NETX 90
...IT'S ALL YOU NEED!

hilscher
COMPETENCE IN COMMUNICATION

- Smallest multiprotocol SoC with additional Cortex-M4 application processor
- Built-in security features for secure field- and cloud-connectivity
- Supports all Industrial Ethernet, Fieldbus- and IIoT standards
- Energy-efficient SoC with lowest power consumption

netx
networX on chip
Hilscher
ON SALE NOW!
NETX 90

COMMUNICATION

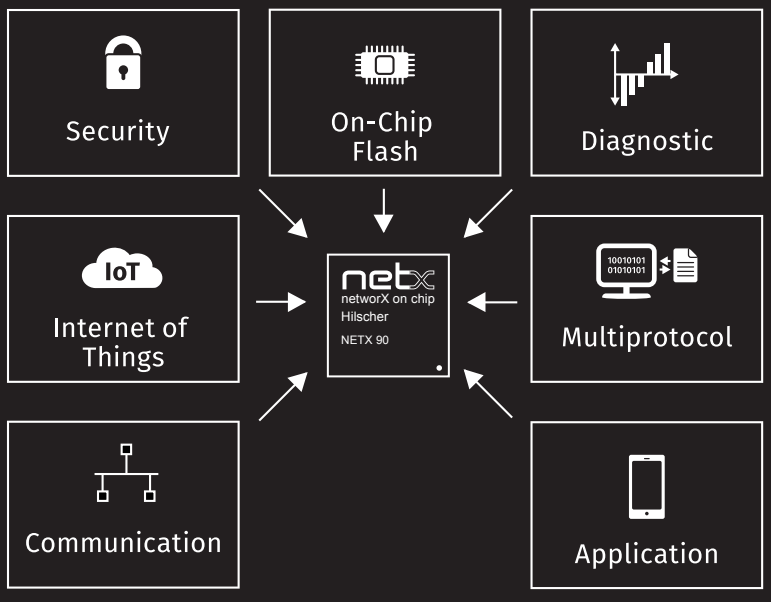
PROFINET
EtherCAT
Industrial Ethernet

PROFIBUS
CANopen
Fieldbus

MQTT
OPC UA
IIoT

APPLICATION

Motion
Encoder
Sensors
IP67 / IO



www.hilscher.com/netX90

INDUSTRIAL COMMUNICATION SOC - **NETX 90**

INNOVATIVE ARCHITECTURE

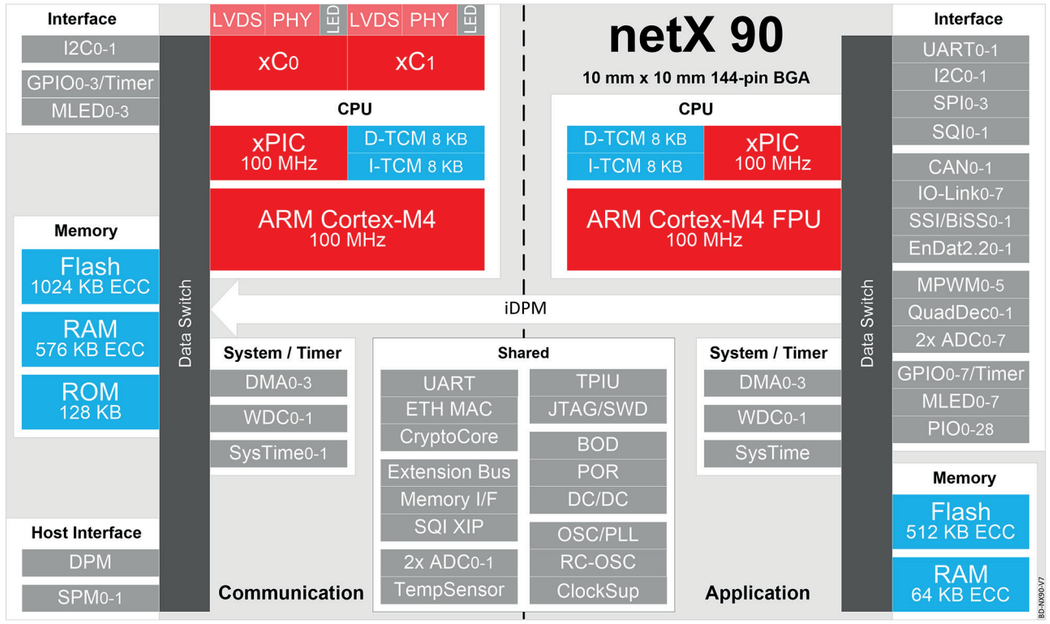
- Two ARM® Cortex®-M4 high-performance processor cores, each with 125 DMIPS, to separate the communication tasks from the application tasks
- Optimized hardware design with integrated DC/DC converter, on-chip BOD and POR circuits
- On-Chip-Flash and –SRAM, integrated Fast Ethernet PHYs and analog/mixed signal IPs

BUILT-IN SECURITY

- Hardware support for cryptographic operations and security functions for protocols such as HTTPS, MQTT, and OPC UA
- Secure boot option with multiple security levels
- FIPS 140-2 compliant built-in cryptographic algorithms for highest encryption with different key lengths of up to RSA-4096, ECC-512, and AES-256

BUILT-IN DIAGNOSTICS

- Enables the application design of high-reliable systems with built-in diagnostics and enhanced data integrity for IIoT-enabled cloud services
- High product reliability and robustness due to integrated power watch, clock supervisor, and fully ECC equipped on-chip memory
- Applicable for predictive maintenance by dint of on-chip functions for voltage monitoring, time stamping, and die temperature sensing



