multiLane
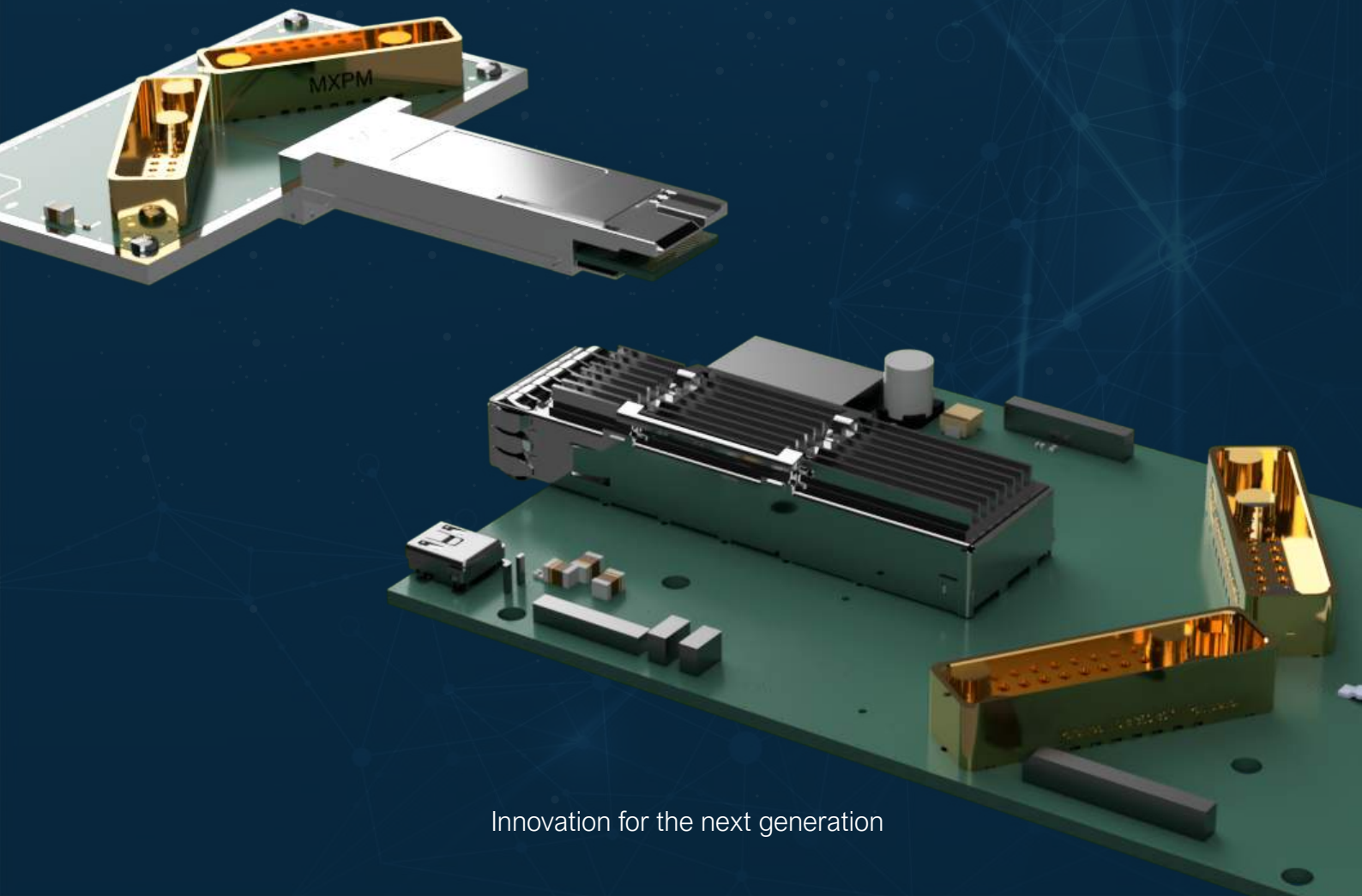
INTERCONNECT
BROCHURE | 2022

ABOUT US

Since 2006, **MultiLane** has been offering high speed test and measurement equipment for data communications. As the industry has evolved from 10 Gigabit Ethernet to 800G Ethernet, we have kept pace with full circle support of data center interconnect test solutions encompassing IC and transceiver characterization, host line card testing, and link testing. We provide a range of form factors and architectures, from portable instruments, to stand-alone bench top instruments to automated test platforms. We also assist our customer base with compliance and interoperability test services. We serve developers, module vendors, network installers, and data center operators with high-performance, reliable equipment at an attractive price-point. Currently, MultiLane has leading edge test solutions for the latest data center technologies such as 800G Ethernet with 100 Gbps data running on a single wavelength (100G per lambda). We also have a comprehensive set of development solutions for QSFP-DD, OSFP, QSFP28, CFP2-DCO, and many other MSAs.

The **MultiLane** portfolio encompasses optical and electrical oscilloscopes, bit error rate testers, time domain reflectometers (TDR) for TIA and cable testing, interconnect products, as well as fully automated DAC and transceiver test solutions, and compliance test services for 100G and 800G technologies. Developers, manufacturers, and installers of these new technologies all need the wide portfolio of solutions to be able to do their jobs successfully. We understand the breadth of solutions required for physical-layer test at these speeds.

INTERCONNECT SOLUTIONS ENABLE NETWORK EVOLUTION

As requirements for faceplate density and data rate have risen, form factors and multi-source agreements designed to serve those needs have proliferated. To test and qualify systems and modules, equipment vendors need interconnects, adapters, analyzers, and cabling to set up their test systems. These essential tools need to be compliant with the relevant standard. As part of MultiLane's commitment to supporting the evolution of the data center, we provide a complete selection of these interconnects' products for a wide variety of standards. For example, MultiLane supports Host Compliance Boards, Module Compliance Boards, Loopback Modules, and Analyzers for I2C CMIS and state machine testing. The solutions offered in this brochure are MSA compliant and use the standard defined CMIS interface.
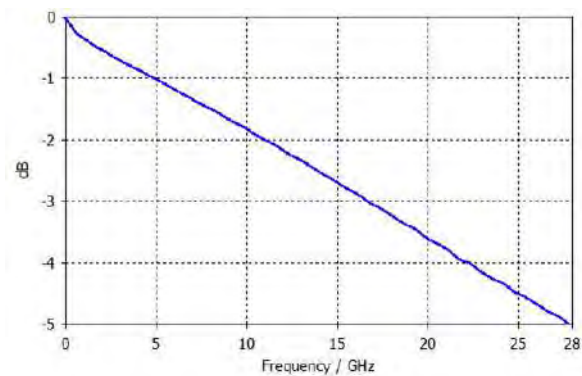
HOST COMPLIANCE BOARDS

A host compliance board is a breakout fixture that can be plugged into the system host side and provides access to the host electrical input and output signal (TP1a, TP4a compliance test points). It is a passive structure for optimum signal integrity. See graph for typical insertion loss performance.
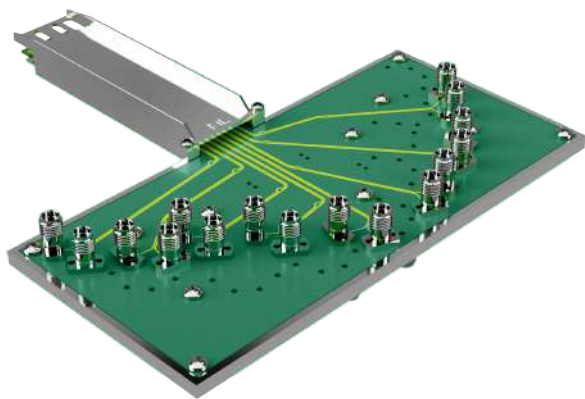
Insertion loss OSFP HCB ML4064-HCB
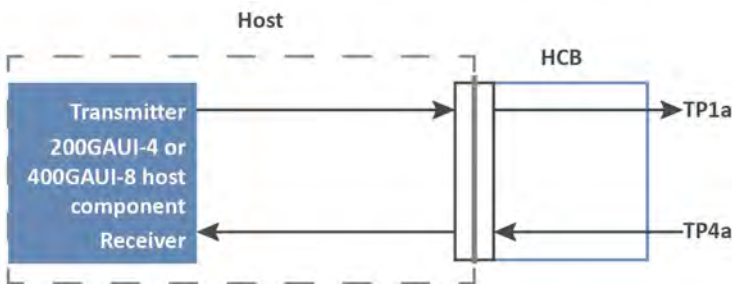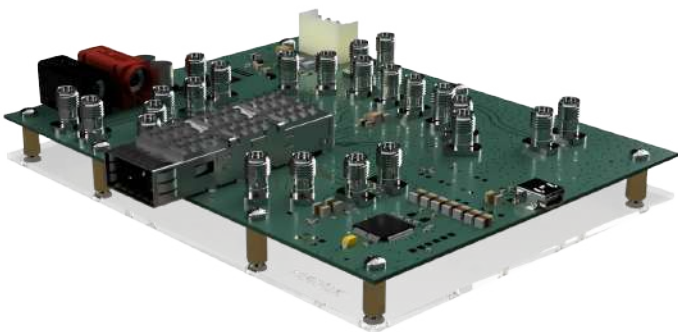

