NEXUS PRO – OSFP 1.6T

Technical Product Sheet

OSFP 1.6T

As new CMIS standards are developed and adopted, with a wide variety of 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 debug tool for interoperability testing and CMIS failures, the Nexus Analyzer is equipped with a full feature sweep implemented in its GUI.

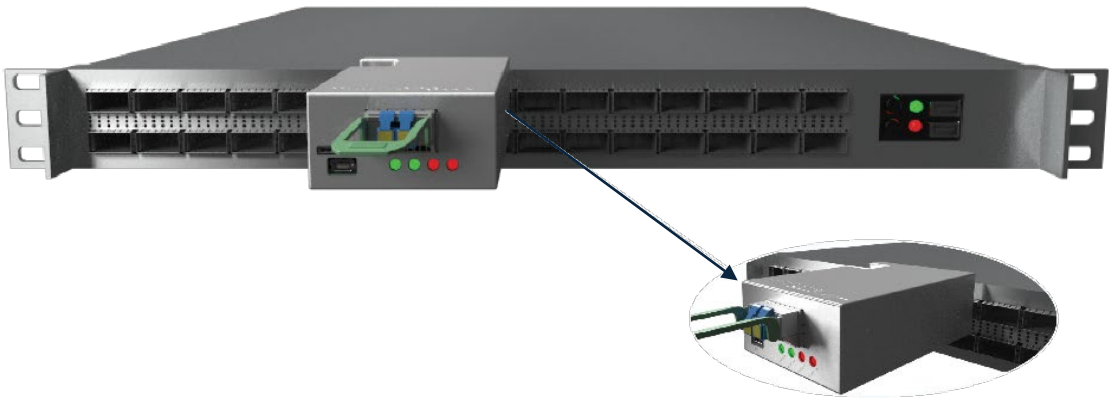
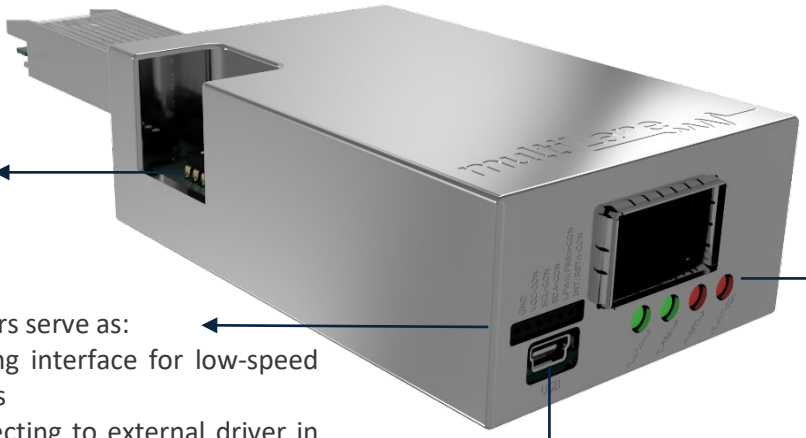


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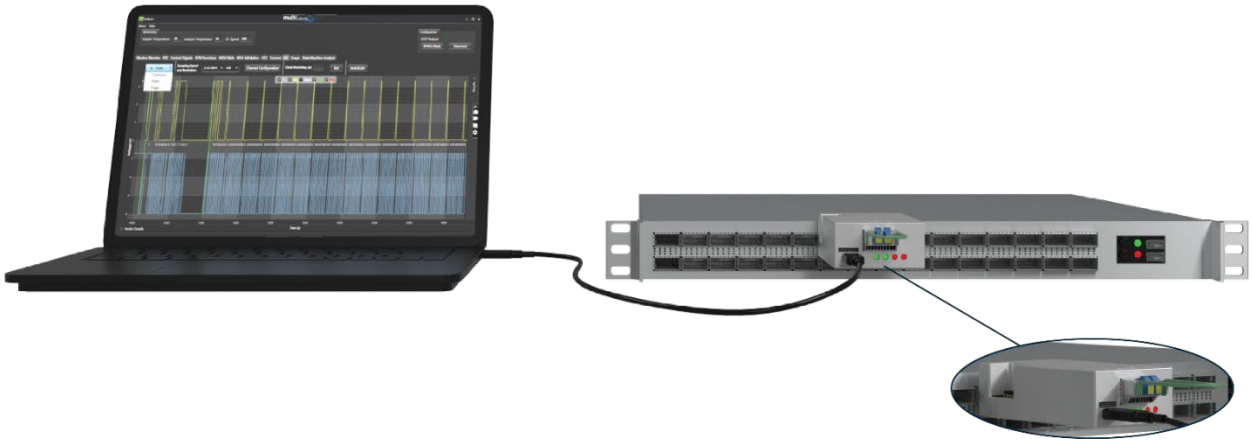
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1. Nexus



