

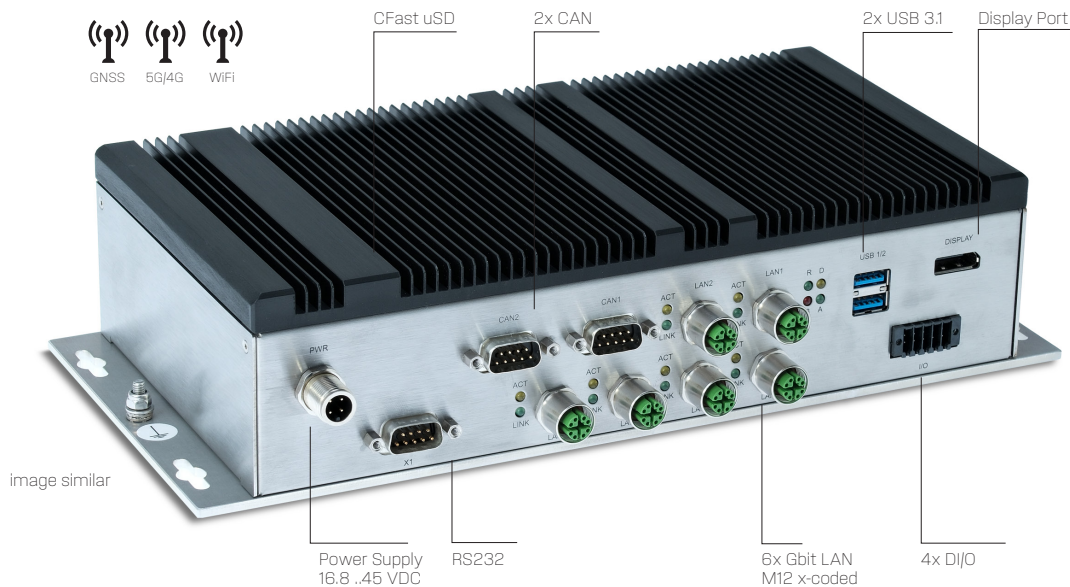
Railway



# Railway Computer RML-R82

Embedded Railway Computer with Intel Atom™ Elkhart Lake processor (x6000 Series)

PRELIMINARY



### Product Highlights

- Maintenance free
- Long term availability
- Power Ignition controller
- Inertial measurement unit (IMU)
- Trusted platform module (TPM 2.0)
- UEFI Secure Boot
- GNSS with dead reckoning
- Fanless, no moving parts

### Market/Applications

- Railway (rolling stock)
- Transportation

## IPC RML-R82

This fanless Railway Computer RML-R82 generation is based on the Intel Atom™ Elkhart Lake (EKL) processor technology, using the new 10nm "Tremont" architecture, it offers a wide range of interface options. The robust and uncompromising industrial design allows the implementation in the most demanding rolling stock applications and guarantees long term availability.

- Intel Atom™ Elkhart Lake Series
- Railway approved (EN50155 & EN45545)
- Designed for 24/7 continuous operation
- 24VDC Isolated input voltage

