CPC-based Copper Channels for P802.3dv

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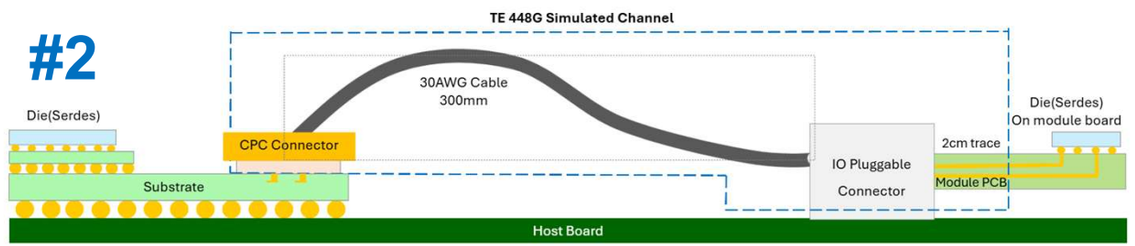
- Overview
- Channels
  - Passive copper (CR)
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  - Passive backplane (KR)
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- Backup: File names & port mapping

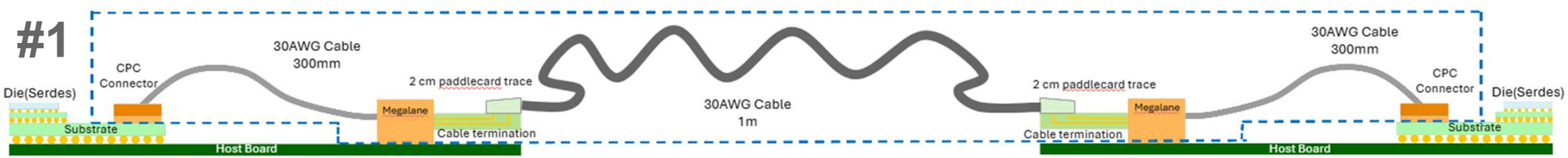
Channel Overview

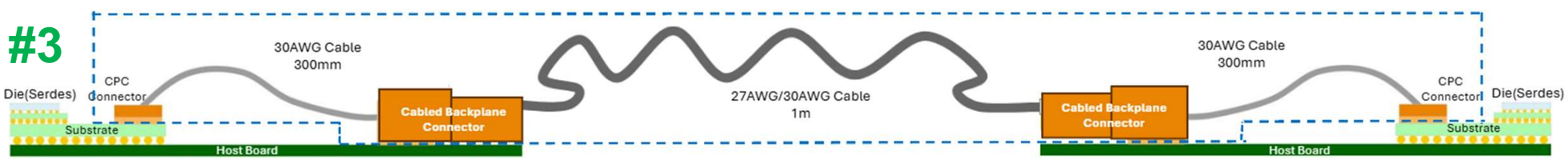
Three channel types:

- #1: Direct Attach Copper Cable
- #2: Chip-to-Module
- #3: Backplane (30AWG & 27AWG)

