



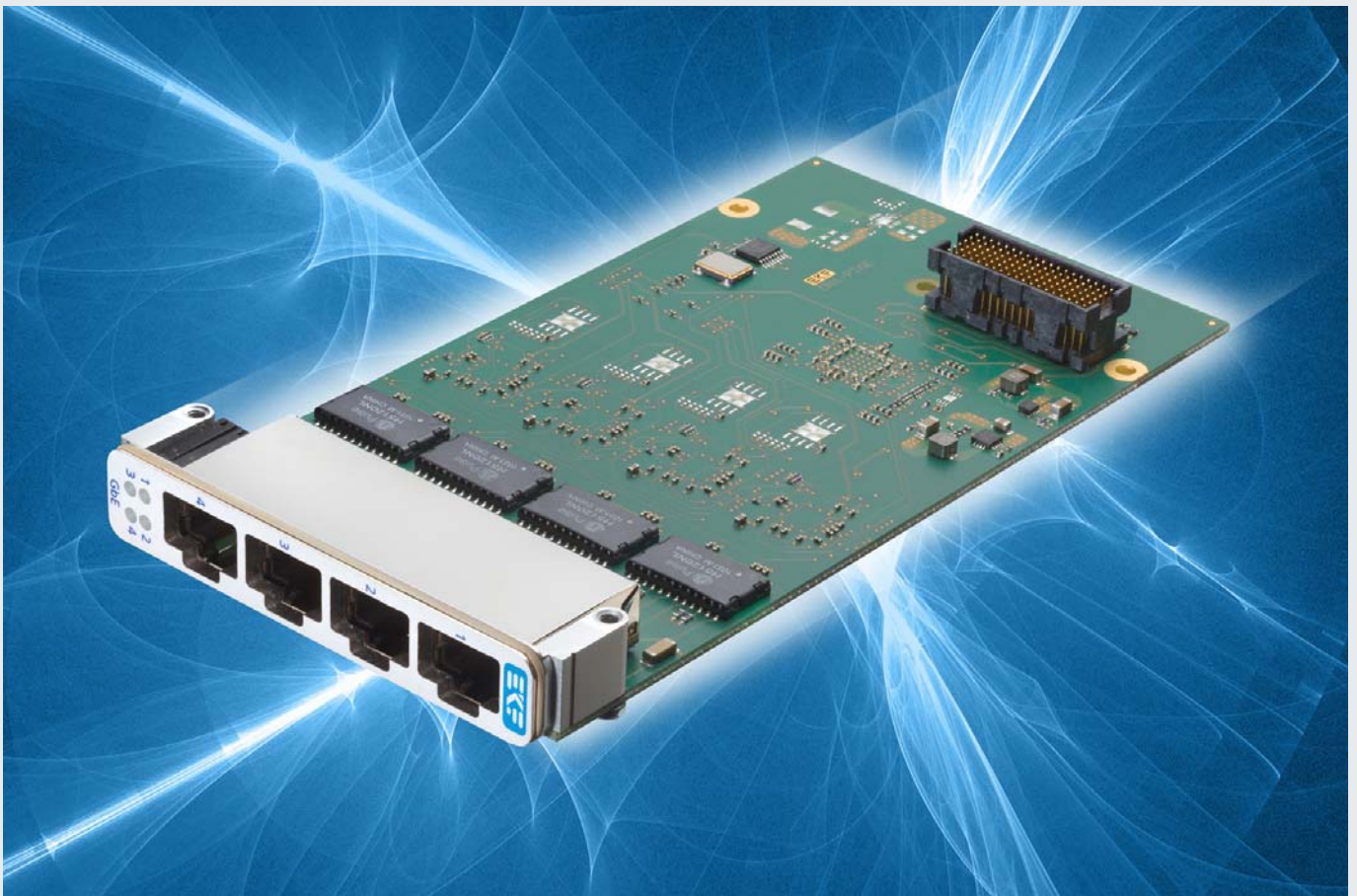
Product Information

DN1-PIKE

XMC Module

Quad Port Gigabit Ethernet NIC

Document No. 7267 • 29 May 2015



The DN1-PIKE is a XMC standard single-width mezzanine card, equipped with four individual 1000Mbps Ethernet controllers. All ports are available via low profile RJ45 front bezel jacks. The Intel® I211 (option I210-IT) Ethernet NICs provide latest networking technology, e.g. power management for increased efficiency and Audio-Video Bridging (AVB) for tightly controlled media stream synchronisation, buffering, and reservation.

