OCP Storage Tech Talk 2025

Ross Stenfort, Meta, Storage Project Co-Lead

Lee Prewitt, Microsoft, Storage Project Co-Lead

Mike Allison, Samsung, Storage Steering Committee Representative

OCP Marketplace Storage Summary

- 140+% increase YoY in total views
- 32 listings and growing
- 20 SSD's and 6 Storage Testing Solutions
- Top 20 Most Viewed on Marketplace: 2 SSDs

For more information reach out to: Steve Helvie (steve@opencompute.org)

Link to OCP Marketplace: https://www.opencompute.org/marketplace

Virtual Event Logistics

- Be present for the great content and engage

- Please type your questions into the chat box
  - Questions will be answered based on time available

- Recording will be available after the event

SANBlaze OCP Test Solutions

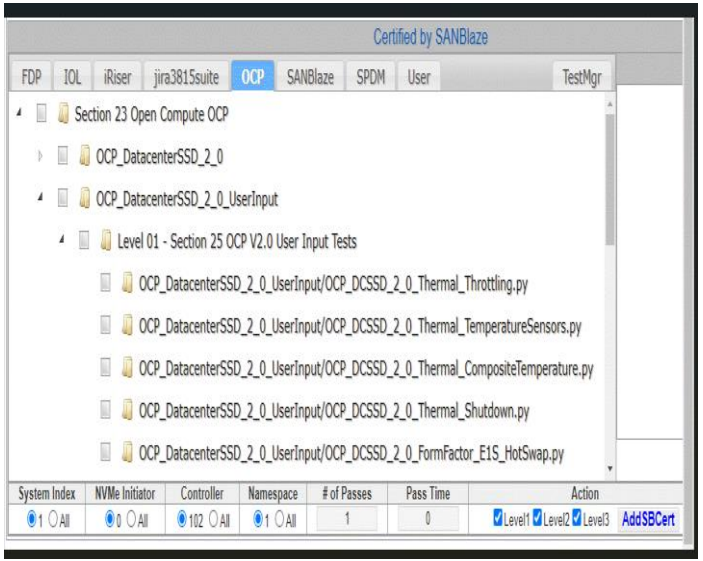
Rick Walsh, SANBlaze Sr. Vice President

OCP Test Platforms

- OCP 2.0, 2.5 and 2.6 Target Test Platforms for Data Center SSD's
- Hardware supports up to 16 Single/Dual Port SSD's
  - Desk top Platform
- Automated OCP Test Suite
- Follows full Test Plan Requirements as specified by Microsoft
- Data Center 2.0/2.5/2.6 spec for SSD's
- Developers "Mode"

OCP Test Platforms

- OCP “Compliance” vs “Conformance”
- Test Platform from SANBlaze offers both ends of the end user spectrum
- Full Compliance Mode per Test Plan Requirements-SSD Attached Storage
- Developer Mode
- Allows for “Developer” based Firmware Testing with “Generic” parameter files for convenience
- Targeted Debug and specific firmware validation to “fixes”



OCP Test Output

- OCP 2.0, 2.5 and 2.6 Target Test Results
  - ~Pass
  - ~Fail
  - ~Warning
  - ~Skip
  - ~500 Total Test Cases
- Automated Debug reports and Triage Capabilities

