

Networking: TuffDrive eUSB for Server Boot and Memory Dump

Custom, High Reliability TuffDrive for
VMware load and system-level
shutdown.

**Industrial Embedded
Technology for an
Interconnected World**



Challenge

A large provider of data center servers required a highly reliable USB thumb drive to serve two functions: 1.) VMware load 2.) Repository for data DRAM in the event of a system-level shutdown. This allowed the system to come back on-line significantly faster with data preserved, increasing overall data center efficiency and reducing maintenance costs.

The biggest issue the OEM faced with their first attempt was that the vendor did not provide BOM control or PCN when components changed, and that effected critical write performance parameters.

Solution

Based on a significant OEM commitment, Virtium built a TuffDrive eUSB Key to the customer's exact dimensional specifications. This included not only the PCB design, but also the plastic case, complete with the OEM's marking and labeling requirement.

In addition, Virtium utilized the latest USB flash controller technology that supports both SLC and MLC NAND flash. Since the OEM had very stringent performance and qualification requirements, capacities at 4GB and less remained SLC. The reason is that the lowest density MLC NAND flash available at the time was 32Gbit (4GB).

Using one of those NAND components simply did not meet the write speed requirement for the DRAM dump. Capacities at 8GB and higher had both MLC and SLC options depending on system configuration. Obviously MLC is significantly less expensive than SLC so the OEM had a less expensive option available.

Result

Regardless of whether the product was SLC or MLC, the customer realized a cost savings by moving to the latest NAND flash technology. A future system level benefit could be realized due to Virtium's performance benefit over the current solution. Virtium's TuffDrive eUSB solution was 50% faster in sequential writes. The customer's power hold up circuit, required to allow the contents of DRAM to be written to the USB key, could be simplified or cost reduced since the time required to hold power could be reduced by one-third.

Virtium's commitment to BOM control and PCN is also attractive to the OEM. Virtium meets with the OEM quarterly to review current SLC and MLC roadmaps. SLC doesn't change that much so those conversations are easy. MLC NAND changes much more frequently, so it is important to meet with the customer regularly to discuss MLC NAND transitions and align them with the OEM's qualification cycles.

Virtium manufactures memory and storage solutions for the world's top industrial embedded OEMs. For nearly two decades we have designed, built and supported our products in the USA - fortified by a network of global locations. Our world-class technology and unsurpassed support provide a superior customer experience that continuously results in better industrial embedded products for our increasingly interconnected world.

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