

是德科技 高速数字测试技术 研讨会 成都站

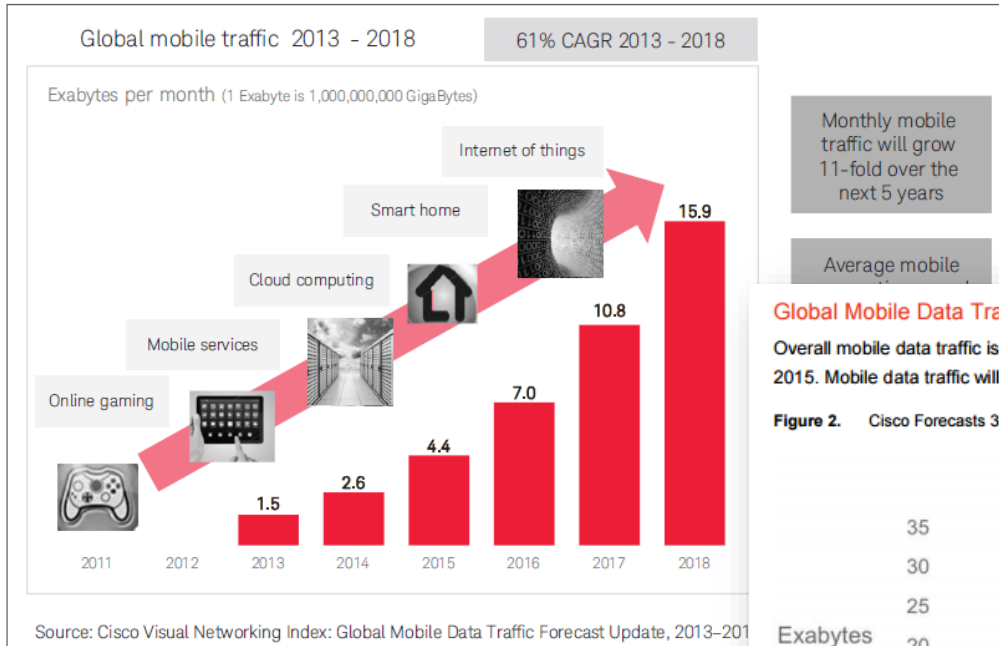
阚先胜

大中华区市场发展经理
光与数字测试事业部



Global mobile traffic

The traffic growth is challenging both the optical and electrical infrastructure



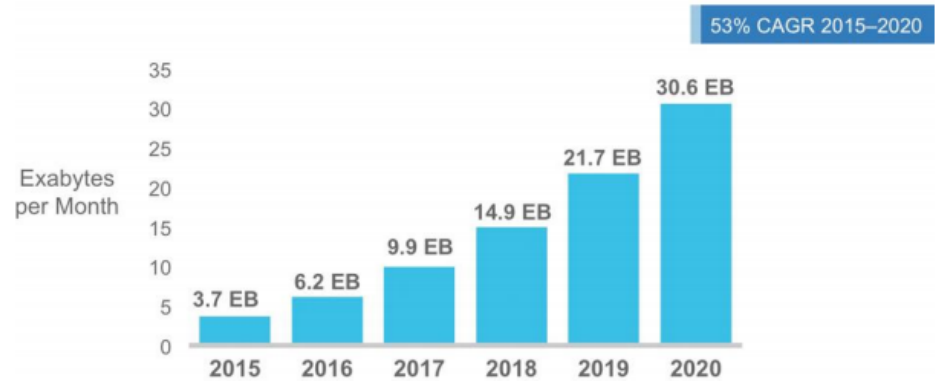
Monthly mobile traffic will grow 11-fold over the next 5 years