# Railway Computer RML-R82



Order Code **IPC/RML82J19-R252E<sup>1</sup>**

Processor / Performance		
Intel® Atom™ x6425RE - Quad core 1.9GHz clock   16GB RAM		✓
Intel® Atom™ x6414RE - Quad core 1.5GHz clock   4GB RAM		on request
Memory / Storage		
L2 cache		1.5MB
4267MT/s LPDDR4x RAM soldered on board		16GB
Internal eMMC		32GB
CFast socket with latching retainer <sup>2</sup>		1
MicroSD Card socket <sup>2</sup>		1
Features		
Real time clock PC compatible with Goldcap backup (up to 48h)		✓
Hardware Watchdog & Temperature supervisor		✓
Intelligent power management (Ignition controller)		✓
TPM 2.0 according to ISO/IEC11889		✓
UEFI Secure Boot KEY MATERIAL MUST BE PROVIDED BY CUSTOMER		✓
Inertial measurement unit STMicroelectronics ISM330DHCXTR (Please see user documentation for more detailed information and maximum sampling rate)		✓
Communication Interfaces		
DisplayPort 1.4 (4096 x 2160 @ 60Hz)		1
USB version 3.2 (5Gbps)	(Type A)	2
Ethernet 10/100/1000 BASE-T (1x Intel® GbE   1x Intel® I210-IT)	(M12 female x-coded)	2
Ethernet 10/100/1000 BASE-T (4x Intel® I210-IT)	(M12 female x-coded)	4
CAN 2.0A/B & CAN FD (PEAK FPGA chip, SJA1000 compatible) active/passive, isolated	(DSUB9)	2
Serial RS232 (not isolated)	(DSUB9)	1
Serial RS422/485, isolated	(DSUB9)	on request
Mini PCIe socket <sup>2</sup>		2
Buzzer		✓
Digital I/O module, 24/36VDC - Galvanic Isolation 1500Vrms (process to Logic) current sourcing output   current sinking inputs (Mating plug type Weidmüller B2CF 3.5/10/16DF SN BK)	(2x5-Pin Terminal Block)	4 in / 4 out
Analog Input, 16Bit resolution, voltage input: +/-10V, 0 ... 30V Accuracy +/-0.1%	(4 Inputs)	on request
Analog Input, 16Bit resolution, vurrent input: 0 - 20mA	(4 Inputs)	on request
Wireless connectivity		
5G LTE Cat-16 (4G fallback) Quectel RM520N-GL	(4x SMA)	✓
Dual nano SIM slot for cellular modules for 4G module		✓
GNSS module u-blox NEO-M9V Module	(1x SMA)	✓
High precision GNSS module (with IMU, RTK) u-blox ZED-F9P/R	(1x SMA) <sup>3</sup>	on request
Wireless LAN (Wi-Fi 6) 802.11ac/a/b/g/n/ax Intel, Bluetooth 5.2 Module Intel Wireless- AX210	(2x RP-SMA)	✓
Technical Data		
Exterior Dimensions (mm) (housing incl. mounting plate)		w298 x h158 x d138
Net weight (gram)		~2300
Input voltage	(M12 4P male a-coded)	16.8 ... 45VDC
Interruption of voltage supply time		EN50155 - Class: S2
Power consumption typ. in Watt @ 24V without Add-Ins, idle		-17
Environmental Conditions		
Operating temperature (complies with EN50155 class O14/STO) <sup>4</sup>		-40°C ... +70°C
Non operating temperature (Recommended storage temperature 20°C .. 25°C)		-40°C ... +85°C
Ingress protection standard according to EN60529		IP40
Conformal coating <sup>5</sup>		PCX
MTBF @ 25°C according to Telcordia SR-332, Environment GM, excluding CFast and optional interfaces		238'414 hours
Certifications		
Railway certification EN50155		✓
Railway environmental conditions EN50125		✓
Shock EN60068-2-27 / EN61373		✓
Vibration EN60068-2-64 / EN61373		✓
EMI-Conformity EN50121-3-2 / EN301489-1		✓
Safety (according to EN62368-1)		✓
Fire protection DIN EN45545-2		HL3
UKCA/CE		✓
Software		
Linux Debian 10.0		✓
BSP Windows 10 IoT Enterprise LTSC		✓

<sup>1</sup>Please contact factory for minimum order quantities

<sup>2</sup>Internal connector

<sup>3</sup>Multiband antenna needed (GNSS L1 band and L2/E5b/B21 bands). Example u-Blox type AN-MB

<sup>4</sup>Depending on installation situation and interface connection. Please see user documentation.

<sup>5</sup>on all possible components (excl. Connectors and wireless devices)

Product specifications subject to change without notice. All data is for information purposes only and not guaranteed for legal purposes. Information in this data sheet has been carefully checked and is believed to be accurate. However, no responsibility is assumed for inaccuracies. Please refer to the user documentation for additional product specification.

v1.0 | July 2024

### Scope of delivery

- 2xProtective cap USB A
- 1xProtective cap DisplayPort
- 6xProtective cap for M12 Female
- 1xProtective cap for M12 Male
- 3xProtective cap for DSUB9
- 7xProtective cap for SMA connector
- 1x Device packaging

For support and further information:  
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## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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