



SDXI TWG

2023 Review and 2024 Plans

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SDXI TWG 2023 Accomplishments

- SDXI TWG Charter
 - <https://www.snia.org/sdxi>
 - The Smart Data Accelerator Interface (SDXI) is a standard for a memory-to-memory Data Mover and acceleration interface.
- Recent Work and Accomplishments
 - TWG Formed in 2020
 - SDXI v1.0 specification released November 2022
 - SDXI TWG v1.0 press release
 - <https://www.businesswire.com/news/home/20230215005908/en/SNIA%E2%80%99s-New-Smart-Data-Accelerator-Interface-Specification>
 - SDXI v1.0 presentation @FMS2023
 - Most innovative Memory Technology Award @FMS2023
 - https://www.snia.org/news_events/newsroom/snias-wins-most-innovative-memory-technology-award-flash-memory-summit
 - Gestalt IT coverage for SDXI
 - <https://gestaltit.com/tech-talk/stephen/exploring-sdxi-for-memory-to-memory-movement-and-transformation-with-shyam-iyer/>
 - SDXI featured at Storage Techfield day @SDC 2023
 - <https://techfieldday.com/video/revolutionizing-memory-to-memory-data-movement-with-snia-sdxi/>
 - SDXI v1.0 presentation @SDC 2023
 - SDXI software focused group kicked off within the TWG
 - An initial contribution for an OS-independent software library by AMD
 - SDXI+CS subgroup presentation @SDC 2023
 - <https://www.youtube.com/watch?v=Upbpuma5cB8&pp=ygUNU0RDIDlwMjMgU0RYSQ%3D%3D>
 - 25 Member companies, 100+ members (includes independent members)
 - High level of participation

SDXI TWG Work Items

- SDXI Software Work item
 - The TWG will encourage adopting companies to work towards compliant software implementations and driver models.
 - TWG is working on an OS independent user space software library for applications
 - TWG enabling efforts on SDXI reference driver work
 - TWG discussing efforts on SDXI emulation implementation
- SDXI specification planning and feature discussions
 - Developed framework for v1.1 features vs 2.0
 - A framework for Definable Operations
 - Management architecture for data movers(includes connection manager)
 - New data mover operations for smart acceleration
 - E.g., POSIX style memory operations, etc.
 - Security Features involving data movers
 - SDXI devices and Confidential Computing, IDE
 - Threat modeling
 - Other considerations
 - RAS, QoS, Latency improvements, CXL-related discussions, SDXI Host to Host investigations, Heterogenous environments
- The TWG will work to educate and encourage adoption by OS, Hypervisors, OEMs, Applications, and Data Acceleration vendors.
 - Presentations, Whitepapers, podcasts, videos
- Collaboration with CS TWG resulted in a joint SDXI+CS subgroup
- Liaison with CXL

SDXI TWG Membership as of 1/17/2024

- Advanced Micro Devices(AMD)
- ARM
- Broadcom Inc. /VMware
- Dell Inc.
- Elastics Cloud
- GigalO Networks
- Hewlett Packard Enterprise
- Huawei Technologies Co. Ltd
- IBM(includes Red Hat, Inc)
- Innogrit
- Inspur Electronic Information Industry Co Ltd.
- Kioxia
- Lenovo
- Marvell
- Micron Technology Inc.
- Microsemi a Microchip Company
- Microsoft Corporation
- Pliops
- Samsung Electronics Co., LTD
- Scaleflux
- SK Hynix/Solidigm
- StorageX Technology, Inc
- Western Digital
- XSight Labs Ltd.
- Yangtze Memory Technologies Co., Ltd
- Independent members

SDXI TWG Participation

- What is the expected industry impact of this work
 - Standardize data movement across multiple address spaces securely with SDXI Function implementations
 - Standardize in-memory data transforms with accelerators
 - Context:
 - Software memcopy is the current data movement standard
 - Takes away from application performance and incurs software overhead to provide context isolation.
 - Offload DMA engines and their interface are vendor-specific and not standardized for use by user-level software.
 - The SDXI TWG -
 - Develops and standardizes an extensible, forward-compatible memory to memory data mover interface that is independent of actual data mover implementations and underlying I/O interconnect technology.
- What is the industry segment relevance
 - System vendors(OEMS, cloud), OS vendors(Including Hypervisor software), ISV software vendors, HW acceleration vendors, Storage Vendors, HW IP vendors, Test and Measurement vendors
- Why you should join and participate in this TWG
 - monitor, contribute, vote
- Who to contact for additional information
 - sdxitwgchair@snia.org