

Total System Solution for META-DX2L PHY

Accelerate Your Development and Time to Revenue

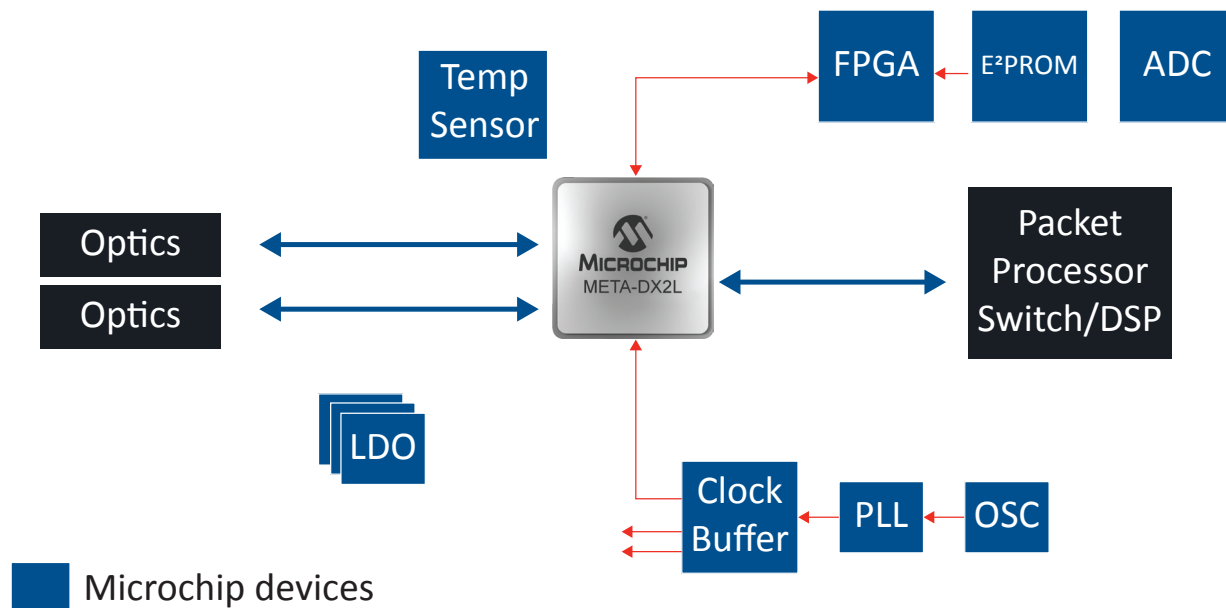
Total System Solution (TSS)
Proven, Validated, Ready Solution

Summary

Microchip's META-DX2L 1.6 Terabit Ethernet PHY provides high-speed connectivity solutions for data center, service provider and enterprise routers/switches and packet optical transport systems. These systems provide terabits of bandwidth connectivity and operate with clock frequencies in the hundreds of MHz. As a result, these requirements drive highly complex hardware and software designs.

To simplify your design, Microchip offers a pre-engineered Total System Solution (TSS) for META-DX2L. The TSS delivers on the needed performance required to support all aspects of your design, from power management, 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 TSS Reference Design

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

Component Recommendations

Function	Recommended Part #	Product Description	Highlights
META-DX2L	PM6200	1.6T Ethernet PHY with Gearbox and 2:1 mux	112G PAM4, 2 x 800 GbE, 4 x 400 GbE, 16 x 100 GbE, Retimer, Gearbox, Crosspoint, 2:1 hitless mux
Phase Lock Loop (PLL)	ZL30632	High performance PLL to supply: 125MHz and 1PPS signal for IEEE1588 PTP applications 156.25 MHz or 312.5MHz system clock for META-DX2L 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 μ F ceramic output cap
FPGA	MPF300T MPF500T	Programmable device for on board glue logic, SPI interface between CPU and META-DX2L, and other various functions	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	EMC1402	High accuracy, low cost temperature sensor for PCB measurement 0.125°C resolution	$\pm 1^\circ\text{C}$ Accuracy (60°C < TDIODE < 100°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 operation 16-bit ADC with I ² C interface and on-board 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)
Secure Boot	CEC1702 CEC1712	Secure boot MCUs provide authentication of the embedded firmware prior to boot of the system	Seamless authentication and encryption capabilities. Robust hardware cryptography cypher suite

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