RNS802 ORANIC In-Line Accelerator Card

Product Brief

Product Summary

The RNS802 ORANIC In-Line Accelerator is a FHHL 16x PCIe board designed for 5G O-RAN O-DU servers. It interfaces with partner L2 software over the SCF FAPI interface.

ORANIC integrates four RNS802 SoCs with four 10/25 Gigabit Ethernet SFPs carrying the O-RAN Alliance Open Fronthaul interface, supporting use cases such as:

- 8 O-RUs with 100MHz 4T4R
- 4 O-RUs with 200MHz 2T2R

The ORANIC and the accompanying 5G NR High-PHY software meets 3GPP 5G NR high-PHY and O-RAN Alliance Open Fronthaul standards.

Board documentation and design files are available to facilitate customer's board designs.

Key Features

- 4x RNS802 SoC Silicon
- 32-bit LPDDR4 SDRAM
- 4x SFP 10/25G Ethernet for O-RAN OFH
- SCF FAPI interfaces to/from external NPU
- OCXO for holdover feature
- Synchronisation (GPS/GNSS and 1588V2) and clocking functions

Key Interfaces

- 4x SFP+/SFP28 optical LC connectors (OFH)
- Gen3/Gen4 16-lane PCIe interface (FAPI)
- GNSS Antenna port
- Debug interfaces
- Auxiliary 12V power supply input
- Debug, clock and testing connectors

Target Applications

ORANIC offers an efficient, low power, low cost in-line acceleration solution, significantly reducing the load on O-DU servers.

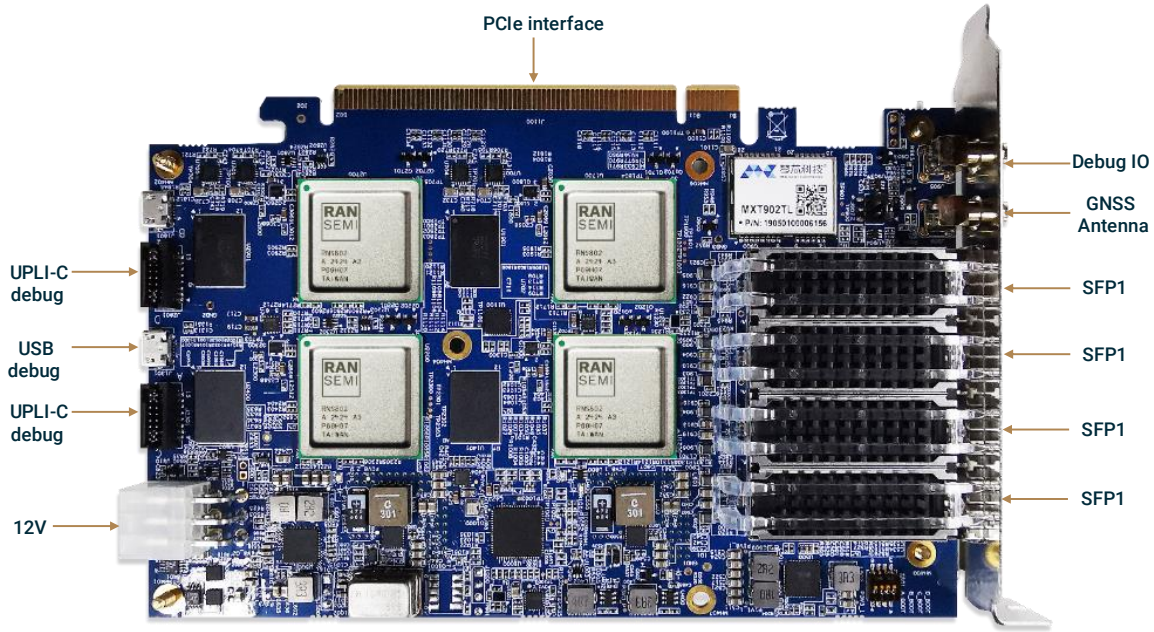
ORANIC is an evaluation platform for the following applications:

- Indoor Enterprise
- Neutral Host
- Cloud-native Deployments
- Outdoor small cells

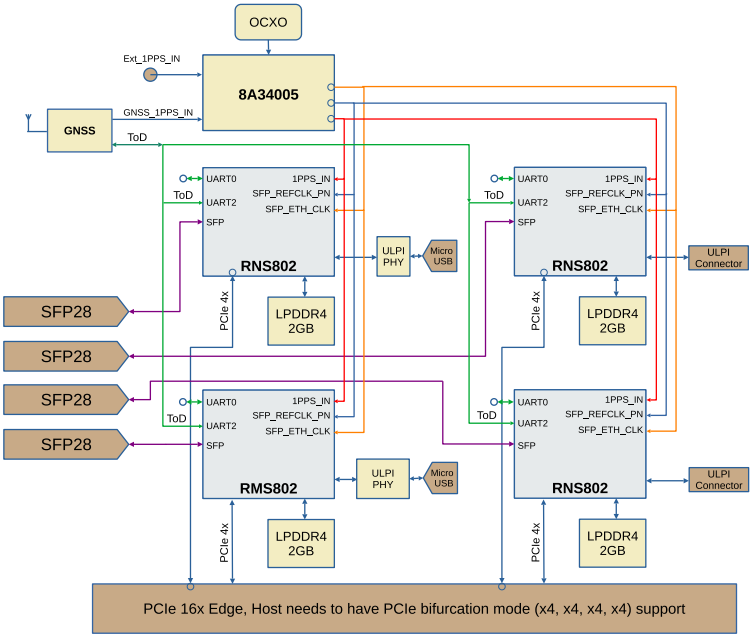
Suitable for O-DU servers with PCIe bifurcation mode (x4, x4, x4, x4) support.

Low Power O-DUs

The ORANIC In-Line Accelerator enables power efficient O-DUs, with a power consumption <59W at full capacity and enabling lower processing power O-DU servers.



Block Diagram



Ordering Information

Order Code	Product Name	Details
ORANIC	ORANIC In-Line Accelerator Card	Engineering sample boards The Export Control Classification Number (ECCN) is 5A991.b.4
RNS802EVB-1*	RNS802 Evaluation Board	Engineering sample boards The Export Control Classification Number (ECCN) is 5A991.b.4
RNS802-NR-High-PHY-eval	NR High PHY evaluation licence for ORANIC	3 month NR High PHY binary evaluation licence for RNS802 ORANIC. Licence covers any number of boards but is limited to 3 months duration.

*The RNS802 Evaluation Board can be ordered as a lower cost alternative to ORANIC with a single RNS802

Additional Compatible Software

Customers can upgrade to a full licence NR PHY software products. Licensees will be able to download software releases and documentation from the RANsemi resources page.

Order Code	Product Name	Details
NR-High-PHY-bin	5G NR High PHY binary software	5GNR High PHY for RNS802 with FAPI-compliant interface to L2 and O-RAN eCPRI interface, binary software. Complete with L1 API, OAM API, testMAC and UDriver
NR-High-PHY-src	5G NR High PHY source code software	5GNR High PHY for RNS802 with FAPI-compliant interface to L2 and O-RAN eCPRI interface, source software

Further information

For further details about ORANIC, RNS802 and NR High PHY software, please contact your local RANsemi representative or email us at info@ransemi.com