apollo 2000 chassis (max 2 server trays per 2U chassis)

GPUs Supported: Up to 2 AMD FirePro™ S9150 Server GPUs per server node

CPUs Supported: Up to 2 Intel Xeon® E5-2600 v3/v4

Memory: Up to 1TB DDR4

Storage: Up to 24 SFF (or up to 12 LFF) SAS/SATA/SSD + support for M.2 drives

HPE ProLiant XL250a Gen9

Density optimized platform ideal for larger deployments

Form factor/chassis: Double-slot tray for the HPE Apollo a6000 chassis (max 5 server trays per chassis)

GPUs Supported: Up to 2 AMD FirePro™ S9150 Server GPUs per XL250a tray

CPUs Supported: Up to 2 Intel Xeon® E5-2600 v3/v4

Memory: Up to 1TB DDR4

Storage: Up to 6 hot-plug front-accessible hard drives SAS/SATA/SSD

HPE ProLiant SL270s Gen8 SE

Designed for extreme rack level graphics processing density

Form factor/chassis: 4U, 1/2 width server (HPE ProLiant s6500 chassis supports two SL270s Gen8 SE servers)

GPUs Supported: Up to 8 AMD FirePro™ S9150 GPUs per SL270s (16 per chassis)

CPUs Supported: Up to 2 Intel Xeon® E5-2600 v2

Memory: Up to 256GB DDR3

Storage: Up to 8 SFF SAS/SATA/SSD

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HPE Servers

HPE ProLiant ML150 Gen9

Tower server ideal for small to medium-sized business (SMBs)

Form factor/chassis: Tower

GPUs Supported: Up to 2 AMD FirePro™ W7100 GPUs per server

CPUs Supported: Up to 2 Intel Xeon® E5-2600 v3/v4

Memory: Up to 512GB DDR4 SmartMemory

Storage: Up to 16 SFF or 10 LFF SAS/SATA/SSD

HPE ProLiant ML350 Gen9

Tower server ideal for growing small to medium-sized business (SMBs), remote offices and enterprise data centers.

Form factor/chassis: Tower/5U rack

GPUs Supported: Up to 4 AMD FirePro™ W7100 GPUs per server

CPUs Supported: Up to 2 Intel Xeon® E5-2600 v3/v4

Memory: Up to 1.5TB DDR4 SmartMemory

Storage: Up to 48 SFF or 24 LFF SAS/SATA/SSD + support for NV MeSSD and M.2 drives

HPE ProLiant WS460c Gen9

Blade server provides the flexibility to optimize your core IT applications with right-sized storage and help lowers TCO

Form factor/chassis: Blade server

GPUs Supported: One AMD FirePro™ S7100X GPU

CPUs Supported: Up to 2 Intel Xeon® E5-2600 v3/v4

Memory: Up to 2TB DDR4

Storage: Up to 2 SFF SAS/SATA

AMD FirePro™ Server GPU Specifications

			
	AMD FIREPRO™ S9150	**AMD FIREPRO™ W7100**	**AMD FIREPRO™ S7100X**
AMD STREAM Technology	Yes	Yes	No
AMD MxGPU	No	No	Yes
OpenCL™ 2.0 Support	Yes	Yes	Yes
Peak Single-Precision	5.07 TFLOPS	3.3 TFLOPS	N/A
Peak Double-Precision	2.53 TFLOPS	206 GFLOPS	N/A
GPU Memory	16GB GDDR5	8GB GDDR5	8GB GDDR5
TDP	235W	150W	100W
PCI Express®	3.0 x16	3.0 x16	3.0 x16
Form Factor	Dual slot, full height	Single slot, full height	MXM
# of Concurrent Users	N/A	N/A	Up to 16
Hypervisor Support	N/A	N/A	VMware® ESXi™ 6.0

