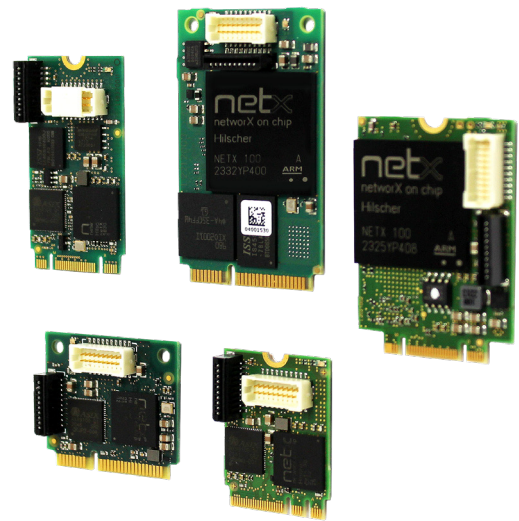


Mini PC Cards

Smallest PC cards on the automation market

- Mini PC cards in M.2, mini PCIe and mini PCIe halfsize format
- All major industrial protocols as Master and Slave
- High operating temperature up to 70 °C
- Low power consumption down to 1 W
- Secure boot and cryptographic algorithm for netX 90 based PC cards



Available formats

	CIFX HPCI90	CIFX M223090AE	CIFX M224290BM	CIFX M3042100BM	CIFX 90E
Card format	Mini PCIe halfsize	M.2	M.2	M.2	Mini PCIe
Dimensions (L x W x H)	26 × 30 × 7,5 mm	30 × 22 × 7 mm	42 × 22 × 7 mm	42 × 30 × 7 mm	60 × 45 × 11 mm
Mounting / Keying	Mini PCI Express slot (3.3V)	Mini PCI Express slot (3.3V) for M.2-type 2230-D3, Dual key A-E	Mini PCI Express slot (3.3V) for M.2-type 2242-D3, Dual key B-M	Mini PCI Express slot (3.3V) for M.2-type 3042-D3, Dual key B-M	Mini PCI Express slot (3.3V)
Master / Slave	Slave only	Slave only	Slave only	Master and Slave	Master and Slave
Security & IIoT ready	✓	✓	✓	-	-



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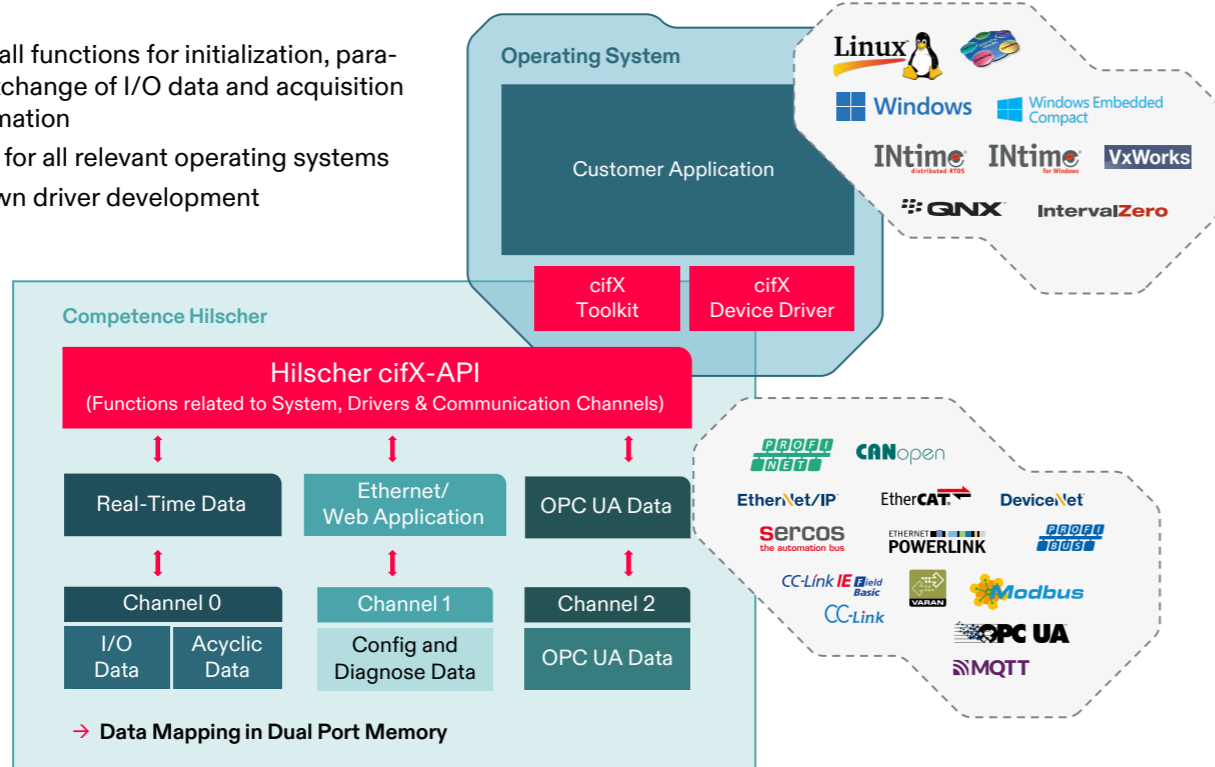
Mini PC Cards

