

5G Open RAN Starter Kit

Product Brief

Product Summary

The RANsemi 5G Open RAN Starter Kit is a compact O-RAN 7.2 5G End-to-End System. It enables customers to rapidly evaluate and deploy 3GPP 5G NR and O-RAN Alliance compliant systems based on components from industry leading vendors including: RANsemi SRS, Texas Instruments and iCanA.

The system provides fully integrated and tested components in an O-RAN split 7.2 topology that includes: a 5G SA Core, Centralised Unit (CU), Distributed Unit (DU) with RANsemi RNS802 5G High PHY connected via an Open Fronthaul eCPRI link to the RANsemi RNS805 Radio Demonstrator Board with an RF interface allowing connection to commercial handsets or UE test equipment.

Key Applications

The RANsemi 5G Open RAN Starter Kit is designed for:

- ◆ Lab based evaluation of ORAN components
- ◆ Lab based test environments
- ◆ Neutral host and private network demonstrations

Interfaces

- ◆ 5GC routable to internet
- ◆ NG-C / NG-U between 5GC and CU
- ◆ F1-C / F1-U between CU and DU
- ◆ PCIe bifurcated interface to RANsemi ORANIC
- ◆ RANsemi FAPI compliant L1 API
- ◆ 10/25Gbps eCPRI Open Fronthaul
- ◆ 4T4R antenna SMA ports

Key Components and Suppliers

- ◆ **Core Network:** Open 5GS core
- ◆ **Centralised Unit:** SRS Enterprise CU binary
- ◆ **Distributed Unit:**
 - ◆ SRS Enterprise L2 binary
 - ◆ RANsemi ORANIC In-line PHY/NIC
 - ◆ RANsemi RNS802 NR High PHY binary
- ◆ **Radio Unit:** RANsemi Cat-A O-RU
 - ◆ RANsemi 5G RU binary eval software
 - ◆ RNS805 RU Demonstrator Board (RNS805RDB)
 - ◆ O-RU M-Plane Netconf eval software
 - ◆ S-Plane with GPS 1pps via ORANIC and PTP IEEE1588 to O-RU
- ◆ **5G UE:** Samsung 5G SA phone
 - ◆ 3 additional SIMs provided

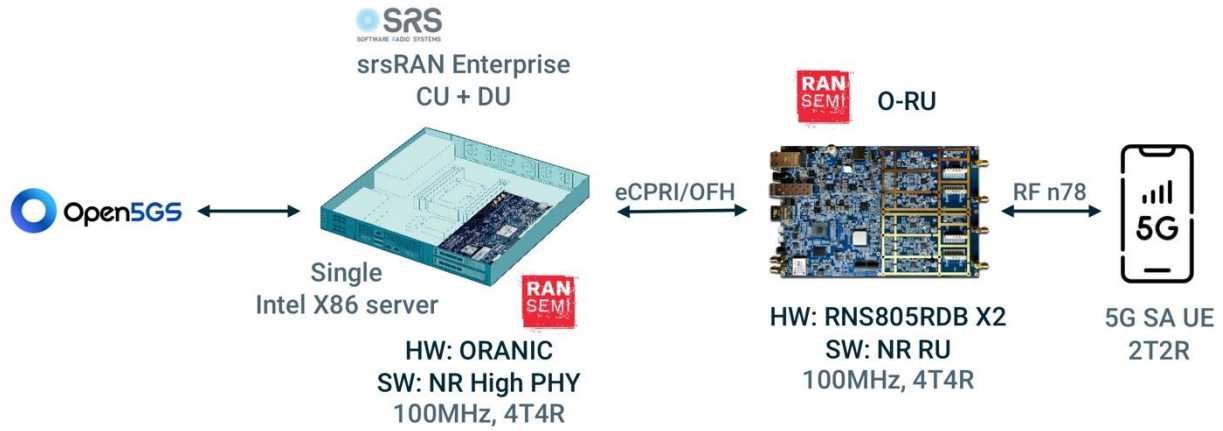
Key Specifications

- ◆ Core, CU and DU sharing X86 server
- ◆ 5G NR 3GPP Rel 15 Release support:
 - ◆ 3GPP Chapter 6/7 report available
- ◆ O-RAN Alliance support:
 - ◆ O-RAN.WG4.CUS.0-R003-v14.00
 - ◆ O-RAN.WG4.MP.0-R003-v14.00
 - ◆ O-RAN.WG4.CONF.0-v06.00
 - ◆ O-RAN WG4.IOT.0-v10.00

Supported configurations

- ◆ 5G NR SA
- ◆ TDD, 30kHz SCS
- ◆ 256QAM UL/DL
- ◆ MCS up to MCS27
- ◆ RF
 - ◆ n78 (3.3 to 3.8GHz) IBW 200MHz
 - ◆ 4T4R
 - ◆ 24dBm per antenna port
- ◆ Supported bandwidths
 - ◆ 10, 20, 30, 40, 50, 60, 70, 80, 90, 100MHz
 - ◆ 2 x 100MHz roadmap (200MHz IBW)
- ◆ MIMO
 - ◆ 4 layer DL MIMO
 - ◆ 1 layer UL MIMO (roadmap 2 layer)

5G Open RAN Starter Kit configuration



Proven Performance

Test Case	UL/DL	Layers	Modulation	MCS <1% BLER	Measured Throughput TCP and UDP
OTA COTS UE 100MHz TDD	DL	2	256QAM	MCS27	815 Mbps
	UL	1	256QAM	MCS27	104 Mbps
OTA COTS UE 50MHz TDD	DL	2	256QAM	MCS27	360Mbps
	UL	1	256QAM	MCS27	50 Mbps
Cabled Amarisoft UE Emulator 100MHz TDD	DL	4	256QAM	MCS27	1400 Mbps (4 active UEs)

Further information

For further details about the RANsemi 5G Open RAN Starter Kit, ORANIC, RNS805RDB, and software, please contact your local RANsemi representative or email us at info@ransemi.com