ML4064-HCB

Figure 120E-5--Host 200AUI-4 or 400GAUI-8 C2M compliance points

Reference: 802.3bs spec, section Annex 120E, p253

MODULE COMPLIANCE BOARDS

A module compliance board is a breakout fixture, in which a transceiver module can be plugged, to provide access to the module electrical input and output signal (TP1, TP4 compliance test points). MultiLane's MCBs are designed to provide an efficient and easy method of programming and testing transceivers and active optical cables. It includes a complete user-friendly GUI supporting all features defined by the respective MSA and simplifying configuration processes to enable intuitive memory map programming and testing. It is designed to provide an ideal environment for transceivers module testing, characterization and manufacturing.
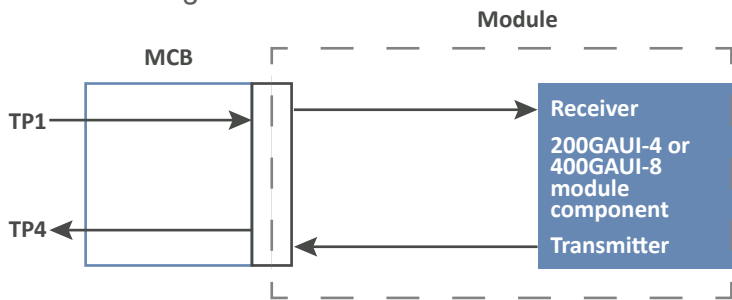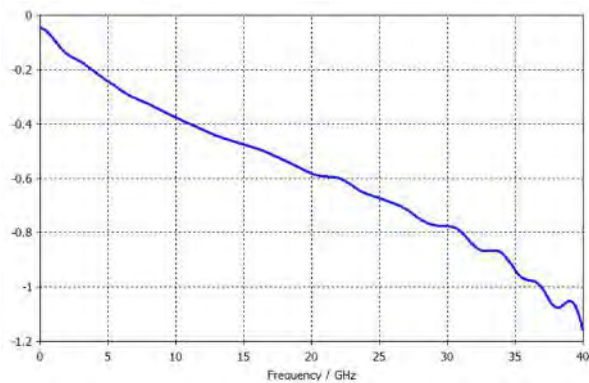

ML4041-K

Figure 120E-6--Module 200AUI-4 or 400GAUI-8 C2M compliance points

Reference: 802.3bs spec, section Annex 120E, p253

ML4041K-56 Insertion Loss

LOOPBACK MODULES

Passive/Thermal loads

Loopback modules are packaged in a standard MSA housing compatible with its respective ports. Transmit data from the host is electrically routed - internal to the loopback module - to the receive data outputs and back to the host. These modules act as thermal loads and have programmable power dissipation. This provides an economical way to exercise system ports during R&D validation, production testing, and field testing. Some modules are thermal load only and do not have the high-speed loopback routing of signals and are used to solely test the thermal and power loading of a system.
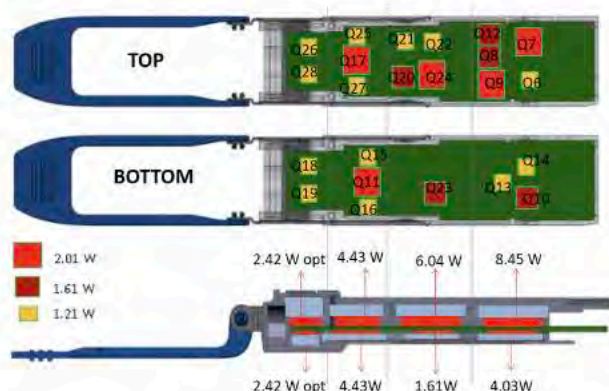

ML4064-LB

ML4062-LB

The power dissipation of the loopbacks is programmable, and the thermal loads emulate the costlier optical transceivers' thermal profiles. Below is an example of the power dissipation elements inside the loopback.

ML4062-S-TL QSFP-DD 400G power dissipation elements
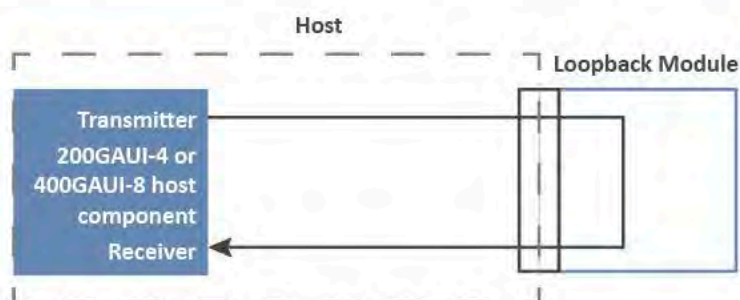
Watch video

LOOPBACK MODULES

Active Loopbacks

MultiLane also provides active loopbacks for situations with extremely challenging signal integrity conditions and to provide the ability to properly test the next generation systems.

ML4062-ALB1-112 QSFP-DD800 Active Loopback provides instrument-grade measurements directly in port and can retime and equalize port signals to test lossy channels.

Read more.
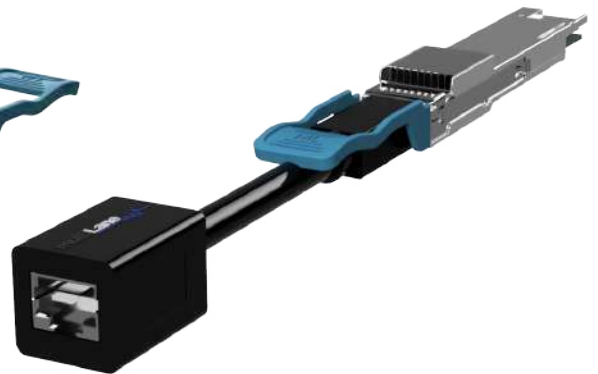
ML4062-ALB1-112 QSFP-DD800　　　　　　*ML4062-ALB1-112 QSFP-DD800 with Dongle*

The ALB offers 800G port analysis, where a DSP enables retiming and equalization of host signals. Features include:
• Multi-Vendor DSP support
• VSR support
• BERT with PRBS PPG + ED and SNR monitoring
• CMIS 5.0 support
• 20W+ programmable power dissipation
• Communication via USB-C, I2C or ethernet
• OSFP800 and QSFP-DD800 support
• Access to ALB GUI
• Access to ThunderBert (BERT GUI) for BER Analysis directly within port, TX EQ tuning, CMIS validation

Watch video

LOOPBACK MODULES

Loss Target Loopbacks

MultiLane provides Loss Target Loopbacks with an attenuation of 6 or 9 dB.
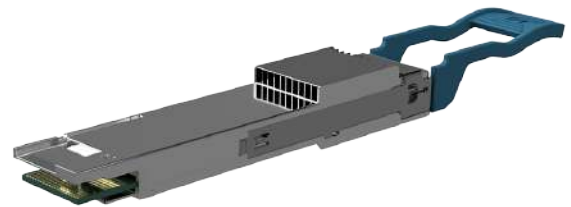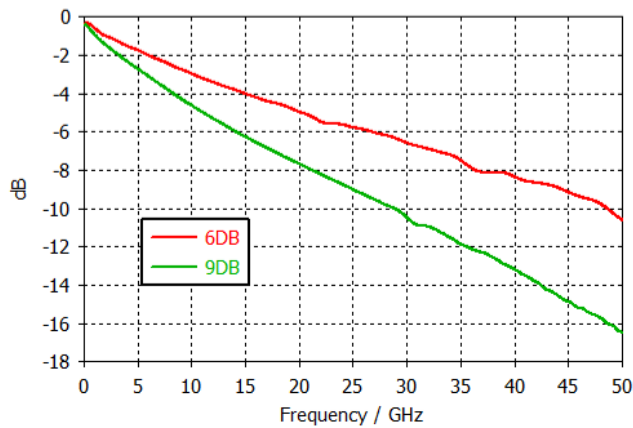
ML4062-LB2a

