netPI

Industrialized Raspberry Pi as Open Edge Connectivity Ecosystem

- **Raspberry Pi 3 architecture based platforms**
- **With/without Industrial Ethernet controller**
- **For Cloud and IIoT Edge Automation projects**
- **Cyber secured infrastructure for industrial use**
- **Docker host for container-isolated user apps**
- **Expansion slot for advanced networking modules**

Hardened design for industrial use

The device series netPI is based on an industrial suited customized Raspberry Pi 3 design made to run any custom applications of the Edge Automation. The model RTE 3 comes with Hilscher's multiprotocol netX SoC additionally implementing all popular Industrial Ethernet networks. With their powerful Pi 3 1.2GHz quad-core ARM CPU the platforms are ready-made for any demanding Cloud, Industry 4.0 and Industrial Internet of Things (IIoT) application.

The model netPI RTE 3 includes two Industrial Ethernet ports extra to connect to systems such as PROFINET, EtherNet/IP and others, as supported by netX. An expansion slot at the units bottom accepts extension modules made for sensor/actuator level communications such as RFID, digital I/Os, others or own custom boards.

To meet EMC standards EN 55011 and IEC 61000, netPI is housed in a robust metal chassis and uses two additional PCB layers compared to a standard Pi 3. The radio antenna extends beyond the chassis for improved wireless coverage. A hardware Real-Time Clock with a supercapacitor as backup power source is supported. A nonvolatile auxiliary ferroelectric memory (FeRAM) guarantees high endurance for data to be rewritten billions of times (Model RTE 3).

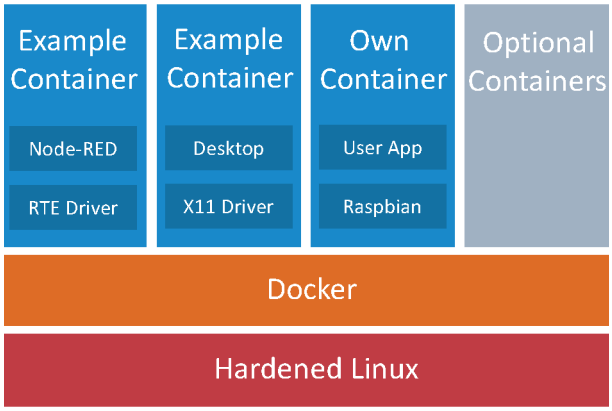
netPI hosts an AppArmor-secured Yocto Linux build. By design, the system software complies with the IEC 62443 cybersecurity standard for automation and control systems. User access is granted via web browsers over https-secured connections. The device boots secure and allows system updates with Hilscher integrity-checked software only.

hilscher
COMPETENCE IN COMMUNICATION

Technical Data / Product Overview

Deploy software securely with Docker

User applications can be added to netPI with the hosted Docker environment only. Containerized software runs isolated and is not able to compromise netPI's host security. Also it will run the same regardless of the given host. So installing Docker on a popular Pi 3 turns it into a container development platform for netPI in minutes. Later a container transfer shifts work from Pi 3 onto the secured netPI. For that a web browser based GUI supports maintaining the containers lifecycle on netPI.



Docker Hub is the common exchange platform for Docker containers. netPI's registry at https://hub.docker.com/r/hilschernetpi/ is providing container samples for immediate use, such as the Thing-editor Node-RED or a Desktop and many more. Other registries host third party Pi compatible software you can use as well or even better your own containers.

Technical Data

Parameter	Value
Dimensions (L x W x H)	105 x 35 x 140 mm
Enclosure	Metallic, top hat rail-mountable, IP 20
Weight	400g
Power supply	19.2V ... 28V DC, 3-pin 3.5mm terminal block
Power consumption	min. 4,2W (no USB), max. 9W (USBs load 1A)
Temperatures	-20°C ... +60°C operating, -40°C ... +85°C storage
Processors	BCM2837@1.2Ghz, netX51
Memory	8GByte MLC NAND (3000w/e)
RAM	1GByte LPDDR2 RAM, 8KByte FeRAM (RTE 3)

Technical Data

Parameter	Value
Ethernet, standard	1x RJ45, 10/100Mbit/s
Interfaces	4x USB 2.0A (max. load 1A), 1x HDMI, 1x Wifi/BT
Real-time clock	capacitor buffered, 7 days backup
Ethernet, industrial	2x RJ45, 10/100Mbit/s (RTE 3)
Indicators	4 basic Pi LEDs, 2 programmable, 4 netX LEDs (RTE 3)
Approvals	CE, FCC, IC, UL
EMC	EN 55011:2009, IEC 61000-6-2:2005, EN 61131-2
Operating system	Yocto Linux, Kernel 4.9 or higher (AppArmor secured)
Docker	17.06.1-ce or higher with Portainer.io web GUI

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

Overview

Part Number	Brief Description
1321.428	netPI RTE 3 industrial Pi 3 with Real-Time Ethernet and web forum support
1321.438	netPI CORE 3 industrial Pi 3 with web forum support
1322.012	netPI extension module NIOT-E-NPIX-RS232, serial communication across RS232
1322.011	netPI extension module NIOT-E-NPIX-RS485, serial communication across RS485
1322.040	netPI extension module NIOT-E-NPIX-4DI4DO, 4x digital inputs / 4x digital outputs
7775.000	netHAT module NHAT 52-RE for netX/netPI developments on Raspberry Pi 3

Available at amazon

netIOT www.netIOT.shop SHOP

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