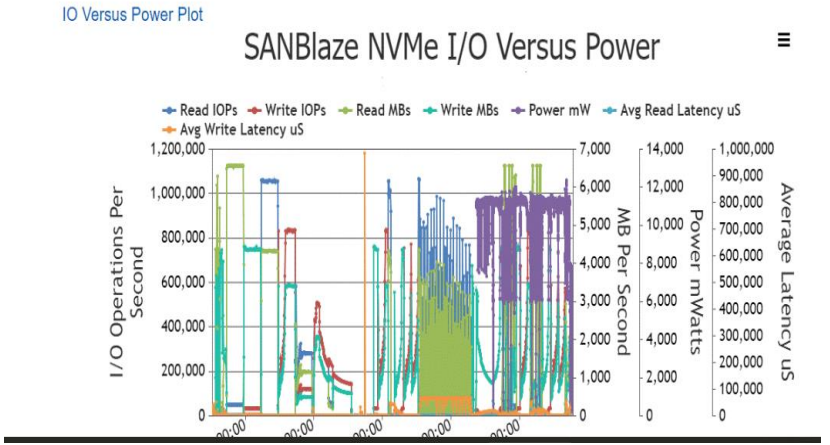
13	241024	OCP_DCSSD_2_0_FormatNVM_CryptoErase.py	Passed	0/ 0	1/ 1	157	Aug01_12:20:47	Aug01_12:23:26	536870912000	2684354
14	241026	OCP_DCSSD_2_0_Sanitize_BlockErase.py	Passed	0/ 0	1/ 1	226	Aug01_12:23:28	Aug01_12:27:15	805308465152	2684354
15	241028	OCP_DCSSD_2_0_Sanitize_CryptoErase.py	Passed	0/ 0	1/ 1	226	Aug01_12:27:17	Aug01_12:31:05	805308465152	2684354
16	241030	OCP_DCSSD_2_0_Sanitize_OverwriteErase.py	Skipped	0/ 0	1/ 1	0	Aug01_12:31:06	Aug01_12:31:08	0	0
17	241032	OCP_DCSSD_2_0_Sanitize_CmdsReceivedDuringSanitize.py	Failed	1/ 0	1/ 1	17	Aug01_12:31:09	Aug01_12:31:28	4633001984	4632739
18	241034	OCP_DCSSD_2_0_Sanitize_FailedOperations.py	Passed	0/ 0	1/ 1	515	Aug01_12:31:29	Aug01_12:40:06	32212254720	1930587
19	241036	OCP_DCSSD_2_0_IO_Commands.py	Passed	0/ 0	1/ 1	796	Aug01_12:40:08	Aug01_12:53:26	941293043712	1709917
20	241038	OCP_DCSSD_2_0_IO_WriteZeroes.py	Failed	1/ 0	1/ 1	0	Aug01_12:53:27	Aug01_12:53:29	0	0
21	241040	OCP_DCSSD_2_0_IO_Compare.py	Failed	1/ 0	1/ 1	0	Aug01_12:53:30	Aug01_12:53:32	0	0
22	241042	OCP_DCSSD_2_0_IO_WriteUncorrectable.py	Skipped	1/ 0	1/ 1	0	Aug01_12:53:33	Aug01_12:53:35	0	0
23	241044	OCP_DCSSD_2_0_CmdTimeout_AdminCmdTime.py	Warning	0/ 0	1/ 1	19	Aug01_12:53:37	Aug01_12:53:58	0	4564451
24	241046	OCP_DCSSD_2_0_CmdTimeout_AdminCmdExtendedTime.py	Passed	0/ 0	1/ 1	3	Aug01_12:54:00	Aug01_12:54:04	0	0
25	241048	OCP_DCSSD_2_0_CmdTimeout_IOCmdTime.py	Passed	0/ 0	1/ 1	18075	Aug01_12:54:05	Aug01_17:55:22	43501190832128	2667409
26	241050	OCP_DCSSD_2_0_LogPage_ErrorInfo.py	Passed	0/ 0	1/ 1	25	Aug01_17:55:23	Aug01_17:55:49	0	0
27	241052	OCP_DCSSD_2_0_FWSlotInfo_LogPage.py	Warning	0/ 0	1/ 1	0	Aug01_17:55:50	Aug01_17:55:52	0	0
28	241054	OCP_DCSSD_2_0_LogPage_CmdsSupportedEffects.py	Passed	0/ 0	1/ 1	3	Aug01_17:55:53	Aug01_17:55:58	0	0
29	241056	OCP_DCSSD_2_0_LogPage_PersistentEvents.py	Failed	1/ 0	1/ 1	118	Aug01_17:56:00	Aug01_17:58:00	0	0
30	241058	OCP_DCSSD_2_0_LogPage_SMART.py	Passed	0/ 0	1/ 1	20	Aug01_17:58:01	Aug01_17:58:23	0	0
31	241060	OCP_DCSSD_2_0_LogPage_SMART_VolatileMem_BackupDev_Failure.py	Skipped	0/ 0	1/ 1	0	Aug01_17:58:25	Aug01_17:58:25	0	0
32	241062	OCP_DCSSD_2_0_LogPage_SMART_UnsafeShutdowns.py	Passed	0/ 0	1/ 1	185	Aug01_17:58:26	Aug01_18:01:34	0	0
33	241064	OCP_DCSSD_2_0_LogPage_SMART_WriteRead.py	Passed	0/ 0	1/ 1	3903	Aug01_18:01:35	Aug01_19:06:40	4618527068160	5279968
34	241066	OCP_DCSSD_2_0_LogPage_SMART_LittleEndian.py	Passed	0/ 0	1/ 1	3954	Aug01_19:06:41	Aug01_20:12:37	2544361062400	2544361
35	241068	OCP_DCSSD_2_0_LogPage_SMARTExtended_Persistence.py	Passed	0/ 0	1/ 1	619	Aug01_20:12:38	Aug01_20:23:00	0	0
36	241070	OCP_DCSSD_2_0_LogPage_SMARTExtended_Endianness.py	Passed	0/ 0	1/ 1	0	Aug01_20:23:01	Aug01_20:23:02	0	0
37	241072	OCP_DCSSD_2_0_LogPage_SMARTExtended_UnitsRW.py	Passed	0/ 0	1/ 1	620	Aug01_20:23:03	Aug01_20:33:25	1073741824	1073741