The on-board PCI Express® packet switch is a flexible interface between one to four PCI Express® lanes, derived from the XMC connector P15 (upstream link), and the GbE NICs (single lane downstream links). The optimum performance can be achieved with a PCIe x 4 link established to the XMC carrier.

Intel® I211/I210 networking drivers are available for all major operating systems.



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® Gen1/Gen2 PCIe x 4 (PCIe x 2, PCIe x 1 fall-back)
- ▶ +3.3V operated by default (VPWR as stuffing option)
- ▶ Power consumption +3.3V 1.3A typ., 1.5A max.

- ▶ Four independent Gigabit Ethernet controllers (4 x MAC address) Intel® I211
- ▶ Option Intel® I210IT
- ▶ Integrated PHYs 1000BASE-T, 100BASE-TX, 10BASE-T (IEEE 802.3, 802.3u, 802.3ab)
- ▶ IEEE 802.3ab Auto Negotiation for automatic link configuration
- ▶ Auto MDI, MDI-X Crossover at all speeds
- ▶ Full duplex operation at 10/100/1000Mbps
- ▶ 9.5KB Jumbo Frame support
- ▶ Hardware-based time stamping (IEEE 1588) and support for 802.1AS - Precise Timing Protocol
- ▶ Support for Energy Efficient Ethernet (EEE) standard of IEEE 802.3az
- ▶ Option IEEE 802.1Qav compliant Audio-Video Bridging (AVB)
- ▶ IPv4, IPv6, TCP/UDP checksum offloads
- ▶ Driver support for all major operating systems
- ▶ 4 x front bezel connectors RJ45, 4 x LEDs link/activity

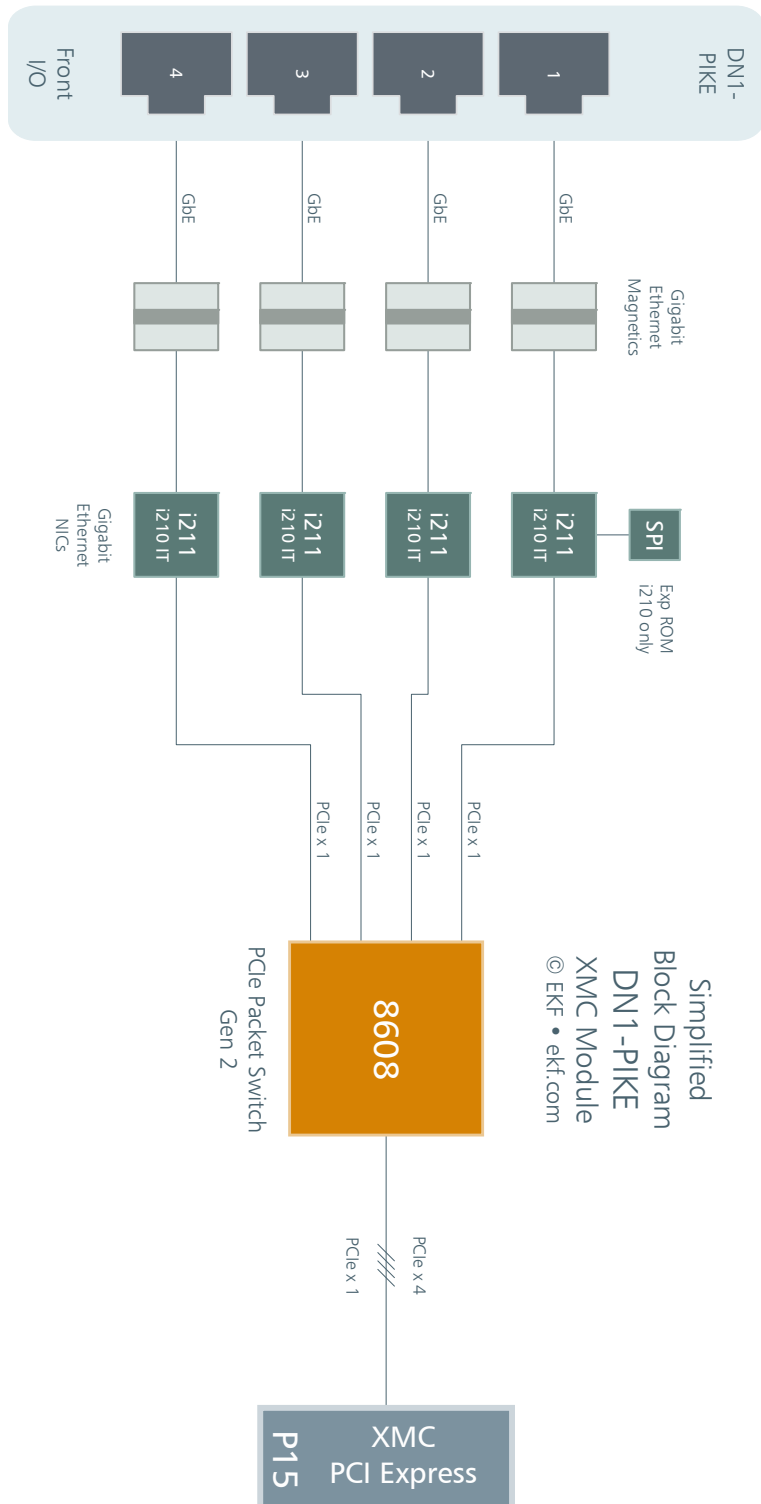
- ▶ Designed & manufactured in Germany
- ▶ ISO 9000 certified quality management
- ▶ Long term availability
- ▶ Rugged solution (coating, sealing, underfilling on request)
- ▶ RoHS compliant 2002/95/EC
- ▶ Commercial and industrial temperature range
- ▶ Humidity 5% ... 95% RH non condensing
- ▶ Altitude -300m ... +3000m
- ▶ Shock 15g 0.33ms, 6g 6ms
- ▶ Vibration 1g 5-2000Hz
- ▶ MTBF 60 years
- ▶ EC Regulations EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1)

