



- Rolling Stock Certified
- Reliable Fanless Performance
- Integrated Connection
- Open Platform
- Cloud Certified
- Highly Customizable
- Long-term Availability



## Features

**Rolling Stock Certified** - Suitable for rugged rolling stock applications is certified for EN50155 (TX Temperature Class, EN50155 Class S2 wide range power supply) and EN45545 (Fire and Smoke). Integrated MVB interface with ESD+ or EMD

**Reliable Fanless Performance** - Powerful and efficient: dual and quad core Intel Atom E3900, soldered-down eMMC storage and ECC memory for additional protection in a fanless and ventless package

**Integrated Connection** - Carrier pre-certified LTE cellular connectivity, 2.4/5.0GHz Wi-Fi, BLE, and Dead Reckoning GPS

**Open Platform** - Provides an integrated open IoT Edge Framework to free the developer from proprietary solutions

**Cloud Certified** - Seamless integration with Eurotech Everywhere Cloud, Microsoft Azure, Amazon Web Services IoT and other Cloud services

**Highly Customizable** - Modular design for application customizations, ranging from factory options to custom front panel connectors and software configurations

**Long-term Availability** - Designed for markets and use cases where long-term availability and support is a must have requirement

## Description

The BoltGATE 20-31 Family is a modular IoT Edge Gateway system, EN50155-certified, which addresses the challenges of the next-generation applications for smart transportation by combining hardware and software for Edge processing and Cloud connectivity. The Family consists of a main CPU Module and a wide set of Expansion Modules: the main CPU Module can be used stand alone; the Expansion Modules provide a wide set of additional features. CPU and Expansion Modules can be combined to create a flexible system that suits any use case with the ideal solution.

The main CPU Module – the BoltGATE 20-31 – is based on the Intel® Atom™ E3900 processor, with up to 8GB of ECC RAM, up to 32GB of eMMC, and an optional SSD storage module. Interfaces include up to 3x GbE, 2x USB 3.0, Serial, and Display ports; security features include TPM 2.0. A high accuracy GNSS receiver supporting GPS/GLONASS with UDR (Untethered Dead Reckoning) mode is available in selected configurations. A railway certified power supply is integrated into the main CPU Module, with an ultra-wide input voltage range: 24 to 110VDC, EN50155. The power is distributed by the main CPU Module to the Expansion Modules.

The BoltGATE 20-31 adds integrated hardware and software components to support the MVB interface (Duagon chipset, Configurations: ESD+ read-only / ESD+ / EMD read-only / EMD).

The Expansion Modules are:

- BoltAIR 20-31, with up to 3 wireless units and an odometer input;
- BoltSER 20-31, with serial & CAN interfaces;
- BoltIO 20-31, including up to 16 +16 Digital I/Os;

## Modular IoT Edge Gateway for Rolling Stock - Intel Atom E3900, LTE Cat 4, MVB

- BoltNET 20-31, with 4 Gigabit Ethernet ports;
- BoltSTOR 20-31, the storage expansion module.

Every module in the BoltGATE 20-31 is fanless and compact, designed to fit in a 3U recess. All modules support -40 to +85°C operating temperature range (EN50155:2017, class OT4, ST1) and can be installed on a DIN-rail, wall-mounted, or assembled in a 19" rack.

Powered by [Eurotech's IoT Edge Framework, Everyware Software Framework \(ESF\)](#), the BoltGATE 20-31 provides a fast go-to-market solution for IoT transportation applications such as passenger infotainment and entertainment, train-to-ground communications, and fleet management. The Java-based IoT Edge Framework provides a friendly web-based user interface to visually compose powerful data flows to acquire data from the bus, filter, aggregate and analyze it at the Edge, and publish it to the Cloud through the popular MQTT protocol. Optionally, [Everyware Cloud, Eurotech's IoT Integration Platform](#), completes this solution by providing data integration to the applications and by offering complete management of the devices deployed in the field.

For customers requiring more configuration flexibility, Eurotech Professional Services offer an extensive number of options for both hardware (additional features, custom front panel/ connectors, branding) and software (customized application images).