One-stop shop for industrial communication



Wide range of device drivers

- » Standard user interface (cifX API) for all device drivers
- » With contains all functions for initialization, parametrisation, exchange of I/O data and acquisition of status information
- » Device drivers for all relevant operating systems
- » C-toolkit for own driver development



Protocol Highlights



- » IO-Controller & IO-Device
- » Isochronous Real Time (IRT)
- » S2 System Redundancy
- » I&M 1-5
- » PROFinergy ASE
- » „Shared Device“
- » Fast Startup



- » Scanner & Adapter
- » Device level Ring (DLR) | Media redundancy
- » Address Conflict Detection (ACD)
- » CIP Sync
- » Quick Connect



- » Master & Slave
- » SDO client and server side protocol
- » CoE Emergency messages (CoE)
- » Ethernet over EtherCAT (EoE)
- » File Access over EtherCAT (FoE)
- » Servo-over-EtherCAT (SoE)
- » Hot Connect



Security ready

- Cryptocore hardware accelerator for hash, symmetric & asymmetric encryption
- Secure Boot option
- Security Configuration with key generation and software signing
- Secure Communication with certificate & key and user management



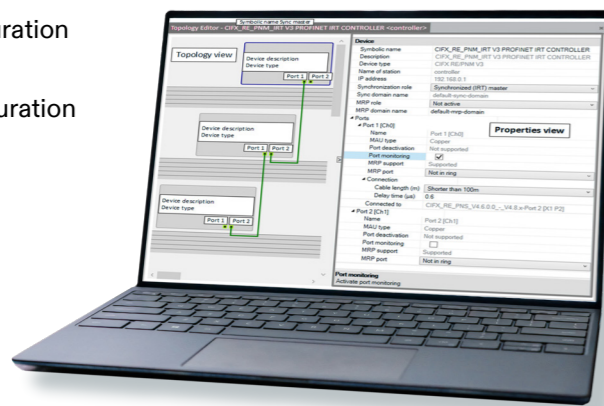
Industrial IoT ready

- PROFINET, EtherCAT, EtherNet/IP or ModbusTCP combined with OPC UA / MQTT
- OPC UA Server (Base Specification Version 1.04) and MQTT publisher (Version 3.1.1)
- IoT configuration plug-in for standard communication studio

Configuration Tool: Communication Studio

One Configuration and diagnosis tool chain for all networks

- » Offline configuration
 - Selecting and configuring a driver, device assignment
 - Configuring the fieldbus
- » Online commissioning
 - Connecting the device
 - Downloading the configuration
- » Diagnosis
- » OPC UA and MQTT configuration



All in one package

- Bundle of hardware, firmware, license, device driver / toolkit, configuration tool and support.

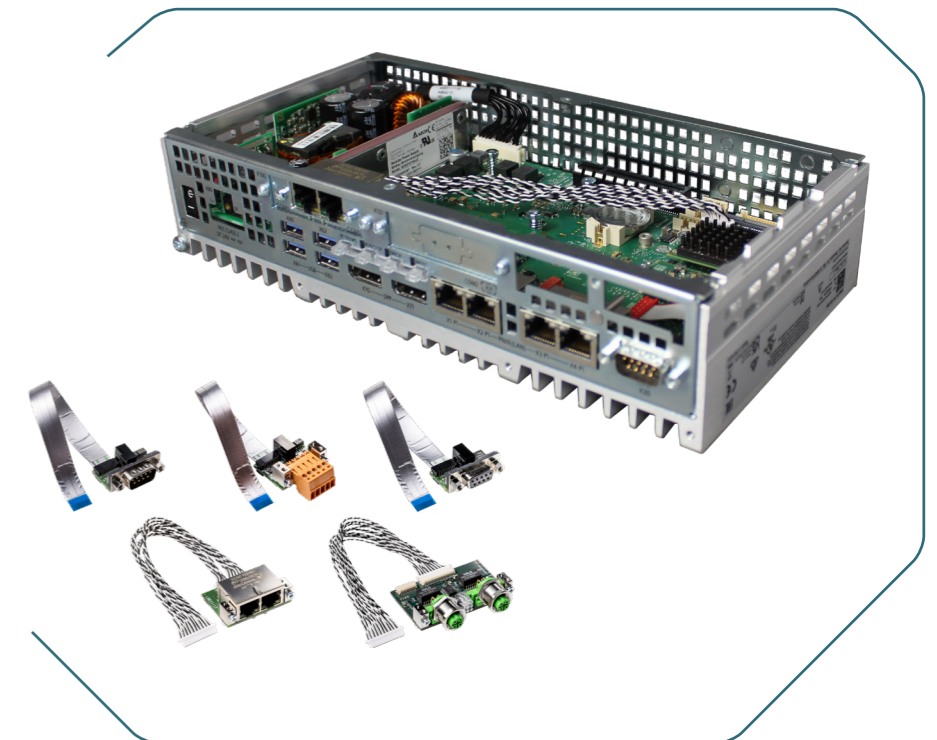
**Additional fee for license and selected drivers*

