

netX – The next Generation of Communication

netX 90 - Multi-protocol network controller

netX 4000 - High-end automation platform



netX Technology

FOR THE WORLD OF INDUSTRIAL COMMUNICATION

CONTENT

- P. 4 Communication and application on a chip
- P. 6 Software Ecosystem
- P. 8 Next Generation technology
- P. 12 Our service

Key Features

- The universal communication platform
- As master or slave for all Fieldbus and Real-Time Ethernet systems
- Consistent, continuous interface across all systems
- One stop shop for hardware and software
- Open technology for your own applications
- Licensed and pre-certified Loadable Firmware (LFW)
- High flexibility when selecting the communication system

Your Benefit

- Connecting to all networks with only one controller
- One contact person – One stop
- Reduced development effort thanks to consistent interfaces for hardware and software across all systems
- Reduced product, storage and administration costs
- Space requirements of the interface is reduced to a minimum
- Access to all markets of factory and process automation
- Flexibility in view of future product generations

DeviceNet
EtherNet/IP
MQTT

CC-Link
CC-Link IE Field
CC-Link IE Field Basic

AS
BISS INTERFACE
CANopen
EnDat 2.2
EtherCAT

OPC UA
ETHERNET POWERLINK
IO-Link
Modbus

PROFIBUS
PROFINET
sercos
SmartWire-DT
VARAN

COMMUNICATION

- Communicate over all Fieldbus and Real-Time Ethernet Systems
- Forward-looking IoT protocols MQTT and OPC UA, as well as TSN 100 Mbit ([further informationen at IoT-booklet](#))
- We offer a Loadable Firmware (LFW):
 - Flexible selection of licensed and pre-certified protocol stacks
 - Simple integration thanks to consistent API and fast update mechanism
 - Just pay for the license. We provide updates for one year exempt from charges.

Protocol

- PROFINET
- EtherNet/IP
- EtherCAT
- PROFIBUS
- ...

IoT

- OPC UA
- MQTT
- TSN 100 MBit

Web

- Webservice
- FTP
- TFTP

Diagnostic

- Marshaller
- Diagnostic MAC

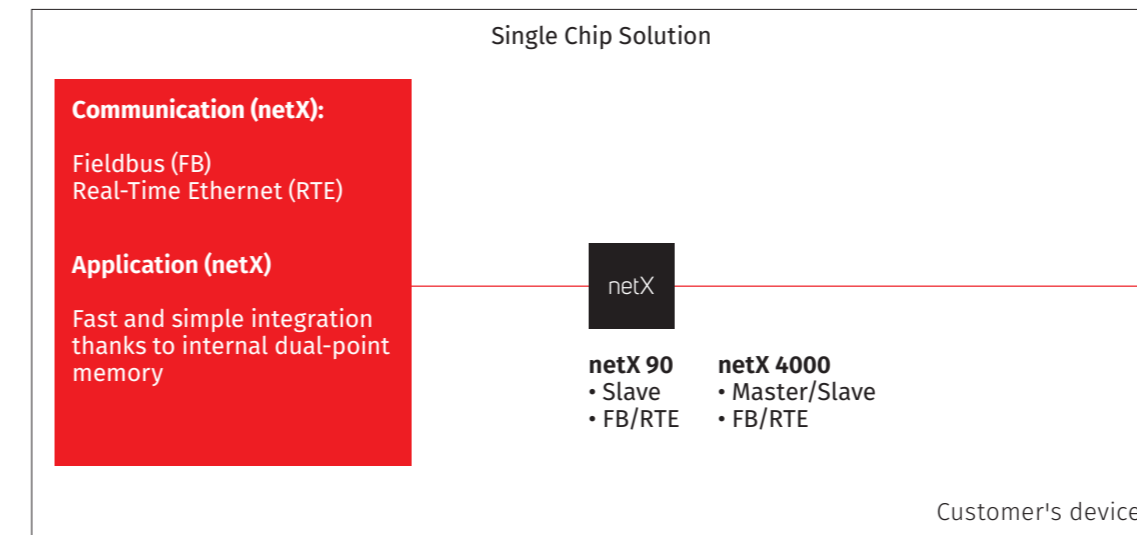
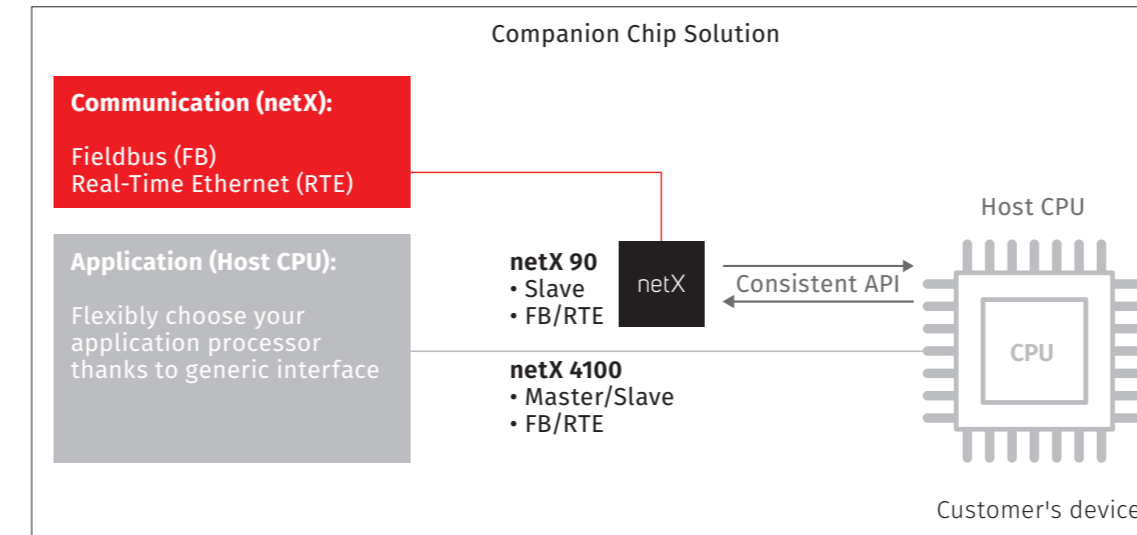
Add-On

