Octal Port 2.5G Ethernet PHY

PRODUCTS

MxL86289C	Octal port PHY, commercial temperature
MxL86289I	Octal port PHY, industrial temperature

FEATURES

- Octal port Ethernet PHY
- 2.5GBASE-T, 1000BASE-T, 100BASE-TX and 10BASE-Te link rates
- Two USXGMII-M MAC interfaces
- Package PG-FCLBGA-256 13mm x 13mm, 0.8mm ball pitch
- Commercial and industrial temperature versions

BENEFITS

- Low power consumption through high integration and dedicated 2.5G design

APPLICATIONS

- Enterprise switches
- Managed SMB switches

STANDARDS

- IEEE Standard for Ethernet, IEEE802.3™-2022

SYSTEM FEATURES

- Clock input from a 25MHz oscillator or crystal or an external 50MHz or 156.25MHz clock
- MDIO slave interface
- Integrated temperature sensor for warning interrupt and auto down speed
- 4 power supply rails: 3.3V, 1.8V, 1.2V, and 0.8V
- Typical power consumption below 5W
- ECC memory for improved reliability

Product Description

MxL86289 is a highly integrated, low power, Enterprise grade octal port 2.5GBASE-T PHY. It supports the link rates 2.5GBASE-T, 1000BASE-T, 100BASE-TX and 10BASE-Te. Energy Efficient Ethernet (EEE) is supported for 2.5GBASE-T, 1000BASE-T, and 100BASE-TX.

2.5GBASE-T works over the same Cat5e, Cat6 or Cat7 link segments as 1000BASE-T. Networks can benefit from the higher rate without the need to change cable installations.

To enable industrial and outdoor applications, MxL86289I supports the industrial temperature range.

To support additional use cases, the MxL86289 offers integrated precision time protocol (PTP, IEEE1588v2), and Synchronous Ethernet (SyncE) support. The MxL86289I also provides MACsec support.

The device is packaged in a small 0.8mm pitch 13 mm x 13 mm 256 ball BGA package.

Interface

Features

- 2.5GBASE-T, 1000BASE-T, 100BASE-TX and 10BASE-Te
- More than 100m reach over CAT5e or higher quality link segments
- Low EMI voltage mode line driver with integrated termination resistors
- Auto-Negotiation (ANEG) with extended next page support
- Auto MDI/MDI-X and auto polarity detection and correction
- Auto down-speed (ADS) for poor quality cables
- Energy Efficient Ethernet for 100BASE-TX, 1000BASE-T and 2.5GBASE-T

- Additional power savings with no-link and short cable detection
- Wake-on-LAN (WoL)
- Fast retrain
- Two configurable network status LEDs per port
- Cable diagnostic: cable open/short detection and cable length estimation
- Support of jumbo frames up to 10kB
- Support of PTP (Precision Time Protocol IEEE1588v2) and SyncE (Synchronous Ethernet)
- Support of MACsec (MxL86289I)

Application Block Diagram

N x Eight 2.5GBASE-T Ports

Enterprise Switch
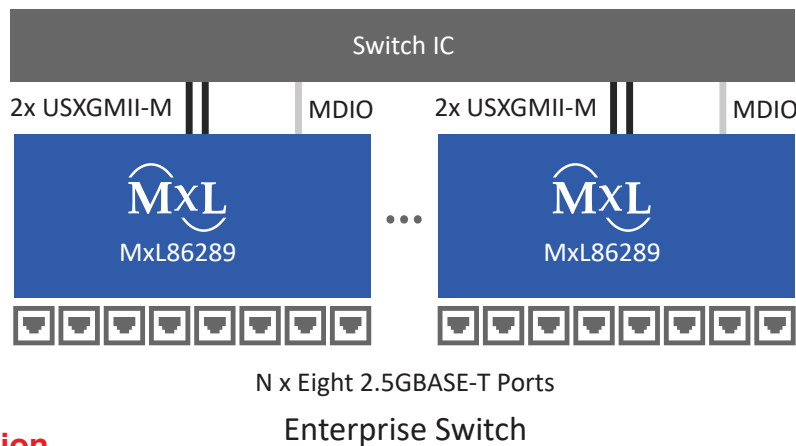
Product Information

Part Number	Ordering Code	Temperature Range	Additional Features	Package
MxL86289C	MXL86289C-ABE-R	0°C to 70°C	PTP and SyncE support	PG-FCLBGA-256 13x13 mm
MxL86289I	MXL86289I-ABE-R	-40°C to 85°C	PTP, SyncE, and MACsec support	

Evaluation Kit

Ordering Code	Description
MXL86289C-EVK-1	Evaluation Kit for MxL86289C and MxL86289I equipped with MxL86289C