Average mobile

Global Mobile Data Traffic, 2015 to 2020

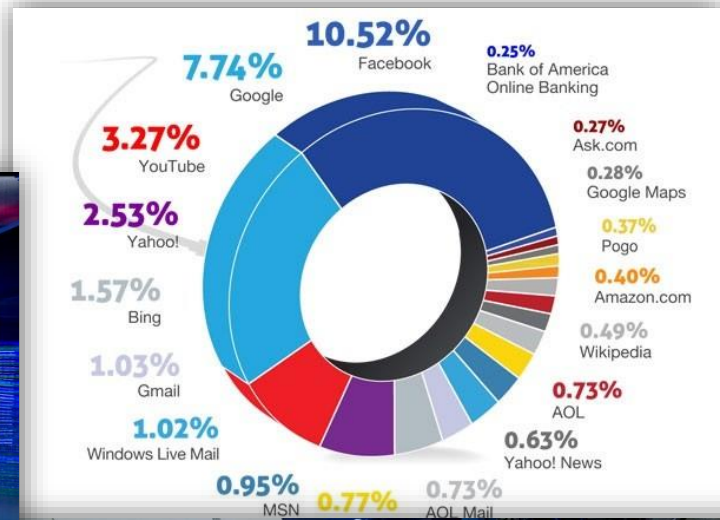
Overall mobile data traffic is expected to grow to 30.6 exabytes per month by 2020, an eightfold increase over 2015. Mobile data traffic will grow at a CAGR of 53 percent from 2015 to 2020 (Figure 2).

Figure 2. Cisco Forecasts 30.6 Exabytes per Month of Mobile Data Traffic by 2020



Source: Cisco VNI Mobile, 2016

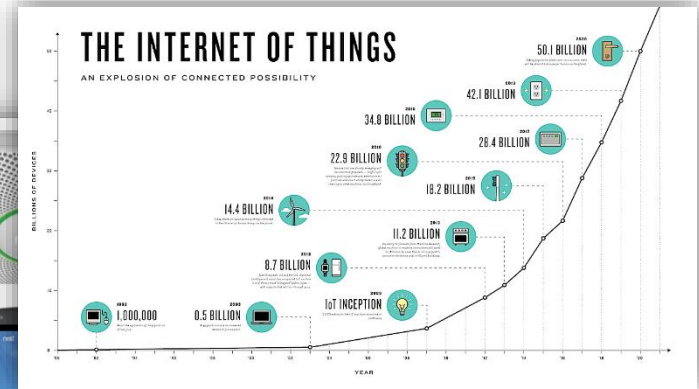
Data Center



The world is mobile and broadband



IOT: Internet of Things



Gaining Insight for Leading High-Speed Digital Test

Engagement

- Engaging with the High-Speed Digital Industry
- Design for generations ahead
- Enable compliance throughout the food-chain

Participation

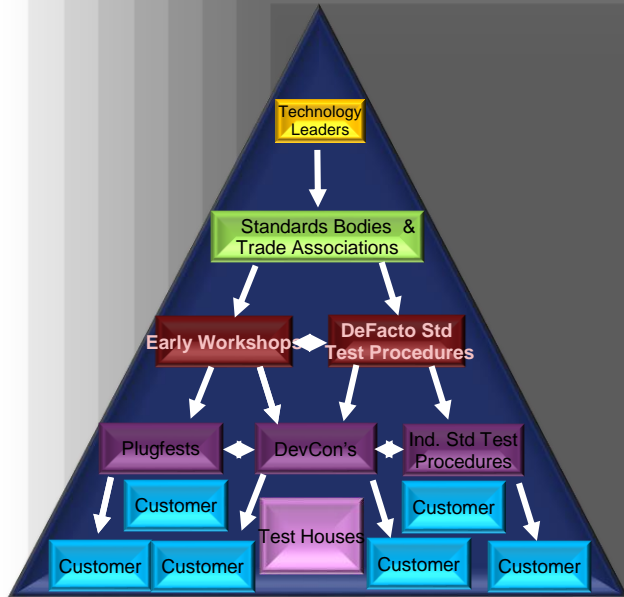
Agilent is actively involved in international standards committees, Plugfests and seminars

- JEDEC, Board of Directors
- PCI-SIG, Board of Directors
- VESA, Board of Directors
- HDMI, Board of Directors
- MIPI, Contributing Member
- USB, Contributing Member
- Serial ATA (SATA), Contributing Member
- IEEE, OIF, ITU, T11 member



Innovation

- New technologies
- Complete test solution offerings



Addressing entire Phy Layer Link & I/O Test

multi
multi

binary, NRZ

Pattern
Genera

400G/1T TRANSMISSION SYSTEMS TEST

Response RX


Link Partner Domain

al
Anal.

