Your Map to High Speed Data Centers

Reaching 400Gb/s and beyond requires knowing what stops are along the way. Let Keysight help you navigate your route to the next speed class.

SILICON PHOTONICS

Q:

What does Silicon Photonics imply for your measuring and probing?

A:

Progress in Photonic Integrated Circuit (PIC) technology is accelerating from 400G applications and beyond. Methods and instruments for the fiber optic communications industry are now being adapted for this new environment.

Learn more about PICs and the current challenges with DC, RF, and photonics testing.

IEEE AND OIF 400G STANDARDS

Q:

Are you ready for the new IEEE and OIF 400G standard parameters such as COM and TDECQ?

A:

Channel Operating Margin (COM), computed from several channel measurements, and Transmitter Dispersion and Eye Closure Quaternary (TDECQ), are complex yet essential metrics for 400G communications.

Get up to speed on COM and TDECQ.

DATA CENTER TOWN

PAM4 & COMPLEX MODULATION

Q:

Should you move toward PAM4 or switch to complex modulation?

A:

Non-return-to-zero (NRZ) and four-level pulse amplitude modulation (PAM4) can both enable 400G. However, as speeds of NRZ designs increase above 28 Gb/s, channel loss becomes a limiting factor. Coherent technology is also being considered in data centers and their interconnects. Whether you decide to use PAM4 or switch to complex modulation, there are many factors to consider.

Get the insights and toolsets you need.

PCI EXPRESS®

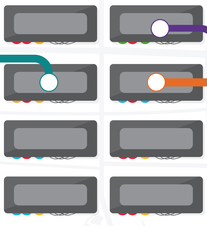
Q:

Are you having PCI Express Gen4 test challenges? What will Gen5 bring?

A:

PCI Express 4.0 is new, but 400G Ethernet already demands higher data speeds. Learn the details of PCIe 4.0 now so you're prepared for what's next.

Learn about PCIe 4.0 Physical Layer Transmitter and Receiver Testing.



SERVER VILLE

A:

With a data rate of 22.5 Gb/s SAS-5 approaches the limits of an effective use of NRZ modulation. PAM4 will increase data rates over longer reaches, but requires more complex Forward Error Correction (FEC) techniques. Understand the tradeoffs between NRZ and PAM4.

Learn the tradeoffs between NRZ and PAM4.

A:

You want the best performance with minimum risk and cost. DDR5 will provide double the bandwidth and density of DDR4, and increase the speed from 3.2 Gbps to 6.4 Gbps. Advanced testing techniques are needed to ensure reliable data transfer.

Learn more about DDR4 and prepare for DDR5.

Q:

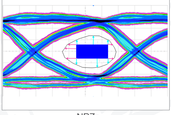
Will 5th generation Serial Attached SCSI (SAS-5) involve you moving from NRZ to PAM4?

Q:

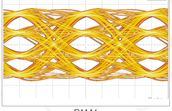
Do you know enough about DDR4 to make the leap to DDR5?

SAS

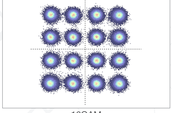
DDR



NRZ



PAM4



16QAM

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KEYSIGHT TECHNOLOGIES

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