Smart Loopbacks

As the global leader in Data Center Interconnect test solutions, we have adopted the term 'smart loopbacks' to emphasize the rich and powerful feature set that is being offered in these loopbacks. The concept of smart loopbacks enables testing beyond the regular thermal loading and signal integrity validation, and support a variety of features crucial for firmware validation of new host designs:

• Fully programmable MSA memory pages
• Low speed signal status indicators
• Edge detection of control signals
• Raising alarm signals to any desired state
• LCD monitor to report real-time diagnostics
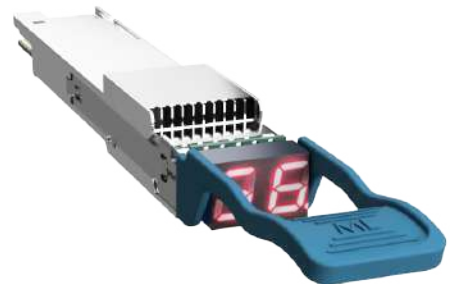
In addition, MultiLane offers full customization of loopbacks to meet your specific testing needs. This includes setting the location and magnitude of thermal loads on the PCB itself, defining specific register content across memory map pages, and even forcing precise insertion loss/return loss impairments along the loopback traces.

CMIS

The new Common Management Interface Specification (CMIS) in 3.0, 4.0, and 5.0 versions is a unified protocol to ensure device interoperability at speeds ranging from 100G to 800G.
MultiLane's ML4066 CMIS analyzers ensure both module and host properly conform to this vital standard, no matter the manufacturer.
OSFP, QSFP-DD, QSFP112 modules (more form factors upon request).

Read the full specifications here.

Watch video
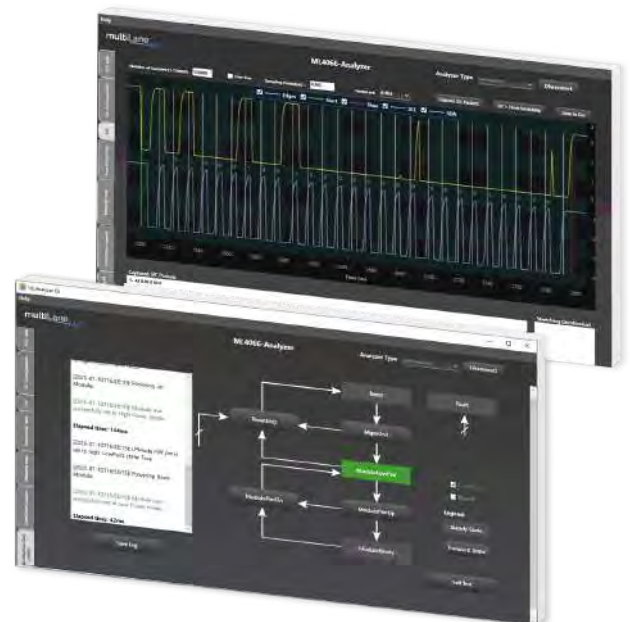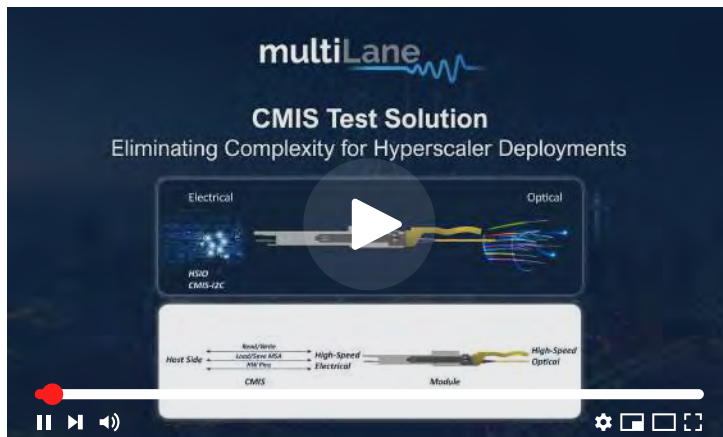
Adapters

An adapter is either a port extender that keeps the same form factor while providing signal access for diagnostics, or a media converter that transforms one MSA compliant form factor into another. The port extender provides access to low-speed control signal, or power supply lines, and can be used in conjunction with an analyzer board for CMIS state machine analysis. This also enables the debug of a host-to-module connection.

Analyzers

MultiLane provides analyzer boards that plug into the port extenders and provide low speed signal access, and enable power supply, I2C, and functional testing. The boards come with Windows GUI and USB interface. The CMIS Analyzer GUI enables dynamic testing in three operational modes:

1- Initiator mode: Analyzer acts as a host for a module DUT
2- Target mode: Analyzer acts as a module for a host DUT
3- Bypass mode: Analyzer monitors exchange between host and module

Read more.

Cables

MultiLane offers a wide variety of cables to provide test instrumentation connectivity.

For more information click here.

MultiLane
Interconnect Solutions
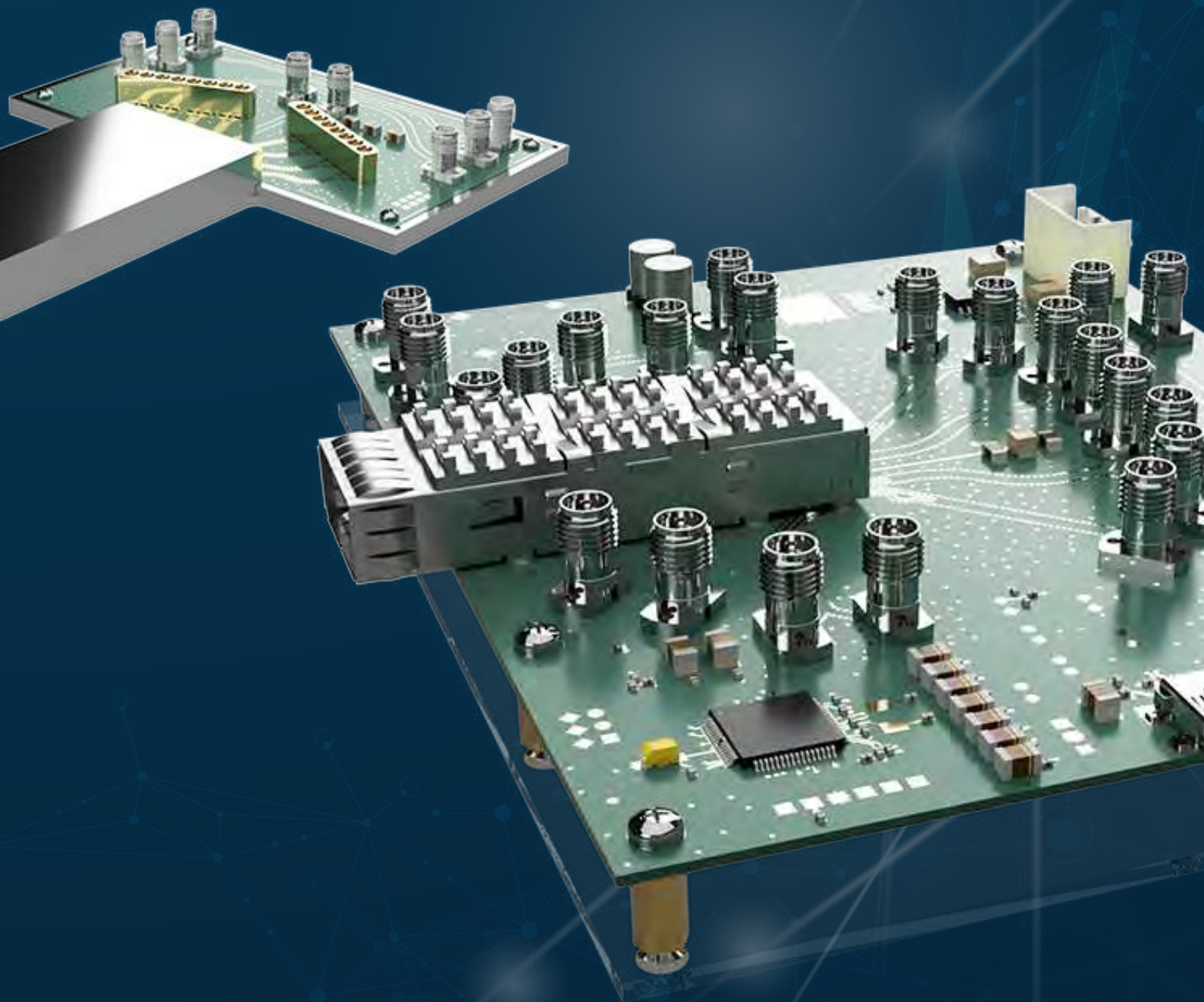
Solutions by MSA

The following tables list all the Interconnect Test Solutions that are available per MSA standard.
In the appendix more information can be found about the respective MSAs.

