

RNS805 4G/5G O-RU SoC

Product Brief

Product Summary

The RDB805 is an optimised SoC for O-RAN Alliance compliant Cat A O-RU, compliant to 3GPP 4G/5G standards.

The RNS805 uses the RANsemi O-RU software, which supports the O-RAN Alliance Open Fronthaul Control, User, and Synchronisation plane and interfaces to partner RFIC over a high-speed JESD204B interface.

The RNS805 includes an integrated RISC-V Linux CPU for M-plane, S-plane processing, and radio control.

Key Applications

The RNS805 SoC is designed for 5G and LTE O-RU platforms in the following network deployments:

- ◆ Indoor residential, enterprise, private and industrial networks
- ◆ Neutral host networks
- ◆ Outdoor networks

Key Features

- ◆ Supports RANsemi's 5G/4G low PHY software
- ◆ O-RAN eCPRI Open Fronthaul interface
- ◆ On-chip supervisor Linux CPU for M-plane, S-plane processing, and radio control
- ◆ Fourier transforms: FFT, iFFT
- ◆ Digital Front End (DFE)
- ◆ Digital Pre-Distortion (DPD)
- ◆ Crest Factor Reduction (CFR)
- ◆ Simple cascade mode for eCPRI¹
- ◆ PRACH processing
- ◆ IQ compression/decompression
- ◆ Secure on-chip boot capability
- ◆ Debug and device monitoring

Key Interfaces

- ◆ High speed 4-lane JESD204B radio interface.
- ◆ 10/25Gbps eCPRI Open Fronthaul including support for 10Gbase-T copper
- ◆ 2x SPI and up to 48 timed GPIO interfaces
- ◆ 2x I2C, 3x UART and 100M Ethernet Debug interfaces
- ◆ Synchronisation and clock interfaces: SyncE, IEEE1588v2 and GNSS
- ◆ LPDDR4 external RAM
- ◆ QSPI flash

Key Performance

The RNS805 supports 3GPP 5G NR releases 15 and 16, with flexibility for future releases.

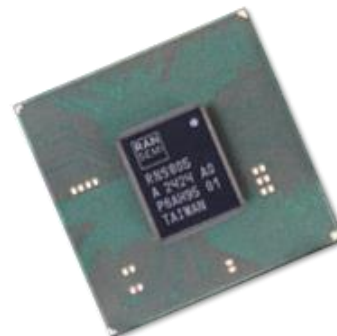
The RNS805 supports flexible RF/bandwidth mapping, for example:

- ◆ 8 TX/8 RX RF ports at 100MHz BW
- ◆ 4 TX/4 RX RF ports at 200MHz BW
- ◆ 2 TX/2 RX RF ports at 400MHz BW

The RNS805 supports a wide number of use cases for multi-carrier, simultaneous dual 5G NR/LTE mode, and neutral host applications.

