



Agilex™ FPGA card featuring 400G and Gen5 PCIe

M-series FPGA with HBM2e supporting 1TBps total memory bandwidth

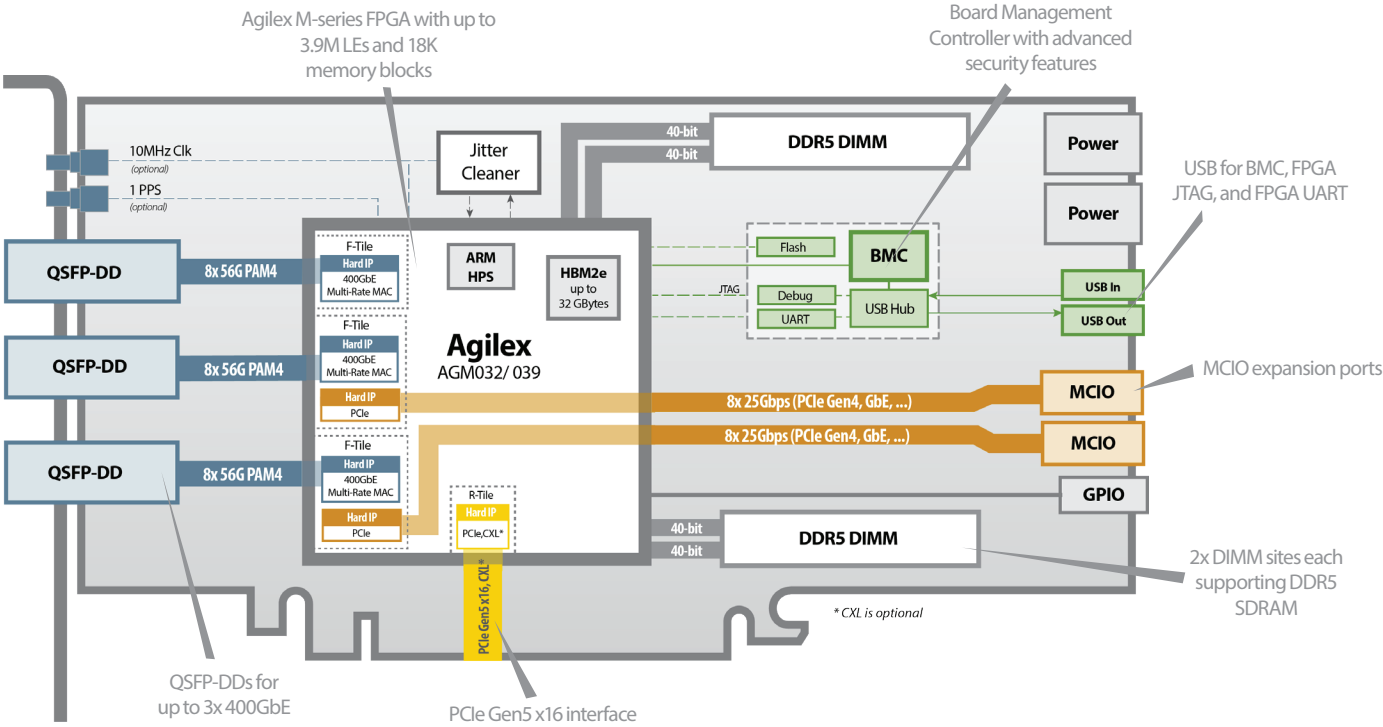
BittWare's IA-860m is an Intel® Agilex™ M-series FPGA card optimized for throughput- and memory-intensive applications. The M-series FPGA features an extensive memory hierarchy including integrated high-bandwidth memory (HBM2e), DDR5 memory interfaces, and support for Optane/persistent memory, in addition to a hard memory Network-on-Chip (NoC) to maximize memory bandwidth. The IA-860m card provides a balance of I/O and memory leveraging the Agilex chip's unique tiling architecture with dual QSFP-DDs, DDR5 SDRAM, PCIe Gen5 x16 with CXL support, and MCIO expansion ports for a variety of applications.

The IA-860m has support for Intel oneAPI™, which enables an abstracted development flow for dramatically simplified code re-use across multiple architectures.



key features

- 3x 400G,**
12x 100G, or
24x 10/25/50G
- PCIe Gen5**
with support for
CXL
- up to 32 GB**
HBM2e
Memory



Additional Services

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



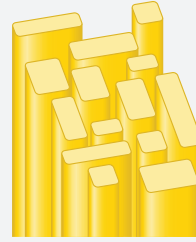
Customization

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



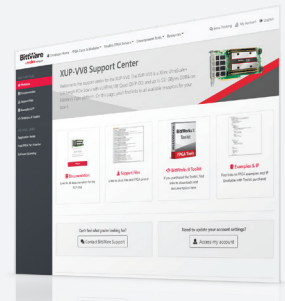
Server Integration

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 AGM039 (default) <ul style="list-style-type: none"> Package: R47A 16GB HBM2e Core speed grade -2; XCVR speed grade -2 FPGA includes ARM HPS Other Agilex FPGA options are available, including <ul style="list-style-type: none"> CXL with XCVR speed grade -1 (CXL IP is licensed and purchased separately) 32GB HBM2e
On-board Flash	<ul style="list-style-type: none"> 2Gbit Flash memory for booting FPGA
External memory	<ul style="list-style-type: none"> 2x 288-pin DDR5 DIMM slots, each supporting 16GB (default) DDR5 SDRAM modules (32GB total)
Host interface	<ul style="list-style-type: none"> x16 PCIe Gen5 interface direct to FPGA CXL v1.1 (CXL IP is licensed and purchased separately)
QSFP-DD cages	<ul style="list-style-type: none"> 3x QSFP-DD cages on front panel connected directly to FPGA via 24 transceivers User programmable low jitter clocking supporting 10/25/40/100/400GbE Each QSFP-DD can be independently clocked Jitter cleaner for network recovered clocking Multi-rate hard MAC+FEC Fully backward compatible with QSFP28s
MCIO	<ul style="list-style-type: none"> Two x8 connectors each supporting 2x Gen4 x4 root complexes (4x Gen4 x4 total)
External clocking	<ul style="list-style-type: none"> 1 PPS and 10MHz ref clk front panel inputs (optional)
USB	<ul style="list-style-type: none"> USB access to BMC, USB-JTAG, 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: dual-width passive heatsink
- Optional: dual-width liquid cooling

Electrical

- On-board power derived from PCIe slot 12V and two 8-pin AUX power connectors
- Power dissipation is application dependent
- Typical max power consumption TBD

Environmental

- Operating temperature: 5°C to 35°C (passive heatsink)

Quality

- Manufactured to IPC-A-610 Class 2
- RoHS compliant
- CE, FCC and ICES approvals

Form factor

- Standard-height, 3/4-length, dual-slot PCIe card
- 4.376 x 10.5 inches (111.15 x 266.7 mm)

Development Tools

System development

BittWare SDK including PCIe driver, libraries, and board monitoring utilities

Application development

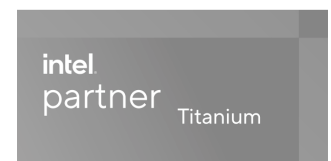
Supported design flows - Intel FPGA oneAPI Base Toolkit, Intel High-Level Synthesis (C/C++) and Quartus Prime Pro (HDL, Verilog, VHDL, etc.)

To learn more, visit www.BittWare.com

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