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AMD EPYC Processor Adoption Expands with New Supercomputing and High-Performance Cloud Computing System Wins

— 2nd Gen AMD EPYC-powered system lands in the Top 10 on new TOP500 list ahead of AMD delivering the first ever exascale system next year —

— CERN, Indiana University, and Purdue University adopt AMD EPYC processors for advanced research —

SANTA CLARA, Calif., June 22, 2020 (GLOBE NEWSWIRE) -- AMD (NASDAQ: AMD) today announced multiple new high-performance computing wins for AMD EPYC processors, including that the seventh fastest supercomputer in the world and four of the 50 highest-performance systems on the bi-annual TOP500 list are now powered by AMD. Momentum for AMD EPYC™ processors in advanced science and health research continues to grow with new installations at Indiana University, Purdue University and CERN as well as high-performance computing (HPC) cloud instances from Amazon Web Services, Google, and Oracle Cloud.

“The leading HPC institutions are increasingly leveraging the power of 2nd Gen AMD EPYC processors to enable cutting-edge research that addresses the world’s greatest challenges,” said Forrest Norrod, senior vice president and general manager, data center and embedded systems group, AMD. “Our AMD EPYC CPUs, Radeon Instinct accelerators and open software programming environment are helping to advance the industry towards exascale-class computing, and we are proud to strengthen the global HPC ecosystem through our support of the top supercomputing clusters and cloud computing environments.”

From powering the upcoming world’s fastest exascale supercomputers, Frontier and El Capitan, to supporting workloads in the cloud, and driving new advancements in health research, the high core count and extensive memory bandwidth of AMD EPYC processors are helping meet the growing demand from HPC providers for improved performance, scalability, efficiency, and total cost of ownership.

AMD Continues Expanding Share of TOP500 Supercomputers

Four AMD EPYC powered supercomputers are now among the 50 highest-performance systems in the world and there are now ten AMD EPYC-powered supercomputers on the TOP500:

- Selene (No.7) an AMD EPYC 7742-based system in a DGX A100 SuperPOD platform from Nvidia,

- Belenos (No.30), one of the two BullSequana XH2000 supercomputers at Météo-France, the French national meteorological service powered by 2nd Gen AMD EPYC processors,
- Joliot-Curie (No.34), moved up the list based on a new submission for the BullSequana XH2000 system using 2nd Gen AMD EPYC™ processors at GENCI, the French national high-performance computing organization,
- Mahti (No. 48), a 2nd Gen AMD EPYC processor powered BullSequana XH2000 supercomputer at Finland's Center for Science Information Technology,

"Atos is proud to provide to its customers with cutting edge technology, integrating 2nd Gen AMD EPYC processors as soon as released, and demonstrating increased performance on HPC applications in production environments," said Agnès Boudot, group senior vice president, Head of HPC and Quantum at Atos.

AMD Powered Supercomputing Systems Drive Research of the Future
Two universities announced new research supercomputing systems powered by AMD EPYC processors in Dell EMC PowerEdge servers.

Indiana University will deploy Jetstream 2, an eight-petaflop distributed cloud computing system powered by upcoming 3rd Gen AMD EPYC processors. This system will be used by researchers in a variety of fields such as AI, social sciences, and COVID-19 research. AMD EPYC processors already power Big Red 200 at the Indiana University campus.

"Jetstream 2 bundles computation, software and access to storage for individuals and teams of researchers across an array of areas of research," said David Hancock, Director in Research Technologies, affiliated with the Pervasive Technology Institute at Indiana University. "With the next generation AMD EPYC processor, Jetstream 2 will provide 8 petaflops of cloud computing power, giving more access to high-end technologies to enable deep learning and artificial intelligence techniques."

Purdue University will deploy Anvil, a supercomputer powered by next generation AMD EPYC processors, which will provide advanced computing capabilities to support a wide range of computational and data-intensive research. AMD EPYC will also power Purdue's latest community cluster "Bell", scheduled for deployment early this fall.

In addition, CERN, the largest particle physics laboratory in the world, recently selected 2nd Gen AMD EPYC processors in Gigabyte servers to harness the massive amounts of data from their latest Large Hadron Collider (LHC) experiment to rapidly detect subatomic particles known as beauty quarks. A new case study details how combining the increased bandwidth of PCIe® 4.0, DDR4 memory speed, and the 64 core AMD EPYC™ 7742 processor allows researchers to collect the raw data streams generated by 40 terabytes of collision data occurring every second in the LHC.

High Performance Computing in the Cloud with AMD EPYC
As the HPC industry evolves to support new workload demands, cloud providers continue to adopt 2nd Gen AMD EPYC processors to provide leadership performance and flexible solutions. With recent cloud wins among technology partners like Amazon Web Services, Google Cloud and Oracle Cloud, AMD is helping industry leaders push the boundaries in the new era of HPC and cloud computing.

AMD and Microsoft Azure have continued to build upon their cloud partnership with the recently announced HBv2-Series VMs for high-performance computing workloads. The 2nd Gen AMD EPYC processors provide Microsoft Azure customers with impressive core scaling, access to massive memory bandwidth and are the first x86 server processors that support PCIe® 4.0, enabling some of the best high-performance computing experiences in the industry. Together, AMD and Microsoft Azure will support real-world HPC workloads, such as CFD, explicit finite element analysis, seismic processing, reservoir modeling, rendering, and weather simulation.