- IO-Link
- SNMP
- NTP
- netSCRIPT

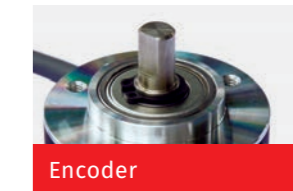
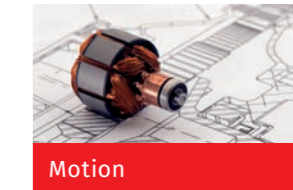
“Our next-generation technology combines application and secured multiprotocol communication on the smallest footprint”

Sebastian Hilscher
Department Manager **netX**

APPLICATION



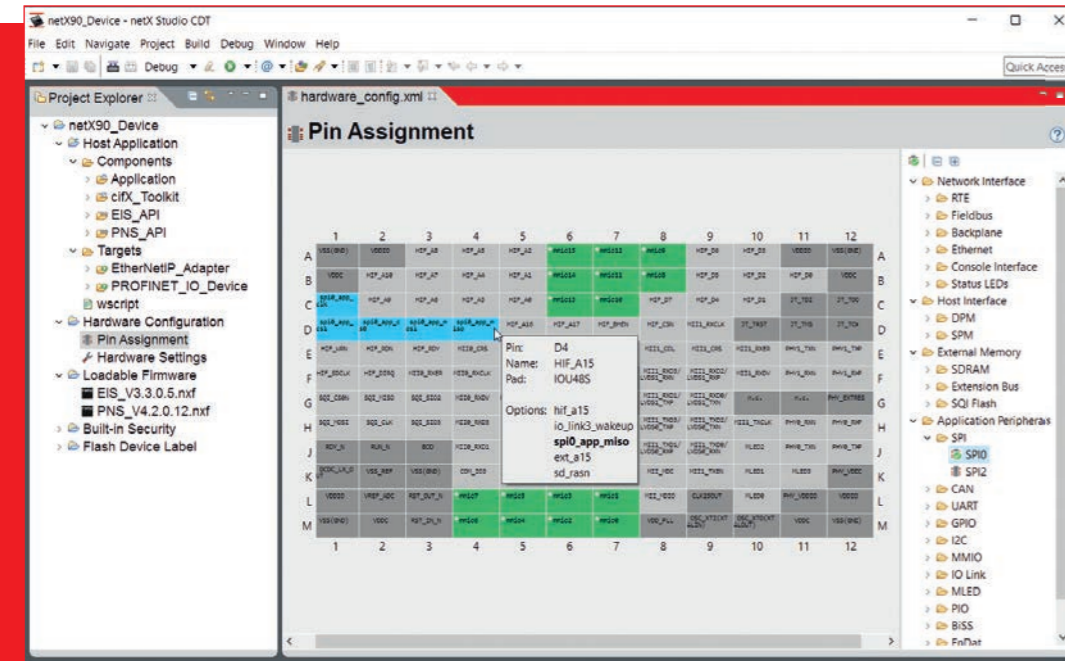
AREAS OF USE



INTELLIGENT CONFIGURATION, DEVELOPMENT AND DEBUGGING – **netX Studio (netX 90)**

LINUX BOARD SUPPORT PACKAGE FOR YOUR AUTOMATION PLATFORM – **netX 4000**

netX Studio ^{©2014}



netX Studio - Pin assignment as graphical user interface

- Integrated development environment from Hilscher based on Eclipse
- GCC 4.5.2 Compiler, Python based WAF Built scripts, Open OCD Debugger, Flasher
- Pin assignment graphical user interface (GUI) and netX code-samples
- Low-level driver free of charge (UART, SPI, I2C, CAN 2.0B, IO-Link V1.1 Controller, MLED, GPIO/32-bit Timer, EnDat 2.2 /SSI, BiSS/SSI, Flash Controller, ETH MAC, ADC SAR, Sqi/SPI, Memory/Extension Bus)
- cifX API as software driver for LFW stacks
- FreeRTOS as reference implemented

The Yocto-based Linux Board Support Package contains all the components you need to get started quickly with your application development.

We provide comprehensive documentation and examples for this purpose.



Linux Board Support Package (BSP):

- Barebox Bootloader
- Yocto GCC Compiler Toolchain
- Wiki Pages
- Code-Samples
- Linux Patches
- Linux Kernel driver
 - MMC, NAND, UART, GPIO, SPI, I2C, cifX
 - GMAC, USB 2.0 Host + Device, PCIe

Hilscher Linux Service:

- Professional support as a service
- Custom development service

GitHub

Download now your BSP free of charge on GitHub
github.com/hilscher/netx4000-linux-bsp

