Product Brief

Product Summary

The PC802 Small Cell Development Board (PC802SCB) is a flexible 5G NR/LTE development platform for evaluating the PC802 for different small cell use cases. The board includes a SD card with boot and demo software, and three month trial of Picocom 5G NR binary software.

The PC802SCB supports the following small cell architecture configurations as defined by 3GPP, O-RAN Alliance and Small Cell Forum, as detailed on page 2:

- Split 0 Integrated Small Cell (gNB) (-1E)
- Split 2 Distributed unit (gNB-DU)
- Split 6 Radio Unit (S-RU)
- Split 7.2 Radio Unit (O-RU)

The PC802SCB includes an on-board NXP Network Processing Unit (NPU) to provide appropriate stack, network, and management layer processing. The PC802SCB also includes ADI 4T4R RFIC.

The board dimensions are 203.2mm x 195.6 mm.

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

Key Features

- PC802 SoC Silicon subsystem
  - 8GB 32-bit interface LPDDR4 SDRAM
- NPU NXP LS1046A subsystem
  - LS1046AXN8Q1A without encryption (-1)
  - 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

Key External Interfaces

- SFP1 cage for 10GE SFP+ optical LC interface for gNB, split 2 and 6 use cases
- SFP2 cage for SFP28 optical LC 10/25GE interface for O-RAN open fronthaul eCPRI
- 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 Siemens/Mentor Tessent UDAgent debug port
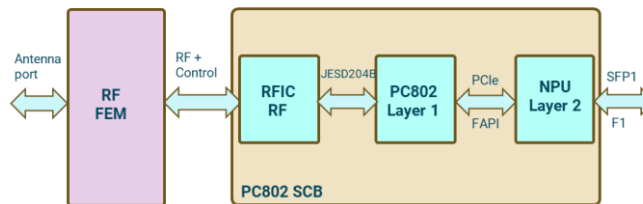 - Micro USB console port to PC802 UART
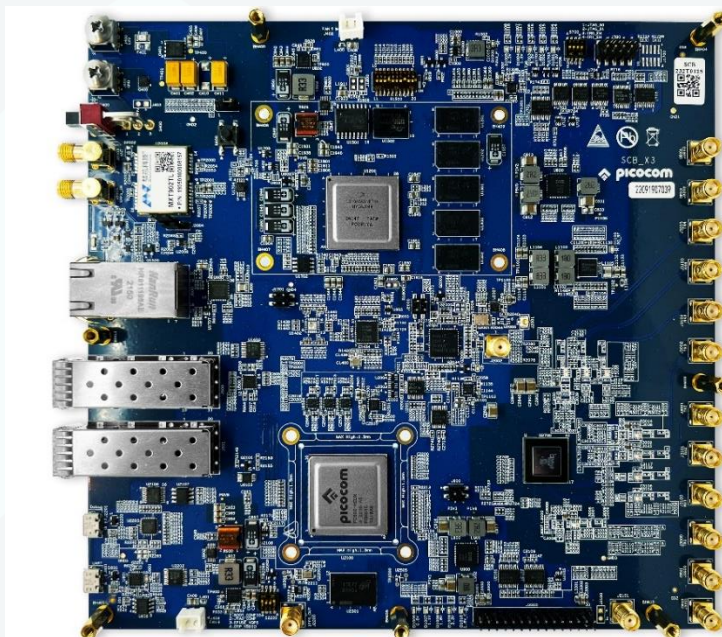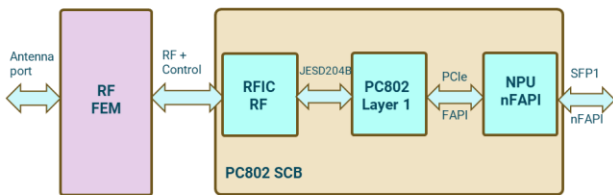
Small Cell Board Architecture
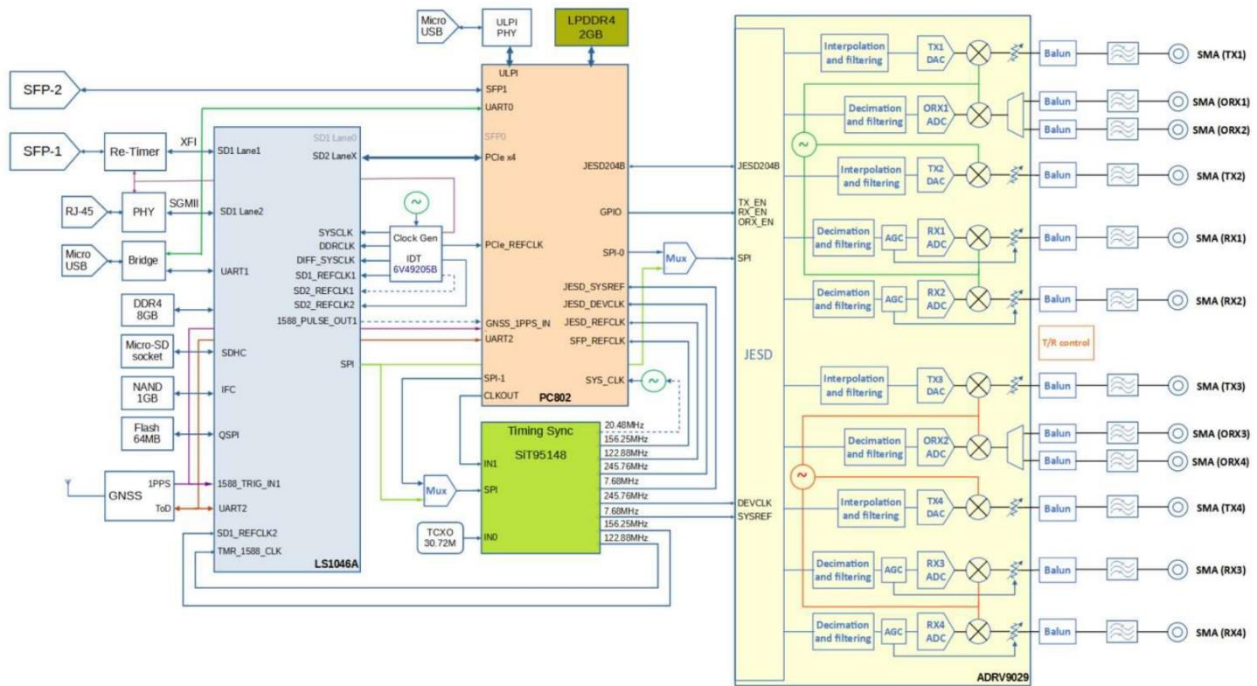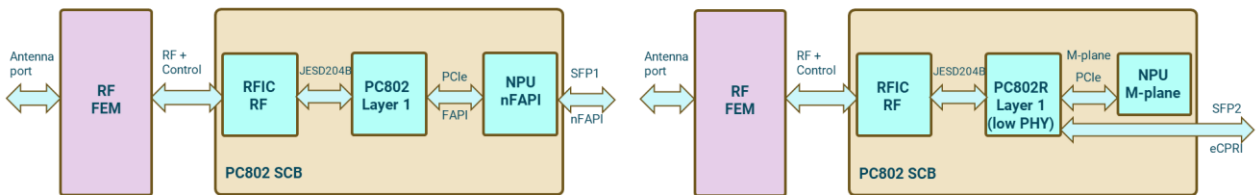

