Railway Computer

COMPACT RSL-R Series

Embedded Railway Computer with Intel® Atom™ E3900 processor

LTE / GNSS/ Wi-Fi / BT

Dual SIM
CFast

DisplayPort

Image similar

2x USB

2x LAN

2x CAN

Power Supply
16.8 ... 45VDC

IPC/RSL-R 81

This fanless RML-R 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 3.1, RS232, CAN
Optional 5G, 4G, Wi-Fi & Bluetooth options
Rugged M12 connectors
Stainless steel housing
Protection class IP40

Markets / Applications

Railway (rolling stock)
Transportation

	Order Code	IPC/RSL81I20-R152E[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 Infineon SLB9665		•
Communication Interfaces		
DisplayPort 1.4 (up to 7680 x 4320 @ 60Hz)		1
USB version 3.1	(Type A)	1
USB version 2.0	(Type A)	1
Ethernet 10/100/1000 BASE-T (Intel I210-IT)	(M12 female x-coded)	2
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)	2
Serial RS232	(DSUB9)	optional
CFast socket with retention frame [2]		1
M.2 Key B socket [2, used for radio options]	(M.2 3042)	1
M.2 Key E socket [2, used for radio options]	(M.2 2230)	1
Mini PCIe socket [2]		1
MicroSD Card socket [2]		1
Buzzer [2]		1
I2C bus [2]		1
Wireless Connectivity		
Cellular 4G module (3G/2G fallback) Sierra Wireless EM7455 - M2M only! with dual nano SIM support		2x SMA
Wireless LAN IEEE 802.11ac/a/b/g/n/ dual-band 2x2 MIMO SparkLAN WNFB-263ACNI(BT)		2x RP-SMA
GNSS positioning module with dead reckoning u-blox NEO-M9 Module [3]		1x SMA
Cellular 5G module (4G/3G fallback) Sierra Wireless EM9191 - M2M only!	(2x SMA)	optional
High accuracy GNSS positioning module w/ RTK support u-blox ZED F9P/F9R module	(1x SMA)	optional
Technical Data		
Exterior dimensions [mm]		w262 x h53 x d137
Net weight [gram]		~1850
Input voltage (isolated and reverse polarity protected)	(M12 4P male a-coded)	16.8 ... 45VDC
Wide input voltage 14.4 .. 137.5VDC (isolated and reverse polarity protected)	(M12 4P male a-coded)	optional
Uninterruptible power supply (UPS), interruption time of supply voltage		~10-15s
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) [4]		-40°C ... +70°C
Storage temperature		-40°C ... +85°C
Ingress Protection standard EN60529		IP40
Conformal coating [5]		PCX
Shock		IEC/EN 61373
Vibration		IEC/EN 61373
EMC-Conformity		EN 50121-3-2 (IEC 62236-3-2)
Safety (designed to meet)		EN 62368-1
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] NEO M9 Series, NEO-M9V (with dead reckoning) is planned, however subject to availability the NEO-M9N (without dead reckoning) may be used prior.
[4] Depending on installation situation and interface connection. Please see user documentation.
[5] On all possible components (excl. connectors and wireless devices)

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