



## Flash storage solution for OEM of digital video recording systems for law enforcement agencies

### Challenges

- Police vehicles operate in environments involving extreme high and low temperatures. Flash storage designed to industrial temperature specification (-40°C to 85°C) is better suited for the application
- Need for low heat dissipation because in a fan-less enclosed system the storage device can't negatively affect other sensitive electronic components
- Stored data has to be reliable and safeguarded from corruption for evidence and legal implications with an intermittent power supply
- Steady performance at data rate because consistent feed is key for video capture

### Introduction

SMART Modular partnered with a company on a mission critical application that directly affects human lives and public safety. The company, now a customer, manufactures a trunk-mounted video recorder system for law enforcement agencies as well as other security products.

For this Original Equipment Manufacturer's (OEM's) application, the data being recorded on solid state drives (SSDs) required utmost reliability due to public interaction and potential use in the courtroom as evidence. The OEM and SMART discussed requirements for storage and retrieval of the video, how the video recorder required 24/7 video storage capability to ensure public transparency for the department and its integration into their other video monitoring products.

The OEM's engineering team detailed the need for the in-vehicle camera to wirelessly pair with officers' body cameras for a comprehensive cloud-based digital evidence system. Encrypted storage and secure uploading were also necessary to maintain security.

Their system utilizes dual-view 4K Automatic License Plate Recognition (ALPR) supporting up to five cameras at one time. It also employs 5G data processing with that technology's increasing pervasiveness. The system finally had to be able to retain the last 24 hours of video evidence and support remote retrieval. It also required steady performance for consistent data transmission. All key to evidence retention.

The stored data had to be reliable and secure due to potential evidentiary ramifications. This required a Flash storage device with advanced Flash management functions to safeguard against corruption of stored data in normal operation and when power supply became irregular or intermittent. Low power consumption is also a must for low heat dissipation in a fan-less, enclosed system to maintain data integrity and to keep the storage device from negatively affecting other sensitive electronic components in a patrol car. Support for power saving modes such as Autonomous Power State Transitions (APST), Active State Power Management (ASPM) are desirable.

## Solutions

DuraFlash M1400 M.2 2280  
(PCIe NVMe)

- DuraFlash drives utilize true I-temp TLC NAND
- M.2 2280 PCIe NVMe device is a robust, solid state drive product specifically designed for the needs of OEM markets requiring reliable internal storage with a small footprint
- DuraFlash products address the need for enhanced reliability by incorporating on-board error detection, correction and static wear leveling algorithms to provide reliable operation over the product life cycle

## Results

- SMART Modular's DuraFlash was qualified and selected from 13 possible companies from the public RFQ (Request for Qualification) among potential vendors
- One of the main factors in the agency selecting SMART Modular was the DuraFlash M1400's ability to succeed in high temperature testing



## The Solution

Taking all these factors and requirements into account, the SMART Modular engineering and sales team presented the OEM with the ideal option. The product presented was the DuraFlash M1400, M.2 2280 PCIe NVMe drive. The M1400 utilizes true I-temp TLC NAND, not just a screened commercial component, as some Flash devices do. It also utilizes PCIe NVMe technology with robust, solid state drive features, providing reliable internal storage with a small footprint. The M1400 products address the need for enhanced reliability by incorporating on-board error detection and correction and static wear leveling algorithms, providing reliable operation over the product life cycle. Finally, the M1400 drives are available from 240 GBs through 1TB with NVMe Gen 3 I-temp B+M and the flexibility to fit in sockets for B-keyed and M-keyed drives.

SMART was qualified and picked out of thirteen different vendors. Other manufacturers failed testing at high temperatures, among other required factors and criteria given by the video monitoring company's Request for Proposal (ROP). With SMART's DuraFlash storage, the OEM has found improved reliability and less maintenance.

Leveraging more than 30 years of knowledge and experience, SMART's Flash storage devices are designed with the customer's data needs in mind for consistent long-term support. SMART has built its foundation by providing proven technology and quality products to the most demanding Fortune 100 (OEMs). SMART engineers its DuraFlash and DuraMemory products to perform at the highest degree of reliability and compatibility while backing their products with outstanding services and technology expertise.

SMART has a wide portfolio of Flash storage solutions along with data logging for video monitoring devices and CCTV applications. Other OEM markets served include server, storage cache/accelerators, networking, and data communications applications requiring reliable internal storage with a small footprint. Case Closed.



For more information, please visit: [www.smartm.com](http://www.smartm.com)

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