BittWare
a **molex** company

IA-420F
PCIe FPGA Card

intel
AGILEX

BittWare | FPGA
ACCELERATION
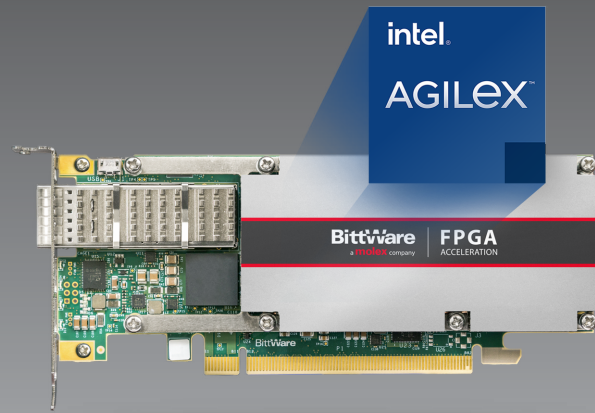
Agilex™ FPGA card with PCIe Gen4 x16
200Gbps with up to 16GBytes DDR4 SDRAM

BittWare's IA-420F is an Intel® Agilex™-based FPGA card designed to deliver next generation performance for data center, networking and edge compute workloads. The NIC-sized card provides a balance of I/O and memory using the Agilex chip's unique tiling architecture with a QSFP-DD (1× 200G), DDR4 SDRAM, PCIe Gen4 x16, and a GPIO port for diverse applications. The card also supports Intel oneAPI™, which enables an abstracted development flow for dramatically simplified code re-use across multiple architectures.
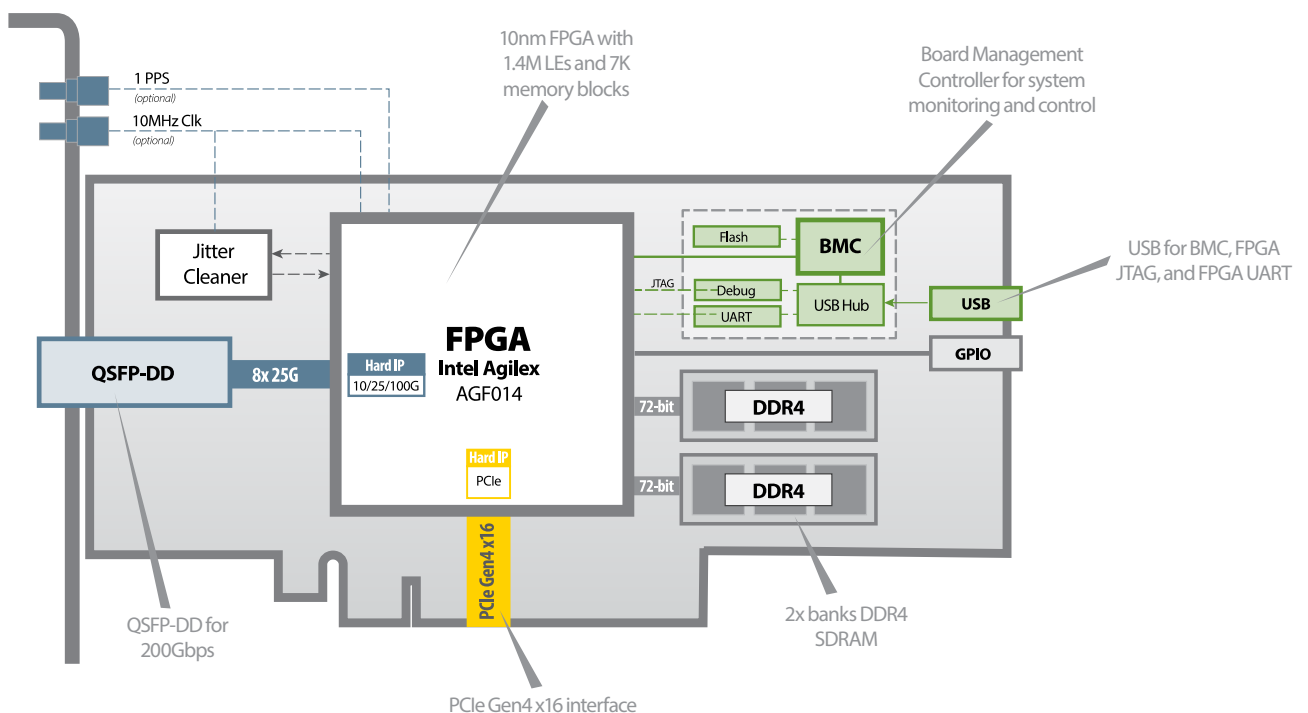
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oneAPI

The IA-420F supports Intel's OneAPI open standards-based unified programming model

key features

QSFP-DD	Intel	Intel Agilex™ FPGA
QSFP-DD for 200G	**Intel OneAPI** support	**Intel Agilex™ FPGA** with up to **1.4M Logic Elements**

1 PPS
(optional)

10MHz Clk
(optional)

10nm FPGA with 1.4M LEs and 7K memory blocks

Board Management Controller for system monitoring and control

Jitter Cleaner

Flash

BMC

JTAG

Debug

USB Hub

USB

USB for BMC, FPGA JTAG, and FPGA UART

UART

QSFP-DD

8x 25G

Hard IP
10/25/100G

FPGA
Intel Agilex
AGF014

GPIO

72-bit

DDR4

Hard IP
PCIe

72-bit

DDR4

QSFP-DD for 200Gbps

PCIe Gen4 x16

2x banks DDR4 SDRAM

PCIe Gen4 x16 interface

Additional Services

Take advantage of BittWare's range of design, integration, and support options
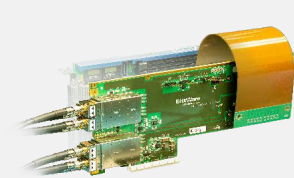
Customization
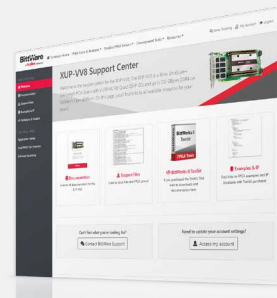Additional specification options or accessory boards to meet your exact needs.

Server Integration
Available pre-integrated in our TeraBox servers in a range of configurations.

Application Optimization
Ask about our services to help you port, optimize, and benchmark your application.

Service and Support
BittWare Developer Site provides online documentation and issue tracking.

Board Specifications

FPGA	• Intel Agilex AGF014 • Core speed grade -2: I/O speed grade -2 • Contact BittWare for other Agilex FPGA options
On-board Flash	• 2Gbit Flash memory for booting FPGA
External memory	• 2x banks on-board DDR4, up to 8GB each
Host interface	• x16 Gen4 interface direct to FPGA, connected to PCIe hard IP
QSFP-DD cages	• QSFP-DD cage on front panel connected directly to FPGA via 8 transceivers • User programmable low jitter clocking supporting 10/25/40/100GbE • Jitter cleaner for network recovered clocking
GPIO	• 8x GPIO expansion connector
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: 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 ISO9001:2015 IPC-A-610-Class III • RoHS compliant • CE, FCC & ICES approvals
Form factor	• Low profile (half-height, half-length) PCIe slot card • Size: 167.7 mm x 68.9 mm

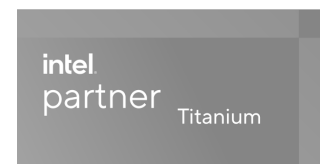## Development Tools

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++) & Quartus Prime Pro (HDL, Verilog, VHDL, etc.)

To learn more, visit **www.BittWare.com**

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