

0,14µm

NXP SmartMX
Contact and Dual Interface Security / PKI Controllers

Product Features	P5CC012	P5SC020	P5CC020	P5CC021	P5CD020	P5CC024	P5CC037	P5CC040	P5CD040	P5CC052	P5CN080	P5CC080	P5CD080	P5CN144	P5CC144	P5CD144
CPU	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51	Secure_MX51
ISO Contact Interface	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816
ISO Contactless Interface	-	-	-	-	ISO 14443	-	-	-	ISO 14443	-	-	-	ISO 14443	-	-	ISO 14443
S ² C (NFC) Interface	-	-	-	-	-	-	-	-	-	-	yes	-	-	yes	-	-
ROM [byte]	160 K	160 K	160 K	200 K	200 K	160 K	200 K	200 K	200 K	200 K	200 K	200 K	200 K	200 K	200 K	200 K
RAM (linear addressable) [byte]	6 K	3,5 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K
- Standard RAM [byte]	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K	3,5 K
- RAM accessible by FameXE [byte]	2,5 K	-	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K	2,5 K
EEPROM [byte]	12 K	20 K	20 K	20 K	20 K	24 K	36 K	40 K	40 K	52 K	80 K	80 K	80 K	144 K	144 K	144 K
Security Features																
PKI Crypto-Engine (RSA key length up to 8192-bit)	FameXE		FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE	FameXE
RSA (1024 bit) signature generation (CRT)/verification, Exponent: 2 ⁿ +1	99 / 2 ms		99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms
ECC (192-bit signature) generation/verification	20 / 30 ms		20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms
DES-Engine	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs
AES-Engine key length 128/192/256-bit	-	-	-	< 12/13/15 µs	< 12/13/15 µs	-	-	< 12/13/15 µs	< 12/13/15 µs	-	< 12/13/15 µs	< 12/13/15 µs	< 12/13/15 µs	< 12/13/15 µs	< 12/13/15 µs	< 12/13/15 µs
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	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	yes	yes	yes	yes	yes	yes	yes
Additional Product Information																
UART for implemented interfaces	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
CRC-Engine	yes	yes	yes	yes	yes	yes	yes	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	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	1 ... 10	1 ... 10	1 ... 10 (13,56)	1 ... 10	1 ... 10	1 ... 10	1 ... 10 (13,56)	1 ... 10	1 ... 10	1 ... 10	1 ... 10 (13,56)	1 ... 10	1 ... 10	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	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	-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...128	1...64, 1...128	1 ... 64	1 ... 64	1...64, 1...128	1...64, 1...128	1 ... 64	1...64, 1...128	1...64, 1...128	1...64, 1...128	1...64, 1...128	1...64, 1...128	1...64, 1...128
16-bit Timer (also "etu" Counter use)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
True Random Number Generator	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)
Philips Handshake Technology	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Mifare® functionality (optional)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delivery Type Wafer	sawn	sawn	sawn	sawn	sawn/unsawn	sawn	sawn	sawn	sawn/unsawn	sawn	sawn	sawn	sawn/unsawn	sawn	sawn	sawn/unsawn
Delivery Type Module	Contact	Contact	Contact	Contact	Contact, Dual Interface, Contactless	Contact	Contact	Contact	Contact, Dual Interface, Contactless	Contact	Contact	Contact	Contact, Dual Interface, Contactless	Contact	Contact	Contact, Dual Interface, Contactless
Delivery Type SMD package	HVQFN32	HVQFN32	HVQFN32	SSOP20, HVQFN32	-	HVQFN32	HVQFN32	SSOP20, HVQFN32	-	HVQFN32	HVQFN32	SSOP20, HVQFN32	-	HVQFN32	SSOP20, HVQFN32	-
Evaluation and Certification																
3rd Party Hardware Evaluation	planned	planned	planned	planned	planned	planned	planned	planned	planned	planned	planned	planned	planned	planned	planned	planned
Security Certificates*	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned	CC EAL5+ planned

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