Channel Emulation Board

	Part Number	Description	Connector Type	Details
Channel Emulation Board	**ML4067-112**	112G Channel Emulation Board	2.4 mm	112G Channel Emulation Board with 2.4 mm connectors. 13 traces, 100 Ohm: 2,4,8,10,12,14,16,18,20,22,24 dB, 93 Ohm: 2,4 dB. A USB drive containing real measured S-parameters for each channel is included.
			1.85 mm	2.4 mm available, ML4067-112-24 1.85 mm available, ML4067-112-18

QSFP-DD

	Part Number	Description	Connector Type	Details
MCB	**ML4062-MCB**	QSFP-DD MCB 8x50G	2.92 mm	8x50G, MSA-compliant, low IL module compliance board with current and temperature monitoring. Windows GUI. Option CDB: Enables Command Data Block messaging, and issuing of commands from the MCB to the Module, as per CMIS 4.0 and 5.0. 2.4 mm (option 24) available
	ML4062-MCB-MXP	QSFP-DD MCB, 8x50 Gb, with MXP connector	MXP	8x50G, dual 2x8 MXP40 connector, MSA-compliant, low IL module compliance board with current and temperature monitoring. Windows GUI. Requires 2 MXP40 cables. Option CDB: Enables Command Data Block messaging.
	ML4062-MCB-MXP-ETH	QSFP-DD MCB, 8x50 Gb, with Ethernet connector	MXP	8x50G, dual 2x8 MXP40 connector, MSA-compliant, low IL module compliance board with current and temperature monitoring, with an additional Ethernet connector. Windows GUI. Requires 2 MXP40 cables. Option CDB: Enables Command Data Block messaging.
	ML4062-MCB-TR	QSFP-DD MCB for Volume and Production Testing, with Ardent TR cable footprint	Ardent TR40	8x50G, dual TR40-16X2 connector, high volume QSFP-DD module production test board. Windows GUI. Requires two (2) TR40-16X2 cables. Option CDB: Enables Command Data Block messaging.
	ML4062-MCB-TR-BC	QSFP-DD MCB for Volume and Production Testing, with Ardent TR cable footprint. Connector cage on bottom side of PCB	Ardent TR40	8x50G, dual TR40-16X2 connector, high volume QSFP-DD module production test board. Connector cage on bottom side of PCB. Windows GUI. Requires two (2) TR40-16X2 cables. Option CDB: Enables Command Data Block messaging.

	Part Number	Description	Attenuation/Spec	Details
MCB	**ML4062-MCB-LPBK**	QSFP-DD MCB, 8x50G, Dual Loopback Board	NA	8x50G, Loopback Board. Internal noise injection option. On-board LEDs display MSA output alarm states. Windows GUI. Option CDB: Enables Command Data Block messaging, and issuing of commands from the MCB to the Module, as per CMIS 4.0 and 5.0.
HCB	**ML4062-HCB (Set of 2)**	QSFP-DD HCB set ML4062-HCB1 & ML4062-HCB2	2.92 mm	4x50G HCB1, Channels 1, 2, 3, 4 Tx & Rx 4x50G HCB2, Channels 5, 6, 7, 8 Tx & Rx 2.4 mm (option 24) available
	ML4062-BO	QSFP-DD Break-Out Board	MXP	QSFP-DD Break-Out Board. For MSA compliant Insertion loss, use ML4062-HCB. Requires 2 MXP40 cables.
Auxiliary Parts	**ML4062-CNT-Gen2**	QSFP-DD Controller Board for ML4062-TL2a		Host board to supply power to the QSFP-DD Thermal loads (ML4062-TL2a), and an I2C master that allows to read/write the registers. Windows GUI for temperature and power monitoring.
	ML4066-QDD	QSFP-DD Low Speed Signal Analyzer		QSFP-DD to QSFP-DD Diagnostic adapter
	ML4066-ANA-QDD	ML4066-QDD Analyzer Daughter Card + CMIS Analysis and Compliance software		QSFP-DD Analyzer module that plugs on the ML4066-QDD, with USB interface and windows GUI v2.0, which supports timing measurements and transactional data logging across multiple operational modes with a refreshed look and feel.

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4062-SLB-V#**	QSFP-DD Loopback, Passive, MSA Compliant	14 W	0 dB	8x50G, programmable power dissipation up to 14 W. MSA compliant. Industrial temperature range -40 to 85 °C available. Part number ML4062-SLB-V#-IND, Option IND, add 10%
	ML3062-SLB-V#	QSFP-DD Loopback, Passive, MSA Compliant, Fixed power	14 W	0 dB	8x50G, fixed power dissipation of 14 W. MSA compliant. Industrial temperature range -40 to 85 °C available. Part number ML3062-SLB-56-14W-IND, Option IND, add 10%
	ML4062-TL1	QSFP-DD Thermal Load	16 W	0 dB	Programmable power dissipation up to 16 W. Thermal Load with six heaters. No loop back function. Suggest ML4062-CNT-Gen2 with this thermal load module.

Loopbacks	ML4062-TL2a	QSFP-DD Type 2a Loopback for QSFP-DD ZR/ZR+ with LED ML4062-TL2a-LED	23.4 W	0 dB	QSFP-DD ZR/ZR+ emulator with programmable power dissipation up to 23.4 W. Type 2a extended shell Loopback + Thermal Load with LED status indicator. Part number ML4062-TL2a-LED
		QSFP-DD Type 2a Loopback for QSFP-DD ZR/ZR+ with LCD ML4062-TL2a-LCD.			Type 2a extended shell Loopback + Thermal Load with dual 7 segment display status. Part number ML4062-TL2a-LCD indicator.
		QSFP-DD Type 2a Loopback for QSFP-DD ZR/ZR+ with LED ML4062-TL2a-LED.			Type 2a extended shell Loopback + Thermal Load with external power connector. Part number ML4062-TL2a-CON

QSFP-DD800

	Part Number	Description	Connector Type	Details
MCB	ML4062-MCB-112	QSFP-DD800 MCB	2.4 mm ML4062-MCB-112-24 1.85 mm ML4062-MCB-112-18	8x112G, current-sense monitor, Windows GUI and API. Compliant to OIF-CEI-112G-VSR-PAM4 and OIF-CEI-56G-VSR-NRZ specification. Option CDB: Enables Command Data Block messaging, and issuing of commands from the MCB to the Module, as per CMIS 4.0 and 5.0. Available with 2.4 mm or 1.85 mm connectors
MCB	ML4062-MCB-112-MXPM70	QSFP-DD800 MCB	MXPM70	8x112G, MXPM70 connectors, current-sense monitor, Windows GUI and API. Compliant to OIF-CEI-112G-VSR-PAM4 and OIF-CEI-56G-VSR-NRZ specification. Option CDB: Enables Command Data Block messaging.
HCB	ML4062-HCB-112 (set of 2)	QSFP-DD800 HCB set ML4062-HCB1/2-112	2.4 mm ML4062-HCB-112-24 1.85 mm ML4062-HCB-112-18	4x112G HCB1: CH1-4, HCB2: CH5-8. Compliant to OIF-CEI-112G-VSR-PAM4 and OIF-CEI-56G-VSR-NRZ specification Available with 2.4 mm or 1.85 mm connectors

HCB	**ML4062-HCB-112-MXPM70**	QSFP-DD800 HCB	MXPM70	8x112 Gbps, MXPM70 connectors 8 channels. Compliant to OIF-CEI-112G-VSR-PAM4 and OIF-CEI-56G-VSR-NRZ specification
Auxiliary Parts	**ML4062-CNT-Gen2-V2**	QSFP-DD Low Speed Signal Analyzer		Host board to supply power to the QSFP-DD800 30 W Thermal loads (ML4062-LB2a/b-112), and an I2C master that allows to read/write the registers. Windows GUI for temperature and power monitoring.

