

Design & Verification Engineering Capability

Embedded ODM Production



Research & Design Engineering

Electrical Engineering

Mechanical Design

PCB Layout

Power Engineering

Thermal Design

High Speed IO Testing

Signal Integrity Design

EMC/EMI Testing

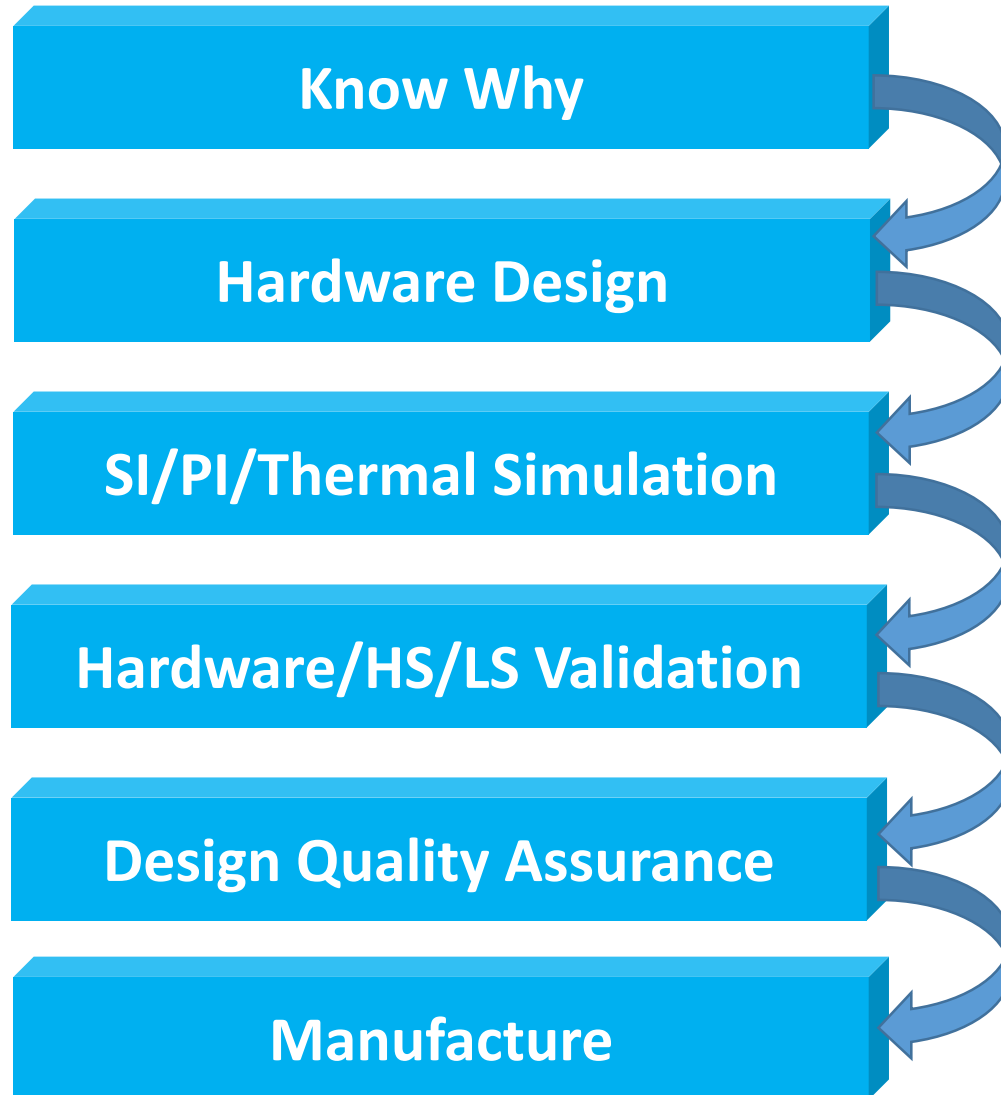
Low Speed Bus Testing

Power Integrity Design

Product Safety

Design Quality Assurance

ODM Working Process



Creativity and Flexibility

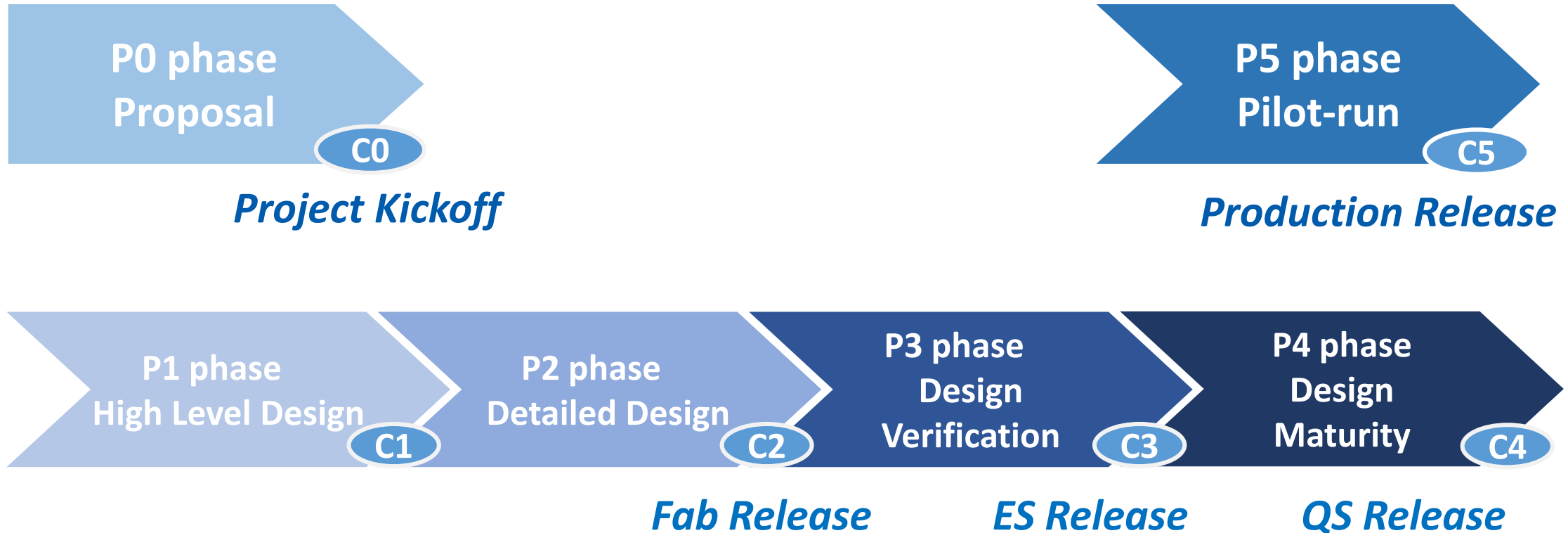
Reduce the risk of design failure

Electrical Design Verification Report

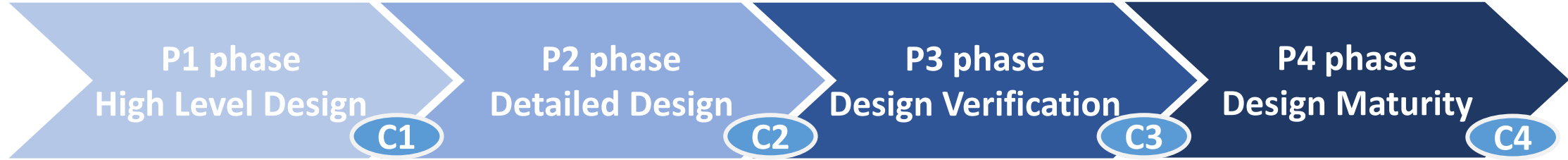
System Reliability Verification Report

Reliable Product Manufacturing

Project Development Process



Design and Test Review



High Level Design

- Placement
- Thermal simulation
- Mechanical
- Design rule
- BOM cost

- DFM/Assembly
- DFT(Test)

Detailed Design

- Schematic
- Layout
- Design rule
- CPLD Spec
- EVT plan
- DVT plan
- DFMEA (Design Failure Mode and Effects Analysis)
- Gerber out

Design Verification

- EVT report
- Signal integrity
- Functional
- Performance
- Design margin

Design Maturity

- DVT report
- Compatibility
- Reliability
- Serviceability
- Certification
- Pilot-Run

