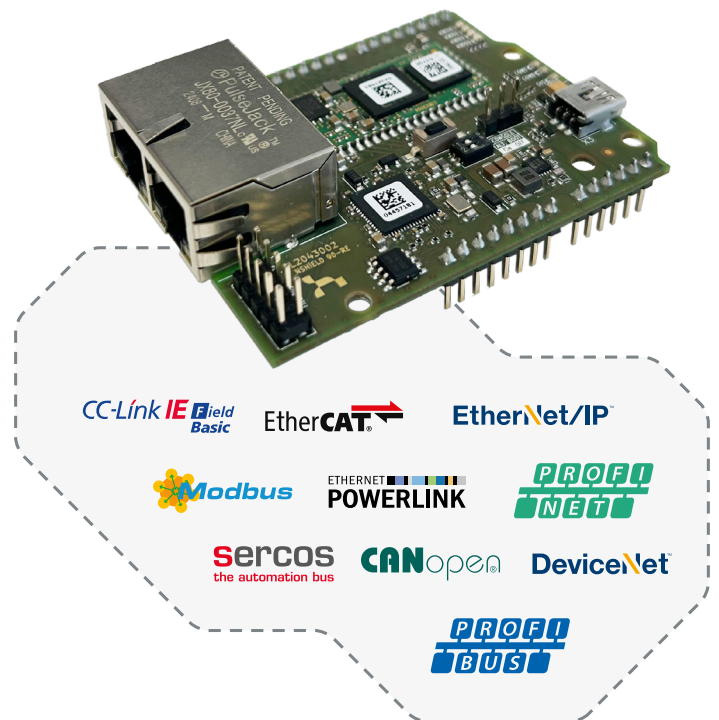


netSHIELD

RTE Protocol Extension Board for STM32

- One piece of hardware for all industrial Real-Time Ethernet systems
- netX 90 protocol-stack firmware available as free download for evaluation
- Supports STM-NUCLEO-64 and STM-NUCLEO-144
- Quick Start Guide for easy set-up of hardware and software



One hardware for all industrial Ethernet systems

The Hilscher NSHIELD 90-RE is a netX 90 SoC based evaluation board of the product family netSHIELD, it is the successor of NSHIELD 52-RE. netSHIELD functions as an STM32 Nucleo expansion board with Arduino Uno compatible connectors.

The NSHIELD 90-RE board is designed and tested for 3.3V based hardware designs like STM32 Nucleo microcontroller development boards. Due to its Arduino Uno footprint compatible host interface connectors, the NSHIELD 90-RE can be easily plugged into STM32 Nucleo-64 and Nucleo-144 development boards.

The NSHIELD 90-RE enables the user to connect a microcontroller-based application to many relevant Real-Time Ethernet industrial networks with best-in-class real-time capabilities, like PROFINET, Ethernet/IP, EtherCAT and others. I. e., the customer application can communicate in industrial RTE without any further hardware development efforts. The protocol can be easily changed (e. g. from PROFINET IO-Device to EtherCAT slave) by simply downloading a new firmware file to the device.

The NSHIELD 90-RE features a netX90 system on chip (netX SoC), which serves as a “companion chip” for the customer host device’s microcontroller (MCU).

The netX SoC architecture is designed from the ground up for the highest demands on flexibility, determinism, and performance in terms of multiprotocol capability and low latency for short cycle times. The heterogeneous multi-core architecture features an ARM processor core, coupled with a flexible communication subsystem (xC) for varieties of industrial applications support.

