

iROC

Hot-Swappable Industrial Computing Module



Product Overview

The iROC computing module is a hot-swappable industrial computing module that can be inserted into slots 1 through 4 of the RAPTOR iMX350/950. The iROC currently ships with Microsoft® Windows® 10 Pro or Linux CentOS 7.

The iROC has an Intel E3940 CPU, 8GB of memory, and supports up to 2TB of industrial rated SSD M.2 storage.

Features and Benefits

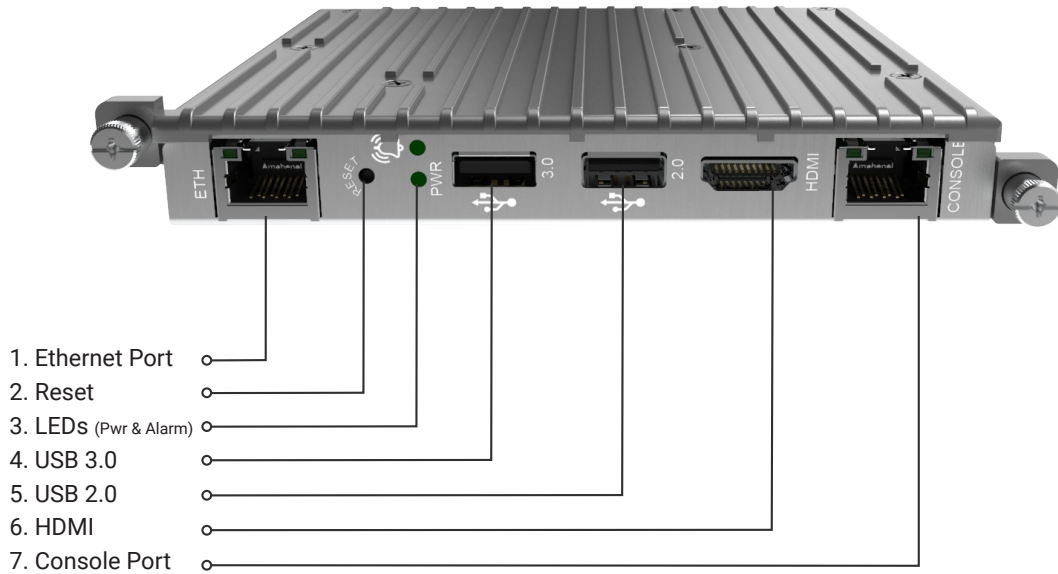


Table 1. iROC Line Module Description

COMPONENT	DESCRIPTION
CPU	Intel E3940 4-core, 4-threads, 1.60 GHz Base Frequency 1.80 GHz Burst Frequency
Storage	256GB, 512GB, 1TB, or 2TB Industrial SATA III M.2 SSD Endurance: 3K Program/Erase Cycles
Memory	8GB LPDDR4
Network Interfaces	10/100/1000TX on the Front Up to 3x 1Gbps available to the RAPTOR through the backplane*
USB	1-port: USB 2.0 1-port: USB 3.0
Video	HDMI, version 1.4 Resolution: 1080p
Operating Systems	Microsoft Windows 10 Pro Linux CentOS 7 (2009)

Features and Benefits

Network Connections:

The iROC supports up to three network connections through its backplane and one on its faceplate. The interfaces are 1Gbps, however they will have an effective throughput of less than 1Gbps based on factors such as CPU load, operating system, and other system demands.

Slots 1-3 on the RAPTOR have two network interfaces available through the backplane, while slot 4 has three interfaces available. This is summarized in the table below.

