

Interoperability Study



Smart

High performance, compatible solutions for demanding server storage applications.



Connected

World-class storage and memory solutions for the demanding storage challenges of next-generation data centers.



Secure

Addresses all critical data center needs essential for a highly resilient secure solution.



ATP Electronics and Microchip Achieve Interoperability to Manage Heavy Server Storage Demands

Suppliers of next-generation storage solutions must offer ecosystem components with demonstrated interoperability. Rapid and reliable integration of storage technology portfolios from best-in-class partners is critical to customer confidence as engineers and developers evaluate a wide spectrum of interconnected solutions for the most challenging industry deployments. Serial ATA (SATA) Solid-State Drives (SSDs) from ATP Electronics and Adaptec® PCIe® Gen 4 SAS/SATA/NVMe™ HBA and RAID tri-mode adapters from Microchip achieve an enviable level of compatibility. Even in the most demanding server storage applications, customers can be certain that these solutions will deliver a high degree of flexibility to aggregate diverse storage devices with proven security and manageability features.



30 Years of Manufacturing Excellence

ATP Electronics is a global leader in specialized storage and memory solutions with a 30-year legacy of manufacturing excellence. From its headquarters in Taipei, Taiwan to its global facilities in Shanghai, China, Tokyo, Japan, Unterschleißheim, Germany and San Jose, CA, the company is committed to delivering value-added technology solutions that optimize Total Cost of Ownership (TCO) for its customers. ATP has earned the trust of customers around the world for its expertise in storage and memory applications that require confidentiality, reliability and mission-critical performance. Serving industries as diverse as enterprise networking, automotive, health care, telecom, IoT, aerospace, avionics, gaming and defense, ATP demonstrates its core competencies through its partnerships, testing capabilities and integration of advanced technologies.



A Robust Manufacturing Process to Ensure Quality and Product Longevity

ATP prides itself in being at the forefront of the latest memory and storage manufacturing technologies, offering unique features and value-added solutions that safeguard data integrity, deliver reliable performance and prolong usage to maximize investment. With top-of-the-line engineering support capabilities, the company can meet its customers' customization requirements.

ATP maintains complete control of its supply and value chains to offer the finest products and most extensive range of services to clients.

Strategic partnerships ensure long-term Bill of Materials (BOM) stability for DRAM and NAND Flash storage products. Proactive supply chain disaster recovery planning involves a dual-sourcing strategy to ensure supply stability. Implementing a controlled BOM guarantees long product cycles with buffer inventory, making sure that customers hear about any changes affecting the process, product or product end of life.



Rigorous Testing and Validation

ATP earned its reputation through stringent testing and validation processes that start from the component level up to the product level.

All DRAM and Flash storage products go through a series of functionality and reliability tests to ensure they match the specifications agreed upon by ATP and their customers to ensure compatibility with different host environments.

To ensure complete functionality and reliability, ATP tests:

- Module design/layout validation
- Controller hardware validation
- Controller firmware/Flash Translation Layer (FTL) validation
- OEM customer joint validation with compatibility testing for new devices and module-level validation with the host platform

Testing ranges from die reliability at the Integrated Circuit (IC) level, design and layout at the module level, Rapid Diagnostic Tests (RDTs) to establish one-hundred percent proven reliability at MP scale at the mass production level, controller hardware and firmware validation and OEM customer joint validation for new devices and modules to ensure complete module functionality. ATP manufactures memory and storage modules at its own facilities and features exceptional technologies for the most challenging applications and environments.

Selected SATA drives feature advanced microcontroller (MCU)-based Power Loss Protection (PLP) capabilities that deliver intelligent performance in various temperatures, power glitches and charge states. As components perform and react differently in severely cold or hot scenarios, ATP's PLP technology ensures reliable PLP capacitance in all states of cold start, hot temperature workload and cross temperature.

An advanced Low Density Parity Check (LDPC) error correcting engine and RAID support provide superior error detection and correction with redundant backup algorithm to eliminate the possibility of uncorrectable errors. End-to-end data path protection and SRAM Error Correcting Code (ECC) provide error control throughout the entire data transfer path from the host system to the SSD and vice versa, thus ensuring data integrity and reliable data transfers, even in extreme environments from -40°C to $+85^{\circ}\text{C}$.

To meet unique storage requirements, ATP customizes firmware and hardware to manage the best balance of performance and device lifespan. ATP offers a wide range of optional custom security technologies depending on customer request and long product cycles ensure consistent quality and supply availability.

To meet the server storage demands of its customers, ATP partnered with Microchip and tested Microchip's Adaptec adapters to its rigorous standards to deliver the best storage solutions to customers.

“We are excited to partner with Microchip as a qualified provider of SATA SSDs for their latest storage adapters. As global leaders in specialized storage and memory solutions, we are certain that our SATA SSDs can seamlessly interoperate with Microchip’s new Adaptec® storage adapters to deliver unique solutions for unique storage challenges in next-generation data centers.”

