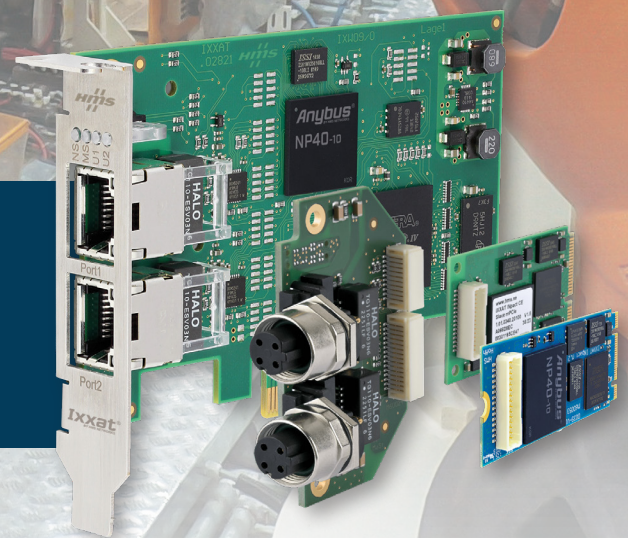


Ixxat INpact – Multi-protocol PCIe interfaces for industrial Ethernet





Highlights

- ✓ One board for all major industrial Ethernet networks
- ✓ Easy switching between protocols through a standardized API
- ✓ Easy integration thanks to different form factors
- ✓ High performance for demanding real-time applications
- ✓ Future-proof solution based on approved Ixxat and Anybus technologies

Ixxat INpact

Easy PC connectivity to any industrial network

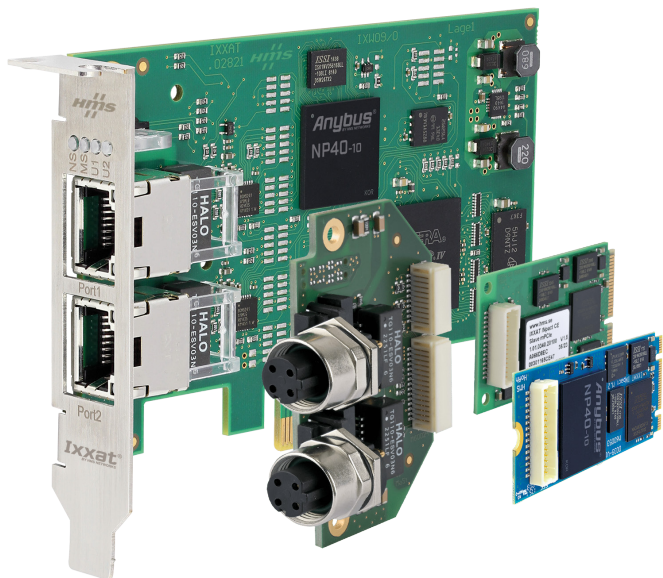
Until now, it has been complicated to develop PC-based applications for several industrial Ethernet since different interface cards and application programming interfaces had to be used for each protocol.

Ixxat INpact simplifies the implementation and reduces your development costs significantly thanks to a protocol-independent solution that can be used in a wide range of applications.