AMD Updates ROCm™ For Heterogenous Software Support
Community support continues to grow for AMD Radeon Open eCosystem (ROCm™), AMD's open source foundation for heterogenous compute. Major development milestones in the latest update include:

- The HIP-Clang compiler is now up-streamed and reviewed by the LLVM™ community, providing a better open source experience for the developer,
- A new rocprofiler start/stop API to enable/disable GPU kernel HSA dispatch callbacks, increasing developer productivity and shortening the profiling run times,
- AMD RCCL compatibility with NVIDIA Communications Collective Library (NCCL) v2.6.4m,
- MIOpen provides an optional pre-compiled kernel package to reduce startup latency,
- A new CPU Affinity API is introduced for aiding applications to select the appropriate memory node for a given accelerator (GPU) and a given CPU,
- The new Radeon Performance Primitives library is a comprehensive high-performance computer vision library for AMD (CPU and GPU) with the HIP and OpenCL backend.

Join AMD CTO and executive vice president, Mark Papermaster, for a webinar on July 15th to discuss the full range of AMD solutions and upcoming innovations in HPC. Click the link for the time most convenient for you to register: 9 AM EDT, 12 PM EDT or 9 PM EDT.

Supporting Resources

- Tour the HLRS "Hawk" supercomputing system
- Learn more about the AMD 2nd Gen EPYC™ Processor
- Learn more about AMD Radeon Instinct™ Accelerators
- Become a fan of AMD on Facebook
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This press release contains forward-looking statements concerning Advanced Micro Devices, Inc. (AMD) including features, functionality, availability, timing, deployment and expectations of 2nd Gen AMD EPYC™ CPU powered supercomputer systems, which are made pursuant to the Safe Harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are commonly identified by words such as "would," "intends," "believes," "expects," "may," "will," "should," "seeks," "intends," "plans," "pro forma," "estimates," "anticipates," or the negative of these words and phrases, other variations of these words and phrases or comparable terminology. Investors are cautioned that the forward-looking statements in this document are based on current beliefs, assumptions and expectations, speak only as of the date of this document and involve risks and uncertainties that could cause actual results to differ materially from current expectations. Such statements are subject to certain known and unknown risks and uncertainties, many of which are difficult to predict and generally beyond AMD's control, that could cause actual results and other future events to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. Material factors that could cause actual results to differ materially from current expectations include, without limitation, the following: Intel Corporation’s dominance of the microprocessor market and its aggressive business practices may limit AMD’s ability to compete effectively; AMD relies on third parties to manufacture its products, and if they are unable to do so on a timely basis in sufficient quantities and using competitive technologies, AMD’s business could be materially adversely affected; failure to achieve expected manufacturing yields for AMD’s products could negatively impact its financial results; the success of AMD’s business is dependent upon its ability to introduce products on a timely basis with features and performance levels that provide value to its customers while supporting and coinciding with significant industry transitions; if AMD cannot generate sufficient revenue and operating cash flow or obtain external financing, it may face a cash shortfall and be unable to make all of its planned investments in research and development or other strategic investments; the loss of a significant customer may have a material adverse effect on AMD; AMD’s receipt of revenue from its semi-custom SoC products is dependent upon its technology being designed into third-party products and the success of those products; global economic and market uncertainty may adversely impact AMD’s business and operating results; the ongoing novel coronavirus (COVID-19) pandemic could materially adversely affect AMD’s business, financial condition and results of operations; AMD’s worldwide operations are subject to political, legal and economic risks and natural disasters which could have a material adverse effect on AMD; government actions and regulations such as export administration regulations, tariffs and trade protection measures, may limit AMD’s ability to export its products to certain customers; AMD products may be subject to security vulnerabilities that could have a material adverse effect on AMD; IT outages, data loss, data breaches and cyber-attacks could compromise AMD’s intellectual property or other sensitive information, be costly to remediate and cause significant damage to its business, reputation and operations; uncertainties involving the ordering and shipment of AMD’s products could materially adversely affect it; AMD’s operating results are subject to quarterly and seasonal sales patterns; the agreements governing AMD’s notes and the Secured Revolving Facility impose restrictions on AMD that may adversely affect its ability to operate its business; the

markets in which AMD's products are sold are highly competitive; the conversion of the 2.125% Convertible Senior Notes due 2026 may dilute the ownership interest of its existing stockholders, or may otherwise depress the price of its common stock; the demand for AMD's products depends in part on the market conditions in the industries into which they are sold. Fluctuations in demand for AMD's products or a market decline in any of these industries could have a material adverse effect on its results of operations; AMD's ability to design and introduce new products in a timely manner is dependent upon third-party intellectual property; AMD depends on third-party companies for the design, manufacture and supply of motherboards, software, memory and other computer platform components to support its business; if AMD loses Microsoft Corporation's support for its products or other software vendors do not design and develop software to run on AMD's products, its ability to sell its products could be materially adversely affected; and AMD's reliance on third-party distributors and AIB partners subjects it to certain risks. Investors are urged to review in detail the risks and uncertainties in AMD's Securities and Exchange Commission filings, including but not limited to AMD's Quarterly Report on Form 10-Q for the quarter ended March 28, 2020.

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