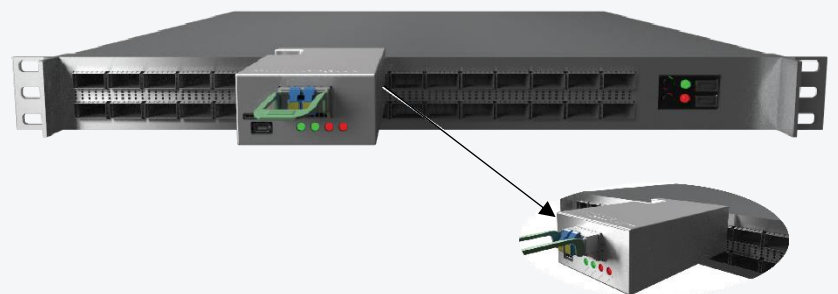


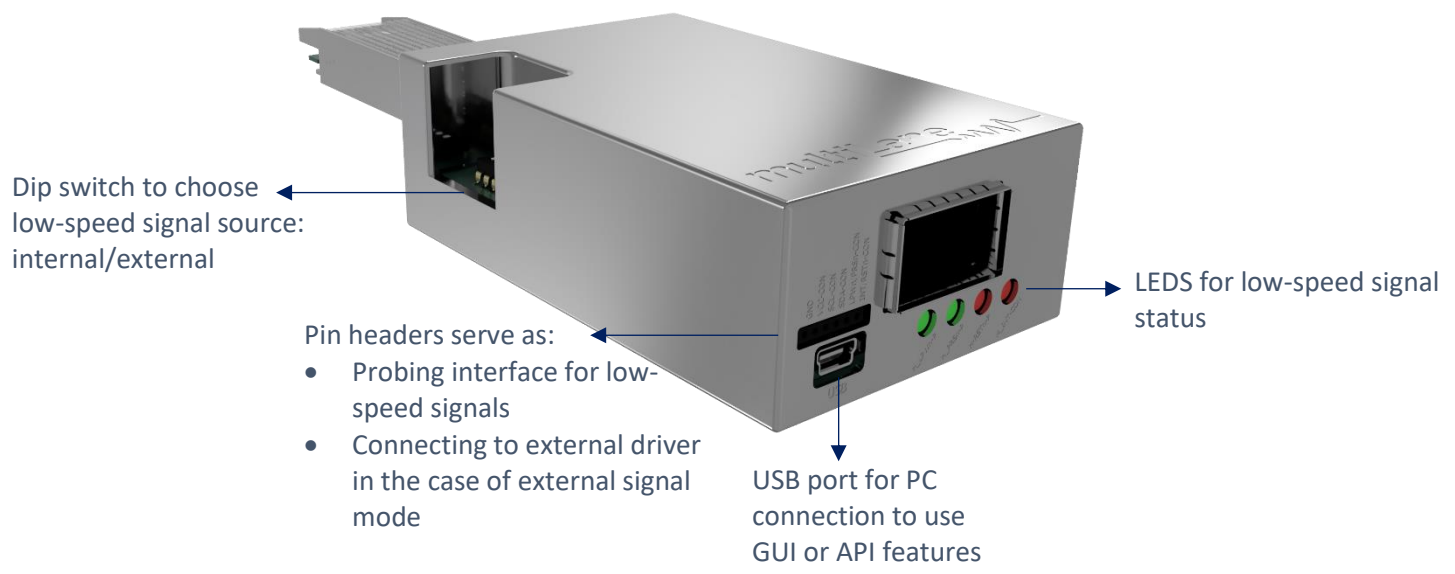
Nexus

Technical Product Sheet

As new CMIS standards are developed and adopted, with a wide variety of SFF/CMIS specifications available, CMIS testing becomes increasingly complex and time consuming. The MultiLane Nexus Analyzer is a direct response to this complexity, designed with speed and simplicity at its core. A CMIS/SFF debug tool for interoperability testing and CMIS/SFF failures, the Nexus Analyzer is equipped with a full feature sweep implemented in its GUI.

