# COMPACT-RSL Series

Embedded Railway Computer with Intel® Atom™ E3900 processor

**preliminary**

optional
5G / 4G / Wi-Fi / BT

GNSS

Dual SIM
CFast



Image similar

Power Supply
16.8 ... 30VDC

2x optional
RS232 and/or CAN

2x LAN

2x USB

DisplayPort

# IPC/RSL81

This fanless RSL COMPACT81 generation is based on the Intel®
Atom™ E3900 (Apollo Lake) processor technology and 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.

- Railway approved (EN50155 & EN45545)
- 24/7 continuous operation
- M12 connectors for Power and LAN
- Shock and vibration resistant
- Full -40...+85°C on component level

Windows IoT

debian

CE

## Product Highlights

Power Ignition controller
Inertial Measurement Unit (IMU)
GNSS with dead reckoning
Fanless, No moving parts
Maintenance free
Long term availability

## Product Features

Intel® Atom™ E3900 Series
up to 2.0GHz, 4 Cores
RAM soldered on board 8GB
Socket for CFast storage card
Gbit Ethernet, USB, RS232, CAN
M12 connectors
Stainless steel housing
Protection class IP40
5G, 4G, Wi-Fi & Bluetooth options

## Markets / Applications

Railway (rolling stock)
Transportation

Your partner for reliable embedded computer and display solutions.

Order Code    IPC/RSL81I20-A151E[1]

## Processor / Performance

| | |
|---|---|
| Intel® Atom™ x7-E3950 2.00GHz (Burst) \| 1.6GHz Clock - Quad Core \| 8GB RAM | • |
| Intel® Atom™ x5-E3940 1.80GHz (Burst) \| 1.6GHz Clock - Quad Core \| 4GB RAM | optional |

## Memory

| | |
|---|---|
| L2 cache | 2MB |
| RAM DDR3L 1866MT/s soldered on board | 8GB |

## Features

| | |
|---|---|
| Inertial measurement unit (IMU) STMicroelectronics ISM330DHCXTR | • |
| Real time clock (RTC) with goldcap backup (holds charge for 48h) | • |
| Hardware watchdog & Temperature supervisor | • |
| Intelligent power management (Ignition controller) | • |
| TPM 2.0 according to ISO/IEC11889 | • |

## Communication Interfaces

| | | |
|---|---|---|
| DisplayPort 1.4 (up to 7680 x 4320 @ 60Hz) | | 1 |
| USB version 3.1 | (Type A) | 2 |
| Ethernet 10/100/1000 Mbit (Intel I210-IT) | (M12 female x-coded) | 2 |
| Serial RS232, isolated | (DSUB9) | up to 2[3] |
| CAN 2.0A/2.0B & CAN FD (PEAK FPGA chip, SJA1000 compatible), isolated, The CAN signals give no network feedback and are attached via non-volatile I/O port on the I2C bus | (DSUB9) | up to 2[3] |
| CFast socket with retention frame [2] | | 1 |
| M.2 Key B socket [2] | (M.2 3042) | 1 |
| M.2 Key E socket [2] | (M.2 2230) | 1 |
| Mini PCIe socket [2] | | 1 |
| MicroSD Card socket [2] | | 1 |
| Buzzer [2] | | 1 |
| I2C bus [2] | | 1 |

## Wireless Connectivity

| | | |
|---|---|---|
| GNSS positioning module u-blox NEO-M9 Module [4] | | 1x SMA |
| High accuracy GNSS positioning module w/ RTK support u-blox ZED F9P module | (1x SMA) | optional |
| Wireless LAN IEEE 802.11ac/a/b/g/n/ dual-band 2x2 MIMO SparkLAN WxxB-263ACNI(BT) | (2x RP-SMA) | optional |
| Cellular 4G module (3G/2G fallback) Sierra Wireless EM7455 - M2M only! | (2x SMA) | optional |
| Cellular 5G module (4G/3G fallback) Sierra Wireless EM9191 - M2M only! | (2x SMA) | optional |
| Dual nano SIM slot for cellular modules | | optional |

## Technical Data

| | | |
|---|---|---|
| Exterior dimensions [mm] | | w228 x h53 x d127 |
| Net weight [gram] | | ~1750 |
| Isolated input voltage, with ignition controller function, reverse polarity protected [5] | (M12 4P male a-coded) | 16.8 ... 30VDC |
| Current consumption typ. in mA @ 24V without Add-Ins, idle | | ~500 |
| Power consumption typ. in Watt @ 24V without Add-Ins, idle | | ~12 |

## Environmental Conditions

| | |
|---|---|
| Operating temperature (complies with EN50155 class OT4) [6] | -40°C ... +70°C |
| Storage temperature | -40°C ... +85°C |
| Ingress Protection standard EN60529 (ISO 20653) | IP40 |
| Conformal coating [7] | PCX |
| Shock | EN61373 |
| Vibration | EN61373 |
| EMI-Conformity | EN50121-3-2 |
| Safety (designed to meet) | EN62368-1 |
| Fire protection | EN45545-2 HL3 |
| Radio and Telecommunication (designed to meet) | RED |
| MTBF @ 25°C according to Telcordia SR-332, Environment GB, excluding optional extensions | ~480 000h |

[1] Please contact factory for minimum order quantities
[2] Internal connector
[3] A total of two DSUB9 ports are available for either 2x CAN, 2x RS232 or 1x CAN & 1x RS232. It is also possible to configure the device without any CAN or RS232 interfaces.
[4] NEO M9 Series, NEO-M9L (with dead reckoning) is planned, however subject to availability the NEO-M9N (without dead reckoning) may be used prior.
[5] Power supply complies with EN50155 class S1
[6] Depending on installation situation and interface connection. Please see user documentation.
[7] On all possible components (excl. connectors and wireless devices)

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