



ACON Group

9/2020





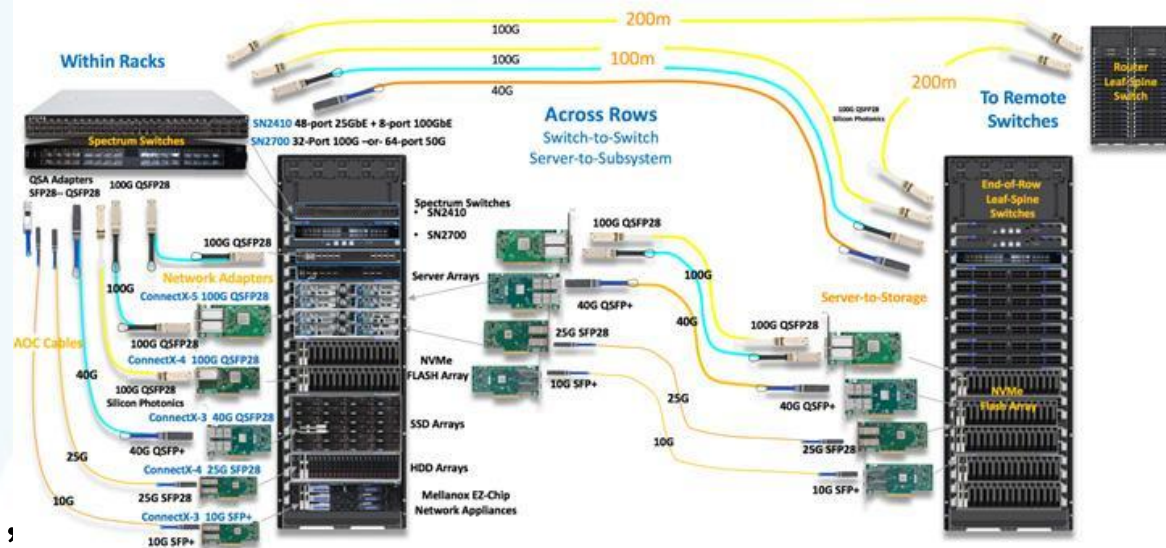
- **Cable Classification**
- **Application by Type**
- **Technical Trend**
- **Standard & Committee**
- **Testing & Verification**

	External	Internal
Active	AOC (Active Optical Cable), & Transceiver Module Length: 10M —>200M Speed: 25G/ 50G/ 100G Signal: NRZ/ PAM4 ACC (Active Copper Cable) Length: 10M below Speed: 25G/ 50G/ 100G Signal: NRZ/ PAM4	N/A
Passive	DAC (Direct Attached Cable) Length: 1M —>3/4M Speed: 25G/ 50G/ 100G Signal: NRZ/ PAM4	Internal Cable Length: 1M —>3M Speed: 25G/ 50G Signal: NRZ/ PAM4

AOC & Transceiver Module

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- **Product (e.g.)** : QSFP28
100GBASE-SR4
- **Standard** : IEEE 802.3bj ,
Infiniband EDR , SFF
8436/8431 etc.
- **Cable** : OM3 MMF 70m or OM4
MMF 100m
- **Testing** : Follow active cable
testing process
- **Application** : Server to Server,
Server to Storage, Switch
to Server, Switch to Router



ACC (Active Copper Cable)

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- **Product (e.g.)** : QSFP28 to QSFP28,length: 5m 、 7m 、 10m
- **Standard** : IEEE 802.3 bj , Infiniband EDR , SFF 8665
- **IC Chip** : Retimer or Equalizer
- **Testing** : Follow active cable testing process
- **Application** : Server to Server, Server to Storage, Server to Switch, Switch to Router

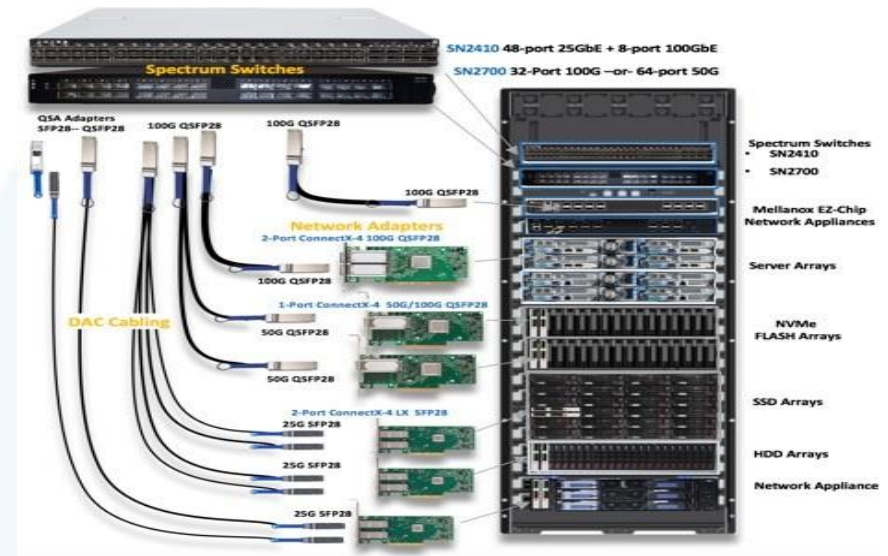
Note: Cable length longer than 10m need to use AOC or Module plus Optical Cable



