

Product Brief

Product Summary

The PC805 RU Demonstrator Board (PC805RDB) is a flexible 5G NR/LTE Radio Unit (RU) board used to demonstrate the PC805 SoC with on-board RF transceiver, front-end and associated support circuitry.

The PC805RDB is available configured for band n78 (PC805RDB-78).

The PC805RDB integrates a TI AFE7769D 4T4R RFIC complete with an RF front end, based on an iCan demo design.

The board is preloaded to boot with a Linux operating system and is used to demonstrate the Picocom 5G NR RU software and M-plane software.

The PC805RDB supports the following RU architecture configurations as defined by O-RAN Alliance and 3GPP, as detailed on the following:

- ◆ Split 7.2 Radio Unit (O-RU - Cat A)
- ◆ Split 8 Radio Unit (RU)

The PC805RDB includes a 12V power and USB cables, heatsink and standoff posts, and RF shielding can.

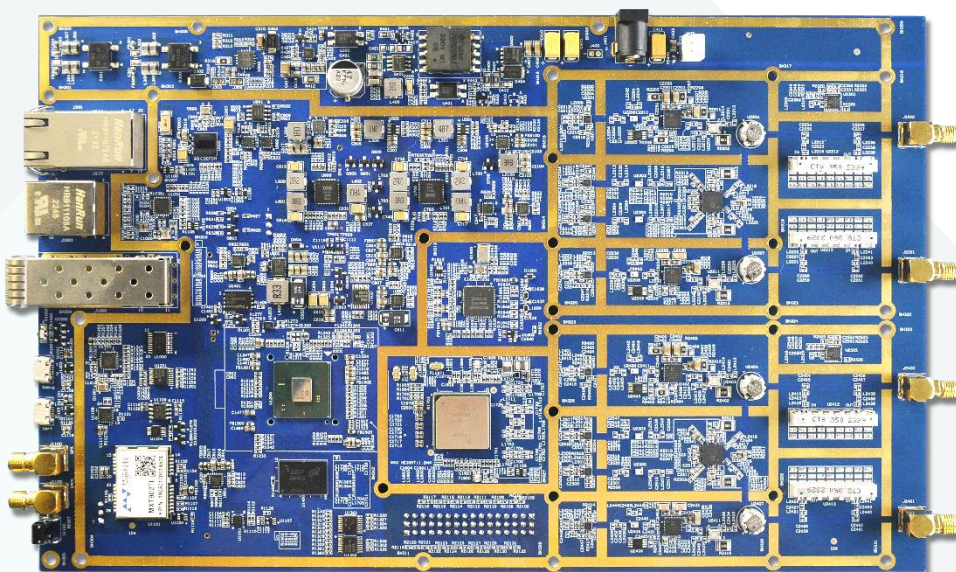
The PC805RDB can be ordered with a limited 3 month NR RU evaluation license.

Key Features

- ◆ PC805 RU SoC Silicon subsystem
- ◆ 4Gb 16-bit interface LPDDR4 SDRAM
- ◆ TI AFE7769D 4T4R RFIC subsystem
- ◆ RFFE for 5G NR FR1 band n78¹
- ◆ Chip integrated temperature sensors
- ◆ Two boot modes: Normal and Debug
- ◆ Synchronisation and clocking functions using on-board GNSS receiver or IEEE 1588
- ◆ Ability to boot and operate via PoE

Key Interfaces and Connectors

- ◆ SFP28 cage for optical LC 10/25GE interface for O-RAN open fronthaul eCPRI/CPRI.
- ◆ 10Gbase-T RJ45 copper interface for PoE
- ◆ GNSS Antenna port
- ◆ Auxiliary 12V power supply port (cable provided) or PoE interface.
- ◆ Test and Debug ports including
 - ◆ 100base-T Ethernet NPU debug port (RJ45)
 - ◆ Micro USB debug port (cable provided)
 - ◆ Micro USB console ports via UART interface
 - ◆ Additional debug, clock and test connectors