Project Management



Product Data

Part BOM

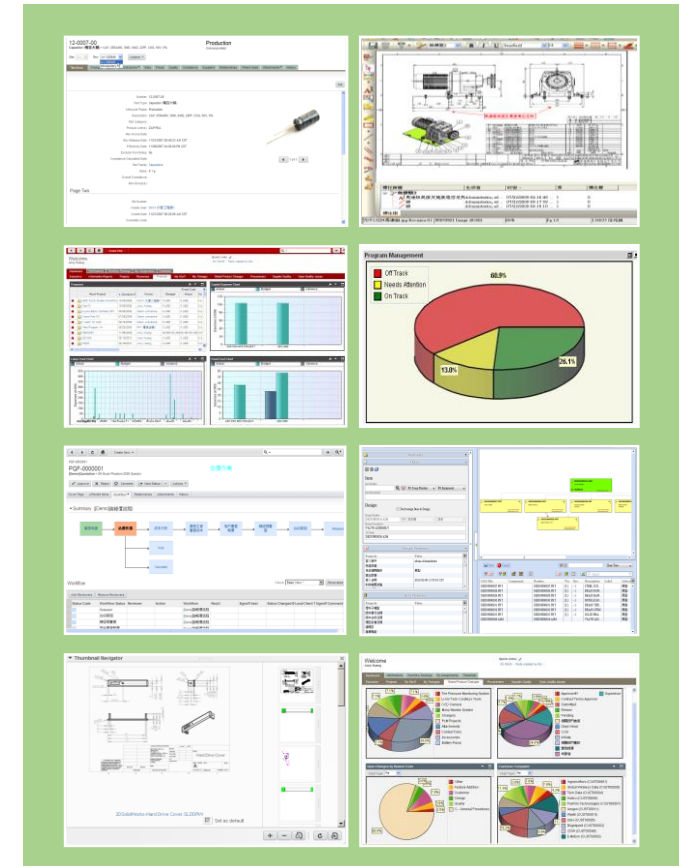
ECR
ECO

Project

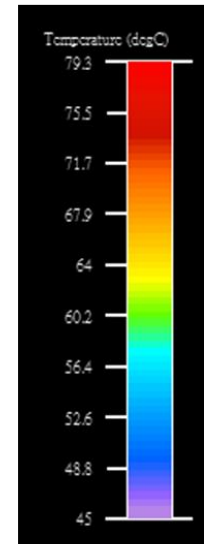
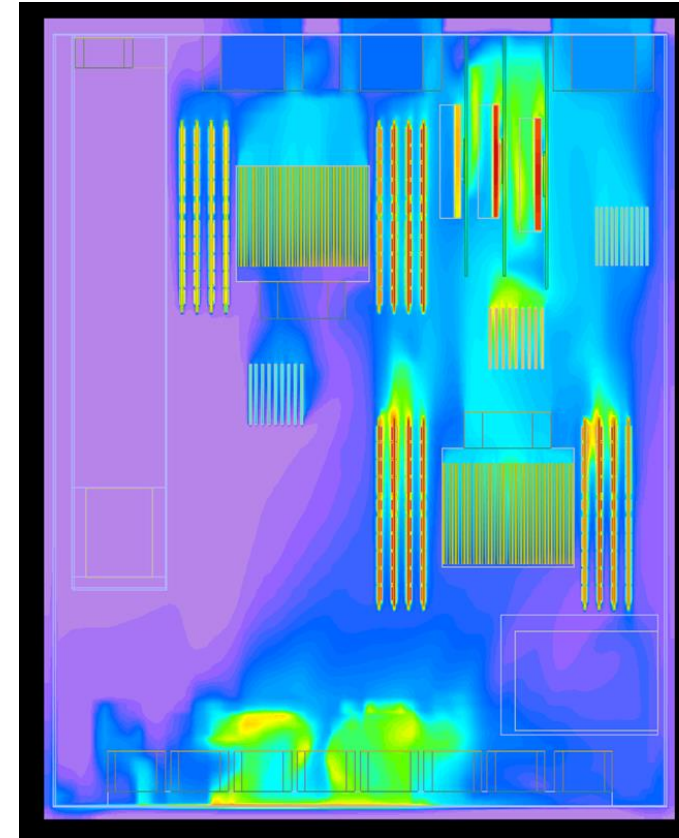
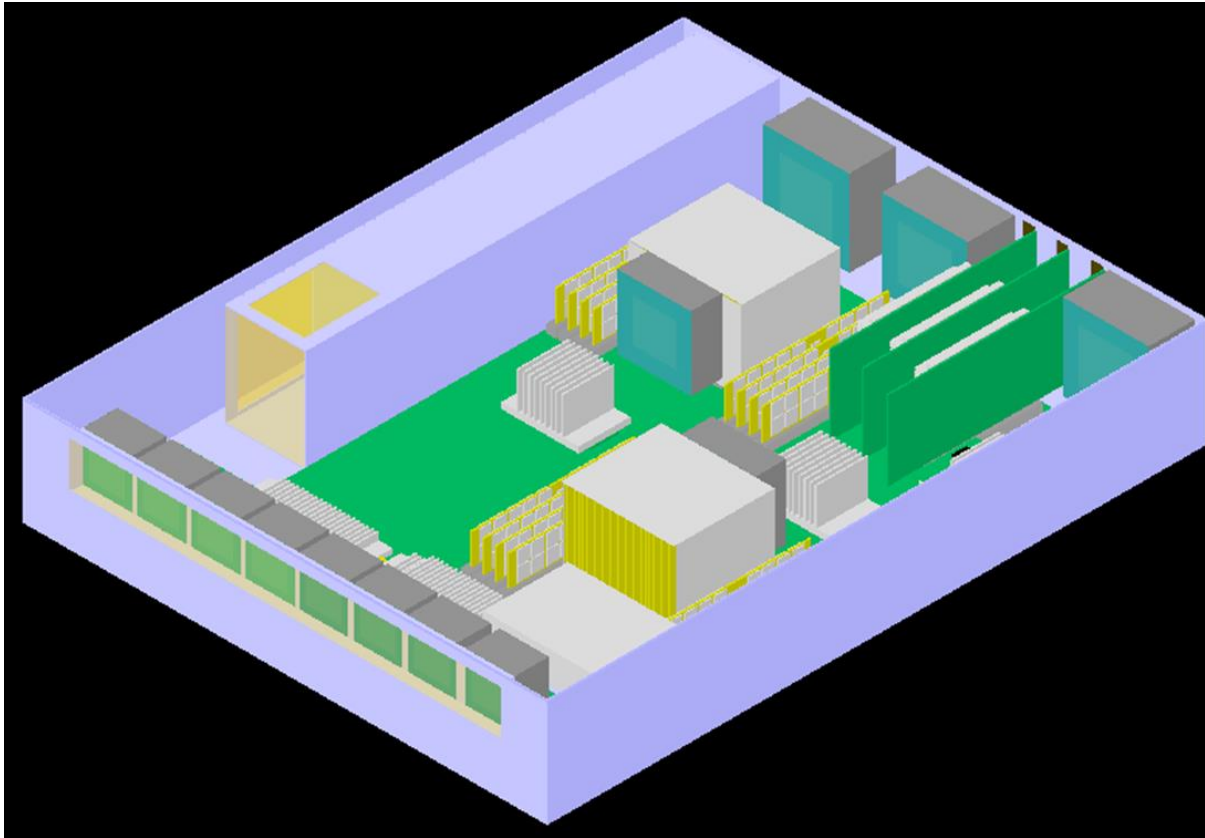
Doc.

