PRODUCT OVERVIEW SHEET

BittWare IA-840f PCIe Card ›

The BittWare IA-840f is an Altera Agilex™-based FPGA card designed to deliver up to 40% higher performance for data center, networking and edge compute workloads.

We maximized I/O features on the card using the Agilex chip's unique tiling architecture with three QSFP-DDs (3× 200G) and PCIe Gen4 x16. The card also supports Intel oneAPI™, which enables an abstracted development flow for dramatically simplified code re-use across multiple architectures.

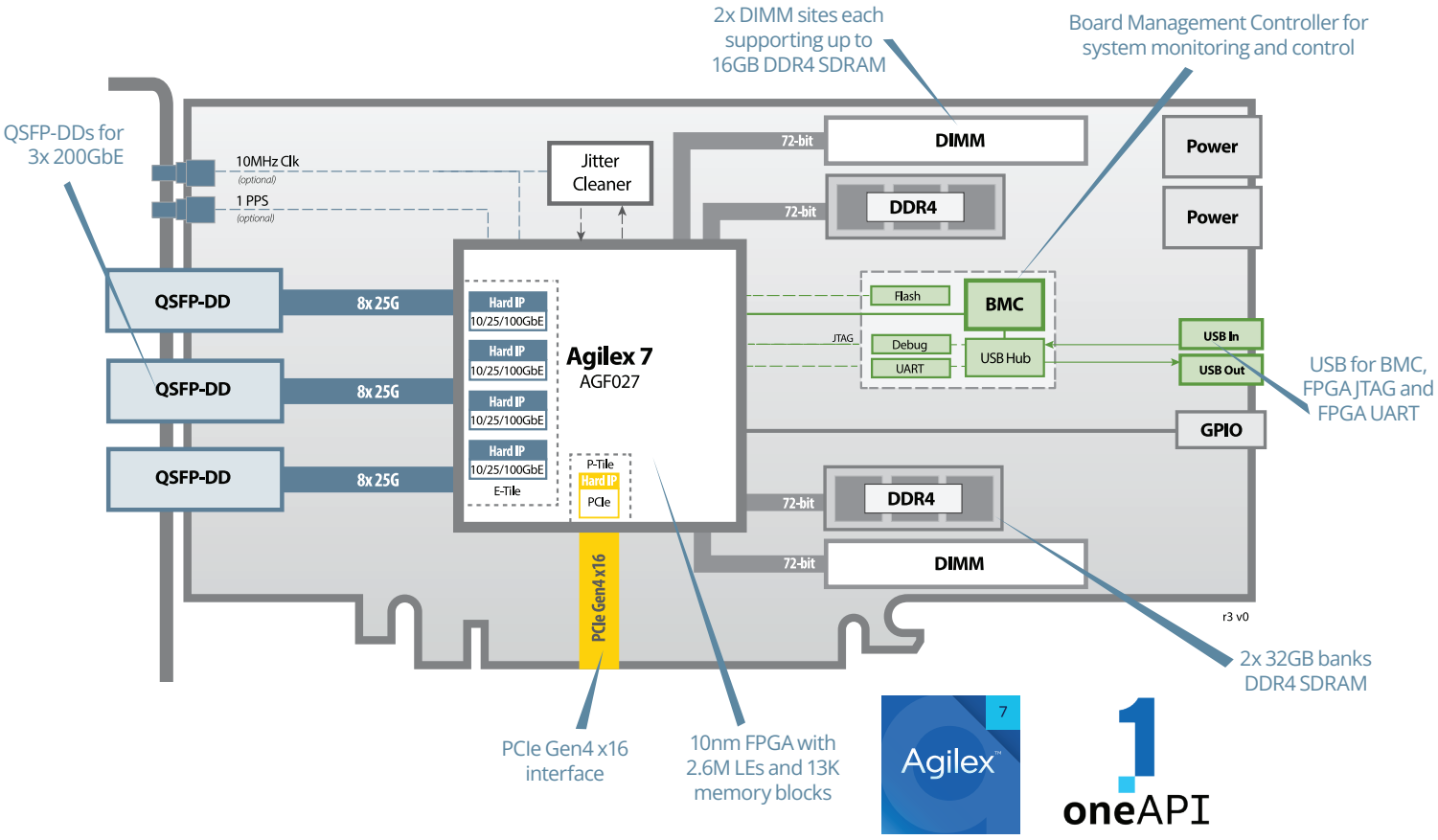
FEATURES AND ADVANTAGES

3x 200G via QSFP-DDs
Ideal for network-intensive applications

64GB DDR4 memory
Four banks of off-chip memory

Altera Agilex F-Series FPGA
Powerful FPGA resources with 2.6m LEs

Intel oneAPI support
Faster development and simplified code reuse



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BOARD SPECIFICATIONS

FFPGA
- Altera Agilex 7 F-Series
  - AGF027 in an R2581A package
  - Core speed grade -2: I/O speed grade -2
- Contact us for other Agilex FPGA options

On-board Flash
- 2Gbit Flash memory for booting FPGA

External memory
- 2x 288-pin DIMM slots, each supporting up to 16GB DDR4 SDRAM modules (up to 32GB total)
- 2x banks on-board DDR4, up to 32GB each

Host interface
- x16 Gen4 interface direct to FPGA, connected to PCIe hard IP

QSFP-DD cages
- 3 QSFP-DD cages on front panel connected directly to FPGA via 24 transceivers
- User programmable low jitter clocking supporting 10/25/40/100GbE
- Each QSFP-DD can be independently clocked
- Jitter cleaner for network recovered clocking
- Multi-rate hard MAC+FEC for 10/25/100GbE (4x HardIP)
- Fully backward compatible with QSFP28s

External clocking
- 1 PPS and 10MHz ref clk front panel inputs (optional)

USB