Synthesize and Analyze your Coherent Optical Signals

With new M8115A 65GS/s AWG, Optical Multistandard Transmitter and Optical Modulation Analyzer

- > 32 Gbaud symbol rate
- Dual Polarization Q modulation
- Up to 64k1 256
- Bit/Level and Analyzer
- Critical Signal Properties



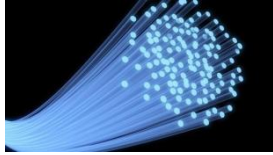
- > 32 Gbaud up to QAM256
- Dual polarization IQ modulation
- Optical signal property synthesis and analysis
- Phase noise, PMD, polarization
- Coherent optical stress test

Other dimensions:
Bit/Baud rate
Channel impairments

- Arbitrary waveform generation (with or without equalization)
- Analysis on RT and SS scopes: Levels and level thicknesses, Eye widths, heights, skews, Linearity, jitter analysis

What are the design & test challenges

Long Haul (Telecom)



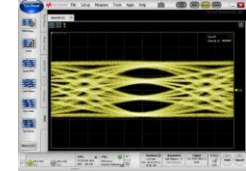
1. **Increase transmission capabilities** around existing infrastructure
2. **Spectral efficiency** via complex modulation scheme (M-QAM) to support the next-generation speed classes in the 400 Gb/s and 1Tb/s
3. **The impact of distortions and impairments** (e.g PMD) needs to be understood to assure proper high-speed transmission

Short Haul (Datacenter)



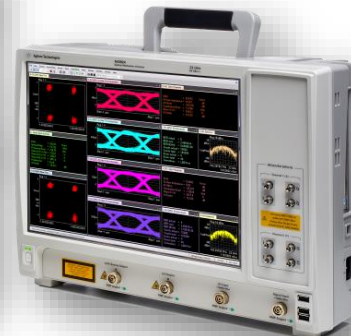
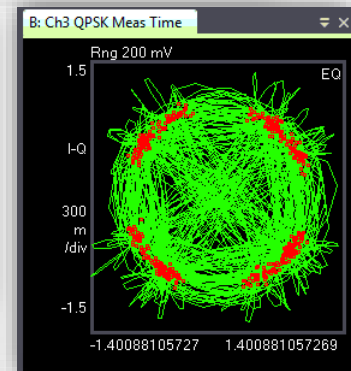
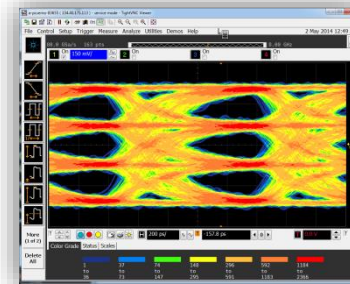
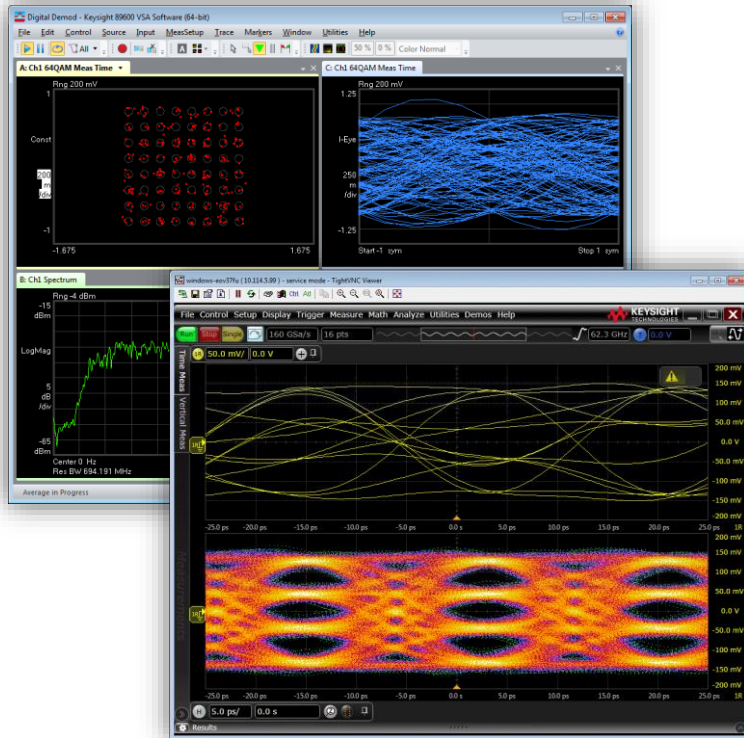
1. Focus on **increasing speed and throughput**
2. More focus on **less complex modulation schemes like NRZ or PAM4** to move complexity into the electronics and simplify the requirements for the optics
3. **Faster time to market**