DAC (Direct Attach Cable)

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- **Product (e.g.)** : QSFP28 to SFP28*4 fan out cable
- **Standard** : IEEE 802.3 bj , Infiniband EDR , SFF 8665 , etc.
- **Wire Gage** : 30AWG below 3m , 26AWG below 5m
- **Testing** : Follow passive cable testing process
- **Application** : Server to Server, Server to Storage, Server to Switch

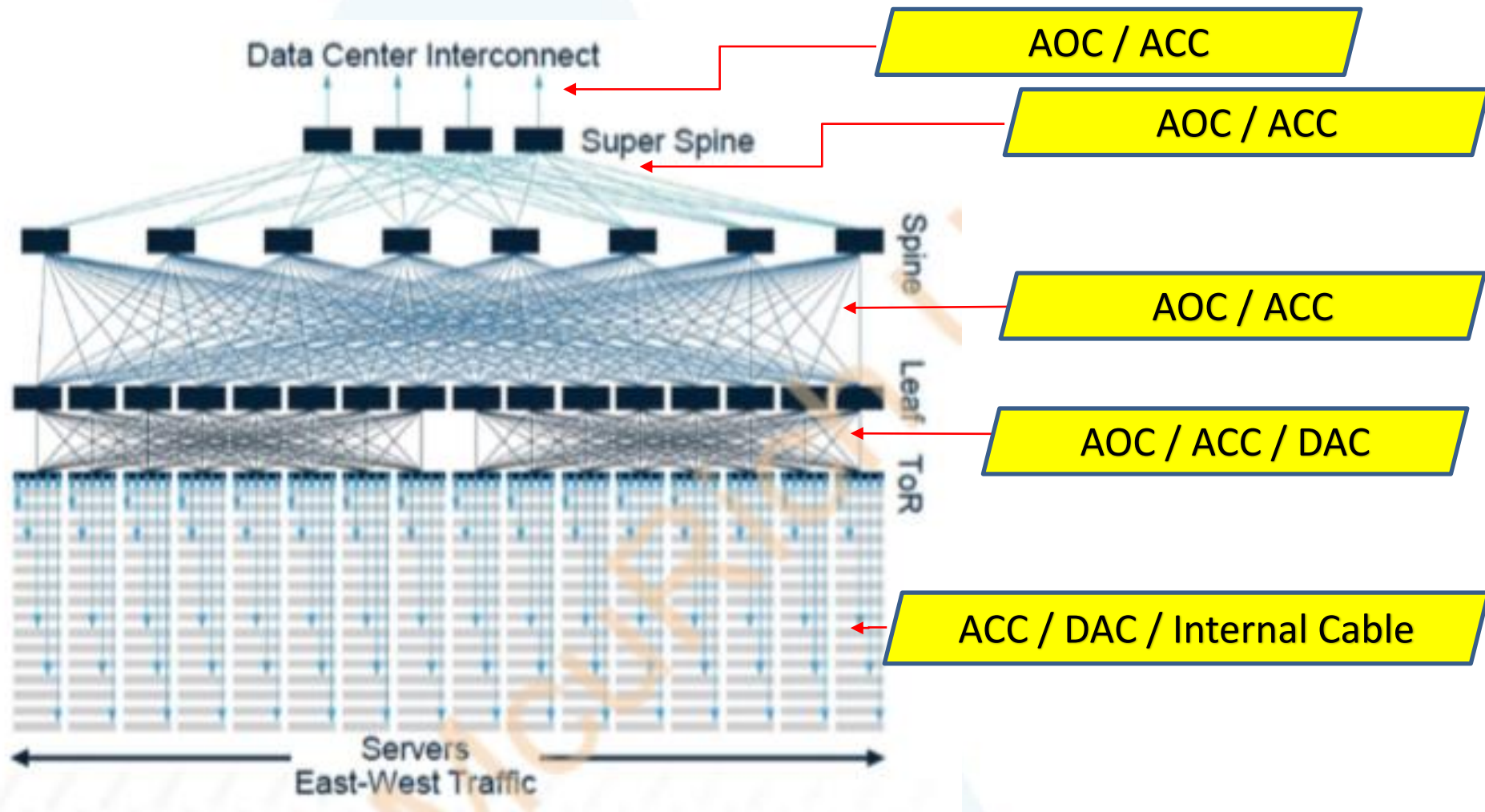


- **Product (e.g.)** : SlimSAS 8i
- **Standard** : SFF-8654 ,
85ohm and 100 ohm
- **Length** : SAS 3.0/4.0, PCIe
3.0/4.0 1m length
- **Testing** : Follow passive
cable testing process
- **Application** : Server internal,
Storage internal, Switch
internal



Application by Type

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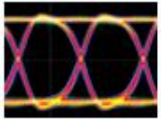


Speed Upgrade Trend

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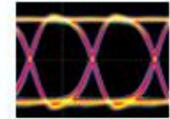