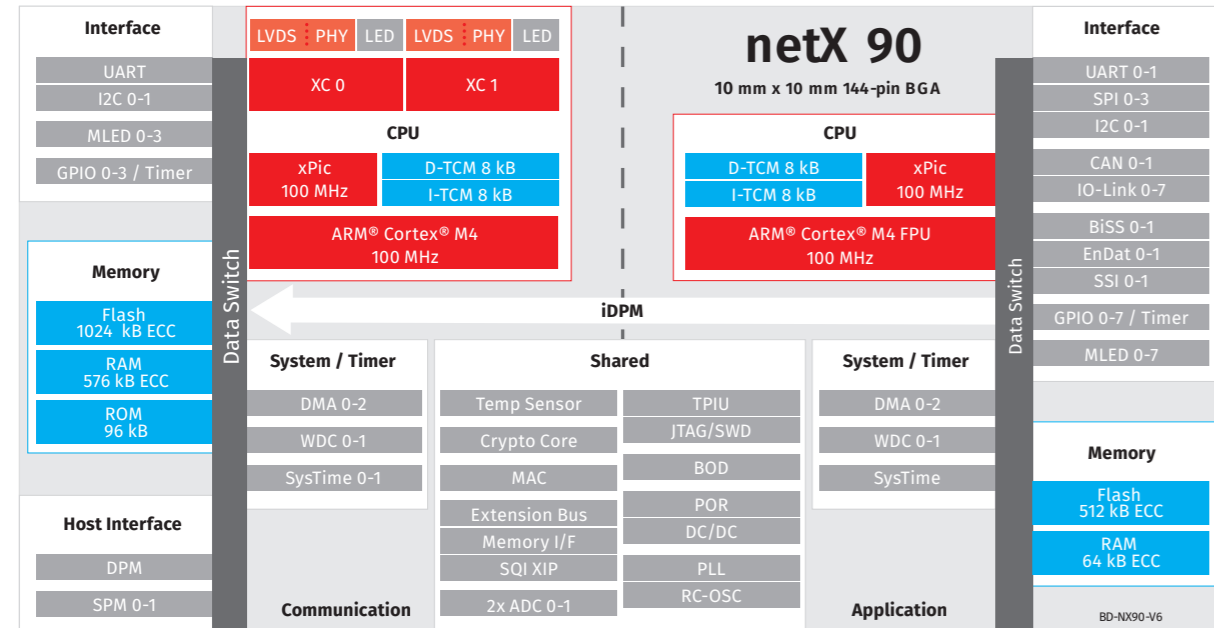


ATLASSIAN

Documentation and further information on:
kb.hilscher.com/x/q8KxB

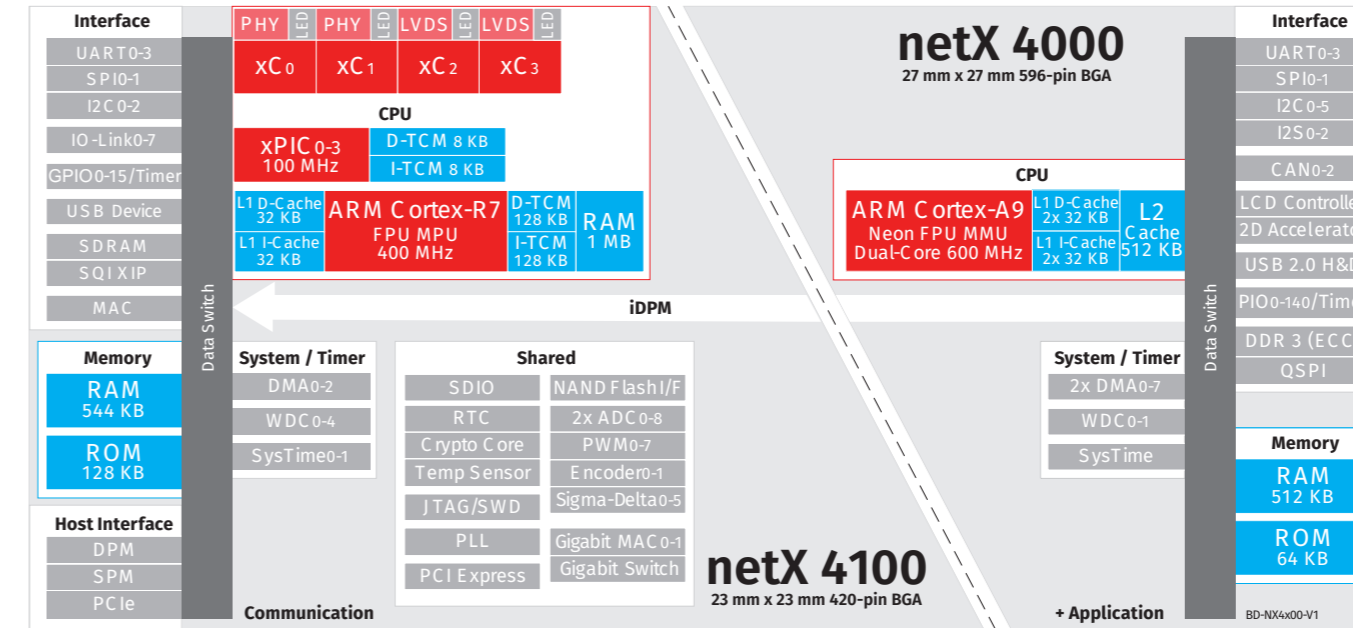


netX 90



- First Industrial Ethernet node in 10x10 mm² with two ARM® Cortex®-M4 processor cores, on-chip Flash, analog/mixed signal, and integrated PHYs
- Fulfills the highest demand on flexibility, determinism, and performance in terms of multiprotocol capability and low latency for short cycle times
- Enables developers to implement a profound secure by design concept compliant to the IEC 62443 series for industrial automation security
- Improves the application design of high-reliable systems with built-in diagnostics and enhanced data integrity for IIoT-enabled services

netX 4000/4100



* On-chip memories and caches with ECC

- First Industrial Ethernet node with 4-port multiprotocol capability, two ARM® Cortex® processor cores, and high-speed peripherals like PCIe, Gigabit Ethernet, and USB 2.0
- Fulfills the highest demand on flexibility, determinism, and performance in terms of multiprotocol master and slave capability, and low latency for short cycle times
- High-performance application processors for Linux, combined with security support and Gigabit Ethernet, are the easiest way to build IIoT enabled devices. (**netX 4100** without application part)

SOFTWARE DEVELOPMENT BOARDS

NXHX 90-JTAG



NXHX 4000-JTAG



- Software development board for the new Hilscher SoC family
- Large hardware- and software-package to immediately start your development
- Host interface connector
- 2-port Real-Time Ethernet RJ45 connectors for communication
- Gigabit Ethernet connectors and optional mini PCIe interface on-board (only NXHX 4000-JTAG)
- Encoder Interface for BiSS / EnDAT and FTDI chip on-board (only NXHX 90-JTAG)
- Additional plug-in modules as accessories available



