

MCFACT and Security Hardware

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MCFACT Overview

MCFACT is a security technology specifically designed for software program code and data protection. The main security feature of MCFACT is one-of-a-kind:

MCFACT-protected program code is able to process encrypted data without the need to decrypt the data ever. Neither the protected program code, nor the protected data are decrypted before, during or after execution or processing.

Another property of the MCFACT-protected program code is robustness against debugging, reverse-engineering and tampering.

Syncrosoft's MCFACT Technology is applicable for the protection of security applications and sensitive data which should never be exposed during processing or execution.

Hardware Emulation and Extension

MCFACT can protect software emulations of security hardware, e.g. dongles, security tokens and smart-cards. Another application of MCFACT is the protection of a software layer that extends the functionality of security hardware.

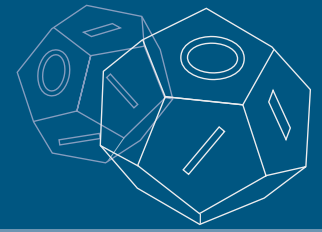
The program code that implements the hardware emulation or hardware extension is protected with MCFACT, thus the program code and the program data remain always encrypted.

Linking Software to Hardware

A hard link between program code and security hardware is the foundation for secure software copy protection. MCFACT is able to link program code with specific security hardware.

MCFACT-protected program code operations are linked to a crypto-service running inside the security hardware. The security of the link between the MCFACT-protected program code operations and the hardware is based on the hard mathematical problem of large finite automata decomposition and the complexity of the crypto-service.

In general, the link between MCFACT-protected program code and the hardware can be implemented with any programmable micro controller. The highest level of security is achieved with hardware that has tamper-resistant properties, e.g. smart-cards or crypto-processors, but also works with application-specific integrated circuits (ASIC), or digital signal processors (DSPs).



Key Features

The MCFACT technology offers the following key features:

- **Secure processing of data.** Program code and data are always kept encrypted. Neither the protected program code, nor the protected data are decrypted before, during or after execution or processing.
- **Prevention of reverse-engineering.** During application development, program code is transformed into a set of tables. A reverse transformation of the program code is impossible.
- **Prevention of debugging.** Debugging does not reveal any useable information, because program code and data are always kept encrypted.
- **Prevention of illegal reuse.** A block of protected program code is designed to interact with a defined set of other program code blocks only. If the protected program code is re-used in another application illegally, the communication between the program code blocks will fail.
- **Preservation of integrity.** Program code can be generated in a specific way so that data are forced to step through the program code in a certain order. The tampering of program code results in a program malfunction.
- **Support for hardware link.** Program code can be linked to a specific hardware, e.g. smart-card or DSP. The removal of the hardware link results in a program malfunction. The security of the hardware link is based on a hard mathematical problem.
- **Watermark included.** Program code itself serves as a watermark, enabling to identify and prove its origins. Each program code translation process generates a diverse and unique watermark.

Syncrosoft – The Company

Syncrosoft, founded in Hamburg/ Germany in 1991, develops and markets superior crypto and security solutions used for IP- and software copy-protection. Syncrosoft supplies its patented technologies and security solutions to customers in the software, digital content and security solutions industry in Europe, USA and Japan.

Syncrosoft does invest into research in the area of crypto and security solutions and continues to add to a patent portfolio that helps differentiate its products, which is important to Syncrosoft's license driven business model.

With offices in Hamburg/Germany and Riga/Latvia, Syncrosoft is a European company.

MOST IMPORTANT FACTS

- **MCFACT-protected program code is able to process encrypted data without the need to decrypt the data ever.**
- **MCFACT can protect software emulations and software extensions of security hardware.**
- **MCFACT can securely link software to security hardware.**

Find detailed information at www.syncrosoft.com