Success Story – They Chose Apacer

Durable Secure SSD

Background

Industry: AI solutions
Region: Europe
Solution: PH250-M242

Challenges

- Demand higher P/E cycles than typical industrial drives
- Require an SSD with advanced security features
- Need to run firmware upgrade without a power cycle
- Facing a tight deadline: less than half the usual lead time

Solutions

- Apacer's **PH250-M242** 80GB, M.2 2242 SSD
- Apacer SLC-liteX technology offers up to 100,000 P/E cycles, with TCG Opal 2.0
- Firmware customization

Results and Benefits

- Extended Endurance: SLC-liteX technology delivers up to 100,000 P/E cycles, greatly enhancing SSD lifespan.
- Robust Data Security: TCG Opal 2.0 encryption offers 256-bit data protection against unauthorized access.
- Uninterrupted Operations: Custom firmware allows seamless upgrades without power cycling, ensuring continuous AI performance.

Executive Summary

Developing an advanced AI solution, this global client required a highly customized SSD with exceptional security and the capability to perform firmware updates without needing a power cycle. Given the intensive nature of AI data processing, endurance was also a top priority. Apacer delivered a tailored, cost-effective SSD solution, incorporating key value-added features that addressed all of the client's challenges, and completed the project in less than half the usual time frame.

Challenges

The client, a multinational supplier of computer networking products specializing in InfiniBand and Ethernet technologies, approached Apacer with a request for a highly customized SSD. They required SSD samples with exceptional endurance to handle the significantly higher read/write loads inherent to machine learning and AI training. Increased P/E cycles were a crucial advantage to accommodate these heavy workloads.

Data security was another critical concern. The client also requested an 80GB drive that could receive future firmware updates without requiring a power cycle. In AI operations, even a single power cycle at the wrong time could cause severe delays in complex computing processes.

Additionally, the client faced extremely tight deadlines driven by the global demand for new AI hardware. They had just six weeks remaining to complete their prototype-less than half the usual time allotted for this stage of a project. Delivering a qualified SSD that met these stringent requirements within such a compressed timeline posed a significant challenge for the Apacer team.

Solutions and Technologies

Apacer's team recommended that the client select an SSD equipped with SLC-liteX technology and TCG Opal 2.0, along with customized firmware. SLC-liteX provides up to 100,000 program/erase (P/E) cycles—far exceeding the standard 3,000 P/E cycles found in most industrial drives. This not only significantly boosts endurance but also offers greater cost flexibility.

The integration of TCG Opal 2.0 ensures 256-bit encryption, effectively protecting data from unauthorized access. Additionally, Apacer's R&D team developed a solution that enables seamless firmware upgrades without requiring a power cycle, ensuring uninterrupted AI operations when the client chooses this customized SSD solution.

Benefits

By implementing Apacer's recommended solution, the client gained several key advantages, optimizing their AI solution and meeting their critical requirements:
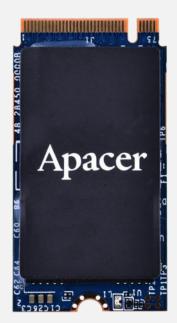
- Extended Endurance: Achieves up to 100,000 P/E cycles with SLC-liteX technology, significantly surpassing industry standards.
- Enhanced Security: Provides robust data protection through 256-bit encryption enabled by TCG Opal 2.0.
- Seamless Firmware Upgrades: Apacer's engineers verified the SSD's ability to perform firmware updates without requiring a power cycle, ensuring continuous operation.

The client's rigorous testing demonstrated that the PH250-M242 exceeded their expectations for both performance and reliability. Satisfied with the results, they placed additional orders for their prototyping phase and are considering Apacer SSDs for future projects.

Related Product

PH250-M242

M.2

- Low-Density Parity-Check (LDPC) Code
- Global Wear Leveling
- Flash Bad-block Management
- Flash Translation Layer: Page Mapping
- DataDefender™
- S.M.A.R.T. Function
- TRIM Support
- SLC-liteX (P/E cycle: 100K)
- SMART Read Refresh™
- NVMe Secure Erase