

TAKING OCP TO THE NEXT LEVEL – WORKLOAD OPTIMIZATION

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Krishna Paul
Principal Engineer
Data Center Group

OPEN COMPUTE HISTORY OF COMMITMENT AND LEADERSHIP

2011

Founding
Board Member
of OCP

+25

Contributions and
Enablements

+80

Products
with Partners

Consume. Collaborate. Contribute.



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GETTING TO \$10B IN OCP DEPLOYMENT



Workload
Optimized



Open Management



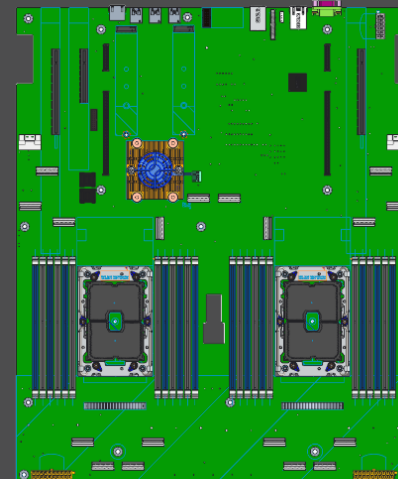
Integrated
Solutions

Consume. Collaborate. Contribute.



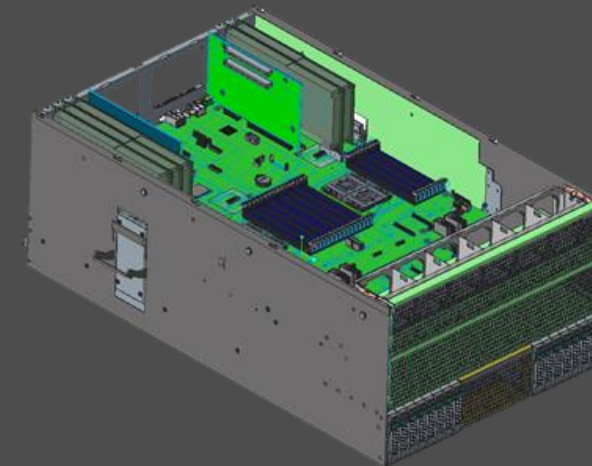
NEW OCP COMPUTE PLATFORMS THIS YEAR

Mount Olympus Next Gen Platform
for Cascade Lake Processor

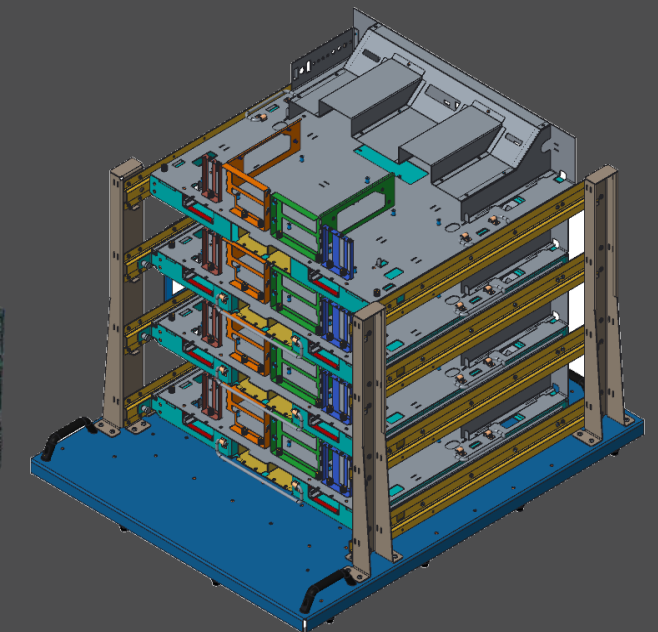


2S

Cooper Lake Processor Platforms



4S (2x 2S)



8S (4x 2S)