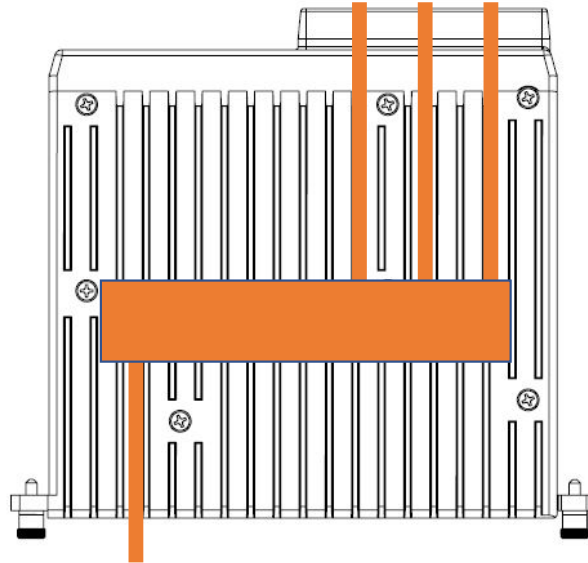


Table 2. Network Interface Availability

LINE MODULE	FACEPLATE		BACKPLATE	
	PORT# 1	PORT# 2	PORT# 3	PORT# 4
1	●	●	●	
2	●	●	●	
3	●	●	●	
4	●	●	●	●

Product Specifications

Table 3. Compliance Specification

DESCRIPTION	SPECIFICATION	LEVEL
PRODUCT SAFETY TESTS		
IP RATING	IEC 61850-3 clause 6.6.2 IEC 60529 clause 6.11 ISO 20653:2013	IP40
PRODUCT SAFETY STANDARDS	IEC 62368-1	Product Safety Standard for Europe and North America
ELECTROMAGNETIC COMPATIBILITY (EMC) TESTS		
EMISSIONS AND IMMUNITY COMPLIANCE		
EUROPE	EN 55032:2012, CISPR 32:2012, Multimedia	Class A Equipment
	EN 55024:2010, CISPR 24:2010 , Multimedia	
NORTH AMERICA	FCC Part 15 Subpart B:2017, Multimedia	Class A Equipment
	ICES-003:2017, Multimedia	
IMMUNITY		
1 MHZ DAMPED OSCILLATORY WAVE	IEC 61850-3 clause 6.7.3 IEC 61000-4-18 IEEE 1613 clause 6 IEEE 1613.1 clause 5	2.5 kV CM, 1.0kV DM HV/Telec. 2.5 kV CM, 2.5kV DM Zone A
ELECTROSTATIC DISCHARGES	IEC 61850-3 clause 6.7.3 IEC 61000-4-2 IEEE 1613 clause 8 IEEE 1613.1 clause 8	8kV contact, 15kV air
RADIATED RADIO FREQUENCY MAGNETIC FIELD	IEC 61850-3 clause 6.7.3 IEC 61000-4-3 IEEE 1613 clause 7 IEEE 1613.1 clause 7	20 V/m
FAST TRANSIENT/BURST	IEC 61850-3 clause 6.7.3 IEC 61000-4-4 IEEE 1613 clause 6 IEEE 1613.1 clause 5	4kV
SURGE	IEC 61850-3 clause 6.7.3 IEC 61000-4-5 IEC 1613.1 clause 6	Signal Ports ± 2kV LE ± 1kV LL
CONDUCTED DISTURBANCE INDUCED BY RF FIELDS	IEC 61850-3 clause 6.7.3 IEC 61000-4-6 IEEE 1613.1 clause 9	0.15-80MHz at 10V 27, 68 MHz at 10V
CLIMATIC ENVIRONMENTAL TESTS		
DRY HEAT OPERATIONAL	IEC 61850-3 clause 6.9.3.1 IEC 60068-2-2, test Be	+70°C; 16 hours
	IEEE 1613 clause 3.1.1	+70°C
COLD OPERATIONAL	IEC 61850-3 clause 6.9.3.2 IEC 60068-2-1, test Ad	-40°C; 16 hours
	IEEE 1613 clause 3.1.1	-40°C
DRY HEAT STORAGE	IEC 61850-3 clause 6.9.3.3 IEC 60068-2-2, test Bb	+70°C; 16 hours
	IEEE 1613 clause 3.1.2	+70°C
COLD STORAGE	IEC 61850-3 clause 6.9.3.4 IEC 60068-2-1, test Ab	-40°C; 16 hours
	IEEE 1613 clause 3.1.2	-40°C
CHANGE OF TEMPERATURE	IEC 61850-3 clause 6.9.3.5 IEC 60068-2-14 test Nb	-40°C; +70°C 3 hours; 5 cycles

