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Hyperstone serves Public Transportation Sector

Leading solution provider for public transportation chooses Hyperstone's latest SSD flash memory controller, the X1, for industrial grade mSATA drive

INIT has chosen Hyperstone's latest flash memory controller to manage the storage in several of their latest products. The company has worked closely with Hyperstone and has found the X1 to satisfy the stringent requirements of the transportation sector. Many tests determined the modules with Hyperstone controllers to be the most power fail safe and reliable for their use case.

As INIT became aware that there was no suitable mSATA SSD available fitting their exact requirements, they decided to develop their own design. The compact mSATA board with the X1 has since been integrated into several products, namely the VENDstation (ticket vending machine), the EVENDpc3 (PC-based ticket printer and on-board computer), and the COPILOTpc3 (an on-board computer and vehicle communication platform). INIT's mission to make public transport more attractive and efficient is achieved by strong partnerships and providing reliable components. Therefore, they have chosen Hyperstone as their flash memory controller provider.

What are the requirements of storage modules in the transportation sector?

Memories in transport solutions stress the storage media with repetitive patterns - from mapping data of everyday routes to robust operating systems and sales data executing the same instructions over and over again. INIT's solutions are designed to satisfy these requirements. Consequently, their solutions use high-quality components and are based on sturdy designs.

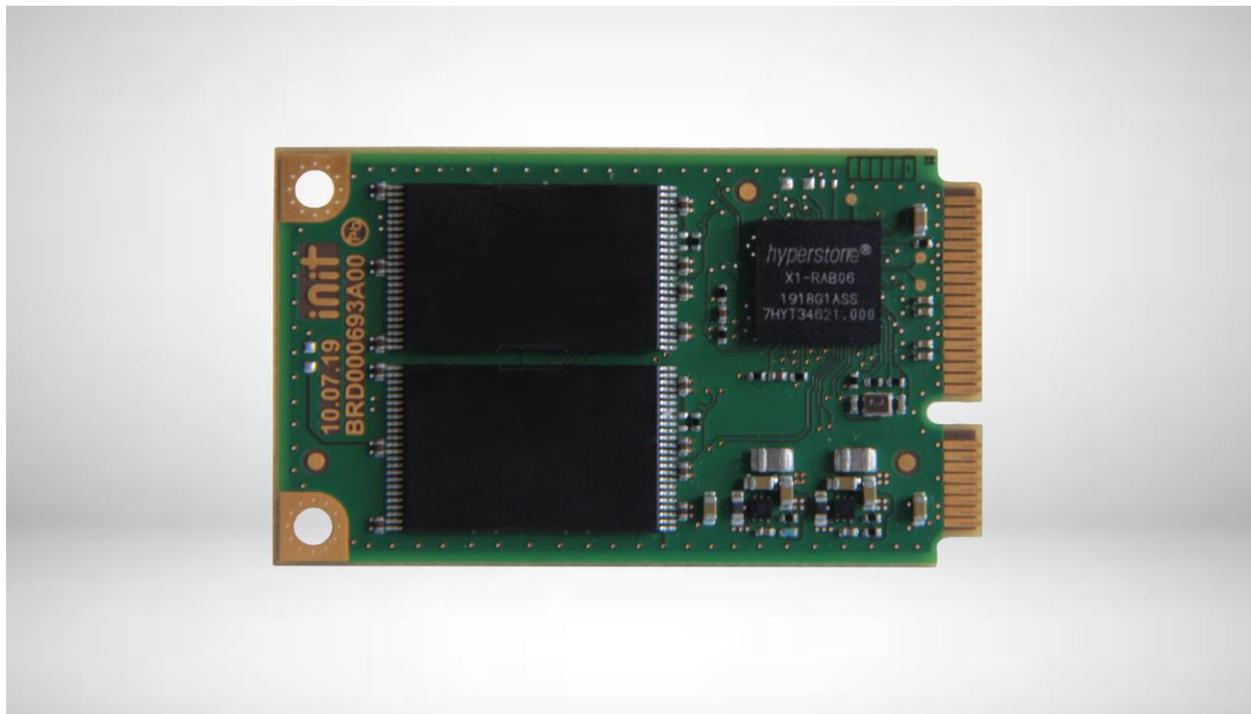
Other important requirements of transport solutions are ESD and shock resistance. Transport solutions must often deal with vibrations and shock caused by the vehicles that carry them. If ESD is not factored into the design of a storage module it can later lead to problems. To circumvent this, INIT has expertly chosen mSATA as their form factor of choice. This module is ideal for transport solutions for three main reasons.

Firstly, mSATA's compact shape lends itself well to ensuring a sturdy implementation. Secondly, the mSATA board can be fixed to the main board through two holes in the top corners of the PCB. Securing its position like this makes it more immune to shock and hazardous vibrations. Lastly, the convenience of this form factor is ideal as it is easily exchangeable.

What makes the X1 the right flash controller for the module?

The X1 flash memory controller can be implemented on mSATA, M.2 and a range of other SATA compliant form factors and ensures longevity and a strong sustained performance. The controller's health monitoring software hySMART™ furthermore strengthens the solution within the industrial environment. Additionally, there are vast differences in the operating temperature in comparison with consumer products. Commercial NAND flash based memory drives are specified to operating conditions of 0°C to 70°C or sometimes even less, while industrial memory controllers like the X1 are specified and thoroughly tested at temperatures from -40°C to +85°C. Finally, the X1 supports not only 3D TLC but also native SLC flashes, which are still most suited to ensure long-term data retention at higher temperatures.

The mSATA SSD in INIT's products are expected to function for extended periods of time to withstand environmental hazards and maintain uninterrupted operation. To achieve this, Hyperstone's X1 is especially power fail robust. In the event of a sudden power failure, the controller can minimize the damage on data that was supposed to be written onto the flash. This is because the log-book and the mapping data are always stored and updated on the flash to ensure that the data cannot be entirely lost. Even if data becomes corrupted through a power failure, it can be restored and corrected. It is especially important that the firmware data stays intact because if the firmware is damaged, the entire system can fail. Therefore, the X1 has a redundant firmware, which guarantees the firmware is stored twice on the flash. Thus, if the firmware is damaged, the backup firmware can be used to repair it. Ultimately, flash controller manufacturers handle power fail robustness differently depending on how they value reliability, performance and system trade-offs. Because Hyperstone's goal is to serve the industrial market, this is an invaluable feature which makes the X1 SATA 3 controller the ideal candidate to manage the data on the mSATA drive.



About Hyperstone

Hyperstone is a fabless semiconductor company based in Konstanz, Germany with a strong focus on world class flash memory controllers for industrial embedded markets. Its products set the standard for high-reliability flash management providing confidence for NAND flash performance in mission critical situations. Hyperstone's products include microcontrollers for various host interfaces and performance points, e.g. SATA, USB, CF/PATA, SD/microSD and eMMC. Flash controller firmware is supplied complementary to the controllers and customized for each flash and application. Hyperstone is a member of the CML Microsystems Plc group, traded on the London Stock Exchange.

To learn more about Hyperstone, please visit www.hyperstone.com

About INIT

As a worldwide leading supplier of integrated planning, dispatching, telematics and ticketing systems for buses and trains, INIT has been assisting transport companies in making public transport more attractive, faster and more efficient for more than 35 years. Today, more than 700 customers rely on INIT's innovative hard- and software solutions.

To learn more about INIT, please visit www.initse.com

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