Product Information

DN3-SHARK

XMC Module

Dual Port SFP+ 10 Gigabit Ethernet NIC

Document No. 7914 • 11 March 2016

The DN3-SHARK is a is a XMC standard mezzanine card, equipped with a dual port 10Gbps Ethernet controller. Both ports are available via SFP+ front bezel connector cages, suitable for attachment of either optical cables via SFP+ transceivers or SFP+ twinaxial copper cables. The Intel® 82599ES Ethernet NIC is known for its high performance, low latency, reliability, and flexibility.

The DN3-SHARK is backward compatible to 1Gbps and 100Mbps speeds. The optimum performance can be achieved with a Gen2 PCIe x 8 link established to the XMC carrier. Intel® networking drivers are available for all major operating systems.

The DN3-SHARK is a perfect solution for applications with demand for high throughput industrial networking.

Feature Summary

- Form factor XMC single-width mezzanine card 139mm x 74mm
- Stack height 10mm XMC to host (module PCB to carrier card PCB)
- Host I/F Connector P15 XMC (black housing)
- Option P15 connector according to XMC 2.0 (white housing)
- PCI Express® Gen2 (5GT/s) x 8 (PCIe x 4, PCIe x 2, PCIe x 1 fall-back)
- Power consumption VPWR (5V or 12V) 8W max.

- Intel® 82599ES (aka X520 Niantic) dual port 10G Ethernet controller
- SFP+ interface compatible to 100Mbps/1Gbps/10Gbps speeds
- Auto negotiation for automatic link configuration
- IPv4, IPv6, TCP/UDP checksum offloads
- Integrated LinkSec and IPsec security engines, IPv4 and IPv6 end-to-end layer 2/3 data protection
- Support for jumbo frames of up to 15.5 KB
- 802.1AS - Precise Timing Protocol
- IEEE 802.1q virtual local area network (VLAN) support , VMDq, VMDc
- Unified networking support (IEEE 802.1az, IEEE 802.1Qbb, FCoE, iSCSI)
- Driver support for all major operating systems
- Front bezel receptacles SFP+
- Front LEDs 1G, 10G, Link, Activity

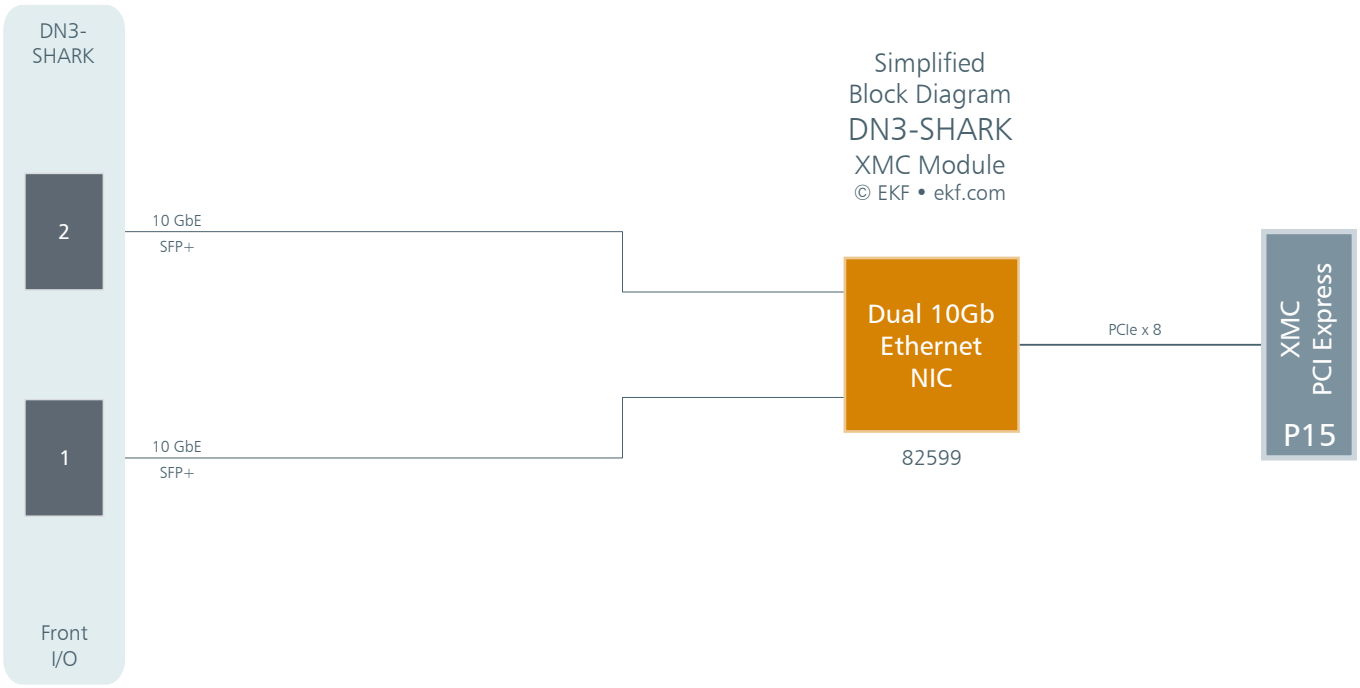
- Designed & manufactured in Germany
- ISO 9001 certified quality management
- Long term availability
- Rugged solution (coating, sealing, underfilling on request)
- RoHS compliant
- Commercial operating temperature 0°C to +70°C
- Industrial operating temperature -40°C to +85°C on request
- Humidity 5% ... 95% RH non condensing
- Altitude -300m ... +3000m
- Shock 15g 0.33ms, 6g 6ms
- Vibration 1g 5-2000Hz
- MTBF 68 years
- EC Regulations EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1)