	Part Number	Description	Connector Type	Details	Part Number
Loopbacks	**ML4062-LB-112**	QSFP-DD800 Loopback type 1	16 W	NA	8x112G, programmable power dissipation up to 16 W. I2C terminated by microcontroller. Implements MSA memory map with programmable new pages. Industrial temperature range -40 to 85 °C available. Part number ML4062-LB-112-IND
	ML4062-LB2a-112	QSFP-DD800 Loopback type 2A with LED ML4062-LB2a-112-LED	30 W	NA	8x112G, programmable power dissipation up to 30 W. Option with LED status indicator. Part number ML4062-LB2a-112-LED Option with dual 7 segment LCD display status indicator. Part number ML4062-LB2a-112-LCD Option with external power connector. Part number ML4062-LB2a-112-CON
		QSFP-DD800 Loopback type 2A with LCD ML4062-LB2a-112-LCD			
		QSFP-DD800 Loopback type 2A with connector ML4062-LB2a-112-CON			
	ML4062-LB2a-6dB	QSFP-DD800 Loopback, Passive, MSA Compliant, Loss-Target	30 W	6 dB	8x112G, programmable power dissipation up to 30 W, Loss Target Loopback with 6 dB attenuation, with LED status indicator.
	ML4062-LB2a-9dB	QSFP-DD800 Loopback, Passive, MSA Compliant, Loss-Target	30 W	9 dB	8x112G, programmable power dissipation up to 30 W, Loss Target Loopback with 9 dB attenuation, with LED status indicator.

	Part Number	Description	Connector Type	Details	Part Number
Loopbacks	ML4062-LB2b-112	QSFP-DD800 Loopback type 2B with connector ML4062-LB2b-112-CON	30 W	NA	8x112G, programmable power dissipation up to 30 W. I2C terminated by microcontroller. Implements MSA memory map with programmable new pages. Option with LED status indicator. Part number ML4062 -LB2b-112-LED Option with dual 7 segment LCD display status indicator. Part number ML4062-LB2b-112-LCD Option with external power connector. Part number ML4062-LB2b-112-CON
		QSFP-DD800 Loopback type 2B with LED ML4062 -LB2b-112-LED			
		QSFP-DD800 Loopback type 2B with LCD ML4062-LB2b-112-LCD			
	ML4062-ALB1-112	QSFP-DD800 Loopback type 2A, Passive, MSA Compliant ML4062-ALB1-2A-112	19 W	NA	8x112G, programmable power dissipation up to 19 W. I2C interface. Industrial temperature range -40 to 85 °C available. Part number ML4062-ALB1-112-IND. Option type 2A. Part number ML4062-ALB1-2A-112. Option type 2B. Part number ML4062-ALB1-2B-112.
		QSFP-DD800 Loopback type 2B, Passive, MSA Compliant ML4062-ALB1-2B-112			

QSFP28

	Part Number	Description	Connector Type	Details
MCB	ML4041-K-RevG/RevD+	QSFP28 MCB, 4x28G, connector on top RevG	QSFP28	4x28G Module Compliance Board. Matched differential trace length, low insertion loss, current-sense monitor, Windows GUI and API. USB controlled. Standard ML4041-K is RevG. ML4041-K RevD+ has QSFP28 connector on bottom of PCB for TEC testing.
		QSFP28 MCB, 4x28G, connector on bottom of PCB		
HCB	ML4020-N-MSMPM ML4020-N-MXP	QSFP28 Narrow HCB, 4x28G	MSMPM or MXP	4x28G, narrow Host Compliance Board, uses 2 high-density Huber+Suhner MXP or MSMPM connectors. Order as ML4020-N-MSMPM or ML4020-N-MXP. MultiLane sells the two 1x8 MSMPM cables.

	Part Number	Description	Connector Type	Details
HCB	ML4020-MSMPM ML4020-MXP	QSFP28 HCB, 4x28G	MSMPM or MXP	4x28G, Host Compliance Board, uses 2 high-density Huber+Suhner MXP or MSMPM connectors. All TX and RX channels have matching trace length. Order as ML4020-MSMPM or ML4020-MXP. MultiLane sells the two 1x8 MSMPM cables.
Auxiliary Parts	ML4066-QSFP	QSFP28 Low Speed Signal Analyzer		QSFP to QSFP Diagnostic adapter
	ML4066-ANA-QSFP	ML4066-QSFP Analyzer Daughter Card + CMIS Analysis and Compliance software		QSFP Analyzer module that plugs on the ML4066-QSFP, with USB interface and windows GUI v2.0, which supports timing measurements and transactional data logging across multiple operational modes with a refreshed look and feel.
	ML4086	CFP2 to QSFP28 Adapter, Passive		CFP2 to QSFP28, MSA-compliant passive adapter

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	ML4002-28	QSFP28 Loopback Module	3.5 W	0 dB	4x28G. Programmable power dissipation up to 3.5 W. Dual LED indicator. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-28-IND
	ML4002-28-C5	QSFP28 Loopback Module	5 W	0 dB	4x28G. Programmable power dissipation up to 5 W. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-28-C5-IND.
	ML4002-28-C5-V2	QSFP28 Loopback Module	5 W	0 dB	4x28G. Programmable power dissipation up to 5 W. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-28-C5-V2-IND. CMIS 4.0 compliant.
	ML4002-28-8W	QSFP28 Loopback Module	8 W	0 dB	4x28G. Programmable power dissipation up to 8 W. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-28-8W-IND.
	ML4002-28-13W	QSFP28 Loopback Module	13 W	0 dB	4x28G. Programmable power dissipation up to 13 W. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-28-13W-IND.
	ML4002-28-3dB	QSFP28 Loopback Module	5.5 W	3 dB	4x28G. Programmable power dissipation up to 5.5 W with 3 dB attenuation. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-28-3dB-IND.
	ML4012-28	QSFP28 Loopback Module, Fixed Power	4.5 W	0 dB	4x28G. Fixed power dissipation of 4.5 W. Dual LED indicator. Industrial temperature range -40 to 85 °C available upon request. Part number ML4012-28-IND.

QSFP56

	Part Number	Description	Connector Type	Details
MCB	ML4041-K-56	QSFP56 MCB, 4x56G	2.92 mm	QSFP56, 4x56G Module Compliance board, MSA Compliant. Matched differential trace length, low insertion loss, current-sense monitor. Supports 4x56G interfaces. USB controlled. User Friendly GUI, API.
HCB	ML4020-K-56	QSFP56 HCB, 4x56G	2.92 mm	QSFP56, 4x56G Host Compliance Board, MSA Compliant.

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	ML4002-56-0dB	QSFP56 Loopback Module	5 W	0 dB	QSFP56, 4x56G Loopback module. Programmable power dissipation up to 5 W. Dual LED indicator. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-56-0dB-IND
	ML4002-56-5dB	QSFP56 Loopback Module	5 W	5 dB	QSFP56, 4x56G Loopback module. Programmable power dissipation up to 5 W. 5 dB attenuation. Dual LED indicator. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-56-5dB-IND
	ML4002-56-15W-0dB	QSFP56 Loopback Module	15 W	0 dB	QSFP56, 4x56G Loopback module. Programmable power dissipation up to 15 W. 0 dB attenuation. Dual LED indicator. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-56-15W-0dB -IND

QSFP 400G

	Part Number	Description	Connector Type	Details
MCB	ML4041-112	QSFP 112G MCB	2.4 mm (Option 18, 1.85 mm connector)	QSFP 4x112G Module Compliance Board, compliant to OIF-CEI-112G-VSR-PAM4 and OIF-CEI-56G-VSR-NRZ specification. 1.85 mm (option 18) available
HCB	ML4020-112	QSFP 112G HCB	2.4 mm (Option 18, 1.85 mm connector)	QSFP 4x112G Host Compliance Board, compliant to OIF-CEI-112G-VSR-PAM4 and OIF-CEI-56G-VSR-NRZ specification. 1.85 mm (option 18) available

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	ML4002-112	QSFP 112G Loopback	7 W	NA	QSFP112, 4x112G Loopback module. Dual LED indicator. Temperature range from 0° to 80 °C. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-112-IND.

