

Co-Packaged Optics/Optical Engine PAM4/NRZ Signal Evaluation Solution

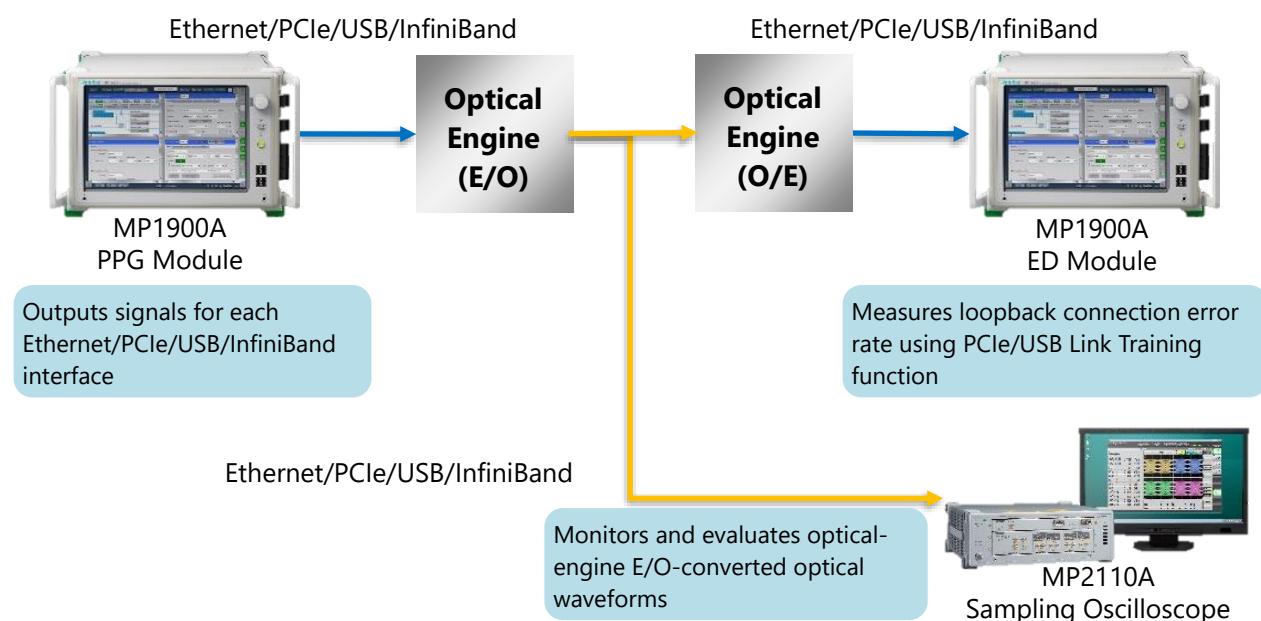
BERT Module MP1900A

Sampling Oscilloscope Option MP2110A

The spread of 5G, Cloud, AI, ML, etc., services is causing a rapid increase in Internet data traffic as well as demand for faster speeds and larger data capacity. On the other hand, data centers are consuming a lot of power as they increase speeds and capacity, which is becoming a social issue. To reduce power consumption, technologies such as Photonics-Electronics Convergence Devices and Co-Packaged Optics (CPO) are candidates for use as optical interconnects replacing copper electrical cables with optical fiber lines. Optical interconnects are not only used by data-center optical transceivers but are also appearing in on-board communications applications, and there are high expectations for converting chip internal wiring and communications to optical technology. The CPO and its optical engine can be tested using the same methods used for pluggable optical transceivers. Anritsu's measurement solution combines its Bit Error Rate Tester MP1900A and Sampling Oscilloscope MP2110A with the following features.