The Nexus Analyzer is used as a 1.6T verification tool to validate the CMIS implementation with:

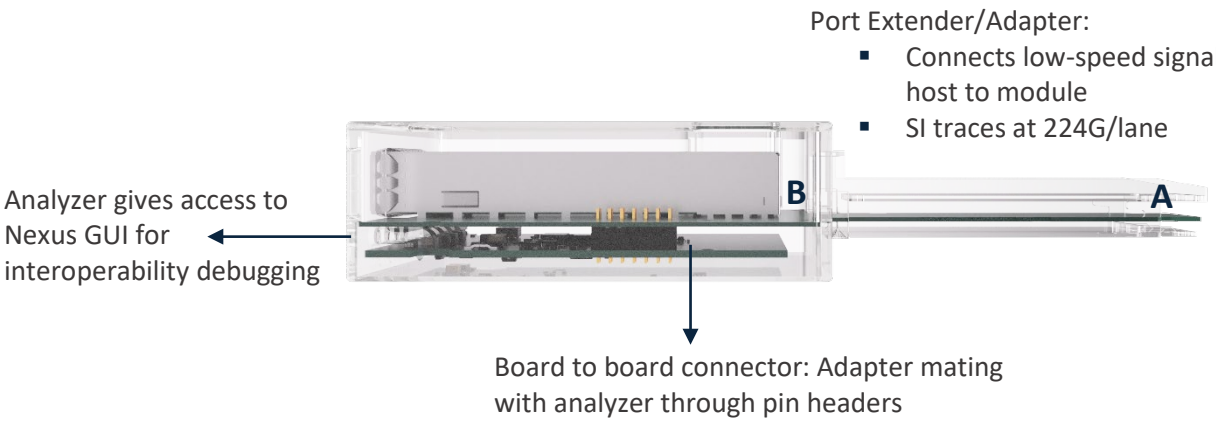
- CMIS register sweep
- State machine and data path state machine testing
- I2C R/W commands and packet analysis
- In-rush current and VCC measurements
- Control and monitor low speed signals



Benefits and Applications:

- System and host port characterization: I2C and low-speed signals
- 1.6T 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

2. Technical Features



A: Signals from host side at OSFP1600 plug

B: Signals to OSFP1600 connector inside Nexus, going to module

OSFP		
Low-speed signals	**Dip switch ON**	**Dip switch OFF**
	Plug connected to Connector	**Plug disconnected to Connector**
SCL	I2C will be working if also SDA (switch #2) is ON	Signal **cannot** be reached from the host INTERFACE to the module – no impact over the probing interface – no I2C working
SDA	I2C will be working if also SCL (switch #1) is ON	
INT/RSTn	Signal is connected from host to module side and provide RSTn control and INT read	Signal **cannot** be reached from the host INTERFACE to the module – no impact over the probing interface
LPWn/PRSn	Signal is connected from host to module side and provide LPWn control and PRSn read	

Adapter

1.6T Adapter Key Features:

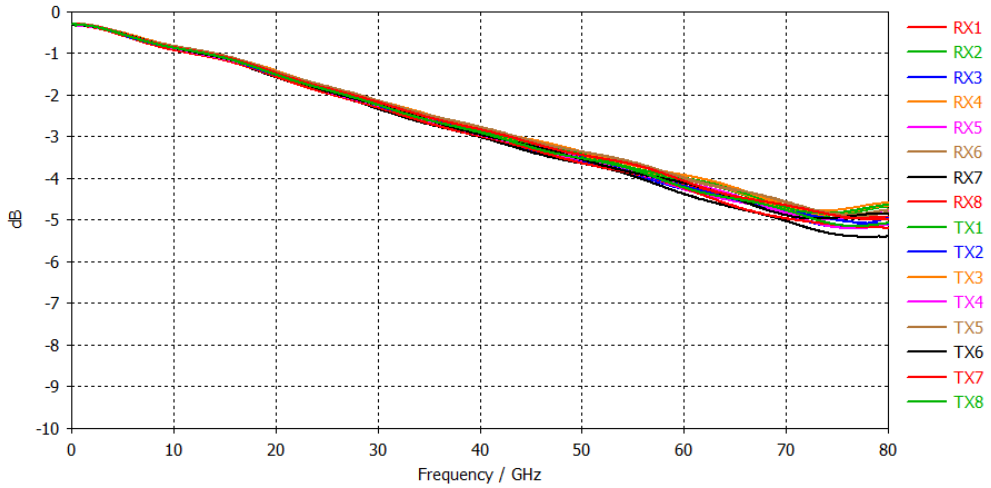
- SI traces and connector support 224G rates
- Support up to 45W modules
- Current and temperature sensor
- Probing interface for Vcc and GND pins
- Monitor and Control I2C externally
- Dip switch to choose low-speed signal source: internal/external

