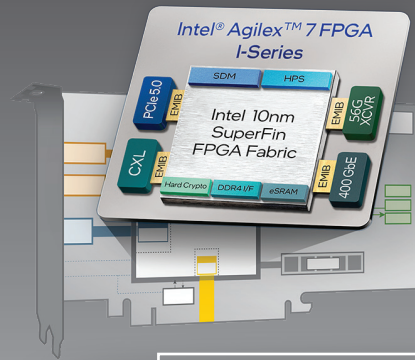




IA-821i
PCIe FPGA Card



Preliminary Product Info

Agilex™ FPGA card with PCIe Gen5 x16

BittWare's IA-821i 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 MCIOs, DDR4 SDRAM, and PCIe Gen5 x16 with CXL support for a variety of applications.

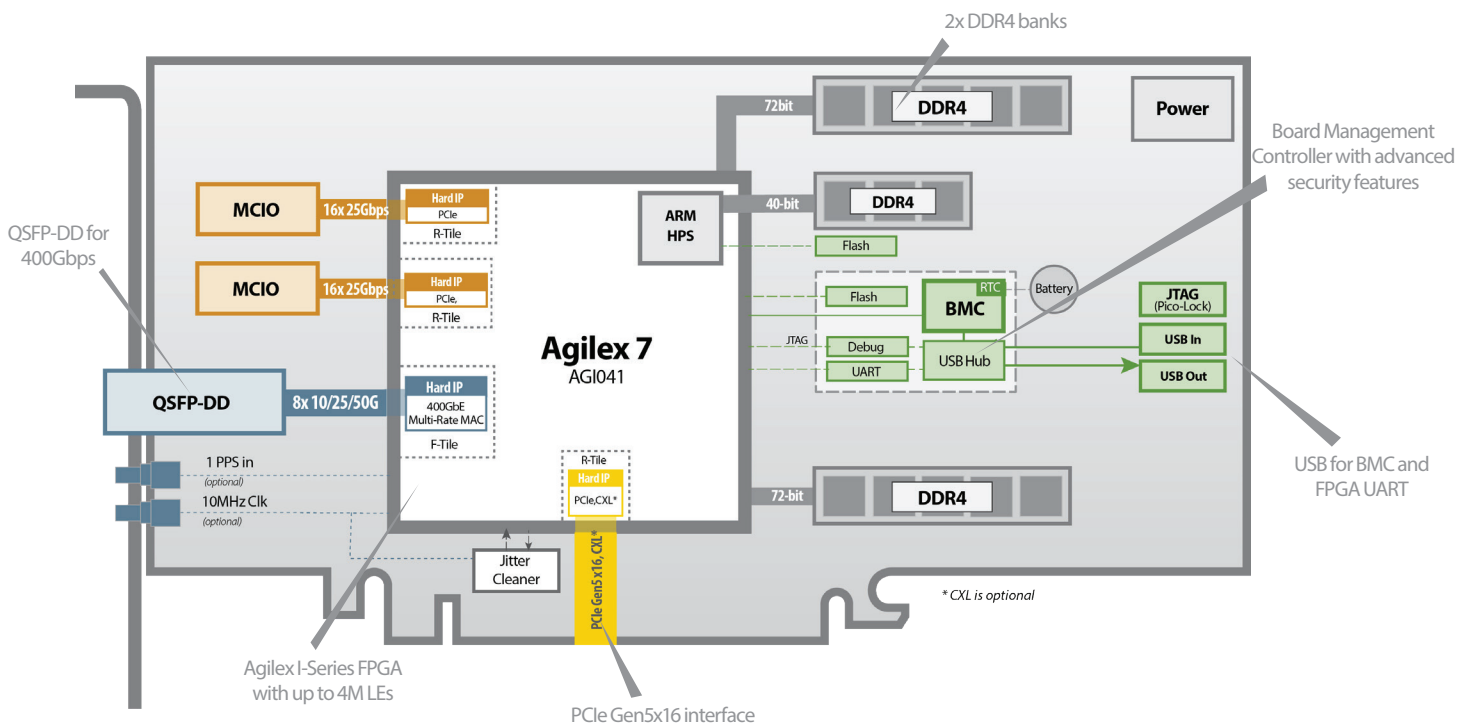


key features

2x MCIO
supporting
PCIe Gen5 x16
or **CXL x8**

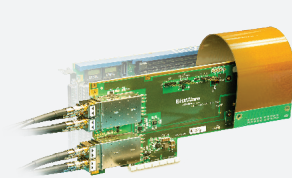
PCIe Gen5
with support for
CXL

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



Additional Services

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



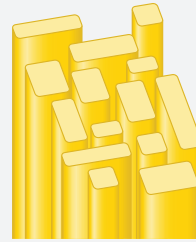
Customization

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



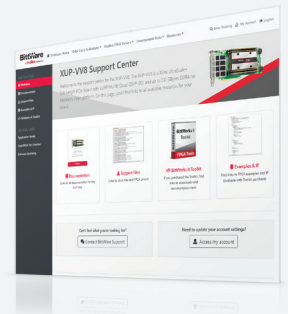
Server Integration

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">Intel Agilex 7 I-Series: AGI041Core speed grade -2: I/O speed grade -1 for CXL (CXL IP is licensed and purchased separately)F-Tile x1, R-Tile x3FPGA includes ARM HPS
ARM HPS	<ul style="list-style-type: none">Dedicated 40-bit DDR4Dedicated Flash memory for booting ARMOptional 1GbE interface (contact BittWare)
On-board Flash	<ul style="list-style-type: none">2Gbit Flash memory for booting FPGA
External memory	<ul style="list-style-type: none">2x banks DDR4 SDRAM up to 32GB each (default 16GB each)
Host interface	<ul style="list-style-type: none">x16 Gen5 interface direct to FPGA, connected to PCIe hard IPCXL support (CXL IP is licensed and purchased separately)
QSFP-DD cage	<ul style="list-style-type: none">400 Gbps (8x 50Gbps PAM4)PAM4: 1x 400GbE, 2x 200GbE, 4x 100GbE, 8x 50GbENRZ: 1x 200GbE, 2x 100GbE, 4x 50GbE, 8x 10/25 GbEMulti-rate hard MAC supports all combinationsJitter cleaner for network recovered clocking
MCIO	<ul style="list-style-type: none">x16 connectors each supporting PCIe Gen5x16 or CXL x8
External clocking	<ul style="list-style-type: none">1 PPS and 10MHz ref clk front panel inputs (optional)
USB	<ul style="list-style-type: none">USB access to BMC, USB-UART

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
- 111.15mm x 312.00mm (4.376in x 12.283in)

Development Tools

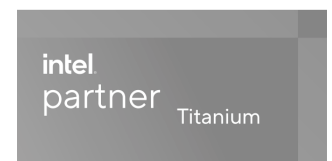
System development	BittWare SDK including PCIe driver, libraries, and board monitoring utilities
Application development	Supported design flows - Quartus Prime Pro (HDL, Verilog, VHDL, etc.). Contact BittWare for OneAPI support.

To learn more, visit www.BittWare.com

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BittWare
a **molex** company