Product Information

SN4-DJEMBE

Quad-Port 10GBASE-T Networking Controllers
M12-X Ethernet Connectors
CompactPCI® Serial Peripheral Card

Overview

The SN4-DJEMBE is a networking adapter card for CompactPCI® Serial systems, equipped with four individual controllers for 10GBASE-T. The front panel is provided with M12-X style Ethernet connectors Cat 6a, as required for railway and many other applications.

The 6-speed mGig controllers with integrated PHYs are designed to support also other network rates 5GBASE-T, 2.5GBASE-T, 1000BASE-T, 100BASE-TX and 10BASE-Te, compliant with the IEEE® 802.3an/bz standard and the NBASE-T™ specification.

The board is equipped with a PCIe® Gen3 packet switch (8 lanes upstream to the backplane connectors). For optimum performance when operated at maximum speed across all ports simultaneously, the SN4-DJEMBE should be positioned in a CompactPCI® Serial backplane fat pipe peripheral slot, PCIe® Gen3 x8.

The single-chip high performance Ethernet controllers Marvell® AQC113 provide latest networking technologies. Drivers are available for Windows 10/11 and Linux.

Feature Summary

Form Factor

▸ PICMG® CompactPCI® Serial (CPCI-S.0) peripheral card
▸ Form factor single size Eurocard (board dimensions 100x160mm^2)
▸ Mounting height 3U
▸ Front panel width 4HP
▸ Provides 10Gbps Ethernet front panel I/O (4 x M12-X)
▸ CompactPCI® Serial fat pipe slot PCIe® Gen3 x8 recommended

M12-X Front Panel Connectors

▸ 8-Pos. X-coded R/A M12 Ethernet receptacles
▸ Cat. 6A Data transmission rate 10Gbps
▸ 10GBASE-T Ethernet signal transformers
▸ M12-X Ethernet cables & connectors available from many manufacturers
▸ Adapter cables available M12-X to RJ45

