

BittWare IA-720i PCIe Card

The BittWare IA-720i is an Altera 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 QSFP56s, DDR4 SDRAM, and PCIe Gen5 x16 for a variety of applications. The card features two M.2 slots supporting enterprise SSDs for data storage.



FEATURES AND ADVANTAGES

2x M.2 SSDs

Support for enterprise SSDs for data storage

PCIe Gen5 with CXL support

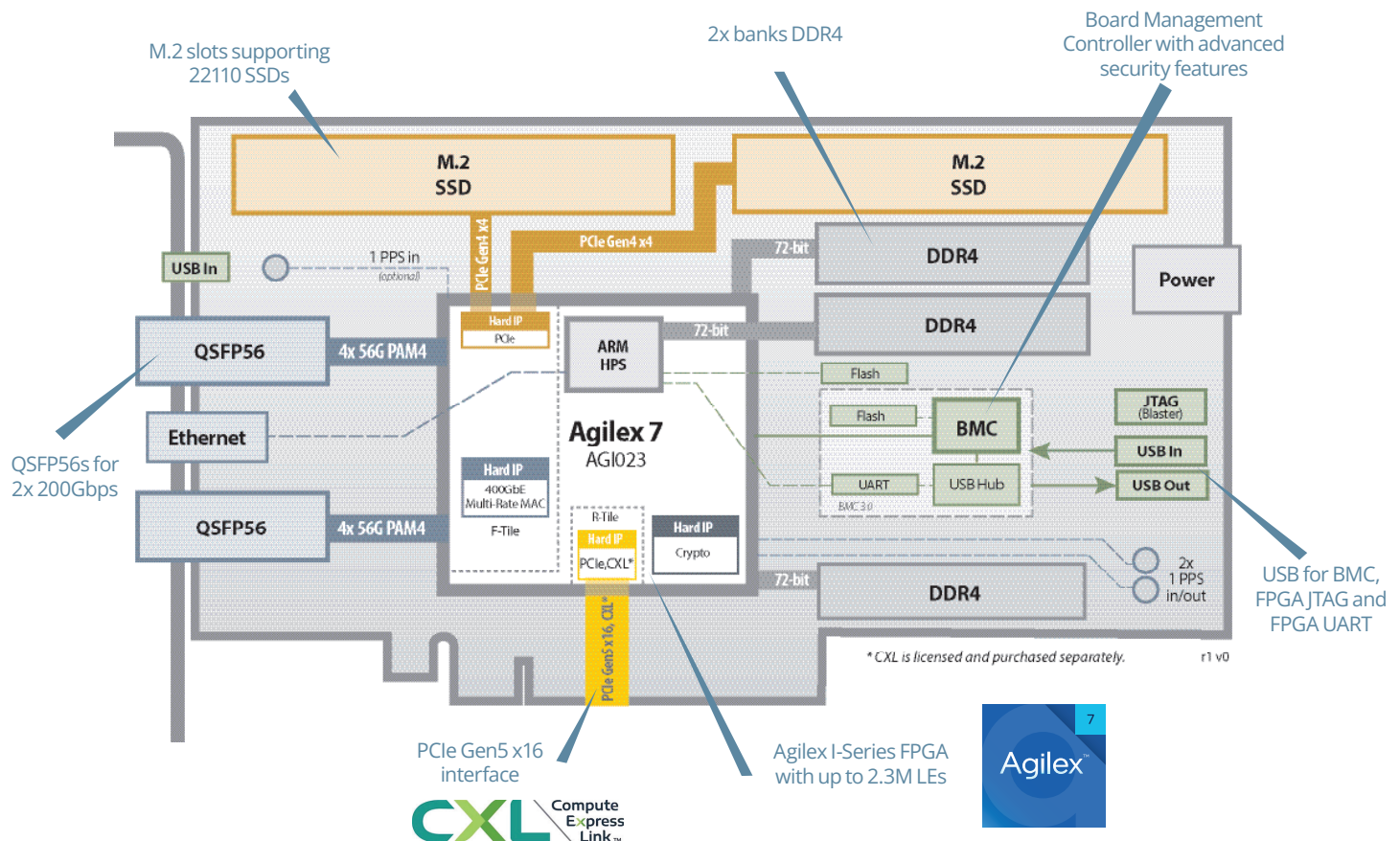
High-speed, low-latency host interface

Altera Agilex I-Series FPGA

Powerful FPGA resources with 2.3m LEs

Single width

Ideal for SmartNICs or other accelerators



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BOARD SPECIFICATIONS

FPGA

- Altera Agilex 7 I-Series: AGI023
 - Core speed grade -1: I/O speed grade -1 for CXL (CXL IP is licensed and purchased separately)
 - FPGA includes ARM HPS
 - Hard crypto blocks

ARM HPS

- Dedicated 72-bit DDR4
- Dedicated Flash memory for booting ARM
- Ethernet access via front-panel RJ45 (optional)

On-board Flash

- 2Gbit Flash memory for booting FPGA

External memory

- 2x 72-bit DDR4 banks (discrete components), up to 16GB each (32GB total)

Host interface

- x16 Gen5 interface direct to FPGA, connected to PCIe hard IP

M.2 SSD Slots

- 2x slots for NVMe PCIe M.2 22110 SSDs

QSFP56 cages

- QSFP56 cages supporting a total of 2x 200/100/50/25/10GbE
- Multi-rate hard MAC supports all combinations
- Jitter cleaner for network recovered clocking

External clocking

- 2x 1 PPS in/out (in-board)
- 1x 1 PPS in (in-board)

USB

- 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 and external power connector
- Power dissipation is application dependent
- Max power consumption 150W

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, 3/4-length, single-slot PCIe card
- Size: 111.15mm x 254.00mm (4.376in x 10.000in)

ACCESSORY CABLES

Access to USB and JTAG requires accessory cables. The USB in cable is included; the other cables are sold separately.

USB In cable	Pico-lock to USB A cable Part number: RS-PL05-UAP-83 Designed for deployment in servers
USB out cable	Pico-lock to Pico-lock Part number: RS-PL05-PL05-24
JTAG-only cable	Pico-lock to JTAG cable Part number: RS-PL06-JTB-13 Recommended for development

DEVELOPMENT TOOLS

System development

BittWare SDK including libraries and board monitoring utilities

Application development

Supported design flows - Altera High-Level Synthesis (C/C++) and Quartus Prime Pro (HDL, Verilog, VHDL, etc.)



To learn more, visit bittware-molex.com