items are subject to changes

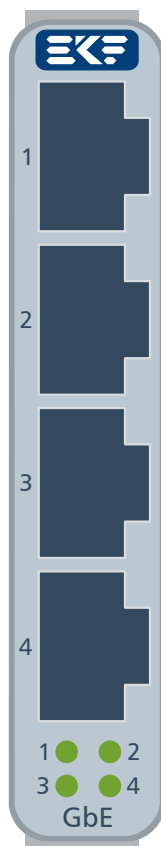
DN1-PIKE Home

<http://www.ekf.com/d/dnic/dn1/dn1.html>

Block Diagram

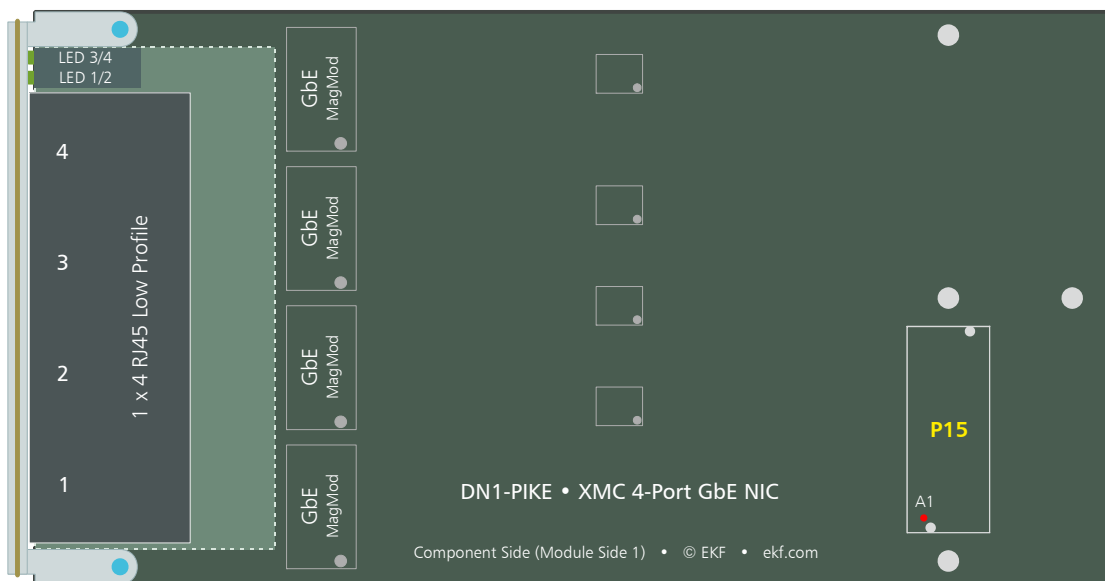


Front Bezel



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DN1-PIKE XMC



Modular Jack
GbE Connectors

Gigabit Ethernet
270.01.08.05 1 x 4 RJ45 modular jack, low profile

Ports 1-4	1	MDX0+
	2	MDX0-
	3	MDX1+
	4	MDX2+
	5	MDX2-
	6	MDX1-
	7	MDX3+
	8	MDX3-

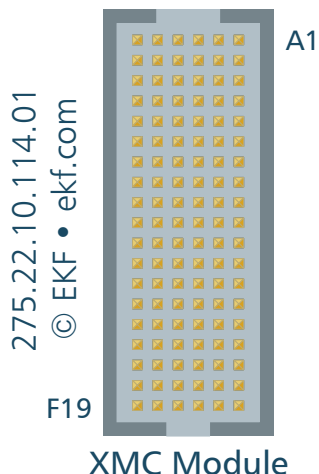
LED 1-4	
On	Link
Blink	Activity

Ethernet Driver Download

<https://downloadcenter.intel.com/SearchResult.aspx?lang=eng&keyword=I211>

P15 Mezzanine Connector

