![EchoStreams - Innovative Solutions]

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EchoStreams Announces GridStreams High-Performance Computing Server Leveraging Combined Power of AMD Radeon and AMD EPYC Processors
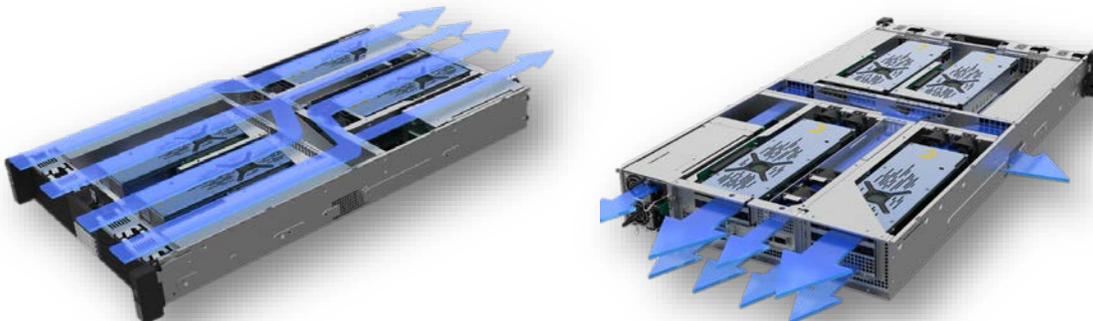
Collaboration with Advanced Micro Devices (AMD), and the University of Southern California (USC) to showcase the benefits of deep learning and machine intelligence in a medical application.

TAIPEI, TAIWAN — June 5, 2018 — EchoStreams, a R&D division of Premio, Inc. and an original design manufacturer (ODM) for high performance server and storage solutions, today announced plans to showcase its latest Graphics Processing Unit (GPU) powered server *(GridStreams – GS206G-UN)* at Computex 2018, booth # K0307a. The solution platform from EchoStreams features a 2 Rack Unit / 6x GPU form factor that can deliver optimization workloads in half, single and double precision teraFLOPS (TFLOPS) – providing powerful performance breakthroughs for machine learning, deep learning, and ultimately Artificial Intelligence applications.

As the demand for multi-GPU compute continues to carve its place in the high performance computing (HPC) market, leading ODM's like EchoStreams focus on innovative ways to achieve critical reliability in its unique designs.

"Rather than focusing strictly on performance density like many other vendors, a key benefit to EchoStreams' GPU server is its focus on **reliability**," CTO of EchoStreams, Gene Lee said. "And since most of the deep learning algorithm occurs at the GPU's core, it was absolutely critical we designed a GPU server that was able to deliver both performance but also sustain reliable GPU longevity; giving our customers a peace of mind."

The EchoStreams GPU server differentiates itself from the competition by solving critical thermal issues in its unique and superior mechanical design. By leveraging engineering techniques from aerodynamic designs, the GPU server is optimized for balanced airflow and maximum cooling, front-to-back. The "GridStreams – GS206G-UN" achieves pure internal cooling thrust with an innovative chassis enclosure that dedicates separate intakes and exhaust channels for each individual GPU (6), allowing for a greater dispersion and dissipation of unwanted heat.

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One real-world use case that shows great promise is a combination of central processing unit (CPU) and GPU acceleration in medical imaging and pattern recognition in brain scans. EchoStreams, AMD (NASDAQ: AMD) and the University of Southern California (USC) have collaborated to showcase the benefits of deep learning and machine intelligence in a medical application.

"Computational power required for processing patient data has been constantly growing with larger datasets and complex machine learning algorithms like deep neural networks," USC Research Fellow, Amir Jaberzadeh said. "It is shown that medical image computing algorithms scale very well when implemented on GPUs due to their parallel data structure."

Together with Echostream's 2RU / 6x GPU solution platform and AMD's ROCm open software platform for GPU computing, USC researchers plan to publish a state-of-the-art Deep Learning algorithm for multiple sclerosis brain lesion segmentation by November 2018.

The collaboration with AMD and USC is a joint effort to bring a well-designed GPU platform to the open community, ultimately enabling greater adoption of this technology for academic and research institutions. The GridStreams GS206G-UN 2U 6x GPU server can support both the AMD Radeon Instinct™ MI25 accelerator and other Radeon™ Pro GPUs (Radeon Pro SSG & Radeon Pro Duo Graphics) with the Radeon Instinct™ MI25 compute GPU providing up to ~600 (TFLOPS) of raw GPU accelerated power for machine intelligence.

"By combining AMD EPYC™ processors and Radeon Instinct™ accelerators into unique HPC solutions, ODM partners like EchoStreams are able to leverage a robust portfolio of superior compute density and deep-learning products that are ideal for a new wave of machine intelligence technology fit for AI," said Gregory Stoner, CTO of Machine Learning, Radeon Technologies Group, AMD. "New levels of innovation in machine learning are enabled through AMD's introduction of world-class GPU technologies and AMD's open ecosystem approach. Modern datacenters will benefit from AMD's ROCm open source software platform, flexible system architectures, and industry standard interconnect technologies."

This Echostreams GPU server "GS206G-UN" is built on the I/O-rich AMD EYPC processor based on the "Zen" architecture that natively gives access to 128 PCIe 3.0 lanes from a single-socket processor. The abundance of PCIe lanes allows the "GS206G-UN" to support six PCIe x16 GPUs as well as six NVMe SSD drives (four – 2.5" NVMe / two – m.2 NVMe), which offers peak carving flexibility for virtualization and SaaS workloads. Another key feature to EchoStreams' GPU server is its direct GPU access from the PCIe lanes. Unlike other designs that require a PCIe switch and 2nd CPU that increases overall costs/latency, the "GS206G-UN" delivers true accessibility and performance for HPC applications. The server also provides true power redundancy using 1+1 2200W power supplies that meet the demands of high-

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performance GPUs and their power consuming workloads. Along with a 1x FHHL PCIe 3 x16 slot for a 100Gb network interface controller, critical data for deep learning can be transferred at top-tier speeds.

The "GridStreams" HPC server line is the newest addition to EchoStreams' diverse portfolio of supercomputing storage solution platforms. As an expert ODM for many enterprise organizations requiring HPC, EchoStreams continues to engineer innovation and deliver next-gen building-blocks to help solve the on-going challenges in data storage/HPC applications.

Computex 2018 will take place on June 5th – 9th at the Taipei Nangang Exhibition Center in Taipei, Taiwan. Internationally known as the largest B2B ICT tradeshow, Computex creates a platform for both startups and established companies to connect, experience, and showcase some of the industry's leading innovations. To find out more information about Computex 2018 and EchoStreams, you can visit us at Booth # K0307a and visit https://www.computextaipei.com.tw/.

About EchoStreams Innovative Solutions

EchoStreams is an OEM/ODM solutions provider focused specifically on Server and Storage technologies for the fastest growing verticals in today's digital era, such as Cloud/Datacenter, Video, Telecommunication, and HPC. Visit http://www.echostreams.com/ to learn more about innovative ODM server/storage solution platforms that deliver top-tier performance and unmatched reliability. AMD, the AMD Arrow logo, EPYC, Radeon, Radeon Instinct and combinations thereof, are trademarks of Advanced Micro Devices, Inc.

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