Success Story - They Chose Apacer

Challenges

- Intensive write-focused operation with small amounts of data
- Non-standard Linux OS plus need for constant SSD monitoring

Solutions

- SD R1 + DDR3 SODIMM
- SU210-300 + DDR4 ECC SODIMM

Value-added technologies

- **Firmware:** SLC-lite
- **Software:** SSDWidget (customized SDK)

The Customer and the Application: Network Switches

The customer is a leading global manufacturer of networking and communications solutions. Their latest products were network switches which can reduce operational expenses and increase network efficiency. These switches are popular with international telecoms who require a long-term supply, so their products need to be available for support over five to seven years. They came to Apacer for SSDs and DRAM modules, hoping to find a single supplier who could provide them with comprehensive storage options over the coming years.

Challenges

The client informed Apacer's sales team that there were a number of challenges facing them. The first was that due to the nature of network operation, the devices would often be given intensive write-focused tasks. Data would often be written in small amounts but many times, as networked devices exchanged data packets.

The client stated that their operating system would be based on Linux code that they had extensively customized. They also stated that they would need to constantly monitor the operation of SSDs via a Linux-based network. To complicate things even more, there were two products they were developing simultaneously: one using SD cards to store data, and another using an mSATA module. Both products would also need compatible DRAM modules.

Solutions and Technologies

Apacer's engineering team first took a closer look at the specifics of the client's data usage via SSDWidget 2.0. The client's first system involved two SD cards: one for Linux OS booting, and the other for storing log files. They discovered that on the second SD card, the client was using a somewhat outdated data processing technology that wrote data using Block Mapping, which was poorly suited to the write-intensive operation that was required. After some discussion, the engineering team recommended that the client switch to a newer data processing technology that incorporated Smart Read Refresh functionality. This wrote data using Page Mapping, which was more efficient given their data usage behavior.

To allow the client to monitor their SSDs in realtime, Apacer's software team made the SSD Widget 2.0 software development kit (SDK) available to the client. This allowed the client to create a monitoring UI that was compatible with their customized Linux OS, which was far faster and easier for them than creating an SSD monitoring program from scratch. And as the client transitioned from older Block Mapping technology to the newer Page Mapping technology we offered them, they were able to monitor both their old and their new storage solutions to anticipate the end of an SD card's operational lifetime.

In the other product, Apacer's engineering team also examined an mSATA SSD that the client was using, with one partition devoted to Linux OS booting and the other for processing log data. In this case, they suggested that the client switch from MLC to SLC-lite technology, which would provide a better tradeoff of P/E cycles compared to storage size. In this case, too, the client was able to take advantage of access to the SSDWidget 2.0 SDK to develop Linux solutions without starting from scratch.

And, to take full advantage of Apacer's total solution, the client adopted our DDR3 and DD4 modules for their products. These were manufactured using server-grade brand-name ICs sourced directly from the manufacturer. And thanks to Apacer's fixed BOM, the client could rest easy knowing that future orders would be made according to the same precise specifications.

Results and Benefits

The client accepted all of Apacer's suggestions, and after testing the prototypes of the network switches, they found that the operational lifetimes for industrial SSDs were greatly increased. In some cases, SSDs lasted up to three times longer than before, and exhibited consistently superior read-write performance. Apacer's software and firmware teams also expanded their development of the SDK for SSDWidget 2.0, and will put what they've learned to use when creating further iterations of this software.

Additional Support

Longevity

Fixed BOM solution,
EOL & LTB notice

Strong customization capabilities

Strong HW/FW
engineering know-how

Service

Real-time and responsive
after-sales service