

# Data Sheet

## FUJITSU PLAN EP MCX4-EN 100GbE QSFP28

Single-port 100Gbit/s PCIe 3.0 Network Interface Card

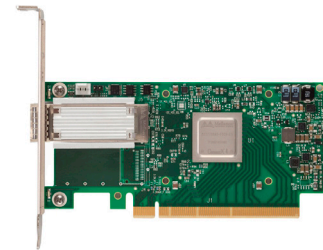
Ethernet cards enable data exchange between all the devices connected in a local network (LAN). A networked IT infrastructure that functions well is of great significance when managing and controlling critical business processes in a company. The wide range of complex information transported across the network relies on fast and reliable data processing by the network cards.

The cards offer at least one Ethernet interface which is designed for the respective network types and network architectures. The bus interface links the network card with the server.

### PLAN EP MCX4-EN 100GbE QSFP28

The FUJITSU PLAN EP MCX4-EN 100GbE is based on Mellanox's ConnectX®-4 EN (Single port) Network Interface Card. ConnectX-4 EN Network Controller with 100Gb/s Ethernet connectivity addresses virtualized infrastructure challenges, delivering best-in-class and highest performance to various demanding markets and applications. Providing true hardware-based I/O isolation with unmatched scalability and efficiency, achieving the most cost-effective and flexible solution for Web 2.0, Cloud, data analytics, database, and storage platforms. 100Gb Ethernet (100GbE) enables network bandwidth to be cost-effectively scaled in support of next-generation server and storage solutions residing in Cloud and Web-scale data center environments.

FUJITSU PLAN EP MCX4-EN 100GbE Network Interface Cards deliver advanced Ethernet solutions designed for FUJITSU Server PRIMERGY and PRIMEQUEST systems with SUSE Linux Enterprise Server 12 SP2 operating system supporting use cases such as SAP HANA®.



# Features & Benefits

Main Features	Benefits
<ul style="list-style-type: none"><li>■ Designed for FUJITSU Server PRIMEQUEST and PRIMERGY systems in SAP environments</li><li>■ SuSE Linux Enterprise Server 12 Support</li><li>■ RDMA over Converged Ethernet (RoCE)</li><li>■ Connectivity</li></ul>	<ul style="list-style-type: none"><li>■ Provides the highest performance and most flexible solution for high performance, Web 2.0, Cloud, data analytics, database, and storage platforms for SAP HANA environments</li><li>■ Designed and released for qualifying PRIMERGY and PRIMEQUEST servers supporting SuSE Linux Enterprise Server 12. Other operating systems are planned to be qualified and supported by Fujitsu later this year</li><li>■ Delivering low-latency and high-performance Remote Direct Memory Access (RDMA) over Ethernet networks. RoCE provides efficient low-latency RDMA services over Layer 2 and Layer 3 networks</li><li>■ Interoperable with 1/10/25/40/50/100Gb Ethernet switches. Powered connectors for optical and active cable support. Tested with Mellanox and Cisco DAC 100G, AOC 100G. Mellanox QSFP28 optical transceivers are available from Fujitsu, 850nm SR4 up to 100m as well as 1310nm PSM4 up to 500m</li></ul>

