RNS802 Development Board (RNS802DB)

Product Brief

Product Summary

The RNS802DB is a flexible 5G/4G development board used to evaluate the RNS802 SoC and RANsemi PHY products for the following architectural configurations as defined by 3GPP 5GNR and LTE specifications and Small Cell Forum (SCF):

- 5G NR Split 0 Integrated Small Cell (gNB)[1]
- 5G NR Split 2 Distributed Unit (gNB-DU)
- 5G NR Split 6 Radio Unit (S-RU)
- 4G Split 0 Integrated Small Cell (eNB)
- 5G/4G Dual Mode PHY evaluation

For 5G/4G O-RU use cases, it is recommended that the RNS805RDB is used.

The RNS802DB includes an on-board NXP Network Processing Unit (NPU) to provide appropriate stack, network, and management layer processing.

The RNS802DB also includes the ADI ADRV9029 4T4R RFIC subsystem, allowing carrier frequencies between 650MHz to 3.5GHz.

The board dimensions are 203.2mm x 195.6 mm.

The board includes 12V cable, heat sinks, fan cable assembly and standoff posts.

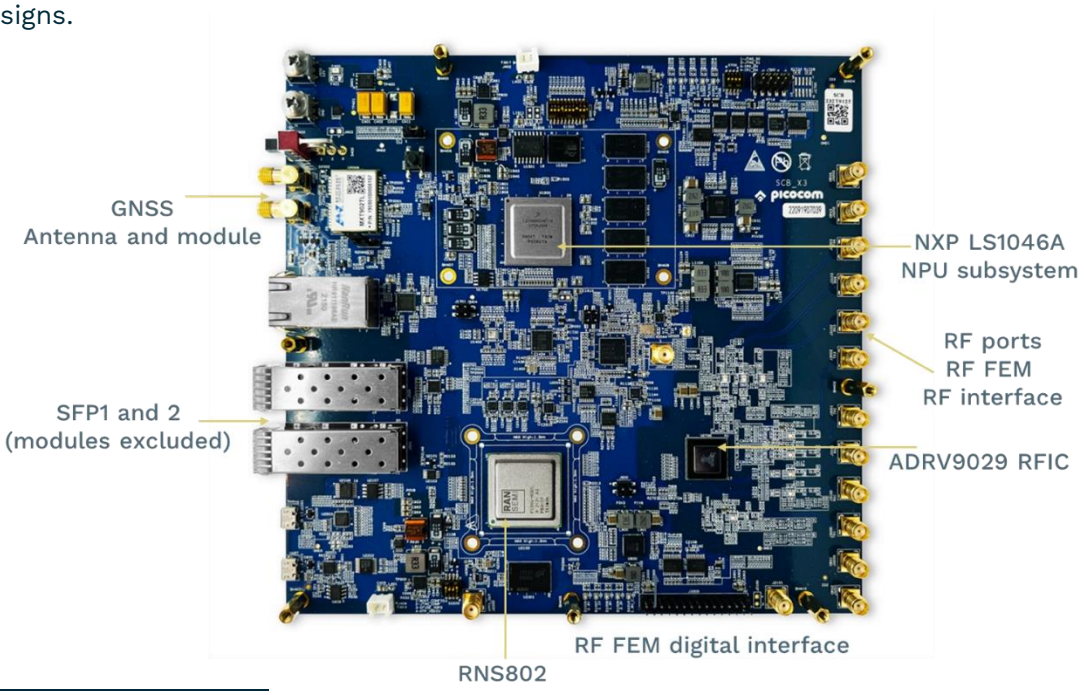
Complete board documentation and design files are available to facilitate customer's board designs.

Key Interfaces

- SFP1 cage for 10GE SFP+ optical LC interface (SFP2 assigned for O-RU)
- GNSS Antenna port
- FR1 RF ports to test equipment or external RFFE
- 4 TX and 4 RX SMA
- 4 observation paths ORX SMA
- RFFE control interface (30-pin header)
- Test and Debug ports including
- 1G Ethernet NPU debug port (RJ45)
- Micro USB debug port
- Micro USB console port to RNS802 UART and NPU

Key Features

- RNS802 SoC Silicon subsystem
- 8GB 32-bit interface LPDDR4 SDRAM
- NPU NXP LS1046A subsystem
- LS1046ASE8T1A with encryption (-1E)
- ADI ADRV9029BBCZ 4T4R RFIC subsystem
- 650MHz to 3.5GHz TX/RX frequency range (Maximum recommended frequency)
- Synchronisation and clocking functions using on-board GNSS receiver or IEEE 1588
- Debug boot mode support



[1] On-board NPU limits supports gNB configuration to TDD 100MHz 2T2R with partner layer 2/3.

Ordering Information

Order Code	Product Name	Details
RNS802RB-1E	RNS802 Development Board	ES quantities, Export class ECCN 5A002a3 SD card with boot code and BSP 12V cable, heat sinks, fan cable assembly and standoff posts Quick start guide, datasheet and design files
RNS802RB-eval	NR PHY evaluation licence for RNS802DB	3 month NR PHY binary evaluation licence for RNS802RB. Build included on SD card image. Licence covers any number of boards but is limited to 3 months duration.

Additional Software and Tools Supported

The RNS802DB is compatible with the following RANsemi PHY software, which are separately licensed complete with support and roadmap upgrade:

- 5G PHY binary and source code
- LTE PHY binary and source code
- Dual Mode 5G/4G PHY binary and source code

For access to compatible stack software which can run on the NXP device, please contact RANsemi or your stack partner.

Further information

For further details about RNS802DB, RNS802 silicon and RANsemi PHY software, please contact your local RANsemi representative or email us at info@ransemi.com