UNIFORM APPLICATION SOFTWARE INTERFACE

- Overlaid structured software layout with DPM channel access functions to the industrial communication protocol stack as consistent and uniform API
- High-speed access from either the external host interface or the internal host application, precisely clock synchronized with the network cycle time
- Ease of use, fast and hassle-free protocol stack implementation that enables application developers to set up a prototype in a few hours

UNMATCHED FLEXIBILITY

- Ready for all popular Industrial Ethernet and Fieldbus protocols due to programmable dual-channel xC subsystem, with switch and IEEE 1588 functionality
- Flexibly adapts to emerging standards and future network requirements such as TSN, PROFINET „High-Performance Profile“ and CC-Link IE Field Basic

RICH PERIPHERAL SET

- Rich set of peripherals for connectivity to interface sensor-specific ICs or submodules with fast I/O processing for electronic controls
- Enhanced functional feature set with industry related on-chip peripherals such as 2x EnDat, 2x BiSS, 2x SSI, 8x IO-Link, 2x CAN, and 3x MAC
- Integrated LVDS PHYs, which provide a low-cost backplane bus solution

DeviceNet · EtherNet/IP · MQTT · OPC UA · EtherCAT · PROFIBUS · PROFINET · Modbus · CANopen · CC-Link · sercos the automation bus · ETHERNET POWERLINK · VARAN

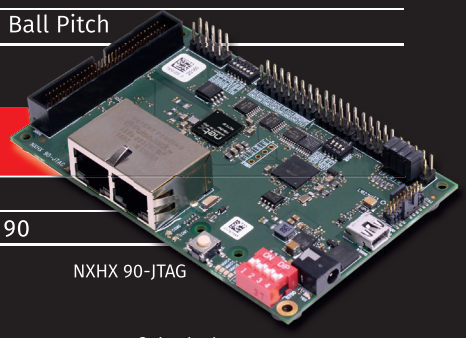
TECHNICAL DATA / PRODUCT OVERVIEW

	SoC	netX 90	
	Features	Communication	Application
Core	**ARM® Processor**	Cortex®-M4 at 100 MHz with MPU	Cortex®-M4 at 100 MHz with MPU and FPU
	Hilscher 32-bit RISC	xPIC at 100 MHz with 2x 8 KB TCM	xPIC at 100 MHz with 2x 8 KB TCM
Memory	**SRAM**	576 KB	64 KB
	Flash	1024 KB	512 KB
	Mask ROM	128 KB	-
System	**DMA Controller**	4 channels	
	WDC (ARM / xPIC)	1 / 1	1 / 1
	Timer (ARM / xPIC)	3x 32-bit / 3x 32-bit	3x 32-bit / 3x 32-bit
Network	**xC Subsystem**	2 channels	-
	IEEE 1588 SysTime	2	1
	Fast Ethernet PHY	Dual-port, FX support	-
	100 Mbps LVDSPHY	Dual-port	-
	Ethernet MAC	10 / 100 Mbps, MII	
Peripheral	**UART / SPI / SQI / I²C / CAN**	1 (Shared) / - / - / 2 / -	3 / 4 / 2 (Master only, with SPI mode) / 2 / 2
	IO-Link V1.1 Controller	-	8 channels
	MLED (PWM tuned)	4	8
	HIF PIO / PIO / GPIO / MMIO	- / - / 4 / -	Up to 41 / 29 / 8 / 18
Mixed Signal	**Timer (PWM, IC/OC)**	4x 32-bit	8x 32-bit
	Motion PMW Unit	-	1
	ADC SAR (12-Bit, 2 Msps)	2x 2 channels and 2x 8 channels	
	Quadratur Decoder	-	2
	EnDat 2.2 (Master E6)	-	2 (With RTM)
	BiSS / SSI (Master BiSS C)	-	2 / 2
	Parallel (DPM)	8/16-bit (Read access min. 55 ns)	Internal 32-bit
	Serial (SPM)	2x SPI/SQI (Up to 125 MHz/33 MHz)	-
	MAC (PHY Mode)	MII (10/100 Mbps)	
External Memory	**SRAM / NOR / NAND / SDRAM**	✓ / ✓ / - / ✓ (8/16-bit)	
	SD/MMC / SDIO	SPI mode / -	
	SQI (XIP)	✓	
Security	**Crypto Core**	SSL/TLS accelerator, up to RSA-4096, ECC-512, AES-256 and SHA-512	
	Secure Boot	Mask ROM Code, EMSA-PSS	
	Built-in support	Security levels, AHB Firewall	
Debug	**Debug / Trace**	JTAG/SWD, 4-bit TPIU	
	Boundary Scan	JTAG	
Analog	**DC/DC / POR / BOD**	✓ / ✓ / ✓	
	Thermal diode	✓	
	Clock Supervisor	Xtal (RC-Osc)	
Electrical	**Power Supply**	Single 3.3V	
	Temperature range	T_a -40°C ... +85°C	
	Power consumption	≤ 1W	
	Package dimension	144-pin BGA, 10x10 mm², 0.8 mm Ball Pitch	

Note: Technical data may be changed without further notice.

Product Name	Part Number	Brief Description
NETX 90	2270.000	netX 90 Network Controller
NXHX 90-JTAG	7833.000	Software-Development board for netX 90

* Please contact your local sales representativ for further information.



NXHX 90-JTAG

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