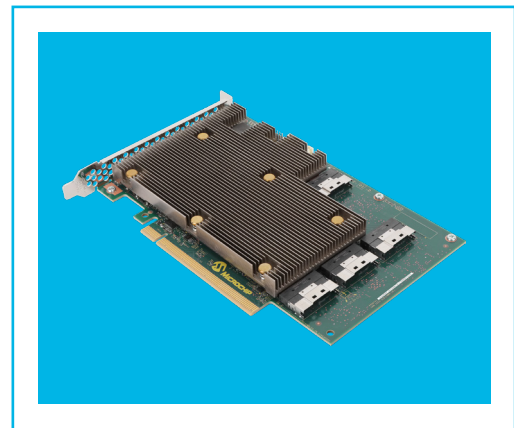
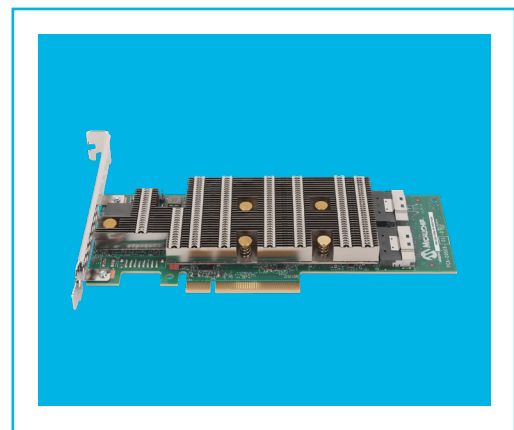
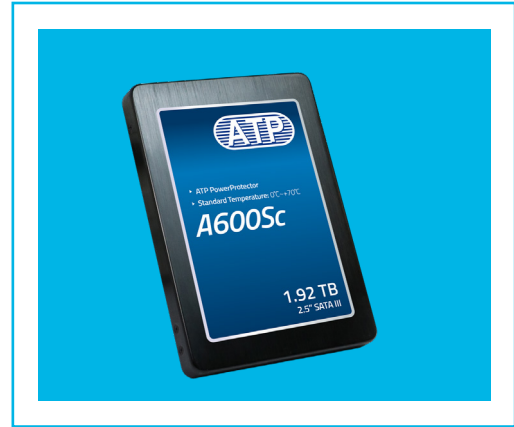
**Chris Lien,
Head of ATP’s Embedded SSD
Business Unit**



Products Tested

ATP's A600Sc series of SATA SSDs comes in various form factors, such as 2.5" drives, M.2 2242/2280 and capacities ranging from 120/240 GB to 1.92 TB. Known for their reliable performance and extended endurance, ATP SATA SSDs undergo meticulous testing for RAID support to ensure redundancy and fault tolerance to prevent data loss in the event of a drive failure. These device also feature end-to-end data path protection and SRAM error correcting code (ECC) to provide error control throughout the entire data transfer path from the host system to the SSD and vice versa, thus ensuring data integrity and reliable data transfer.

Microchip's Adaptec SmartRAID 3200, SmartHBA 2200 and HBA 1200 PCIe Gen 4 24G SAS/SATA/NVMe™ tri-mode storage adapters offer superior performance of up to 29.6 GB/s throughput and more than 3.5M IOPs. Microchip built all critical data center industry needs essential for a highly resilient secure solution, including Hardware Root of Trust (HROt), Self-Encrypting Drive (SED) management and Controller-Based Encryption (CBE), right into these adapters for a new level of security. Deployment and management are stress free with industry-standard management tools such as PLDM/RDE and proven ecosystem compatibility and interoperability. Microchip also offers certified OS support, expert product support and support for Intel® Virtual Pin Port (VPP) intelligent backplane management and Universal Backplane Management (UBM) standards to simplify integration.



Results

ATP SATA SSDs and Adaptec storage adapters underwent rigorous testing to provide an ideal solution for server-based storage systems that require maximum bandwidth and Input/Output (I/O) connectivity, high reliability and options for data availability to deliver a robust, secure and scalable solution that can handle the toughest system workloads and configurations for next-generation platforms.

Adaptec storage adapters deliver reliable, high-performing, highly flexible, secure and feature-rich storage products that are extensively tested with popular third-party disk drives, servers, motherboards and external storage devices for proven design and interoperability of Microchip's storage solutions. These features, combined with Microchip's industry-leading support and comprehensive maxView™ management tools accelerate time to market, simplify ongoing management and provide generational compatibility to future-proof investments. Discover how Microchip's data center products are the optimal choice for the operational continuity and management of data centers.

Visit [Microchip's website](#) for the latest compatibility reports featuring the ATP SATA SSDs that are compatible with Adaptec storage adapters.