High Speed Digital



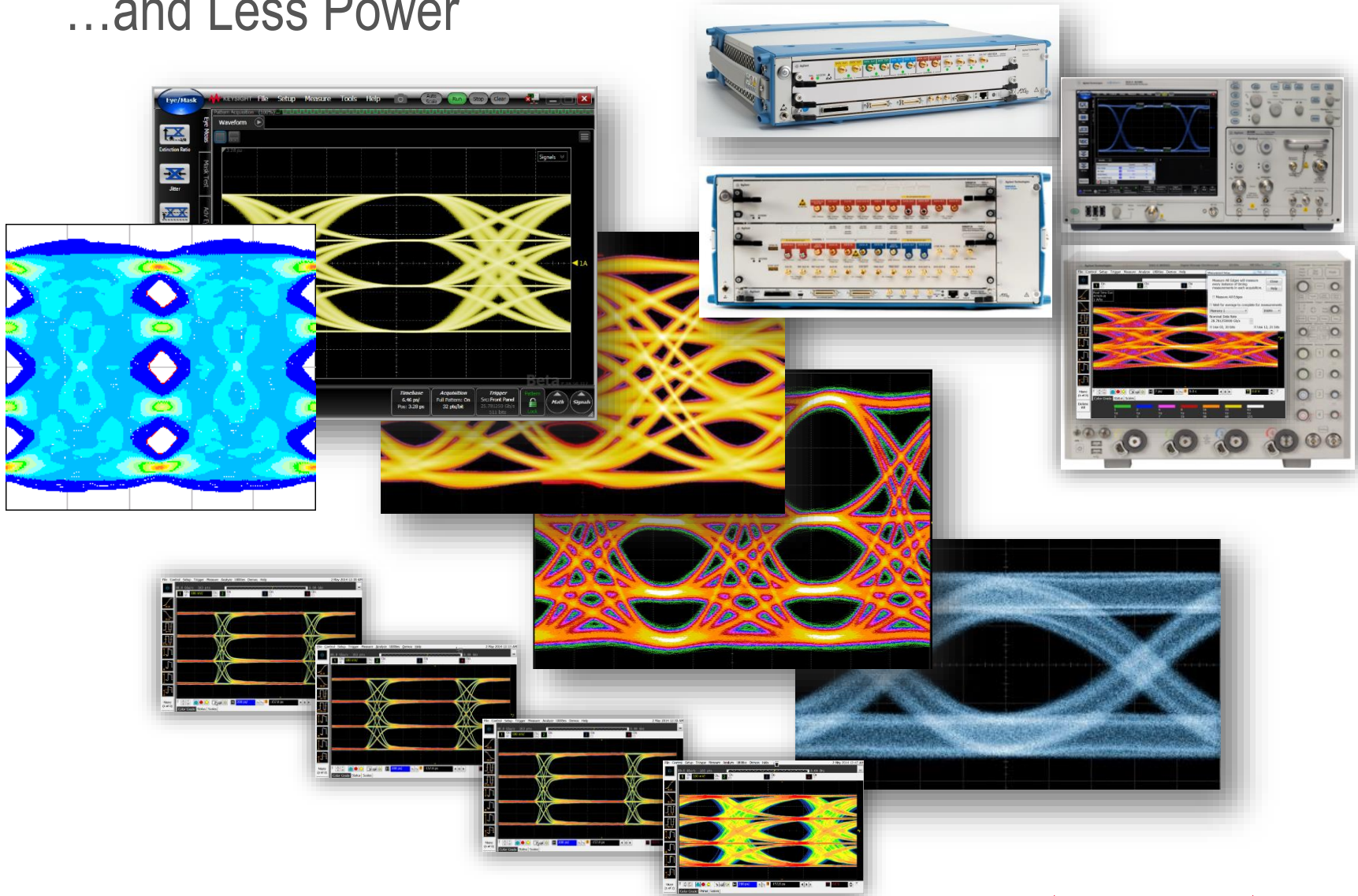
1. **Flexibility to generate different multi-level signaling** (e.g. NRZ, PAM4, DMT)
2. **High-speed I/O looking for 56 & 64 GBaud for R&D purpose**
3. **Multi-lane test**
4. **Achieve cost effective and less complex test setup**

