NXP® secure microcontroller SmartMX®3 P71D321

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

The new generation of NXP's proven and reliable SmartMX microcontroller family delivers highest security and best-in-class performance across all target applications.

TARGET APPLICATIONS

- eGovernment
- Payment
- Transport
- Access management
- Wearables

KEY FEATURES

Performance

- Best-in-class performance:
  - < 200ms for a M/Chip transaction
  - < 2s for ePassport SAC
- Broadest reader interoperability by self-tuned EMD noise reduction
- Fast operating system download to flash memory (100KB/s)

Technology

- First payment and secure identification device implemented in CMOS40 technology
- Full flash memory solution up to 344 KB
- Up to 500 KB non-volatile memory available
- Most advanced RF front end technology to maximize communication sensitivity

Security

- Advanced IntegralSecurity 3.0 architecture
- EMVCo and CC EAL 6+ (PP 0084 with loader package 2) certification taking latest attacks on security into account
- Fully certified symmetric, hash and asymmetric cryptography libraries
- Up to RSA 4096 bits and ECC 640 bits key length

Solutions

- Multi-application enabled by MIFARE FleX® with MIFARE® DESFire® EV2 up to 16KB and MIFARE Plus® EV1 up to 4KB (including MIFARE Classic® support)
- Optional implementation of software libraries to accelerate time to market
- Full system solution available with JCOP® 4 operating system
- Broad portfolio of payment and secure identification applets

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

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

NXP SmartMX

SYSTEM SOLUTION

The SmartMX3 P71D321 secure element platform does not only provide a first-choice hardware solution but also 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 JCOP operating 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 approach for upcoming security solutions.

All solutions are available in 6 and 8 pin packages as well as in the latest ultra-thin MOB10 contactless module.

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 manufacturing effort
- 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 more than 7 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, and payment. SmartMX3 products build on the proven and reliable IntegralSecurity architecture, which demonstrates worldwide interoperability and standard compliance

P71D321 PLATFORM

Category	Type	Flash (KB)	ROM (KB)	RAM (KB)
Payment	P71D251 P71D301 P71D351	256 304 344	-	12
Secure Identification	P71D352 P71D502	344 344	- 150	12

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