

# RZ/N1 SOLUTION KITS

All-in-the-box package for fast evaluation and rapid prototyping

**RZ/N1 solution kits include everything that is needed for fast evaluation and rapid prototyping of multiple industrial Ethernet protocols. Due to the unique combination of hardware and software, developers can focus only on developing the application.**

**Multiple industrial Ethernet protocols have been integrated over a consistent communication abstraction layer.**

**Transparent for the application software, this abstraction layer has a documented API which allows an independent development of the application software without having a deep knowledge about the details of IE protocols. Even more, these protocols can be easily exchanged, with a minimal impact on the application software.**

The evaluation boards feature two Fast Ethernet (MII/RMII) interfaces, NOR flash and DDR3 (only RZ/N1D board) memory, a USB Device/Host interface and one USB debug/power port. Aside the board, the package contains an USB-driven IAR I-jet Lite including a 20-pin flat ribbon cable. There is a large software bundle with stacks, demo applications and drivers on the RZ/N1 Solution Kit DVD. The document set helps you get the most of the kit, starting with the quick starting guides through setup procedures, user manuals and board documentation.

The optional expansion board, "CONNECT IT! RZ/N1 Expansion" gives access to the full set of RZ/N1 interfaces. The expansion board has no stand-alone capability and requires either an RZ/N1D or RZ/N1S CPU board. For more information please check: <https://www.renesas.com/eu/en/solutions/industrial-automation.html>

## Product Features

There are three RZ/N1 solution kits available, with evaluation boards based on RZ/N1D, RZ/N1S and RZ/N1L. The two RZ/N1D and RZ/N1S solution kits feature a 5 or 3 port Ethernet access, real-time, gigabit switch controlled by an Arm Cortex M3 CPU as well as a dual or single core Arm® Cortex® A7. The RZ/N1L features a 3-port, real-time switch and an Arm Cortex M3.

