

BittWare
a molex company

IA-860m
PCIe FPGA Card



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.

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

CXL Compute Express Link™

1
oneAPI

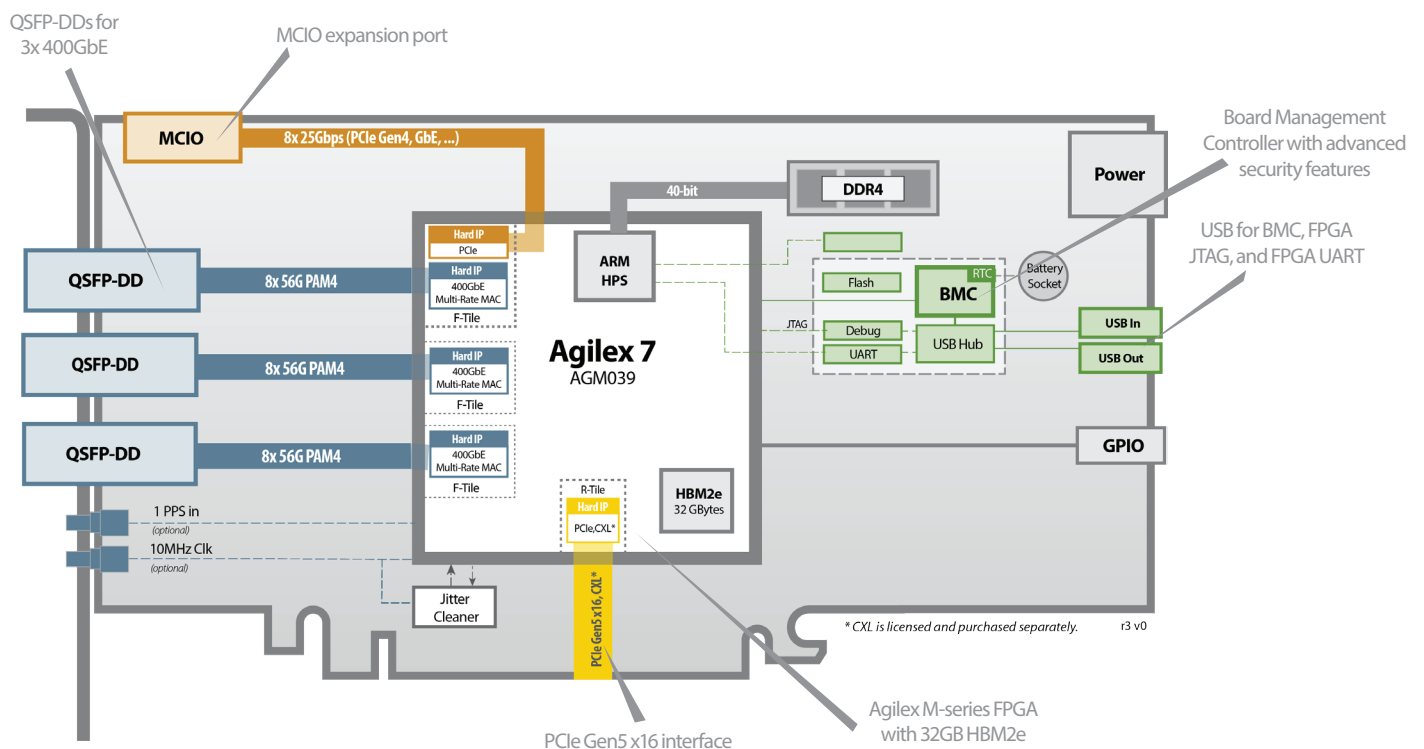
intel
AGILEX™
7

key features

3x 400G,
12x 100G, or
24x 10/25/50G

PCIe Gen5
with support for
CXL

32 GB
HBM2e
Memory



IA-860m

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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)
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.)

Safety & Compliance

- FCC (USA) 47CFR15.107 / 47CFR15.109
- CE (Europe) EN55032:2015 / EN55035:2017 / EN61000-3-2:2019 + A1:2021 / EN610003-3:2013
- UKCA (United Kingdom) BS EN55032:2015 / BS EN55035:2017 / BS EN61000-3-2:2019 +
- ICES (Canada) ICES-003 Issue

Accessory Cables

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

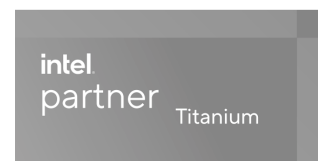
USB In cable	Pico-lock to USB A cable BittWare part number: RS-PL05-UAP-83 Designed for deployment in servers
USB Out cable	Pico-lock to Pico-lock BittWare part number: RS-PL05-PL05-24
JTAG-only cable	Pico-lock to JTAG cable BittWare part number: RS-PL06-JTB-13 Recommended for development

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

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