All channels are passive

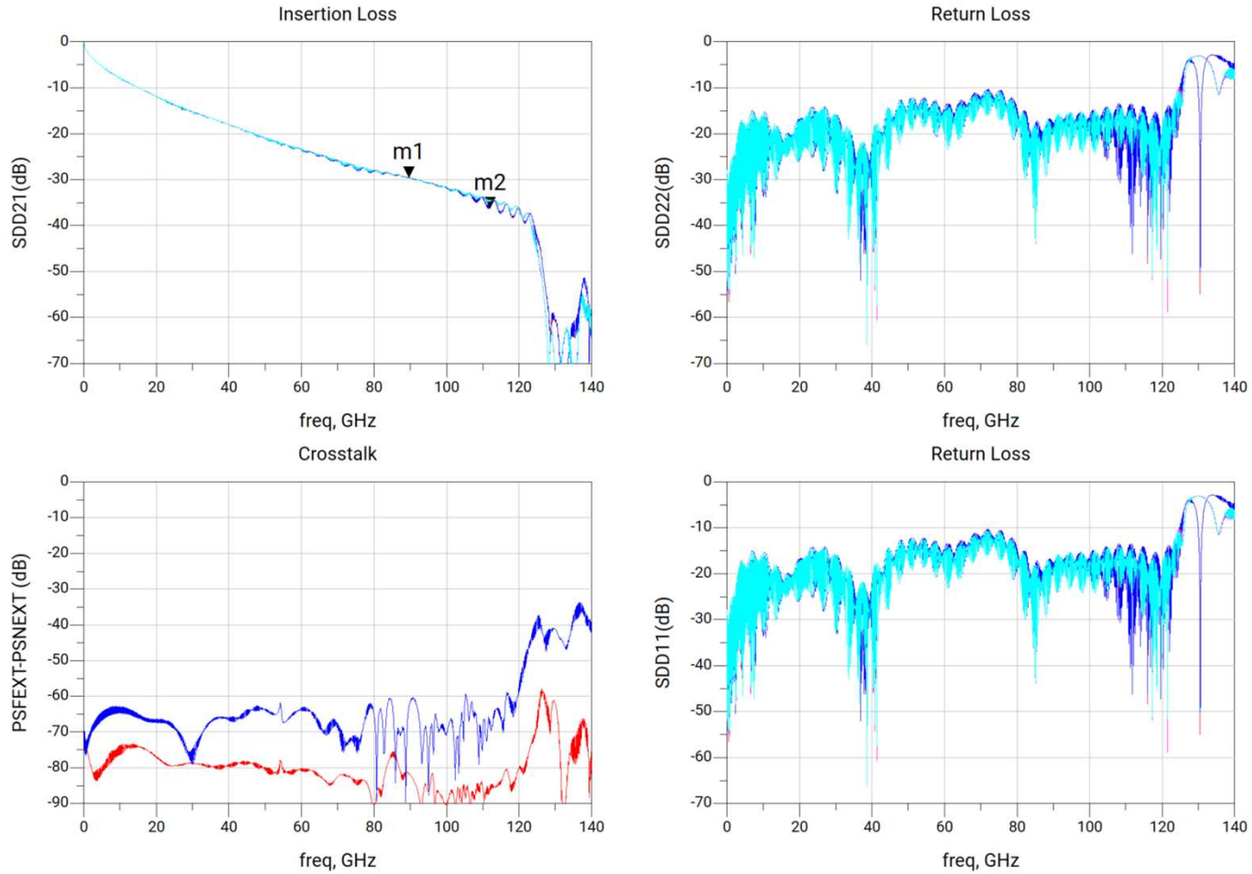


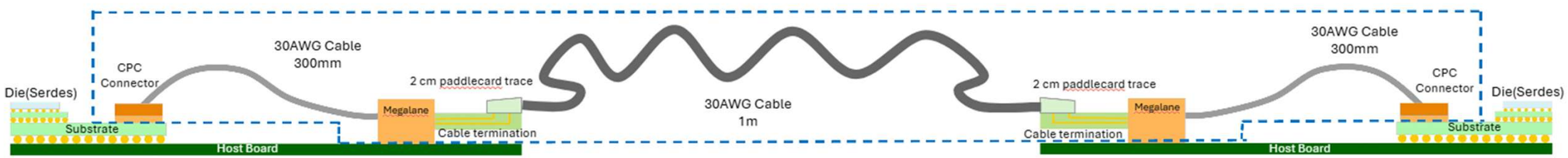




Channel #1: CPC Direct Attach Copper Cable

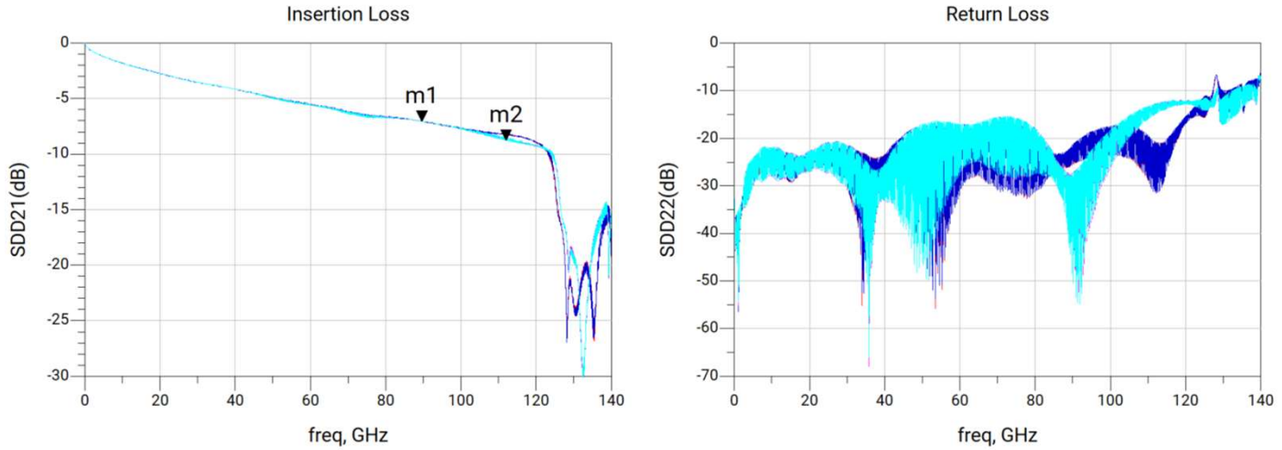
- DAC: 1m, 30AWG
- Host: 300mm, 30AWG
- 2cm paddle card trace
- Test points at CPC/pkg interface
- Insertion loss:
  - -29.5dB @ 89.6 GHz
  - -36.1dB @ 112 GHz

