

Railway Computer

**COMPACT RSL Railway Series**

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



**IPC/COMPACT82 - RSL-R**

This fanless railway RSL COMPACT82 generation is based on the Intel® Atom™ Elkhart Lake (EHL) 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)
- Shock and vibration resistant
- Designed for 24/7 continuous operation
- 24/110VDC wide input range



**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  
 Wide input voltage 16.8 ... 137.5VDC  
 Fanless, no moving parts

**Product Features**

Intel® Atom™ Elkhart Lake, up to 4 cores  
 up to 16GB LPDDR4 RAM  
 LTE-4G, GNSS and WiFi6 connectivity  
 CFast socket, microSD socket  
 1Gbit Ethernet and USB 3.1  
 CAN-FD  
 Modular product design

**Markets / Applications**

Railway (rolling stock)  
 Transportation

|   | Order Code            | IPC/RSL82J19-R152E <sup>1</sup> |
|---|-----------------------|---------------------------------|
| <b>Processor / Performance</b>  |                       |                                 |
| Intel® Atom™ x6425RE - Quad core 1.9GHz clock   16GB RAM  |                       | •                               |
| Intel® Atom™ x6414RE - Quad core 1.5GHz clock   4GB RAM   |                       | on request                      |
| <b>Memory / Storage</b>   |                       |                                 |
| 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                               |
| <b>Features</b>   |                       |                                 |
| 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) |                       | •                               |
| <b>Communication Interfaces</b>   |                       |                                 |
| DisplayPort 1.4 (4096 x 2160 @ 60Hz)  |                       | 1                               |
| USB version 3.1   | (Type A)              | 2                               |
| Ethernet 10/100/1000 BASE-T (1x Intel® GbE   1x Intel® I210-IT)   | (M12 female x-coded)  | 2                               |
| CAN 2.0A/B & CAN FD (PEAK FPGA chip, SJA1000 compatible) active/passive, isolated   | (DSUB9)               | 2                               |
| Mini PCIe socket <sup>2</sup>   |                       | 1                               |
| Buzzer  |                       | •                               |
| <b>Wireless connectivity</b>  |                       |                                 |
| 4G LTE Cat-13 (3G fallback) Sierra Wireless EM7590 - M2M only!  | (2x 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)           | •                               |
| <b>Technical Data</b>   |                       |                                 |
| Exterior Dimensions [mm] (housing incl. mounting plate)   |                       | w298 x h58 x d138               |
| Net weight [gram]   |                       | ~2100                           |
| 110VDC wide input voltage (isolated and reverse polarity protected)   | (M12 4P male a-coded) | 16.8 ... 137.5VDC               |
| Interruption of voltage supply time: EN50155 - Class: S2  |                       | 10ms                            |
| Power consumption typ. in Watt @ 24V without Add-Ins, idle  |                       | ~17                             |
| <b>Environmental Conditions</b>   |                       |                                 |
| Operating temperature (complies with EN50155 class OT4/ST0) <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                             |
| 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 CM, excluding CFast and optional interfaces  |                       | tbd                             |

<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/B2l bands). Example u-Blox type ANN-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.

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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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