

SAMSUNG

Introducing Project Poseidon



Project Poseidon

**Reference Architecture
for Integrated Solution**

Hardware + Software

**Let Customers Fully Exploit
the Potential of NAND Flash**

**SAMSUNG
NAND**

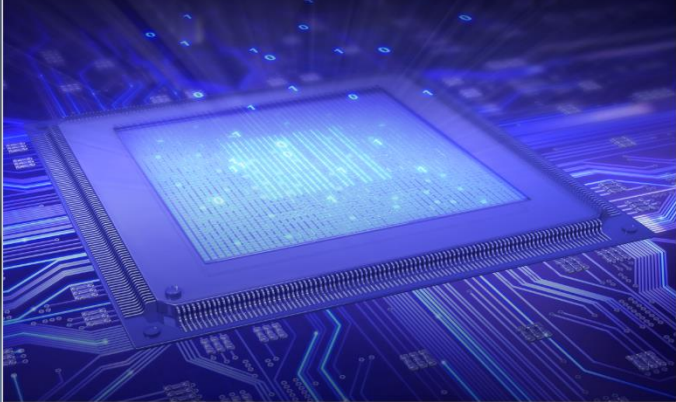
Project Poseidon



Vital Virtues of Disaggregated Storage

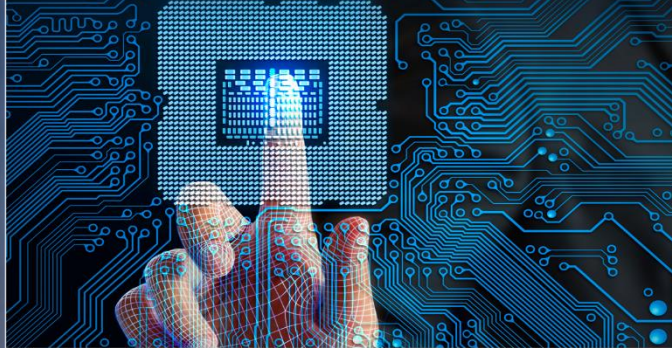
Ultimate Performance with Predictable Latency

- High Bandwidth & Low Latency
- Stable QoS



User-oriented Manageability

- In-band / Out-of-band Management
- More Configuration for NAND Flash



Cloud-friendly Features

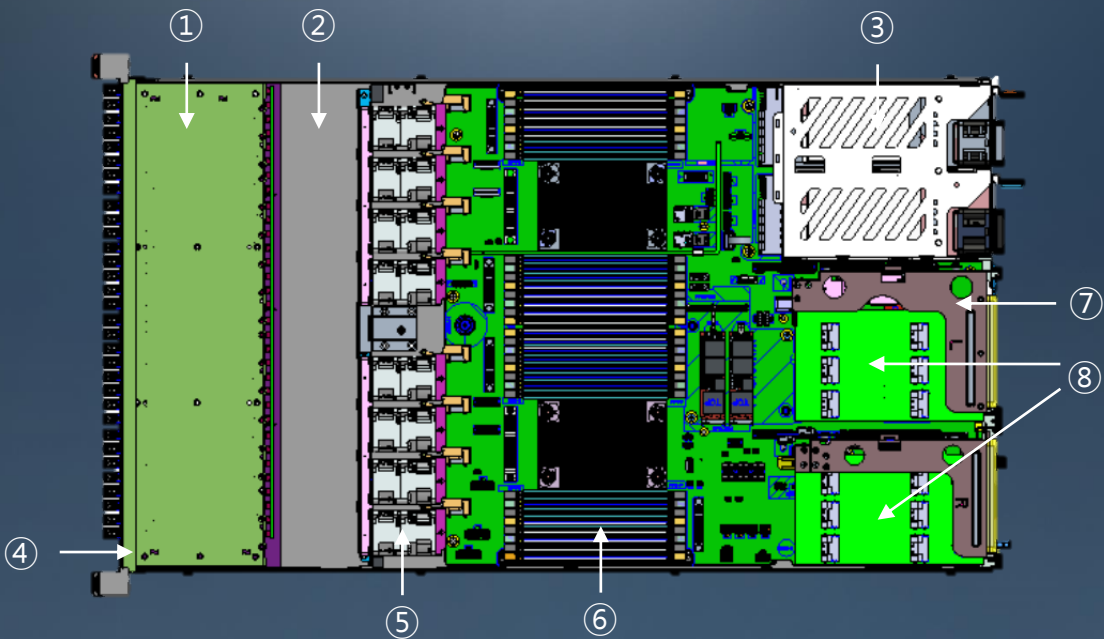
- Volume Customizing
- Virtualization / Container API supported