items are subject to changes

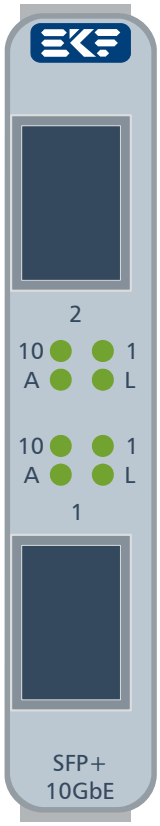
DN3-SHARK Home

http://www.ekf.com/d/dnic/dn3/dn3.html

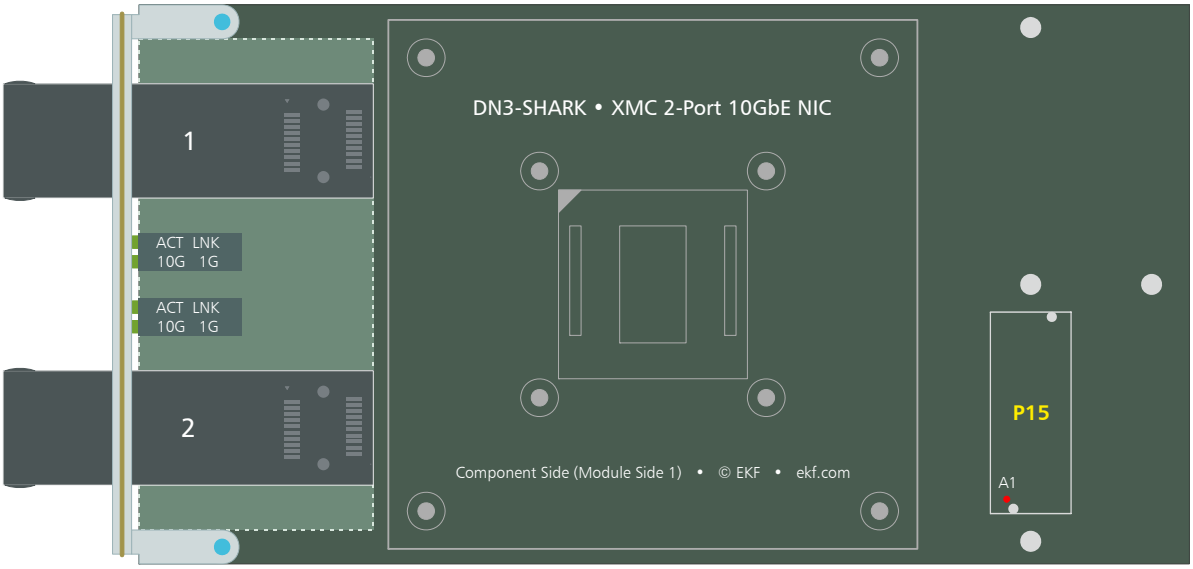
Block Diagram

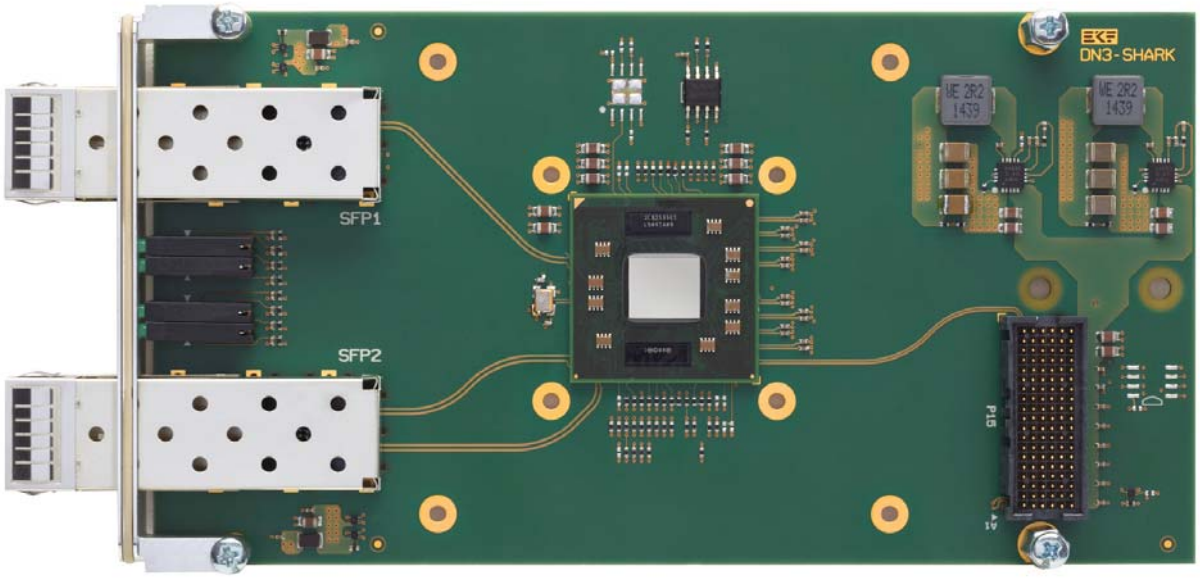


Front Bezel



DN3-SHARK
XMC




SFP1
SFP2
DN3-SHARK
P15


SFP1
SFP2
DN3-SHARK
P15

SFP+ Connector Cages

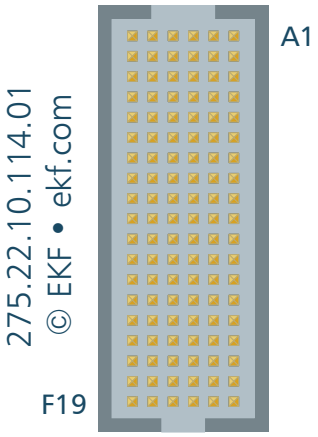
10 Gigabit Ethernet 258.10.00020.00 SFP+ host connector 10G, 20 circuits			
VEE	11	10	VEE
RD-	12	9	RS1
RD+	13	8	RX_LOS
VEE	14	7	RS0
VCC	15	6	MOD_ABS
VCC	16	5	SCL
VEE	17	4	SDA
TD+	18	3	TX_DISABLE
TD-	19	2	TX_FAULT
VEE	20	1	VEE

Sample SFP+ Accessory	
258.80.001.03	SFP+ twinaxial cable 1/10Gbps, 3m
258.90.001.00	SFP+ optical transceiver module 10GBASE-SR SR (short range 300m), 850nm VCSEL laser duplex LC connector, power < 1W, 0°C to 70°C
258.90.001.01	SFP+ optical transceiver module 10GBASE-SR -40°C to +85°C
258.90.010.00	SFP+ optical transceiver module 10GBASE-LR LR (long range 10km), 1310nm DFB laser duplex LC connector, power < 1W, 0°C to 70°C
258.90.010.01	SFP+ optical transceiver module 10GBASE-LR -40°C to +85°C

Ethernet Driver Download
https://downloadcenter.intel.com/SearchResult.aspx?lang=eng&keyword=82599

P15 Mezzanine Connector

The DN3-SHARK is equipped with a high speed XMC mezzanine connector P15, mating with the host board J15 and establishing the data path (PCI Express®) and power link to the carrier. The pin assignment of P15/J15 is specified by VITA 42.3. The DN3-SHARK is organized as one to eight lane PCI Express® device.



