AMD FirePro™ S10000
High-Density, High-Performance
Server Graphics

Key features:

- Two powerful GPUs
- Dual-slot form factor
- Passive thermal design
- 6GB or 12GB GDDR5 memory
- Up to 480GB/s memory bandwidth
- ECC memory support
- 5.91 TFLOPS peak single precision floating point
- 1.48 TFLOPS peak double precision floating point
- 375W maximum power
- Support for SMBus temperature reporting at boot up
- Compatible with VMware® vSGA and vDGA technologies
- Support for Microsoft® RemoteFX shared graphics
- Compatible with Citrix® XenApp™
- PCIe® 3.0 compliant
- Support for industry standard APIs
- Designed, built and thoroughly tested by AMD
- Planned minimum two-year life cycle
- Three-year limited warranty

Data center and IT managers are faced with many challenges: doing more with less resources, configuring computing solutions to meet a variety of end- user needs, flat power budgets, reigning in time spent on system support and maintenance, preventing data leakage, and supporting multiple operating systems and application versions. AMD FirePro™ technology is designed to help managers meet these challenges and more. AMD FirePro™ S10000 server graphics deployed in the data center can help to reduce operating costs and time spent on servicing individual systems, increase asset utilization density and maximize processing power within the same power budget.

High-density supercomputing

AMD FirePro S10000 server graphics are designed to meet the most demanding performance and reliability requirements. For deployments requiring intense processing and accuracy, like Computational Fluid Dynamics, Structural Mechanics, Numerical Analytics and Genetic Sequencing, AMD FirePro S10000 is a GPU compute powerhouse, delivering record-breaking peak single and double precision floating point performance in a high-density dual-GPU form factor,[1] and error code correcting (ECC) memory support.

Generating an impressive 1.48 TFLOPS of peak double-precision floating-point performance - up to 7.8 times the competing dual-GPU solution[2] - AMD FirePro S10000 is capable of tackling the most demanding compute-intensive, data-parallel tasks. With 6GB or 12GB of GDDR5 memory, up to 480GB/s of memory bandwidth and up to 5.91 TFLOPS of peak single precision floating point performance, compute-intensive workloads are no match for the AMD FirePro S10000.

Additionally, AMD FirePro S10000 and the current family of AMD FirePro™ server graphic products support key industry standard APIs, including OpenCL™ and DirectX® for writing programs that execute across heterogeneous platforms consisting of CPUs, GPUs and other processors.

Tackling graphics and compute-heavy work flows

As traditional workstation graphics applications evolved, they required more graphics processing performance to help professionals create and render more complex 3D models, designs and animations. Today, applications used

by the Aerospace, Automotive, Design and Engineering, and Pharmaceutical industries now require significantly more compute performance to calculate the algorithms behind the complex visualizations being rendered.

While some graphics vendors recommend one graphics card for rendering and a second for handling the computation, AMD FirePro S10000 server graphics are capable of handling both rendering and computation simultaneously. It's based on the world's first 28 nm GPU architecture, AMD Graphics Core Next, that is purpose-built for for high utilization, high throughput and multitasking. In fact, each GPU core is designed to handle two compute and one graphics operation at the same time, enabling independent scheduling and work item dispatch for more efficient multitasking. With AMD FirePro S10000 server graphics, there is only one card IT and data center managers need to purchase for graphics and compute-intensive workloads.

The leading edge of graphics virtualization

AMD FirePro S-series server graphics are compatible with leading virtualization technologies from Citrix®, VMware® and Microsoft® that enable the delivery of graphically accelerated virtual machines. With RemoteFX, a single AMD FirePro S10000 server graphics card installed in the data center can power a large number of remote concurrent user computing sessions. With RemoteFX, all users need to connect is a PC client device or a zero client portal. No special hardware is required at each end user's workspace - just a network connection, display, keyboard and mouse. Users have the ability to work seamlessly with business productivity applications, video and graphically rich OS interfaces, as well as entry-level CAD and Engineering and Media and Entertainment applications.

AMD FirePro S10000 server cards are compatible with VMware vSGA and vDGA technologies. With vSGA, IT can create high-density deployments where one AMD FirePro S10000 server card is shared across multiple VMs to create media-rich PC experiences for multiple knowledge workers or a smaller group of more specialized power users. For power users who need the full power of a single GPU to run professional graphics applications, with VMware vDGA, IT can assign up to two virtual machines to the AMD FirePro S10000 (one per GPU).

