



NEWS RELEASE

SMART Modular Technologies Introduces New Family of CXL Add-in Cards for Memory Expansion in High Performance Servers

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SMART's CXL Add-in Cards enable Data Center, Cloud Services, and HPC Providers to Easily and Cost-Effectively Expand Memory Capacity for Memory Intensive Compute Applications

NEWARK, Calif.--(BUSINESS WIRE)-- **SMART Modular Technologies, Inc. ("SMART")**, a division of **SGH** (Nasdaq: **SGH**) and a global leader in memory solutions, solid-state drives, and advanced memory, announces its new family of Add-In Cards (AICs) which implements the Compute Express Link (CXL®) standard and also supports industry standard DDR5 DIMMs. These are the first in their class, high-density DIMM AICs to adopt the CXL protocol. The SMART 4-DIMM and 8-DIMM products enable server and data center architects to add up to 4TB of memory in a familiar, easy-to-deploy form factor.

SMART Modular's new high-density DIMM Add-in Cards (AICs) are the first in their class to adopt the Compute Express Link/CXL protocol, enabling server and data center architects to add up to 4TB of memory in an easy-to-deploy form factor, available in 8-DIMM and 4-DIMM configurations. (Photo: Business Wire)

"The market for CXL memory components for data center applications is expected to grow rapidly. Initial production shipments are expected in late

2024 and will surpass the \$2 billion mark by 2026. Ultimately, CXL attach rates in the server market will reach 30% including both expansion and pooling use cases," stated Mike Howard, vice president of DRAM and memory markets at TechInsights, an intelligence source to semiconductor innovation and related markets.

"The CXL protocol is an important step toward achieving industry standard memory disaggregation and sharing which will significantly improve the way memory is deployed in the coming years," said Andy Mills, senior director of

advanced product development at SMART Modular, reinforcing Howard's market analysis and SMART's rationale for developing this family of CXL-related products.

SMART's 4-DIMM and 8-DIMM AICs are built using advanced CXL controllers which eliminate memory bandwidth bottlenecks and capacity constraints for compute-intensive workloads encountered in Artificial Intelligence (AI), high performance computing (HPC), and Machine Learning (ML). These emerging applications require larger amounts of high-speed memory that exceed what current servers can accommodate. Attempts to add more memory via the traditional DIMM-based parallel bus interface is becoming problematic due to pin limitations on CPUs, so the industry is turning to CXL-based solutions which are more pin efficient.

TECHNICAL SPECIFICATIONS

About SMART's 4-DIMM and 8-DIMM DDR5 AICs

- Available in type 3 PCIe Gen5 Full Height, Half Length (FHHL) PCIe form factor.
- The 4-DIMM AIC (CXA-4F1W) accommodates four DDR5 RDIMMs with a maximum of 2TB of memory capacity when using 512GB RDIMMs, and the 8-DIMM AIC (CXA-8F2W) accommodates eight DDR5 RDIMMs with a maximum of 4TB of memory capacity.
- The 4-DIMM AIC uses a single CXL controller implementing one x16 CXL port while the 8-DIMM AIC uses two CXL controllers to implement two x8 ports, both resulting in a total bandwidth of 64GB/s.
- The CXL controllers support "Reliability, Availability, and Serviceability" (RAS) features, and advanced analytics.
- Both offer enhanced security features with in-band or side band (SMBus) monitoring capability.
- To accelerate memory processing, these add-in cards are compatible with SMART's Zefr™ ZDIMMs™.

CXL also enables lower cost scaling of memory capacity. Using Smart's AICs enables servers to reach up to 1TB of memory per CPU with cost effective 64GB RDIMMs. They also offer an opportunity for supply chain optionality. Replacing high density RDIMMs with a greater number of lower density modules can enable lower system memory costs depending on market conditions.

Visit SMART's **4-DIMM product page** and **8-DIMM AIC product page** for further information, and the **CMM/CXL family page** for information on SMART's other products using the CXL standard. SMART will provide samples to OEMs upon request. These new CXL-based AIC products join SMART's ZDIMM line of DRAM as ideal solutions for demanding memory design-in applications.

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About SMART Modular Technologies, Inc.

For more than 30 years, **SMART Modular Technologies** has been helping customers around the world enable high performance computing through the design, development and advanced packaging of specialty memory solutions. Our robust portfolio ranges from today's leading edge technologies to standard and legacy DRAM and Flash storage products. We provide standard, ruggedized and custom memory and storage solutions that meet the needs of diverse applications in high-growth markets.

Product Marketing Contact

Arthur Sainio

SMART Modular Technologies

Director, DRAM Product Marketing

39870 Eureka Dr., Newark, CA 94583

arthur.sainio@smartm.com

Media Contact

John Crook

SMART Modular Technologies

Marketing Communications

+1 (510) 474 8326

john.crook@smartm.com

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