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SQFlash – The Perfect Storage Solution for Embedded Applications

25th March 2013, Munich - Advantech is dedicated to continuously develop security software which protects intellectual property. Advantech's SQFlash Utility software package is a flash management package that contains utilities and API to access and configure Advantech flash storage. It supports Software Protection (Security ID Read/Write) and Life Monitoring (S.M.A.R.T.) features. A product key protected package provides users with a safe environment which not only protects the application itself but also prevents Security ID being read without the same product key while writing. The S.M.A.R.T. attribute contains Max/Average Program and Erase Cycles, Power On Time, ECC count and Life Endurance utilities. Users can monitor directly via the SUSI-SQFlash utility or implement functions into the application via the SUSI-SQFlash API, and a life-span detection mechanism can be designed from the Life Endurance information (www.advantech.eu/edm/embedded/2013-SQFlash).

Disk Information

Basic disk information like model name, serial number, and firmware version will be revealed in this field. All available S.M.A.R.T. attributes are also displayed for users to monitor disk conditions.

• Max Program - Max program and erase cycles in SQFlash.

• Average Program - Average program and erase cycles in SQFlash.

• Power On Time - Power on accumulated time.

• ECC Count - Error correction code number of times counter.

• Endurance Check - Endurance (%) of remaining life is the result of (Average P/E cycles) / (Max P/E cycles).

Disk health can be monitored directly via the SQFlash Utility or functions can be programmed into customized applications via the SQFlash API. A life-span detection mechanism can then be designed accordingly. The Standalone Life Monitoring utility is also available for easier access. Users are strongly recommended to evaluate with SQFlash Utility to make sure a suitable flash storage solution is chosen.

SQFlash Integrated Software Security Features

In order to help protect customers' intellectual property, Advantech has designed in a Security ID feature for Advantech SQFlash. Customers can easily implement security functions on their

applications based on an encrypted utility and library. The Flash Lock feature helps users to lock SQFlash with the motherboard it operates on to protect flash data from being read.

Security ID

•   Security ID I

Security ID I can be a full run-time configuration. All read/write access can be performed immediately. After Security ID I is enabled, all disk management access would be disabled, e.g. Format, fdisk, ghost, etc. This is because the SQFlash controller protects the SID area and does not allow any disk I/O to read or write to this area. If any tool or command tries to access this area, it will return a fail instruction.

•   Security ID II

This SID will be located into the firmware zone and all disk management access will maintain the same behavior.

Flash Lock

Flash Lock is a mechanism to lock SQFlash with the motherboard through the BIOS and make SQFlash only operate with the corresponding platform. This can help to prevent data being stolen by reading the SQFlash with other computers and card readers. Since the feature is a mechanism between the SQFlash firmware and BIOS, it can work only on Advantech products. If the target platform doesn't support this feature, Flash Lock buttons will be grayed out as follows.

Advanced Hardware Security Functions

SQFlash 820 series SATA III SSD is designed with the Opal Compliant disk encryption standard, which supports in-drive AES 256-bit encryption. For even more critical applications that may need emergency erase, the SSD is equipped with hardware GPIO pins for triggering a high security level erase-at-once command.

About Advantech

Founded in 1983, Advantech is a leader in providing trusted, innovative products, services, and solutions. Advantech offers comprehensive system integration, hardware, software, customer-centric design services, embedded systems, automation products, and global logistics support. We cooperate closely with our partners to help provide complete solutions for a wide array of applications across a diverse range of industries. Our mission is to enable an intelligent planet with Automation and Embedded Computing products and solutions that empower the development of smarter working and living. With Advantech, there is no limit to the applications and innovations our products make possible. (Website: www.advantech.eu).