# Success Story - They Chose Apacer

## Challenges

- Module easily separated from motherboard by shock, affecting signal transmission
- Limited energy available for physical destruction SSD but process is required for security

## Solutions

- XR-DIMM
- SM230-M242

## Value-added technologies

- Wide Temperature
- Conformal Coating
- Underfill
- CoreDestroyer

## The Customer and Application: Rugged Panel PC

The customer is a leading supplier of rugged devices with extensive experience in the field of portable tablet computers. The product line spans land, sea and air applications. Its latest rugged panel PC is used in shipboard command and control systems, for both commercial maritime and defense applications.

## Challenges

This rugged panel PC was originally designed to use a SODIMM memory module that complies with the JEDEC standard, but it repeatedly failed internal vibration tests. The customer found that the standard SODIMM module is connected to the memory slot by gold fingers, which allow it to easily separate from the motherboard when subjected to impact or vibration. This displacement leads to unstable memory transmission signals or even complete disruption, compromising the stability of data transmission and system operation. After repeated tests and failures, the customer turned to Apacer's professional R&D team for help, hoping to find industrial memory modules with resistance to vibration and shock.

Another important issue was power supply, which can be limited for portable devices in the field. Since the end-users placed a high premium on data confidentiality, the customer was looking for a technology that could quickly and irreversibly destroy SSDs via high power output if needed, even with a limited amount of power available. This operation would also need to be carried out instantaneously if destruction was ever required. The customer also asked Apacer if they could assist with optimizing this physical destruction feature.

## Solutions and Technologies

The Apacer technical team carefully evaluated the application scenarios of the product and recommended that the customer incorporate the XR-DIMM rugged memory module into their panel PC. Apacer engineers only recently developed the innovative and robust XR-DIMM. It uses a special board-to-board 300-pin connector to replace the traditional gold finger interface, which is supplemented by a two-mounting-hole design, so that the module can be firmly connected to the motherboard. The connector is not affected by external vibration or impact. Its high vibration resistance has passed the dual certifications of the US military standard MIL-STD-810G and the aviation airborne equipment standard RTCA DO-160G, demonstrating Apacer's professional R&D capabilities.

In addition to highly rugged connection methods, Apacer also recommended that the customer make use of value-added protection technology to improve the reliability of memory operation under harsh environmental conditions. First of all, the Apacer team used underfill technology to strengthen the solder joints between the IC solder balls and the circuit board, giving the module greater stability. Then, automated equipment is used to apply conformal coating technology to form a smooth and uniform protective film on the exterior of the memory module, which protects it from environmental contaminants such as dust, dirt, particulates, and liquid. At the same time, Apacer recommended the use of industrial-grade wide-temperature ICs from original manufacturers to ensure that the product can operate stably in the temperature range of -40°C to 85°C, without being affected by extreme outdoor temperatures.

Finally, in order to deal with the issues surrounding physical destruction, Apacer suggested the use of its CoreDestroyer technology. This takes advantage of a customized hardware design to evenly distribute the limited energy of the energy storage device to the multiple SSDs of rugged panel PCs during the destruction process. This design ensures that end-users can completely destroy all SSDs and their stored data in a matter of seconds, avoiding the risk of incomplete destruction of even a single SSD and data theft due to insufficient power. All destroyed SSDs will be completely impossible to read or access after the process is completed, maintaining the highest possible level of data confidentiality.

## Results and Benefits

Apacer's XR-DIMM and CoreDestroyer technologies provide a new rugged memory and SSD data security solution for high-end industrial applications, providing unmatched high-level protection for rugged computers. After the XR-DIMM was installed, the customer's rugged panel PC successfully passed the internal vibration tests, and the product's stability and reliability were further improved. In addition to maritime systems, the customer also decided to expand the introduction of XR-DIMM to land-based and aeronautic applications, such as armored vehicles and UAVs, to fully upgrade all rugged application systems.

## 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