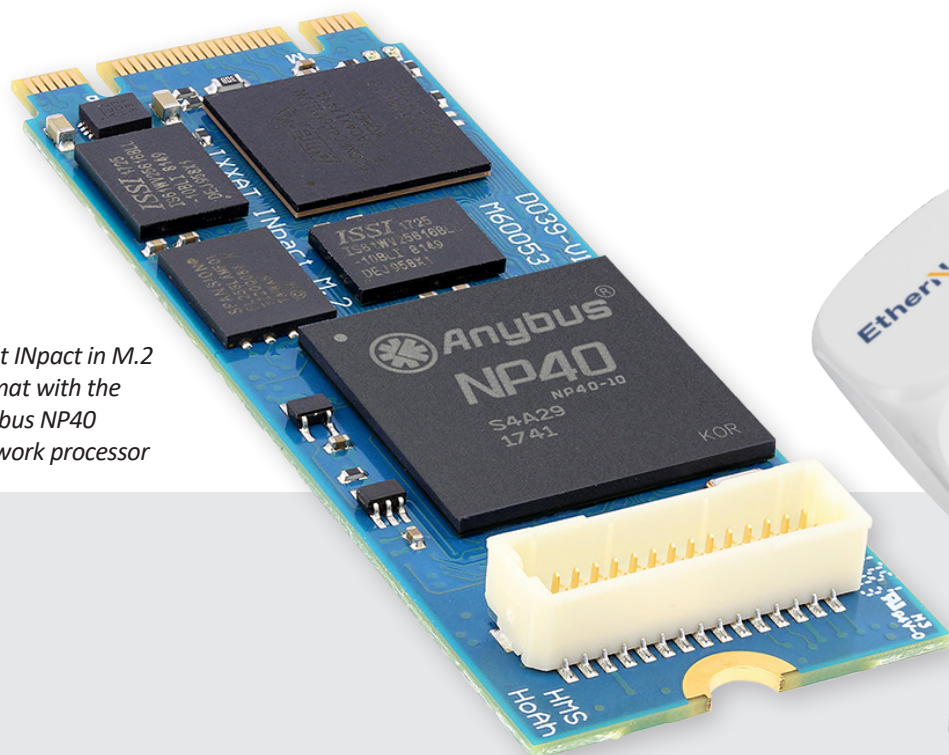
Suitable for gateway, HMI and data acquisition applications, INpact allows you to connect your industrial PC or embedded system to many different industrial Ethernet networks. It combines proven Anybus technology with years of Ixxat know-how in the area of PC interface connectivity.

Future ready!

Benefit from our continuous product maintenance and new developments and implement new standards and future technologies on the fly.



Ixxat INpact in M.2 format with the Anybus NP40 network processor



Multi-protocol technology

Ixxat INpact includes the Anybus CompactCom technology with the Anybus NP40 network processor – used within millions of industrial devices globally.

The FPGA-based Anybus NP40 network processor provides all functions required to handle the communication between the different Industrial Ethernet networks and the PC-based application.

The powerful multi-network approach of the NP40-based Ixxat

INpact enables easy connection of PC-based or embedded slave applications to EtherNet/IP, EtherCAT, Powerlink, Modbus TCP, PROFINET IRT, PROFINET IRT Fiber Optic and BACnet.

Anybus NP40 provides high performance for real-time applications, making Ixxat INpact the ideal choice for demanding industrial applications.

Supported protocols and formats

Protocol / Interface Format	EtherNet/IP	EtherCAT	ETHERNET POWERLINK	Modbus	PROFINET		BACnet
	EtherNet/IP	EtherCAT	Powerlink	Modbus	Profinet IRT	Profinet IRT Fiber Optic	BACnet
Interface name	INpact EIP Slave	INpact ECT Slave	INpact EPL Slave	INpact EIT Slave	INpact PIR Slave	INpact PIRFO Slave	INpact BIP Slave
PCIe (standard slot-brackets)	✓	✓	✓	✓	✓		✓
PCIe (low-profile slot-brackets)	✓	✓	✓	✓	✓		✓
PCIe Mini	✓	✓	✓	✓	✓	✓	✓
M.2	✓	✓	✓	✓	✓		✓

