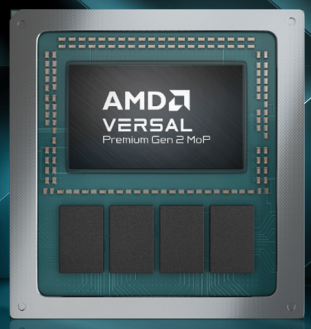
SOLUTION BRIEF

HIGH-BANDWIDTH PXI TEST SOLUTIONS ADVANCED WITH AMD VERSAL™ PREMIUM GEN 2 MoP

AMD
together we advance_



OVERVIEW

PCI® eXtensions for Instrumentation (PXI) platform and PXI Express (PXIe) standards are widely used in instrumentation because they combine PC-based performance with a rugged, modular chassis that can host many measurement cards while maintaining tight interoperability across vendors. Built on PCIe foundations, PXI platforms make it easy to scale channel count by adding modules, while PXIe replaces the older parallel bus with high-speed serial PCI Express® to better support data-hungry instruments such as digitizers and arbitrary waveform generators.

Next-generation PXI instrumentation and wireless test platforms are pushing memory bandwidth and board-level integration to the limit within a tight form factor, especially as test systems scale channel count, sample rates, and real-time DSP workloads inside tight module constraints. AMD Versal™ Premium Gen 2 Memory on Package (MoP) adaptive SoCs will meet the high bandwidth requirements of next-generation instrumentation and wireless test solutions in a 3U PXI module.

Versal Premium Gen 2 MoP will integrate up to 32 GB of LPDDR5X DRAM directly on the device, expected to offer up to 288 GB/s of memory bandwidth. It also will provide additional I/O for GPIO, LVDS, and other connectivity needs, enabling a compact, high-performance, and a deterministic memory subsystem that is well suited for dense PXI-based solutions.

KEY BENEFITS

COMPACT FORM FACTOR

The 57.5 x 55 mm package fits into a 3U PXI module

FASTER TIME TO MARKET[3]

Improve time to market with a simpler board design

READY FOR THE NEXT GENERATION

Flexible transceivers for next-generation testing support

HIGHLIGHTS

COMPACT FORM FACTOR

- The Versal Premium Gen 2 MoP 2VP3622 adaptive SoC with (8) integrated memory controllers will have 60% less board area compared to Versal Premium Series Gen 2 adaptive SoCs with external memory[1]
- Versal Premium Gen 2 MoP adaptive SoCs are expected to offer the industry's fastest connectivity speed to LPDDR5X memory available, at a max frequency of 9000 Mb/s with (8) memory controllers and are projected to offer up to 64% higher total LPDDR5X memory bandwidth compared to comparable competing devices with LPDDR5 memory[2]
- Reduces form factor by combining signal generation, analysis, and FPGA-based processing in a single PXI card, reducing system size and improving data throughput between functions
- The Versal Premium Gen 2 MoP package will conform to the form factor of a standard 3U PXI module, streamlining board design for compact instrumentation solutions

REDUCE BOARD COMPLEXITY

- Pre-designed and pre-verified interface for on-package LPDDR5X DRAM memory can save months of engineering effort by eliminating the need for the design and verification of a high-performance board-level memory interface

NEXT-GENERATION STANDARDS

- Next-generation transceivers will support NRZ and PAM4 standards
- Support for two PCIe Gen6x8 controllers with endpoint, root-port, and peer-to-peer modes

