Product Preview

uT88RNC300

DUAL INTERFACE SMARTCARD MCU WITH 300KB FLASH AND CRYPTO CO-PROCESSOR

Revision 0.2

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1 INTRODUCTION

The uT88RNC300 is a dual interface smart card microcontroller (MCU) designed for contact and contactless applications which requires more flexibility to interface with different built-up infrastructures. It complies with ISO7816 and ISO14443 Type A and B standards. The RF front-end can support data rate up to 424Kbps. The selection of protocol is fully under user program control.

uT88RNC300 features a high speed low power 32-bit C0 CPU from C* Core Technology.

It is targeting for high security applications such as Banking, Identity Card, E-commerce, transportation and Document Digital Signature. The built-in crypto co-processor can speed up cryptographic calculation with up to 2048 bits modulo exponentiation (A^B mod N) and other similar calculations such as Elliptic Curve Cryptography (ECC). It supports up to 512-bit GF(p)/GF(2^n) ECC calculation. uT88RNC300 features 300KB Flash which can be used for data area or program code extension area according to application requirement.

1.1 FEATURES

1.1.1 General Features

- High speed 32-bit C0 CPU core
- Total 300k-byte user Flash
    - 256 byte per page
    - configurable for data or program area
- Total 10K-byte user RAM and 2K-byte Crypto RAM
- Three 16-bit programmable timers with prescaler
- SCI interface with ISO7816 T=0 support
- 40MHz Internal Oscillator RC1
- CPU clock divider (divide by 1,2,4 or 8) and selectable clock source
- ESD protection at least 4KV (HBM) for contact pads and 2KV (HBM) for antenna pads.
- Operation temperature range: -25C to +85C

1.1.2 Contactless Features

- Operating Frequency: 13.56MHz
- Support ISO14443 Type A and B
- Support 106, 212 and 424Kbps in Type A and B mode
- Software switch between contact and contactless mode
- Support mixed modes (contact and contactless) operation

1.1.3 Security Features

- Low Voltage Reset and Low Frequency Reset
- Protection Features Against Security Attacks
- True Random number generator per FIPS-140-2
- High Speed single DES and Triple DES engine
- High Speed Crypto Co-processor with RSA, ECC GF(p) and GF(2^n) support
- CRC 16 Engine per ISO 13239 and compatible with ISO14443-3 CRC requirement
- Powerful Memory Protection Unit (MPU)
- Support supervisor mode and user mode
- Optimized layout for security
- Unique identification code

1.1.4 Supported Standards

- ISO/IEC 7816
- ISO/IEC 14443

2 GENERAL OVERVIEW

The uT88RNC300 is a dual interface smart card MCU for high security level smart card applications and also best fit for banking and ID applications. The block diagram of the is shown in Figure 1.

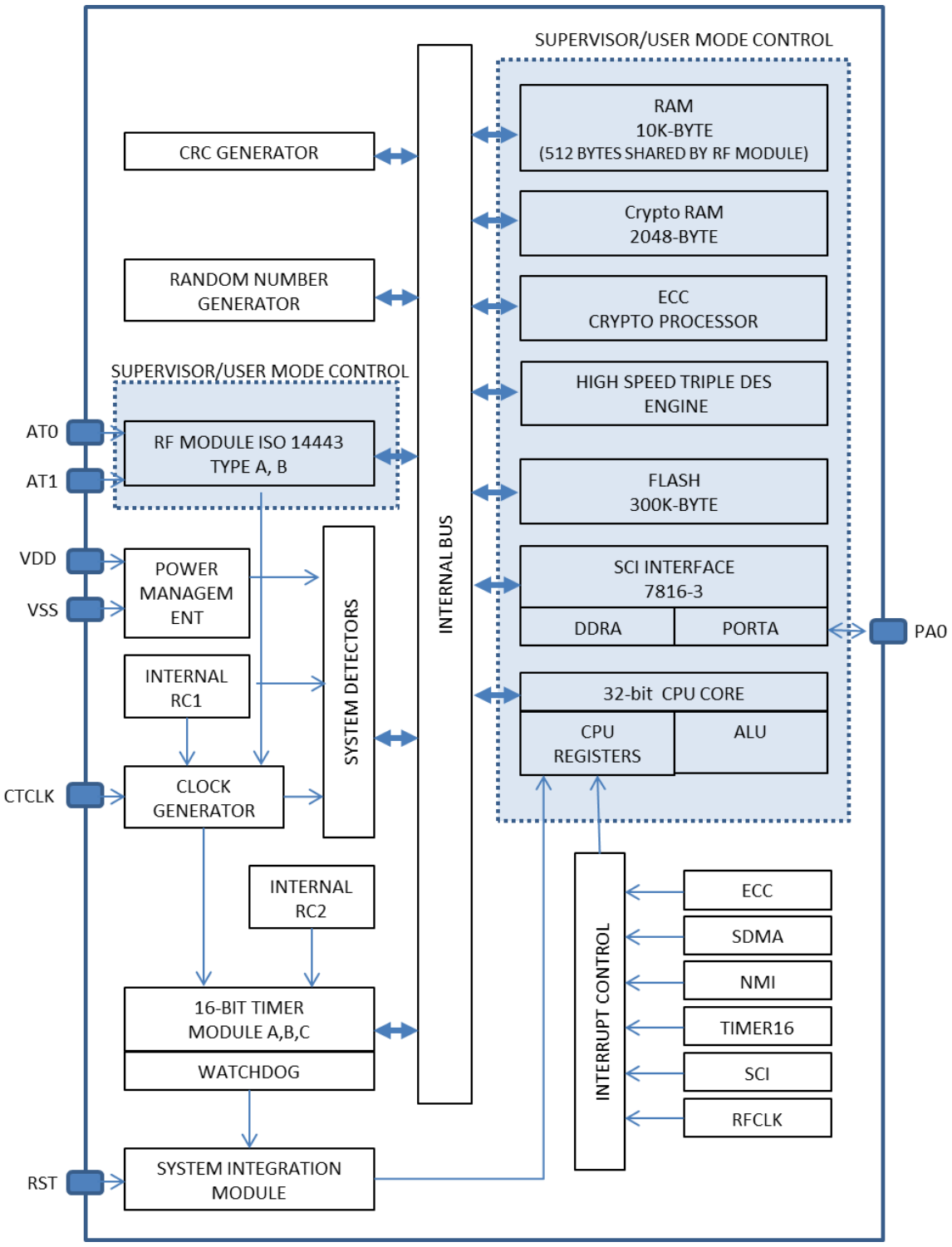

Figure 1: uT88RNC300 Block Diagram