

Total System Solution for META-DX2 Ethernet PHYs

Accelerate Your Development and Time to Revenue

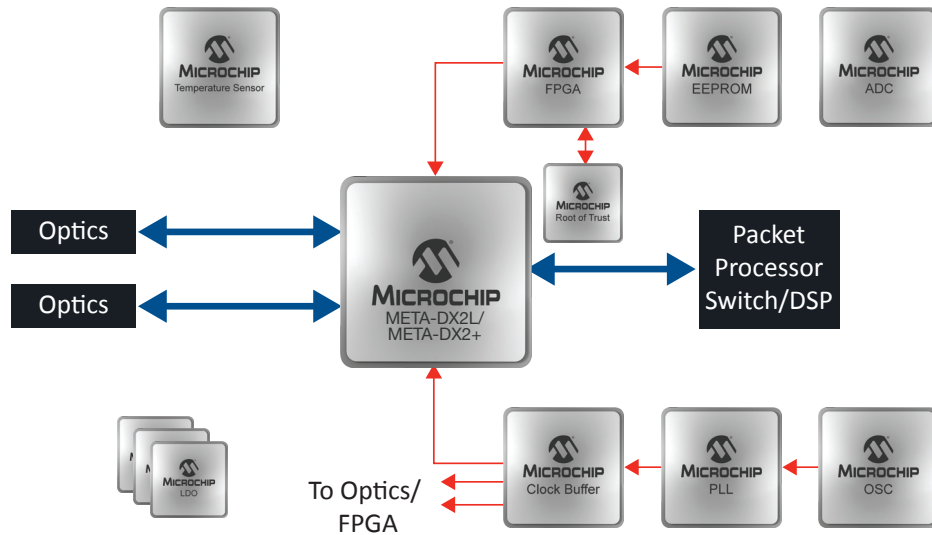
Total System Solution
Proven, Validated, Ready Solution

Summary

Microchip's META-DX2 family of 1.6 Terabit Ethernet PHYs provides high-speed connectivity solutions for data center, service provider, enterprise routers/switches and optical transport systems. These systems provide terabits of bandwidth connectivity and support a wide range of data rates and protocols. As a result, these requirements drive highly complex hardware and software designs.

To simplify your design, Microchip offers a pre-engineered system solution for META-DX2L and META-DX2+. These components deliver on the needed performance required to support all aspects of your design, from power management and timing to control plane processing and temperature monitoring. This differentiated offering allows designers to immediately focus on delivering on their design.

Typical High-Speed Ethernet Connectivity Application Diagram



META-DX2L Reference Design

- PM2720-KIT: META-DX2L Evaluation Platform
- Includes META-DX2L Evaluation Board BOM and Schematics

META-DX2+ Reference Design

- PM2722-KIT: META-DX2+ Evaluation Platform
- Includes META-DX2+ Evaluation Board BOM and Schematics

Component Recommendations

All components in the following table are rated for Industrial Temperature operation.

Function	Recommended Part #	Product Description	Highlights
META-DX2L	PM6200	1.6T Ethernet PHY with Gearbox and Hitless 2:1 Mux	112G PAM4, 2 x 800 GbE, 4 x 400 GbE, 16 x 100 GbE, Retimer, Gearbox, Crosspoint
META-DX2+	PM6210, PM6214, PM6216, PM6218	1.6T Ethernet MAC/PHY with MACsec/IPsec, PTP, XpandIO, and Hitless 2:1 Mux	112G PAM4, 2 x 800 GbE, 4 x 400 GbE, 16 x 100 GbE, Retimer, Gearbox, Crosspoint, 32 or 48 SerDes device variants
Phase Lock Loop (PLL)	ZL30632	High performance PLL to supply: 125MHz and 1PPS signal for IEEE1588 PTP applications 156.25 MHz system clock for META-DX2+ FPGA and optical module SerDes reference clocks	Up to five independent clock channels Any-to-any frequency conversion per channel Output jitter <150fs RMS, 156.25 MHz 12k-20 MHz
Clock Buffer	SY58011U	7 GHz 1:2 CML fanout buffer Low jitter performance	Guaranteed AC performance over temperature and voltages
Low-dropout Regulator (LDO)	MIC45116 MCP1726	5A High-current, high-accuracy, low-dropout voltage regulator 1A low voltage, low quiescent current LDO	Fast transient response; Accurate 1% guaranteed tolerance Stable with 1.0 µF ceramic output cap
Jitter Attenuator (JAT)	ZL30273, ZL30274	JAT with dual DLLs and hitless reference switching, featuring up to 20 clock outputs	Inputs: up to 6, differential or singled-ended Outputs: up to 10 differential, up to 20 CMOS Output jitter <150 fs RMS at 156.25 MHz
FPGA	MPF300T MPF500T	Programmable device for on board glue logic, SPI interface between CPU and META-DX2+	300K LE 500K LE
EEPROM	24LC512, 24CS512 93LC46B AT93C46D, AT93C46E	512 Kbit EEPROM for FPGA 1 Kbit EEPROM for MCU	Low power consumption Data retention >40 years
Temperature Sensor	EMC1812T	High accuracy, low cost temperature sensor for PCB measurement 0.125°C resolution	±1°C Accuracy (0°C to 127°C) ±2°C Accuracy (-40°C to 127°C) Resistance Error Correction
Oscillators	OX-5021 VCC1-1537-114M28500	20 MHz OXCO 114.285 MHz OSC	Matching Microchip PLLs
Fan Controller	EMC2301 EMC2305	One PWM fan driver Five PWM fan drivers	0.5% Tach accuracy Closed loop or direct I ² C drive
ADC	MCP3424 MCP3425	18-bit ADC with 4-channel differential input 16-bit ADC with I ² C interface and reference	Max 240 SPS
Buck Regulator	MIC24051	19V/6A high efficiency DC-DC buck regulator	Adjustable output from 0.8V to 5.5V
Potentiometer	MCP4551	8-bit single digital POT with I ² C	Single Resistor Network 8-bit: 256 Resistors (257 steps)
Root of Trust	CEC1736 CEC1712	Root of Trust controllers provide platform firmware resiliency and real-time system bus protection	Seamless secure boot and firmware authentication capabilities. Real-time SPI bus monitoring and I ² C command filtering Device Attestation and hardware Physically Unclonable Function (PUF)

For More Information

www.microchip.com/META-DX2 or contact your local Microchip sales representative.

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- FPGA solutions
- Non-volatile EEPROM and Flash Memory solutions
- Flash IP solutions