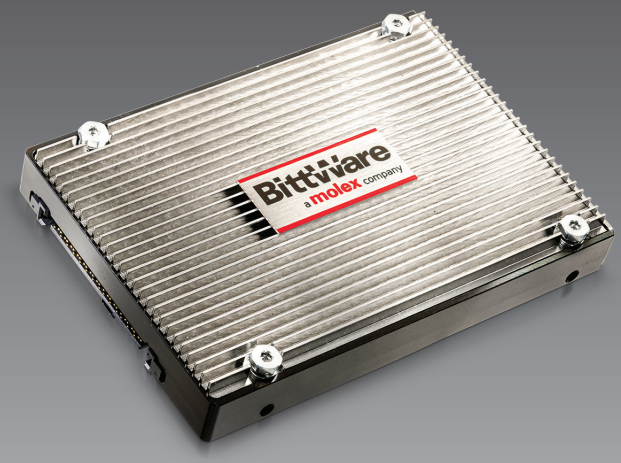
BittWare a molex company

250-U2

U.2 FPGA Accelerator



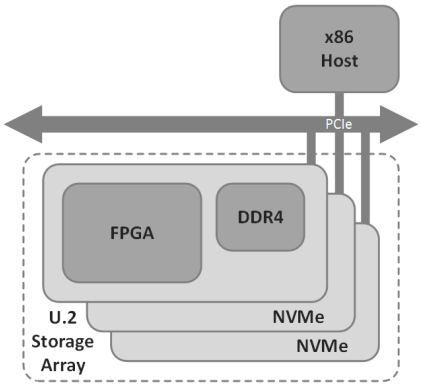
UltraScale+ on U.2 Form Factor

Fully programmable FPGA processor for NVMe acceleration

BittWare's 250-U2 is a Computational Storage Processor conforming to the U.2 form factor. It features an AMD Kintex UltraScale+ FPGA directly coupled to local DDR4 memory. This energy-efficient, flexible compute node is intended to be deployed within conventional U.2 NVMe storage arrays (approximately 1:8 ratio) allowing FPGA-accelerated instances of:

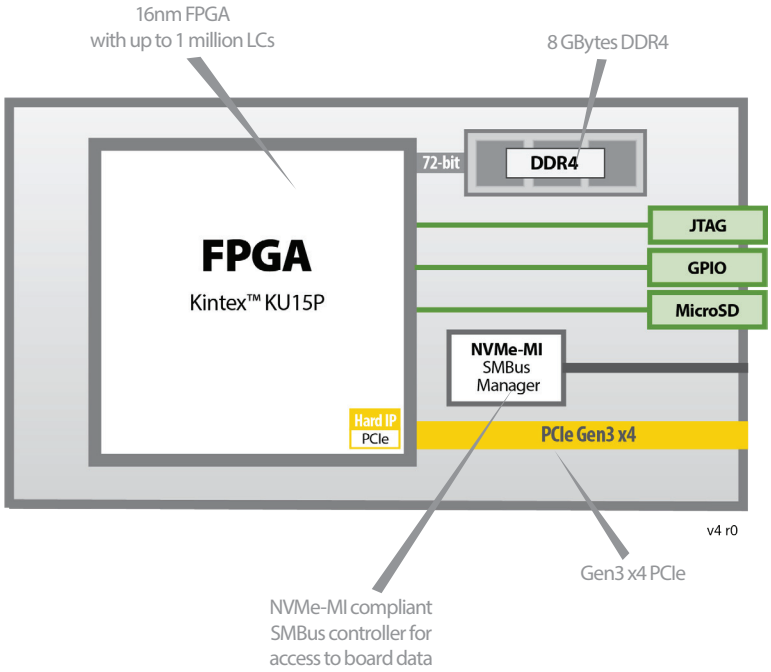
- Erasure Coding and Deduplication
- Compression, Encryption & Hashing
- String/Image Search and Database Sort/ Join/Filter
- Machine Learning Inference

