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Open Accelerator Infrastructure(OAI) Project Overview

Whitney Zhao, Facebook 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 <u>OCP Accelerator Module</u>(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



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









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





Universal Baseboard

UBB workshop :

9/27 1:20pm

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

OAM Reference Systems

OAI/OAM Timeline

OAI JDA Group

OAI Experiencing Lab

Join OAI workshops/panel discussion Tomorrow 1-4pm

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

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OCP Regional Summit 26–27, September, 2019

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