Hyperstone inside Wibu-Systems Security Technology

Konstanz & Karlsruhe, Germany – Wibu-Systems, a leading enterprise
in the field of secure license lifecycle management, has integrated
Hyperstone's controllers in all of its hardware secure elements
(CmDongles) equipped with flash memory. With an impressive lineup
of form factors (microSD, SD, CF, CFast cards, and USB devices),
Wibu-Systems has selected Hyperstone's technology, which is known
for meeting the reliability and data integrity demands for NAND flash
memory storage devices in ruggedized industrial embedded
applications.

For coupling CodeMeter smartcard-chip-based protection, licensing,
and security features with NAND flash mass storage, Wibu-Systems
takes advantage of Hyperstone's Application Programming Interface
(API), which allows the addition of proprietary firmware extensions to
existing Hyperstone firmware. An independently built binary file
enables communication between a host system and the basic flash
firmware. This so-called Customer Firmware Extension (CFE) can
access various features of the existing firmware, ensuring the easy
management of its own private data outside the commonly user
accessible address space of the storage device. By developing a
specific firmware extension, Wibu-Systems is implementing additional
secure encryption and license key management features that enhance
its CmDongles with flash mass storage and provide the highest level
of security. Hyperstone's controllers are the ideal fit to comply with
strong security requirements when protecting sensitive digital assets.

Oliver Winzenried, CEO and co-founder of Wibu-Systems underlines
the value of the ingenious security design: "The excellent cooperation
between Hyperstone's and Wibu-Systems' competent teams of

security experts has made it possible to lead innovative R&D projects Made in Germany. As a result, new ideas were born for security features in industrial applications that were implemented in the latest Hyperstone's flash memory controllers and immediately deployed for Wibu-Systems' CmDongle mass storage product line. Hyperstone's high quality and endurance standards, advanced flash memory management software, and long term component availability, along with Wibu-Systems' dedication to software and data protection, licensing, and security are a perfect match for IIoT devices and Industrie 4.0 applications, whether it's about upgrading infrastructure in the brown field or developing a new architecture in the green field."

"Wibu-Systems is one of our most innovative customers and is using Hyperstone controllers within their CmCard products for interfaces like SD/eMMC, CF and SATA", states Steffen Allert, VP Sales of Hyperstone. "By integrating our new USB 3.1 controller U9 in their next generation of USB dongles CmStick/M, they will be implanting our complete line-up of interfaces. We appreciate the valuable cooperation with Wibu-Systems and are proud to contribute to their sophisticated security solutions."

CmDongles

CmDongles are the physical representation of Wibu-Systems' CodeMeter secure entitlement system. They embed a smart card chip with a memory area for the secure storage of cryptographic keys and thousands of licenses. The main idea behind CodeMeter is that licenses can be created and monetized for a variety of product variants in a multitude of scalable selling models, even combining licenses of different vendors in the same CmDongle. To achieve the very best intellectual property safeguards against piracy, reverse engineering, and tampering, Wibu-Systems uses a combination of hardware and software factors, including EAL 5+ evaluated smart card controllers

that provide protection against side channel attacks and make it practically impossible to access private keys and license data. In addition, sophisticated code encryption mechanisms relying on symmetric and asymmetric algorithms, such as AES (Advanced Encryption Standard), RSA (River-Shamir-Adleman), and ECC (Elliptic Curve Cryptography) offer software publishers and intelligent device manufacturers an automated process for protecting their applications against cyber-hacking attacks.

Flash Memory Controllers and API

The complete range of Hyperstone's flash memory controllers with application and flash-specific firmware represents a unique platform for industrial high endurance flash memory storage devices. Support is available for a range of host interfaces, including CompactFlash (CF), SecureDigital (SD), eMMC, SATA, and USB. Together with Hyperstone's proprietary hyReliability™ firmware, all controllers provide enhanced endurance and data retention management as well as rigorous fail-safe features, all of which are mandatory for industrial embedded applications. Implemented hardware features and special firmware developments enable the highest data retention and refresh mechanisms, even when storage applications are faced with extreme environmental conditions. The integrated AES enables high performance data encryption on-the-fly. A unique ID is available for security applications. Wibu-Systems' CodeMeter concept uses Hyperstone's flash controller security features. The Hyperstone's API enables the implementation of unique features and firmware extension, while full ownership of the developed code stays with Wibu-Systems.

Figure: Hyperstone's flash memory controllers inside Wibu-Systems' Security Technology: higher trustworthiness for CmDongles equipped with flash memory

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WIBU-SYSTEMS AG (WIBU®), a privately held company founded by Oliver Winzenried and Marcellus Buchheit in 1989, is an innovative security technology leader in the global software licensing market. Wibu-Systems' comprehensive and award winning solutions offer unique and internationally patented processes for protection, licensing and security of digital assets and know-how to software publishers and intelligent device manufacturers who distribute their applications through PC-, PLC, embedded-, mobile- and cloud-based models.

Media graphic resources available at: http://www.wibu.com/photo-gallery.html

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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.