The 250-U2 can be wholly programmed by customers developing in-house capabilities or delivered as a ready-to-run pre-configured solution featuring Eideticom's NoLoad® IP. The 250-U2 is front-serviceable in a 1U chassis and can be mixed in with storage units in the same server, allowing users to mix-and-match storage and acceleration.



key features

- Ideal for **U.2 NVMe** storage arrays
- KU15P FPGA: **1.1 million LCs** Kintex UltraScale+
- Up to **16 GBytes** DDR4



EIDETICOM

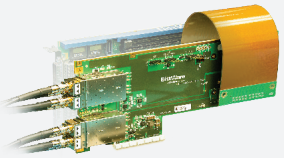
Order your 250-U2 pre-configured with Eideticom's NoLoad®:

- 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

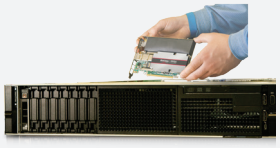
Additional Services

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



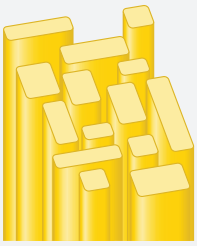
Customization

Additional specification options or accessory boards to meet your exact needs.



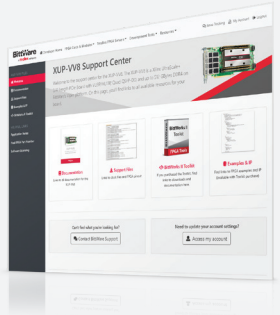
Server Integration

Available pre-integrated in our TeraBox servers in a range of configurations.



IP and Solutions

Our portfolio of IP and solutions reduce risk for development and deployment.



Service and Support

BittWare Developer Site provides online documentation and issue tracking.

Specifications

FPGA	• AMD Kintex UltraScale+
	  • KU15P in an FFVA1156 package
	  • Core speed grade -2
	• Contact BittWare for KU11P FPGA option

On-board DDR4 SDRAM	• One bank of DDR4 SDRAM x 72 bits • 8GB bank (16GB version also available) • Transfer Rate: 2400 MT/s
Host interface	• U.2 Connector • Compliant to SFF-8639
Datacenter deployment	• On-board NVMe-MI compliant SMBUs controller (Spec. 1.0a) • Field flash update via software or SMBus • SMBus FPGA flash control: anti-bricking, fallback and multiboot • SMBus access to unique board data and temperature sensor
Back panel features	• User LEDs accessible • Reset switch to restore factory settings
Development features	• JTAG connector for access to the FPGA, flash and debug tools • GPIO connector • MicroSD connector
Power supply monitoring & reporting	• Voltage monitoring • Temperature monitoring • Fault condition reporting to FPGA
Cooling	• U.2 drive case optimized for cooling with passive heatsink
Electrical	• Hot swapping tolerant • On-card power derived from U.2 supplies • Power dissipation is application dependent • Typical FPGA power consumption ~20W • Card designed to deliver up to 25W power consumption
Environmental	• Operating temperature: 5°C to 35°C • Cooling: air convection
Quality	• Manufactured to IPC-A-610 Class 2 • RoHS compliant
Form factor	• U.2 compliant 2.5" Drive Form Factor • Height: 15mm

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	AMD Tools - Vivado Design Suite HLx Editions: HDL and C/C++ with HLS

Deliverables

- 250-U2 FPGA board
- Built-In Self-Test (BIST)
- Eideticom NoLoad® pre-installed (optional)
- 1-year access to online Developer Site
- 1-year hardware warranty
- Contact BittWare for extended warranty and support options

Safety & Compliance

- RoHS – Restriction of Hazardous Substances
- FCC (USA) 47CFR15.107, 47CFR15.109 (Class A)
- CE (Europe) EN55032/EN55024 (Class A)
- ICES (Canada) ICES-003 Issue 6 (Class A)
- Safety: UL listed (USA and Canada) UL 60950-1, CAN/CSA C22.2 No. 60950-1-07
- Safety: CB Test Certified

To learn more, visit **www.BittWare.com**

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