Drawing

Agile PLM



Thermal Simulation- FloTHERM



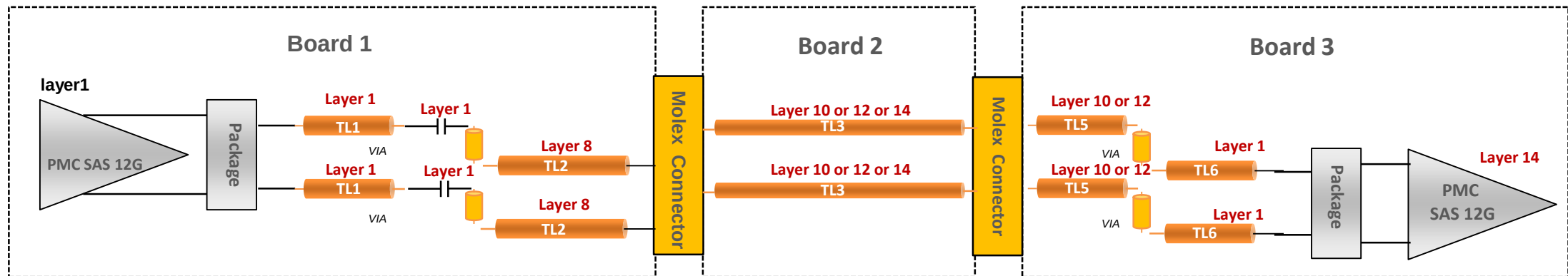
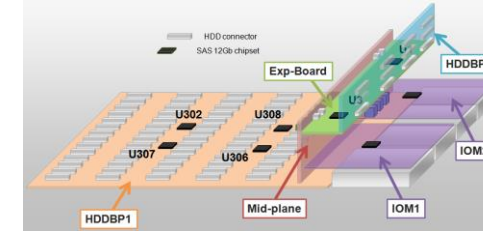
SI simulation- Cadence SI



Background:

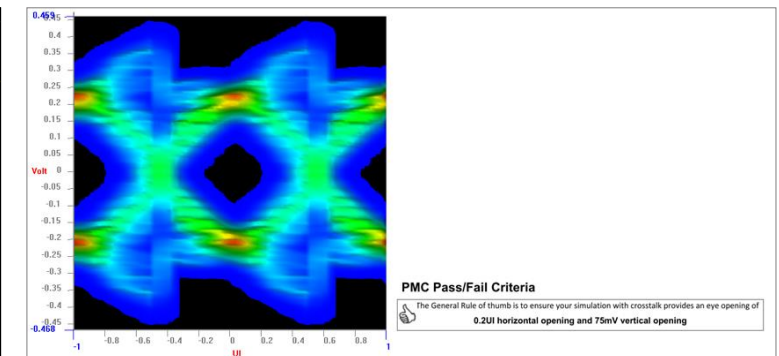
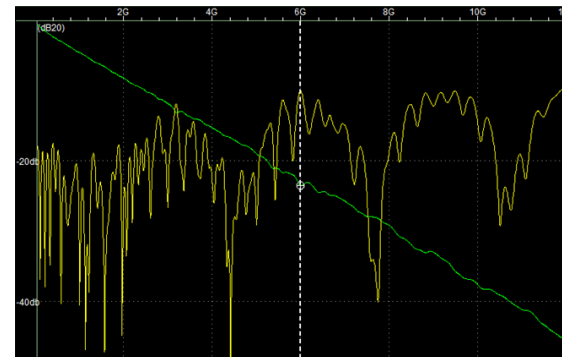
- The longest trace length from IOM to HDD-BP#2 is 27.56 inches (estimation value).

Topology:



Action: Channel Loss Simulation and eye opening

- Channel loss can meet PMC SAS channel requirement and have good margin
PMC Ch loss Spec. : < 33dB @ 6GHz
- Eye opening better than PMC requirement and have good margin.
(PMC Sierra expander IBIS AMI v2.7 simulation)



Verification Process



EVT

Build Quality Check
Test-to-Specification
Signal Quality Fine Tune
Performance Benchmark
Design Margin Test



DVT

System Elements Assembly
Temperature Profile
Power Consumption
Guard Band Test
Package Test
Environmental Test
Long Term Reliability Test

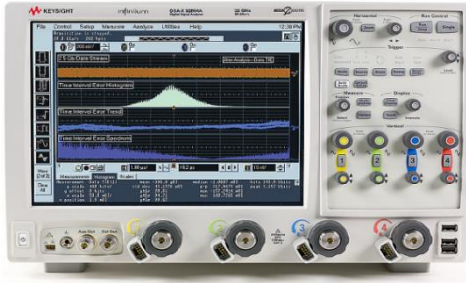


PVT

Functionality Test
Compatibility Test
Performance Test
Stability Test
Usability Test
Compliance Test



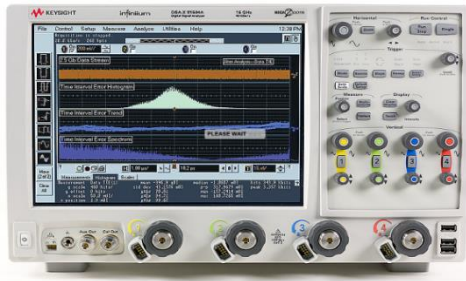
Engineering Validation Test Equipment



DSA-X 92804A 28GHz 80GSa/s

Application:

1. SFP+
2. 40G QSFP
3. HDMI
4. SAS
5. PCIE
6. SATA
7. CLOCK



DSA-X 91604A 16GHz 40GSa/s

Application:

1. PCIE
2. SATA
3. Displayport
4. USB3.0
5. CLOCK
6. 10M/100M/1G/10G/NBase-T
7. IEEE Return Loss



EXA N9010A(10Hz - 7GHz)

Application:

1. 10GBASE-T Power Spectral Density
2. 10GBASE-T Power Level



Keysight PNA N5224B

Application:

1. S-parameter extraction
2. Insertion Loss Test
3. Return Loss Test
4. Impedance Test



DSOX3024T 200MHz 5GSa/s

Application:

1. Power Supply Control Loop Response Measurement
2. Bode Plot, Gain Margin and Phase Margin



ENA E5061B(100kHz - 1.5GHz)

Application:

1. RJ45 MDI Return Loss test

Engineering Validation Test Equipment



DPO77002SX 70GHz 200GS/s 125M/Ch(RL)

Application:

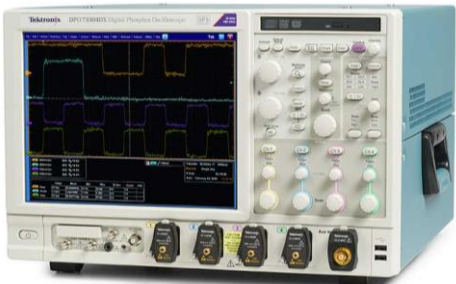
- | | |
|--------------------|---------------------|
| 1. PCIE Gen6/5/4/3 | 5. USB4/3.2/3.1/3.0 |
| 2. IEEE 800GbE | 6. SATA7/22 |
| 3. IEEE 400GbE | 7. DP1.4/1.2 |
| 4. IEEE 200GbE | 8. HDMI2.0/1.4 |
| 5. IEEE 100GbE | |



DPO73304SX 33GHz 200GS/s

Application:

- | | |
|--------------------|---------------------|
| 1. PCIE Gen6/5/4/3 | 5. USB4/3.2/3.1/3.0 |
| 2. IEEE 400GbE | 6. SATA7/22 |
| 3. IEEE 200GbE | 7. DP1.4/1.2 |
| 4. IEEE 100GbE | 8. HDMI2.0/1.4 |



Tektronix MSO71604C

Application:

- | | |
|-----------|-----------------------|
| 1. PCIE | 5. CLOCK |
| 2. SATA | 6. 10M/100M/1G Base-T |
| 3. USB3.1 | |
| 4. USB2.0 | 7. MIPI D-PHY |



DSA8300 Sampling scope

Application:

- | | |
|-------------------|-------------------|
| 1. TDR 50GHz BW | 4. ICONN S-param |
| 2. 100G/40G/10GbE | 5. Impedance Test |
| 3. SerDes | |

CDR 28G BW

80E10



MSO64 4Ghz 25GS/s

Application:

1. Ethernet Base-T
2. USB2.0
3. Low speed signals
4. Power ac noise
5. IEEE Return Loss

Engineering Validation Test Equipment



IXIA XGS12
NOVUS10/5/2.5/1/100M16DP
NOVUS-R100GE8Q28+
NOVUS 25GE FAN-OUT-UPG
Multis QSFP+40GE QSFP28 , FAN-OUT 10GE 32SFP+ , L2-3 support

Application:

1. RFC2544/2889 for
100G/40G/25G/10G/5G/2.5G/1G



**AresONE-400GE QSFP-DD High-Performance
4-Port Test System**

Application:

1. RFC2544/2889 for
400G/200G/100G/50GbE

Engineering Validation Test Equipment



IXIA Novus ONE PLUS

IXIA Novus ONE PLUS Fixed Chassis, 4-port, SFP+/10GBASE-T Dual
PHY 10GE/5GE/2.5GE/1GE/100M

Application:

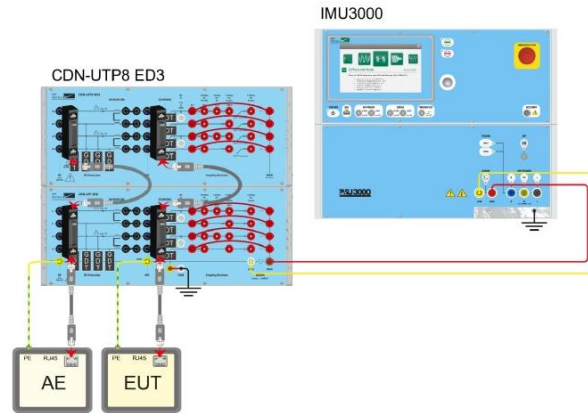
1. TSN conformance and interoperability tests.
10G/5G/2.5G/1G/100M

Engineering Validation Test Equipment



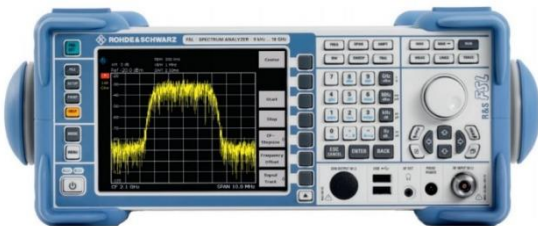
R&S®ESPI Test Receiver

Application:
1. Radiation
Emission



IMU3000/CDN-UTP8 ED3

Application:
1. Surge
2. EFT



R&S FSL Spectrum Analyzer 9 kHz to 3 GHz

Application:
1. Signal/EMI
Analyzer



ESS-2002EX

Application:
1. ESD
simulator

Engineering Validation Test Equipment



Shock-100

Application:
1. Shock test



MHK-408NK/LK/LB/AK

Application:
1. Temperature & Humidity Test Chamber



VS-600VH-51/VS-1000VH-51

Application:
1. Vibration test



VS-1018

Application:
1. Drop test

Certification lab (NEXCOM In-House)

