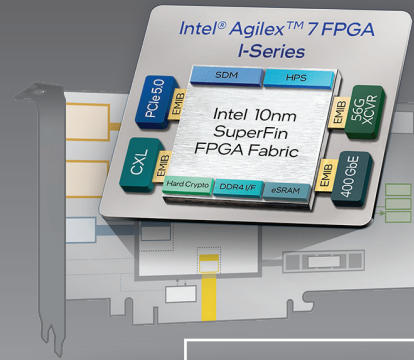


**BittWare**  
a **molex** company

**IA-820i**  
PCIe FPGA Card



**Preliminary Product Info**

## Agilex™ FPGA card with PCIe Gen5 x16

BittWare's IA-820i is an Intel® Agilex™ 7 I-series FPGA card optimized for bandwidth intensive applications, including datacenter and network infrastructure. The standard-height, full-length card provides a balance of I/O and memory using the Agilex chip's unique tiling architecture with QSFP-DD, two M.2 SSD slots, DDR4 SDRAM, and PCIe Gen5 x16 with CXL support for a variety of applications.

**CXL** Compute Express Link™

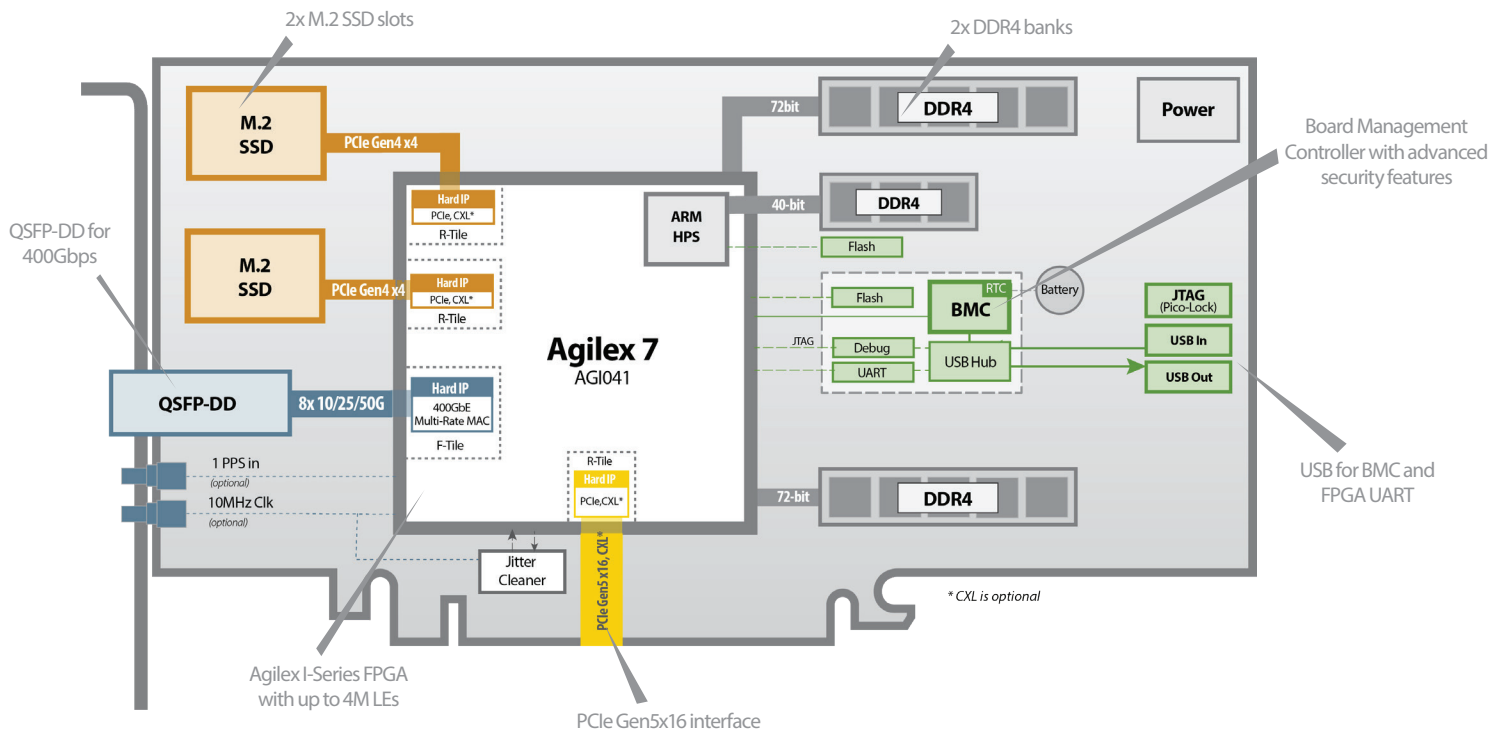


### key features

**2x M.2 SSD slots**  
2x PCIe Gen4 x4

**PCIe Gen5**  
with support for  
**CXL**

Intel Agilex™ FPGA  
with up to **4M**  
**Logic Elements**



# Additional Services

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



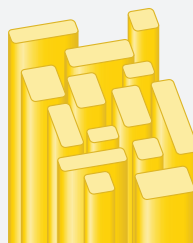
## Customization

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



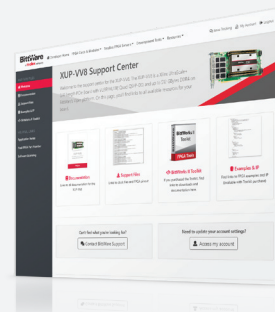
## Server Integration

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	<ul style="list-style-type: none"> <li>Intel Agilex 7 I-Series: AGI041</li> <li>Core speed grade -2: I/O speed grade -1 for CXL (CXL IP is licensed and purchased separately)</li> <li>F-Tile x1, R-Tile x3</li> <li>FPGA includes ARM HPS</li> </ul>
ARM HPS	<ul style="list-style-type: none"> <li>Dedicated 40-bit DDR4</li> <li>Dedicated Flash memory for booting ARM</li> <li>Optional 1GbE interface (contact BittWare)</li> </ul>
On-board Flash	<ul style="list-style-type: none"> <li>2Gbit Flash memory for booting FPGA</li> </ul>
External memory	<ul style="list-style-type: none"> <li>2x banks DDR4 SDRAM up to 32GB each (default 16GB each)</li> </ul>
Host interface	<ul style="list-style-type: none"> <li>x16 Gen5 interface direct to FPGA, connected to PCIe hard IP</li> <li>CXL support (CXL IP is licensed and purchased separately)</li> </ul>
