

November 12, 2018



Marvell Awarded Los Alamos National Laboratory Research and Development Contract to Accelerate Advanced Server Technology Development

SANTA CLARA, Calif., Nov. 12, 2018 /PRNewswire/ -- Marvell® (NASDAQ:MRVL) today announced that it has been awarded funding from Los Alamos National Laboratory to accelerate the architecture, design and development of advanced server technology required for more efficient usable operations per second per watt or operations per second per dollar of programmer time. With this funding, Marvell will focus on advancing key areas of system architecture and silicon design that maximize the efficiency and overall performance of large-scale supercomputers that are critical for the most demanding and complex problems in science and research. Key technology elements to be addressed include processor core design, enhanced memory technology and optimized processor interconnect architecture.

Improving computing efficacy is critical for future United States Department of Energy high performance computing (HPC) systems. As the nation's nuclear stockpile moves further from the nuclear test base due to aging, remanufactured components, and Life Extension Programs (LEPs), the need for efficient predictive simulation is becoming increasingly urgent. Potential Advanced Technology (AT) systems in 2021 and beyond envisioned by the Advanced Simulation and Computing (ASC) Program will be critical to the success of the National Nuclear Security Administration (NNSA) Stockpile Stewardship Program (SSP) and the current and planned LEP activities. Having more efficient computing options for extreme scale, multi-physics weapons simulations is at the heart of this collaborative effort.

Marvell will leverage its experience and expertise in delivering the currently shipping Marvell ThunderX2® processor, which is the leading Arm®-based processor in the HPC industry and is currently deployed at the Los Alamos National Laboratory running classified simulation codes in support of the SSP. The collaboration with LANL will leverage extreme-scale, complex simulation expertise and provide some of the most demanding simulation workload needs for next-generation processor technologies to tackle.

"The funding from Los Alamos National Laboratory, combined with our ongoing technical collaboration, will further accelerate our designs and innovations for our future server products," said Gopal Hegde, vice president and general manager, Server Processor Business Unit at Marvell Semiconductor, Inc. "Marvell has demonstrated the ability to consistently deliver high performance Arm-based server SoC solutions. ThunderX2, our second-generation Arm-based server processor, combines high compute performance with best-in-class memory bandwidth, memory capacity and rich IO configurations to deliver compelling performance for a variety of cloud and HPC applications, and is the industry's

most widely adopted Arm-based server processor. We look forward to working with Los Alamos in this next phase of exciting technology development."

"This collaborative and integrated development activity between LANL and Marvell is the first step toward creating a variety of new architectural components which will enable LANL's goal of creating or enabling a family of system elements which are centrally focused on efficient mission-centric computing which is naturally the focus of the new LANL-led Efficient Mission Centric Computing Consortium (EMC3)," said Stephen Poole, LANL senior architect. "All of these activities will utilize a more balanced co-design process where system elements move toward application needs at least as far if not farther than applications have to move toward systems element design, and all target being integrated into potential future systems from multiple processor/component vendors and integrators. Though the enhancements and new capabilities are strategically targeted at addressing LANL complex simulation needs, they will certainly apply to many other complex computing needs."

About Los Alamos National Laboratory (www.lanl.gov)

Los Alamos National Laboratory, a multidisciplinary research institution engaged in strategic science on behalf of national security, is operated by Triad, a public service oriented, national security science organization equally owned by its three founding members: Battelle Memorial Institute (Battelle), the Texas A&M University System (TAMUS), and the Regents of the University of California (UC) for the Department of Energy's National Nuclear Security Administration.

Los Alamos enhances national security by ensuring the safety and reliability of the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction, and solving problems related to energy, environment, infrastructure, health, and global security concerns.

About Marvell

Marvell first revolutionized the digital storage industry by moving information at speeds never thought possible. Today, that same breakthrough innovation remains at the heart of the company's storage, processing, networking, security and connectivity solutions. With leading intellectual property and deep system-level knowledge, Marvell's semiconductor solutions continue to transform the enterprise, cloud, automotive, industrial, and consumer markets. To learn more, visit: <https://www.marvell.com/>

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