Implementation

– easy and flexible



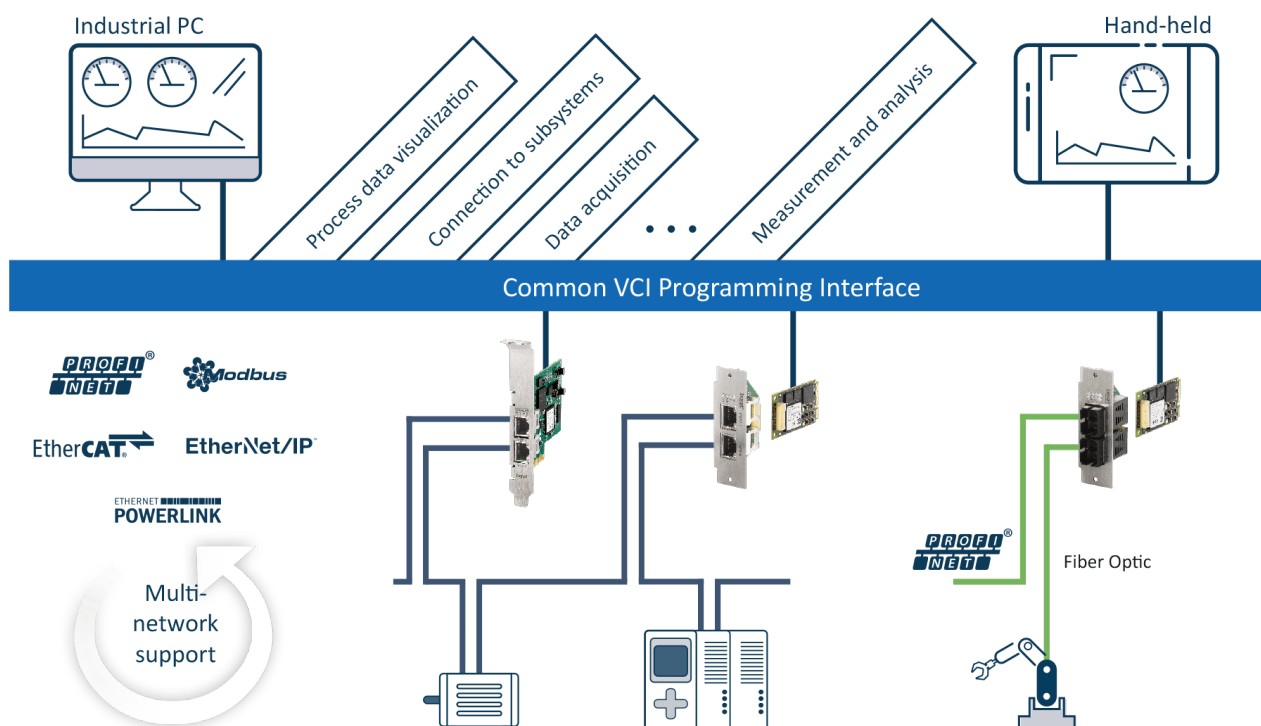
Develop independently of the used protocol

Ixxat INpact comes with a comprehensive driver package for Windows and Linux with a C programming interface, enabling easy and rapid development of customer-specific applications – independent of the used board version and protocol.

Thanks to the uniform application programming interface, it is possible to switch quickly between protocols without extensive programming, leading to increased flexibility and a reduction in terms of development costs.

Drivers for real time operating systems such as RTX, Intime, VxWorks and QNX are supported upon request.

Uniform driver interface for all INpact cards



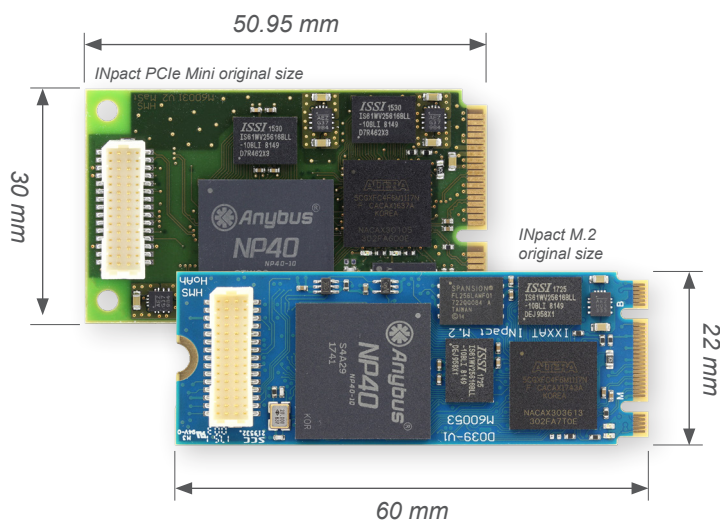
VCI driver model from the application to the industrial Ethernet network.



