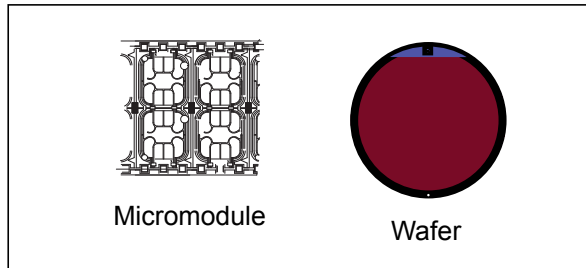

Enhanced secure MCU with AES accelerator, 80 Kbyte EEPROM and contact interface

Data brief



Micromodule

Wafer

Features

- Enhanced 8/16-bit ST23 CPU core with 16 Mbytes linear addressable memory
- 390 Kbytes of User ROM
- 6 Kbytes of User RAM
- 2 Kbytes of NESCRYPT RAM
- 80 Kbytes of User EEPROM including 128 bytes of User OTP area:
 - 30-year data retention at 25° C
 - 500,000 erase/write cycles at 25° C
 - 1 to 64 bytes Erase or Program in 1.5 ms
- Operating temperature: -25° to +85° C
- Enhanced NESCRYPT crypto-processor for public key cryptography
- FIPS PUB 197 -compliant AES accelerator
- Three 8-bit timers with watchdog and interrupt capability
- 3 V and 5 V supply voltage ranges
- External clock frequency up to 10 MHz
- High performance provided by:
 - CPU clock frequency up to 29 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 and EMV™ compliant)

- ESD protection greater than 6 kV (HBM) for contact pads and 4 kV for contactless pads

Security features

- Active shield
- Hardware security enhanced DES accelerator
- Monitoring of environmental parameters
- Protection mechanisms against faults
- EAL6+ security certification according to Common Criteria 3.1 methodology
- DPA, SPA and DFA resistant
- AIS-31 class P2 compliant true random number generator (TRNG)
- ISO 3309 CRC calculation block
- Memory protection unit (MPU)
- Unique serial number on each die

Applications

ST23L80A major applications include:

- eGovernment and ID applications
- IAS-ECC standard compliant

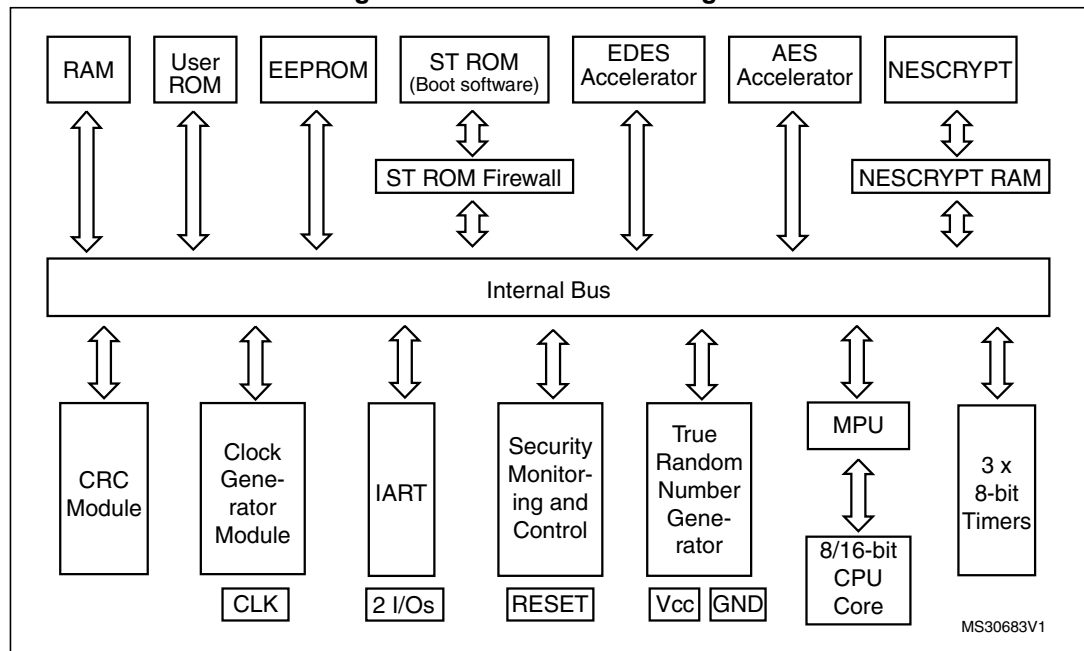
Description

ST23L80A devices are serial access microcontrollers custom-designed for secure smartcard applications.

They are based on an enhanced STMicroelectronics 8/16-bit CPU core offering 16 Mbytes linear addressing space. They are manufactured using an advanced highly reliable ST CMOS EEPROM technology.

Moreover, an ISO/IEC 7816-3 EMV-compliant asynchronous receiver transmitter (IART) communication peripheral is available.

Figure 1. ST23L80A block diagram



Development environment

Development tools for smartcard products include a complete range of hardware systems and software tools from STMicroelectronics and third-party tool suppliers. The range of tools includes solutions to help you to develop and debug your application and evaluate smartcard products and their peripherals.

An Integrated Development Environment (IDE), the ST Visual Develop (STVD), provides a set of tools for developing embedded applications. This interface manages the project configuration, code edition, code generation and program debugging.

A Smartcard ICS emulator and simulator are available for developing and validating your application code.

All the information needed to generate the application code and personalization will be collected in a delivery file (.DLV extension). This file is created using the Delivery menu of the STMicroelectronics configuration software tool, SCool.

Revision history

Table 1. Document revision history

Date	Revision	Changes
15-May-2013	1	Initial release.
06-Nov-2013	2	Updated logo information on page 2

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