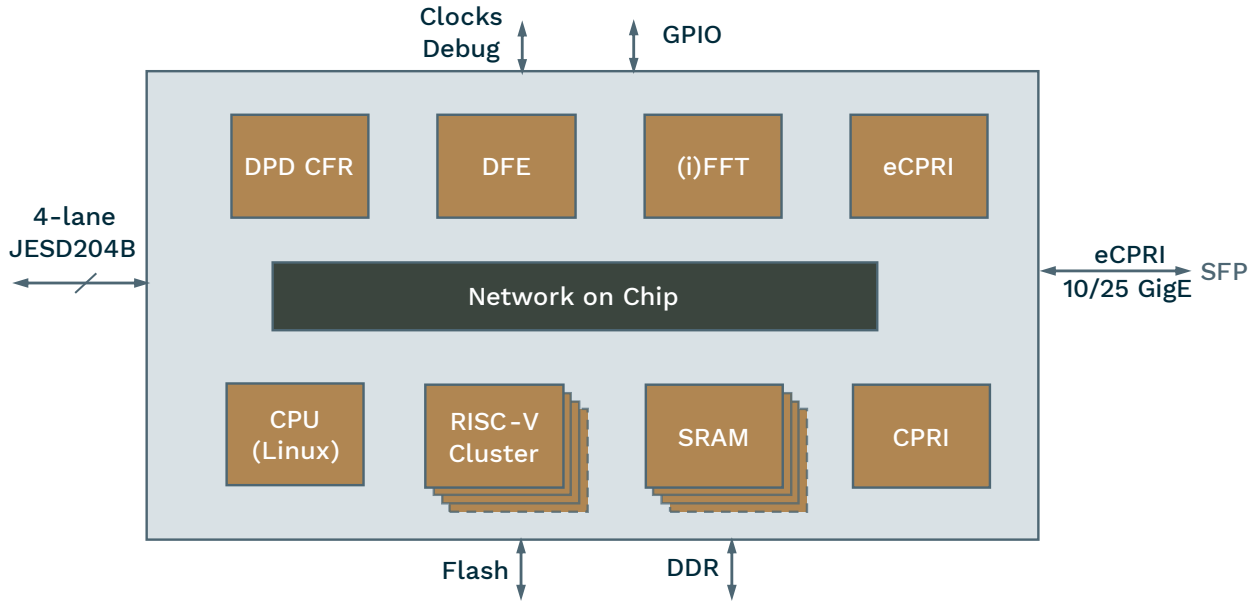
Package summary

- ◆ 17mm x 17mm FC LFBGA Flip-Chip 440 Ball Grid Array

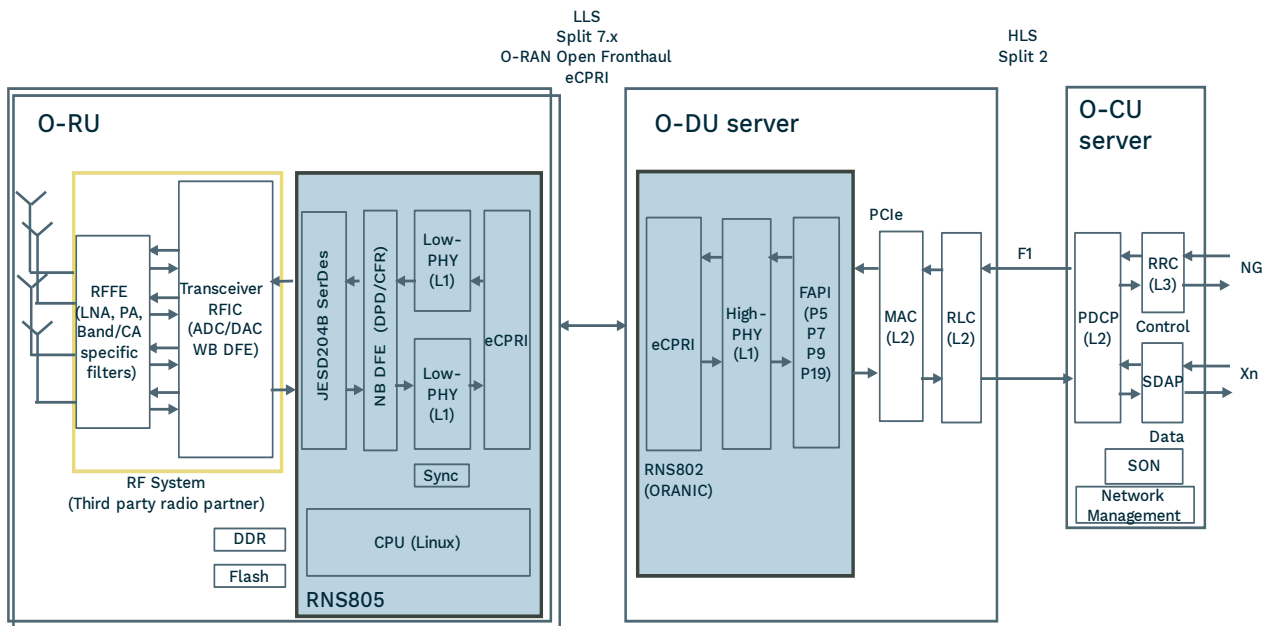


¹ Simple Cascade mode is not the same as O-RAN Cascade mode, which includes an IQ 'copy/combine' function which operates across cascaded O-RU antennas.

RNS805 Silicon Architecture block diagram



RNS805 in O-RU in O-RAN Split 7.2 System



Further information

For further details about RNS805 silicon, use case support, and RANsemi's supporting platforms and software, please contact your local RANsemi representative or email us at info@ransemi.com