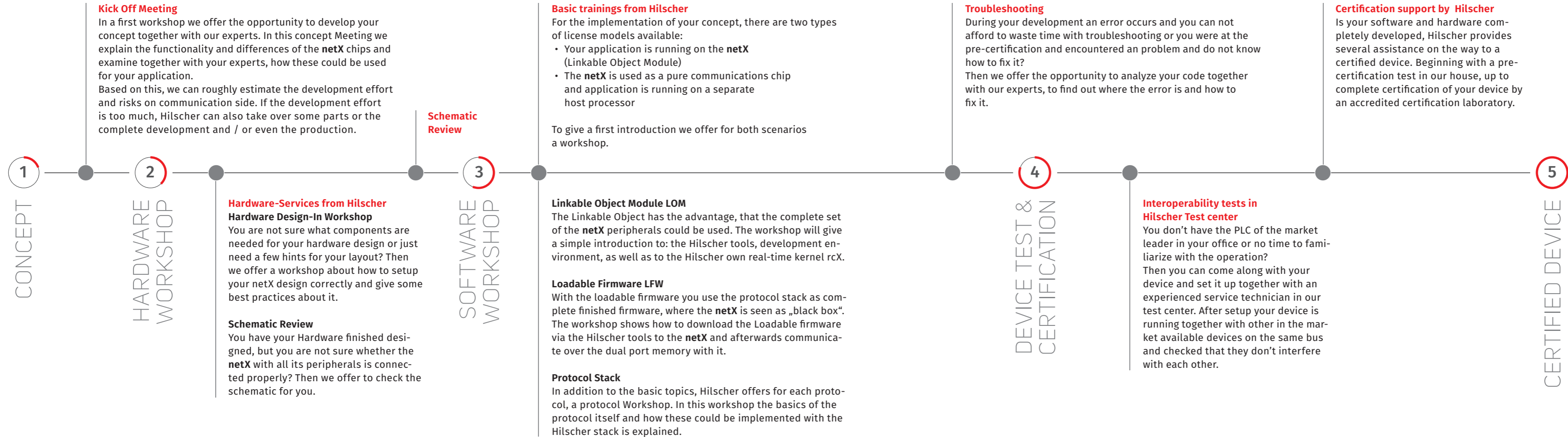
Documentation, Examples and further information on kb.hilscher.com/display/netX



✓ READY TO USE

Accessories	NXHX 90-JTAG	NXHX 4000-JTAG
NXHX-FTDI Serial Dual-Port Memory via USB device at host interface	✓	✓
NXPCA-PCI Parallel Dual-Port Memory at host interface	✓	✗
Fieldbus interface adapter modules PROFIBUS, CANopen, DeviceNet, CC-Link	✓	✓
AIFX detached fieldbus interface devices PROFIBUS, CANopen, DeviceNet, CC-Link	✗	✓
NXHX-RS232 Serial interface adapter	✓	✓
NXHX-ENC Encoder Modul	✓	✗
NXAC-POWER Power supply unit	✓	✓

HILSCHER SERVICES FROM CONCEPT TO CERTIFIED DEVICE



HILSCHER SERVICES

BASIC TRAININGS AND CERTIFICATIONS



Trainings

NXS-PNS
PROFINET Stack and Protocol Workshop

NXS-EIS
EtherNet/IP Stack and Protocol Workshop

NXS-ECS
EtherCAT Stack and Protocol Workshop

NXS-PLS
POWERLINK Stack and Protocol Workshop

NXS-S3S
Sercos Stack and Protocol Workshop

NXS-TS
Troubleshooting Workshop

netX 90
Application Development Workshop

netIOT
Interface Workshop

HW-Services

NXS-HWR
Schematic Review

NXS-IEEE
100BASE-TX test to ANSI X3.263-1995,
IEEE802.3-2012 subclause 25

Certifications

NXS-PNS-RT-TEST
Conformance test according to latest
PROFINET RT specifications

NXS-PNS-IRT-TEST
Conformance test according to latest
PROFINET IRT specifications

NXS-EIS-TEST
Conformance test according to latest
EtherNet/IP specifications

NXS-ECS-TEST
Conformance test according to latest
EtherCAT specifications

NXS-S3S-TEST
Conformance test according to latest
Sercos specifications

In addition, we offer on-site or commissioning support,
expert support or a service assignment on request.

More information about our Workshops
can be found here:
[www.hilscher.com/services/
netx-guided-development/](http://www.hilscher.com/services/netx-guided-development/)



Reduction of your training period



Support in every development stage



Avoid mistakes by Know-how transfer



Benefit by our development experience



Fast “time-to-market”

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