

PCI Express 5.0 Receiver Test Solution

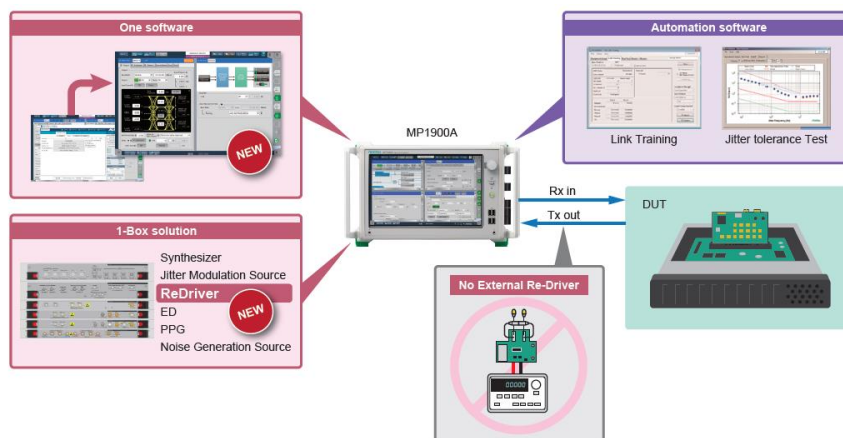
Signal Quality Analyzer-R MP1900A

32G baud NRZ/PAM4 Re-Driver Module MU196060A

With advances in AI (Artificial Intelligence) and ML (Machine Learning), higher-speed, larger-capacity, low-latency, and energy efficient data transmissions are required in data centers. The specification for internal PCI bus interfaces of data-center servers and network equipment is also transitioning to PCIe 5 to support increasing communications data traffic with further future speed increases.

The Signal Quality Analyzer-R MP1900A series is approved as an instrument for the PCI Express Electrical Compliance Testing. The simple all-in-one test configuration including the MU196060A Re-Driver module cuts test times, while the full range of other plug-in modules supporting PAM4 signals and expansion for next-generation PCIe 6.0 help cut equipment costs.

MP1900A PCIe 5 Receiver Test Outline



Features of MP1900A PCIe 5 Receiver Test Solution

- All-in-one PCIe Gen 1 to 6 solution
- Wideband 2.4 to 32.1 Gbit/s (NRZ), and 2.4 to 58.2 Gbaud (PAM4) BERT
- Automated LEQ test (Protocol Aware) and LTSSM event trigger functions
- Low-residual-jitter/high-quality output waveforms and high input sensitivity
- Link Training and LTSSM analysis function
- Automated Compliance Test in combination with real-time oscilloscope

32G baud NRZ/PAM4 Re-Driver Module Features

- All-in-one easy-to-configure test environment without external re-driver
- 30 dB @ 16 GHz (NRZ) PCIe5 worst-case transmission loss correction

32G baud NRZ/PAM4 Re-Driver MU196060A Main Specifications

Item	Specification
Target Application	PCIe 4.0: 16.0 Gbit/s, NRZ PCIe 5.0: 32.0 Gbit/s, NRZ PCIe 6.0: 32.0 Gbaud, PAM4 IEEE802.3bs 400GAUI-8 C2M: 26.5625 Gbaud, PAM4
Supported Plug-in Modules	MU196040B PAM4 ED MU195040A 21G/32G bit/s SI ED
Input Amplitude	PAM4: 0.40 to 0.80 Vp-p/Differential NRZ: 0.18 to 0.80 Vp-p/Differential
LOSS Compensation	PAM4: 14 dB at 16.0 GHz, BER <1E-6, 1E-8 (typ.) MCP, SSC 5300 ppm Down spread NRZ: 30 dB at 16.0 GHz, BER <1E-12, MCP, SSC 5300 ppm Down spread
Clock Recovery (option)	With SSC support, PCI Express Gen 4.0, 5.0, 6.0
Input Connector	V(f)

Refer to the MP1900A data sheet for more details.

Recommended Equipment

Model	Name	Remarks
MP1900A	Signal Quality Analyzer-R	
MU181000B	12.5GHz 4 Port Synthesizer	
MU181500B	Jitter Modulation Source	
MU195020A	21G/32G bit/s SI PPG	Contact us about supported PAM4 and PCIe 6 equipment configuration.
MU195040A	21G/32G bit/s SI ED	
MU196060A	32G baud NRZ/PAM4 Re-Driver	
MX183000A-PL001	Jitter Tolerance Test	
MX183000A-PL021	PCIe Link Training	
MX183000A-PL025	PCIe 5 Link Training	Expansion option for MX183000A-PL021

Refer to the MP1900A Selection Guide for details about equipment and option selections.

Model	Name	Remarks
GRL-PCIE5-BASE-RXA	PCIe 5.0 Base Specification Rx Test Software license	Purchase from Granite River Labs Oscilloscopes:
GRL-PCIE5-CEM-RXA	PCIe 5.0 CEM Specification Rx Test Software license	Keysight: Infinium Q-series/Z-series/V-series (50 GHz min.) Tektronix: DPO70000SX and DX series (50 GHz min.)
RXSW	PCIe Gen5 Base and CEM Software	Purchase from Tektronix
QPHY-PCIE5-TX-RX	PCI Express 5.0 electrical transmitter and receiver software	Purchase from Teledyne LeCroy