Jongyoul Lee
Corporate EVP, Samsung Electronics
Open Innovation:
The Next Step in Memory Evolution

Jongyoul Lee
Corporate EVP, Samsung Electronics
Samsung’s Open Source Journey

- F2FS
- Multi-Stream
- Open MPDK
- Mission Peak
- Poseidon Project
- OCP Compliant SSD

2015 ~ 2018
- Community Member

2019
- Silver Member

2020
- Gold Member

2021
- Future Technology Initiative
**Poseidon V1**

Announced in OCP 2020 vSummit

**High Performance Storage Ref. Platform**

```
Server  Server  Server  Server
```

**Multi-Industry Collaboration**

```
SAMSUNG
inspur
NAVER
CLOUD
```

**Open Source Contribution**

SAMSUNG OCP 2021
Our Accomplishments

Reference System Development
Launched (March, ‘21)

Open Source Contribution
Contributed (April, ‘21)

Performance Achievement
PoC in Datacenter (In progress)

Local 102.0GB/s
Network 37.5GB/s
Alan Chang
VP of Technical Operation, Inspur
System Trends in Datacenter

High Speed Interface
Gen3 $\rightarrow$ Gen4: 7 Years
Gen4 $\rightarrow$ Gen5: 3 Years

New Form Factor
Traditional Form Factor
M.2
U.2
EDSFF Form Factor
E1.L
E1.S
E3.S
E3.S 2T

Emerging Standard
CXL
SNIA
Poseidon V2

PCIe Gen5 based Open HW
  Higher Performance

EDSFF E3 Reference
  More Capacity

Two Types of Servers
Key Components

- PCIe Gen5 SSD
- DDR5 Memory
- CXL Interface
- Boot Drive
- OCP NIC
- DC-SCM
Composable Architecture

High-Performance Shared Storage
E3.S SSD x 24

High-Memory Server For Cloud Service
CXL Memory Expander x 8
+ SSD x 8

Accelerator Server For AI/ML
E3.S SSD x 8 + SmartSSD x 8
Samsung Solutions in Poseidon

- ZNS+QLC SSD
- PCIe Gen5 SSD
- SmartSSD
- Z-SSD
- CXL Memory Expander
- DDR5
Poseidon Storage OS

Reference solution for End-to-End integration from SSD to Application

SSD

NVMe-oF

Server

Application
OS Features

Storage Functions
- Volume Management
- Performance Throttling
- Provisioning

Robustness
- SW RAID
- Multi-path Connection
- 2 Node HA

Performance Optimization
- NUMA-aware Capability
- NVMe Friendly IO path
- Dedicated APIs

Manageability
- Performance Profiler
- Development APIs
- Resource Monitoring
Roadmap

- '22.3Q: Poseidon V2 MP
- '22.4Q: OCP Contribution
- '23: DC & Open Lab Deployment
Meet Samsung @

Booth B14

Expo Hall Talk
Tuesday November 9
1:30pm – 1:45pm
Hall 1

Executive Talk
Tuesday November 9
4:30pm – 4:55pm
210AE

Engineering Workshop
Wednesday November 10
3:00pm – 3:15pm
210DH