# Technical details

## Technical details

<b>Controller Silicon</b>	Mellanox ConnectX4-EN MCX415A-CCAT Single-Port 100 Gigabit Ethernet Controller
<b>Operating system pre-installed</b>	Information to released operating systems can be found in the server datasheets. Details can be found in the released drivers list on the support portal.
<b>Released drivers list link</b>	<a href="http://support.ts.fujitsu.com/Download/Index.asp">http://support.ts.fujitsu.com/Download/Index.asp</a>
<b>Number of Connectors</b>	1
<b>Number of external ports</b>	1
<b>Auto Negotiation support</b>	Yes
<b>Bus type</b>	PCIe 3.0
<b>Bus transfer rate</b>	8GT/s
<b>Bus width</b>	x16
<b>Network protocol and standards compatibility</b>	<p>IEEE 802.1p Class of Service</p> <p>IEEE 802.1q VLAN</p> <p>IEEE 802.1Qau Congestion Notification</p> <p>IEEE 802.1Qaz Enhanced Transmission Selection (ETS)</p> <p>IEEE 802.1Qbb Priority Flow Control (PFC)</p> <p>IEEE 802.3ad LACP</p> <p>IEEE 802.3ae 10Gbit Ethernet</p> <p>IEEE 802.ap based auto-negotiation and KR startup</p> <p>IEEE 802.3az Energy Efficient Ethernet (EEE)</p> <p>IEEE 802.3ba 40Gbit Ethernet</p> <p>IEEE 802.3bj, 802.3bm 100 Gigabit Ethernet</p> <p>IEEE 802.3x Flow Control</p> <p>IEEE 1588 Precision Time Protocol</p> <p>IPv4, IPv6 and mixed IPv4/IPv6 network protocols</p>
<b>HW Virtualization</b>	SR-IOV: Up to 256 Virtual Functions, NPAR: up to 16 Physical functions per port
<b>Interrupt Levels</b>	MSI-X
<b>WoL</b>	No
<b>Virtualization</b>	<p>Hardware-based I/O Server Virtualization</p> <ul style="list-style-type: none"> <li>- SR-IOV</li> <li>- Multi-function per port</li> <li>- Address translation and protection</li> <li>- Multiple queues per virtual machine</li> <li>- Enhanced QoS for vNICs</li> <li>- VMware NetQueue support</li> </ul> <p>Overlay Networks</p> <ul style="list-style-type: none"> <li>- Stateless offloads for overlay networks and tunneling protocols</li> <li>- Hardware offload encapsulation and decapsulation of overlay networks</li> </ul> <p>Network Virtualization Offload</p> <ul style="list-style-type: none"> <li>- NVGRE</li> <li>- VXLAN™CPU Offloads</li> <li>- RDMA over Converged Ethernet (RoCE)</li> <li>- TCP/UDP/IP stateless offload</li> <li>- LSO, LRO, checksum offload</li> <li>- RSS (can be done on encapsulated packet), TSS, HDS, VLAN insertion / stripping, Receive flow steering</li> <li>- Intelligent interrupt coalescence™</li> </ul>
<b>Offloading</b>	<p>CPU Offloads</p> <ul style="list-style-type: none"> <li>- RDMA over Converged Ethernet (RoCE)</li> <li>- TCP/UDP/IP stateless offload</li> <li>- LSO, LRO, checksum offload</li> <li>- RSS (can be done on encapsulated packet), TSS, HDS, VLAN insertion / stripping, Receive flow steering</li> <li>- Intelligent interrupt coalescence</li> </ul>
<b>Data transfer rate up to</b>	100 Gbit/s

**Supported Interface Modules / Cables**

Order code	Application	Type / mode	Connector / cable Length
Interface Module notes	Only Fujitsu certified modules and cables are supported Order codes starting with "S26361-F3873" are Brocade branded cables, required for connections to Brocade switches		

**Environment**

Power consumption	Single-Port QSFP28 with passive DAC 100G or DAC 100G to 4x25G splitter cables: 14.62W Single-Port QSFP28 with active AOC 100G cables: 20.7W Single-Port QSFP28 with QSFP28 optical transceivers: 20.7 W		
Temperature (operating)	0 - 55 °C		
Storage temperature	-40 - 65 °C		

**Compliance**

Compliance notes	According to the corresponding system		
Compliance link	<a href="https://sp.ts.fujitsu.com/sites/certificates">https://sp.ts.fujitsu.com/sites/certificates</a>		

# More information

## Fujitsu OPTIMIZATION Services

In addition to Fujitsu with PLAN EP MCX4-EN 100GbE QSFP28, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

### Fujitsu Portfolio

Build on industry standards, Fujitsu offers a full portfolio of IT hardware and software products, services, solutions and cloud offering, ranging from clients to datacenter solutions and includes the broad stack of Business Solutions, as well as the full stack of Cloud offering. This allows customers to leverage from alternative sourcing and delivery models to increase their business agility and to improve their IT operation's reliability.

### Computing Products

[www.fujitsu.com/global/products/computing/](http://www.fujitsu.com/global/products/computing/)

### Software

[www.fujitsu.com/software/](http://www.fujitsu.com/software/)

## More information

Learn more about Fujitsu PLAN EP MCX4-EN 100GbE QSFP28, please contact your Fujitsu sales representative or Fujitsu Business partner, or visit our website.  
<http://www.fujitsu.com/primergy>

## Fujitsu green policy innovation

Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment.  
Using our global know-how, we aim to contribute to the creation of a sustainable environment for future generations through IT. Please find further information at <http://www.fujitsu.com/global/about/environment>



**Green  
Policy  
Innovation**

## Copyrights

All rights reserved, including intellectual property rights. Changes to technical data reserved. Delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded. Designations may be trademarks and/or copyrights of the respective manufacturer, the use of which by third parties for their own purposes may infringe the rights of such owner.  
For further information see <http://www.fujitsu.com/fts/resources/navigation/terms-of-use.html>  
Copyright 2017 FUJITSU LIMITED

## Disclaimer

Technical data is subject to modification and delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded. Designations may be trademarks and/or copyrights of the respective manufacturer, the use of which by third parties for their own purposes may infringe the rights of such owner.

## Contact

Fujitsu Limited  
Website: [www.fujitsu.com/primergy](http://www.fujitsu.com/primergy)  
2017-09-22 INT-EN

All rights reserved, including intellectual property rights. Changes to technical data reserved. Delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded. Designations may be trademarks and/or copyrights of the respective manufacturer, the use of which by third parties for their own purposes may infringe the rights of such owner.  
For further information see <http://www.fujitsu.com/fts/resources/navigation/terms-of-use.html>  
Copyright 2017 FUJITSU LIMITED