BittWare
a **molex** company

AX-440p
PCIe ACAP Card

BittWare | FPGA ACCELERATION

Versal™ ACAP Accelerator
Ready for the most demanding compute-intensive workloads

BittWare's AX-440p is a PCIe Gen5 accelerator card designed to deliver extreme performance for data center and edge compute workloads. Featuring AMD Xilinx®'s 7nm Versal™ Premium ACAP device, the AX-440p is a deployment-ready NIC-sized PCIe accelerator compatible with high-performance servers. The AX-440p features a QSFP-DD for up to 400G, dual PCIe Gen5 x8, and a sophisticated Board Management Controller (BMC) for advanced system monitoring, control, and security.
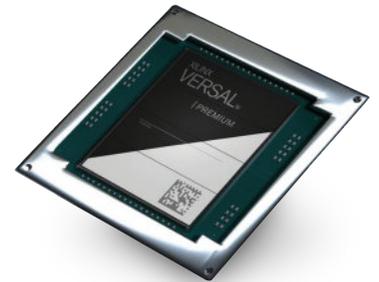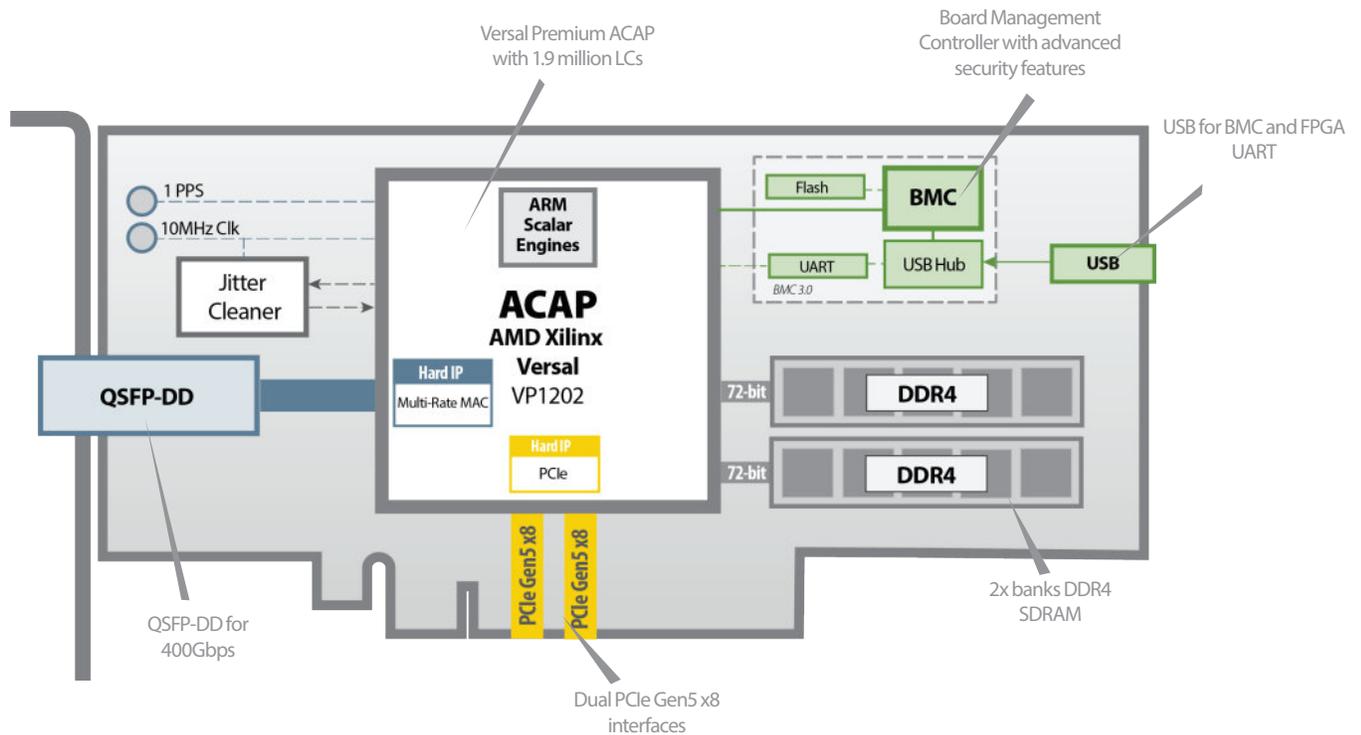
AMD XILINX

VERSAL I PREMIUM

key features

QSFP-DD	Dual PCIe	Versal ACAP
for 400G	Gen5 x8	with **1.9M Logic Cells**

Versal Premium ACAP with 1.9 million LCs

Board Management Controller with advanced security features

USB for BMC and FPGA UART

1 PPS
10MHz Clk

Jitter Cleaner

ARM Scalar Engines

Flash — BMC

UART — USB Hub — USB
BMC 3.0

ACAP
AMD Xilinx
Versal
VP1202

Hard IP
Multi-Rate MAC

QSFP-DD

Hard IP
PCIe

72-bit — DDR4

72-bit — DDR4

PCIe Gen5 x8
PCIe Gen5 x8

QSFP-DD for 400Gbps

Dual PCIe Gen5 x8 interfaces

2x banks DDR4 SDRAM

Additional Services

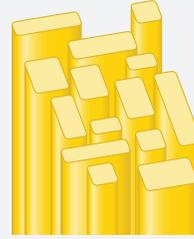Take advantage of BittWare's range of design, integration, and support options

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

ACAP	• Versal Premium
	   • VP1202
	   • Core speed grade - 2
	• Contact BittWare for other ACAP options

On-board Flash	• Flash memory for booting ACAP
External memory	• 2x banks on-board DDR4, up to 16GB each
Host interface	• Dual x8 Gen5 interfaces direct to ACAP, connected to PCIe Hard IP
QSFP-DD cage	• 1x 400GbE, 2x 200GbE, 4x 100GbE, 8x 50GbE • Multi-rate hard MAC • Jitter cleaner for network recovered clocking
External clocking	• 1 PPS and 10MHz ref clk inputs (in-board)
USB	• USB access to BMC, 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: 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 IPC-A-610 Class 2 • RoHS compliant • CE, FCC and ICES approvals
Form factor	• Low profile (half-height, half-length) PCIe slot card • Optional: full-height • 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 -Vivado Design Suite (HDL, Verilog, VHDL, etc.)

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