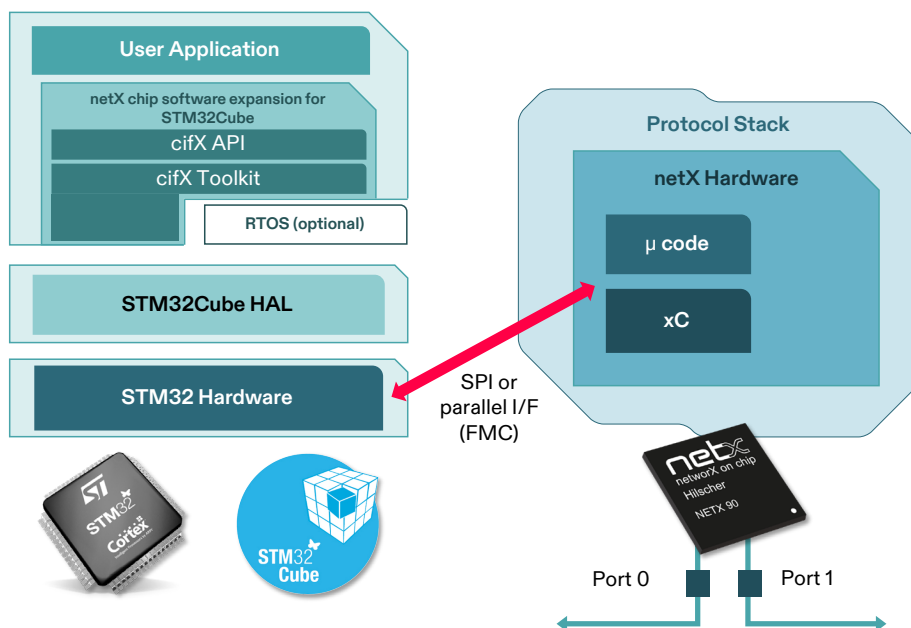
The communication subsystem, i.e., the protocol stack, runs completely independent on the netX SoC and requires only small memory and very limited CPU resources from the host microcontroller. A protocol specific firmware image for the netX network controller is stored in a serial flash memory.



→ netSHIELD
 Hotline: +49 (0) 6190 9907-90
www.hilscher.com

STM32 Cube Expansion

- Generic API for all protocol stacks from Hilscher
- Application examples for PROFINET and Ethernet/IP
- Requires a netX companion chip beside the STM32 Microcontroller
- Prepared to work with netSHIELD expansion board for STM32 Nucleo-64 and Nucleo-144
- Configured for SPI connection between STM32 MCU and netX companion chip, it also can be adapted to parallel interface



Technical Data

Operating temperature

0 °C ... +30 °C (laboratory conditions)

Power supply

5 V DC via USB, 300 mA at 5 V (typical)
Mini-B USB or Arduino host interface connector X5

Dimensions (L x W x H)

70.2 mm x 53.4 mm x 23.6 mm

Communication Controller

netX 90

Integrated Memory

8 MByte SDRAM | 8 MByte Serial Flash Memory

Host Interface

Serial dual-port memory interface via SPI,
STM32 Nucleo-64 and Nucleo-144 development boards,
ARDUINO® Uno V3 compatible plug pin header strips
(1 × 6-pin, 2 × 8-pin and 1 × 10-pin)

Technical Data

Mounting

Plug-on module. Mounting via Arduino pin headers.

LED

- SYS: system status
- COM0: communication status (RTE)
- COM1: communication status (RTE)
- LINK & TX/RX for Ethernet channel 0 (at RJ45)
- LINK & TX/RX for Ethernet channel 1 (at RJ45)

Diagnostic Interface

USB-to-UART firmware download via on-board USB with virtual COM port, USB-to-JTAG debugging

Real-Time Ethernet Protocols

CC-Link IE Field Basic Slave, EtherCAT Slave, EtherNet/IP Adapter, Open Modbus/TCP, POWERLINK Controlled Node, PROFINET IO-Device, Sercos Slave

Fieldbus Protocols

CANopen Slave, DeviceNet Slave, PROFIBUS DP Slave

Operating elements

Power-on reset push-button, Boot mode configuration jumper

Note: All technical data may be changed without further notice.

Product name	Product number	Brief description
NSHIELD 90-RE	7836.000	Real-Time Ethernet expansion board for development and evaluation purposes for STM32 Nucleo host devices



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