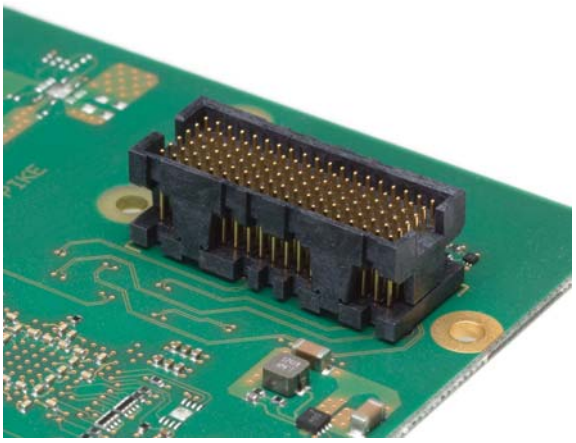
XMC Module

As an option, the DN3-SHARK can be equipped with a P15 connector according to the XMC 2.0 style, as defined by VITA 61.0. Carrier card and module connectors J15/P15 must match - VITA 61 and VITA 42 XMC connectors are not intermateable. Both connector styles can be easily distinguished from each other by the connector body colour as visual key.

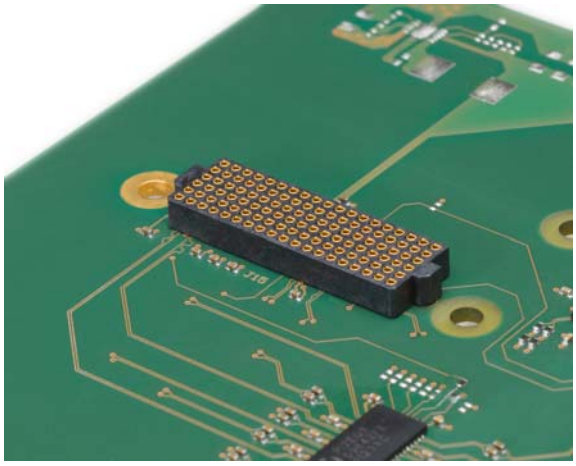
Suitable carrier cards are available from EKF, e.g. the SK2-SESSION CompactPCI® Serial XMC module carrier board (PCIe x 4 support) or SK3-MEDLEY (PCIe x 8 support, for 139mm XMC only).

Related XMC Carrier Cards	
SK2-SESSION CompactPCI® Serial	www.ekf.com/s/sk2/sk2.html
SK3-MEDLEY CompactPCI® Serial	www.ekf.com/s/sk3/sk3.html

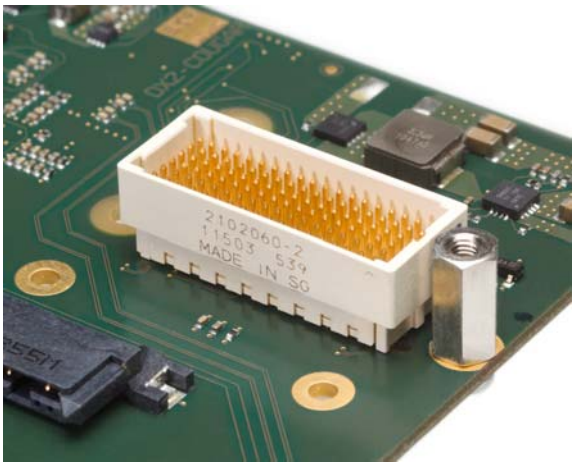
Black = VITA 42 XMC
Off-white = VITA 61 XMC 2.0