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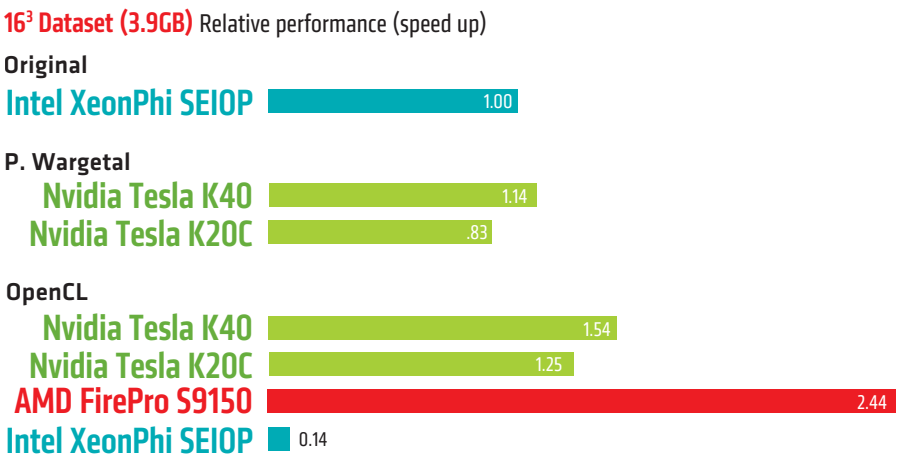
AMD FirePro™ Competitive Advantage for HPC

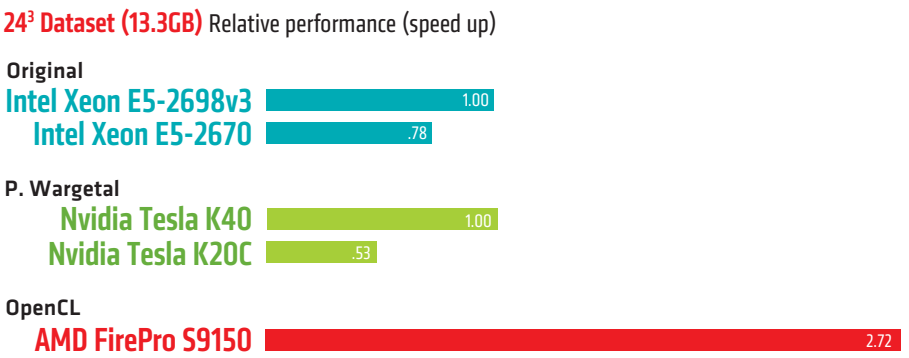
Performance Testing with Large Computational Workloads

SNAP serves as a proxy application to model the performance of the Boltzmann equation, a governing equation for determining the number of neutral particles (e.g. neutrons and gamma rays) in a multi-dimensional phase space. It is used by the Los Alamos National laboratory to mimic large computational workloads.

Below we can see the comparative performance of a number of different processors using the 16^2 dataset, which is 3.9GB in size.

The test was also run with an expanded grid of 243, which increased the footprint to 13.3GB. With 16GB of GDDR5 memory, the AMD FirePro S9150 GPU can load the entire dataset into mem ory, giving it an additional advantage over the Nvidia Tesla K40 (12GB) and Nvidia Tesla K20C (5GB).





Other Key Advantages with AMD FirePro™ GPUs for HPC

	AMD FIREPRO™ S9150	NVIDIA TESLA K40	AMD ADVANTAGE
AMD STREAM Technology	Yes	No	Yes
OpenCL™ 2.0 Support	Yes	No	Yes
Peak Single-Precision	5.07 TFLOPS	4.29 TFLOPS	Yes
Peak Double-Precision	2.53 TFLOPS	1.43 TFLOPS	Yes
GPU Memory	16GB GDDR5	12GB GDDR5	Yes

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AMD FirePro™ GPUs for Virtualization

	AMD FIREPRO™ S7100X
AMD MXGPU GPU Technology	YES
# of Concurrent Users	UP TO 16
Hypervisor Support	VMWARE® ESXI™ 6.0
GPU Memory	8GB GDDR5
TDP	100W
PCI Express®	3.0 X16
Form Factor	MXM

HPE ProLiant WS460c Gen9

Blade server provides the flexibility to optimize your core IT applications with right-sized storage and help lowers TCO

Form factor/chassis: Blade server

GPUs Supported: One AMD FirePro™ S7100X GPU

CPUs Supported: Up to 2 Intel Xeon® E5-2600 v3/v4

Memory: Up to 2TB DDR4

Storage: Up to 2 SFF SAS/SATA

AMD FirePro™ Competitive Advantage for Virtualization

	AMD MXGPU	NVIDIA GRID TECHNOLOGY	AMD ADVANTAGE
Virtualization Method	Hardware	Software	Yes
OpenCL™ 2.0 Support	Yes	No	Yes
Predictable Performance	Yes	No	Yes
Dedicated share of local memory for increased security	Yes	No	Yes
Per user GPU Licensing Fee	No	Yes	Yes

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