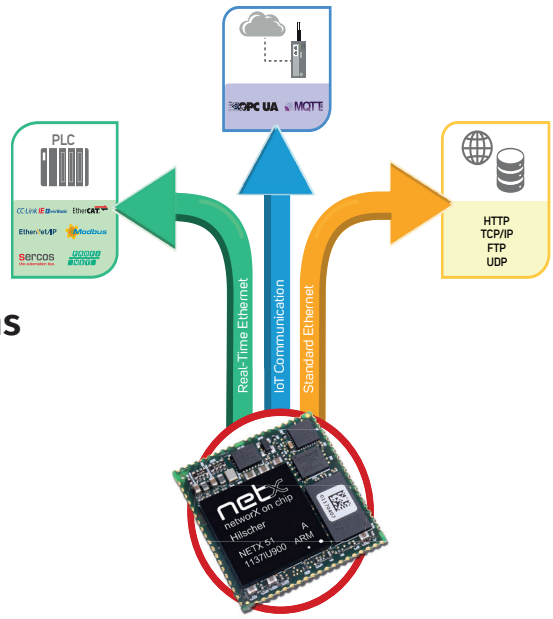
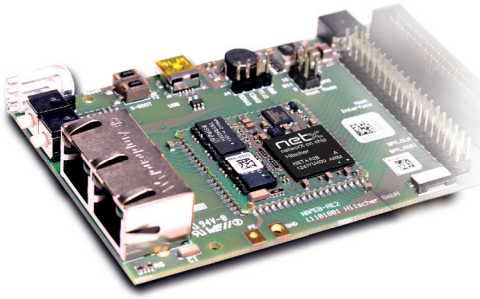
netRAPID

Ready-to-solder netX-Design in stamp size

- **Complete Slave interface with smallest footprint**
- **One hardware for all Real-Time Ethernet slaves**
- **Transparent Ethernet channel for own IT solutions**
- **Firmware-Update via integrated Webserver**
- **Prototyping or SMD mass production**
- **Integrated OPC UA Server & MQTT Client**





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netX Chip-Carrier for Integrated Communication

netRAPID is the rapid and secure alternative to developing your own slave using a communi-cation controller. As stamp-sized netX chip carrier, it is integrated into the customer hardware in the same manner as a QFP part. It is designed for automated SMD series production as well as for rapid prototyping. At the same time netRAPID offers adequate costs per unit as well as reduced risk and fast time-to-market.

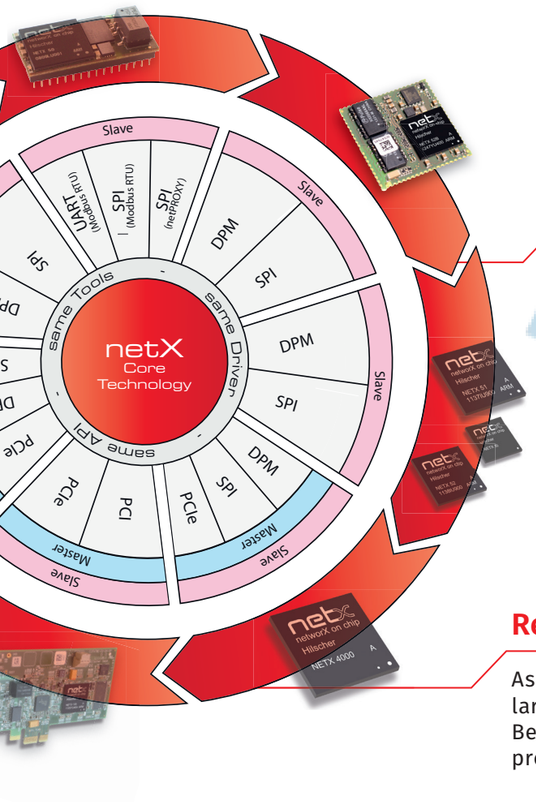
To meet the different requirements of intelligent field devices, there are two versions of netRAPID for Real-Time Ethernet: Optimized for minimum space requirements, including magnetics, SQI flash and netX multiprotocol chip. Its focus is on Real-Time Ethernet communication and the protocol stack will be executed in the internal RAM of the netX.

Optimized to advanced features. Besides Real-Time Ethernet communication there is an inte-grated Webserver as well as an additional transparent Ethernet channel available, to realize own IT solutions in the host processor of the automation device. The magnetics need to be integrated on the baseboard. Moreover, an upgrade with integrated OPC UA server and a MQTT client is available.

Just add licensed firmware during the manufacturing process to enable full functionality.

hilscher
COMPETENCE IN COMMUNICATION

READY-TO-SOLDER NETX-DESIGN IN STAMP SIZE – **netRAPID**



Same Function - Same API - Same Tools

The Hilscher Platform Strategy provides the whole range of communication solutions to the user – from standardized PC cards up to the integration of the multiprotocol chip netX. All solutions – whether Master or Slave – have the same interface to the application and use the same tools.

After single integration of the application interface the change to another hardware format or a different physical host interface is a pure hardware optimization process without fundamental changes of the software structure.

Real-Time Ethernet & Fieldbus protocols

As specialist for industrial communication Hilscher offers the largest selection of protocols used in the factory automation. Besides traditional Fieldbus all major RealTime Ethernet protocols are available.