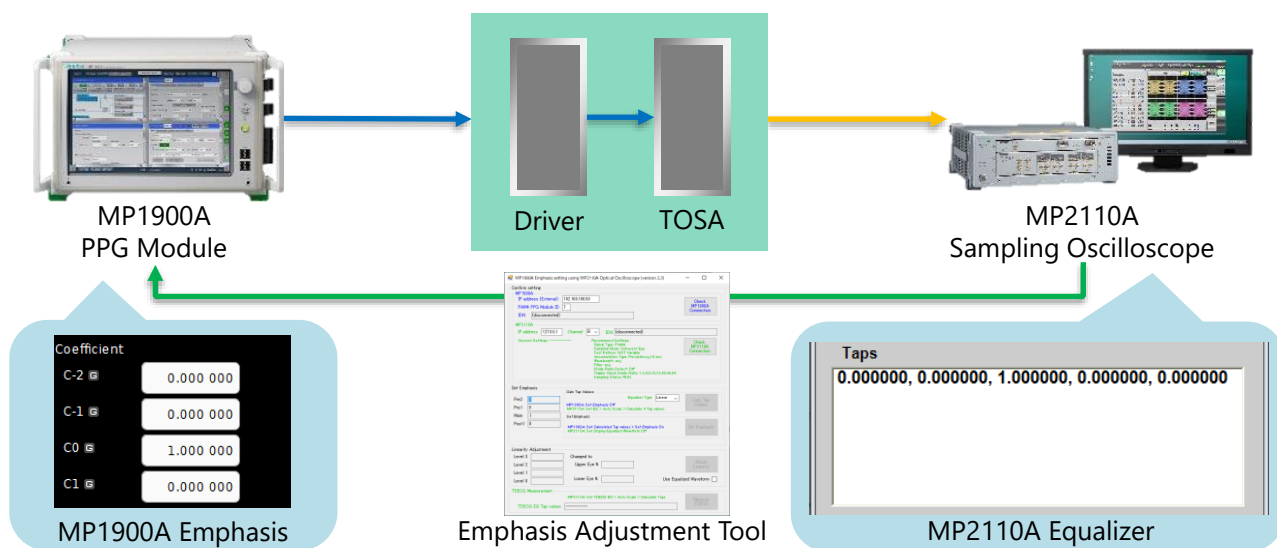
Supports Evaluation of Ethernet/PCIe/USB/InfiniBand Optical Engines

Optical transceivers used for communications between data centers and between servers within a data center mostly support Ethernet. In addition, the MP1900A supports Ethernet as well as InfiniBand used by high-performance computers (HPC), and PCIe and USB high-speed serial interfaces used for internal server communications. The PCIe/USB Link Training function can also be used to examine optical communications including E/O and O/E conversion by the optical engine.



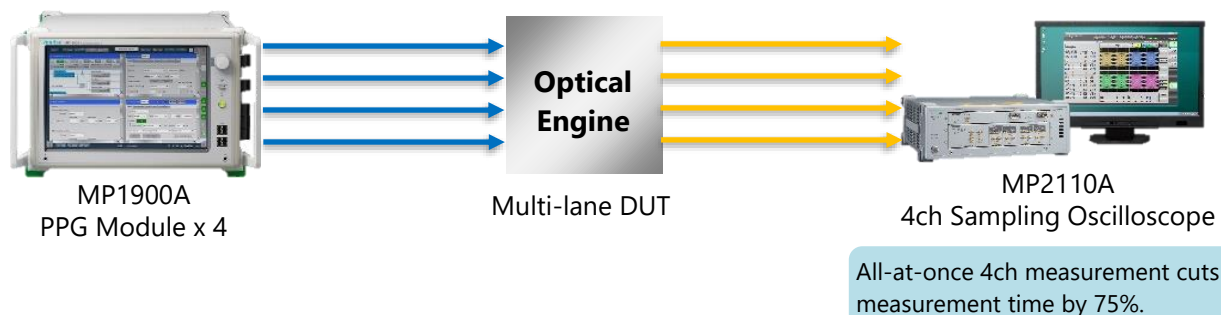
Tx Auto-Emphasis Setting for TOSA and Driver IC Evaluation

A DUT with a TOSA or Driver IC can be driven by the MP1900A and the optical signal output from the DUT is measured with the MP2110A. Feeding-back the equalizer value calculated by the MP2110A to the MP1900A automatically adjusts the MP1900A emphasis setting to reflect it in the DUT emphasis setting.



Simultaneous 4ch Measurement Cuts Measurement Time

Four 1ch PAM4 PPG modules and 4ch optical oscilloscope can be installed in the MP1900A and MP2110A, respectively. This combination supports simultaneous 4-lane measurements, helping cut measurement times by 75% for CPOs and optical engines having more lanes than pluggable optical transceivers.



BER Evaluation: PAM4 BERT Modules MP1900A

The PAM4 BERT module for the MP1900A series is a bit error rate tester for measuring high-speed interfaces, such as 400 and 800 GbE. The high-quality 64 Gbaud waveforms and excellent input sensitivity provide strong support for PAM4 device design tests. Additionally, combining jitter addition, clock recovery, emphasis, PAM4 pattern editing, and SER functions in one unit makes it easy to configure a high-repeatability measurement system.

Waveform Quality Evaluation: Sampling Oscilloscope MP2110A

The MP2110A sampling oscilloscope option not only supports NRZ signals but can also measure PAM4 signals, including TDECQ. It can evaluate both optical-engine optical signals from 10G to 800G as well as electrical signal waveform quality.