### Ordering Code: BTGATE-20-31-XY

XX		-11	-21	-31
PROCESSOR	CPU	Intel Atom x5-E3940, 1.60GHz (1.80GHz), Quad Core	Intel Atom x5-E3930, 1.30GHz (1.80GHz), Dual Core	Intel Atom x5-E3940, 1.60GHz (1.80GHz), Quad Core
MEMORY	RAM	8GB (DDR3L 1600MHz - with ECC)	4GB (DDR3L 1600MHz - non ECC)	8GB (DDR3L 1600MHz - with ECC)
STORAGE	Embedded	32GB of eMMC soldered down	16GB eMMC soldered down	32GB eMMC soldered down
	Integrated	Factory Option: Integrated 2.5" SSD SATA III		
	Other	1x microSD Slot (Service Panel)		
I/O INTERFACES	Ethernet	3x 10/100/1000Mbps, M12 X-coded Connector		
	USB	2x USB 3.0 Noise and Surge Protected - 1x USB 2.0 (Service Panel)		
	Serial	1x TTL Console (Service Panel)		
	MVB	ESD+ with "RX only" or "RX/TX" Factory Option: EMD with "RX only" or "RX/TX"	-	-
	Audio	-	Factory Option: 2x Line IN, 1x Stereo Mic IN, 2x Line OUT	
	Video	1x mini DisplayPort		
	CELLULAR	LTE Category	1x LTE Global Cat 4, 2G/3G Fallback	
OTHER RADIOS	GPS	GPS/QZSS/GLONASS/BeiDou/Galileo with Untethered Dead Reckoning		
	Wi-Fi / BT	-	WiFi 802.11 a/b/g/n, BLE 4.0	
	Antennas (External)	2x SMA (Cellular with Antenna Diversity) - 1x SMA (GPS)	2x SMA (Cellular with Antenna Diversity) - 2x RP-SMA (Wi-Fi/BT) - 1x SMA (GPS)	
OTHER	RTC	Yes, with SuperCAP (up to 2 Months Retain), Fast Reboot Support		
	System Watchdog	Yes		
	EEPROM	32KB		
	TPM	TPM 2.0		
	LEDs	1x Power - 2x MiniPCle Slot - 3x Ethernet - 3x Programmable (Dual Color Green/Amber)		
MISC	Buttons	1x Reset, 1x Programmable (Service Panel)		
	SIM Slot	SIM slots (2x microSIM) (Service Panel)		
POWER	Input	Ultra-wide input voltage range: 9 to 137.5VDC, with ignition key sense		
	Consumption	15W Typ, 30W Max		
ENVIRONMENT	Operating Temp.	- 40 to +85 °C		
	Storage Temp.	- 40 to +85 °C		
CERTIFICATIONS	Regulatory	CE		
	Safety	EN62368, UL60950 (S)		
	Vertical	EN50155, EN45545 (Fire and Smoke)		
	Environmental	RoHS3 - REACH		
	Cellular	RED		
	Ingress	IP40		
	MECHANICAL	Enclosure	Material: Aluminium - Color: Black Anodized	
Mounting Options		Mounting possibilities: DIN rail, Accessories available for Wall-mount / 19" rack-mount		
Dimensions		61x132x149mm (WxHxD) - With Connectors		

### Software

SOFTWARE	OS	Eurotech Everyware Linux or Windows 10 IoT Enterprise
	SDK	Yocto-based Eclipse Tooling, Azul Java
	IoT Framework	Everyware Software Framework (Java/OSGi)

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Ordering Code: BTAIR-20-31-11		
I/O INTERFACES	Odometer	Odometer
EXPANSION	Expansion Slots	3x MiniPCle Full/Half-Size
CELLULAR	LTE Category	1x LTE Cat 4 - Factory Option: LTE Cat 6 (Single Modem)
OTHER RADIOS	Wi-Fi/BT	WiFi 802.11 a/b/g/n, BLE 4.0
	Antennas (External)	2x SMA (Cellular with Antenna Diversity) - 2x RP-SMA (Wi-Fi/BT)
OTHER	LEDs	1x Power (Blue) - 1x Odometer (Green) - 3x MiniPCle Slot(Green)
POWER	Consumption	5W Typical
ENVIRONMENT	Operating Temp.	- 40 to +85 °C
	Storage Temp.	- 40 to +85 °C
CERTIFICATIONS	Regulatory	CE
	Safety	EN62368, UL60950 (§)
	Vertical	EN50155, EN45545 (Fire and Smoke)
	Environmental	RoHS3 - REACH
	Cellular	RED
	Ingress	IP40
MECHANICAL	Enclosure	Material: Aluminium - Color: Black Anodized
	Dimensions	42x132x149mm (WxHxD) - With Connectors

(§) UL, NRTL listing Factory Option.

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