Product Brief

Product Summary

The PC802 Evaluation Kit consists of the PC802 Evaluation Board, Board Support Package (BSP) and demonstration 5G NR software to allow customers and partners to evaluate the PC802 silicon and software in combination with partner software and hardware over standardised interfaces. The board and software can be configured to support the following use cases by enabling the appropriate PHY and interfaces.

- O-DU (utilising upper PHY)
- Small Cell (utilising full PHY)*
- O-RU (utilising lower PHY)*

The PC802 Evaluation Board supports upper PHY processing for a O-RAN Alliance defined O-DU, by transforming the SCF FAPI messages from the L2 software sent over the PCIe interface into Open fronthaul eCPRI interface transmitted over the Ethernet interface. Full end to end evaluation testing can be achieved by interfacing to an O-RU radio unit or UE Emulator test equipment with O-RU capability.

The PC802 Evaluation Board also supports the full PHY using the PCIe FAPI interface and RFIC JESD204B baseband interface and connecting with a compatible partner RFIC evaluation board over the FMC connector*. Similarly, the PC802 Evaluation Board can also be configured in O-RAN Alliance O-RU mode using the Open fronthaul eCPRI interface and JESD204B FMC RFIC connector*.

*For customers wanting to evaluate use cases with ADI ADRV9029 RFIC, it is recommended that customers use the Picocom PC802 Small Cell Development Board.

Software

Software included

Software included in the PC802 Evaluation Kit includes:

- PCOMware release including
  - Board Support Package (BSP)
  - Bootloader binary
  - Bring up and debug tool
- Demonstration 5G NR binary software

Additional software supported

The PC802 Evaluation Board hardware is also compatible with the following Picocom software, which are separately licensed complete with support and roadmap:

- 5G NR PHY binary or source code
- 5G NR RU binary or source code
- LTE PHY binary or source code
- LTE RU PHY binary or source code

PC802 Evaluation is also compatible with the following 3rd party tools to provide additional debug and source code development support if needed:
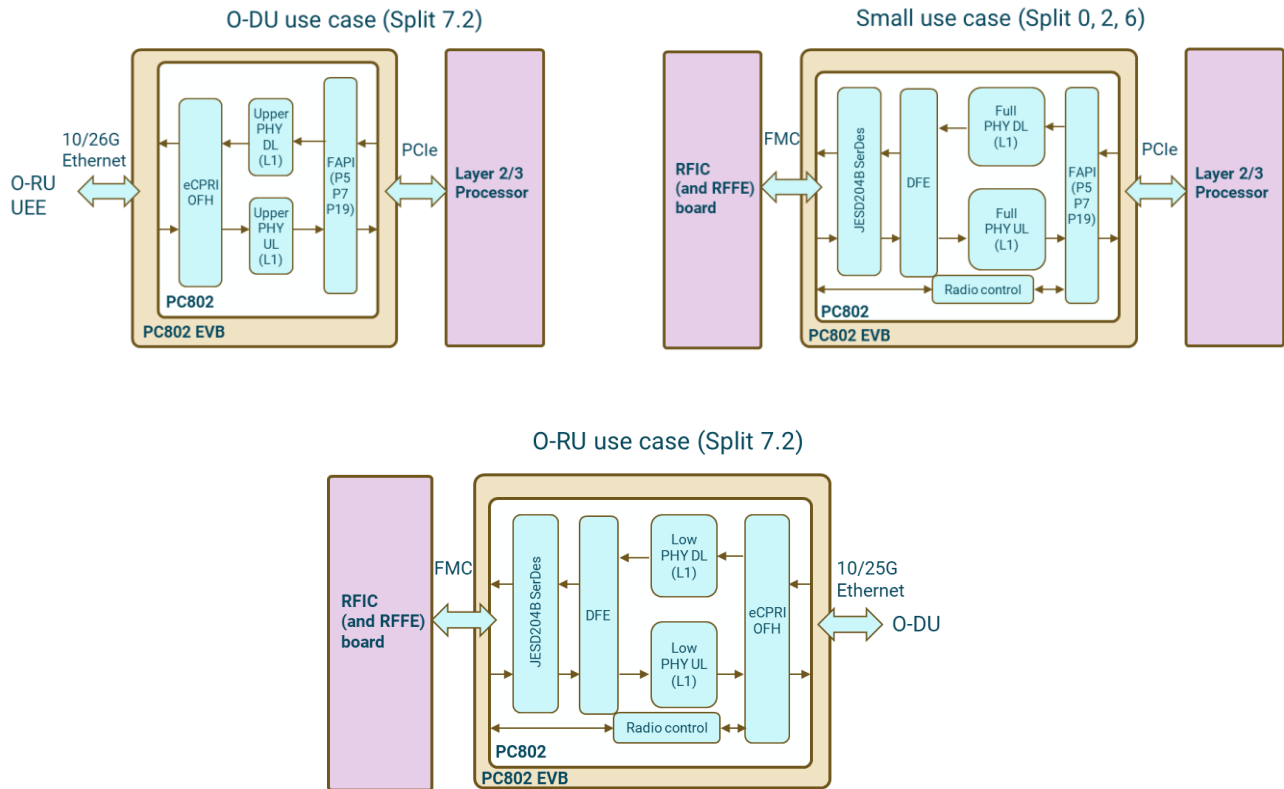
- Siemens Tessent SystemInsight
- Ceva Software Development Tools
- AndeSight Software Development Tools

For more information on software products and tools, please contact Picocom.

Evaluation Board description

The board is a half-length, full-height PCIe 4x add-in PCIe card, and has the following features and interfaces.

Key Features

- PC802 SoC Silicon subsystem
- 2GB 32-bit interface LPDDR4 SDRAM
- JESD204B, SPI, GPIO and I2C interface from PC802 to RFIC FMC connector
- Jumper and switches for RFIC configuration
- 4 on-board temperature sensors
- Two boot modes: Normal and Debug
- Synchronisation and clocking functions

Key Interfaces and connectors

- 4-lane JESD204B radio interface supporting up to 4 RFICs
- SFP28 cage for optical LC 10/25GE interface for O-RAN open fronthaul eCPRI
- Gen 4 4-lane PCIe interface carrying SCF FAPI interfaces to/from external NPU or PC
- FMC connector to FR1 ADI ADRV902x or TI AFE7769 RFIC Evaluation board (PN PC802EVK-1). Contact Picocom for support.
- Micro USB UltraSoC debug port (cable provided)
- Micro USB console port via UART interface
- GNSS Antenna port
- Auxiliary 12V power supply port (cable provided)
- Additional debug, clock and test connectors

Use case diagrams

O-DU use case (Split 7.2)

Small use case (Split 0, 2, 6)

O-RU use case (Split 7.2)

Further information

The following documentation as part of the product release, additional design documentation such as schematics and .brd design files are available.

- PC802 Evaluation Kit Reference Manual
- PC802 Evaluation Kit User Guide

Other PC802 board-level products include:

- PC802 Small Cell Development Board with on-board layer 2 NPU and ADI ADRV9029 RFIC
- ORANIC PHY and NIC for small cell O-DU with 4 PC802s

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

Ordering information

Part number	Product Name	Details
PC802EVK-1	PC802 Evaluation Kit	Engineering samples, and demo software
PC802EVB-1	PC802 Evaluation Board	Additional board engineering samples

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

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