The DN1-PIKE 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 DN1-PIKE is organized as one to four lane PCI Express® device.

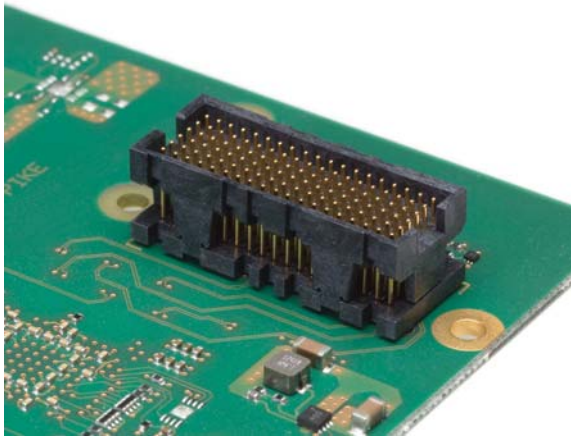


As an option, the DN1-PIKE can be equipped with a P15 connector according to the XMC 2.0 style, as defined by VITA 61.0. Carrier card and module connectors J15/P15 must match - VITA 61 and VITA 42 XMC connectors are not intermateable. Both connector styles can be easily distinguished from each other by the connector body colour as visual key.

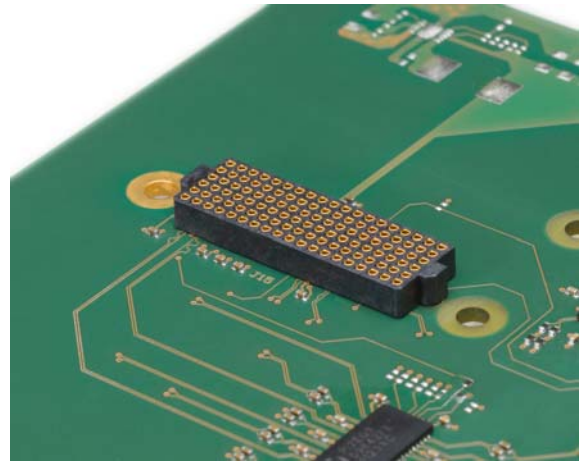
Suitable carrier cards are available from EKF, e.g. the SK2-SESSION CompactPCI® Serial XMC module carrier board, or the CK2-SESSION, a carrier for CompactPCI® Classic systems.