Poseidon Hardware



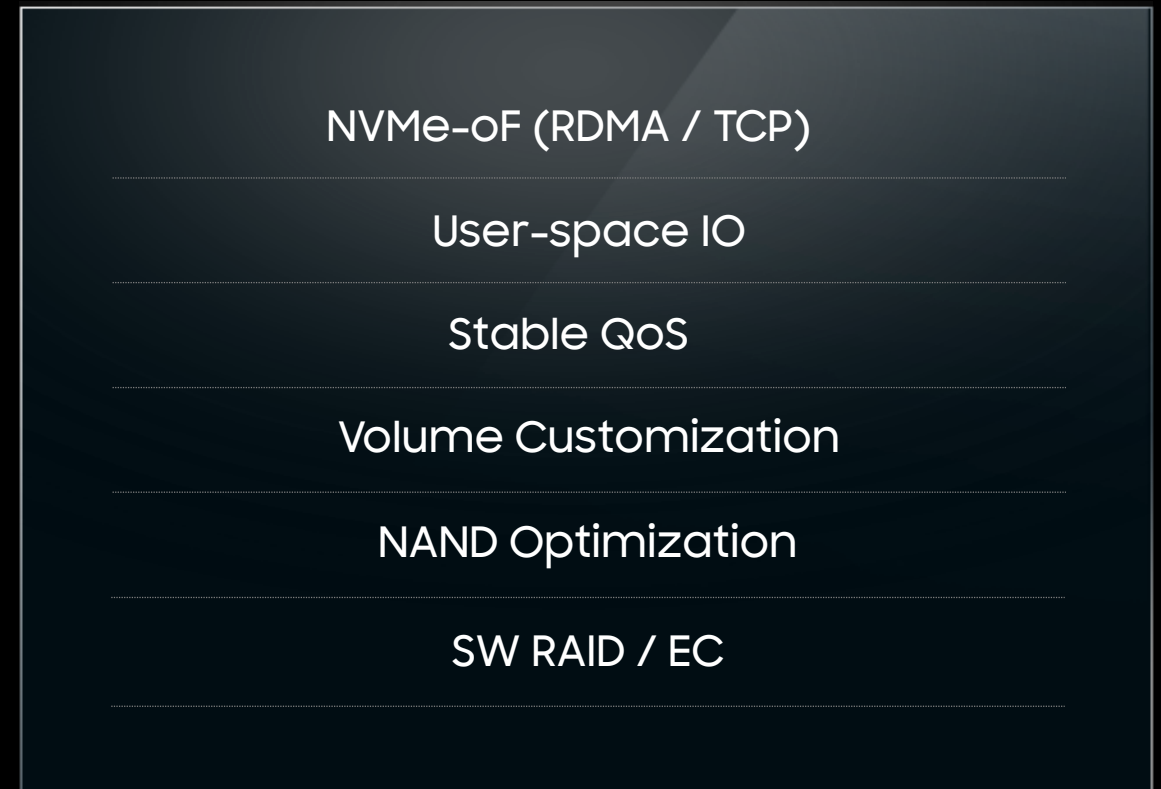
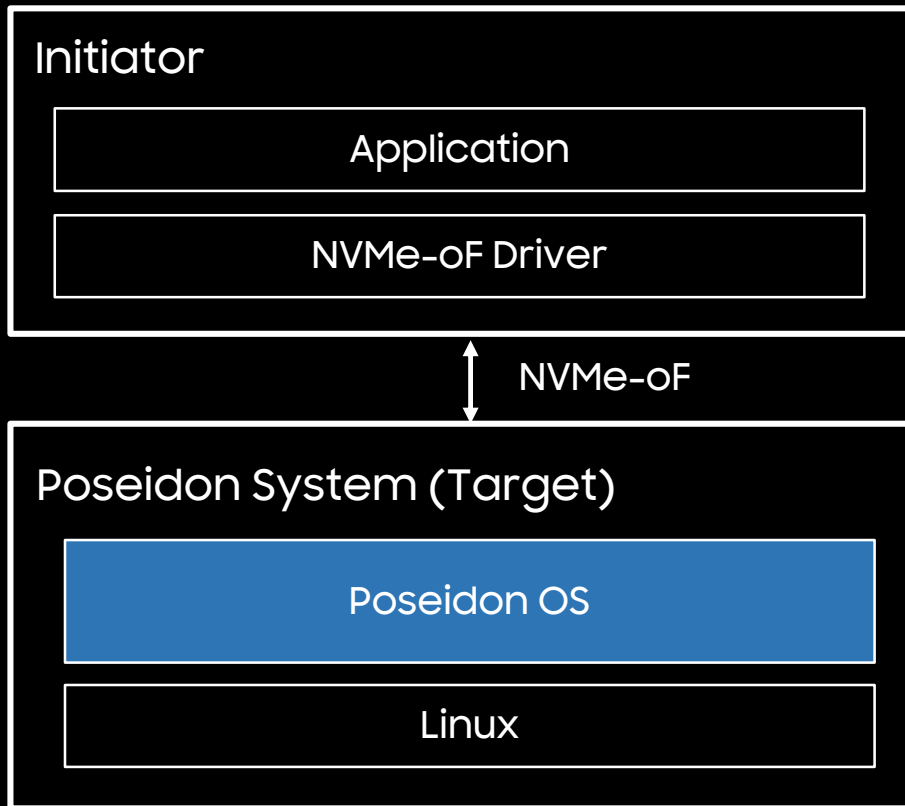
Chassis	EIA standard (19")
Form Factor	1U
Processor	Next Gen x86 Processor
# of Processors	2
Max # of Memory Slots	32
Memory Speed	3,200 MT/s
Network	RDMA / TCP
Network Speed	Up to 100 GbE * 6 port
PCIe Version	PCIe 4.0
Storage	E1.S SSD * 32ea