¹ X1 rev: 3.3 to 3.6GHz, IBW 100MHz,
X2 rev: 3.3 to 3.8GHz IBW 200MHz

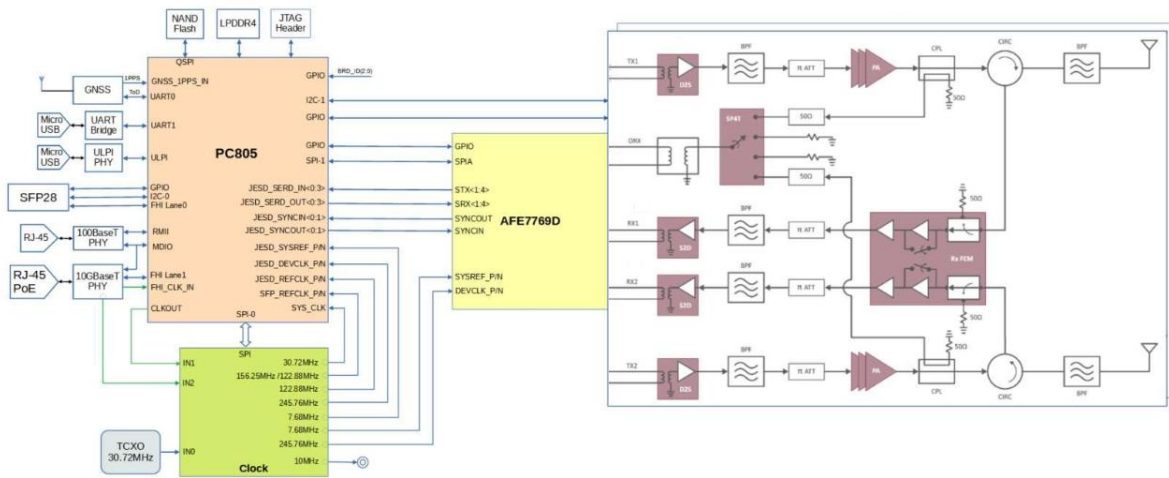


PC805RDB Power Consumption

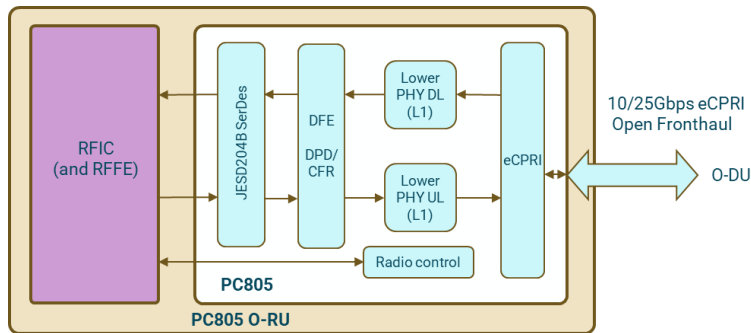
The power consumption of the PC805RDB is 27W, measured using the RU test tool with the following hardware configuration

- ◆ 4T4R
- ◆ BW = 100MHz
- ◆ Frame configuration = DDDDDDDSUU
- ◆ RF power output = +24dBm/antenna port
- ◆ eCPRI/O-RU mode
- ◆ DPD = Disabled

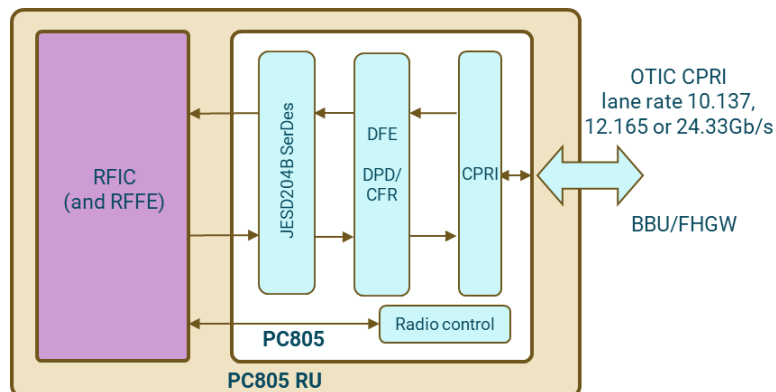
PC805RDB Architecture



PC805 RDB Use Case Diagrams



O-RU use case (Split 7.2)



RU use case (Split 8)



PC805RDB Documentation

The following documentation is part of the PC805RDB product release.

Title	Document number	Description
PC805 RU Demonstrator Board Datasheet	PC-005472-DS	Describes the PC805RDB hardware features, interfaces, pinout and electrical characteristics.
PC805 RU Demonstrator Board Quick Start Guide	PC-005445-DC	Quick Start Guide supplied with the PC805RDB.
PC805 RU Demonstrator Board User Guide	PC-005380-DC	User Guide for PC805RDB
PC805 RU Demonstrator Board Schematics	Available on request	Schematic pdf of the latest revision.
PC805 RU Demonstrator Board EDA	Available on request	Schematics and EDA CAD design files of the latest revision.
PC805RDB Conducted Transmitter and Receiver Characteristics Report	Available on request	Latest 3GPP test results with latest revision and software release.

PC805RDB Software

For NR RU license holders and PC805RDB software support package customers, the PC805RDB comes preconfigured, complete with latest NR RU image, preload to boot from NAND Flash memory. This enables the user to quickly set up the PC805RDB and start evaluation and testing.

Software element	Location	Description
Linux (MP-CPU)	https://github.com/orgs/picocom-chips/repositories	Linux source code including BSP, drivers
Software Support Package for PC805RDB	https://resources.picocom.com/	Limited PC805 O-RU demonstration binary demonstration software (NR RU, split 7.2)

Below are the full list of applicable software applications supported by the PC805RDB which can be separately licenced as binary or source code

Software element	Product Order Code	Description
5G NR RU	NR-RU-BIN NR-RU-SRC	O-RAN O-RU 5G NR low PHY binary and source code suitable for PC805
LTE RU	LTE-RU-BIN LTE-RU-SRC	O-RAN O-RU 4G LTE low PHY binary and source code suitable for PC805 (2024 roadmap)
DPD capability	PC805-DPD-bin	DPD enabled binary upgrade (2024 roadmap)
M-Plane product	RU-MP-src	O-RAN M-plane source code
FR2 upgrade source	NR-FR-Upgrade-src	Source code upgrade from FR1 to FR2 (2024 roadmap)

Please contact your local Picocom representative or info@picocom.com for any additional information on the PC805 silicon, platforms, tools or software products.

Ordering Information

Part number	Product Name	Details
PC805RDB-78	PC805 RU Demonstrator Board	Build for Band n78 operation
PC805-Eval-Pack	Software Support Package for PC805RDB	Software support package (on first board ordered)

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