EtherNet/IP™



THREADX

**SERCOS**  
interface

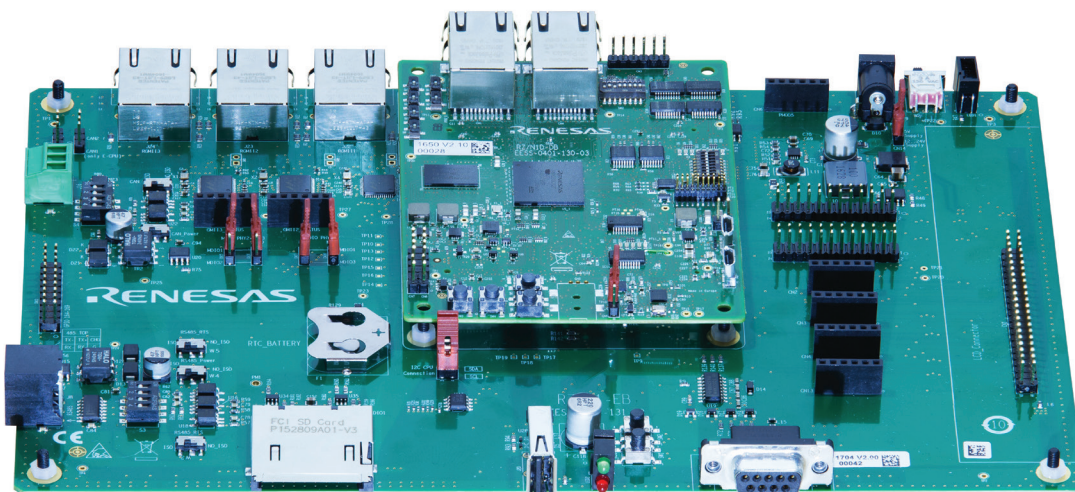
ETHERNET  
**POWERLINK**

**EtherCAT**®

**PROFI**®  
**NET**



**CODESYS**



RZ/N1D-DB CPU Board mounted on the RZ/N1-EB Expansion Board

# RZ/N1 SOLUTION KITS

## Content of the Solution Kits

- RZ/N1D-DB development board in the CONNECT IT! ETHERNET RZ/N1D kit
- RZ/N1S-DB development board in the CONNECT IT! ETHERNET RZ/N1S kit
- RZ/N1L-DB development board in the CONNECT IT! ETHERNET RZ/N1L kit
- IAR I-jet Lite debugger
- Comprehensive software and documentation package on DVD with:
  - BSP with interface drivers and many sample application projects
  - Linux for Cortex®A7 applications and ultron RTOS with HW-RTOS for Cortex®M3 for industrial communication
  - APIs for inter-CPU communication
  - PinMux Tool for graphical configuration of pin multiplexing and configuration code generation
  - X-WARE IoT platform evaluation package including THREADX, THREADX SMP, GUIX and NETX DUO
  - RSTP, HSR and PRP redundancy network protocols
  - Evaluation versions (including applications) of major industrial Ethernet stacks from our partners
  - Network communication interfaces for PHY and 5port switch management APIs
  - RZ/N1D Device and board documentation with tutorial video

## CPU Board Features

- RZ/N1Dx device on the RZ/N1D-DB
- RZ/N1S device on the RZ/N1S-DB
- RZ/N1L device on the RZ/N1L-DB
- Fast Ethernet (MII/RMII) (2 x)
- NOR flash, DDR3 (only on RZ/N1D-DB)
- USB Device/Host
- Serial USB debug/power port
- User LEDs, User switches, GPIOs, ...

## Content of the Expansion Board

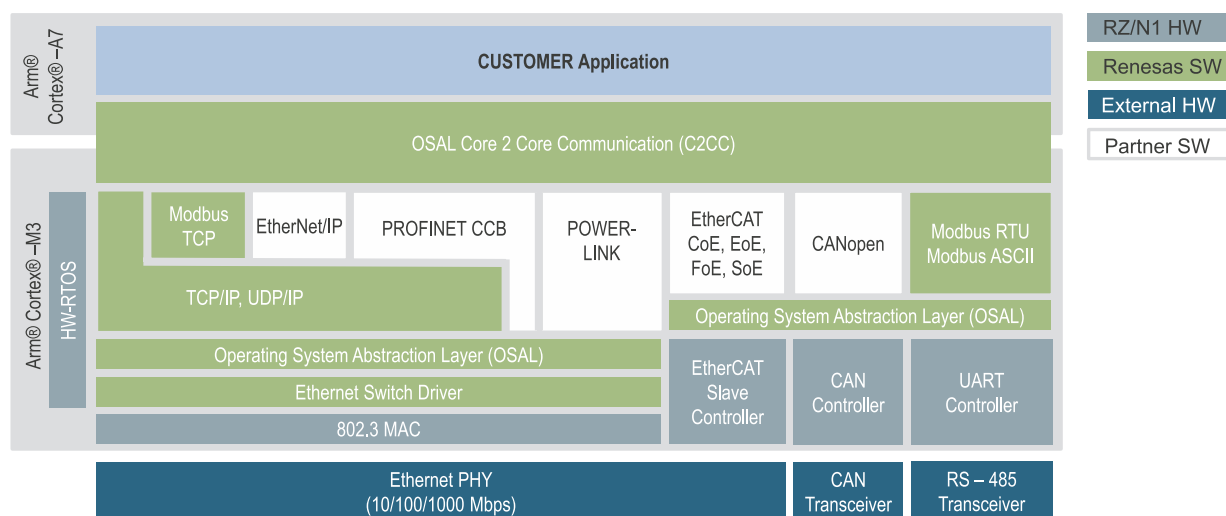
- RZ/N1-EB expansion board
- Power supplySerial USB debug/power port

## Expansion Board Features

- Gbit Ethernet (RGMII/MII) (3 x)
- SDIO interface
- PMODS (4 x)
- Parallel Interface
- LCD display interface
- CAN, RS485, RS232
- Battery buffered Real-time Clock

## Order Codes

- RZ/N1D Solution Kit: YCONNECT-IT-RZN1D
- Expansion Board: YCONNECT-IT-RZN1-EB
- RZ/N1S Solution Kit: YCONNECT-IT-RZN1S
- RZ/N1L Solution Kit: YCONNECT-IT-RZ/N1L



RZ/N1 Software Structure