Open. Together.
Open Accelerator Infrastructure (OAI)
Project Overview

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OCP OAI Subgroup
The research and development in Artificial Intelligence (AI), Machine Learning (ML), Deep Learning (DL), and High-Performance Computing (HPC) are driving rapid evolution in new types of hardware accelerators.
Diverse Module and System Form Factors
Different Implementations
Targeting Similar Requirements!
We need an Open Accelerator Infrastructure for these *Complex and Expensive Systems* to Increase Interoperability and Accelerate Innovation.
We started with an **OCP Accelerator Module (OAM)**

102mm x 165mm Module Size
12V and 48V input DC Power
Up to 350w (12V) and up to 700w (48V) TDP
  - Up to 440W (air-cooled) and 700W (liquid-cooled)
Support single or multiple ASIC(s) per Module
Up to **eight** x16 Links (Host + inter-module Links)
  - Support one or two x16 High speed link(s) to Host
  - Up to seven x16 high speed interconnect links
System management and debug interfaces

A common form factor mezzanine module for the upcoming accelerators

- Spec link: [http://files.opencompute.org/oc/public.php?service=files&t=938c61e5b1d35c2b5c33b955525b1412](http://files.opencompute.org/oc/public.php?service=files&t=938c61e5b1d35c2b5c33b955525b1412)
OCP OAI Subgroup

- Formed 3/2019, under OCP Server Project

- To build the infrastructure for fast adapting, upcoming products which meet OAM spec

- **Scope:** to define the physical and logical aspects such as electrical, mechanical, thermal, management, hardware security, and physical serviceability to produce solutions compatible with existing/traditional operation systems and frameworks
System Explosion View

- OAM
- UBB
- Expansion
- UBB Tray
- Cooling
- Chassis
- PDB
- HIB SCM
OAI Project Schedules
(spec chapters)

- Open Accelerator Infrastructure (OAI)
- OCP Accelerator Module (OAI-OAM)
- OAI Universal Baseboard (OAI-UBB)
- OAI Host Interface (OAI-HIB)
- OAI Power Distribution (OAI-PDB)
- OAI Expansion Beyond UBB (OAI-Expansion)
- OAI Security, Control, and Management (OAI-SCM)
- OAI-Tray
- OAI-Chassis
OAM

- Spec v0.85 released on March 14, 2019
- Spec v1.0 released on July 31, 2019
- We are working with accelerator suppliers to enable their OAM-based solutions

- Nervana™ NNP-T OAM
  Intel

- Gaudi OAM
  Habana

- POC OAM
  AMD

- V100 POC OAM
  Nvidia
Universal Baseboard

- Supports both 19” and 21” rack
- Supports 54V/48V and 12V
- Supports different interconnect topologies
- 8* QSFP-DD connectors for scale-out

UBB workshop: 9/27 1:20pm
OAM Reference Systems

- OAM
- UBB
- Tray

Ref Sys workshop: 9/27 1:45pm
OAI/OAM Timeline

2017

Q4

Idea/Concept

2018

Q1

OAM Spec v0.1

Q2

Engage with Community

Q3

Spec v0.85 OAI Subgroup

Q4

2019

Q1

Intel OAM

Q2

Habana OAM & sys

Q3

OAM Spec v1.0

Q4

UBB Spec v0.4 OAM Ref sys*3

2020

Q1

AMD OAM

Q2

Nvidia OAM
OAI Experiencing Lab
Join OAI workshops/panel discussion
Tomorrow 1-4pm

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<tr>
<th>Workshop</th>
<th>Session Title</th>
<th>9/27</th>
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<tr>
<td>1</td>
<td>Open Accelerator Infrastructure Overview</td>
<td>13:00-13:15pm</td>
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<td>2</td>
<td>OAI-UBB: Universal baseboard for OCP Accelerator Module</td>
<td>13:20-13:40pm</td>
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<td>3</td>
<td>OAM Reference Systems Design Joint Review</td>
<td>13:45-14:25pm</td>
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<td>4</td>
<td>System management, security on OAI</td>
<td>14:30-14:50pm</td>
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<td>5</td>
<td>Cooling solution on OAM Reference systems</td>
<td>14:55-15:15pm</td>
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<td>6</td>
<td>OAM Panel discussion</td>
<td>15:20-16:00pm</td>
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