SC31ZD38

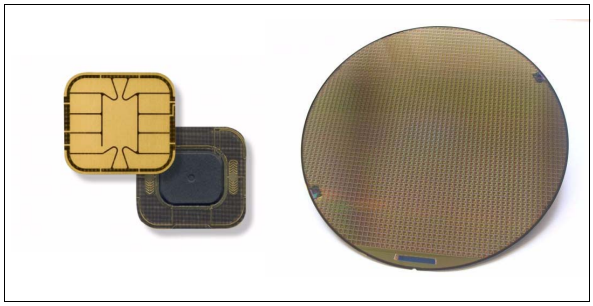
Secure MCU with enhanced security and 38 Kbytes of EEPROM

Data brief

Features

Hardware features

- ARM® SecurCore® SC000™ 32-bit RISC core
- 320 Kbytes of User ROM
- 8 Kbytes of User RAM
- 38 Kbytes of User EEPROM
- CPU clock frequency up to 28 MHz
- Power-saving Standby state
- Contact assignment compatible with ISO/IEC 7816-3 standards
- Asynchronous receiver transmitter (IART) for high speed serial data support (ISO/IEC 7816-3 T=0/T=1 and EMV compliant)
- ESD protection greater than 5 kV (HBM)



Security features

- Three-key Triple DES accelerator
- AES accelerator
- NESCRYPT coprocessor for public key cryptography algorithm
- Protection against multiple attacks

1 Description

Designed for secure ID and banking applications, the SC31ZD38 is a serial access microcontroller that incorporates the most recent generation of ARM processors for embedded secure systems. Its SecurCore® SC000™ 32-bit RISC core is built on the Cortex™ M0 core with additional security features to help to protect against advanced forms of attacks.

Cadenced at 28 MHz, the SC000™ core brings great performance and excellent code density thanks to the Thumb®-2 instruction set.

The SC31ZD38 also offers a serial communication interface fully compatible with the ISO/IEC 7816-3 standard (T=0, T=1).

Two 16-bit general-purpose timers are available; one is configurable as a watchdog.

The SC31ZD38 features hardware accelerators for advanced cryptographic functions. The AES accelerator provides a high-performance implementation of AES-128, AES-192, AES-256 algorithms. The 3-key Triple DES accelerator (EDES+) peripheral enables Cipher Block Chaining (CBC) mode, fast DES and triple DES computation based on three key registers and one data register, while the NESCRYPT crypto-processor efficiently supports the public key algorithm with native operations up to 4096 bits long.

The SC31Z family operates in the –25 to +85°C temperature range, at 1.8V, 3V and 5V supply voltage ranges in Contact mode. A comprehensive range of power-saving modes enables the design of efficient low-power applications.

Software development tools description

Dedicated SecurCore® SC000™ software development tools are provided by ARM® and Keil™. This includes the Instruction Set Simulator (ISS) and C compiler. The documentation is available on the ARM and Keil web sites.

Moreover, STMicroelectronics provides:

- A time-accurate hardware emulator controlled by the Keil debugger and the ST development environment.
- A complete product simulator based on Keil's ISS simulator for the SecurCore® SC000™ CPU.

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
24-Jul-2012	1	Initial release.

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