

Product Brief

Product Summary

The PC802 'ORANIC' is 2021 SCF award winning Open RAN in-line PHY and NIC board. The ORANIC 16x add-in PCIe board is designed for 5G/4G O-RAN O-DUs in conjunction with L2 software running on a server.

ORANIC and the Picocom PHY software utilises industry leading Open RAN standards:

- ◆ SCF FAPI interface for layer 2 messages
- ◆ O-RAN Open Fronthaul interface

ORANIC handles all upper PHY and Open Fronthaul functionality for 4G and 5G small cells, significantly reducing the load on servers.

ORANIC integrates four Picocom PC802 chips with four 10/25 Gigabit Ethernet SFP connector cages, supporting use cases such as:

- ◆ 4 O-RUs with dual mode NR + LTE
- ◆ 8 O-RUs with 100MHz 4T4R
- ◆ 16 O-RUs with 100MHz 2T2R

Target applications

ORANIC is an evaluation platform for the following applications:

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

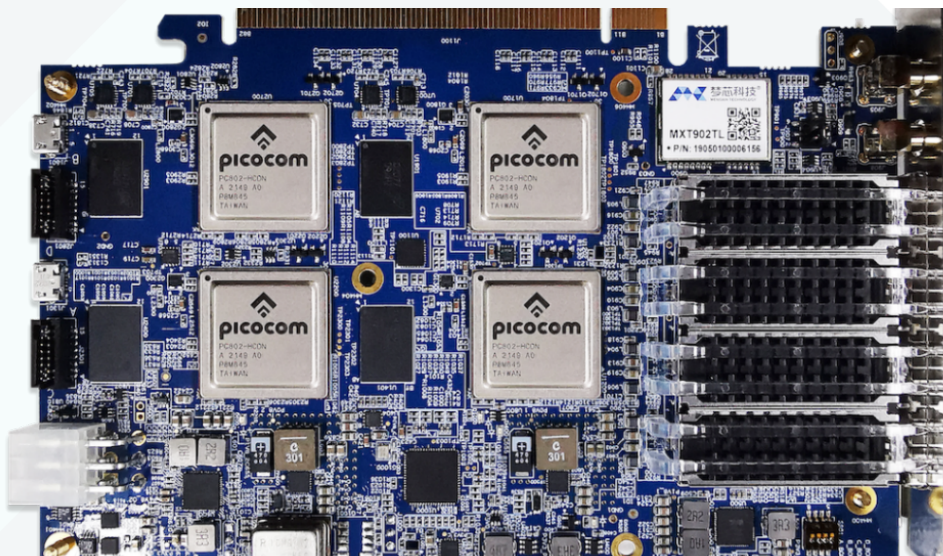
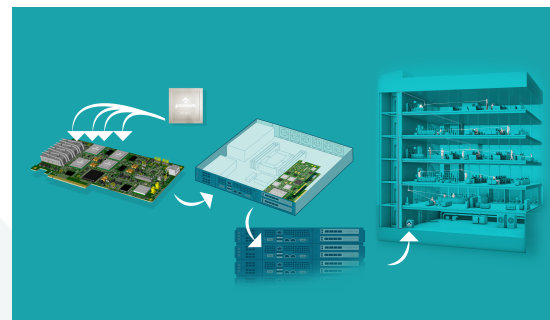
Suitable for O-DU servers with PCIe bifurcation mode (x4, x4, x4, x4) support.