QSFP-DD cage	<ul style="list-style-type: none"> <li>400 Gbps (8x 50Gbps PAM4)</li> <li>PAM4: 1x 400GbE, 2x 200GbE, 4x 100GbE, 8x 50GbE</li> <li>NRZ: 1x 200GbE, 2x 100GbE, 4x 50GbE, 8x 10/25 GbE</li> <li>Multi-rate hard MAC supports all combinations</li> <li>Jitter cleaner for network recovered clocking</li> </ul>
M.2 SSD Slots	<ul style="list-style-type: none"> <li>2x NVMe PCIe M.2 2230 SSD slots</li> </ul>
External clocking	<ul style="list-style-type: none"> <li>1 PPS and 10MHz ref clk front panel inputs (optional)</li> </ul>
USB	<ul style="list-style-type: none"> <li>USB access to BMC, USB-UART</li> </ul>

### Board Management Controller

- Power sequencing and reset
- Voltage, current, temperature monitoring
  - Protection shut-down
- Clock configuration
- Low bandwidth BMC-FPGA comms with SPI link
- USB 2.0
- PLDM support
- Card-level security
  - BMC Root of Trust
  - BMC and FPGA secure boot
  - BMC and FPGA secure upgrade
  - Key management
- RTC with battery backup

### Cooling

- Standard: dual-width passive heatsink

### Electrical

- On-board power derived from PCIe slot and external power connector
- Power dissipation is application dependent
- Max power consumption TBD

### Environmental

- Operating temperature: 5°C to 35°C

### Quality

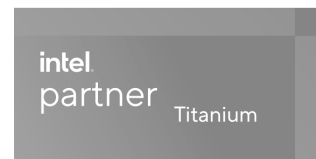
- Manufactured to IPC-A-610 Class 2
- RoHS compliant
- CE, FCC, UKCA & ICES approvals

### Form factor

- Standard-height, full-length, dual-slot PCIe card
- 1111.15mm x 312.00mm (4.376in x 12.283in)

## Development Tools

System development	BittWare SDK including PCIe driver, libraries, and board monitoring utilities
Application development	<b>Supported design flows</b> - Quartus Prime Pro (HDL, Verilog, VHDL, etc.). Contact BittWare for OneAPI support.



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

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