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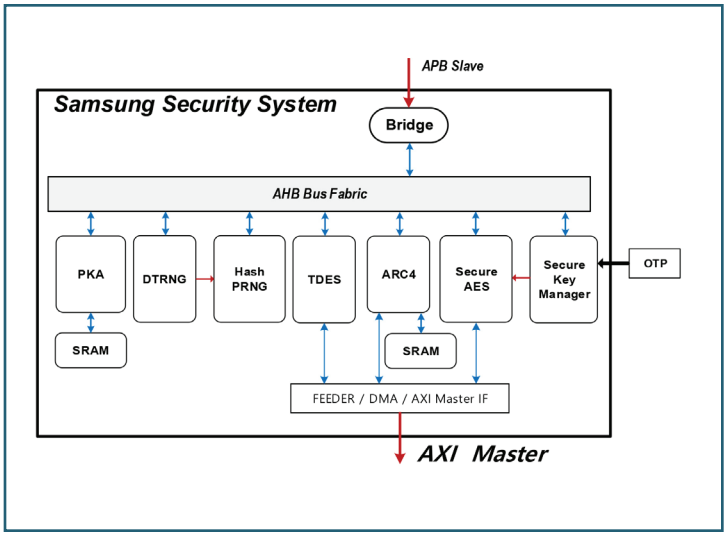
SIPware

Samsung Security System Crypto System

Overview

The Samsung Security System (SSS) is a security system targeting a wide-range of SoCs such as Mobile, IoT and Automotive devices for secure environment with low power and high performance. All the supported cryptographic algorithms are compliant with the standard and successfully meet the FIPS certification requirements.



Key Features

- Isolated Execution Environment (IEE)
  - o Security Processor, Secure Boot ROM
  - o RAM for Loadable FW
  - o Mailbox Communication
- Cryptographic Function
  - o Secure AES with Side Channel Attack Countermeasure
  - o SHA1, SHA2-256/384/512, SHA3-SHA224/256/384/512 with HMAC
  - o Public Key Engine (RSA/ECC)
  - o TRNG (NIST SP 800-90B Compliant), PRNG(NIST 800-90A Compliant)
- Secure Key Management
  - o Hardware Key Management using PUF KEY
  - o Key Derivation (SP 800-108) and Wrapping(SP 800-38F) using HW Unique Key
- System Function
  - o DMA, Descriptor DMA Support
  - o Parallel/Concurrent Cryptographic Processing
- ECC (Error Correction Code) Feature
- Power Efficient Scheme
  - o Low Power Features for Both ISP (Isolated Security Processor) and Crypto Engine
- All-in-one Security Solution Package combining SSS and Software Solution

Deliverables

- Encrypted RTL
- Data Sheet Document
- User Guide Document
- Integration Test C Code & Test Guide Document

TARGET APPLICATIONS

- Secure Execution Environment
- Secure Booting
- Secure Key Management
- DRM (Digital Right Management)
- Cryptographic Processing

IP PORTFOLIO

Feature		Description	Crypto System	Mobile	ADAS	IoT
BUS Interface		Master Interface (AMBA3)	AXI (1EA)	AXI (1EA)	AXI (2EA)	AHB (1EA)
		Slave Interface (AMBA3)	APB (2EA)	APB (3EA)	AHB (2EA)	APB (3EA)
Crypto Engine	AES	ECB/CBC/CTR/XTS/CCM/GCM/GMAC	●	●	●	●
		Multiple AES (2EA)		●	●	
		SCA Countermeasure		●	●	●
	(T)DES / RC4	Block Cipher / Stream Cipher	●			
	SM3/SM4	Hash / Block Cipher (ECB)				●
	HASH / HMAC	SHA1	●	●	●	
		SHA2-256/384/512	●	●	●	●
		SHA3-224/256/384/512		●	●	
	PKE	Public Key Engine for RSA / ECC[1)]	●	●	●	●
	PRNG	Pseudo Random Number Generator	●	●	●	
	TRNG[1)]	True Random Number Generator	●	●	●	●
	Key Manager	Secure Key Management	●	●	●	●
	PUF Key	PUF Key Interface		●	●	●
	DMA	For Block Cipher / Hash Engine	●	●	●	
	Descriptor DMA	Scatter and Gather Function		●	●	
IEE[6)]	Processor	Security Processor		CM0+	CM7	CM0
	Memory	ROM		40KB	64KB	32KB
		SRAM		32KB	ITCM:256KB DTCM:256KB ICACHE:16KB DCACHE:32KB	16KB
		ECC (Error Correction Code)		●	● (SEC-DED) [2)]	
	Internal DMA	SRAM Backup / Restore		●	●	
	WDT	Watchdog Timer			●	●

1) Elliptic Curve Cryptosystem

2) Single Error Correction – Double Error Detection

SAMSUNG Foundry

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