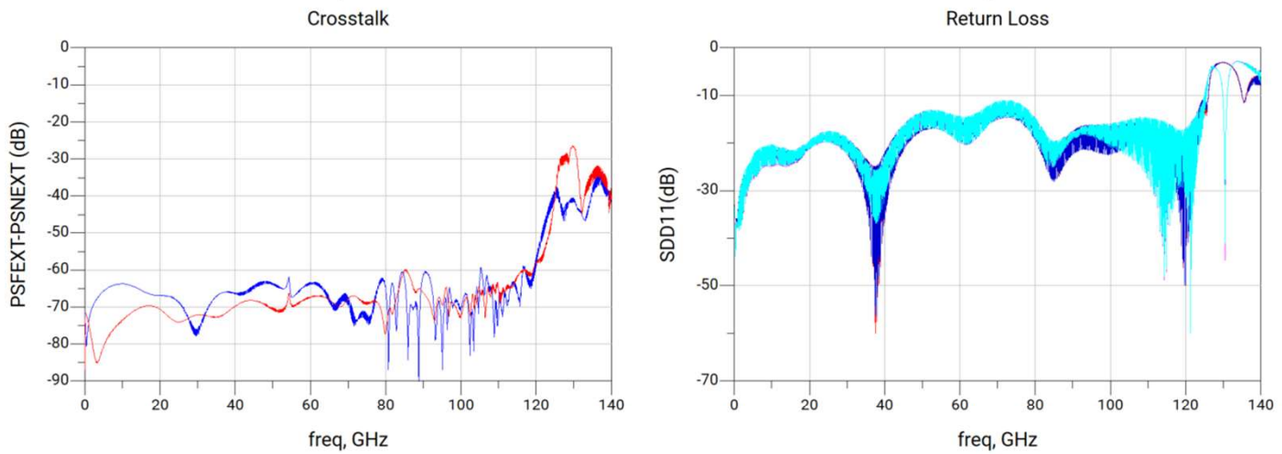


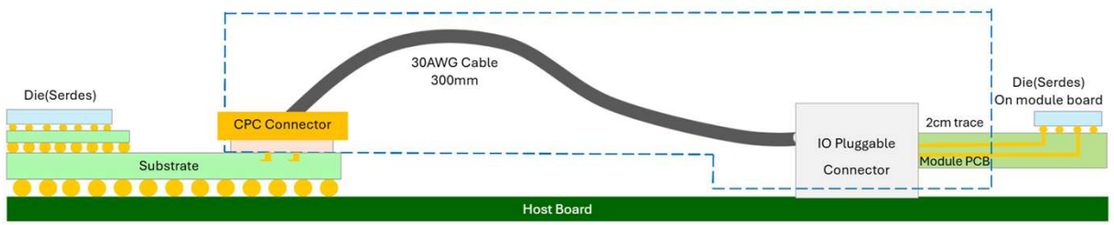


Channel #2: Chip-to-Module

- Host: 300mm, 30AWG
- 2cm paddle card trace
- Test points at CPC/pkg interface
- Insertion loss:
  - -7.1dB @ 89.6 GHz
  - -8.8dB @ 112 GHz