High Speed in Long Haul

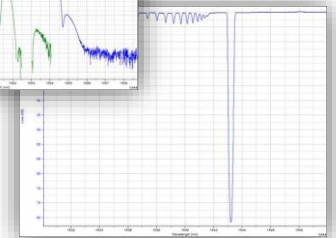
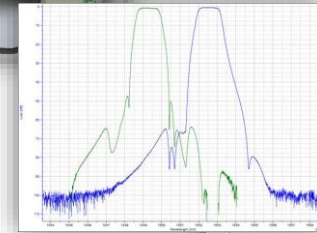
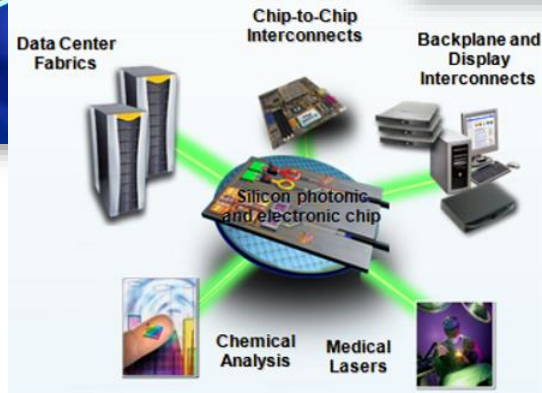
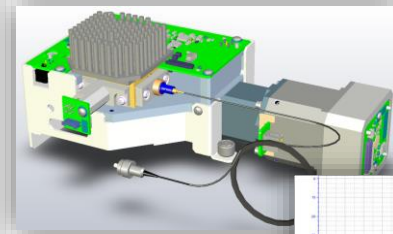
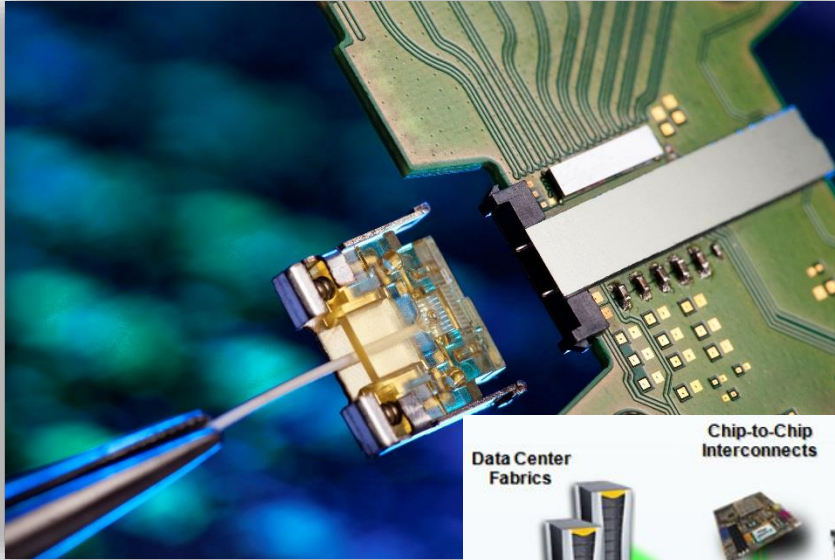