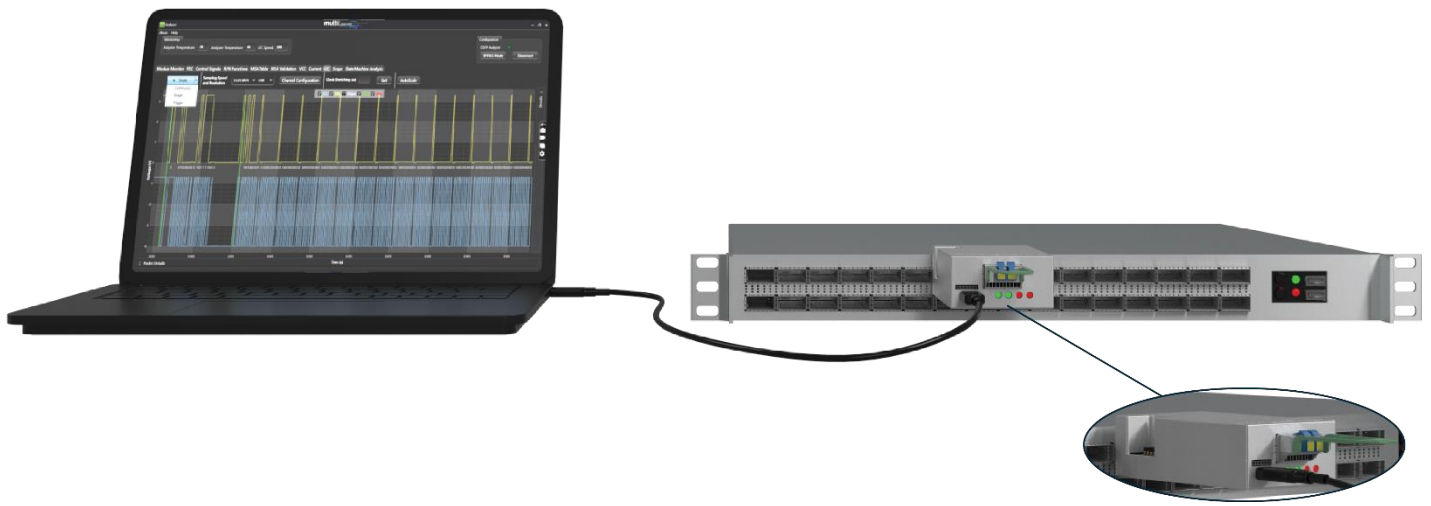


Nexus



The Nexus Analyzer is used as an 800G verification tool to validate the CMIS/SFF implementation with:

- CMIS/SFF register sweep.
- State machine and data path state machine testing
- I2C R/W commands and packet analysis
- In-rush current and VCC measurements



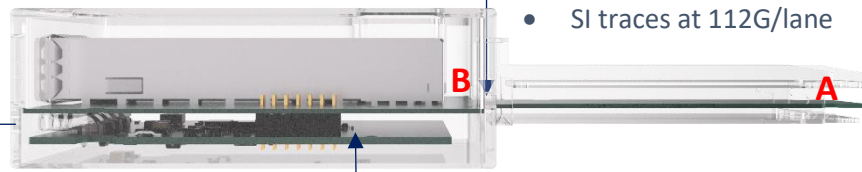
Benefits and Applications:

- System and host port characterization: I2C and low-speed signals.
- 800G capable SI traces
- Ecosystem interoperability testing: I2C sniffer between host and module
- Validates CMIS implementation on module in seconds.
- Voltage noise measurements
- Platform for active modules with module state machine, data path state machine tests and MBM validation tools

Technical Features

Port Extender/Adapter:

- Connects low-speed signals from host to module.
- SI traces at 112G/lane



Analyzer gives access to Nexus GUI for interoperability debugging.

Board to board connector: Adapter mating with analyzer through pin headers.

A: Signals from host side at OSFP800 plug

B: Signals to OSFP800 connector inside Nexus, going to module

Low-speed signals	Dip switch		Front Pin Headers	
	ON	OFF	DIP SWITCH ON	DIP SWITCH OFF
SCL	Plug connected to connector	Front pin headers to connector, plug side disconnected	Probing interface	External driver
SDA	Plug connected to connector	Front pin headers to connector, plug side disconnected	Probing interface	External driver
INT/RSTn	Plug connected to connector	Front pin headers to connector, plug side disconnected	Probing interface	External driver
LPWn/PRSn	Plug connected to connector	Front pin headers to connector, plug side disconnected	Probing interface	External driver

Adapter

800G Adapter Key Features:

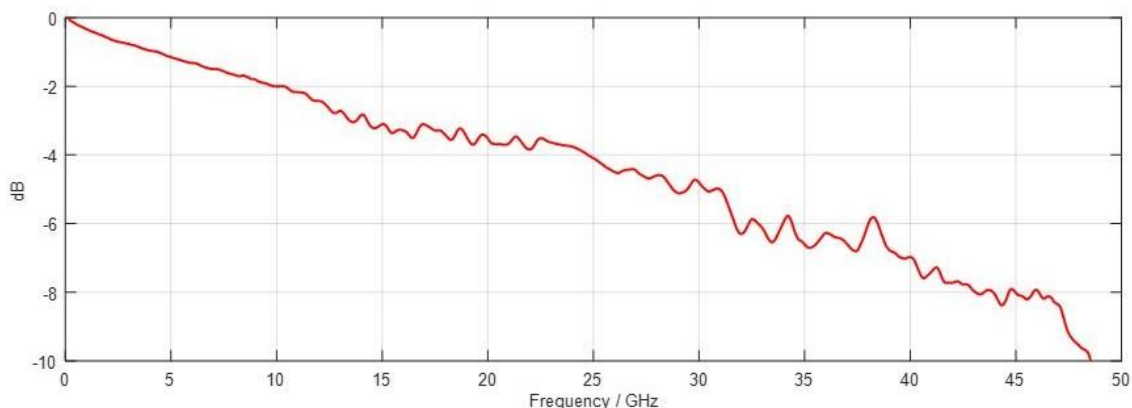
- SI traces and connector support 112G rates
- Support up to 30W modules
- Current and temperature sensor
- Module power ripples and inrush current measurement
- Detection of power spikes during module state transitions
- Probing interface for Vcc and GND pins
- External I2C
- Dip switch to choose low-speed signal source: internal/external
- Available in all SFF/CMIS form factors

Analyzer

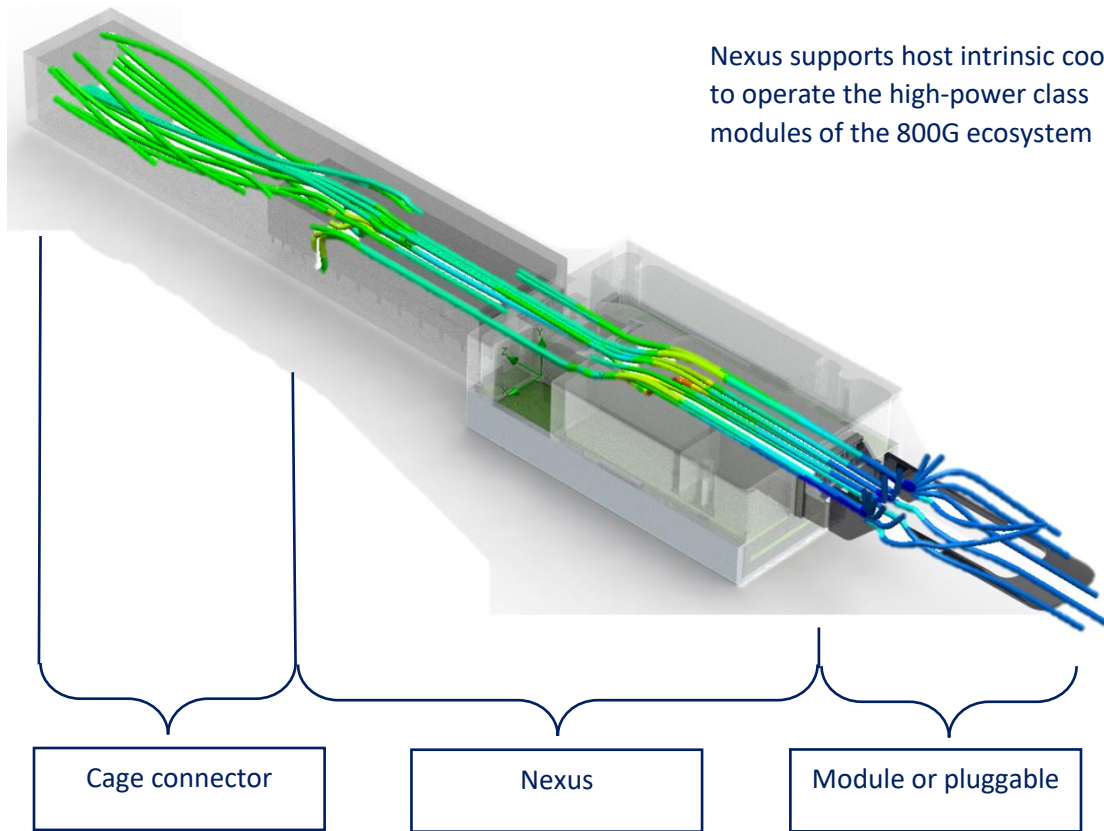
800G Analyzer Key Features:

- Voltage sensor
- ePPS signal validation
- 1 MHz I2C
- Probing interface for low-speed signals
- External control for any low-speed signal:
 - INT/RST
 - LPW/PRS
 - SDA
 - SCL
- LEDs for control/alarm signal status
- USB port for PC connection to use GUI or API features
- Available in all SFF/CMIS form factors

Measured Insertion Loss data of 800G Adapter:



Host Intrinsic Cooling:



Nexus supports host intrinsic cooling to operate the high-power class modules of the 800G ecosystem

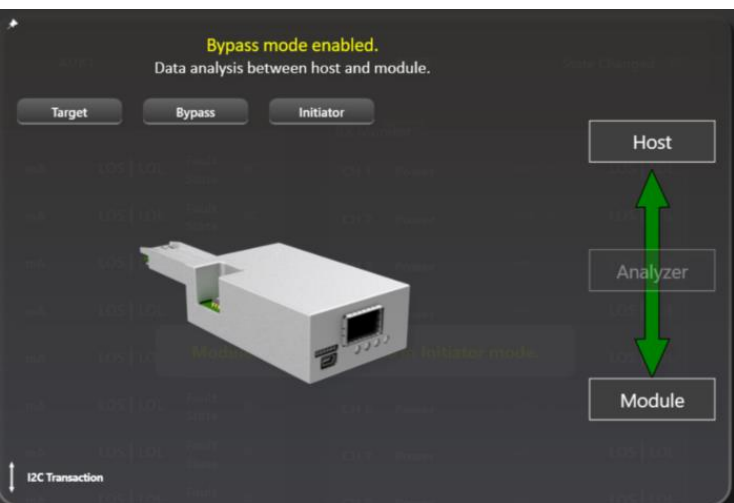
External Cooling:



As a second cooling option, Nexus HW is also available with a mounted fan fixture, requiring a separate voltage supply of 12V to operate. This works independently of host cooling.

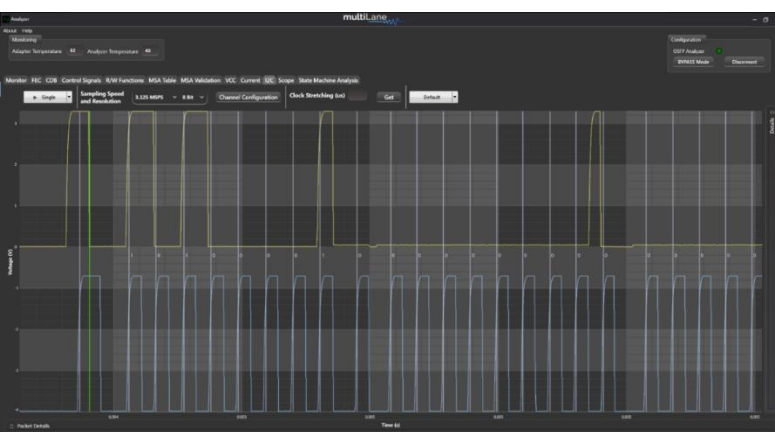
Nexus GUI

Nexus GUI Features	Description
Monitor Tab	Diagnostic and Versatile Diagnostic Monitoring
FEC Tab	Monitor FEC status on their module.
Common Data Block (CDB) Tab	Update their module firmware.
Control Signals	Access to low-speed signals in three different modes
R/W Functions Tab	I2C read/write operations
MSA Table Tab	Gives the user access to their module memory.
MSA Validation Tab	Full CMIS/SFF register sweep.
VCC Tab	Continuous VCC Supply measurements.
Current Tab	Continuous and in-rush current measurements.
I2C Tab	I2C packets capturing and packet details analysis.
Scope Mode Tab (any 2 signals at realtime ideal to detect root cause of issues)	SCL, SDA, VCC and Current measurements.
State Machine Analysis Tab	State Machine, Data Path State Machine, and Module State Behavior tests available.