OSFP

	Part Number	Description	Connector Type	Details
MCB	ML4064-MCB	OSFP 400G MCB	2.92 mm	OSFP 8x50G Module Compliance Board. Low insertion loss, current sense monitor. Windows GUI and API. 2.4 mm (option 24) available
MCB	ML4064-MCB-TR	OSFP 400G MCB, with Ardent connector footprint	TR40-16X2	OSFP 8x50G, dual TR40-16X2 connector, high volume module production test board. Low insertion loss, current-sense monitor. Windows GUI and API. Requires two TR40-16X2 cables.
HCB	ML4064-HCB	OSFP 400G HCB	2.92 mm	OSFP 8x50G Host Compliance Board. 2.4 mm (option 24) available
Auxiliary Parts	ML4066-OSFP	OSFP Low Speed Signal Analyzer		OSFP to OSFP Diagnostic adapter
Auxiliary Parts	ML4066-ANA-OSFP	ML4066-OSFP Analyzer Daughter Card + CMIS Analysis and Compliance software		OSFP Analyzer module that plugs on the ML4066-OSFP, with USB interface and windows GUI v2.0, which supports timing measurements and transactional data logging across multiple operational modes with a refreshed look and feel.

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	ML4064-LB	OSFP Loopback Module	18 W	NA	OSFP 8x50G Loopback module. Programmable power dissipation up to 18 W. Industrial temperature range -40 to 85 °C available upon request. Part number ML4064-LB-IND.
Loopbacks	ML4064-LB-20W	OSFP Loopback Module	20 W	NA	OSFP 8x50G Loopback module. Programmable power dissipation up to 20 W. Industrial temperature range -40 to 85 °C available upon request. Part number ML4064-LB-20W-IND.
Loopbacks	ML4064-LB-30W	OSFP Loopback Module	30 W	NA	OSFP 8x50G Loopback module. Programmable power dissipation up to 30 W. Industrial temperature range -40 to 85 °C available upon request. Part number ML4064-LB-30W-IND.

OSFP 800G

	Part Number	Description	Connector Type	Details
MCB	**ML4064-MCB-112**	OSFP 800G MCB	2.4 mm ML4062-MCB-112-24	800G OSFP MCB, 8x112 Gbps, current-sense monitor, Windows GUI and API. Compliant to OIF-CEI-112G-VSR-PAM4 and OIF-CEI-56G-VSR-NRZ specification. Available with 2.4 mm or 1.85 mm connectors
			1.85 mm ML4062-MCB-112-18	
HCB	**ML4064-HCB-112**	OSFP 800G HCB	2.4 mm ML4064-HCB-112-24	800G OSFP HCB, 8x112 Gbps. Compliant to OIF-CEI-112G-VSR-PAM4 and OIF-CEI-56G-VSR-NRZ specification. Available with 2.4 mm or 1.85 mm connectors
			1.85 mm ML4064-HCB-112-18	

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4064-LB-112**	OSFP 800 Loopback	17.5 W	NA	8x112G OSFP800 Loopback module, programmable power dissipation up to 17.5 W. I2C terminated by microcontroller, MSA memory map with programmable new pages. Industrial temperature range -40 to 85 °C available upon request. Part number ML4064-112-17.5W-IND.
	ML4064-LB-112-24W	OSFP 800 Loopback	24 W	NA	8x112G OSFP800 Loopback module, programmable power dissipation up to 24 W. I2C terminated by microcontroller, MSA memory map with programmable new pages. Industrial temperature range -40 to 85 °C available upon request. Part number ML4064-LB-112-24W-IND.
	ML4064-LB-112-30W	OSFP 800 Loopback	30 W	NA	8x112G OSFP800 Loopback module, programmable power dissipation up to 30 W. I2C terminated by microcontroller, MSA memory map with programmable new pages. Industrial temperature range -40 to 85 °C available upon request. Part number ML4064-LB-112-30W-IND.

SFP28/56

	Part Number	Description	Connector Type	Details
MCB	**ML4024**	SFP28/56 MCB	2.92 mm	SFP28/56, 1x28/56G Module Compliance board. On-board buttons/jumpers for MSA input control signals. Current sense, limit monitor with low insertion loss, Windows GUI and API

HCB	**ML4023**	SFP28/56 HCB	2.92 mm	SFP28/56, 1x28/56G Host Compliance Board.
	ML4023-N	SFP28/56 Narrow HCB	2.92 mm	SFP28/56, 1x28/56G Narrow Host Compliance Board
Auxiliary Parts	**ML4066-SFP**	ML4066-SFP Low Speed Signal Analyzer		SFP to SFP Diagnostic adapter
	ML4066-ANA-SFP	ML4066-SFP Analyzer Daughter Card + CMIS Analysis and Compliance software		SFP Analyzer module that plugs on the ML4066-SFP, with USB interface and windows GUI v2.0, which supports timing measurements and transactional data logging across multiple operational modes with a refreshed look and feel.

SFP28

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4026-28-0dB**	SFP28 Loopback Module	2 W	0 dB	SFP28, 1x28G Passive Loopback. SFF-8472 Compliant EEPROM. Programmable power dissipation up to 2 W, spread over 6 spots. Industrial temperature range -40 to 85 °C available. Part number ML4026-28-0dB-IND.
	ML4026-28-3.5W	SFP28 Loopback Module	3.5 W	0 dB	SFP28, 1x28G Passive Loopback. SFF-8472 Compliant EEPROM. Programmable power dissipation up to 3.5 W, spread over 6 spots. Industrial temperature range -40 to 85 °C available. Part number ML4026-28-3.5W-IND.
	ML4026-28-5dB	SFP28 Loopback Module, 5 dB Attenuation	2 W	5 dB	SFP28, 1x28G Passive Loopback. SFF-8472 Compliant EEPROM. Programmable power dissipation up to 2 W, spread over 6 spots. 5 dB attenuation. Industrial temperature range -40 to 85 °C available. Part number ML4026-28-5dB-IND
	ML4026-28-5dB-3.5W	SFP28 Loopback Module, 5 dB Attenuation	3.5 W	5 dB	SFP28, 1x28G Passive Loopback. SFF-8472 Compliant EEPROM. Programmable power dissipation up to 3.5 W, spread over 6 spots. 5 dB attenuation. Industrial temperature range -40 to 85 °C available. Part number ML4026-28-5dB-3.5W-IND

SFP56

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4026-56-0dB**	SFP56 Loopback Module	2 W	0 dB	SFP56, 1x56G Passive Loopback. SFF-8472 Compliant EEPROM. Programmable power dissipation up to 2 W, spread over 6 spots. Industrial temperature range -40 to 85 °C available. Part number ML4026-56-0dB-IND
	ML4026-56-5dB	SFP56 Loopback Module	2 W	5 dB	SFP56, 1x56G Passive Loopback. SFF-8472 Compliant EEPROM. Programmable power dissipation up to 2 W, spread over 6 spots. 5 dB attenuation. Industrial temperature range -40 to 85 °C available. Part number ML4026-56-5dB-IND
	ML4026-56-3.5W-0dB	SFP56 Loopback Module	3.5 W	0 dB	SFP56, 1x56G Passive Loopback. SFF-8472 Compliant EEPROM. Programmable power dissipation up to 3.5 W, spread over 6 spots. Industrial temperature range -40 to 85°C available. Part number ML4026-56-3.5W-0dB-IND

DSFP

	Part Number	Description	Connector Type	Details
MCB	**ML4019-MCB**	DSFP Module Compliance Board	2.92 mm	DSFP 2x50G Module Compliance Board. MSA-compliant, low insertion loss module compliance board with current and temperature monitoring. Windows GUI and API.
HCB	**ML4019-HCB**	DSFP Host Compliance Board	2.92 mm	DSFP 2x50G Host Compliance Board. MSA-compliant, low insertion loss.

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4019-LB-56-3.5W**	DSFP Loopback Module	3.5 W	0 dB	DSFP, 2x56G Loopback module. Programmable power dissipation up to 3.5W. Temperature range from 0° to 80 °C. Industrial temperature range -40 to 85 °C available upon request. Part number ML4019-LB-56-3.5W-IND.

SFP-DD

	Part Number	Description	Connector Type	Details
MCB	**ML4022-MCB**	SFP-DD Module Compliance Board	2.92 mm	SFP-DD 2x50G Module Compliance Board. MSA-compliant, low insertion loss module compliance board with current and temperature monitoring. Windows GUI and API.
HCB	**ML4022-HCB**	SFP-DD Host Compliance Board	2.92 mm	SFP-DD 2x50G Host Compliance Board. MSA-compliant, low insertion loss.

SFP-DD continued

	Part Number	Description		Details
Auxiliary Parts	**ML4066-SFPDD**	Low Speed Signal Analyzer		SFP-DD to SFP-DD Diagnostic adapter
	ML4066-ANA-SFPDD	Analyzer Daughter Card + CMIS Analysis and Compliance software		SFP-DD Analyzer module that plugs on the ML4066-SFPDD, with USB interface and windows GUI v2.0, which supports timing measurements and transactional data logging across multiple operational modes with a refreshed look and feel.