For industrial PCs and mobile devices

The INpact offering is available in three versions with different interfaces:

- PCIe, including standard or low-profile slot-brackets.
- PCIe Mini and M.2, for devices with limited available space and mobile devices



Designed to be used in many fields

- Connection of devices/subsystems as a slave to higher level networks
- Process data visualization e.g. within control stations or machines
- Data acquisition within test benches or test systems
- Highly flexible gateway

Customer Project



Panel PC meets Industrial Ethernet!

Ixxat INpact enables Industrial Ethernet access for AAEON's robust and stylish panel PC series.

“The Ixxat INpact allows us to overcome one of the key challenges of the Industrial IoT: The connection of IT-level devices – where AAEON has its core competences – to the OT level, namely the different fieldbuses. The Ixxat INpact fits perfectly into our PC-systems, and provides the perfect combination of state-of-the-art technology and quality. By integrating the Ixxat INpact CE slave into our systems, we can offer our customers the best way to connect their application to the cloud and to multiple industrial networks.

“



Marco Barbato,
Director of PSM & Technical Department,
AAEON, an ASUS assoc. co.

Adaptable

– to your specific requirements

Ixxat Mini Bracket

Same as for the PCIe interfaces that are exchanged using the uniform slot plate, the PCIe mini and M.2 versions are exchanged in a simple way with the included Ixxat Mini Bracket. If there is no INpact installed, the housing can be sealed using the pre-made "INpact Ready" plate.

Flexible network connection

In addition to the INpact PCIe versions with integrated bus interfaces, the PCIe Mini and M.2 variants are based on a modular concept consisting of the Ixxat INpact interface, a bus coupling unit and a cable for connecting the two components.

The connection to industrial Ethernet networks is achieved via the 2-port Ethernet interface (10/100 Mbit, RJ45), which also supports protocol specific switch functions – such as IRT for PROFINET, DLR for EtherNet/IP and Hub for Powerlink.

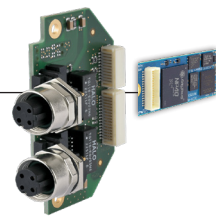
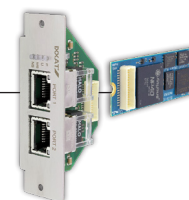
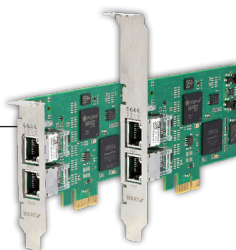
PROFINET IRT FO (PCIe and PCIe Mini) versions are available with special bus coupling units featuring corresponding SC-RJ ports.

All network interfaces are galvanically isolated, which provides efficient protection against EMC issues and overvoltage.

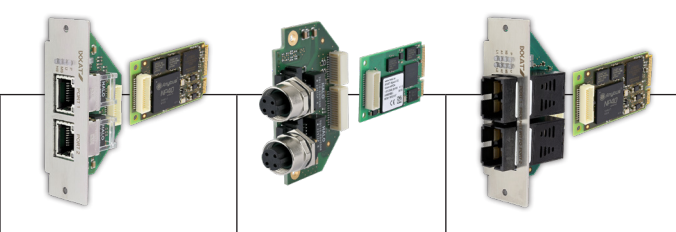
Switch between protocols on the fly

The flexible Common Ethernet (CE) solution allows the desired industrial Ethernet protocol to be downloaded into standardized Ethernet hardware. This enables easy and cost-efficient switching between all supported industrial Ethernet protocols, reducing the need to stock multiple product versions.

