

Railway



Railway Computer RML-R10

Embedded Railway Computer with Intel® Core™ Raptor Lake (P-Series)

PRELIMINARY



Produ	ct Hig	hlig	hts

Maintenance free

Fixed BOM

Hardware Watchdog

Cybersecurity Features

Integrated IMU

Ignition Controller

Fanless, no moving parts

RAM down

High-accuracy GNSS with RTK

Market/Applications

Railway (rolling stock)

Transportation

rolling stock monitoring

Train-to-Ground Communication

Railway Signaling

Real-Time Data Logging

Real-Time Event Recording

remote Diagnosis

IPC/RML-R10

This fan less RML-R10 embedded computer is based on the 13th Generation Intel®Core™ processor technology and offers high performance and 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.

- → Temperature acc. EN50155 0T4
- → Fully railway approved
- → S2 Backup according EN50155
- → Shock and vibration resistant

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	Order	r Code IPC/RML10L70-C101E ¹	IPC/RML10L70-R101E ¹
Processor / Performance			
Intel® Corre® 17-1370PRE P-Series 6 P-cores 1.9GHz up to 4.8GHz and 8 E-cores 1.2GHz up to 3.7GHz intel® use cases for 247 and Turbo Mode usage apply. For further details please contact the manufacturer or the user manual.		•	•
Intel® Core™ 17-1365URE U-Series 2 P-cores 1.7GHz up to 4.9GHz and 8 E-cores 1.2GHz up to 3.7GHz		on request	on request
Memory / Storage			
Intel® Smart Cache		12MB	12MB
Dual channel LPDDR5x 6000 MT/s SDRAM (memory soldered down)		64GB	64GB
M.2 2280 Key M socket (PCIe x4) NVMe Drive		1TB	1TB
M.2 2280 Key M socket (PCIe x4) for additional NVMe Drive 120GB to 2TB		•	•
CFast socket with latching retainer ²		1	1
Features			
Real time clock PC compatible with Goldcap backup (up to 48h)		•	0
Hardware Watchdog & Temperature supervisor battery option on request		0	0
TPM 2.0 according to ISO/IEC11889		•	•
UEFI Secure Boot key material must be provided by customer, custom bios version required		on request	on request
Inertial measurement unit STMicroelectronics ISM330DHCX (Please see Product Manual for more detailed information and maxi-	num sampling rate)	0	•
BUZZET (SPECIAL DRIVER REQUIRED)		0	0
Power Ignition Controller		•	•
Communication Interfaces			
DisplayPort 1.4a	/Time A)	1	1
USB version 3.2 (5Gbps)	(Type A)	2	2
100/1000/2500Mbit Ethernet (NBASE-T) with separated Intel® 1226-IT NICS	(M12 female X-coded) (M12 female X-coded)	an request (up to 4)	4
SPE (Automotive Ethernet 100/1000BASE-T1) or Gbit LAN (BASE-T)	,	on request (up to 4)	on request (up to 4)
CAN 2.0A/B & CAN FD (PEAK FPGA chip) active/passive, isolated Expandable to max. 6x CAN FD Serial RS232 RX, TX, RTS, CTS, 6NO	(DSUB)	2	2
Serial RS422/485 RX TX, RTS, CTS, GNO - Galvanic isolation	(DSUB)	on request	1
'	(DSUB)	on request	on request
Digital I/O module, 24/36VDC - Galvanic isolation 1500Vrms (process to Logic) surrent sourcing output / current sinking inputs	(DSUB)	4 inputs, 3 outputs	4 inputs, 3 outputs
Analog Input module, Voltage and Current Version available		on request	on request
M.2 Key E(2230) and B (3042,3052) socket ²		1	1
Mini PCIe socket ²		1	1
Wireless connectivity	(* ****)		
Global Cellular 5G module (4G/3G fallback) Dual nano SIM support	(4xSMA)	n/a	•
Global 4G LTE Cat-13 (3G fallback) Sierra Wireless EM7590 - M2M only!	(2x SMA)	n/a	on request
Dual nano SIM support High precision GNSS module (with RTK and dead reckoning) u-blox ZED-F9R	(1x SMA) ³	n/a	Ø
Wireless LAN (Wi-Fi 6) 802.11ac/a/b/g/n/ax Intel, Bluetooth 5.2 Module Intel Wireless- AX210	(2x RP-SMA)	n/a	0
Technical Data	(ZX NP*SIVIA)	IIJa	
Exterior Dimensions [mm] (housing incl. mounting plate)		w314 x h94 x d170	w314 x h94 x d170
Net weight [gram]		~3000	~3000
Input voltage isolated and reverse polarity protected	(M12 male K-coded/Push Pull)	16.8 137.5VDC	16.8 137.5VDC
nterruption of voltage supply time: EN50155 - Class: S2	(WITE THAIC K GOGCO)T GOTTT GITT	10.0 107.0 VB0	10ms
Power consumption typ. in Watt @ 24V without Add-Ins		30-40W	30-40W
Environmental Conditions		00 400	00 400
Operating temperature (complies with EN50155 class OT4/STO) ⁴		-40°C +70°C	-40°C +70°C
Non operating temperature (Recommended storage temperature 20°C 25°C)		-40°C +85°C	-40°C +85°C
ngress protection standard according to EN60529		IP40	IP40
Conformal coating ⁵		PCX	PCX
MTBF @ 25°C according to Telcordia SR-332, Environment GM, excluding CFast and optional interfaces		tbd	tbd
Certifications			
Railway certification EN50155		0	0
Railway environmental conditions EN50125		•	•
Shock + Vibration EN60068-2-27/EN60068-2-64 / EN61373		•	0
MI-Conformity EN50121-3-2 / EN301489-1		•	Ø
Safety (according to EN62368-1)		designed to meet	designed to meet
ire protection DIN EN45545-2		HL3	HL3
·		on request	on request
e-Mark			
		Ø	Ø
CE/UKCA		0	
CEJUKCA UNJECE R10			
CEJUKCA UNJECE R10 Software			
e-Mark DEJUKCA UNJECE R10 Software Linux Debian 12 (Bookworm) Windows 11 Iof Enterprise LTSC 2024		0	0

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Please contact factory for minimum order quantities

Internal connector

Multibund antenna needed (GNSS L1 band and L2/E5b(B2) bands), Example u-Blox type ANN-MB

depending on Installation situation and interface connection, Please see Product manual.

and 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.



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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