Use Case Diagrams

Small Cell use case – Split 2 Distributed unit (gNB-DU)

Small Cell use case – Split 6 Radio Unit (S-RU)

Small Cell use case – Split 7.2 Radio Unit (O-RU)

Software

Software included in the PC802SCB as shipped and on the Picocom Extranet is follows:

- ◆ SD card with boot code and demo software release
- ◆ Three month trial of the latest 5G NR PHY binary software (including test mode) for use cases:
    - ◆ Small Cell (NR PHY BIN – full PHY)
    - ◆ O-RU (NR RU BIN - low PHY)
- ◆ Latest PCOMware release including Board Support Package (BSP), bootloader and probe debug tool

Design Files and Documentation

The PC802SCB comes complete with the following documentation and design files:

Title	Part number	Description
PC802 Small Cell Development Board Datasheet	PC-002965-DS	Describes the PC802SCB use cases, hardware features, interfaces and pinout
PC802 Small Cell Development Board Quick Start Guide	PC-002982-DC Printout in box	Describes what is in the box and how to get started
PC802 Small Cell Development Board User Guide	PC-003556-AN	Describes hardware and software setup details for the PC802SCB
PC802 SCB Design files	PC-004889-DH	SCB X4 Schematics and EDA CAD design files[1]
IBIS models for high speed interfaces	Licenced on request	
Gerber Files	Available on request	

Additional Software and Tools Supported

The PC802SCB is compatible with the following Picocom PHY software, which are separately licensed complete with support and roadmap:

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

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

For access to demo software, please contact your local Picocom representative or use info@picocom.com for any additional information.

The PC802SCB is also compatible with the Ceva Software Development Tools and Andes AndeSight Software Development Tool, to support customers with debug and source code development. Please contact Ceva and Andes directly.

Further Information

Other PC802 board-level products include:

- ◆ PC802 Evaluation Board
- ◆ ORANIC Board – PHY/NIC for O-DU (4 x PC802)

Please contact your local Picocom contact for any additional information on PC802 silicon, platforms, tools or software products.

Ordering Information

Part number	Product Name/Description	Details/ECCN
PC802SCB-1	PC802 Small Cell Development Board (no encryption)	ES quantities, 5A991.b.4
PC802SCB-1E	PC802 Small Cell Development Board (encryption)	ES quantities, 5A002a3

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[1] Please note the RF layout of the SCB is generic and has been designed to be flexible. This means the RF layout should not be copied, and the ADI documentation and application notes should be referenced.