

ELMA BRINGS ARTIFICIAL INTELLIGENCE TO COMPACTPCI SERIAL PLATFORMS

NVIDIA® Jetson AGX Orin™ Industrial sets a new bar for compute density, energy efficiency, and AI inferencing capabilities on edge devices. It is the next evolution in next-generation intelligent machines with end-to-end autonomous capabilities. Elma Electronic makes this compute power usable in CompactPCI Serial platforms.

The JetKit-3020 fits perfectly into your existing CompactPCI Serial environment and provides a boost of computing power for your AI applications. With its industry leading performance, power efficiency, integrated deep learning capabilities and rich I/O, the Nvidia® Jetson AGX Orin™ Industrial enables emerging technologies with compute-intensive requirements. Designed for applications converging on artificial intelligence (AI), computer vision (CV) and advanced graphics, the AGX Orin™ Industrial is ideal for (but not limited to): Intelligent Video Analytics (IVA), Robotics, Virtual Reality (VR), Augmented Reality (AR), Portable Medical Devices and Autonomous Driving.

**BOARD INTERFACES****Front panel**

- USB 3.2 Gen 2 Type C (2x)
- USB 2.0 Type A
- 1000Base-T Ethernet via RJ45 connector
- Mini-HDMI
- MicroUSB (Client)
- SD-Slot
- Power, M.2 activity and 3x User LEDs
- Reset and Recovery Push Buttons

Backplane Interfaces

- 2x PCIe x8 Gen4 (Root Complex or End Point)
- Gigabit Ethernet
- USB2.0

Storage

- 64 GB eMMC 5.1 Flash Storage
- On-Board M.2 (2242) Type M NVMe socket (Storage Module can be ordered as an option)

SOFTWARE SUPPORT

The board comes pre-installed with Nvidia Jetson Linux, part of Nvidia JetPack 6.x, tailored to the hardware design. The JetKit-3020 benefits from NVIDIA's rich set of AI tools and the NVIDIA JetPack SDK. Contact Elma for available board support package and pre-install options.

FEATURES

Board Features and Compliance

Compliant with PICMG® CPCI-S.0 R3.0 CompactPCI® Serial. Can be used in system slot and peripheral slot
BMC controller for reset management, power and voltage monitoring

Ampere GPU

Two graphics processing clusters (GPC) eight texture processing clusters (TPC)
2048 NVIDIA CUDA cores | 64 Tensor Cores Ray-Tracing cores | 156 Sparse TOPS | maximum operating frequency 1.185 GHz | End-to-end lossless compression | Tiled Caching | OpenGL® 4.6+ | OpenGL ES 3.2 | Vulkan™ 1.2+ | CUDA® 10.2+

Arm Cortex-A78AE CPU complex

ARMv8.2 (64-bit) heterogeneous multi-processing (HMP) CPU architecture | 12x cores | three CPU clusters (four cores/cluster) | 259 SPECint_rate2006 | L3 Cache: 2 MB per CPU cluster
128 KB L1 instruction cache (I-cache) per core; 64 KB L1 data cache (D-cache) per core | L2 Cache: 256 KB per CPU core

Audio Subsystem

Dedicated programmable audio processor | ARM Cortex A9 with NEON | PDM in/out | Industry-standard High-Definition Audio (HDA) controller provides a multi-channel audio path to the HDMI® interface.

Memory

64 GB 256-bit LPDDR5/LPDDR5x DRAM with ECC support
Secure External Memory Access Using TrustZone Technology | System MMU | ECC (enabled by software)

Storage

64 GB eMMC 5.1 Flash Storage | Bus Width: 8-bit | Maximum Bus Frequency: 200 MHz (HS400 or HS533)
64 MB QSPI NOR Boot Flash Storage
8 MB NOR Secure Key Flash
M.2 socket for NVMe module 2242 (PCIe x4)

Networking

2x 10/100/1000 BASE-T Ethernet | Media Access Controller (MAC) (1x integrated in SoC, 1x Intel i210)
1x 10/100/1000 BASE-T via BP
1x 10/100/1000 BASE-T on Front panel

Display Controller Subsystem

HDMI 2.1 (up to 12 Gbps)
Maximum Resolution:
(up to) 8K60 (up to 36 bpp)

Multi-Stream HD Video & JPEG

Video Encode
1x 4K60 | 3x 4K30 | 7x 1080p60 | 15x 1080p30 (H.265) H.264, AV1
Video Decode
1x 8K30 | 3x 4K60 | 7x 4K30 | 11x 1080p60 | 23x 1080p30 (H.265) H.264, VP9, AV1
JPEG (Decode & Encode)

Peripheral Interfaces

USB xHCI host controller with integrated PHY;
2x USB 3.2 Gen2 (Front Type C),
1x USB 2.0 (Front),
1x USB 2.0 (BP)
2x PCIe x8 Gen4 Root Complex or End Point via BP
SD/MMC controller (supporting eMMC 5.1, SD 4.0, SDHOST 4.0 and SDIO 3.0)
2x UART