Related XMC Carrier Cards	
SK2-SESSION CompactPCI® Serial	www.ekf.com/s/sk2/sk2.html
CK2-SESSION CompactPCI®	www.ekf.com/c/cpcc/ck2/ck2.html

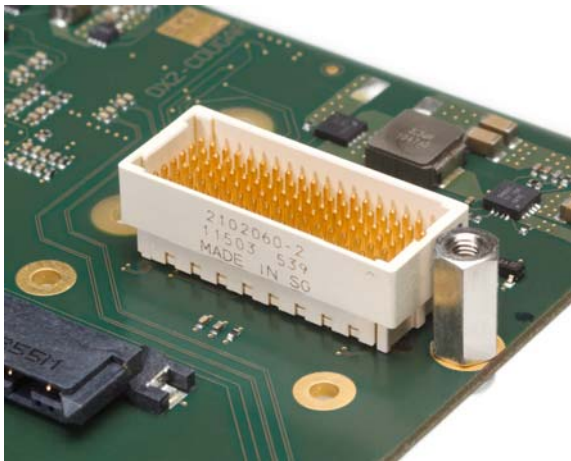
Black = VITA 42 XMC
Off-white = VITA 61 XMC 2.0



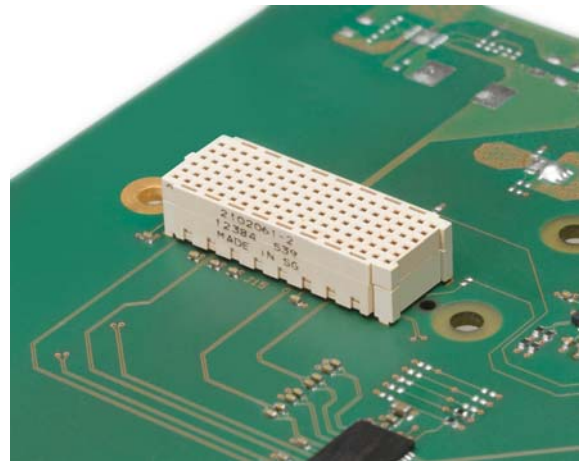
XMC Connector P15



XMC Connector J15



XMC 2.0 Connector P15

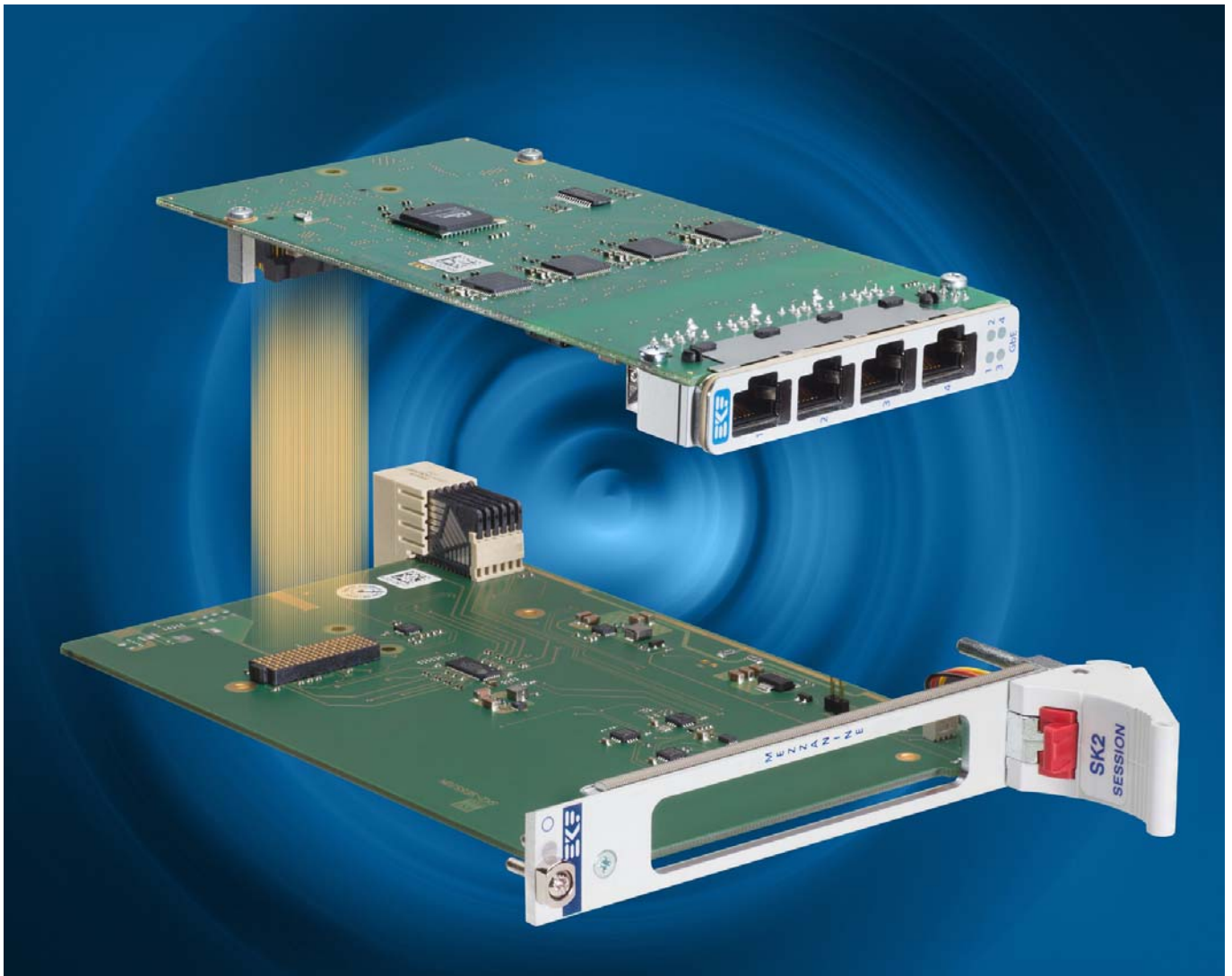


XMC 2.0 Connector J15

XMC Connector P15 - PCIe Fabric • EKF Part No. 275.22.10.114.01						
	A	B	C	D	E	F
1	PETOP0	PETON0	+3.3V	PETOP1	PETON1	VPWR ²⁾
2	GND	GND	TRST#	GND	GND	MRSTI#
3	PETOP2	PETON2	+3.3V	PETOP3	PETON3	VPWR ²⁾
4	GND	GND	TCK	GND	GND	MRSTO#
5	<i>PETOP4</i>	<i>PETON4</i>	+3.3V	<i>PETOP5</i>	<i>PETON5</i>	VPWR ²⁾
6	GND	GND	TMS	GND	GND	+12V
7	<i>PETOP6</i>	<i>PETON6</i>	+3.3V	<i>PETOP7</i>	<i>PETON7</i>	VPWR ²⁾
8	GND	GND	TDI	GND	GND	-12V
