DECT NR+ Evaluation Board

Overview



The DECT NR+ Evaluation Board can be used to experience the features and capabilities of DECT NR+. It consists of a Nordic nRF9151 modem running the RTOS Zephyr, and a Raspberry Pi Compute Module (CM4) host processor running Linux. Furthermore, the firmware implements parts of the DECT NR+ stack alongside with comprehensive applications delivered together with the board.

Applications



The following applications are currently implemented:

- Unidirectional audio FT to PT
- Unidirectional audio broadcast from FT to multiple PTs
- · Bidirectional (talk-back) audio from PT to FT
- · Mesh applications
- Unidirectional Video transmission
- Round Trip Time measurement
- Evaluation and Measurement of PER, SNR, range etc.
- Spectrum Scanner
- Grafana Measurement Application



DECT NR+ SiP NRF9151

Pin Header

- 1.27mm Pin header for programming (e.g. with nRF91x-DK as programmer and Visual Studio Code extension by Nordic Semiconductor)
- 2.5mm Pin Header for power consumption measurements

Buttons

- Reset button connected to nRF9151
- Three buttons connected to CM4 and nRF9151

LEDs

Three green LEDs connected to nRF9151

Raspberry PI CM4 Compute Module

On-board eMMC of CM4 can be flashed through USB-C port

- 2.5mm Pin Header to put CM4 into boot mode
- 2.5mm Pin Header for USB-C port OTG function

Internal Interfaces between NRF9151 and CM4

- 17 GPIOs between CM4 and NRF9151
- SPI with 8 MHz clock
- UART nRF9151 (TX) to CM4 (RX)
- Reset of nRF9151 can be triggered from CM4

External Interfaces

Connected to CM4

- 1Gbit/s Ethernet
- USB-A 2.0
- 3.5mm Stereo Audio Jack Input
- 3.5mm Stereo Audio Jack Output (Mic Input with bias voltage)

Connected to NRF9151

- RF Out SMA female
- 2.5mm Pin Header with six GPIOs from nRF9151 (two shared with CM4 for UART)

Software Architecture

The RFmondial DECT NR+ evaluation board is delivered with four different software components, which are split between the Raspberry Pi Compute Module 4 (CM4), and the nRF9151. These four software components are:

- CM4: Linux Image
- CM4: hostdeamon
- nRF9151: modem hex
- nRF9151: application hex



Power Supply

- 5V via USB-C port
- Total Board current consumption with current firmware version < 500mA

Mechanical dimensions

• 110mm x 74mm x 18mm