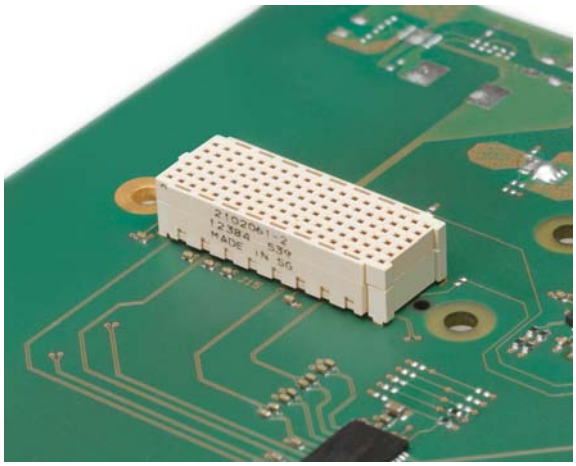
XMC Connector P15



XMC Connector J15



XMC 2.0 Connector P15



XMC 2.0 Connector J15

XMC Connector P15 - PCIe Fabric • EKF Part No. 275.22.10.114.01						
	A	B	C	D	E	F
1	PET0P0	PET0N0	*+3.3V*	PET0P1	PET0N1	VPWR [2]
2	GND	GND	*TRST#*	GND	GND	MRSTI#
3	PET0P2	PET0N2	*+3.3V*	PET0P3	PET0N3	VPWR [2]
4	GND	GND	*TCK*	GND	GND	*MRSTO#*
5	PET0P4	PET0N4	*+3.3V*	PET0P5	PET0N5	VPWR [2]
6	GND	GND	*TMS*	GND	GND	*+12V*
7	PET0P6	PET0N6	*+3.3V*	PET0P7	PET0N7	VPWR [2]
8	GND	GND	*TDI*	GND	GND	*-12V*
9	*RFU*	*RFU*	*RFU*	*RFU*	*RFU*	VPWR [2]
10	GND	GND	*TDO*	GND	GND	GA0 [1]
11	PER0P0	PER0N0	*MBIST#*	PER0P1	PER0N1	VPWR [2]
12	GND	GND	GA1 [1]	GND	GND	MPRESENT#
13	PER0P2	PER0N2	*+3.3V_AUX*	PER0P3	PER0N3	VPWR [2]
14	GND	GND	GA2 [1]	GND	GND	MSDA [1]
15	PER0P4	PER0N4	*RFU*	PER0P5	PER0N5	VPWR [2]
16	GND	GND	MVMRO	GND	GND	MSCL [1]
17	PER0P6	PER0N6	*RFU*	PER0P7	PER0N7	*RFU*
18	GND	GND	*RFU*	GND	GND	*RFU*
19	CLKP_XMC	CLKN_XMC	*RFU*	WAKE#	*ROOT0#*	*RFU*

pin positions printed italic/gray: reserved by specification / not connected

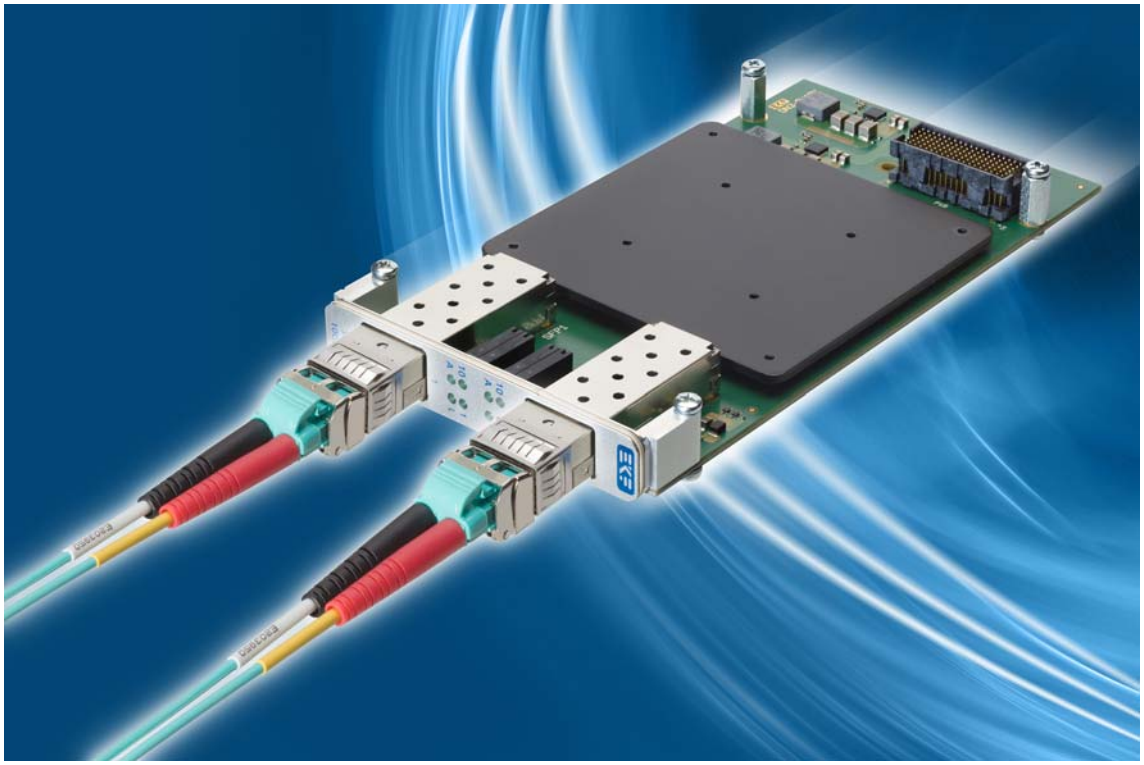
1) Serial EEPROM not populated by default (no IPMI)

