



Agilex™ FPGA card featuring 400G and Gen5 PCIe

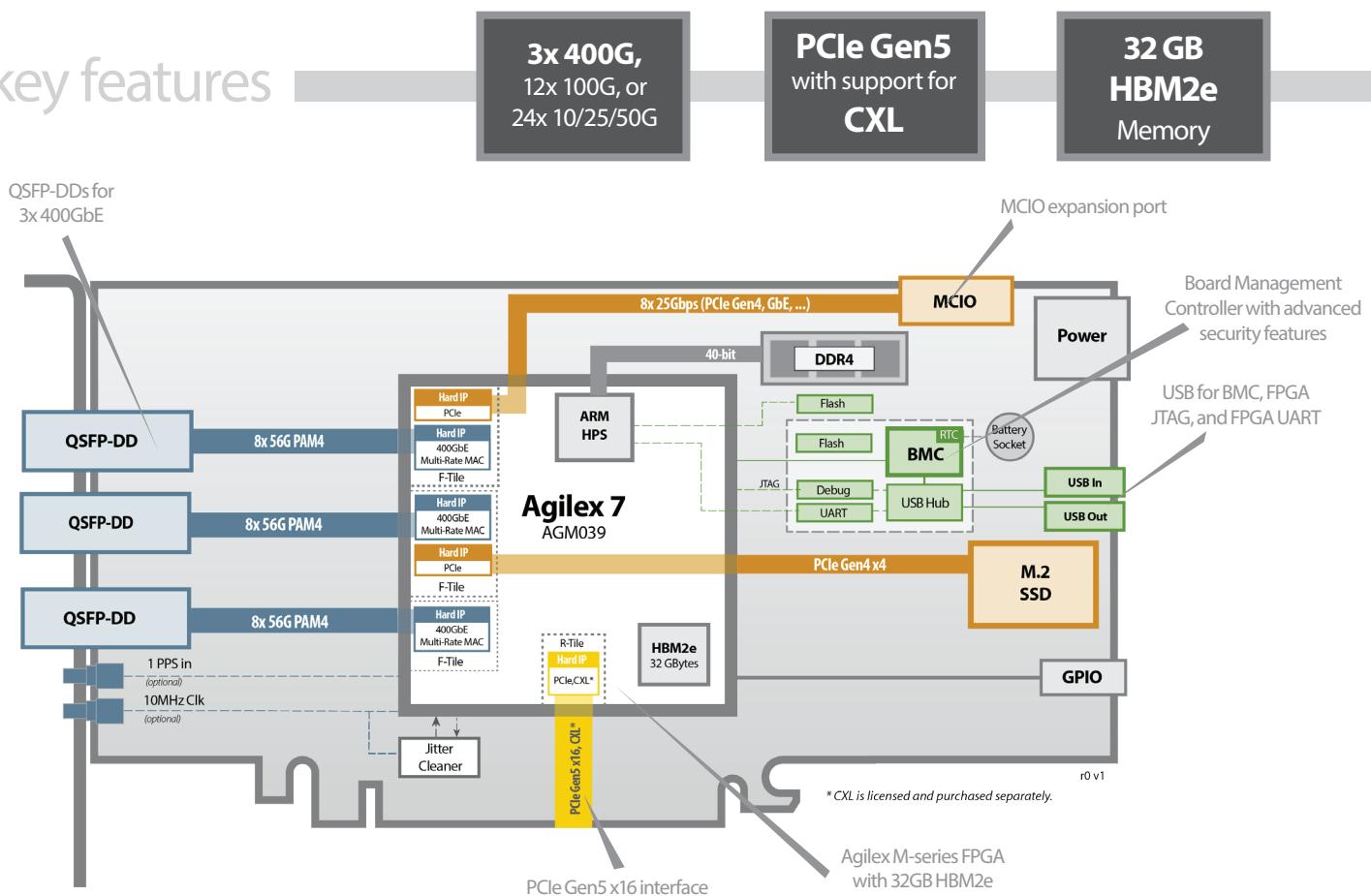
M-series FPGA with HBM2e supporting 1TBps total memory bandwidth

BittWare's IA-860m is an Altera 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) and 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 QSFP-DDs, PCIe Gen5 x16 with CXL support, and MCIO expansion port for a variety of applications. An M.2 SSD slot accommodates additional storage.

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



Additional Services

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



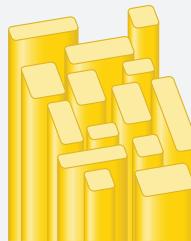
Customization

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



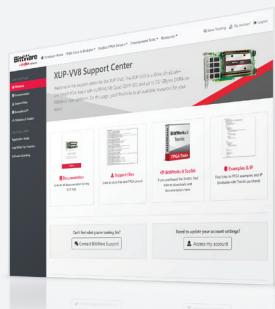
Server Integration

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">Altera Agilex 7 M-Series: AGM039 (default)<ul style="list-style-type: none">Package: R47A32GB HBM2eCore speed grade -2; XCVR speed grade -1CXL with XCVR speed grade -1 (CXL IP is licensed and purchased separately)FPGA includes ARM HPS
ARM HPS	<ul style="list-style-type: none">Dedicated 40-bit DDR4Dedicated Flash memory for booting ARMOptional 1GbE interface (contact BittWare)
On-board Flash	<ul style="list-style-type: none">2Gbit Flash memory for booting FPGA
Host interface	<ul style="list-style-type: none">x16 PCIe Gen5 interface direct to FPGACXL support (CXL IP is licensed and purchased separately)
M.2 SSD Slot	<ul style="list-style-type: none">Slot for NVMe PCIe M.2 2230 SSD
QSFP-DD cages	<ul style="list-style-type: none">3x QSFP-DD cages on front panel connected directly to FPGA via 24 transceiversUser programmable low jitter clocking supporting 10/25/40/100/200/400GbEEach QSFP-DD can be independently clockedJitter cleaner for network recovered clockingMulti-rate hard MAC+FECFully backward compatible with QSFP28s
MCIO	<ul style="list-style-type: none">x8 connector supporting 2x Gen4 x4 root complexes
GPIO	<ul style="list-style-type: none">4x GPIO
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	<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
Cooling	<ul style="list-style-type: none">Standard: dual-width passive heatsinkOptional: dual-width liquid cooling
Electrical	<ul style="list-style-type: none">On-board power derived from PCIe slot 12V and 12-pin AUX power connectorPower dissipation is application dependentTypical max power consumption TBD
Environmental	<ul style="list-style-type: none">Operating temperature: 5°C to 35°C (passive heatsink)
Quality	<ul style="list-style-type: none">Manufactured to IPC-A-610 Class 2RoHS compliantCE, FCC, UKCA & ICES approvals
Form factor	<ul style="list-style-type: none">Standard-height, full-length, dual-slot PCIe card111.15mm x 312.00mm (4.376in x 12.283in)

Development Tools

System development	BittWare SDK including PCIe driver, 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.)

Accessory Cables

Access to USB and JTAG requires accessory cables. **Cables are sold separately.**

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

To learn more, visit www.BittWare.com

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