Networking Interface Controllers (NIC) Key Features

▸ 4 x Marvell® AQC113 10G mGig
▸ Single-chip MAC/PHY
▸ 6-Speed 10G/5G/2.5G/1G/100M/10M
▸ Integrated Marvell Alaska PHY featuring NBASE-T technology
▸ Delivers 10 GbE network connectivity speed through Cat 6a cable
▸ Delivers 5 GbE and 2.5 GbE network connectivity speeds through 100 meters of Cat 5e or better cabling
▸ Energy Efficient Ethernet (EEE) support
▸ Advanced cable diagnostics
▸ Audio Video Bridging (AVB) and PTP/1588v2
▸ LSO, RSS, DCA and header checksum
▸ Quality of Service (QoS) support
▸ Jumbo Frames (up to 16 Kbytes)
▸ IPv4/v6, IPv6/TCP, and IPv6/UDP checksum offload
▸ Internet Control Message Protocol (ICMP)
▸ Address Resolution Protocol (ARP)
▸ Multicast Domain Name System (mDNS)
▸ Transmission Control Protocol (TCP) Keepalives (KA)
▸ PCIe® interface Gen3 x2
▸ Drivers: Windows 10 and Windows 11 (64-bit), Linux 3.10 and higher
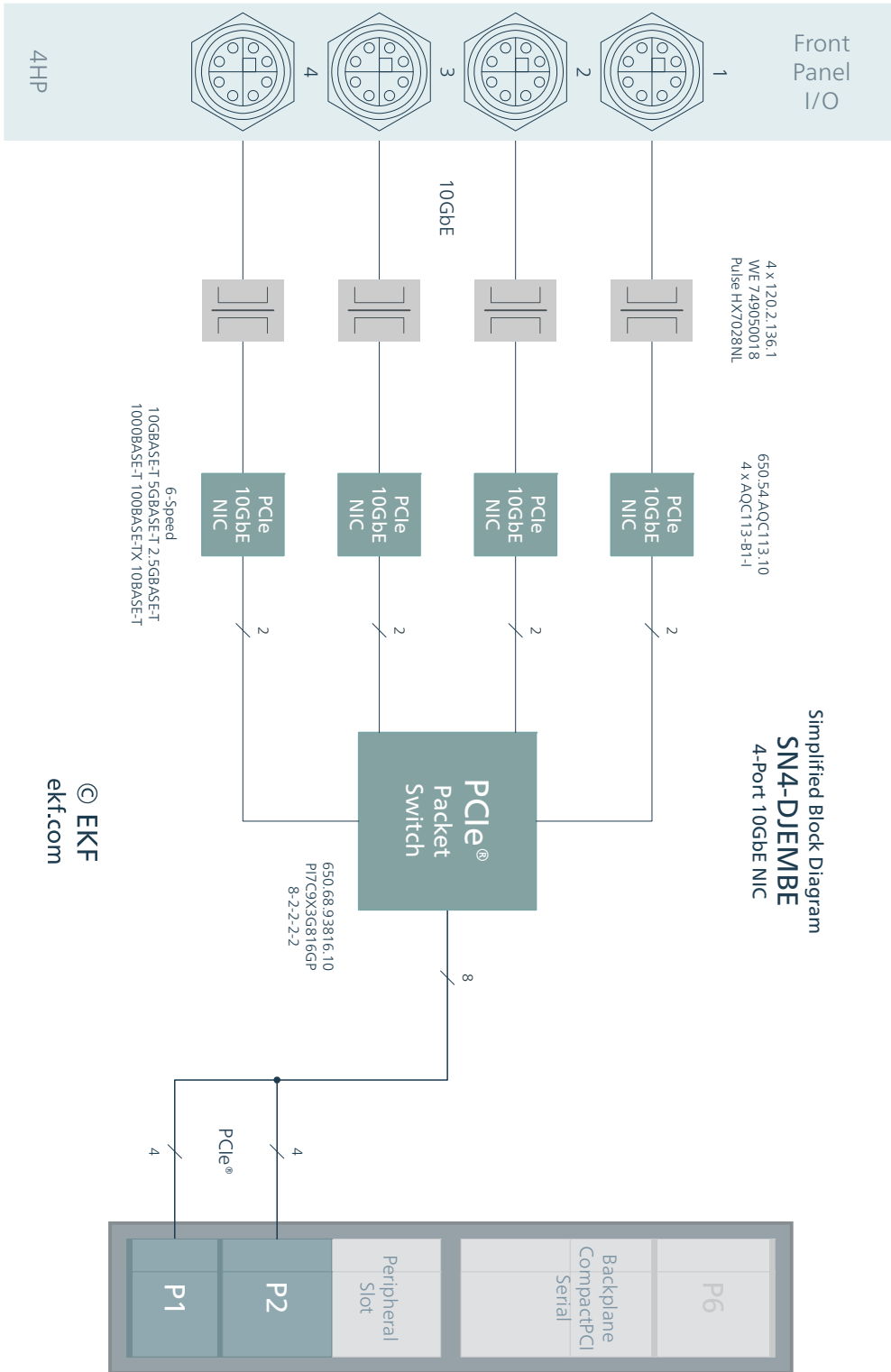
Feature Summary