Product Specifications

DESCRIPTION	SPECIFICATION	LEVEL
DAMP HEAT, STEADY STATE	IEC 61850-3 clause 6.9.3.6 IEC 60068-2-78 test Cab	+40°C; 93%, 10 days
DAMP HEAT, CYCLIC	IEC 61850-3 clause 6.9.3.7 IEC 60068-2-30 test Db IEEE 1613 clause 3.1.3	+25°C; 55°C 97%; 93% 6 cycles + 55°C
MECHANICAL ENVIRONMENTAL TESTS		
VIBRATION RESPONSE	IEC 61850-3 clause 6.10.1 IEC 60255-21-1	0.5g, 1 sweep cycle/axis, 3 axis, freq range 10-150Hz
VIBRATION ENDURANCE	IEC 61850-3 clause 6.10.1 IEC 60255-21-1	1g, 20 sweep cycles/axis, 3 axis, freq range 10-150Hz
SHOCK RESPONSE	IEC 61850-3 clause 6.10.2 IEC 60255-21-2	5g, 11ms duration/pulse, 6 pulses/axis, 3 axis.
SHOCK WITHSTAND	IEC 61850-3 clause 6.10.2 IEC 60255-21-2	15g, 11ms duration/pulse, 6 pulses/axis, 3 axis.
BUMP	IEC 61850-3 clause 6.10.2 IEC 60255-21-2	10g, 16ms duration/pulse, 2000 pulses/axis, 3 axis.
SEISMIC (SINGLE AXIS SWEEP)	IEC 61850-3 clause 6.10.3 IEC 60255-21-3	Freq Range: 1-35Hz, Cross-over frequency 8-9Hz, Displacement 3.5mm [x], 1.5mm [y], Acceleration: 1.0g [x], 0.5g [y], Number of sweep cycles per axis 1, number of axis 3
VIBRATION	IEEE 1613 clause 9	V.S.3
SHOCK	IEEE 1613 clause 9	100 mm
ALTITUDE		
ALTITUDE	IEC 61850-3 section 4, table 1	less than or equal to 2000m

Ordering Information

iROC Computing Module

MODEL	CPU	OS	STORAGE	SOFTWARE PACKAGE	DESCRIPTION
iRM-iROC					iROC Computing Module , HDMI port, USB 2.0, USB 3.0, Console port, 10/100/1000TX RJ45
	01				E3940 Intel Atom, with 8GB of memory
		W10			Windows 10 Pro Operating System
		CE7			CentOS Operating System version 7 (2009)
			256		256GB Industrial SSD Storage
			512		512GB Industrial SSD Storage
			1TB		1TB Industrial SSD Storage
			2TB		2TB Industrial SSD Storage
				XX	None

Note: Maximum 3 (three) iROCs may be installed per iMX350/iMX950.
The iROC has a maximum operating temperature of +70°C.

To order software applications for iROC, please refer to the specific datasheet. example: Fortinet/FortiGate datasheet.

iROC Sample Order Code

iRM-iROC-01-CE7-512-XX

Description: iROC computing module, 8GB Memory, CentOS 7 operating system, 512GB storage

The same unit, may be ordered with conformal coating by appending '-C1' to the order code, for example: iRM-iROC-01-CE7-512-XX-C1

Description: iROC computing module, 8GB Memory, CentOS 7 operating system, 512GB storage. Conformally coated.



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