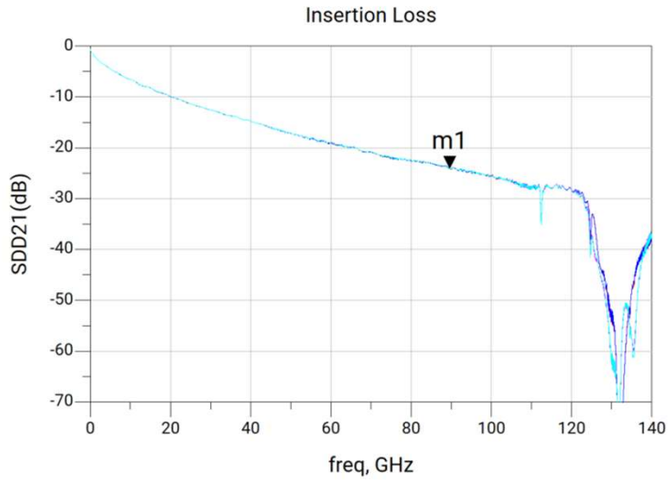


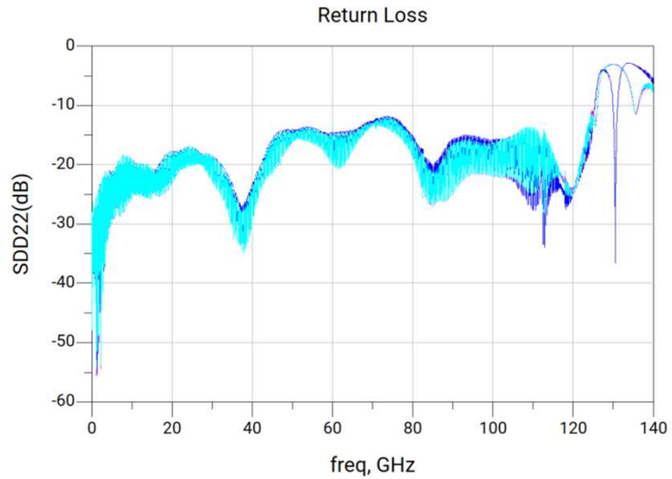




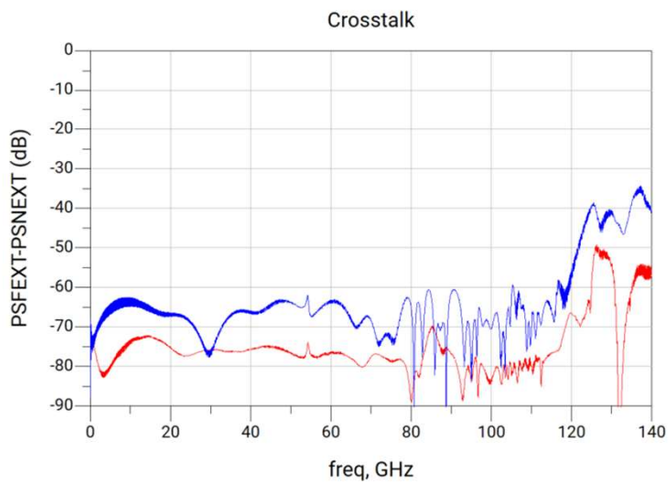
Channel #3a: CPC Backplane

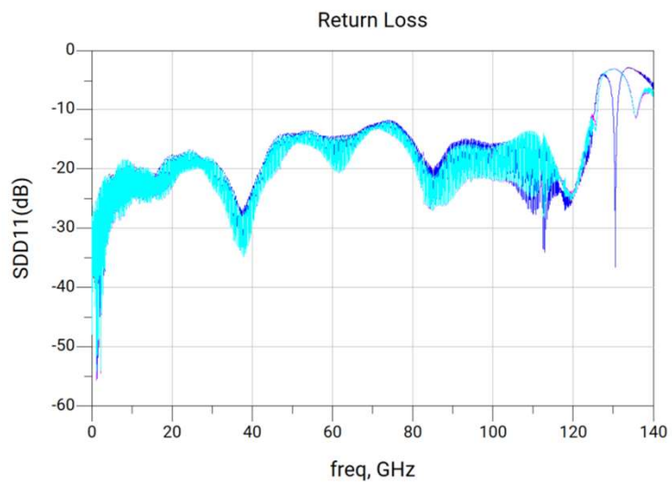
- Backplane cable: 1m, 27AWG
- Host: 300mm, 30AWG
- Test points at CPC/pkg interface
- Insertion loss:
  - 27AWG: -24dB @ 89.6 GHz