Analyzer

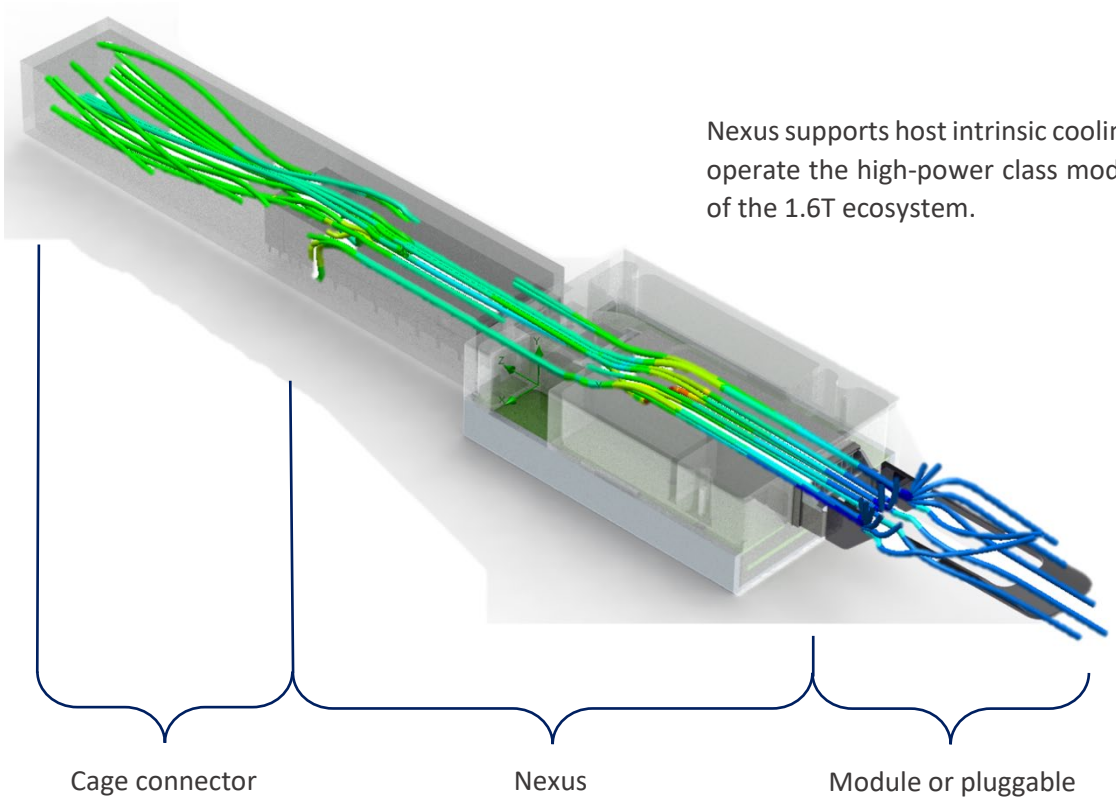
1.6T Analyzer Key Features:

- Voltage sensor
- Module power ripples and inrush current measurement
- Detection of power spikes during module state transitions
- 1 MHz I2C
- External control and monitor for any low-speed signal
- LEDs for signal status
- USB port for PC connection to use GUI or API features

Simulated Insertion Loss data of 1.6T Adapter:



Host Intrinsic Cooling:



Nexus supports host intrinsic cooling to operate the high-power class modules of the 1.6T ecosystem.