Applications

- ▸ Railway, transportation
- ▸ Industrial IoT
- ▸ Gateway edge to server
- ▸ Custom specific modifications and alternate design available on request
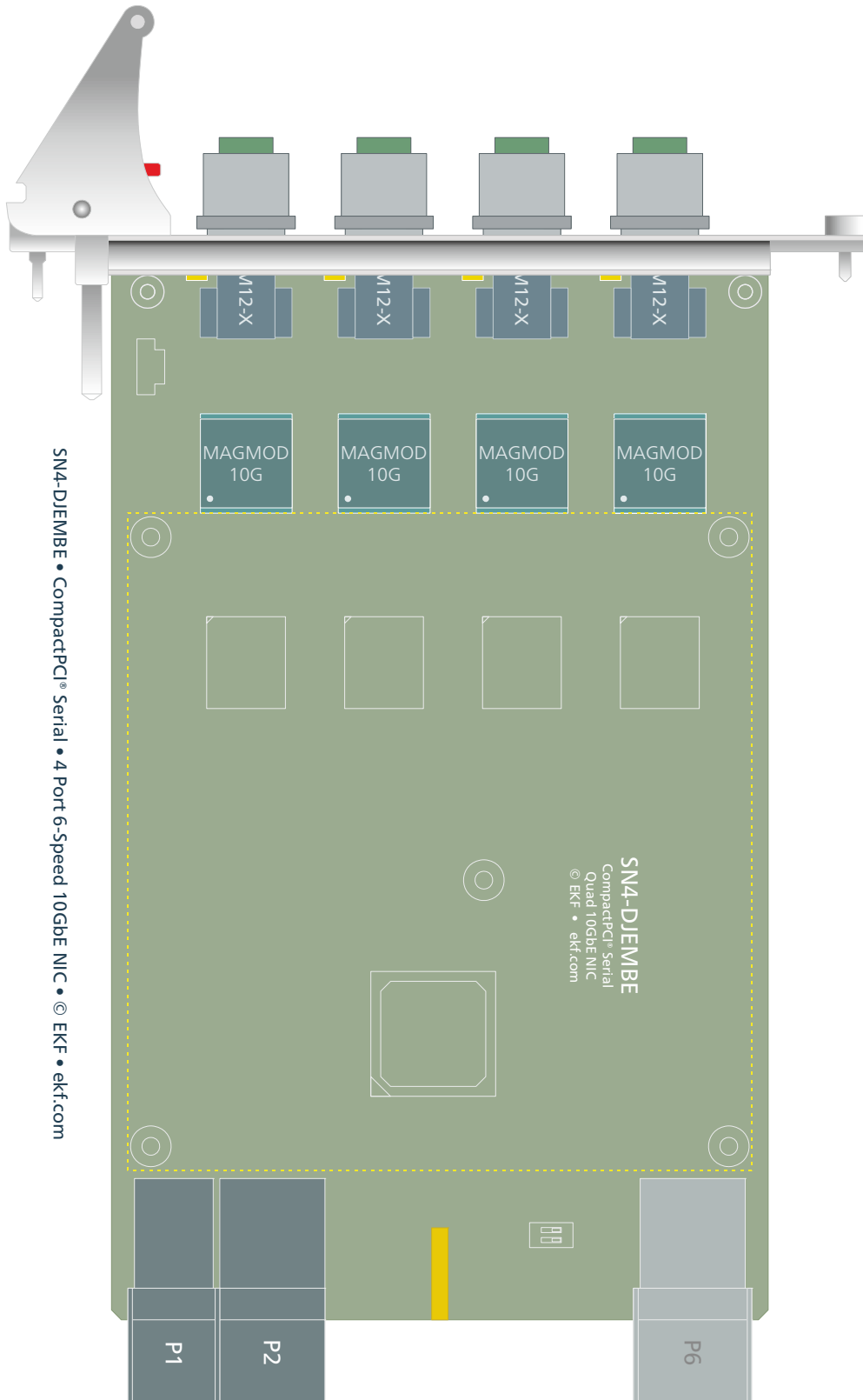
Environment & Regulatory

- ▸ Designed & manufactured in Germany
- ▸ Certified quality management according to ISO 9001
- ▸ Long term availability
- ▸ Rugged solution
- ▸ Coating, sealing, underfilling on request
- ▸ RoHS compliant
- ▸ Operating temperature -40°C to +85°C (industrial temperature range)
- ▸ Storage temperature -40°C to +85°C, max. gradient 5°C/min
- ▸ Humidity 5% ... 95% RH non condensing
- ▸ Altitude -300m ... +3000m
- ▸ Shock 15g 0.33ms, 6g 6ms
- ▸ Vibration 1g 5-2000Hz
- ▸ MTBF tbd years (MIL-HDBK-217F, SN29500 @+40°C)
- ▸ EC Regulatory EN55035, EN55032, EN62368-1 (CE)
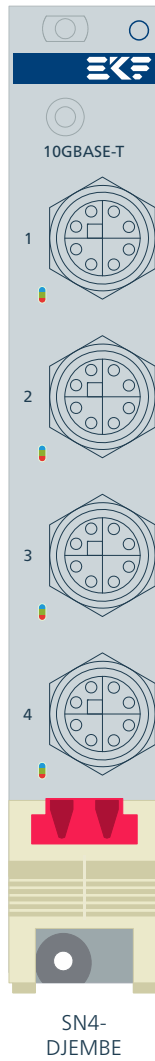
All items are subject to change

