ST23YL80

Smartcard MCU with enhanced security, crypto-processor and 80 Kbytes EEPROM

Data Brief

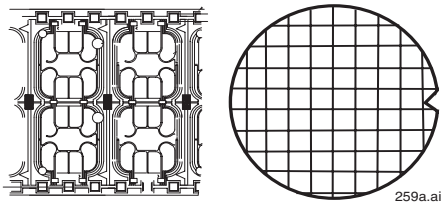
Features

ST23YL80 major applications include:

- ID and Pay TV applications

Hardware features

- Enhanced 8/16-bit CPU core with 16 Mbytes linear addressable memory
- 396 Kbytes User ROM
- 6 Kbytes User RAM
- 2 Kbytes NESCRYPT RAM
- 80 Kbytes User EEPROM including 128 Bytes User OTP area:
  - Highly reliable CMOS EEPROM submicron technology
  - 10-year data retention
  - 500,000 Erase/Write cycles endurance typical at 25° C
  - 1 to 64 Bytes Erase or Program in 1.5 ms
- NESCRYPT crypto-processor for public key cryptography
- Three 8-bit timers with watchdog and interrupt capability
- 3V and 5V supply voltage ranges
- External clock frequency from 1 up to 5 MHz
- High performance provided by:
  - CPU clock frequency up to 29 MHz
- Power-saving Standby state
- Contact assignment compatible ISO 7816-3
- Asynchronous Receiver Transmitter (IART) for high speed serial data support (ISO 7816-3 and EMV™ compliant)
- ISO 3309 CRC calculation block
- ESD protection greater than 5 kV (HBM)



Micromodule Wafer

Security features

- Active shield
- Monitoring of environmental parameters
- Protection mechanisms against faults
- Hardware Security Enhanced DES accelerator
- AIS-31 class P2 compliant True Random Number Generator (TRNG)
- Memory Protection Unit (MPU)
- Unique serial number on each die

Development environment

Software development and firmware generation are supported by a comprehensive set of development tools dedicated to software design and validation:

- C Compiler
- Simulator
- Emulator

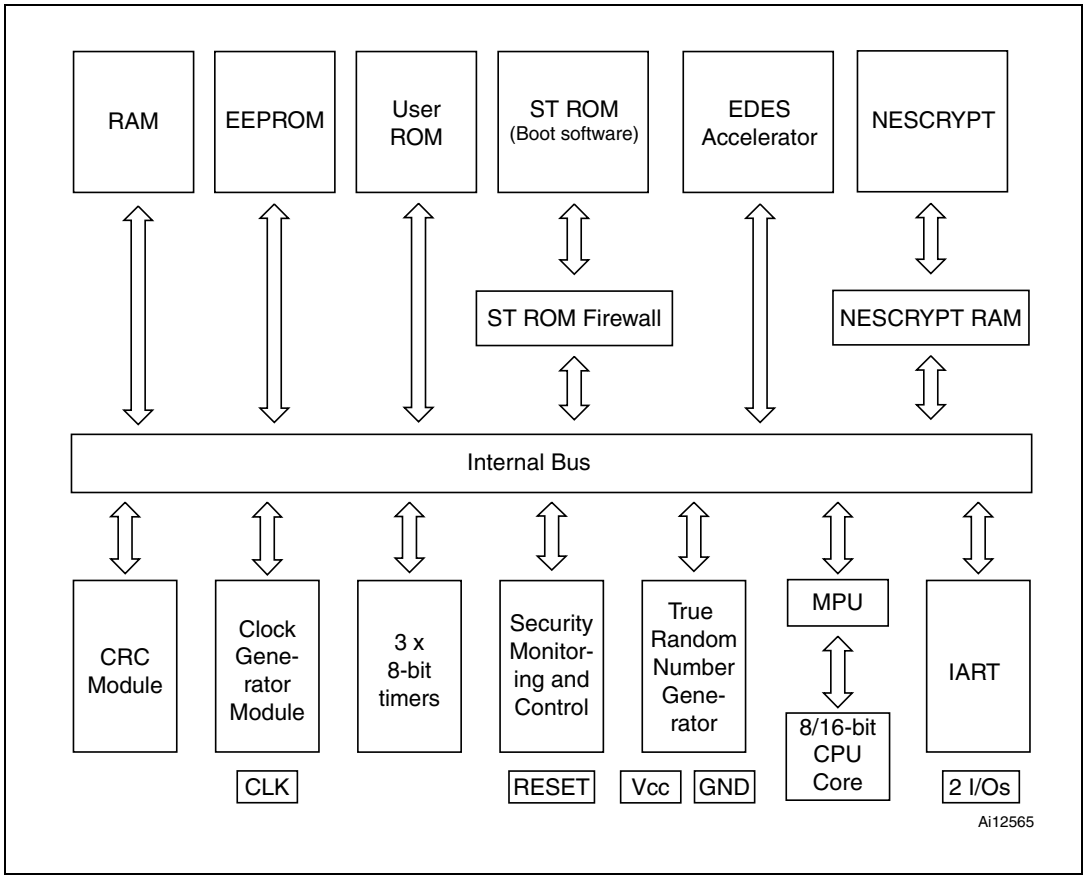
For further information contact your local STMicroelectronics sales office. www.st.com

1 Description

The ST23YL80 product is a serial access microcontroller specially designed for secure smartcard applications.

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

Figure 1. ST23YL80 block diagram



1.1 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 STMicroelectronics Visual Debug (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 (SCICS) 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.

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
5-Oct-2007	1	First release.

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