Speed, Multi-channel in Data Center

...and Less Power



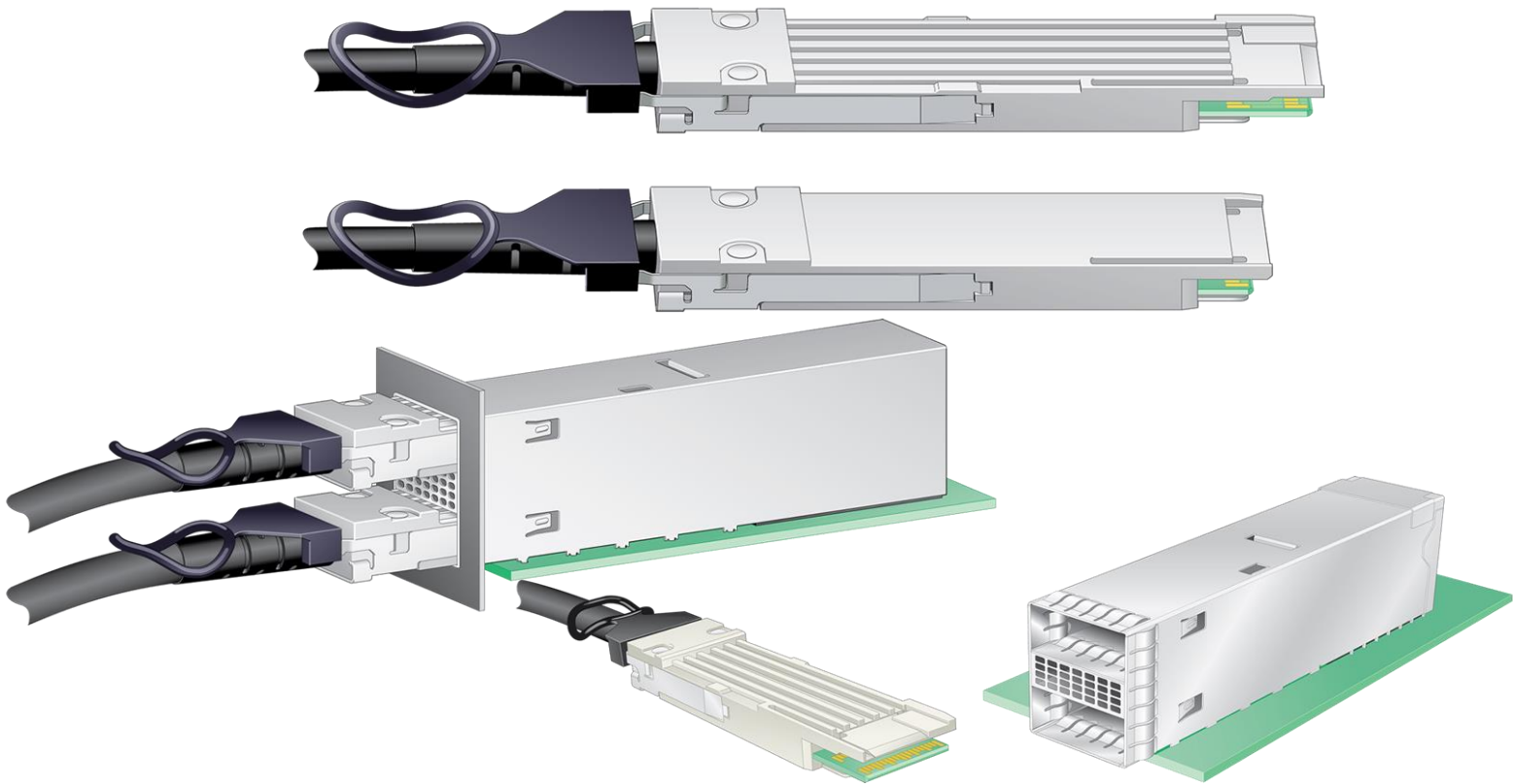
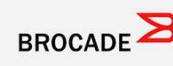
Silicon Photonics



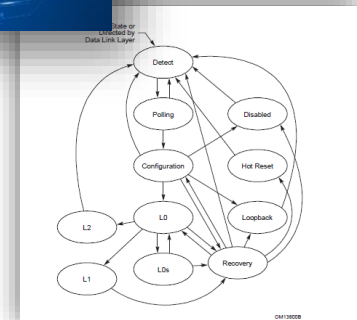
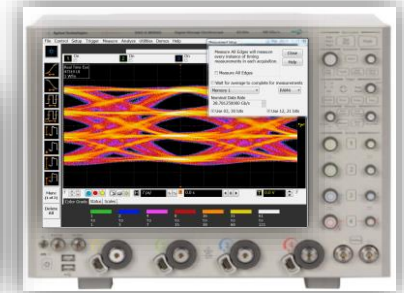
QSFP-DD MSA

