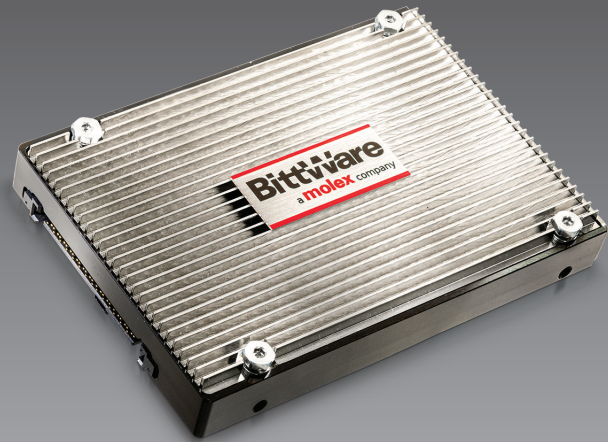


**BittWare**  
a **molex** company

**250-U2**  
U.2 FPGA Accelerator



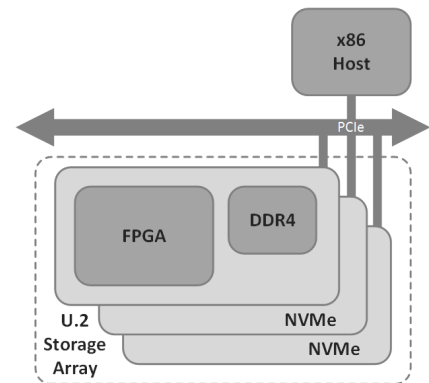
## UltraScale+ on U.2 Form Factor

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.

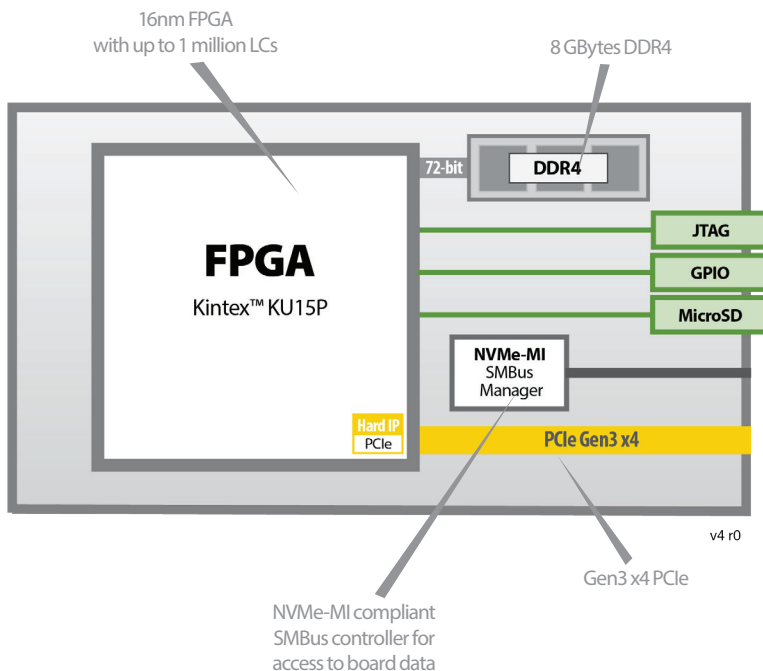


## key features

Ideal for  
**U.2 NVMe**  
storage arrays

KU15P FPGA:  
**1.1 million LCs**  
Kintex UltraScale+

Up to  
**16 GBytes**  
DDR4



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](http://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.



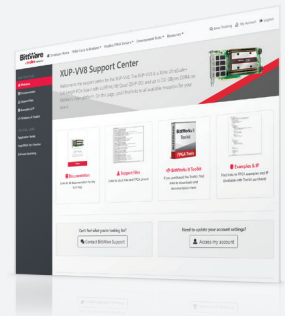
## Server Integration

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	<ul style="list-style-type: none"> <li>• AMD Kintex UltraScale+ <ul style="list-style-type: none"> <li>• KU15P in an FFVA1156 package</li> <li>• Core speed grade -2</li> </ul> </li> <li>• Contact BittWare for KU11P FPGA option</li> </ul>
On-board DDR4 SDRAM	<ul style="list-style-type: none"> <li>• One bank of DDR4 SDRAM x 72 bits</li> <li>• 8GB bank (16GB version also available)</li> <li>• Transfer Rate: 2400 MT/s</li> </ul>
Host interface	<ul style="list-style-type: none"> <li>• U.2 Connector</li> <li>• Compliant to SFF-8639</li> </ul>
Datacenter deployment	<ul style="list-style-type: none"> <li>• On-board NVMe-MI compliant SMBus controller (Spec. 1.0a)</li> <li>• Field flash update via software or SMBus</li> <li>• SMBus FPGA flash control: anti-bricking, fallback and multiboot</li> <li>• SMBus access to unique board data and temperature sensor</li> </ul>
Back panel features	<ul style="list-style-type: none"> <li>• User LEDs accessible</li> <li>• Reset switch to restore factory settings</li> </ul>
Development features	<ul style="list-style-type: none"> <li>• JTAG connector for access to the FPGA, flash and debug tools</li> <li>• GPIO connector</li> <li>• MicroSD connector</li> </ul>
Power supply monitoring & reporting	<ul style="list-style-type: none"> <li>• Voltage monitoring</li> <li>• Temperature monitoring</li> <li>• Fault condition reporting to FPGA</li> </ul>

Cooling	<ul style="list-style-type: none"> <li>• U.2 drive case optimized for cooling with passive heatsink</li> </ul>
Electrical	<ul style="list-style-type: none"> <li>• Hot swapping tolerant</li> <li>• On-card power derived from U.2 supplies</li> <li>• Power dissipation is application dependent</li> <li>• Typical FPGA power consumption ~20W</li> <li>• Card designed to deliver up to 25W power consumption</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Operating temperature: 5°C to 35°C</li> <li>• Cooling: air convection</li> </ul>
Quality	<ul style="list-style-type: none"> <li>• Manufactured to IPC-A-610 Class 2</li> <li>• RoHS compliant</li> </ul>
Form factor	<ul style="list-style-type: none"> <li>• U.2 compliant 2.5" Drive Form Factor</li> <li>• Height: 15mm</li> </ul>

## Development Tools

FPGA development	<b>BIST</b> - Built-In Self-Test for CentOS 7 provided with source code (pinout, gateway, PCIe driver and host test application)
Application development	<b>AMD Tools</b> - 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

To learn more, visit [www.BittWare.com](http://www.BittWare.com)

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