Mechanical

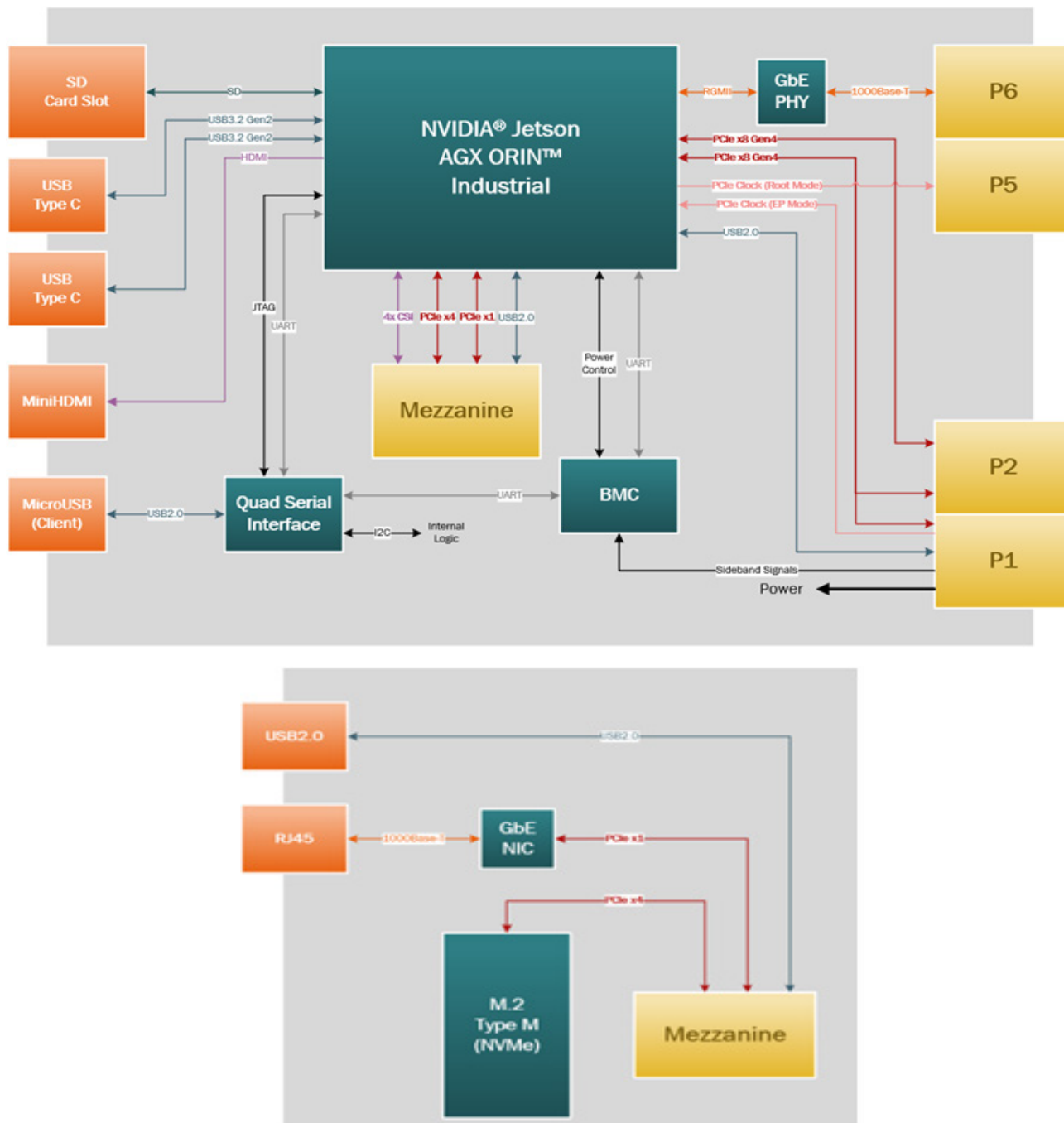
Board Size: 160 mm x 100 mm x 8 HP
Heat sink: high-performance heat sink for advanced cooling

Power

Power Input: 12V Main Power, 5V Standby (optional)

Environmental

Operating Temperature: -20 °C to +50 °C (15 - 75 W power profile)
Storage Temperature: -20 °C to +85 °C

BLOCK DIAGRAM**ORDERING INFORMATION**

ELMA PN	Description
070-292	JetKit-3020 CompactPCI Serial Nvidia® AGX Orin™ board with Nvidia Industrial module, 3U / 8HP FP I/F: 2x USB-C, MicroUSB, USB2.0 Type A, MiniHDMI, 1000Base-T on RJ45, MicroSD BP I/F: 2x PCIe x8 Gen4, 1000Base-T, USB2.0