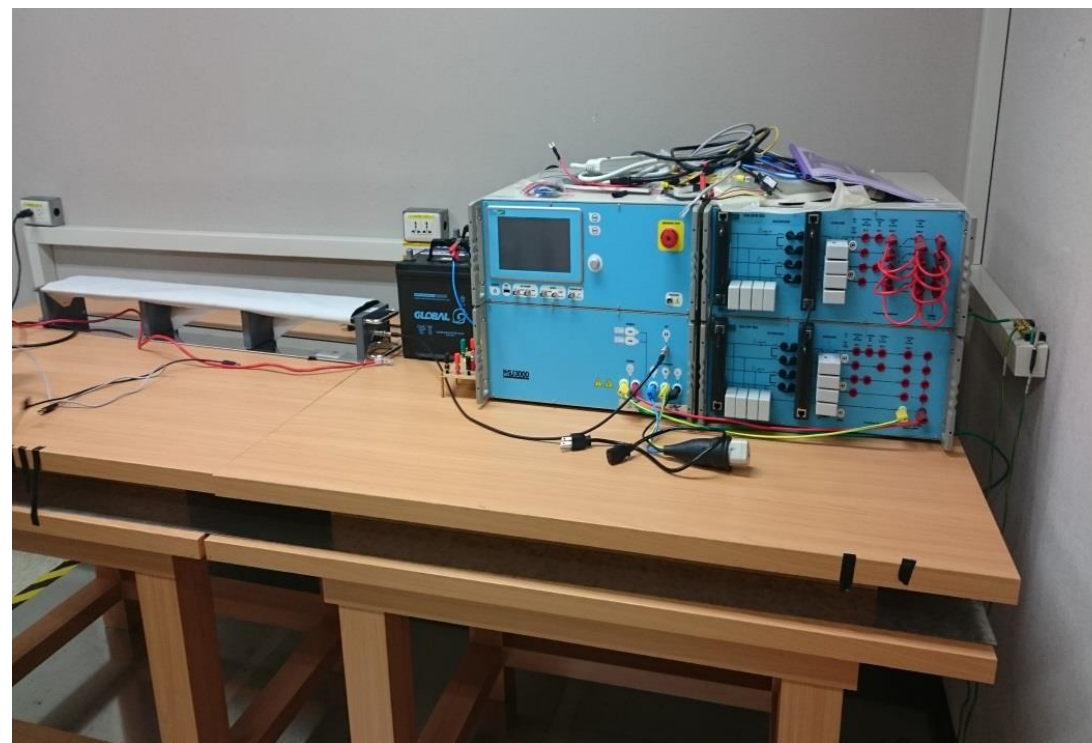


EMI Chamber

Certification lab (NEXCOM In-House)

