E-government secure identity documents

STMicroelectronics

A secure and flexible product portfolio

Today, governments across the world recognize secure MCUs as a key tool in protecting international security and personal data, reducing fraud and improving service and information for citizens.

STMicroelectronics offers the optimum combination of security and functionality for governments and industry partners in each country. ST's proven silicon technology, its world-class manufacturing capabilities, and its experience as one of the long-standing leaders in this market, make the Company the ideal partner for important long-term government projects. In areas such as health, driving licenses, national ID and international passports, major programs are in progress to upgrade existing solutions to secure-MCU technology.

ST has developed a complete range of secure MCUs to cover every aspect of large-scale, government-level programs. ST offers governmental projects all the benefits of a complete and extensive range of secure microcontrollers. These are based on advanced 0.13 µm and 90 nm EEPROM technologies, and support the specific requirements of security, reliability, speed and flexibility in interfaces, interoperability and tight roll-out deadlines.

Key references

ST's offer is based on over 15 years of hands-on, secure-MCU roll-out experience with governmental organizations worldwide – for example, health cards in France, Germany and Switzerland, ID cards in Italy, Thailand, Spain, Malaysia, Brazil, Mauritania, Kazakstan and Albania, e-passports in France, Poland, Kazakhstan, Albania, and driving licenses in Indonesia. In addition to large-scale government programs, ST's products have also been introduced in frequent-travel programs as in Australia.

ST23 platform: cutting-edge silicon solutions for secure e-government applications

The ST23 platform represents a major breakthrough in terms of security and performance. The products dedicated to e-government applications meet the growing demand for secure cryptographic ICs, with high-speed interfaces, and large memory capacity. They integrate an enhanced crypto-processor (Nescrypt) that supports BAC (basic access control), EAC (extended access control), SAC (supplemental access control) and AA (active authentication). This platform implements very fast e-passport transactions in less than 3 seconds, and also supports the IAS ECC specification based on the European Citizen Card (ECC). It has been certified by Common Criteria EAL6+. ST's IC is the world's first secure microcontroller to achieve EAL6+ according to the Common Criteria 3.1 methodology.

Key features

- Advanced 0.13 µm and 90 nm EEPROM technology
- Enhanced crypto-processor (Nescrypt): RSA up to 4096 key length, ECC up to 512 key length, GF(p) and GF (2n)
- Optional RSA, SHA, ECC and AES crypto libraries
- Optimized cryptographic performances while in contactless mode

Security certification

- Common Criteria EAL5+ /EAL6+ including associated librairies

Secure MCUs for e-government applications

Part number	EEPROM (Kbytes)	ROM (Kbytes)	RAM (Kbytes)	Cryptography	Interface	Process
ST23ZL18	18	300	6+2	EDES, AES, RSA, ECC	ISO 7816, IART	90 nm
ST23ZL34	34	300	6+2	EDES, AES, RSA, ECC	ISO 7816, IART	90 nm
ST23ZL48	48	300	6+2	EDES, AES, RSA, ECC	ISO 7816, IART	90 nm
ST23YL80	80	396	6+2	EDES, AES, RSA, ECC	ISO 7816, IART	0.13 µm
ST23YR08	8	230	4+2	EDES, AES	ISO 7816, IART, RF ISO 14443 B	0.13 µm
ST23ZR08	8	96	4	EDES, AES	ISO 7816, IART, RF ISO 14443 A/B/B'	90 nm
ST23YR18	18	230	4+2	EDES, AES, RSA, ECC	ISO 7816, IART, RF ISO 14443 B/B'	0.13 µm
ST23YR48	48	390	6+2	EDES, AES, RSA, ECC	ISO 7816, IART, RF ISO 14443 B	0.13 µm
ST23YR80	80	390	6+2	EDES, AES, RSA, ECC	ISO 7816, IART, RF ISO 14443 B	0.13 µm
ST23R160	160	390	6+2	EDES, AES, RSA, ECC	ISO 7816, IART, RF ISO 14443 B/B'	0.13 µm

System on chip

ST and our partners are offering complete solutions covering existing worldwide e-ID standards that provide the most advanced transaction performances and security certifications. These solutions (native and java) support such applications as e-passports, resident permits, digital signatures, PKI, driving licenses, e-health, biometric ID, and more.

Packaging

ST offers secure MCUs in wafer form factor and advanced micromodules (contact, dual and full contactless down to 250 µm total thickness) combining 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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