Block Diagram

4HP

Front Panel I/O

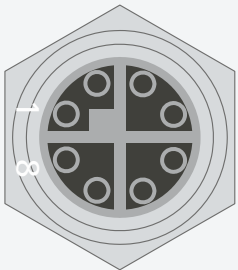4   3   2   1

10GbE

4 x 120.2.136.1
WE 74905018
Pulse HX7028NL

650.54.AQC113.10
4 x AQC113-B1-I

PCIe 10GbE NIC

PCIe 10GbE NIC

PCIe 10GbE NIC

PCIe 10GbE NIC

10GBASE-T 5GBASE-T 2.5GBASE-T
1000BASE-T 100BASE-TX 10BASE-T
6-Speed

2   2   2   2

Simplified Block Diagram
SN4-DJEMBE
4-Port 10GbE NIC

PCIe® Packet Switch

650.68.93816.10
PI7C9X3G816GP
8-2-2-2-2

8

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PCIe®

4   4

P1   P2   Peripheral Slot   Backplane CompactPCI Serial   P6

Top View Component Assembly

SN4-DJEMBE • CompactPCI® Serial • 4 Port 6-Speed 10GbE NIC • © EKF • ekf.com

M12-X   M12-X   M12-X   M12-X

MAGMOD 10G   MAGMOD 10G   MAGMOD 10G   MAGMOD 10G

SN4-DJEMBE
CompactPCI® Serial
Quad 10GbE NIC
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P1   P2   P6

Front Panel

10GBASE-T

1

2

3

4

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SN4-
DJEMBE

M12-X Receptacles

M12-X Receptacle • Gigabit Ethernet		
271.12.008.10 © EKF • ekf.com Draft - Do Not Scale	1	MDX0+
	2	MDX0-
	3	MDX1+
	4	MDX1-
	5	MDX3+
	6	MDX3-
	7	MDX2-
	8	MDX2+

The pin numbers of an M12 X-coded connector do not reflect the RJ45 Gigabit Ethernet signal assignment. For cross-over patch cables M12 to RJ45 please refer to the table below.

M12-X	Signal Colors T568B	RJ45
1	MDX0+ white/orange	1
2	MDX0- orange	2
3	MDX1+ white/green	3
4	MDX1- green	6
5	MDX3+ white/brown	7
6	MDX3- brown	8
7	MDX2- white/blue	5
8	MDX2+ blue	4

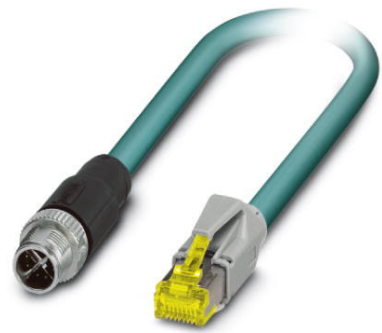| Mating Cable Assemblies |
|---|
| Gigabit Ethernet cable M12 to M12: #271.14.008.xx (xx=length/meter) |
| Gigabit Ethernet cable M12 to RJ-45: #271.15.008.xx (xx=length/meter) |

M12 to M12 Cable
Phoenix Contact

M12 Cable Connector
Phoenix Contact

M12 to RJ45 Cable
Phoenix Contact

M12 Gigabit Ethernet Cable Assembly

Ordering

Ordering Information
For popular SN4-DJEMBE SKUs please refer to www.ekf.com/liste/liste_21.html#SN4

High Performance Embedded

Industrial Computers Made in Germany
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