M.2 Accelerator Module with Xilinx® UltraScale+™ FPGA

The BittWare 250-M2D is an FPGA-based Computational Storage Processor (CSP) designed to meet the draft M.2 Accelerator Module Hardware Specification standard*. It is intended to operate in Glacier Point carrier cards for Yosemite servers. These feature-rich, dense servers are favored by hyperscale and cloud companies striving to improve the performance density and energy-efficiency of machine learning platforms.
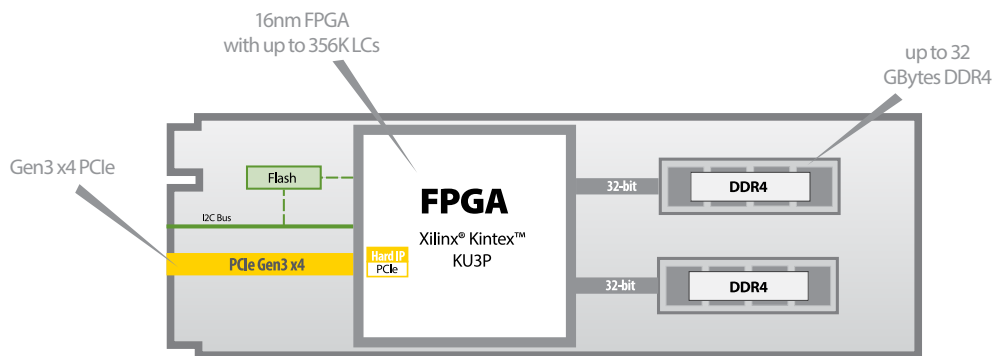
The 250-M2D product features a Xilinx Kintex® UltraScale+ FPGA directly coupled to two banks of local DDR4 memory. Customers can either develop their own acceleration applications in HDL, or take advantage of pre-programmed accelerator solutions featuring IP from BittWare partner companies.

key features

Ideal for **Computational Storage**	KU3P FPGA: **356K LCs** Kintex UltraScale+	Up to **32 GBytes** DDR4

16nm FPGA with up to 356K LCs

up to 32 GBytes DDR4

Gen3 x4 PCIe

Flash

I2C Bus

PCIe Gen3 x4

Hard IP PCIe

FPGA
Xilinx® Kintex™ KU3P

32-bit   DDR4

32-bit   DDR4

Myrtle.ai

Order your 250-M2D pre-configured with the Myrtle.ai SEAL accelerator for recommeder systems:

- Rapid 8x scaling in processing capacity with the same server infrastructure
- 50% less CapEx required to build new processing capacity
- More content ranking within tight latency constraints means better recommendations and hence increased revenue
- Up to 80% reduction in energy consumption
- Easy to install
- Complementary to other accelerators
- Scalable

Learn more at www.myrtle.ai/SEAL

EIDETICOM

Order your 250-M2D pre-configured with Eideticom's NoLoad®:

- Plug-and-play solution
- NVMe compatible and standards-based with no OS changes
- Reduced TCO/TCA - lower power and reduced IO
- CPU offload improves QoS up to 40x
- Disaggregates compute and storage into independently scalable resources
- CPU agnostic
- Reconfigurable accelerators, enabling scalable compute architectures

Learn more at www.eideticom.com

Additional Services

Take advantage of BittWare's range of design, integration, and support options

Customization
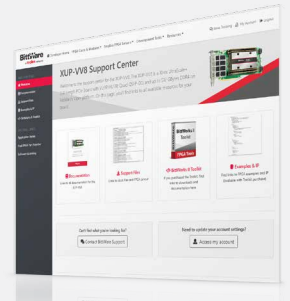[Additional specification options or accessory boards](#) to meet your exact needs.

Server Integration
Available pre-integrated in our [TeraBox servers](#) in a range of configurations.

Application Optimization
Ask about our services to help you port, optimize, and benchmark your application.

Service and Support
BittWare Developer Site provides online documentation and issue tracking.

Specifications

FPGA	• Xilinx Kintex UltraScale+
	  • KU3P in an B784 package
	  • Core speed grade -2
	• Contact BittWare for additional FPGA options

On-board DDR4 SDRAM	• Two banks of DDR4 SDRAM x 32 bits • 8GB bank (16GB version also available) • Transfer Rate: up to 2400 MT/s
Host interface	• M.2 interface supporting Gen3 x4 PCIe
Cooling	• Open Compute M.2 accelerator case optimized for cooling with passive heatsink
Electrical	• Hot swapping tolerant • Power dissipation is application dependent • TDP: 14.85W max • Module Absolute Peak Power (20us): 24W

Environmental	• Operating temperature: 5°C to 50°C at module inlet • Cooling: air convection
Quality	• Manufactured to IPC-A-610 Class 2 • RoHS compliant
Form factor	• M.2 Accelerator Module Hardware Specification* (not designed for standard M.2) * Opencompute.org/wiki/Server/Working

Development Tools

FPGA development	BIST - Built-In Self-Test for CentOS 7 provided with source code (pinout, gateware, PCIe driver and host test application)
Application development	Xilinx Tools - Vivado Design Suite HLx Editions: HDL and C/C++ with HLS
PCIe carrier card	PCIe carrier card allowing 250-M2D to be populated in a standard PCIe slot for lab development

Deliverables

• 250-M2D FPGA board
• Built-In Self-Test (BIST)
• Eideticom NoLoad® pre-installed (optional)
• Myrtle.ai SEAL pre-installed (optional)
• 1-year access to online Developer Site
• 1-year hardware warranty
• Contact BittWare for extended warranty and support options

BittWare
a **molex** company