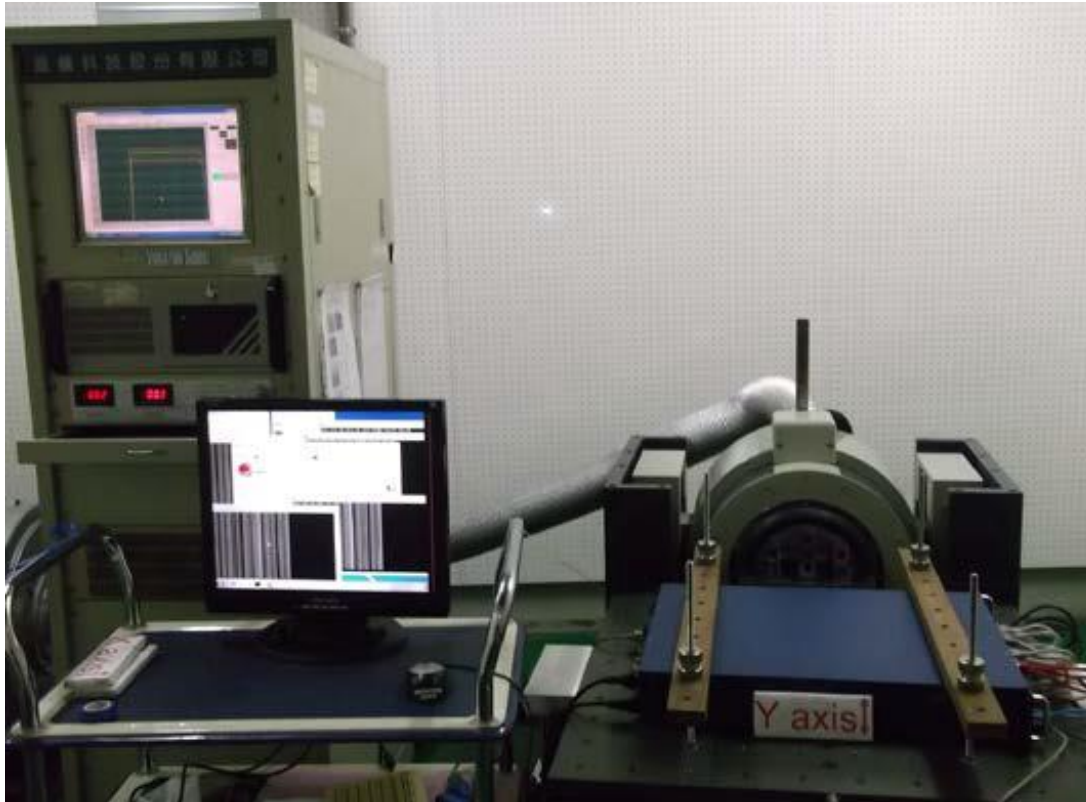


ESD Lab

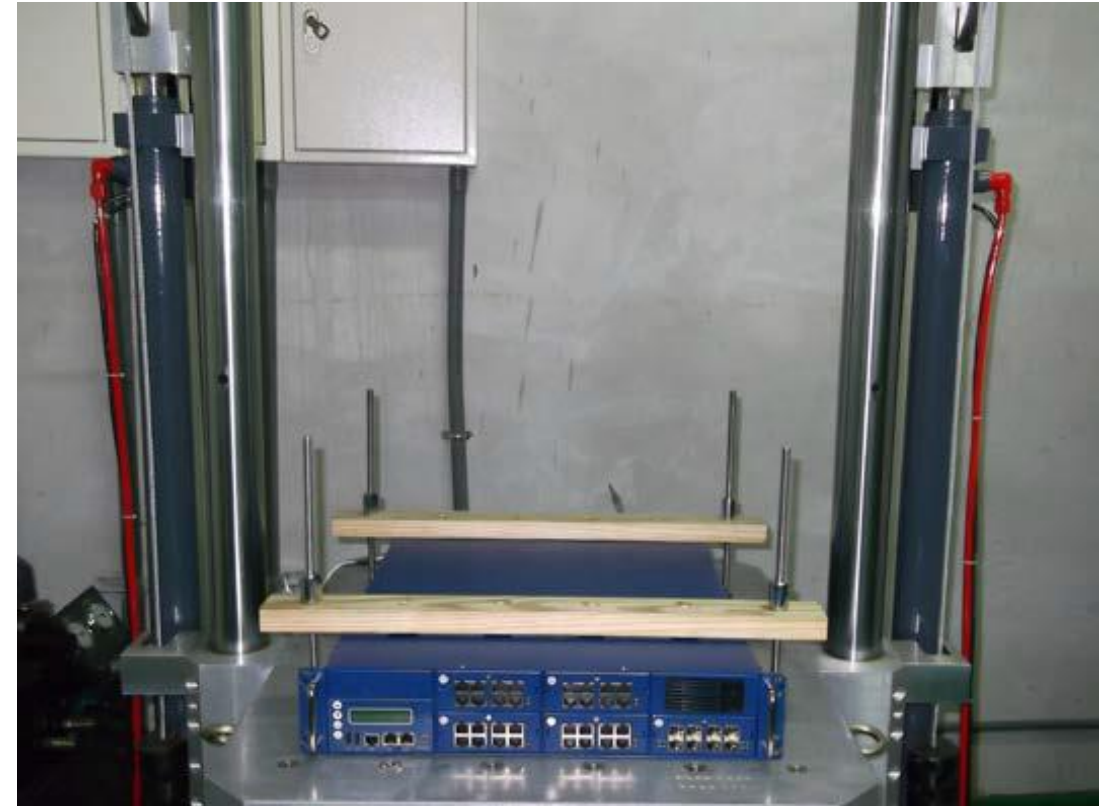


Surge/EFT Lab

Certification lab (NEXCOM In-House)



Vibration Machine



Shock Machine

Thank
You