Railway Computer
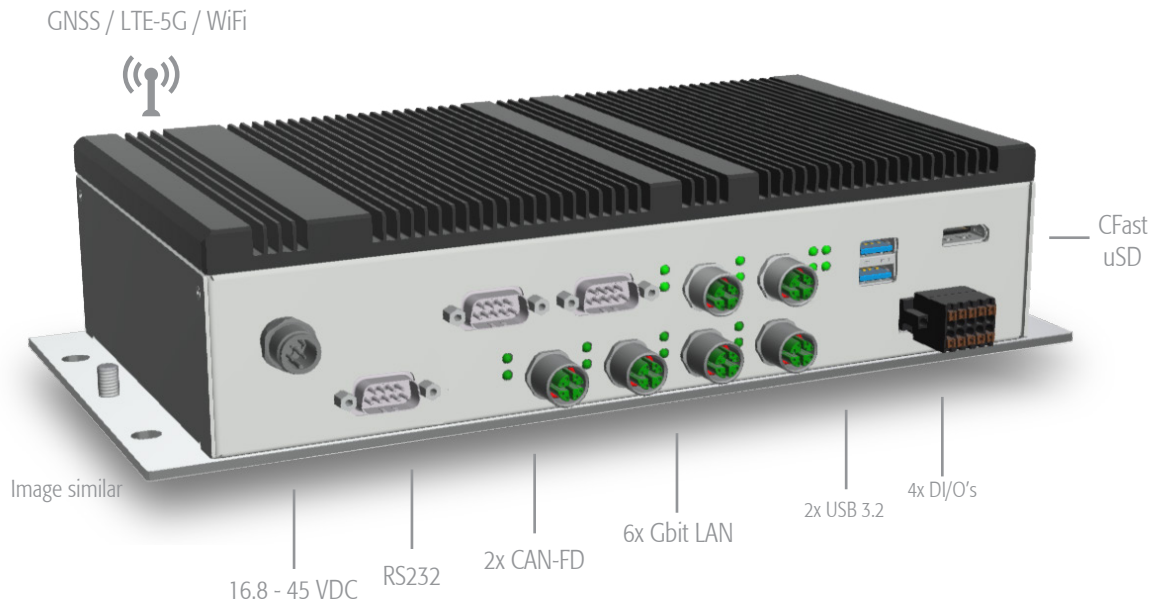# COMPACT RML Railway Series
Embedded Railway Computer with Intel® Atom™ Elkhart Lake processor (x6000 Series)



GNSS / LTE-5G / WiFi

CFast
uSD

Image similar

16.8 - 45 VDC

RS232

2x CAN-FD

6x Gbit LAN

2x USB 3.2

4x DI/O's

# IPC/COMPACT82 - RML-R

This fanless railway RML COMPACT82 generation is based on the Intel® Atom™ Elkhart Lake (x6000E) processors, 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 railway applications and guarantees long term availability.

- **Intel® Atom™ Elkhart Lake Series**
- **Railway approved (EN50155 & EN45545)**
- **Shock and vibration resistant**
- **Designed for 24/7 continuous operation**
- **EN50155 UPS with SuperCaps**

Windows IoT

UK CA  C E

## Product Highlights

Each LAN interface has its own dedicated NIC
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

## Product Features

Intel® Atom™ Elkhart Lake, up to 4 cores
up to 16GB LPDDR4 RAM
LTE-5G, GNSS and WiFi6 connectivity
CFast socket
microSD socket
1GBit Ethernet and USB 3.1
CAN-FD and Serial Ports
Modular product design
wide range of expansion options

## Markets / Applications

Railway (rolling stock)
Transportation

Your partner for reliable embedded computer

| Order Code | IPC/RML82J19-R252E[1] |
|---|---|

## 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 [2] | 1 |
| MicroSD Card socket [2] | 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 non isolated | (DSUB9) | 1 |
| RS422/485, isolated instead of the RS232 interface | (DSUB9) | on request |
| Mini PCIe socket [2] | | 2 |
| Buzzer | | 1 |
| Digital I/O module, 24/36VDC - Galvanic isolation 1500Vrms (process to Logic) current sourcing output / current sinking inputs (Mating plug type Weidmüller B2CF 3.5/10/180F 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, current input: 0-20mA | (4 inputs) | on request |

## Wireless connectivity

| | | |
|---|---|---|
| 5G sub-6 global cellular module (4G/3G fallback) Module: Quectel RM520N-GL - M2M only! | (4x SMA) | • |
| Dual nano SIM slot for cellular modules for 5G module | | • |
| GNSS module u-blox NEO-M9V Module | (1x SMA) | • |
| High precision GNSS module (with IMU, RTK) u-blox ZED-F9P/R | (1x SMA)[3] | 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] | | w298 x h58 x d138 |
| Net weight [gram] | | ~2400 |
| Isolated input voltage, with ignition controller function | (M12 4P male a-coded) | 16.8 ... 45VDC |
| Interruption of voltage supply time 10ms | | EN50155 - Class: S2 |
| Power consumption typ. in Watt @ 24V without Add-Ins, idle | | tbd |

## Environmental Conditions

| | |
|---|---|
| Operating temperature (complies with EN50155 class OT4/ST0) [4] | -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 [5] | PCX |
| 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) | designed to meet |
| Fire protection DIN EN45545-2 | HL3 |
| MTBF @ 25°C according to Telcordia SR-332, Environment GM, excluding CFast and optional interfaces | tbd |

[1] Please contact factory for minimum order quantities
[2] Internal connector
[3] Multiband antenna needed (GNSS L1 band and L2/E5b/B2l bands). Example u-Blox type ANN-MB
[4] Depending on installation situation and interface connection. Please see user documentation.
[5] on all possible components (excl. Connectors and wireless devices)

Syslogic Datentechnik AG
Täfernstrasse 28
CH-5405 Baden Dättwil

Version 1.0 | July 2023

**For further information and support:**
info@syslogic.com
support@syslogic.com
www.syslogic.com

+41 56 200 90 40    Switzerland (Headquarters)
+49 7741 967 14 20    Germany and Austria

**syslogic**
industrial computing