Nexus operates in three modes:

- Target mode: the analyzer acts as a module for a host DUT
- Initiator mode: the analyzer acts as a host for a module DUT
- Bypass mode: the analyzer monitors exchange between host and module.



I2C Single Packet Capture Analysis

multiLane

Module Monitor: FEC, Control Signals, R/W Functions, MSA Table, MSA Validation, VCC, Current, I2C, Scope, State Machine Analysis

Page	Address	Data (Hex)	Register Access Type Validation	Register Content Validation	Notes
LowMem	112	00	Failed	Passed	Address 112 of Page LowMem, Register Access type Failed because it should be Read-Only but we could Write on it. Register Content Passed.
LowMem	113	00	Failed	Passed	Address 113 of Page LowMem, Register Access type Failed because it should be Read-Only but we could Write on it. Register Content Passed.
LowMem	114	00	Failed	Passed	Address 114 of Page LowMem, Register Access type Failed because it should be Read-Only but we could Write on it. Register Content Passed.
LowMem	115	00	Failed	Passed	Address 115 of Page LowMem, Register Access type Failed because it should be Read-Only but we could Write on it. Register Content Passed.
LowMem	116	00	Failed	Passed	Address 116 of Page LowMem, Register Access type Failed because it should be Read-Only but we could Write on it. Register Content Passed.
LowMem	117	00	Failed	Passed	Address 117 of Page LowMem, Register Access type Failed because it should be Read-Only but we could Write on it. Register Content Passed.
LowMem	118	00	Passed	Passed	Address 118 of Page LowMem, Register Access type Passed. Register Content Passed.
LowMem	119	00	Passed	Passed	Address 119 of Page LowMem, Register Access type Passed. Register Content Passed.
LowMem	120	00	Passed	Passed	Address 120 of Page LowMem, Register Access type Passed. Register Content Passed.
LowMem	121	00	Passed	Passed	Address 121 of Page LowMem, Register Access type Passed. Register Content Passed.
LowMem	122	00	Passed	Passed	Address 122 of Page LowMem, Register Access type Passed. Register Content Passed.
LowMem	123	00	Passed	Passed	Address 123 of Page LowMem, Register Access type Passed. Register Content Passed.
LowMem	124	00	Passed	Passed	Address 124 of Page LowMem, Register Access type Passed. Register Content Passed.
LowMem	125	00	Passed	Passed	Address 125 of Page LowMem, Register Access type Passed. Register Content Passed.
LowMem	126	00	Failed	Passed	Address 126 of Page LowMem, Register Access type Failed because it should be Read/Write but we couldn't Write on it. Register Content Passed.
LowMem	127	00	Failed	Passed	Address 127 of Page LowMem, Register Access type Failed because it should be Read/Write but we couldn't Write on it. Register Content Passed.

MSA Validation with full CMIS register sweep

Find a quick overview of the GUI [here](#).

Find full GUI user guide [here](#).

Ordering Options

Ordering Options	Description
ML4066-NX-HW-OSFP OR ML4066-NX-HW-OSFP-F	Nexus HW is the basic hardware package only which provides 800G SI paths between host and module, with diagnostic probing interface for low-speed signals. Host intrinsic cooling OR Fan option
ML4066-NX-Pro-OSFP OR ML4066-NX-Pro-OSFP-F	Nexus Pro includes the hardware package and the software license. It enables all Nexus GUI features including all future CMIS/SFF updates. Host intrinsic cooling. OR Fan option
ML4066-NX-HW-QDD OR ML4066-NX-HW-QDD-F	Nexus HW is the basic hardware package only which provides 800G SI paths between host and module, with diagnostic probing interface for low-speed signals Host intrinsic cooling. OR Fan option
ML4066-NX-Pro-QDD OR ML4066-NX-Pro-QDD-F	Nexus Pro includes the hardware package and the software license. It enables all Nexus GUI features including all future CMIS/SFF updates. Host intrinsic cooling. OR Fan option

Form Factor	Availability
OSFP	Now
QSFP-DD	Now
QSFP	End of Q4 2023
SFP	Q1 2023
SFP-DD	Q1 2023

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