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INTEL® HIGH-DENSITY, CLOUD-OPTIMIZED PLATFORM

Cloud-Optimized Platform

2U 450mm x 780mm

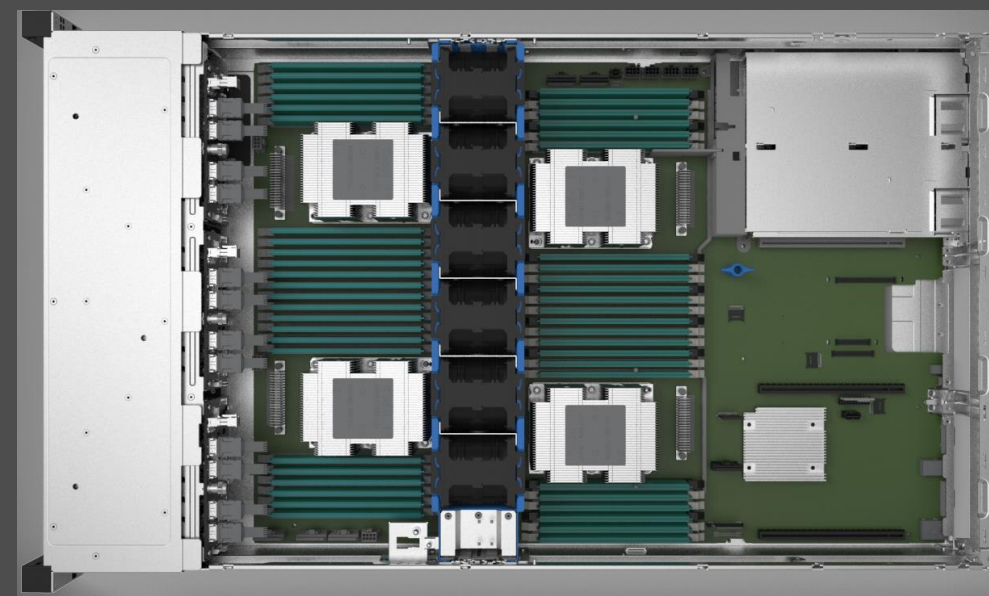
4S Intel® Xeon® Scalable processors

48 DDR4 memory slots,
SATA/SAS/NVMe 2.5"
SSD drive bays



Available in second half 2019

Consume. Collaborate. Contribute.



inspur



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OCP CARDS SUPPORT NEW AI ACCELERATORS

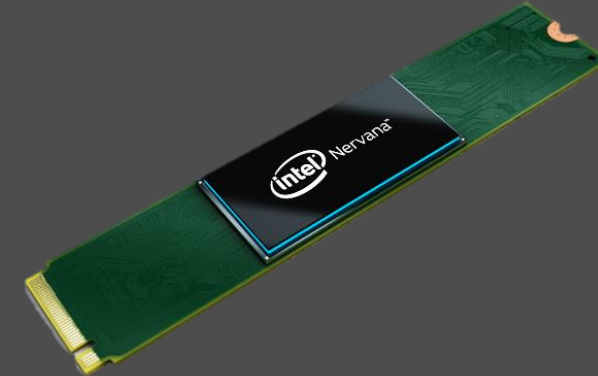
INTEL® NERVANA™ NEURAL NETWORK PROCESSOR (NNP)

FOR TRAINING:



Dedicated deep learning training acceleration
Optimized memory and interconnects
In production in 2019

FOR INFERENCE:



Dedicated deep learning inference acceleration
10nm Intel® process node
In production in 2019

Intel is a proud partner of the **GLOW** community

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ANNOUNCING A NEW CPU-TO-DEVICE INTERCONNECT STANDARD

COMPUTE EXPRESS LINK (CXL)