EtherCAT · EtherNet/IP · ETHERNET POWERLINK · CC-Link IE Field Basic · Modbus · sercos the automation bus · PROFINET · OPC UA · MQTT

Rapid prototyping & SMD series production

netRAPID offers a rapid and risk-free entry into netX world. As a ready-to-solder and fully tested netX design you know that it works before you have even started your development. Thus prototypes can be successfully realised within shortest period of time.

Afterwards you use netRAPID right away in your automated SMD production process. The Chip-Carrier will always be delivered in trays and allows a seamless start of your series production.

netRAPID Evaluationboard

Migration path to your netX-Design

netRAPID allows a seamless change to an own netX design at any time. For this migration to a chip solution netRAPID can be fully integrated into the customer design. Means customers can realize the same proven interface, with the same components and thus identical electrical behaviour in their design. A change of the software structure is not needed.

Real-time communication in stamp size

netRAPID is a top-side mounted circuit board in the compact dimensions of 32x32 mm and will be soldered to the baseboard. As for a QFP part the solder pads are located on the side and enables an easy handling.

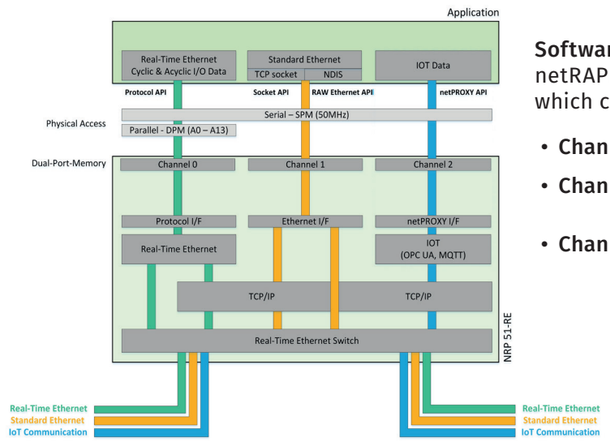
IT functions & IoT communication

NRP 52-RE With its integrated Ethernet transformer and sole usage of the netX internal RAM, netRAPID 52-RE is optimized for minimum footprint. Its focus is purely on Real-Time Ethernet communication.

NRP 52-RE

NRP 51-RE With an additional SDRAM instead of the Ethernet transformers, the netRAPID 51-RE is optimized for advanced features, e.g. integrated Webserver, transparent Ethernet channel or integrated OPC UA server and MQTT client.

NRP 51-RE



Software structure netRAPID 51-RE
netRAPID 51-RE offers three separate channel to the host, which can be accessed via 50MHz SPI.

- **Channel 0:** Cyclic and acyclic Real-Time Ethernet data
- **Channel 1:** Ethernet channel with TCP socket or Raw Ethernet interface
- **Channel 2:** IoT data via OPC UA / MQTT

OPC UA · MQTT

PRODUCT INFORMATION
TECHNICAL DATA

Technical Data

Operating temperature
-20° C ... +70° C

Supply voltage
+3,3 V / 330 - 520 mA

Dimensions (L x W x H)
32 x 32 x 4 mm

Communication Interface
EtherCAT, EtherNet/IP, Modbus TCP, POWERLINK, PROFINET, Sercos, 2x Ethernet 100 BASE-TX

Host Interface
8-/16-Bit-Dual-Port-Memory / 50 MHz SPI-Slave

Diagnostic Interface
USB Device, UART RxD/TxD, alternative SYNC-Signals

Certification
CE Sign, RoHS

Technical Data

Inputs
2x4-Bit coding switch for adress
3x4-Bit coding switch for adress/ baud rate

Outputs
SYS-System (RUN/RDY) / Dual-Color-LED yellow/green
COM-Status 0/1 (COM 0/1) / Dual-Color-LED red/green
Ethernet-Status Link, Activity (LINK RX/TX)

Contacting / Pinout
76 solder contacts 1 mm with 1,5 mm grid

Emission
EN 55011

Immunity
EN 61000-4-3 | DIN EN 61000-4-6 | Surge - IEC 61000-4-5 | Burst - IEC 61000-4-4 | ESD - IEC 61000-4-2

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

Product Overview

NRP 51-RE (TRAY)
7662.101 | netRAPID RTE Slave for IT functions and IoT, 24 pieces

NRPEB 51-RE
7600.100 | netRAPID RTE Evaluationboard (equipped with NRP 51-RE\F8T), incl. 3 pieces NRP 51-RE

NRP 52-RE (TRAY)
7672.100 | netRAPID RTE Slave, 24 pieces

NRPEB 52-RE
7600.200 | netRAPID RTE Evaluationboard (equipped with NRP 52-RE), incl. 3 pieces NRP 52-RE

Product	CC-Link IE Field Basic	EtherCAT	EtherNet/IP	EtherNet/IP MQTT OPC UA	POWERLINK	Modbus	PROFINET RT	PROFINET RT MQTT OPC UA	sercos	DPM	SPI	IT & IoT
netRAPID 52 NRP 52	✓	✓	✓	–	✓	✓	✓	–	✓	✓	✓	–
netRAPID 51 NRP 51	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Evaluationboard NRPEB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Loadable Firmware NRPLFW	✓	✓	✓	✓	✓	✓	✓	✓	✓	N.A.	N.A.	✓

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