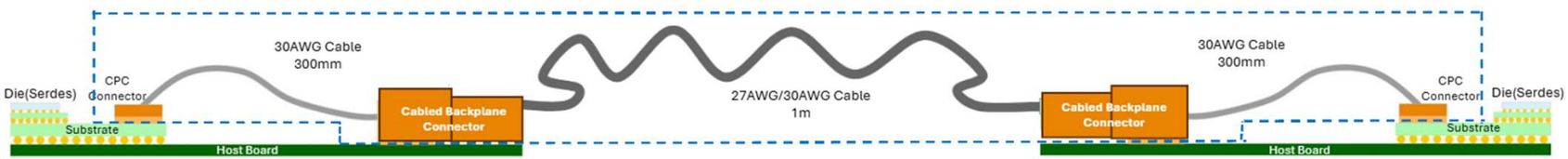




Pair 1
Pair 2
Pair 3
Pair 4

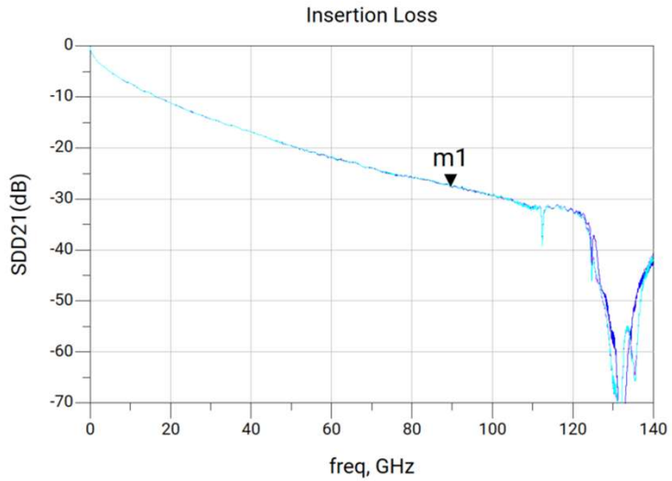


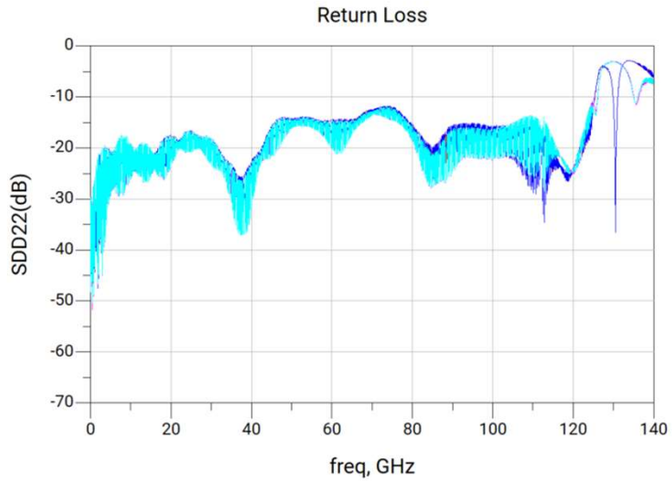


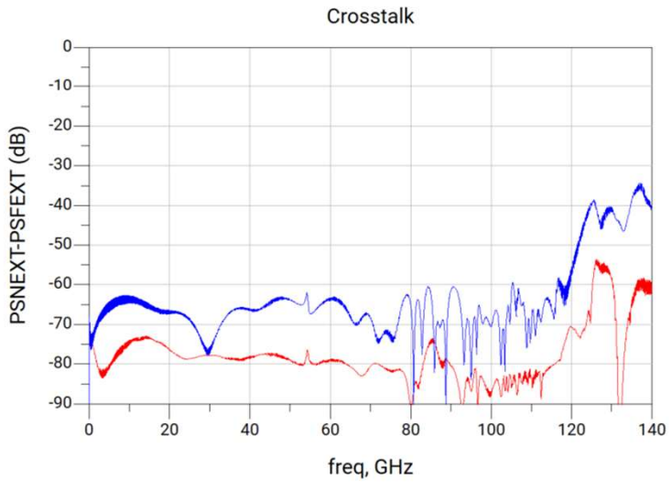


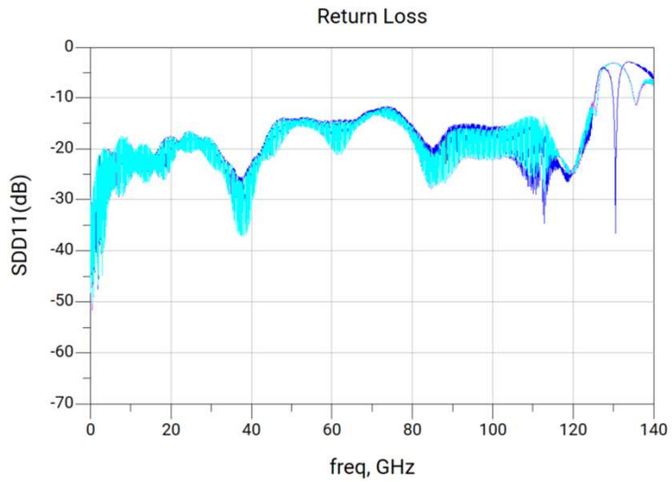
Channel #3b: CPC Backplane

- Backplane cable: 1m, 30AWG
- Host: 300mm, 30AWG
- Test points at CPC/pkg interface
- Insertion loss:
  - 30AWG: -27.5dB @ 89.6 GHz