9	<i>RFU</i>	<i>RFU</i>	<i>RFU</i>	<i>RFU</i>	<i>RFU</i>	VPWR ²⁾
10	GND	GND	TDO	GND	GND	GA0 ¹⁾
11	PEROP0	PERON0	MBIST#	PEROP1	PERON1	VPWR ²⁾
12	GND	GND	GA1 ¹⁾	GND	GND	MPRESENT#
13	PEROP2	PERON2	+3.3V_AUX	PEROP3	PERON3	VPWR ²⁾
14	GND	GND	GA2 ¹⁾	GND	GND	MSDA ¹⁾
15	<i>PEROP4</i>	<i>PERON4</i>	<i>RFU</i>	<i>PEROP5</i>	<i>PERON5</i>	VPWR ²⁾
16	GND	GND	MVMRO	GND	GND	MSCL ¹⁾
17	<i>PEROP6</i>	<i>PERON6</i>	<i>RFU</i>	<i>PEROP7</i>	<i>PERON7</i>	<i>RFU</i>
18	GND	GND	<i>RFU</i>	GND	GND	<i>RFU</i>
19	CLKP_XMC	CLKN_XMC	<i>RFU</i>	WAKE#	ROOT0#	<i>RFU</i>

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, typically not in use (powered via +3.3V by default)



Ordering Information

For popular DN1-PIKE SKUs please refer to
www.ekf.com/liste/liste_22.html#DN1

Industrial Computers Made in Germany
boards. systems. solutions.

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