Cage connector | Nexus | Module or pluggable

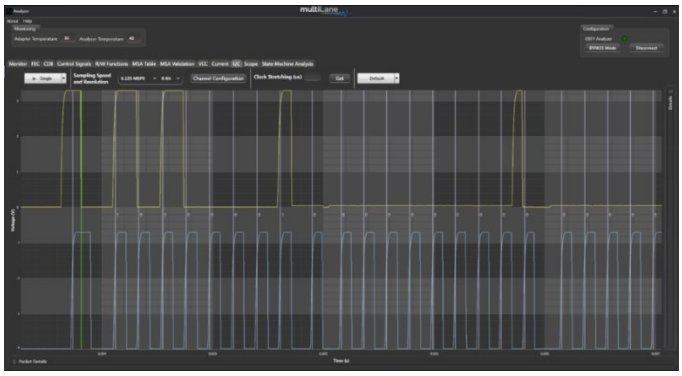
External Cooling:



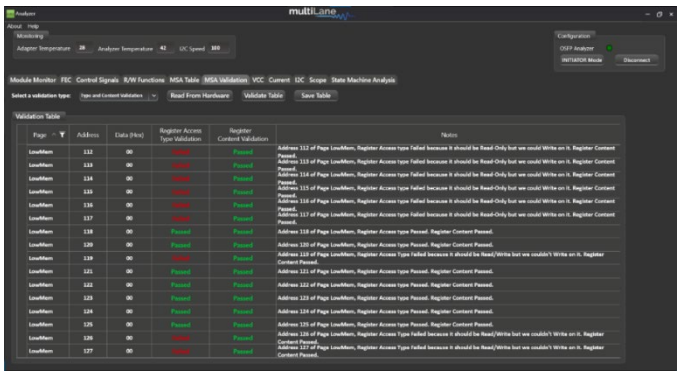
As a second cooling option, Nexus HW is also available with a mounted fan fixture, requiring a separate voltage supply of 12V to operate. This works independently of host cooling.

3. Nexus GUI

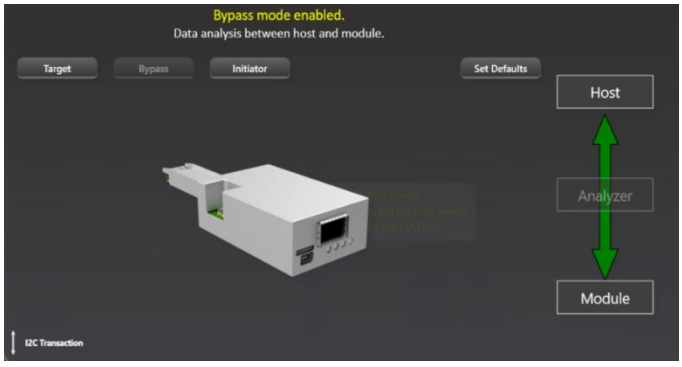
Nexus GUI Features	Description
Monitor Tab	Diagnostic and Versatile Diagnostic Monitoring
FEC Tab	Control and monitor FEC status on their module
Common Data Block (CDB) Tab	Update their module firmware
Control Signals	Access to low-speed signals in three different modes
R/W Functions Tab	I2C read/write operations
MSA Table Tab	Gives the user access to their module memory
MSA Validation Tab	process to validate registers' access type and content, based on standards (CMIS/SFF/customized standard)
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



I2C Single Packet Capture Analysis



MSA Validation with Full CMIS Register Sweep



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

4. Ordering Information

Ordering Options	Description
ML4066-NX-HW-OSFP1.6T OR ML4066-NX-HW-OSFP1.6T-F	Nexus HW is the basic hardware package only which provides 1.6T SI paths between host and module, with diagnostic probing interface for low-speed signals. With IHS shell. **Host intrinsic cooling** **OR Fan option**
ML4066-NX-Pro-OSFP1.6T OR ML4066-NX-Pro-OSFP1.6T-F	Nexus Pro includes the hardware package and the software license. It enables all Nexus GUI features including all CMIS updates. With IHS shell. **Host intrinsic cooling** **OR Fan option**
ML4066-NX-HW-OSFP1.6T-RHS OR ML4066-NX-HW-OSFP1.6T-RHS-F	Nexus HW is the basic hardware package only which provides 1.6T SI paths between host and module, with diagnostic probing interface for low-speed signals. With RHS shell. **Host intrinsic cooling** **OR Fan option**
ML4066-NX-Pro-OSFP1.6T-RHS OR ML4066-NX-Pro-OSFP1.6T-RHS-F	Nexus Pro includes the hardware package and the software license. It enables all Nexus GUI features including all CMIS updates. With RHS shell. **Host intrinsic cooling** **OR Fan option**