① PM9A3 E1.S SSD	32ea
② SSD Backplane	1ea
③ Power Supply Unit (PSU)	2ea
④ Front Panel & IO Module	1ea
⑤ System Fan	8ea
⑥ Motherboard	1ea
⑦ OCP Mezzanine NIC	1ea
⑧ PCIe Slot (FHHL Card)	2ea

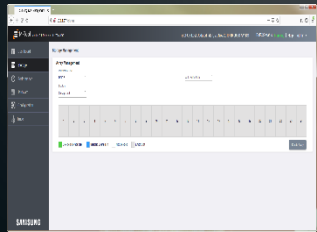
Poseidon OS

User-space Storage OS for Empowering NVMe-oF Interface

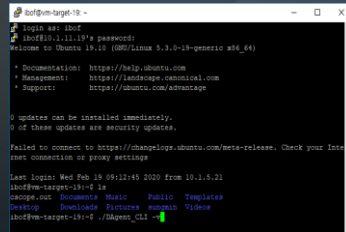


Poseidon Management

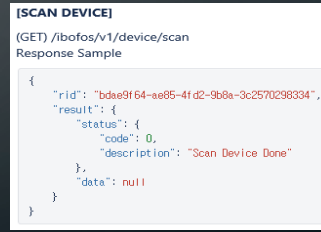
In-Band Management Solution



GUI



CLI



REST API

Array / Volume Management

RAID / QoS Feature Control

Performance Monitoring

CPU / Memory / Disk Utilization Monitoring

Out-of-Band Management



Chassis Information

Drive and Sensor Management

NVMe Inventory Service

Static/Dynamic NVMe Power Control

AIR: Poseidon Performance Profiler (for Developers)

Poseidon OS System Profiler

- General HW & SW Information Profiling
- Poseidon Specific API



Real-time Data Analytics

- Profiled-data Manipulation
- Periodic Data Streaming



Data-driven Visualization

- GUI for Web
- TUI for Terminal

[PERFORMANCE TRACING TABLE]						
NAME	TID	AID	IOPS READ	IOPS WRITE	BW READ	BW WRITE
PERF_VOLUME	-1					
	9492	0	965.06k	0	3.68GiB/s	0/s
PERF_METAFS_IO	-1					
[LATENCY TRACING TABLE]						
NAME	TID	AID	MEAN	STD	99.9%	MAX
LAT_BDEV_READ	0	~ 1	86.76us	51.93us	182.41us	182.41us
LAT_BDEV_WRITE	0	~ 1	7.26us	5.49us	72.79us	383.33us
[QUEUE TRACING TABLE]						
NAME	TID	AID	SIZE	DEPTH AVG	QD P MAX	QD T MAX

* AIR: Analysis in Real-time

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