Technical data



Format	PCIe Standard and Low Profile	M.2	
Supported protocols	EtherCAT, Powerlink, EtherNet/IP, Modbus-TCP, PROFINET IRT, BACnet/IP	EtherCAT, Powerlink, EtherNet/IP, Modbus-TCP, PROFINET IRT, BACnet/IP	
Physical Connection	Two RJ45 ports, 10/100 Mbit Ethernet	Two RJ45 ports, 10/100 Mbit Ethernet	Two M12 ports, 10/100 Mbit Ethernet
PC interfaces	PCI Express single lane port (x1) acc. to PCI Express base spec, rev. 1.1	PCI Express single lane port (x1) acc. to PCI Express base spec, rev. 1.1	
Network handling	Anybus NP40	Anybus NP40	
Power supply	Via PCIe (3.3 V / 12 V DC)	Via PCIe (3.3 V)	
Current consumption	Typ. 270 mA / 3.3 V DC, 120 mA / 12 V DC	Typ. 600 mA / 3.3 V DC	
Form factor	Standard height / low profile PCI Express add-in card profile	M.2 2260 (Key B-M)	
Operating temp.	0 °C to 70 °C (optional: -40 °C to 70 °C)	-20 °C to 60 °C	
Galvanic isolation	1,500 Vrms	1,500 Vrms	
Dimensions	64 x 105 mm	22 x 60 x 12 mm (only M.2 interface with cable)	



PCIe Mini		
EtherCAT, Powerlink, EtherNet/IP, Modbus-TCP, PROFINET IRT, BACnet/IP		PROFINET IRT
Two RJ45 ports, 10/100 Mbit Ethernet	Two M12 ports, 10/100 Mbit Ethernet	Two SC-RJ ports, 100 Mbit, full dupl.
PCI Express single lane port (x1) acc. to PCI Express base spec, rev. 1.1		
Anybus NP40		
Via PCIe (3.3 V)		
Typ. 600 mA / 3.3 V DC	Typ. 600 mA / 3.3 V DC	Typ. 800 mA / 3.3 V DC
Full Mini Card Format		
-40 °C to 60 °C		-25 °C to 60 °C
1,500 Vrms		
30 x 50.95 x 12 mm (only PCIe Mini interface with cable)		

Protocol-specific functions

ETHERNET POWERLINK

- Supports the Powerlink V2.0 profile, Version 1.2.0 (CN)
- Supports ring redundancy
- Up to 1490 bytes I/O data for each direction
- Up to 57343 ADIs
- Supports seg. SDO transfer
- Poll Response Chaining

Modbus

- Modbus-TCP Server/Slave
- Adaptable web server
- FTP server, email client
- JSON functionality
- Up to 1536 bytes I/O data for each direction
- Server Side Include
- Customizable identity information

EtherCAT

- CANopen over EtherCAT
- File Access over EtherCAT
- Modular Device Profile
- DS301 compliant
- Emergency support
- Up to 1486 bytes I/O data for each direction
- Distributed clock
- Customizable identity information

EtherNet/IP

- Beacon based DLR
- FTP server, email client
- Adaptable web server
- Server Side Include
- Up to 1448 bytes I/O data for each direction
- Up to 65535 ADIs
- Customizable identity inform.
- CIP Parameter Object support
- Extended CIP objects
- Unconnected CIP routing

PROFINET

- Conformance Class C
- Media Redundancy Protocol
- Generic and PROFINET specific diag. support
- Up to 1440 bytes I/O data for each direction incl. status bytes
- Up to 128 submodules in total
- Up to 32767 ADIs
- FTP server, email client
- Server Side Include
- JSON functionality

BACnet

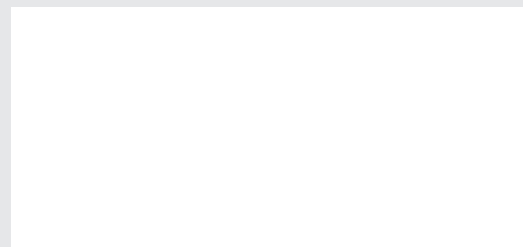
- Supports BACnet/IP (B-ASC profile)
- Client and Server functionality
- COV (Change of Value) support
- BACnet standard object types
- Supports ReadProperty and WriteProperty services
- Device and object instance configuration
- Interoperable with major building automation systems
- Customizable device identity information



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