- USB access to BMC, USB-JTAG, USB-UART

Board Management Controller
- Voltage, current, temperature monitoring
- Power sequencing and reset
- Field upgrades
- FPGA configuration and control
- Clock configuration
- Low bandwidth BMC-FPGA comms with SPI link
- USB 2.0
- PLDM support
- Voltage overrides

Cooling
- Standard: dual-slot passive heatsink
- Optional: dual-slot liquid cooling

Electrical
- On-board power derived from PCIe slot 12V and two AUX connectors
- Power dissipation is application dependent
- Typical max power consumption 225W

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, dual-slot PCIe card
- 111.15mm x 266.70mm (4.376in x 10.500in)

DEVELOPMENT TOOLS

System development
BittWare SDK including libraries and board monitoring utilities

Application development
Supported design flows - Altera FPGA oneAPI Base Toolkit, Altera High-Level Synthesis (C/C++) and Quartus Prime Pro (HDL, Verilog, VHDL, etc.)

SAFETY & COMPLIANCE

- FCC (USA) 47CFR15.107 / 47CFR15.109
- CE (Europe) EN55032:2015 / EN55035:2017 / EN61000-3-2:2019 + A1:2021 / EN610003-3:2013 + A1:2019
- UKCA (United Kingdom) BS EN55032:2015 / BS EN55035:2017 / BS EN61000-3-2:2019 + A1:2021 / BS EN610003-3:2013 + A1:2019
- ICES (Canada) ICES-003 Issue 7
- RCM (Aus/NZ)
- Safety: CE (Europe) EN IEC 62368-1:2018 / EN IEC 62368-1:2020 + A11:2020 with national differences for Australia, New Zealand, EU Group, Singapore, United States, Canada and UK
- Safety: AS/NZS 62368-1:2022
- Safety: CSA/UL 62368-1:2019
- Safety: UKCA (United Kingdom) BS EN IEC 62368-1:2018 / BS EN IEC 62368-1:2020 +A11:2020
- CB Scheme Certificate No. DK-141340-UL
- RoHS compliant to the 2011/65/EU + 2015/863 directive

To learn more, visit **bittware-molex.com**

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