AMD FirePro is capable of meeting the most demanding centralized computing needs. Coupled with a single unified driver, AMD FirePro S10000 server graphics offer IT and data center managers a powerful, flexible and scalable solution capable of supporting remote graphics and Virtual Desktop Infrastructure (VDI) deployments, rendering farms and supercomputing clusters.

Features	Benefits
28 nm Graphics Core Next architecture	Enables outstanding floating-point performance across a wide range of computing applications: • 1.48 TFLOPS peak double precision • 5.91 TFLOPS peak single precision
High performance-per-watt	Delivers the highest peak double precision performance per watt – up to 4.7 times the competing dual-GPU solution[3]: • 3.94 GFLOPS/watt peak double precision • 15.76 GFLOPS/watt peak single precision
AMD PowerTune technology[4]	Helps to deliver higher performance optimized to the thermal limits of the GPU by dynamically adjusting the clock during runtime based on an internally calculated GPU power assessment. Improves the mechanism to deal with applications that would otherwise exceed a GPU's TDP.
Application virtualization	Support for Citrix XenApp for virtual application delivery enables IT to provide high-quality, on-demand access to Windows applications from end-user devices.
Application optimization	AMD FirePro S10000 is optimized for workstation graphics applications and supports applications built on key industry standards.
Full ECC memory support (Cache and DRAM)	Helps to ensure the accuracy of computations by correcting single or double bit errors as a result of naturally occurring background radiation.

Product details

Ordering information
• OPN: 100-505803 AMD FirePro S10000 Passive (6GB memory)
• OPN: 100-505866 AMD FirePro S10000 12GB Edition (12GB memory)

Memory and bandwidth
• 6GB or 12GB GDDR5 (3GB or 6GB per GPU)
• 384-bit interface, up to 480GB/s (240GB/s per GPU)

Output connectivity
• 1x Mini DisplayPort and 1x DVI outputs

API and OS support
• OpenGL 4.4
• DirectX® 12
• OpenCL™1.2
• Microsoft® Windows® 7, Windows 8.1, Microsoft Windows Server® 2008 R2 and 2012 R2, and Linux® (32-bit or 64-bit)

Power consumption and power support
• Max power/TDP: 375W
• Dual-slot, PCIe® 3.0 x16 bus interface
• Full-height/full-length form factor

System requirements
• 2GB of system memory
• 35 CFM airflow cooling
• 750W or greater PSU with two (2) 150W PCIe® AUX 8-pin power connectors
• Available PCIe® x16 slots (2)
• Supported operating system

AMD warranty and support
• Three-year limited product repair/ replacement warranty
• Direct toll-free phone and email access to dedicated AMD workstation technical support team[5]
• Advanced parts replacement option

Regulatory compliance
• FCC, CE, C-Tick, BSMI, KCC, UL, VCCI, RoHS and WEEE

in.amdfireprohub.com/products/sseries/

1. AMD FirePro™ S10000 delivers up to 5.91 TFLOPS of peak single precision and 1.48 TFLOPs of peak double precision floating point performance, compared to Nvidia Tesla K10 that is capable of up to 4.58 TFLOPS of peak single precision and 190 GFLOPs double precision peak floating point performance. Visit http://www.nvidia.com/object/tesla-servers.html for Nvidia product specs. Comparison as of 10/31/12. FP-65

2. AMD FirePro™ S10000 delivers 1.48 TFLOPs of peak double precision floating point performance, compared to Nvidia Tesla K10 that is capable of 190 GFLOPs double precision peak floating point performance. Visit http://www.nvidia.com/object/tesla-servers.html for Nvidia product specs. FP-63

3. Based on comparison as of 10/31/12 between AMD FirePro S10000 with 1.48 TFLOPS peak double precision, max board power of 375W and 3.94 GFLOPS double precision per watt performance. Compared to the dual-GPU Nvidia Tesla K10 with 190 GFLOPS peak double precision, 225W max board power, and less than 1 GFLOP per watt double precision performance (0.84). Nvidia Tesla K10 product specs found here: http://www.nvidia.com/content/PDF/kepler/Tesla_K10_BD-06280-001_v05.pdf FP-68

4. AMD PowerTune and technology is offered on certain AMD FirePro™ products. Not all products feature all technologies – check with your component or system manufacturer for specific model capabilities.

5. Toll free available in the U.S. and Canada only, email access is global.