

# VERSAL™ HBM SERIES VHK158 EVALUATION KIT

## OVERVIEW

The VHK158 Evaluation Kit features the Versal™ HBM series VH1582 device, which integrates multi-Tb/s High Bandwidth Memory (HBM), hardened connectivity IP, and adaptive compute in a single device, eliminating the bottlenecks between memory, I/O, and compute while delivering up to 6 times more memory bandwidth at 65 percent lower power per bit<sup>1</sup> and a fraction of the footprint<sup>2</sup> versus discrete memory solutions such as LPDDR4.

The kit comes with a breadth of connectivity options, development tools, and example designs to accelerate development of demanding compute and networking systems across multiple markets.

## HIGHLIGHTS

### Versal HBM Device Capabilities

- 32 GB High Bandwidth Memory
- 112G PAM4 transceivers
- 100G and 600G Ethernet cores
- 600G Interlaken cores with FEC
- 400G High-Speed Crypto Engines

### Breadth of Board-Level Connectivity Options

- QSFP (4) and QSFP-DD (2) connectors for high-speed data communication
- FPGA Mezzanine Card (FMC+) connector with 68 user-defined signals and 8 GTYPs
- 32 GB (2x 16 GB), 72-bit DDR4 DIMM memory
- PCIe® edge connector supporting dual Gen5x8
- MicroSD card interface

### Development Tools and Enhanced Debug Methodology

- Co-optimized with Vivado™ design suite and the Vitis™ unified software platform
- System Controller with the Board Evaluation and Management tool (BEAM)
- Example designs and tutorials to get started quickly



## TARGET APPLICATIONS

### DATA CENTER

- Machine Learning Acceleration
- Compute Pre-Processing and Buffering
- Database Acceleration and Analytics

### WIRED NETWORKING

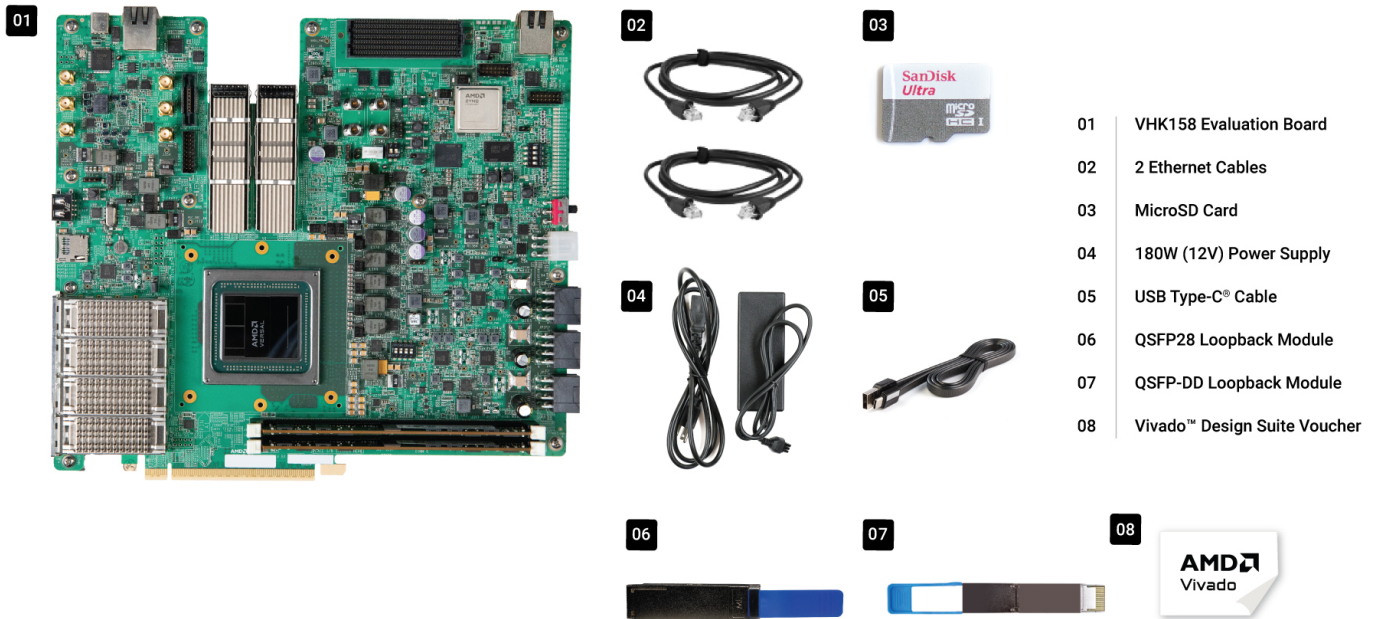
- Network Security Acceleration
- Search and Look-up System
- 800G Switch / Router

### TEST AND MEASUREMENT

- Network Testers
- Packet Capturing System
- Data Capturing System

### AEROSPACE AND DEFENSE

- Radar
- Data and Signal Processing System
- Secure Communication Equipment



- 01 VHK158 Evaluation Board
- 02 2 Ethernet Cables
- 03 MicroSD Card
- 04 180W (12V) Power Supply
- 05 USB Type-C® Cable
- 06 QSFP28 Loopback Module
- 07 QSFP-DD Loopback Module
- 08 Vivado™ Design Suite Voucher

## NEXT STEPS

- For more information, documents, and reference designs, or to purchase, visit [www.amd.com/vhk158](http://www.amd.com/vhk158).

<sup>1</sup>Based on AMD internal analysis in May 2023, comparing a system implementation of a single Versal HBM VH1542 device with in-package HBM2E to a Versal Premium VP1502 device implementation with four LPDDR4-4266 components. Assuming sequential memory accesses with 40% read/write transactions. Power calculation generated using AMD Power Design Manager and a third-party system power calculator. Configurations may vary, yielding different results. (VER-013)

<sup>2</sup>Based on AMD internal analysis in May 2023, comparing a hypothetical implementation of a Versal Premium VP1502 device and twenty-four LPDDR4-4266 components to a single Versal HBM VH1542/VH1582 device. Configurations may vary, yielding different results. (VER-014)

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