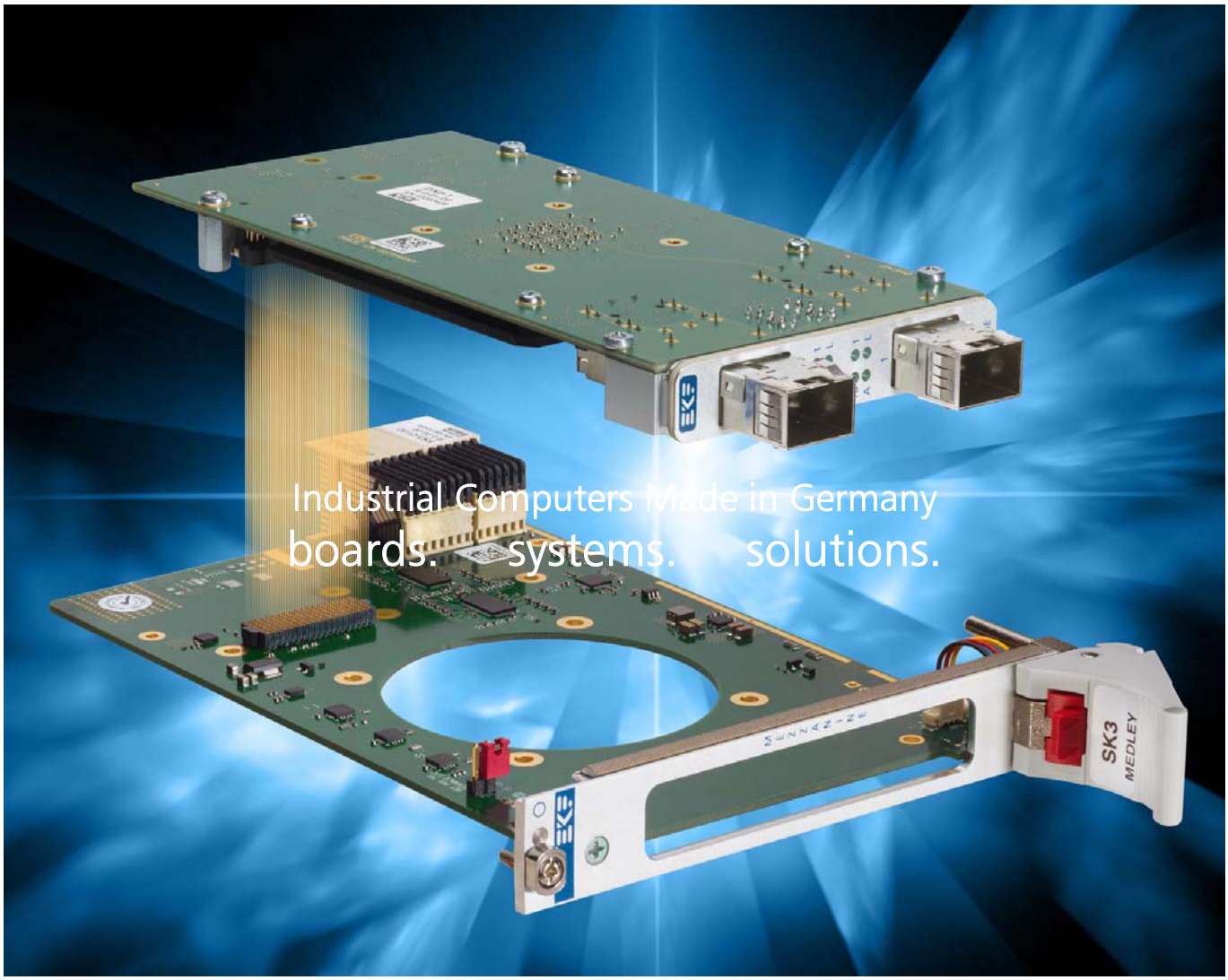
2) VPWR either +5V or +12V


2
10
A
1
L
10
A
1
L
1
SFP+
10GbE

Ordering Information

For popular DN3-SHARK SKUs please refer to
www.ekf.com/liste/liste_22.html#DN3





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