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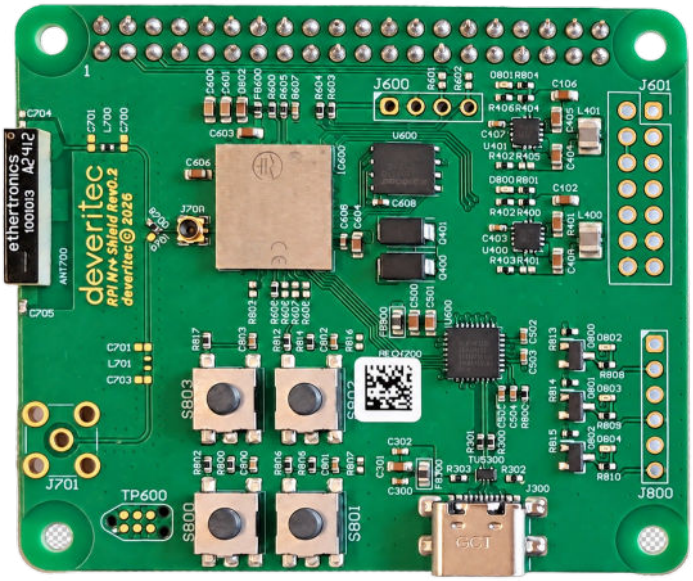
RPiSiNrp DP

DECT-2020 NR (NR+) Raspberry Shield Developer Platform



Product Overview

The RpiSiNrp DP opens the door for developers and engineers to explore DECT NR+ (Digital Enhanced Cordless Telecommunications – New Radio Plus).

At its core is the RpiSiNrp DP, providing a flexible development platform for exploring the latest DECT NR+ stack features. Professionals, researchers, and next-generation engineers can use the kit to evaluate DECT NR+ technology and adapt it to existing products, new applications, and future product concepts.

The education-ready design enables straightforward integration with standard Raspberry Pi platforms, making it an accessible and versatile starting point for DECT NR+ development.

Audience & Use Cases

- DECT NR+ exploration for industrial experts & academics
- Product, concept, and integration evaluation
- Application development
- Parallel hardware & software development
- DECT NR+ feature development
- Prototyping and technology evaluation

Key Features

- Compatible with Raspberry Pi platforms
- Supports multiple roles:
  - FT & PT
  - FT-Gateway Node
  - FT-Master
  - FT-Slave in multi-parallel-channel design
- External SYNC-IN & SYNC-OUT pins
- Multiple power options:
  - Raspberry Pi powered
  - USB powered
  - Battery powered
- Multiple USB interface options:
  - Raspberry Pi powered
  - USB-to-serial converter
- Supports multiple interfaces
  - UART
  - I^2C
  - SPI
- Extended input voltage range
  - 2.5V to 5.5V
- Optional support for upto 3 hardware configurable open-drain I/Os
- Supports both external & onboard antenna configurations
- Ready to use extensions available
- Accessible GPIO pins

Flexible I/O and Connectivity

The RPi NR+ Shield provides direct access to a broad range of interfaces, allowing developers to connect external peripherals, controllers, sensors, and other hardware during development.
The open-drain I/O outputs support loads of up to 60 V DC and 1.7 A DC. The corresponding footprint accommodates standard male or female pin headers as well as screw terminal blocks, such as the WR-TBL Series 2109.
The board also provides three user buttons, a dedicated reset button, and onboard RGB user LEDs for convenient application development and status indication.

Antenna Options

The development kit supports both onboard and external antenna configurations.
An external antenna can be connected through an SMA connector. An SWF switch connector and an unpopulated π-network in the external antenna path give developers the option to adapt and match the antenna configuration to their specific application.

Development & Expansion

The accessible interfaces and GPIO connections make the RPi NR+ Shield suitable for experimenting with hardware and software in parallel. Ready-to-use extensions can further simplify the integration of additional functionality and peripherals.
The platform is designed to support the complete development cycle — from initial DECT NR+ exploration and stack-feature evaluation through application development and product concept validation.

Notes

Certain features may require soldering and/or additional discrete components that are not included with the kit.
1) RF peak performance may be affected when operating at lower supply voltages.

Technical Specifications

Feature	Specification
Flash	32 MB
UART (2x)	up to 1 Mbit/s each, accessible via pin header and/or USB
SPI (2x)	up to 1 Mbit/s each, accessible via pin header and/or USB
I²C (1x)	Dedicated user I²C, 100 kHz / 400 kHz, accessible via pin header
SYNC I/O Interface	Access to both external SYNC_IN & SYNC_OUT pins
SDATA/COEX/ MAGPIO	Fully accessible
SIM interface	Accessible with restrictions
Programming	TAG-Connect programming interface
User LEDs	Onboard red, green, and blue LEDs
User buttons	3× user buttons + 1× reset button
Input voltage	2.5 V – 5.5 V
Open-drain I/O	Up to 60 V DC / 1.7 A DC
External antenna	SMA connector
Antenna matching	SWF switch connector and unpopulated π-network in external antenna path