- Higher Signal Speed due to Coding & Density Upgraded

28G NRZ

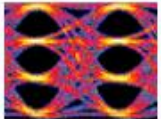


QSFP28*

100Gbps

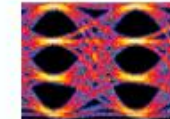


56G PAM4

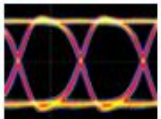


QSFP56*

200Gbps

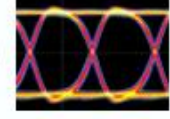


28G NRZ

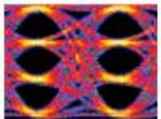


QSFP-DD *** **

200Gbps

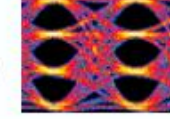


56G PAM4



QSFP-DD *** **

400Gbps

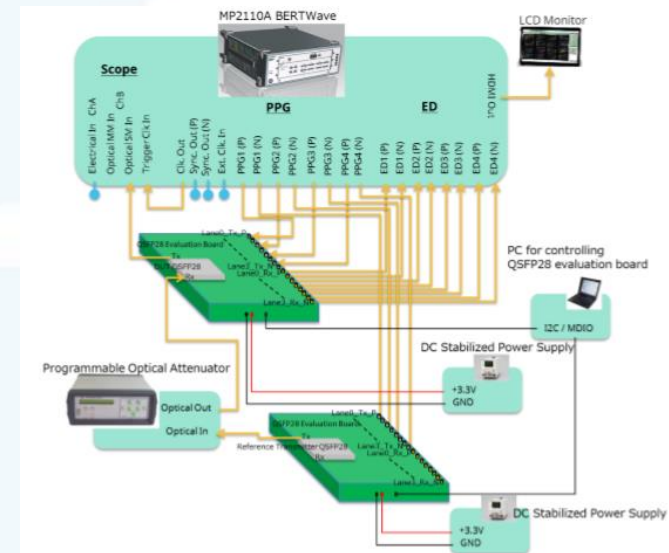
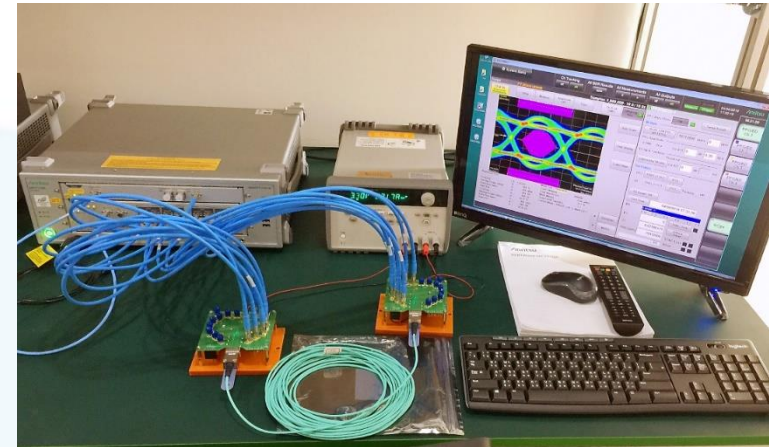




- **Frequency/Time Domain & BERT/EYE are the main testing Items**



- **Key Test** : BERT, EYE, Jitter
- **Spec** : Follow IEEE
InfiniBand 、SFF 、PCIe 、
SAS standard
- **Testing Equipment:**
PPG/ED/Scope/Test
Board/RF Switch
- **Environment & Reliability** :
Follow standard
- **Test Record** : date code to
store in cloud



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