

Success Story - They Chose Apacer

Challenges

- Electro-static discharge
Power cycling without
standard controlled shutdown

Solutions

- SDM7-M

Value-added technologies

- **Hardware:**
 - Protective plastic housings for SSDs
 - Implementation of Apacer's CorePower technology

The Customer and the Application: Gaming Machines

Our customer is an industry leader in the world of gaming machine manufacturing. Their systems are popular in high-end casinos around the world, so they demand only the finest components. But when they had a problem with their original supplier, they turned to Apacer to help them find a solution.



Challenges

The customer sent Apacer's engineering team a batch of SSDs they had purchased from another supplier. All of the SSDs were damaged beyond repair, yet they had only been in use for six months or less. The customer had approached their original supplier and asked them to figure out the causes of the failures, but the original supplier could not come to any finite conclusions. Frustrated with this lack of practical feedback, the customer called Apacer, since they knew we were a veteran supplier of industrial-grade storage solutions with extensive experience in the gaming industry.

Having received the batch of damaged SSDs in the mail, Apacer's squad of engineers set to work to find out the root cause of the problem.

Solutions and Technologies

Apacer's engineering team first determined that the SSDs had been damaged by electro-static discharge (ESD). This is a common phenomenon within complex electronic devices – static electricity builds up over time, and when it finally discharges, it's powerful enough to cause fatal damage to sensitive unprotected circuits.

Apacer's design team offered the customer a simple solution to this problem. They suggested encasing each SSD in a plastic housing to protect their circuits from ESD, and also to strengthen all the components of the PCB and upgrade certain converters and power ICs. This cost-effective approach could effectively ensure the SSDs would remain safe and operate without interruption.

There was another issue that Apacer's engineering team identified, in addition to ESD. They determined that in many cases, the customer's gaming machines were being power cycled without being shut down first. In other words, the end-users would not take the time to power down each machine individually. Rather, to save time, at the end of the working day, the power supply to multiple machines would be cut off without warning. Since a controlled shut down is an important part of prolonging a computing device's lifetime, repeated power cycling was taking an early toll on the customer's machines.

To combat this phenomenon, our team suggested that the customer incorporate Apacer's CorePower technology into their designs. This hardware- and firmware-based technology is designed to prevent data loss and ensure the stability of data transmission when power supply is unexpectedly cut off. The capacitor circuit design ensures sufficient time to move all cached data to NAND flash. The customer couldn't control how its end-users power-cycled their gaming machines, but with this technology in place, damage from power cycling would be completely eliminated.

Results and Benefits:

The customer was very impressed with how Apacer's engineering team was able to quickly identify the problems that were plaguing their machines and to offer practical, affordable solutions to those problems. They started to design-in and phase in Apacer's SSDs to replace their previous supplier. They recognized that Apacer's extensive experience in the industry could help overcome any challenge they might encounter.

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