

ORC

Product specification

Open Robot Controller

The ORC is a H-ROS ready controller box, specifically designed and configured for modular robotics. It includes the most popular ROS 2 development tools already configured for fast prototyping and optimal performance.

The ORC, also includes the most popular ROS development tools such as **RViz**, **Gazebo** and **MoveIt!**, which provide a HMI (Human Machine Interface) environment which allows the user to develop robotic applications, providing features such as robot trajectory visualization, waypoints capture, object manipulation, 3D perception, etc. Meanwhile, Gazebo allows the user to simulate the robot behavior before deploying the application in a real scenario.



Communication interfaces

Communications between H-ROS modules are based on standard Ethernet to improve the interoperability between robots and to facilitate the component integration. For this reason, we only need a standard Ethernet interface in order to communicate the ORC with the robot. The ORC has a 1 Gbps standard Ethernet for communications with external network and a 1 Gbps TSN capable Ethernet interface to communicate with the internal robot network.

Real-time capabilities

On Linux.

The controller comes with a GNU/Linux operating system with the PREEMPT-RT patch, which allows to execute task deterministically. The PREEMPT-RT approach enables to achieve real-time capabilities without losing compatibility with existing Linux software, in contrast of other approaches (Xenomai, RTAI, VxWorks). Additionally, the system is already configured to prioritize critical tasks, such as motion control and network communications.

Hardware characteristics

CPU	Intel6 GB DDR4 2133MHz
RAM	i7 @ 3.70GHz (6 cores)
Storage	256 GB M.2 SSD interface PCIExpress 3.0
Interfaces	<ul style="list-style-type: none"> - 1Gbps Ethernet network interface with IEEE 1588 and TSN support - 1Gbps Ethernet network interface with IEEE 1588 support - 6x USB 2.0 - 5x USB 3.1 Gen 1 - 2x USB 3.1 Gen 2 (Type A) - 1x DVI-D - 1x HDMI - 1xD-SUB
Expansion Slots	<ul style="list-style-type: none"> - 1x PCI Express 3.0/2.0 x16 - 2x PCI Express 3.0/2.0 x1
OS	GNU/Linux
Kernel	4.19.5
PREEMPT-RT patch	patch-4.19.5-rt4
Comm. framework	Data Distribution Service (DDS)
ROS 2.0	Crystal Clemmys
HRIM	version 0.3.0 Coliza (docs)

To obtain more information, please contact Acutronic Robotics' sales representatives at contact@acutronicrobotics.com