OCP Test Output

- OCP 2.0, 2.5 and 2.6 Automated Target Test Scenario's
- Full Test Log report
- Specifies the exact steps were for a given test
- Analyze Failures and Resolve
- Industry Goal of Consistency and reliability
- SSD Industry Benchmark Requirements for the Data Center
- UNH/IOL Test Services-Testing performed w/SANBlaze Test

Summary of All Tests in Selected Sections						
	Available	Run	Pass	Fail	Warning	Skipped
Level 1:	118	118	53	20	8	37
Level 2:	0	0	0	0	0	0
Level 3:	0	0	0	0	0	0
All Levels	118	118	53	20	8	37

IO Versus Power Plot



Industry Storage Consistency

- Microsoft CDL Approved
- Benchmark level of Data Center Drive Metrics
- While not an officially sanction program or certification
- SANBlaze Offers a test methodology to insure OCP standards and requirements are met
- Supporting the Microsoft Test Plan Requiremetns for 2.0, 2.5 and 2.6
- Automated Debug Logs and triage

Industry Storage Consistency (Cont.)

- SANBlaze Test IP is available directly from SANBlaze or Test Services can be contracted through UNH/IOL
- Test IP in either form is available NOW!
- 2.0/2.5 is released
- 2.6 in Beta
- Hardware Platforms
  - ✓ RM6-16/DT6- drive solution/Scaled Testing

Benefits of Adopting OCP SSD Testing

- OCP is an open-source standard whose adherence yields well defined, predictable and robust SSD behavior.
- SSD suppliers can use the Recovery Workflow defined in the OCP Vendor Unique Error Recovery Log Page to ensure predictable error handling for common SSD problems.
- OCP defines robust and well-defined Telemetry that can be used for failure analysis over time and ultimately leading to a future failure prediction capability using AI.
- OCP Latency Monitoring testing can expose both host and device issues that are otherwise hard to find.
- OCP provides for a very robust security architecture.

Benefits of Adopting OCP SSD Testing

- SSD vendors supporting OCP can apply to have their products listed on the Marketplace of the OCP website
- Allows SSD suppliers to do a quality Shift-Left through the early detection of bugs and performance issues.
- Allows SSD suppliers to identify hardware limitations and plan for future remediation.
- OCP Error Injection testing allows the actual error handling code paths in firmware to be exercised.
- SSD suppliers can submit OCP test results when applying to add products to the OCP Marketplace.

Where to find additional information

- https://www.sanblaze.com/ocp
- http://unh.iol.edu
- OCP Professional Services
  https://www.opencompute.org/solutions?solutions%5BrefinementList%5D%5Bsolution_provider%5D%5B0%5D=SANBlaze%20Technology%20Inc
- OCP Market Place/Products - Storage Testing
  https://www.opencompute.org/products?cloud_products%5BrefinementList%5D%5Bsolution_provider%5D%5B0%5D=SANBlaze%20Technology%20Inc

Questions

OPEN
Compute
Project®

Thank You

OPEN
Compute
Project®