5/8 OAI Subgroup OCP Call
Agenda

• OAI group scope
• OAI group focus in next 3 months – OAI-UBB baseboard for OAM
• Sign the JDA to join the UBB specification discussion
• Kick off OAI-UBB discussion
• Feedback
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<th>Group Scope</th>
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<td>OCP Accelerator Module (OAI-OAM)</td>
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<td>OAI Universal Baseboard (OAI-UBB)</td>
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<td>OAI Host Interface (OAI-HIB)</td>
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<td>OAI Power Distribution (OAI-PDB)</td>
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<td>OAI Expansion Beyond UBB (OAI-Expansion)</td>
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<td>OAI-Tray</td>
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<td>OAI Chassis</td>
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How to Join the UBB Discussion

Sign JDA

Closed meetings will be held under JDA
OAI-UBB Discussion
Topics

• OAM Candidates
• OAM Interconnect Topology
• Baseboard Dimension
• 8x PCIe connector selection
• PCIe connector pin mapping
• OAM TDP/Power support/Thermal
• System Expansion
• System Debugging
• System Management
OAM Candidates (6 or more Links per OAM)

- Lanes per Link
  - X4 per link
  - X8 per link
  - X16 per link
  - Speed reference for SI consideration
    - Need specify max SerDes speed for baseboard design

- Voltage 12V/48V

- TDP
Proposed Topology:

**Fully Connected(up to X8) + Almost Fully Connected(up to X16)**

Question:
- Route each link X8 only?
  - To save layers.
  - Extra X8 links could be used for expansion.
Baseboard Dimension

- Consider both 19” and 21” rack
- 16.4-16.9”(431mm or 416mm)?
- Depth 17-18”? 
Host Interface Connector Selection

• 8 X16 PCIe to UBB, total 256+ Differential Pairs
• PCIe Gen4/5 compatible
• Candidates:
  • TE:
    • Amphenol:
  • Molex:
OAM TDP/Power support

• Support both 12V/48V?
• 12V up to 300w?
• 48V up to 700w*8?
Thermal Consideration

- Air cool in 3U support up to 450w TDP
- Liquid cool required for >450w
System Expansion Options

• Through host NIC
• Through GPU direct (PCIe switch, IB/ethernet)
  • Example: Nvidia
• Through Interconnect Link
  • Example: Google TPU, Intel Nervana
• Through PCIe Fabric
  • Not recommended due to complexity
• Through proprietary switch (Nvswitch...)?
Through GPU Direct

• If 4*PCIe X16 from host
Through GPU Direct

- If 4*PCIe X16 from host
Through GPU Direct

- If 4*PCIe X16 from host
Through GPU Direct

• If 4*PCIe X16 from host, with Expansion
Through GPU Direct

• If 4*PCIe X16 from host
Scale out through Interconnect Link Example

Intel Nervana
System Debug
System Management

• Interface from UBB to control module