

Agilex™ FPGA card with PCIe Gen5 x16

BittWare's IA-780i is an Intel® Agilex™ 7 I-series FPGA card designed for building SmartNICs or other accelerators requiring a powerful FPGA in a single-slot form factor. The standard-height, 3/4-length card provides a balance of I/O and memory using the Agilex chip's unique tiling architecture with two QSFP-DDs, DDR4 SDRAM SODIMMs, and PCIe Gen5 x16 with CXL support for a variety of applications. The IA-780i has support for Intel oneAPI™, which enables an abstracted development flow for dramatically simplified code re-use across multiple architectures.

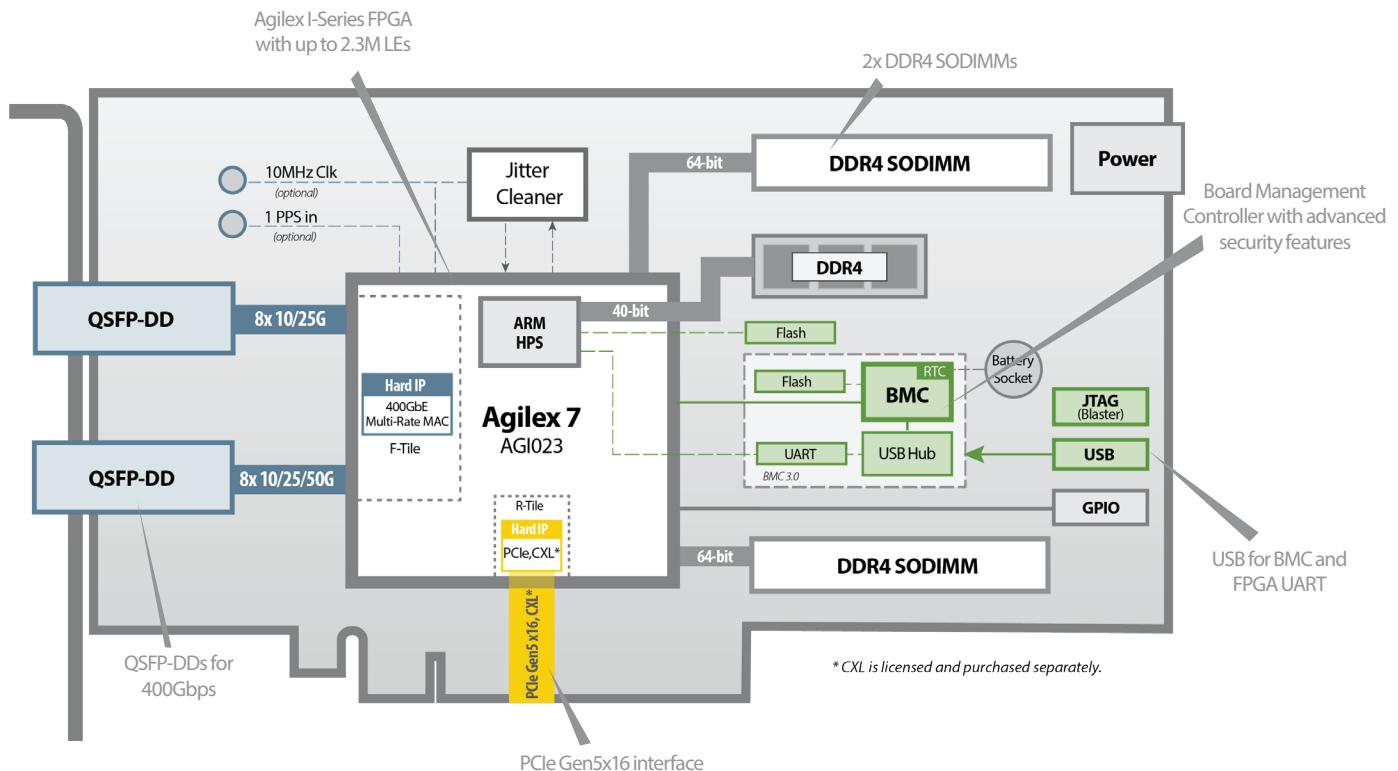


key features

1x 400G,
4x 100G, or
8x 10/25/50G

PCIe Gen5
with support for
CXL

Single
Width



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.



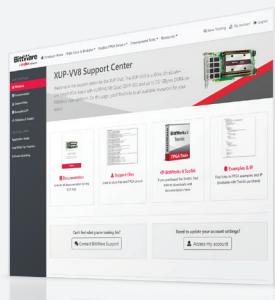
Server Integration

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: AGI023<ul style="list-style-type: none">Core speed grade -1: I/O speed grade -1 for CXL (CXL IP is licensed and purchased separately)FPGA includes ARM HPS | Board Management Controller | <ul style="list-style-type: none">Power sequencing and resetVoltage, current, temperature monitoring<ul style="list-style-type: none">Protection shut-downClock configurationLow bandwidth BMC-FPGA comms with SPI linkUSB 2.0PLDM supportCard-level security<ul style="list-style-type: none">BMC Root of TrustBMC and FPGA secure bootBMC and FPGA secure upgradeKey managementRTC with battery backup |
| ARM HPS | <ul style="list-style-type: none">Dedicated 40-bit DDR4Dedicated Flash memory for booting ARMOptional 1GbE interface (contact BittWare) | Cooling | <ul style="list-style-type: none">Standard: single-width passive heatsink |
| On-board Flash | <ul style="list-style-type: none">2Gbit Flash memory for booting FPGA | Electrical | <ul style="list-style-type: none">On-board power derived from PCIe slot and external power connectorPower dissipation is application dependentMax power consumption 150W |
| External memory | <ul style="list-style-type: none">2x SODIMM slots, each supporting up to 32GB (default 16GB) DDR4 SDRAM modules (up to 64GB total; no ECC support) | Environmental | <ul style="list-style-type: none">Operating temperature: 5°C to 35°C |
| 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) | Quality | <ul style="list-style-type: none">Manufactured to IPC-A-610 Class 2RoHS compliantCE, FCC, UKCA & ICES approvals |
| QSFP-DD cages | <ul style="list-style-type: none">QSFP-DD cages supporting a total of:<ul style="list-style-type: none">1x 400GbE, or 2x 200/100/50/25/10GbE, or4x 100GbE or 16x 10/25GbE with breakout cablesMulti-rate hard MAC supports all combinationsJitter cleaner for network recovered clocking | Form factor | <ul style="list-style-type: none">Standard-height, 3/4-length, single-slot PCIe cardSize: 111.15mm x 254.00mm (4.376in x 10.000in) |
| GPIO | <ul style="list-style-type: none">4x GPIO | | |
| 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 | | |

Development Tools

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



To learn more, visit www.BittWare.com

Rev 2023.11.10 | November 2023

© BittWare 2023

Agilex is a trademark of Intel Corp. All other products are the trademarks or registered trademarks of their respective holders.

BittWare
a **molex** company