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4022-LB-V#**	SFP-DD Passive Loopback Module SFP-DD Passive Loopback Module	4.5 W ML4022-LB-V# / 5 W ML4022-LB-5W		SFP-DD 2x50G Loopback module, programmable power dissipation up to 4.5 W. Industrial temperature range -40 to 85 °C available. Part number ML4022-LB-IND. 5W version available, part number ML4022-LB-5W

QSFP+

	Part Number	Description	Connector Type	Details
MCB	**ML4021**	QSFP+ MCB	SMA	QSFP+, 4x14G Module Compliance board. Current/ Power supply monitoring. Low insertion loss, current-sense monitor. User Friendly GUI, API. USB controlled.

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4002**	QSFP+ Loopback Module	3.5 W	NA	QSFP+, 4x14G Loopback module. Programmable power dissipation up to 3.5 W. Dual LED indicator. Industrial temperature range -40 to 85 °C available upon request. Part number ML4002-IND.

CFP2-ACO

	Part Number	Description	Connector Type	Details
MCB	**ML4027-ACO**	CFP2-ACO MCB	2.92 mm	CFP2-ACO 4x32G MSA compliant Module Compliance board. High performance signal integrity traces with current sense.
	ML4027-ACO-2X	CFP2-ACO MCB, 2x trace length	2.92 mm	CFP2-ACO 4x32G MSA compliant Module Compliance board with trace length 3.785 inch (2X trace length of ML4027-ACO, can be used for In-situ De-Embedding). Current sense.
HCB	**ML4028-ACO-MSMPM ML4028-ACO-MXP**	CFP2-ACO HCB	MXP or MSMPM	CFP2-ACO 4x32G MSA compliant Host Compliance board. Uses 2 Huber+Suhner MXP or MSMPM connectors. Order as ML4028-ACO-MSMPM or ML4028-ACO-MXP. MultiLane sells the two 1x8 MSMPM cables.

HCB	**ML2028-ACO-MSMPM** **ML2028-ACO-MXP**	CFP2-ACO Narrow HCB	MXP or MSMPM	CFP2-ACO 4x32G MSA compliant narrow Host Compliance board. Uses 2 Huber+Suhner MXP or MSMPM connectors. Order as ML2028-ACO-MSMPM or ML2028-ACO-MXP. MultiLane can sell the two 1x8 MSMPM cables.
	ML2028K-ACO	CFP2-ACO HCB	2.92 mm	CFP2-ACO 4x32G MSA compliant Host Compliance board, with trace length of 5.618 inch
	ML2028K-ACO-2X	CFP2-ACO HCB, 2x Trace Length	2.92 mm	CFP2-ACO 4x32G MSA compliant Host Compliance board, with trace length of 11.85 inch (2X trace length of ML2028K-ACO, can be used for In-situ De-Embedding).
Auxiliary Part	**ML4086**	CFP2 to QSFP28 Adapter, Passive		CFP2 to QSFP28, MSA-compliant passive adapter

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4030-ACO**	CFP2-ACO Loopback Module	12 W	NA	4x32G CFP2-ACO Passive Loopback Module, with programmable heat dissipation up to 12 W. MSA compliant MDIO. Industrial temperature range -40 to 85 °C available upon request. Part number ML4030-ACO-IND.
	ML4030-ACO-Cal1	CFP2-ACO Loopback, 1.2 ps matched Tx Rx	12 W	NA	ML4030-ACO for self-calibration, used in conjunction with cross laned Loopback modules. Programmable heat dissipation up to 12 W. TX and RX lanes matched to 1.2 ps. Industrial temperature range -40 to 85 °C available upon request. Part number ML4030-ACO-Cal1-IND.
	ML4030-ACO-Cal2	CFP2-ACO Loopback, Crossed YQ & YI, XQ & XI	12 W	NA	ML4030-ACO-Cal1 with crossed lanes YQ and YI, as well as XQ and XI. Industrial temperature range -40 to 85 °C available upon request. Part number ML4030-ACO-Cal2-IND.
	ML4030-ACO-Cal3	CFP2-ACO Loopback, Crossed YI & XQ	12 W	NA	ML4030-ACO-Cal1 with crossed lanes YI and XQ. Industrial temperature range -40 to 85 °C available upon request. Part number ML4030-ACO-Cal3-IND.
	ML4030-ACO-Cal4	CFP2-ACO Loopback, Crossed YQ & XQ	12 W	NA	ML4030-ACO-Cal1 with crossed lanes YQ and XQ. Industrial temperature range -40 to 85 °C available upon request. Part number ML4030-ACO-Cal4-IND.
	ML4030-LR4	CFP2 Loopback Module	12 W	NA	4x25G Passive Loopback module, matched TX and RX traces. Programmable power dissipation up to 12 W. Industrial temperature range -40 to 85 °C available upon request. Part number ML4030-LR4-IND.
	ML4030-LR4-15W	CFP2 Loopback Module	15 W	NA	4x25G Passive Loopback module, matched TX and RX traces. Programmable power dissipation up to 15 W. Industrial temperature range -40 to 85 °C available upon request. Part number ML4030-LR4-15W-IND.

CFP2-DCO

	Part Number	Description	Connector Type	Details
MCB	**ML4027-DCO**	CFP2 DCO MCB	2.92 mm	8x32G CFP2-DCO MSA compliant Module Compliance Board. High performance signal integrity traces, current sense, Windows GUI and API.
	ML4027-DCO-64	CFP2 DCO MCB w/64G Connector	2.92 mm	8x64G CFP2-DCO MSA compliant Module Compliance Board with 64G high speed host connector. High performance signal integrity traces, current sense, Windows GUI and API.
HCB	**ML4027-DCO-HLB-X**	CFP2-DCO Host side Loopback	NA	CFP2-DCO Host side Loopback Module, power-up using single supply 3.3 V and power-up using dual supply (5 V AND 3.3 V) available. MDIO interface, FTDI Chip accessible through USB connector, access to Control/Alarm signals provided through pin headers, Current, Voltage, Temperature Sense. Does not provide access to the high-speed Tx/Rx Channels, but acts as a host side Loopback connecting Tx and Rx.
	ML4028-DCO-MSMPM ML4028-DCO-MXP	CFP2 DCO HCB	MXP or MSMPM	8x32G CFP2-DCO Host Compliance Board. High Performance signal integrity traces. Uses 4 Huber+Suhner MXP or MSMPM connectors. Order as ML4028-DCO-MSMPM or ML4028-DCO-MXP. MultiLane sells the four 1x8 MSMPM cables.
	ML4028-DCO-64-MSMPM ML4028-DCO-64-MXP	CFP2 DCO HCB w/ 64Gb	MXP or MSMPM	8x64G CFP2-DCO Host Compliance Board with 64G high speed connector. High Performance signal integrity traces. Uses 4 Huber+Suhner MXP or MSMPM connectors. Order as ML4028-DCO-64-MSMPM or ML4028-DCO-64-MXP. MultiLane sells the four 1x8 MSMPM cables.
Auxiliary Part	**ML4086**	CFP2 to QSFP28 Adapter, Passive		CFP2 to QSFP28, MSA-compliant passive adapter

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4030-DCO**	CFP2 DCO Passive Loopback	24 W	NA	8x32G CFP2-DCO Passive Loopback Module, programmable heat dissipation up to 24 W. MSA compliant MDIO.
	ML4030-DCO-32W	CFP2 DCO Passive Loopback	32 W	NA	8x32G CFP2-DCO Passive Loopback Module, programmable heat dissipation up to 32 W. MSA compliant MDIO.
	ML4030-DCO-36W	CFP2 DCO Passive Loopback	36 W	NA	8x32G CFP2-DCO Passive Loopback Module, programmable heat dissipation up to 36 W. MSA compliant MDIO.

