



BittWare
a molex company

IA-220-U2
U.2 FPGA Accelerator

Agilex on U.2 Form Factor with PCIe Gen4

FPGA-Based Computational Storage Processor for NVMe Acceleration

BittWare's IA-220-U2 is a Computational Storage Processor conforming to the U.2 form factor. Ideal for NVMe acceleration, it features an Intel Agilex FPGA supporting PCIe Gen4 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 IA-220-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 IA-220-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

PCIe Gen4
Support

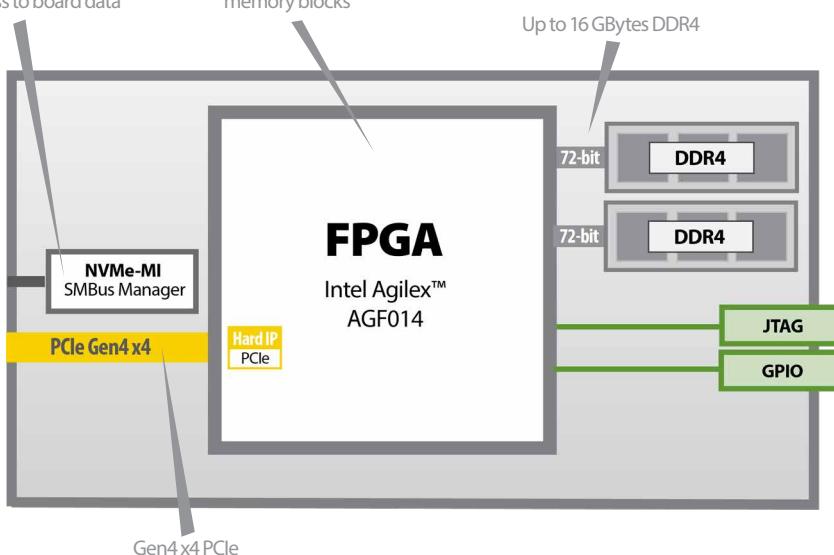
Up to
16 GBytes
DDR4

Intel Agilex™ FPGA
with up to **1.4M**
Logic Elements

NVMe-MI compliant
SMBus controller for
access to board data

10nm FPGA with
1.4M LEs and 7K
memory blocks

Up to 16 GBytes DDR4



EIDETICOM

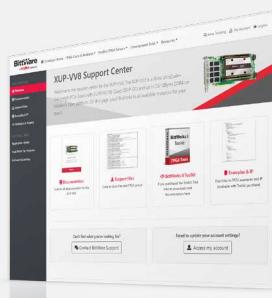
Order your IA-220-U2 pre-configured with
Eideticom's NoLoad®:

- 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.

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.

Board Specifications

FPGA	<ul style="list-style-type: none">Intel Agilex AGF014Core speed grade -3: I/O speed grade -3Contact BittWare for other Agilex FPGA options
On-board DDR4 SDRAM	<ul style="list-style-type: none">Two banks of DDR4 SDRAM x 72 bitsUp to 8GB per bankTransfer Rate: 2400 MT/s
Host interface	<ul style="list-style-type: none">PCIe Gen4 x4U.2 ConnectorCompliant to SFF-8639
Datacenter deployment	<ul style="list-style-type: none">On-board NVMe-MI compliant SMBus controller (Spec. 1.0a)Field flash update via software or SMBusSMBus FPGA flash control: anti-bricking, fallback and multibootSMBus access to unique board data and temperature sensor
Back panel features	<ul style="list-style-type: none">User LEDs accessible
Development features	<ul style="list-style-type: none">JTAG connector for access to the FPGA, flash and debug toolsGPIO connector
Power supply monitoring & reporting	<ul style="list-style-type: none">Voltage monitoringTemperature monitoringFault condition reporting to FPGA

Cooling	<ul style="list-style-type: none">U.2 drive case optimized for cooling with passive heatsink
Electrical	<ul style="list-style-type: none">Hot swapping tolerantOn-card power derived from U.2 suppliesPower dissipation is application dependentTypical power consumption ~20WCard designed to deliver up to 25W power consumption
Environmental	<ul style="list-style-type: none">Operating temperature: 5°C to 35°CCooling: forced air
Quality	<ul style="list-style-type: none">Manufactured to ISO9001:2008 IPC JSTD-001 -Class IIIRoHS compliant
Form factor	<ul style="list-style-type: none">U.2 compliant 2.5" Drive Form FactorHeight: 15mm

Development Tools

FPGA development	BittWare SDK including PCIe driver, libraries, and board monitoring utilities
Application development	Supported design flows - Intel High-Level Synthesis (C/C++) & Quartus Prime Pro (HDL, Verilog, VHDL, etc.)

To learn more, visit www.BittWare.com

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