Double Density

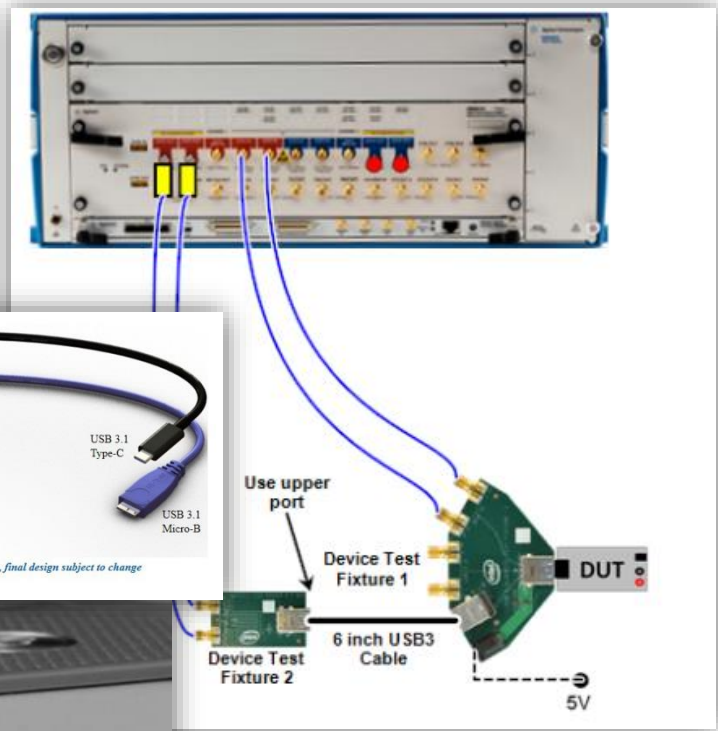
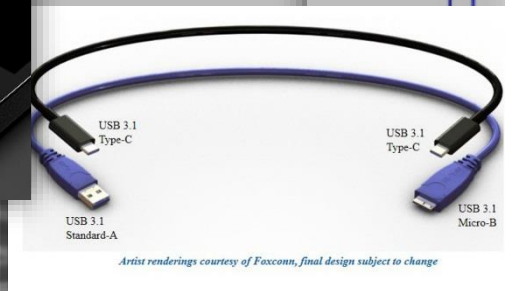
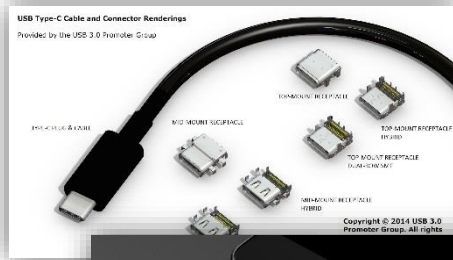
PROMOTERS



High Performance Server



USB and Type-C



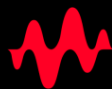
日程安排

时间	主题
08:15 – 09:00	注册签到
09:00 – 09:10	开场致辞
09:10 – 09:40	云计算与大数据时代的高数数字测试挑战
09:40 – 10:20	PAM4 信号的产生与分析
10:20 – 10:30	休息与交流
10:30 – 11:15	利用 AWG 产生多路复杂信号
11:15 - 12:00	您必须了解的 USB3.1 与 Type C
12:00 – 13:15	午餐与休息
13:15 – 14:00	示波器的高级射频测试能力
14:00 – 14:45	使用示波器查找并消除电路设计中的串扰
14:45 – 15:00	休息与交流
15:00 – 15:45	紧密结合的信号/电源完整性仿真流程
15:45 – 16: 30	从时域到频域电源完整性测试
16:30 – 16:45	总结与幸运抽奖

以是为本，以德致远

《说文》：“以日为正则曰是”

《易 节》：“君子以制数度，议德行”



KEYSIGHT
TECHNOLOGIES

TECHNOLOGIES