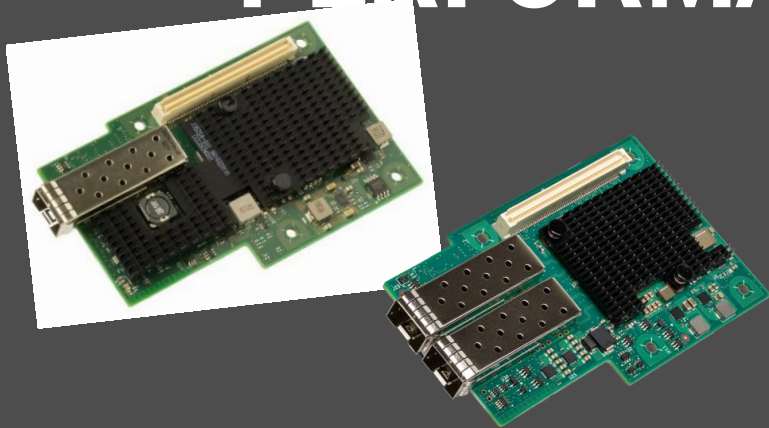
- New CXL specification and consortium
- Memory coherent, high-speed interconnect
- Initial spec donated by Intel
- Intel® believes there is an opportunity for an OCP working group to define new form factors for CXL
- Optimized stack with x16 PCI Express Gen 5 physical and electrical connection (32 GT/s)
- Use cases include AI, networking, media, graphics and more
- Availability expected 2021



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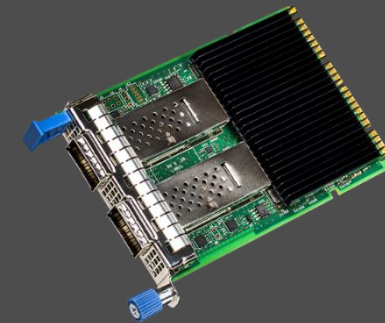
ADVANCING NETWORK PERFORMANCE WITH OCP NIC 3.0 ADAPTERS



25GbE Intel® Ethernet Network Adapters for OCP 2.0



1GbE and 10GbE Intel® Ethernet Network Adapters for OCP NIC 3.0



Up to 100 GbE next gen Intel® Ethernet Network Adapter for OCP NIC 3.0

Now: OCP Mezzanine cards 2.0

Intel® Ethernet Network Adapters for OCP - 10GbE, 25GbE and 40GbE are available

Q3'19: OCP NIC 3.0 Adapters

**Complete OCP NIC 3.0 product family from 1GbE to 100GbE (1,10, 25, 50, 100)
Flexible port configurations**

Work with us on implementing and validating your solutions

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NETWORKING

ADVANCING COMMON SIPH CONNECTIVITY STANDARDS

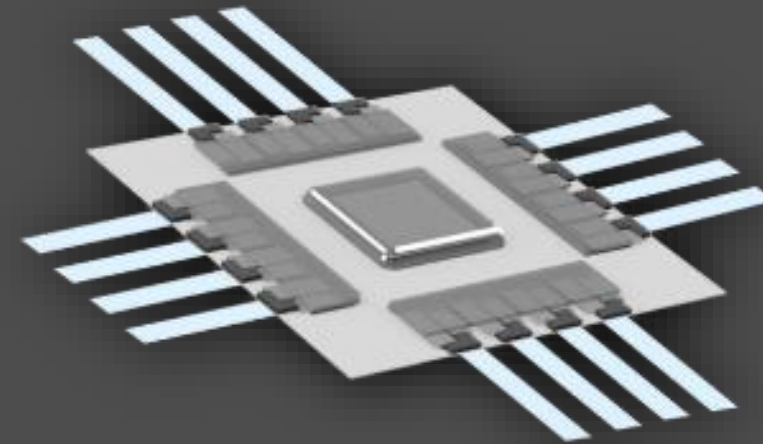
Open standard optical hardware leveraging wafer scale manufacturing

100G CWDM4-OCP shipping in volume since 2017, 400G shipping in 2019

Working to standardize electrical interfaces (die-to-die and die-to-optical) for optical I/O
and integrated networking/switch solutions