CFP2

	Part Number	Description	Connector Type	Details
MCB	ML4042	CFP2 MCB, 10x10G	SMA	10x10G CFP2 MSA compliant Module Compliance Board. User friendly GUI for MDIO control and loading custom MSA Memory Maps, and API. USB controlled.
HCB	ML4028-MSMPM ML4028-MXP	CFP2 HCB, 10x10G	MSMPM or MXP	10x10G CFP2 MSA compliant Host Compliance Board. High Performance signal integrity traces. MDIO Access via Pin headers. Order as ML4028-MSMPM or ML4028-MXP. MultiLane sells the two 1x8 MSMPM cables

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	ML4030-SR10	CFP2 Loopback Module, Passive, 10x10G	12 W	NA	CFP2 Passive Loopback Module. Supports 10x10G. CFP2 MSA Form Factor. MDIO interface compliant with IEEE 802.3 Clause 45. Programmable power dissipation up to 12 W, insertion counter, custom memory maps.
	ML4029	CFP2 Retimed Loop Back Module	NA	NA	CFP2 Retimed Loopback Module. PRBS generator & detector supports all pattern lengths, temperature monitor, customized memory maps, input & DFE adaptation to optimize eye opening, insertion counter, wide range CRU. CFP2 MSA Form Factor. Retimed Loop back mode at 100GbE 25G and OTU4 28G rates.
	ML4043-SR10	CFP2 Retimed Loop Back Module	NA	NA	CFP2 Retimed Loopback Module. Retimed Loop back mode at 100GbE 10x10.3125G rates. MDIO MSA compliant interface. Input and DFE adaptation to optimize eye opening, customized memory maps, insertion counter, wide range CRU.

CFP

	Part Number	Description	Connector Type	Details
MCB	ML4018	CFP MCB		10x10G CFP Module Compliance Board. High performance signal integrity traces, current sense/limit monitor with low insertion loss. User friendly GUI for MDIO control. MSA compliant. Digital Diagnostic and Monitoring Interface, API.
HCB	ML4014	CFP HCB	Coax cables	10x10G CFP Host Compliance Board. Low insertion loss.

CFP continued

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4013**	CFP Loopback Module, 10x10G,	24 W	NA	10x10G Passive CFP loopback module. High performance signal integrity traces. Programmable power dissipation up to 24 W.
	ML4013-HP	CFP Loopback Module, 10x10G, Passive	40 W	NA	10x10G Passive CFP loopback module. High performance signal integrity traces. Programmable power dissipation up to 40 W, temperature sensing, customized memory maps

CFP4

	Part Number	Description	Connector Type	Details
MCB	**ML4049**	CFP4 MCB	2.92 mm	4x28G CFP4 MSA compliant Module Compliance Board. High Performance signal integrity traces. Windows GUI and API. MSA compliant MDIO.
HCB	**ML4052-MSMPM ML4052-MXP**	CFP4 HCB	MSMPM or MXP	4x28G CFP4 MSA compliant Host Compliance Board. High Performance signal integrity traces. Reference clock accessible via SMA connector. Order as ML4052-MSMPM or ML4052-MXP. MultiLane sells the two 1x8 MSMPM cables.

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	**ML4050**	CFP4 Loopback Module, Passive	6.5 W		4x28G CFP4 Passive Loopback Module. Customized memory map, MSA compliant, programmable power dissipation up to 6.5 W. MDIO interface compliant with IEEE 802.3 Clause 45. Industrial temperature range -40 to 85 °C available upon request. Part number ML4050-IND.
	ML4050-7.5W	CFP4 Loopback Module, Passive	7.5 W		4x28G CFP4 Passive Loopback Module. Customized memory map, MSA compliant, programmable power dissipation up to 7.5 W. MDIO interface compliant with IEEE 802.3 Clause 45. Industrial temperature range -40 to 85 °C available upon request. Part number ML4050-7.5W-IND.
	ML4050-9.5W	CFP4 Loopback Module, Passive	9.5 W		4x28G CFP4 Passive Loopback Module. Customized memory map, MSA compliant, programmable power dissipation up to 9.5 W. MDIO interface compliant with IEEE 802.3 Clause 45. Industrial temperature range -40 to 85 °C available upon request. Part number ML4050-9.5W-IND.

CFP8

	Part Number	Description	Connector Type	Details
MCB	ML4057	CFP8 MCB	MXP	CFP8 Passive Module Compliance Board. Supports 16x25G, 8x50G PAM and CFP8-ACO. MSA compliant MDIO. Uses 2x8 40 GHz Huber & Suhner _2x8A_81_MXP-S50-0-3-111_N Connectors. Low insertion loss, Windows GUI and API.
HCB	ML4058-MSMPM ML4058-MXP	CFP8 HCB (Break-Out) Module	MSMPM or MXP	CFP8 Host Compliance Board. OIF compliant. Supports 16x25G, 8x50G PAM and CFP8-ACO. Extends MDIO and control interface to SMA Connector. Order as ML4058-MSMPM or ML4058-MXP. MultiLane sells the eight 1x8 MSMPM cables.
	ML4058-N-MSMPM ML4058-N-MXP	CFP8 Narrow HCB	MSMPM or MXP	CFP8 narrow Host Compliance Board. OIF compliant HCB. Supports 16x25G, 8x50G PAM and CFP8-ACO. Extends MDIO and control interface to SMA Connector. Order as ML4058-N-MSMPM or ML4058-N-MXP. MultiLane sells the eight 1x8 MSMPM cables.

	Part Number	Description	Power Consumption	Attenuation	Details
Loopbacks	ML4059	CFP8 Loopback Module, Passive	21 W	NA	CFP8 Passive Loopback Module. Supports 16x25G, 8x50G PAM and CFP8-ACO. Superior SI performance, programmable power dissipation up to 21 W. Supports 28G Analog Coherent. Industrial temperature range -40 to 85 °C available upon request. Part number ML4059-IND.

APPENDIX: MSA REFERENCES

QSFP-DD

QSFP-DD

QSFP-DD is a new module and cage/connector system similar to current QSFP, but with an additional row of contacts providing for an eight lane electrical interface. It is being developed by the QSFP-DD MSA as a key part of the industry's effort to enable high-speed solutions. By quadrupling aggregate switch bandwidth while maintaining port density, QSFP-DD will support continuing growth in network bandwidth demand and datacenter traffic. Systems designed with QSFP-DD modules will be backwards compatible, allowing them to support existing QSFP modules and provide flexibility for end users and system designers.

For more information click here.

QSFP-DD800

QSFP-DD800

The QSFP-DD800 MSA group was formed to advance the development of high-speed, double density QSFP modules which support 800 Gbps connectivity. As signal integrity and thermal performance remain imperative, the transceiver pads have been optimized to improve signal integrity for 100 Gbps performance per lane without affecting backwards compatibility. Looking ahead, QSFP-DD800 promoters will continue to work on new connector/cage variants, including 2×1 SMT versions that operate at 100 Gbps per lane.

For more information click here.

APPENDIX: MSA REFERENCES

OSFP

Established in November 2016, the OSFP MSA group has developed a high-performance pluggable optics module form factor that is capable of supporting the full range of 400G optics technologies for datacenter and metro applications. In addition, the OSFP is designed to support the next generation of 800G optics modules that will use eight lanes of 100 Gbps, and offers backwards compatibility with 100G QSFP via a simple adaptor.

For more information click here.

SFP-DD

Members of the MSA will develop operating parameters, signal transmission speed goals, and protocols for the SFP-DD interface, which expands on the SFP pluggable form factor, a widely adopted electrical interface used in data centers and other networking platforms. The new SFP-DD electrical interfaces will be designed to support 2 lanes that operate up to 25 Gbps NRZ or 56 Gbps PAM4 per lane, providing solutions up to 50 Gbps or 112 Gbps PAM4 aggregate. By doubling the lane density and data speed of SFP transceivers, the SFP-DD specification will address increased port density and scalability in next-generation applications, with a primary focus on the server side interconnect.

For more information click here.

DSFP

To address the growing port density and scalability requirements of Wireless and 5G Mobile infrastructure, the DSFP specification doubles the data rate and port density of SFP modules. DSFP has two electrical lane pairs, each operating at bit rates up to 26 Gbps using NRZ and 56 Gbps using PAM4, supporting aggregate date rates up to 56 Gbps and 112 Gbps, respectively. DSFP will potentially scale to a per lane bit rate of 112 Gbps using PAM4, supporting aggregate data rate up to 224 Gbps. SFP modules can be plugged into DSFP ports for backwards compatibility.

For more information click here.

CFP

The CFP Multi-Source Agreement (MSA) defines hot-pluggable optical transceiver form factors to enable 40Gb/s, 100Gb/s and 400Gb/s applications, including next-generation High Speed Ethernet (40GE, 100GE and 400GE). Pluggable CFP, CFP2, CFP4 and CFP8 transceivers will support the ultrahigh bandwidth requirements of data communication networks that form the backbone of the internet. The most recent CFP8 transceiver form factor provides for a very versatile platform that can support a broad range of PMD's at 400G, and importantly offers a path to products in the future that are capable of supporting 800 44Gb/s.

For more information click here.

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