

Smartcard ICs for consumer applications

Conditional access and content protection



STMicroelectronics is the world's leading supplier of ICs for pay-TV and conditional access, and has extensive experience supplying 8- and 32-bit secure microcontrollers for conditional access to pay-TV providers. ST's latest smartcard ICs are produced in 0.15 μm technology and represent state-of-the-art security combined with high-performance cryptography.

Drawing on its expertise in security and non-volatile memories, ST is currently offering the brand new 8/16-bit ST23 product family for Pay-TV applications. It is designed in the most advanced technology available on the market (0.13 μm).

Conditional access for digital pay-TV

Conditional access for digital pay-TV enables broadcasters and network operators to offer various pay services for video, audio and data transmitted via satellite, cable or terrestrial over-the-air systems. Conditional access (CA) is based on smartcard technology with a secure integrated circuit, and controls the encryption and the decryption of user control messages, in order to descramble video, audio and data signals in a modular and transparent way. The secure microprocessor contains the confidential data needed to access the services and, no matter what kind of transmission is used, the smartcard IC secures the system with the set-top box.

USB for even more efficient digital rights management

Historically, the limitation of the ISO 7816 smartcard interface limited the available bandwidth for exchanging video data between the secure microcontroller/CA and the set-top box.

Today however, due to a USB 2.0 full-speed interface, it is possible to develop DRM/CA applications, as well as ADSL pay-TV applications with video-on-the-fly decryption capabilities where the quantity of data exchanged is of prime importance.

ST offers a wide range of secure MCUs for conditional access applications:

- The 8-bit secure ST19 family, featuring up to 66 Kbytes of EEPROM
- The ST22 32-bit secure MCUs offering up to 256 Kbytes of EEPROM (Both the ST19 and ST22 product families exist in 0.18 μm and 0.15 μm embedded EEPROM technology.)
- The new 8/16-bit ST23 product family, produced in 0.13 μm technology, offers up to 80 Kbytes of EEPROM

All the products dedicated to pay-TV applications combine state-of-the-art security features with a unique encryption performance.

Latest-generation ICs for pay-TV and digital rights management

The STNA18 is a highly-secure device that meets the specific needs of the pay-TV market. Designed in 0.15 µm process technology, the ST19NA18 features improved protection against fault injection, and a higher speed clock for code execution and hardware cryptography. The device has received EAL5+ accreditation.

Based on the proven performance of the ST19NA18, ST is extending its product range with enhanced devices from the new 8/16-bit ST23 family, designed in 0.13 µm process technology:

- 8/16-bit CPU core
- Complete portfolio from 8- to 80-Kbyte EEPROM
- Enhanced security and hardware protection against the most recent attacks
- New hardware cryptographic coprocessor, offering significantly improved performances

The USB 2.0, full-speed ST22T064 allows development of DRM/CA and ADSL pay-TV applications with critical decryption capabilities, allowing a powerful exchange of data.

The second key benefit of the ST22T064 is a very high level of integration, thanks to its on board clock recovery, eliminating the requirement for external, costly discrete components and a crystal. The ST22T064-B will feature the option of either SPI bus interface or GPIO.

ICs for conditional access

Part number	ROM	EEPROM	RAM	Cryptography	Interface
ST19WSC8	64 KB	8 KB	2 KB	EDES	ISO 7816-3
ST19WK08	112 KB	8 KB	4 KB	EDES, RSA	ISO 7816-3
ST19WL18	112 KB	18 KB	4 KB	EDES, RSA	ISO 7816-3
ST19NA18	128 KB	18 KB	4 KB	EDES, AES, RSA	ISO 7816-3, IART
ST19NL66	224 KB	66 KB	6 KB	EDES, AES, RSA	ISO 7816-3, IART
ST22T064-A	228 KB	64KB	16 KB	EDES, AES, RSA	USB/ISO 7816-3/CCID
ST22N072	374 KB	72 KB	8 KB	EDES, AES, RSA	ISO 7816-3
ST22N144	374 KB	144 KB	12 KB	EDES, AES, RSA	ISO 7816-3
ST22N256	374 KB	256 KB	16 KB	EDES, AES, RSA	ISO 7816-3
ST23YS08	108 KB	8 KB	2 KB	EDES, AES	ISO1876-3, IART
ST23YL18*	200 KB	18 KB	6 KB	EDES, AES, RSA	ISO1876-3, IART
ST23YL80*	400 KB	80 KB	8 KB	EDES, AES, RSA	ISO1876-3, IART

*Production in 2008

Packaging

ST has the ability to offer smartcard ICs in wafer form factors and various micromodules. Contact modules (D68 and D95) and packages (various SO, TQFP44 and BGA) combine integration and security. All these packages are ECOPACK® versions, compliant with the European directive 2002/95/EC relating to restrictions on hazardous substances (RoHS).



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For selected STMicroelectronics sales offices fax:

China +86 21 34054689; France +33 1 55489569; Germany +49 89 4605454; Italy +39 02 8250449; Japan +81 3 57838216; Singapore +65 6481 7771; Sweden +46 8 58774411; Switzerland +41 22 9292900; United Kingdom and Eire +44 1628 890391; USA +1 781 861 2678

Full product information at www.st.com

Order code: FLSCAPPL1107