FEATURES

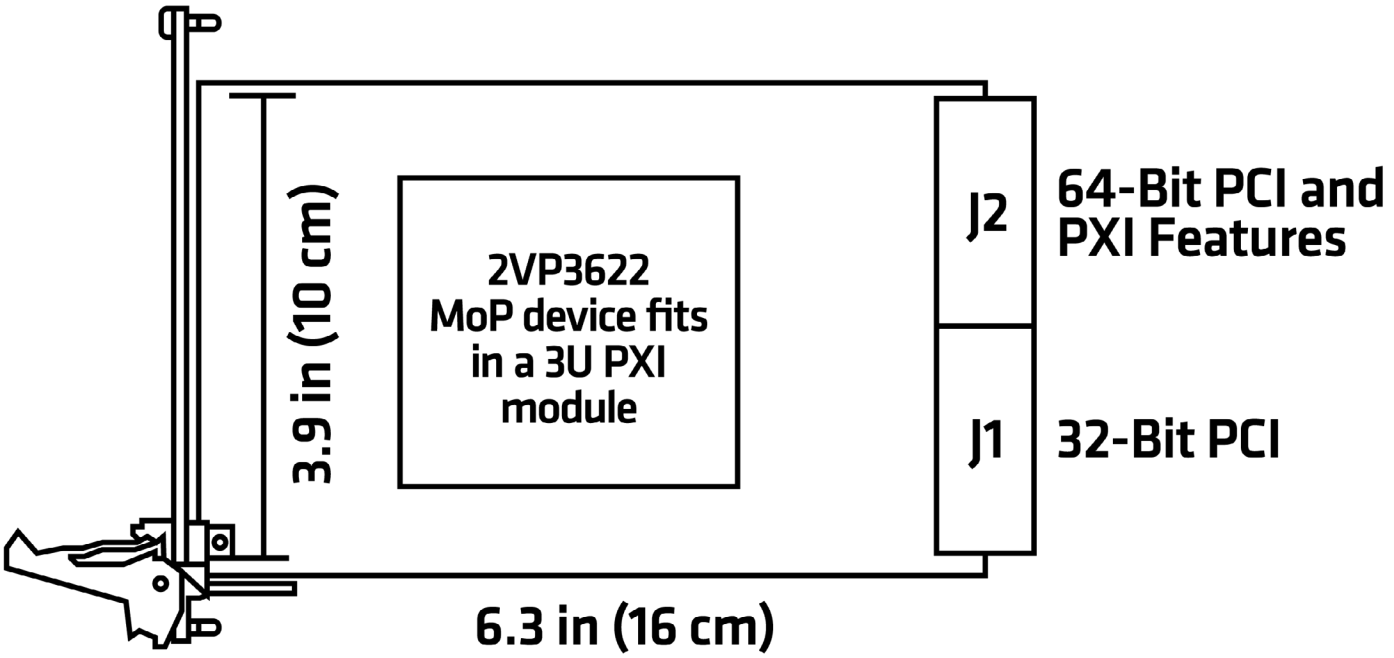
Instrumentation

Versal Premium Gen 2 MoP devices are designed to enhance instrumentation systems by leveraging shorter interconnect traces and higher on-package data rates, making them well suited for a PXI/PXIe-compatible chassis. By aligning internal memory bandwidth with compute performance, the chassis is expected to enable high-channel-count, real-time wireless test systems without traditional memory bottlenecks. This capability will be especially valuable in high-end oscilloscopes and analyzers, where both very high memory bandwidth and deep capture buffers are critical. Overall, the MoP adaptive SoC is projected to offer high bandwidth due to tightly integrated memory architecture, overcoming the limitations of external memory interfaces.

Wireless Communications testers

Wireless communication testers, including Wi-Fi and 5G/6G systems, require scalable, high-bandwidth RF test platforms—capabilities that Versal Premium Gen 2 MoP is expected to deliver in a 3U PXI form factor. The Versal Premium Gen 2 MoP provides high local memory bandwidth at the device, enabling sustained capture and playback of wideband wireless signals, such as 5G and 6G, without the bottlenecks of external DDR memory. By integrating memory within the package, Versal Premium Gen 2 MoP reduces the need for external memory components, simplifying board design while delivering high performance within the power and space constraints of the PXI form factor. This increased bandwidth also supports higher channel counts, enabling denser and more capable test platforms.

BLOCK DIAGRAM



FEATURES

FEATURE	HIGHLIGHTS
MEMORY ON PACKAGE	• 32 GB of LPDDR5X DRAM operating at up to 9000 Mb/s* • Eight 32b hard memory controllers • Hard inline ECC and encryption for data integrity and security
GTM2 TRANSCEIVERS	• Low-latency monolithic transceiver architecture • Supports PAM4 and NRZ encoding • 1.25-128 Gb/s data rate per channel*
PCIe GEN 6	• Up to 2 Tb/s aggregate bandwidth across 16 lanes (two x8 links) operating at 64 Gb/s per lane • Enhanced security features, with Integrity and Data Encryption (IDE) support in hard IP
INTEGRATED 600G ETHERNET AND 100G MULTIRATE ETHERNET CORES	• Up to 3.1 Tb/s of scalable Ethernet throughput • Multirate: 400/200/100/50/40/25/10G • Multi-standard: FlexE, Flex-O, eCPRI, FCoE, and OTN

* Data is preliminary and subject to change.

NEXT STEPS

For more information on AMD Versal Premium Gen 2 Memory on Package, visit **www.amd.com/memory-on-package**

For more information on Test, Measurement, and Emulation, visit **www.amd.com/en/solutions/test-and-measurement.html**

ENDNOTES

1. Based on AMD internal measurements taken in April 2026, of the board area of a Versal Premium Series Gen 2 MoP 2VP3622 adaptive SoC, compared to the board area of a Versal Premium Series Gen 2 monolithic adaptive SoC with external memory. (VER-111)
2. Based on AMD internal analysis in April 2026, comparing the AMD Versal Premium Series Gen 2 Memory on Package (MoP) adaptive SoC (8x LPDDR5 memory controllers at 9000 Mb/s) to Agilex® 7 M Series and Agilex 5 Series (4x LPDDR5 memory controllers at 5500 Mb/s), and Agilex 3 Series (2x LPDDR5 memory controllers at 2133 Mb/s). System manufacturers may vary configurations, yielding different results. Results may vary based on device, memory type, and a variety of other factors (VER-109)
3. Based on AMD internal analysis, comparing the pre-designed and pre-verified LPDDR5X board-level memory interface integrated in AMD Versal Premium Gen 2 MoP adaptive SoCs to platforms offering external LPDDR5 memory. (VER-110)

DISCLAIMERS

The information contained herein is for informational purposes only and is subject to change without notice. While every precaution has been taken in the preparation of this document, it may contain technical inaccuracies, omissions and typographical errors, and AMD is under no obligation to update or otherwise correct this information. Advanced Micro Devices, Inc. makes no representations or warranties with respect to the accuracy or completeness of the contents of this document, and assumes no liability of any kind, including the implied warranties of noninfringement, merchantability or fitness for particular purposes, with respect to the operation or use of AMD hardware, software or other products described herein. No license, including implied or arising by estoppel, to any intellectual property rights is granted by this document. Terms and limitations applicable to the purchase or use of AMD products are as set forth in a signed agreement between the parties or in AMD's Standard Terms and Conditions of Sale. GD-18u.

COPYRIGHT NOTICE

© 2026 Advanced Micro Devices, Inc. All rights reserved. AMD, the AMD Arrow logo, Versal, and combinations thereof are trademarks of Advanced Micro Devices, Inc. PCIe is a registered trademark of PCI-SIG Corporation. Other product names used in this publication are for identification purposes only and may be trademarks of their respective owners. Certain AMD technologies may require third-party enablement or activation. Supported features may vary by operating system. Please confirm with the system manufacturer for specific features. No technology or product can be completely secure. PID5031850