

0.18µm

Philips' SmartMX Contact and Dual Interface Security Controllers

Product Features	P5SD009	P5SC018	P5SC036	P5SC072
CPU (enhanced 80C51 performance)	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51
Contact Interface	ISO 7816	ISO 7816	ISO 7816	ISO 7816
Contactless Interface	ISO 14443	-	-	-
ROM [byte]	64 K	96 K	96 K	128 K
RAM (linear addressable) [byte]	2.25 K	2.25 K	2.25 K	2.25 K
EEPROM [byte]	10 K	18 K	36 K	72 K
Security Features				
PKI Crypto-Engine incl. ECC	-	-	-	-
DES-Engine	DES3 < 50 µs	DES3 < 50 µs	DES3 < 50 µs	DES3 < 50 µs
Exception Sensors	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light
Memory Management Unit (Firewall)	-	-	-	-
Additional Product Information				
UART for implemented interfaces	yes	yes	yes	yes
mifare® Emulation Mode (optional)	yes, 1K or 4K	-	-	-
CRC-Engine	yes	yes	yes	yes
Supply voltage [V]	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5
External Clock [MHz]	1 ... 10 / 13.56	1 ... 10	1 ... 10	1 ... 10
Internal Clock [MHz]	1 ... 30	1 ... 30	1 ... 30	1 ... 30
Temperature range [°C]	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85
EEPROM page mode granularity [byte]	1 ... 64	1 ... 64	1 ... 64	1 ... 64
16-bit Timer (also "etu" Counter use)	2	2	2	2
True Random Number Generator	yes, according to FIPS 140-2	yes, according to FIPS 140-2	yes, according to FIPS 140-2	yes, according to FIPS 140-2
Philips Handshake Technology	yes	yes	yes	yes
Delivery Types	sawn wafer, module	sawn wafer, module	sawn wafer, module	sawn wafer, module
Evaluation and Certification				
3 rd Party Hardware Evaluation	yes	yes	yes	yes
Certificates*	CC EAL5+ (planned)	-	-	-

* Common Criteria (CC), Mastercard, VISA, ZKA evaluations planned depending on application requirements

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Philips' SmartMX Contact and Dual Interface PKI Controllers

Product Features	P5CC009	P5CD009	P5CC018	P5CC036	P5CD036	P5CU036	P5CC072	P5CD072	P5CT072
CPU (enhanced 80C51 performance)	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51
Contact Interface	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816 USB 2.0 (Low Speed)	ISO 7816	ISO 7816	ISO 7816 USB 2.0 (Low Speed)
Contactless Interface	-	ISO 14443	-	-	ISO 14443	-	-	ISO 14443	ISO 14443
ROM [byte]	96 K	96 K	128 K	128 K	128 K	160 K	160 K	160 K	160 K
RAM (linear addressable) [byte]	4.5 K	4.5 K	4.5 K	4.5 K	4.5 K	4.5 K	4.5 K	4.5 K	4.5 K
EEPROM [byte]	10 K	10 K	18 K	36 K	36 K	36 K	72 K	72 K	72 K
Security Features									
PKI Crypto-Engine incl. ECC	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE
RSA Modular Exponentiation M:2048 E:17bit (SF)* [ms]	< 35	< 35	< 35	< 35	< 35	< 35	< 35	< 35	< 35
ECC (192-bit signature) generation/verification [ms]	< 20 / 40	< 20 / 40	< 20 / 40	< 20 / 40	< 20 / 40	< 20 / 40	< 20 / 40	< 20 / 40	< 20 / 40
DES-Engine	DES3 < 50 µs	DES3 < 50 µs	DES3 < 50 µs	DES3 < 50 µs	DES3 < 50 µs	DES3 < 50 µs	DES3 < 50 µs	DES3 < 50 µs	DES3 < 50 µs
AES-Engine key length 128/192/256 bit [µs]	-	-	-	-	11 / 12 / 13	-	11 / 12 / 13	11 / 12 / 13	11 / 12 / 13
Exception Sensors	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light
Memory Management Unit (Firewall)	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Product Information									
UART for implemented interfaces	yes	yes	yes	yes	yes	yes	yes	yes	yes
mifare® Emulation Mode (optional)	-	yes, 1K or 4K	-	-	yes, 1K or 4K	-	-	yes, 1K or 4K	yes, 1K or 4K
CRC-Engine	yes	yes	yes	yes	yes	yes	yes	yes	yes
Supply voltage [V]	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5
External Clock [MHz]	1 ... 10	1 ... 10 / 13.56	1 ... 10	1 ... 10	1 ... 10 / 13.56	1 ... 10	1 ... 10	1 ... 10 / 13.56	1 ... 10 / 13.56
Internal Clock [MHz]	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30
Temperature range [°C]	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85
EEPROM page mode granularity [byte]	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64
16-bit Timer (also "etu" Counter use)	2	2	2	2	2	2	2	2	2
True Random Number Generator	yes, according to FIPS 140-2	yes, according to FIPS 140-2	yes, according to FIPS 140-2	yes, according to FIPS 140-2	yes, according to FIPS 140-2	yes, according to FIPS 140-2	yes, according to FIPS 140-2	yes, according to FIPS 140-2	yes, according to FIPS 140-2
Philips Handshake Technology	yes	yes	yes	yes	yes	yes	yes	yes	yes
Delivery Types	sawn wafer, module	sawn wafer, module	sawn wafer, module	sawn wafer, module	sawn wafer, module	sawn wafer, module	sawn wafer, module	sawn wafer, module	sawn wafer, module
Evaluation and Certification									
3 rd Party Hardware Evaluation	yes	yes	yes	yes	yes	yes	yes	yes	yes
Certificates**	CC EAL5+ (in progress)	CC EAL5+ (planned)	-	yes CC EAL5+ (in progress)	yes CC EAL5+ (planned)	yes CC EAL5+ (planned)	yes CC EAL5+ (in progress)	yes CC EAL5+ (planned)	yes CC EAL5+ (in progress)

* Straight Forward

** Common Criteria (CC), Mastercard, VISA, ZKA evaluations planned depending on application requirements