



# Smart Data Accelerator Interface (SDXI) TWG

2022 Review and 2023 Plans

Presented by Shyam Iyer  
[sdxitwgchair@snia.org](mailto:sdxitwgchair@snia.org)

# SDXI TWG 2022 Accomplishments

- SDXI TWG Charter
  - <https://www.snia.org/sdxi>
- Recent Work
  - TWG Formed in 2020
  - April 2022, PM+CS Summit
    - <https://www.youtube.com/watch?v=RzeWcoPt2gY>
  - June 2022, a Standalone subgroup to collaborate with CS TWG “CS+SDXI subgroup” formed
  - July 2022, SDXI was a featured keynote in the DMTF APTS Conference.
    - <https://www.dmtf.org/news/events/2022apts>
  - Aug 2022, Smart Data Accelerator Interface (“SDXI”) Specification v0.9.7rev1 released for public review
  - September 2022, “SDC2022 – SDXI Internals and its Journey Towards Standardizing Memory to Memory Data Movement”
    - [https://www.youtube.com/watch?v=dzq\\_SNktFKI](https://www.youtube.com/watch?v=dzq_SNktFKI)
  - October 2022, SDXI interview with Digitization World
    - <https://www.youtube.com/watch?v=d5iJtM4jcYM>
  - November 2022, “Smart Data Accelerator Interface (SDXI) Specification v1.0 “ released!
    - <https://www.snia.org/sdxi>
  - November 2022, Bright Talk video “What’s in a Name? Memory Semantics and Data Movement with CXL™ and SDXI”
    - <https://www.brighttalk.com/webcast/663/563916>
  - 28 Member companies, 90+ Individual members (includes independent members).

# SDXI TWG Work Items

- The TWG will encourage adopting companies to work towards compliant software implementations and driver models.
  - TWG is working on Application Reference Code for SDXI Specification v1.0
  - TWG enabling efforts on SDXI reference driver work
  - TWG enabling efforts on SDXI emulation implementation work
- SDXI v1.1 planning
  - New data mover operations for smart acceleration
    - DIF, DIX, Compression, Encryption, and other operations
  - SIOV, Direct Work Submission, Latency improvement investigations
  - Cache coherency models for data movers
  - Security Features involving data movers
    - SDXI devices and Confidential Computing, IDE
    - Threat modeling
  - Management architecture for data movers(includes connection manager)
  - Data mover operations involving persistent memory targets
    - CXL
  - 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 to form joint workstreams
- Liaison with CXL

# SDXI TWG Membership as of 1/18/2023

- Advanced Micro Devices(AMD)
- ARM
- Broadcom Inc.
- Dell Inc.
- Enfabrica Corporation
- Eideticom
- Fujitsu America Inc.
- Futurewei Technologies, Inc
- Hewlett Packard Enterprise
- Huawei Technologies Co. Ltd
- IBM(includes Red Hat, Inc)
- Inspur Electronic Information Industry Co Ltd.
- JetIO Technology Ltd.
- Lenovo
- Marvell
- MemVerge
- Micron Technology Inc.
- Microsemi a Microchip Company
- Microsoft Corporation
- NetApp
- NGD Systems, Inc
- Pliops
- Samsung Electronics Co., LTD
- Scaleflux
- SK Hynix/Solidigm
- SMART Modular
- VMware
- Western Digital
- Xilinx, Inc
- 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 memcpy 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
- Why you should join and participate in this TWG
  - Monitor, contribute and vote
- Who to contact for additional information
  - [sdxitwgchair@snia.org](mailto:sdxitwgchair@snia.org)