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.
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.

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