

# Netlist's NVvault® NVDIMM Offers Industry-Best Performance

January 20, 2015

IRVINE, Calif., Jan. 20, 2015 /PRNewswire/ -- Netlist, Inc. (NASDAQ: NLST), a leading provider of high performance and hybrid memory solutions for the cloud computing and storage markets, today announced that Calypso Systems, Inc. – an independent test lab, has confirmed its NVvault® NVDIMM SSD module for DDR3 has exceeded 1.6 million IOPS, making it the highest performing NVDIMM in the industry.

"This represents a significant increase in performance over other classes of SSD storage as measured to the SSS PTS specification," said Eden Kim, CEO of Calypso Systems.

"Netlist's NVvault® modules combine the attributes of a traditional SSD with the increased speed and lower latencies of the DDR3 memory channel. By combining Flash and DRAM in the memory channel, SSD endurance and performance are significantly improved, making Netlist's NVvault® NVDIMM the clear choice for mission critical server applications," said Mario Martinez, Netlist's Senior Director of Product Marketing.

Unique applications for the NVvault® NVDIMM SSD modules include:

- Storing Metadata in memory for application acceleration
- Host Caching: As Cache for direct attached PCIe SSDs
- Fast RAID Computation as block device for distributed storage
- Check-pointing state for fast sync and restore
- SSD Mapping Table
- Persistent RAMDisk
- As Fast 4K block store
- Store boot image for fast restore

The NVvault® NVDIMM incorporates DDR3 DRAM, MLC Flash, control logic and an energy source to retain critical in-memory data through unexpected power loss events, system crashes or planned shutdowns. In the event of an unexpected power loss or system crash, the critical data residing in the DRAM is saved to Flash where it is safely stored during the power outage. An on-board super capacitor provides the power necessary to operate the DIMM while the data is being transferred. When power is returned, the critical data stored in the Flash is restored to the DRAM.

Non-Volatile DIMM (NVDIMM) is a dual in-line memory module that appears to the host system as a standard JEDEC Registered DIMM during normal operation while having the persistence of Flash. The NVDIMM provides the performance, latency, and integrity of DRAM during DDR3 operation. These benefits are ideal for online transaction processing (OLTP), virtualization, big data analytics, high speed transaction processing, high performance database, and in-memory database applications.

The tests were performed by Calypso Systems, Inc., an independent lab certified by the Storage Networking Industry Associate (SNIA) pursuant to SNIA- PTS test methodologies. The test lab measured symmetric Random 4K Reads & Writes of 1.6M IOPS, throughput of greater than 77Gb/s

for SEQ 1024K Reads and 20Gb/s for SEQ 1024 Writes, and 0.0037 mS Average Response Time for Random 4K Write Latency.

The new NVDIMM SSD technology is being evangelized by a special committee within SNIA comprised of more than a dozen companies dedicated to advancing the use of Flash in the memory channel for both block I/O storage and as a persistent write cache.

### **About Netlist:**

Netlist, Inc. designs and manufactures high-performance, logic-based memory subsystems for server and storage applications for cloud computing. Netlist's flagship products include NVvault™ and EXPRESSvault™ family of hybrid memory products that significantly accelerate system performance and provide mission critical fault tolerance, HyperCloud®, a patented memory technology that breaks traditional performance barriers, and a broad portfolio of industrial Flash and specialty memory subsystems including VLP (very low profile) DIMMs and Planar-X RDIMMs. Netlist has steadily invested in and grown its worldwide IP portfolio, which now includes 81 issued and pending patents in the areas of high performance memory and hybrid memory technologies.

Netlist develops technology solutions for customer applications in which high-speed, high-capacity, small form factor and efficient heat dissipation are key requirements for system memory. These customers include OEMs and hyperscale datacenter operators that design and build servers, storage systems and high-performance computing clusters, engineering workstations and telecommunications equipment. Founded in 2000, Netlist is headquartered in Irvine, CA with manufacturing facilities in Suzhou, People's Republic of China. Learn more at [www.netlist.com](http://www.netlist.com).

### **Safe Harbor Statement:**

*This news release contains forward-looking statements regarding future events and the future performance of Netlist. These forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those expected or projected. These risks and uncertainties include, but are not limited to, risks associated with the launch and commercial success of our products, programs and technologies; the success of product partnerships; continuing development, qualification and volume production of EXPRESSvault™, NVvault™, HyperCloud® and VLP Planar-X RDIMM; the timing and magnitude of the anticipated decrease in sales to our key customer; our ability to leverage our NVvault™ technology in a more diverse customer base; the rapidly-changing nature of technology; risks associated with intellectual property, including patent infringement litigation against us as well as the costs and unpredictability of litigation over infringement of our intellectual property and the possibility of our patents being reexamined by the United States Patent and Trademark office; volatility in the pricing of DRAM ICs and NAND; changes in and uncertainty of customer acceptance of, and demand for, our existing products and products under development, including uncertainty of and/or delays in product orders and product qualifications; delays in the Company's and its customers' product releases and development; introductions of new products by competitors; changes in end-user demand for technology solutions; the Company's ability to attract and retain skilled personnel; the Company's reliance on suppliers of critical components and vendors in the supply chain; fluctuations in the market price of critical components; evolving industry standards; and the political and regulatory environment in the People's Republic of China. Other risks and uncertainties are described in the Company's annual report on Form 10-K filed on March 18, 2014, and subsequent filings with the U.S. Securities and Exchange Commission made by the Company from time to time. Except as required by law, Netlist undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.*

For more information, please contact:

Brainerd Communicators, Inc.  
Mike Smargiassi/Jenny Perales  
[NLST@braincomm.com](mailto:NLST@braincomm.com)  
(212) 986-6667

To view the original version on PR Newswire, visit:<http://www.prnewswire.com/news-releases/netlists-nvvault-nvdimms-offers-industry-best-performance-300022672.html>

SOURCE Netlist, Inc.