BittWare a molex company

IA-220-U2

U.2 FPGA Accelerator

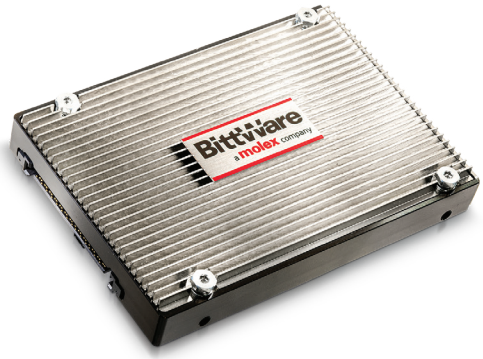
Agilex on U.2 Form Factor with PCIe Gen4

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.

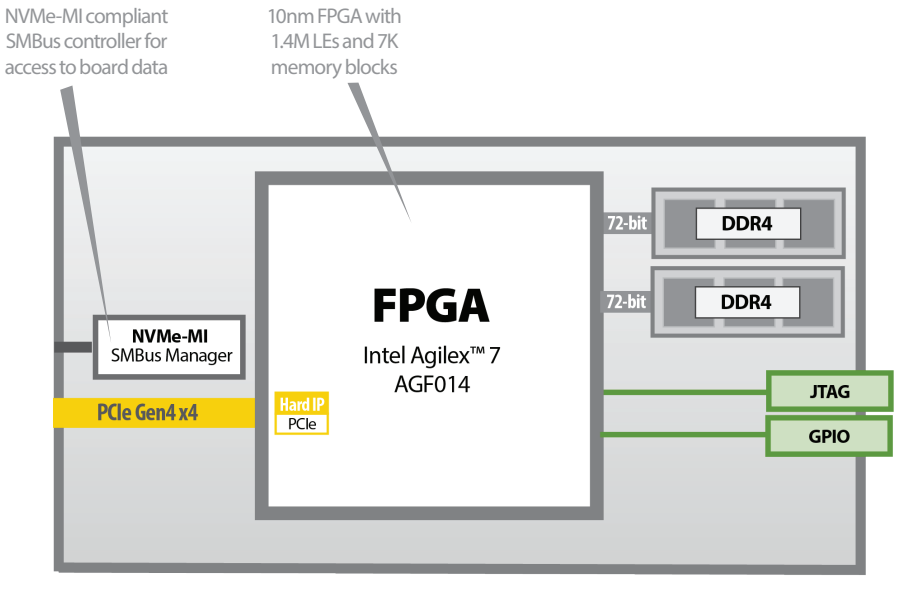


key features

PCIe Gen4 Support

8 GBytes DDR4

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



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

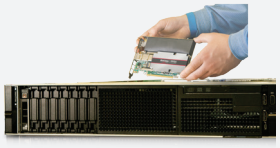
Learn more at www.eideticom.com

Additional Services

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

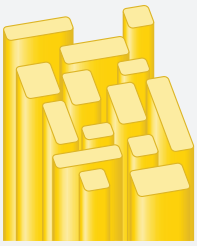
Customization

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



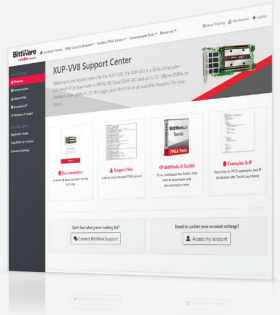
Server Integration

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



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.

Board Specifications

FPGA	• Intel Agilex 7 F-Series AGF014 • Core speed grade -3: I/O speed grade -3 • Contact BittWare for other Agilex FPGA options
On-board DDR4 SDRAM	• Two banks of DDR4 SDRAM x 72 bits • 4GB per bank • Transfer Rate: 2400 MT/s
Host interface	• PCIe Gen4 x4 • 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
Development features	• JTAG connector for access to the FPGA, flash and debug tools • GPIO connector
Power supply monitoring and 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 power consumption ~20W • Card designed to deliver up to 25W power consumption
Environmental	• Operating temperature: 5°C to 35°C • Cooling: forced air
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	BittWare SDK including PCIe driver, libraries, and board monitoring utilities (Linux support only)
Application development	Supported design flows - Quartus Prime Pro (HDL, Verilog, VHDL, etc.)

Safety & Compliance

- FCC (USA) 47CFR15.107 / 47CFR15.109
- CE (Europe) EN55032:2015 + A11:2020 / EN55035:2017 + A11:2020 / EN61000-3-2:2019 +
- A1:2021 / EN610003-3:2013 + A1:2019
- UKCA (United Kingdom) BS EN55032:2015 + A11:2020 / BS EN55035:2017 + A11:2020 / BS
- EN61000-3-2:2019 + A1:2021 / BS EN610003-3:2013 + A1:2019
- ICES (Canada) ICES-003 Issue 7 October 2020
- Safety: CE (Europe) EN IEC 62368-1:2020+A11:2020 with national differences for Australia, New Zealand, EU Group, Singapore, United States, Canada and UK
- UKCA (United Kingdom) BS EN IEC 62368-1:2020+A11:2020
- AS/NZS 62368-1 3rd Edition, Revised October 22, 2021
- CAN/CSA C22.2 No. 62368-1:19, Revised October 22, 2021
- CB Test Certified IEC 62368-1:2018
- RoHS compliant to the 2011/65/EU + 2015/863 directive

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intel partner Titanium

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

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