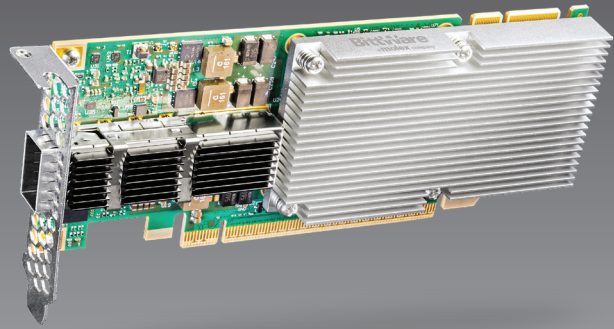




IA-440i
PCIe FPGA Card



Agilex™ FPGA card with 400GbE and PCIe Gen5 x16

BittWare's IA-440i is an Altera Agilex™ I-series FPGA card designed for building SmartNICs or other accelerators requiring a powerful FPGA in a single-slot form factor. The NIC-sized card provides a balance of I/O and memory using the Agilex chip's unique tiling architecture with a QSFP-DD (400GbE), DDR4 SDRAM, and PCIe Gen5 x16 with CXL support for a variety of applications.

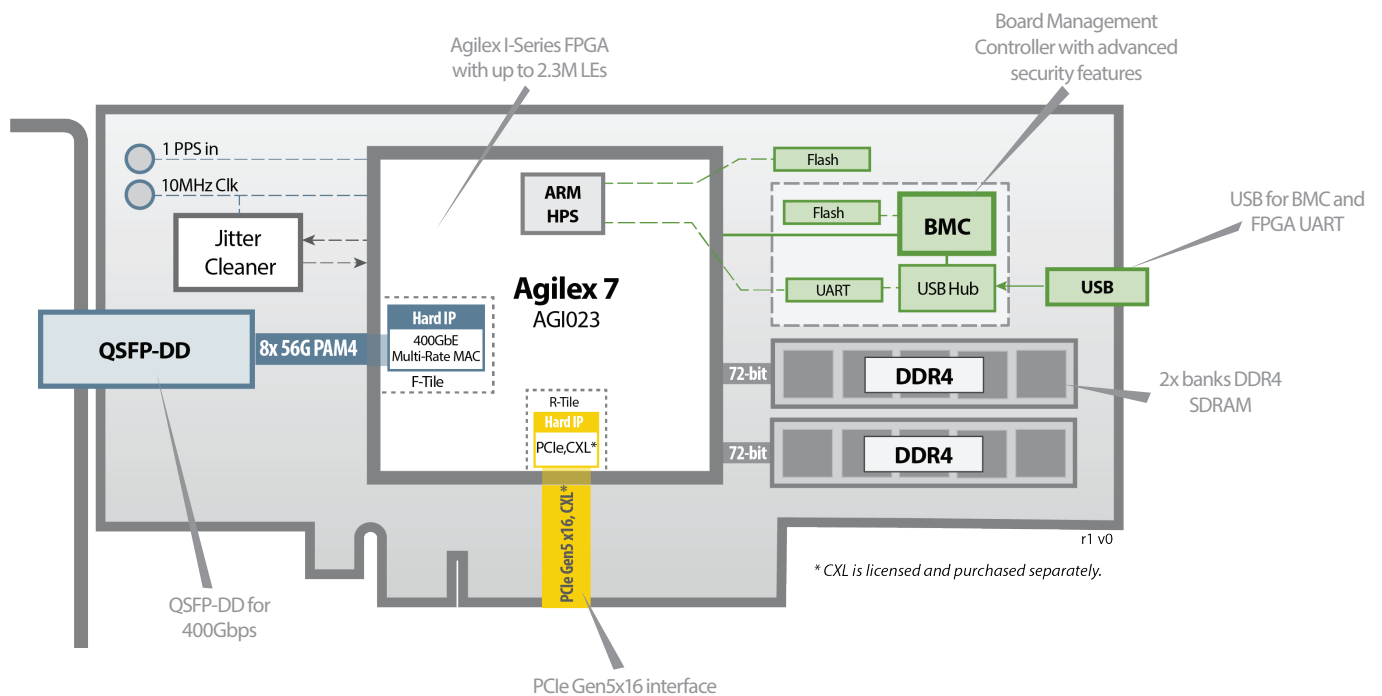


key features

1x 400G,
4x 100G, 2x 200G
or

PCIe Gen5
with support for
CXL

Altera Agilex™
I-Series
FPGA



Additional Services

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



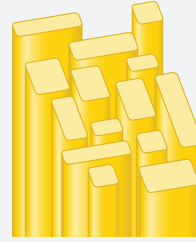
Customization

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



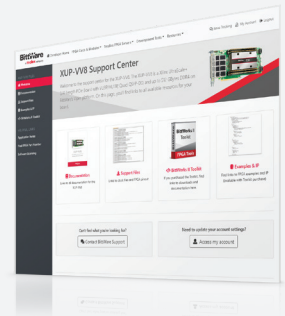
Server Integration

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"> Altera Agilex 7 I-Series AGI023 AGI023: Core speed grade -1: XCVR speed grade -1 XCVR speed grade -1 supports CXL (CXL IP is licensed and purchased separately) FPGA includes ARM HPS
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 on-board DDR4, 8GB each (16GB total)
Host interface	<ul style="list-style-type: none"> x16 Gen5 interface direct to FPGA, connected to PCIe hard IP CXL 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 50GbE NRZ: 1x 200GbE, 2x 100GbE, 4x 50GbE, 8x 10/25 GbE Multi-rate hard MAC supports all combinations Jitter cleaner for network recovered clocking
External clocking	<ul style="list-style-type: none"> 1 PPS and 10MHz ref clk inputs (in-board)
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

Cooling

- Standard: single-width passive heatsink

Electrical

- On-board power derived from PCIe slot
- Power dissipation is application dependent
- Max power consumption 75W

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

- Low profile (half-height, half-length) PCIe slot card
- Size: 68.90mm x 167.65mm (2.713in x 6.600in)

Accessory Cables

Access to USB and/or JTAG requires accessory cables. **Cables are sold separately.**

USB-only cable	Pico-lock to USB A cable BittWare part number: RS-PL12-UAP-83 Designed for deployment in servers
JTAG-only cable	Pico-lock to JTAG cable BittWare part number: RS-PL12-JTB-13 Recommended for development
USB+JTAG breakout card	Breakout card with access to both USB and JTAG BittWare part number: ACC-IA-JTUSB-BKO Recommended for development



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.

Safety & Compliance

- FCC (USA) 47CFR15.107 / 47CFR15.109
- CE (Europe) EN 55032:2015/A11:2020 / EN 55035:2017/A11:2020 / EN 61000-3-2:2014 / EN 61000-3-3:2013
- UKCA (United Kingdom) BS EN 55032:2015/A11:2020 / BS EN 55035:2017/A11:2020 / BS EN 61000-3-2:2014 / BS EN 61000-3-3:2013
- ICES (Canada) ICES-003 Issue 7 October 2020
- Safety EN IEC 62368-1:2018 / EN IEC 62368-1:2020 / EN IEC 62368-1:2020/A11:2020 / CB Scheme Certificate No. DK-151662-UL
- Safety (UK) BS EN IEC 62368-1:2018 / BS EN IEC 62368-1:2020 / BS EN IEC 62368-1:2020/A11:2020 / CB Scheme Certificate No. DK-151662-UL
- RoHS compliant to the 2011/65/EU + 2015/863 directive

To learn more, visit www.BittWare.com

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