Key Features

- ◆ 4x PC802 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

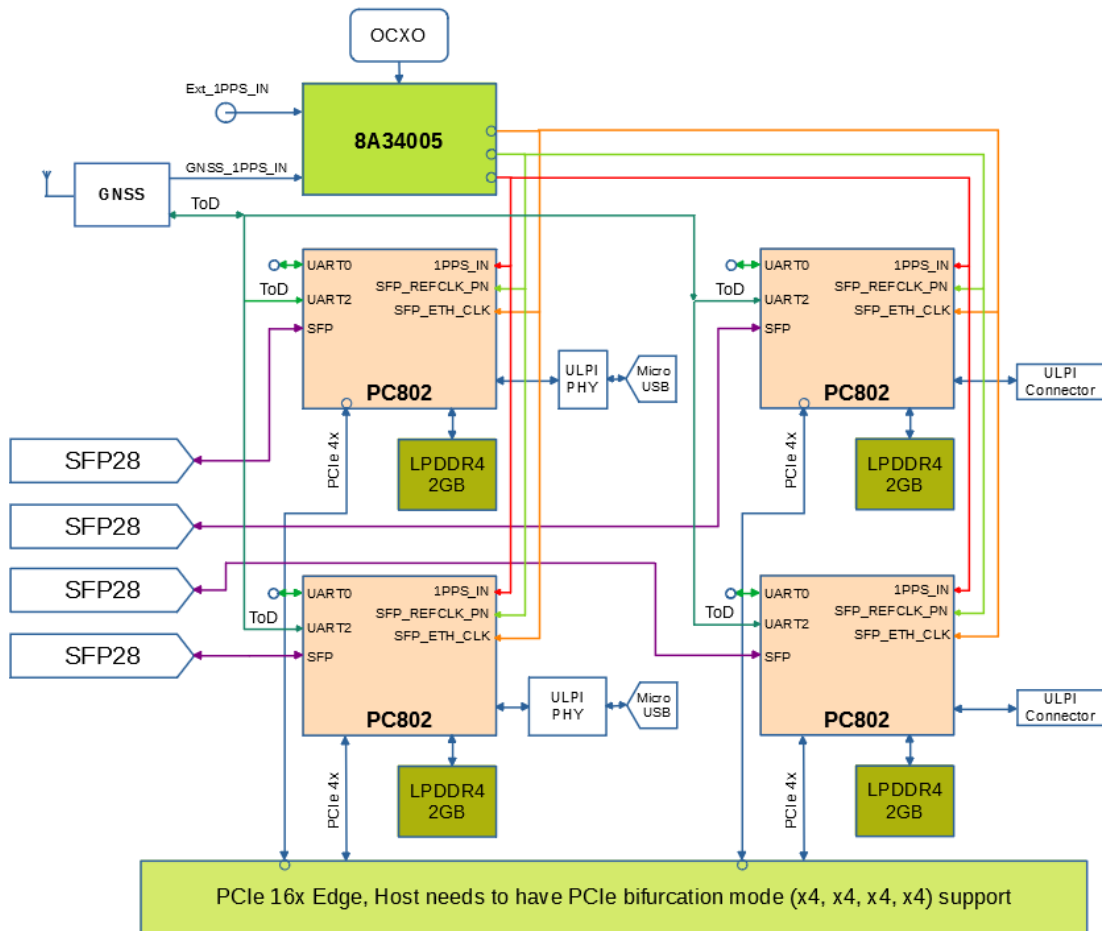
External Interfaces

- ◆ 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





ORANIC Block Diagram



Software Included

Software included in the ORANIC includes PCOMware release including Board Support Package (BSP), Bootloader binary, and bring up and debug tool.

Additional software supported

ORANIC is compatible with the following Picocom PHY software, which are separately licensed complete with support and roadmap updates:

- ◆ 5G NR PHY binary or source code
- ◆ Dual mode/LTE PHY binary or source code

ORANIC is also compatible with the following 3rd party tools to provide additional debug and source code development support if needed:

- ◆ Siemens Tessent SystemInsight
- ◆ Ceva Software Development Tools
- ◆ AndeSight Software Development Tools

Design Files and Documentation

The ORANIC comes complete with the following documentation and design files:

- ◆ ORANIC Datasheet
- ◆ ORANIC User Guide
- ◆ ORANIC Schematics
- ◆ ORANIC EDA files



Other PC802 board-level products include:

- ◆ PC802 Evaluation Kit
- ◆ PC802 Small Cell Development Board with on-board layer 2/3 NPU and ADI ADRV9029 RFIC

Please contact Picocom for any additional information on the PC802 silicon, platforms, tools or software products.

Ordering information

Part number	Product Name	Details
ORANIC	In-line PHY/NIC for O-DU	Engineering sample boards

The Export Control Classification Number (ECCN) is 5A991.b.4

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