100G CWDM4-OCP



25T+ Integrated, Co-packaged
Optical Switch IC Package

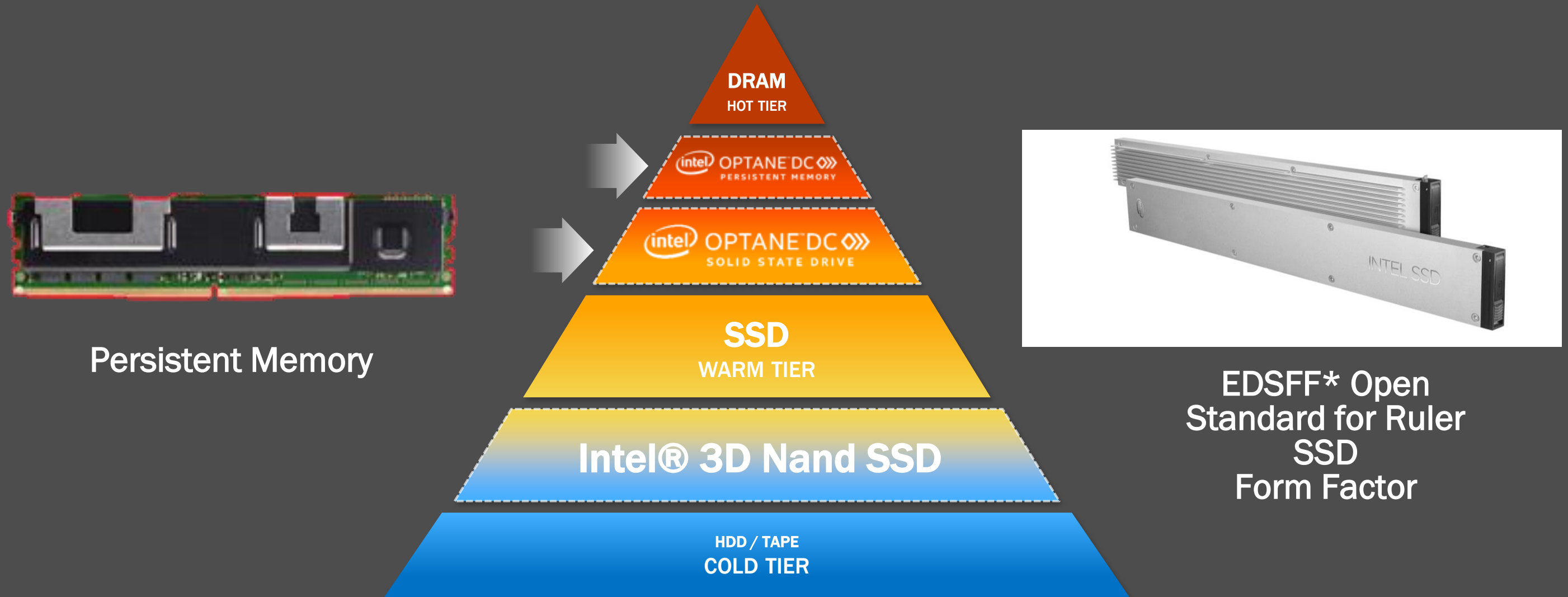
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OPEN PLATFORMS READY FOR NEW MEMORY AND STORAGE



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INTEL® RACK SCALE DESIGN

OPEN STANDARD FOR DATACENTER RESOURCE POOLING

- Higher workload performance
- Pooling increases utilization
- Disaggregation for late-binding and independent refresh
- Composable with software defined resource allocation
- Resiliency and security
- Ease of integration

INTEL® RSD AND
COMPOSABLE STORAGE



**Software demo located
at the Intel® showcase**



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ANNOUNCING RACK MANAGEMENT MODULE CONTRIBUTIONS

Open Source Industry Efforts



BIOS/System Firmware

(OCP system firmware project including firmware support package, platform runtime mechanism, runtime firmware update...)



BMC Firmware

(Linux Foundation project)

OpenBMC Github



Rack Manager Firmware

(OCP OpenRMC project)