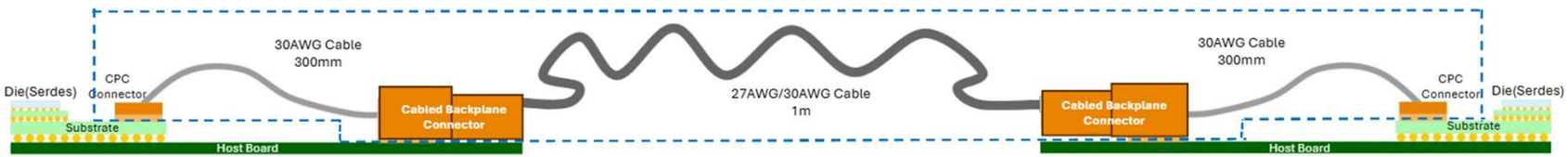








Pair 1
Pair 2
Pair 3
Pair 4



Conclusion and Future Work

- Passive CPC-based channels are provided for CR, C2M and KR.
- Touchstone files also provide for COM analysis.
  - File names and port mapping are provided in backup.
- Test points are located at the CPC/package interface.
  - May require future update.
- Active cable/backplane may be necessary for longer reach.
  - File names and port mapping are provided in backup.

Thank You

SnP Port Mapping

- Touchstone files:
  - Channel #1: heck400G_CR_CPC_300mm_IO_1mDAC_zzz.s4p
  - Channel #2: heck400G_C2M_CPC_300mm_zzz.s4p
  - Channel #3a: heck400G_KR_CPC_300mm_BP_1m_27awg_zzz.s4p
  - Channel #3b: heck400G_KR_CPC_300mm_BP_1m_30awg_zzz.s4p
- zzz:
  - thru
  - FEXT1, FEXT2, FEXT3
  - NEXT1, NEXT2

Port Mapping



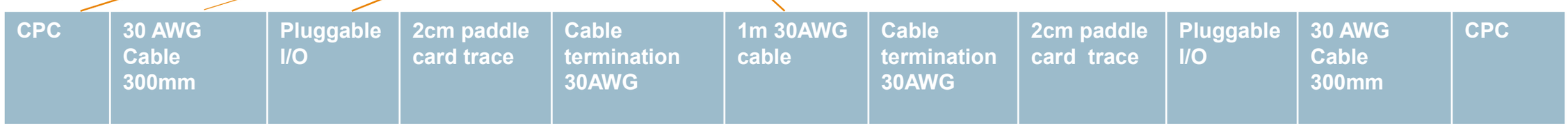
CR File Name Convention

Far-end aggressor pair#[p1, p2, p3]

Near-end aggressor pair#[p1, p2]

Channel 1:

heck400G_CR_CPC_300mm_IO_1mDAC_FEXTp#
heck400G_CR_CPC_300mm_IO_1mDAC_NEXTp#
heck400G_CR_CPC_300mm_IO_1mDAC_thru





C2M File Name Convention

Channel2:

heck400G_C2M_CPC_300mm_FEXTp#
heck400G_C2M_CPC_300mm_NEXTp#
heck400G_C2M_CPC_300mm_thru

Far-end aggressor pair#[p1, p2, p3]

Near-end aggressor pair#[p1, p2]

CPC	30 AWG Cable 300mm	Pluggable I/O	2cm paddle card trace



Backplane File Name Convention

Far-end aggressor pair#[p1, p2, p3]

Near-end aggressor pair#[p1, p2]

Channel3a:
heck400G_KR_CPC_300mm_BP_1m_27awg_FEXTp#
heck400G_KR_CPC_300mm_BP_1m_27awg_NEXTp#
heck400G_KR_CPC_300mm_BP_1m_27awg_thru

Channel3b
heck400G_KR_CPC_300mm_BP_1m_30awg_FEXTp#
heck400G_KR_CPC_300mm_BP_1m_30awg_NEXTp#
heck400G_KR_CPC_300mm_BP_1m_30awg_thru

