Setting a new dimension of security and performance for contactless and dual-interface applications

The 6th generation of NXP's proven and reliable SmartMX microcontroller family delivers highest security and great performance across all target applications.

Target applications

- eGovernment
- Transport
- Access management
- Wearables

Key features

Performance

- Great performance
  - <200ms for a M/Chip transaction
  - <2s for ePassport SAC
- Broad interoperability with contactless readers by self-tuned EMD noise reduction
- Fast operating system download to flash memory (100 KB/s)

Technology

- Manufactured in dual-source CMOS40 technology (Singapore/Germany)
- Full flash memory solution up to 344 KB
- Most advanced RF front end technology to maximize communication sensitivity

Security

- Advanced IntegralSecurity 3.0 architecture
- CC EAL 6+ security certification according to PP-0084 at the edge of security architectures
- Fully CC certified symmetric, hash and asymmetric cryptography libraries
- Key lengths up to RSA 4096 bits and ECC 640 bits

Solutions

- Multi-application with MIFARE® DESFire® EV2 up to 16KB user memory and MIFARE Plus® EV1 up to 4KB user memory (including MIFARE Classic® support)
- Crypto and functional libraries already pre-installed
- Full system solution available with JCOP® 4 operating system
- Very broad portfolio of JavaCard applets available from NXP and partners

Customer Support Package

- Well established SmartCard Composer development environment
- Soft-mask device to accelerate hardware validation
- Full set of system documentation and customer trainings

Key benefits

- Great transaction performance and excellent RF communication
- Optimized total cost of ownership
- One-stop shop system solution available (including hardware, libraries and solutions)

System solution

The SmartMX3 P71D321 secure microprocessor platform provides a first-choice hardware solution and offers built-in high-performance libraries for communication, memory control and cryptography modules to enhance performance and significantly shorten development cycles.

Moreover, NXP is offering a full system solution powered by our JCOP 4 JavaCard oparating system. Running JCOP 4 on the P71D321 guarantees a perfect match of hardware and software capabilities resulting in excellent performance figures and enabling the fastest time to market and lowest risk approach for state-of-the-art security solutions.

Security enhancement

Every point of access to digital information is a potential entryway for those looking to steal information or do harm. As a result, the need for protection and vigilance has become a front-of-mind topic for everyone in technology, and security has become a guiding principle for digital development. NXP's SmartMX family is an anchor of hardware trust. The SmartMX3 P71D321 has a multi-faceted architecture providing a multi-pronged defense that protects data at every point, from the factory to the end-user's hand.

IntegralSecurity Architecture 3.0

- Security against known and most recent template attacks
- End-to-end protection by blinded data paths
- Configurable memory encryption
- No hard macro design

Vertical firewall

- Certified isolation of NXP and customer code (firmware) mechanism for resource management and inter-OS communication

Unique protection layer

- Physical Unclonable Function (PUF) creates silicon fingerprint and enhances protection of customer assets (keys, sensitive data, etc.)

Glue logic

- Spatial decorrelation of logic functions; strong protection against reverse engineering; no hard macros used in layout

Optimized total cost of ownership

The SmartMX3 P71D321 platform offers the possibility to implement various libraries including communication and memory management libraries as well as symmetric and asymmetric cryptographic algorithms. In addition, the fully qualified and certified JCOP operating system and multiple industry standard applications are available on P71D321.

Through the usage of these well-established solutions, NXP is helping customers to accelerate time to market and decrease their total cost of ownership by reducing:

- R&D and verification effort and risk
- Cost for certification and maintenance
- Opportunity cost

Market leadership

SmartMX products have been used in more than 120 countries, for EMV payment cards and eGovernment solutions, with many billion SmartMX ICs shipped to date. The SmartMX microcontroller family is the leading choice for secure applications, including ePassports, eIDs, eHealth cards, eDriver's licenses, access management, payment and wearables. SmartMX3 products build on the proven and reliable IntegralSecurity architecture, which demonstrates worldwide interoperability and standard compliance

P71D321 platform

Category	Commercial type name	Flash (KB)	ROM (KB)	RAM (KB)
All applications	P71D251	256	For internal purposes	12
	P71D301	304		12
	P71D351	344		12
	P71D352	344		12