



- GPU Accelerated
- Multiple Camera Input
- High Speed Interfaces
- Rolling Stock & Automotive
- Rugged
- Customizable

Features

GPU Accelerated - Powered by NVIDIA Jetson Xavier NX with up to 21 TOPS of GPU accelerated computing

Multiple Camera Input - Supports high speed, high frame rate cameras on GMSL, GbE and USB3

High Speed Interfaces - Provides best in class interfaces, like 3x GbE, 4x GMSL, USB3.1 G2 and Wi-Fi 6

Rolling Stock & Automotive - Certified for EN50155, EN45545 and E-Mark, supporting GNSS with Untethered Dead Reckoning

Rugged - Comes with rugged connectors, EN50155 OT3 operating temperature and with a 24-110VDC EN50155 power supply

Customizable - Personalization and full customization options are available, ranging from branding ("skins" and color) to deep HW/SW configurations

Description

The BoltGPU 10-31 is a rugged subsystem that has been designed to deliver GPU acceleration to Rolling Stock and Automotive applications.

Based on NVIDIA Jetson Xavier NX, it combines a 6-core, high-performance ARM CPU with a 384-core GPU and 48 Tensor Cores, offering exceptional power efficiency and up to 21 TOPS of accelerated computing.

The BoltGPU 10-31 is a power efficient, stand-alone unit that enables traditional and GPU-accelerated workloads in harsh environments, and comes with Automotive and Rolling Stock certifications, such as EN50155, EN45545 and E-Mark.

With a very complete set of high-speed interfaces, the BoltGPU 10-31 can be used to process multiple video streams from high speed, high frame rate cameras: it provides 3x GbE, 4x GMSL and 3x USB3.1 Gen 2 ports (noise and surge protected) that can be used to connect sensors and to create sophisticated networking architectures. Wireless connectivity is also cutting edge, thanks to Wi-Fi 6, BT5.1 and support for optional LTE modems.

The BoltGPU 10-31 offers plenty of storage capacity for video and other data via an internal NVME unit; removable storage is also supported via a microSD interface.

On-vehicle features include isolated CAN-FD and opto-isolated DIO, a GNSS with Untethered Dead Reckoning (optionally RTK), and rugged M12 connectors.

Other transportation and heavy-duty enablers are a wide range power input (24-110VDC, EN50155) with ignition sense and EN50155 OT3 operating temperature range (-25 to +70°C).

The BoltGPU 10-31 shares the same form factor of the BoltGATE 20-31 and of its expansion modules, making it possible to create hybrid architectures with extra features.

For customers seeking a tailored product, Eurotech offers a range of personalization and full customization options, ranging from branding ("skins" and color) to deep HW/SW configurations.

Ordering Code: BTGPU-10-31-XX

| XX | | -21 | -24 |
|-------------------------|-----------------------|--|--|
| NVIDIA MODULE | Core | NVIDIA® Jetson Xavier NX™ | |
| | CPU | 6-core NVIDIA Carmel ARM® v8.2 64-bit CPU 6MB L2 + 4MB L3 | |
| | GPU | 384-core NVIDIA Volta™ GPU with 48 Tensor Cores | |
| MEMORY | RAM | 8 GB 128-bit LPDDR4x @1600MHz, 51.2GB/s | |
| STORAGE | Embedded | 16 GB eMMC 5.1 | |
| | NVME | - | 512GB on M.2 Key M |
| | Additional Storage | Micro SD Slot (User Accessible) | |
| I/O INTERFACES | Ethernet | 3x 10/100/1000 Mbps - M12 | |
| | USB 3.0 | 2x Host USB3.1 Gen.2 (Noise and Surge Protected) - Type A | |
| | Serial | 1x TTL Serial Console | |
| | CAN | 1x CAN-FD (Isolated) - DB9 | |
| | Digital IO | 2x Digital Inputs Optoisolated 2x Digital Outputs Optoisolated | |
| | Video OUT | 1x Video Output (Display Port) | |
| CAMERA INPUT | Camera IN | 4x GMSL (1.5Gbps to CSI-2) | |
| RADIO INTERFACES | Wi-Fi/BT Radio | - | Wi-Fi 6 (802.11ax/ac/abgn) + BT 5.1/BLE |
| | Cellular Radio | Factory Option | |
| | GNSS | - | Internal (72 channels BeiDou, Galileo, GLONASS, GPS, QZSS) - Untethered Dead Reckoning (RTK GNSS - Factory Option) |
| EXPANSIONS | M.2 Key B | 1x M.2 Key B (3042, 3052) - (USB3.1, USB2, PCIe x1) | |
| | M.2 Key E | 1x M.2 Key E (1630, 2230, 3030) - (PCIe x1, USB2.0, SDIO, I2C, I2S) - Used for Wi-Fi/BT | |
| | M.2 Key M | 1x M.2 Key M (2242, 3042, 2280) - (PCIe x4) - Used for NVME | |
| | Side Connector | PCIe x4 Endpoint Mode + 12V Power Input - PCIe x4 Shared with M.2 Key M | |
| OTHER | RTC | Yes (SuperCAP Backed) with Anti-tampering Timestamp | |
| | Discrete Watchdog | Yes | |
| | Serial EEPROM on I2C | 256 Kbit | |
| | TPM | Internal TPM 2.0 | |
| | Sensors | Internal Temperature | |
| | LED | 1x Power (Blue) 1x Cellular Activity (Green) 4x User Configurable (2x Green, 2x Amber) | |
| MISC | Buttons | 1x Reset | |
| | Anti-Tamper Detection | Yes | |
| | SIM Slot | Yes (User Accessible) | |
| POWER | Power Input | Wide Range 24-110VDC nom.(EN50155 Compliant); 24VDC Automotive (Regulation 10 Compliant) with Ignition sense | |
| | Power Consumption | TBD | |
| ENVIRONMENT | Operating Temperature | EN50155 OT3 | |
| | Storage Temperature | -40°C to +85 °C | |
| | Humidity | RH 5..95% Operating Non-condensing (40°C) | |
| CERTIFICATIONS | Regulatory | CE, FCC, ISED | |
| | Safety | EN62368, UL60950 (§) | |
| | Vertical | EN50155, EN45545, E-Mark | |
| | Environmental | ROHS3, REACH | |
| | Wi-Fi/BLE Radio | - | RED, FCC, ISED |
| | Cellular Radio | - | - |

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| | Ingress Protection | IP 40 |
| MECHANICAL | Dimensions | 65x132x149mm (WxHxD) - With Connectors |

§ UL, NRTL listing Factory Option