OCP Github

RSD 2.3 Rack
Management
Module
contribution
to OpenRMC

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ANNOUNCING AN INDUSTRY COLLABORATION AROUND PLATFORM ROOT OF TRUST

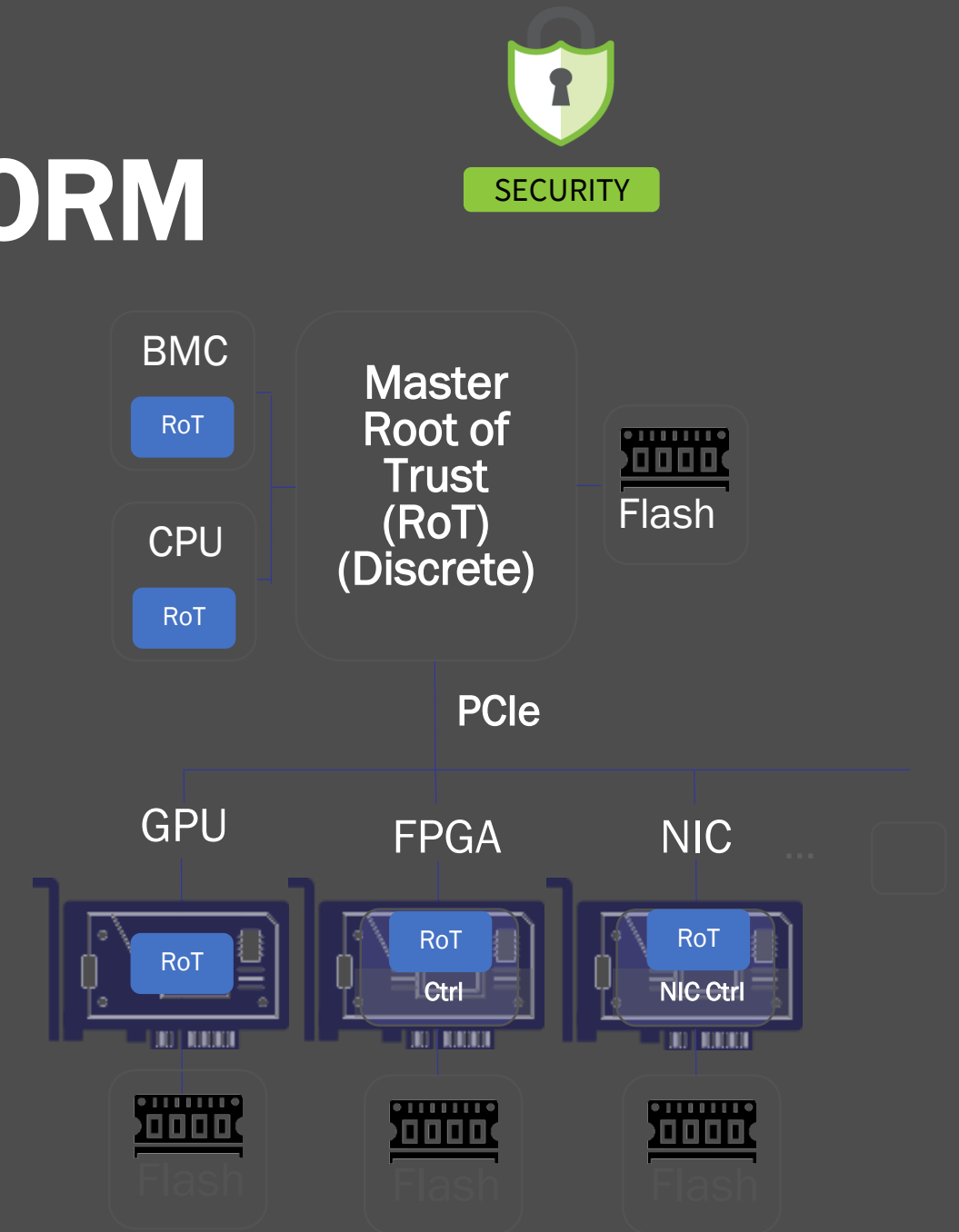
Set an open and aligned specification built upon Cerberus-v1 and Intel® PFR (Platform Firmware Resilience)

Collaborate through OCP on future root of trust capabilities including: in-silicon RoT, secure key measurement/storage, advanced key management

Create open and standardized interfaces, application programming interface (API), firmware and register-transfer level (RTL)

Extend on NIST 800-193 platform resiliency as the foundation

Call for participation, collaboration, and engagement



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OPEN SOFTWARE TO ENABLE INTEGRATED SOLUTIONS

ISOLATION



katacontainers.io/

NEMU

github.com/intel/nemu

ORCHESTRATION



Open Stack.



kubernetes

OPTIMIZING FOR AI



PYTORCH



MKL-DNN

LIBRARIES

FRAMEWORKS

TOOLKITS

github.com/intelai

Open. Together

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Thank you

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