Fan-less integration for cost sensitive designs

- » Up to 60°C operating temperature with 0.0 m/s airflow
- » Housing connecting without cooling unit

Connection to any network

- » RJ45, M12, SubD and CombiCon interface available
- » Fieldbus specific interface and Diagnostic LEDs
- » Different cable length from 5 cm to 30 cm
- » Built your own interface based on schematics and BOM



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Product information

Technical Data



	CIFX HPCI90	CIFX M223090AE	CIFX M224290BM	CIFX M3042100BM	CIFX 90E
Bus Type	Mini PCI Express (H2), one-lane port	PCI Express M.2, one-lane port	PCI Express M.2, one-lane port	PCI Express M.2, one-lane port	Mini PCI Express, one-lane port
Communication Controller	netX 90	netX 90	netX 90	netX 100	netX 100
Integrated Flash	8 MB SDRAM	8 MB SDRAM	8 MB SDRAM	8 MB SDRAM	8 MB SDRAM
Integrated RAM	8 MB + 1 MB	8 MB + 1 MB	8 MB + 1 MB	4 MB serial Flash-EPROM	4 MB serial Flash-EPROM
Size of the Dual-Port Memory	32 Kbyte	32 Kbyte	32 Kbyte	64 Kbyte	64 Kbyte
Power supply	+3.3 VDC ±5%	+3.3 VDC ±5%	+3.3 VDC ±5%	+3.3 VDC ±5%	+3.3 VDC ±5%
Current consumption at 3.3V	310 mA (max.)	330 mA (max.)	330 mA (max.)	650 mA (max.)	800 mA (max.)
Operating temperature range, Air flow 0.5 m/s	-20 °C ... +70 °C	-20 °C ... +70 °C	-20 °C ... +70 °C	-20 °C ... +65 °C	-20 °C ... +65 °C
Operating temperature range, Air flow 0.0 m/s	-20 °C ... +60 °C	-20 °C ... +60 °C	-20 °C ... +60 °C	-20 °C ... +50 °C	-20 °C ... +50 °C
Storage temperature range	-40 °C ... +85 °C	-40 °C ... +85 °C	-40 °C ... +85 °C	-40 °C ... +85 °C	-40 °C ... +85 °C
CE sign, UKCA sign, RoHS	✓	✓	✓	✓	✓

Product name	Brief description	Part number	Protocol number							
			Industrial Ethernet	PROFIBUS	CANopen	DeviceNet	CC-Link	2x PROFIBUS	2x CANopen	2x DeviceNet
CIFX HPCI90	PC Card Mini PCI Express halfsize	1424.XXX	.100	.410	.500	.510	-	-	-	-
CIFX M223090AE	PC Card M.2 2230 Key A+E	1443.XXX	.101	.401	.501	.511	-	-	-	-
CIFX M224290BM	PC Card M.2 2242 Key B+M	1445.XXX	.101	.401	.501	.511	-	-	-	-
CIFX M3042100BM	PC Card M.2 3042 Key B+M	1456.XXX	.101	.401	.501	.511	-	-	-	-
CIFX 90E	PC Card Mini PCI Express	1291.XXX	.100	.410	.500	.510	.744	-	-	-
CIFX 90E-2	2-Channel PC Card Mini PCI Express	1293.XXX	-	-	-	-	-	.414	.504	.514

Product variants	Brief description
\+ML	Master License for netX 100 based cifX card
\PNSSR	License for PROFINET IO-Device S2 System Redundancy
\M12	Detached network interface with M12-connectors



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