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What is "[Embedded - Microcontrollers](#)"?

"[Embedded - Microcontrollers](#)" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "[Embedded - Microcontrollers](#)"

Details

Product Status	Active
Core Processor	ARM® Cortex®-M3
Core Size	32-Bit Single-Core
Speed	60MHz
Connectivity	I²C, SPI, UART/USART, USB
Peripherals	DMA, LCD, PWM, WDT
Number of I/O	70
Program Memory Size	512KB (512K x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	96K x 8
Voltage - Supply (Vcc/Vdd)	3.3V
Data Converters	A/D 6x10b; D/A 1x8b
Oscillator Type	Internal
Operating Temperature	-
Mounting Type	Surface Mount
Package / Case	121-LFBGA
Supplier Device Package	121-CTBGA (8x8)
Purchase URL	https://www.e-xfl.com/product-detail/analog-devices/max32555-lns

MAX32555

DeepCover Secure Arm Cortex-M3 Flash Microcontroller

General Description

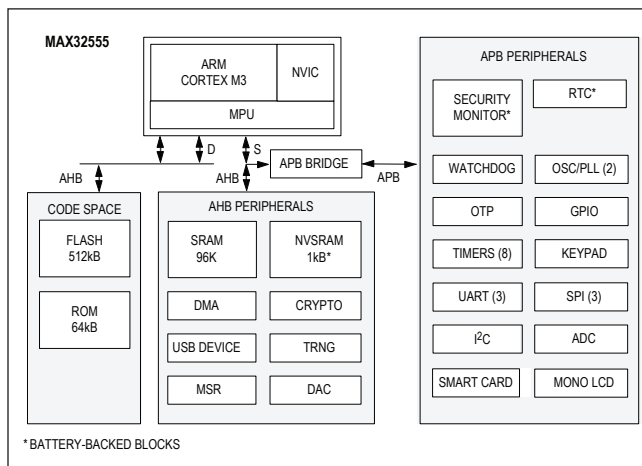
DeepCover® embedded security solutions cloak sensitive data under multiple layers of advanced physical security to provide the most secure key storage possible.

The DeepCover Secure microcontroller (MAX32555) provides an interoperable, secure, and cost-effective solution to build new generations of trusted devices such as mobile chip and pin pads. The MAX32555 is based on an Arm Cortex M3 processor with 512KB of embedded flash, 96KB of system RAM, 1KB of battery-backed AES self-encrypted NVSRAM. It includes all the essential functions of mobile POS terminal including a cryptographic engine, a true random number generator, battery-backed RTC, environmental and tamper detection circuitry, a magnetic stripe reader, a smart card controller with embedded transceiver to directly support 1.8V, 3.3V, and 5V cards, and an integrated secure keypad controller. It also includes a vast array of peripherals, SPIs, UARTs, DMA, ADC, and DAC that add flexibility to control and differentiate the system design.

Applications

- PCI Mobile Payment Terminals (mPOS)
- ATM Keyboards
- EMV Card Reader

Functional Diagram



*5V smart card support requires external 5.0V supply.

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Benefits and Features

- Arm® Cortex® M3 Processor Core Allows for Easy Integration into Applications
 - 60MHz Core Operating Frequency Through PLL
 - 512KB Dual-Bank Flash Memory with Cache
 - 96KB System SRAM
 - 1KB AES Self-Encrypted NVSRAM
- Security Features Facilitate System-Level Protection
 - Secure Boot Loader with Public Key Authentication
 - AES, DES and SHA Hardware Accelerators
 - Modulo Arithmetic Hardware Accelerator (MAA) Supporting RSA, DSA, and ECDSA
 - 8-Line Secure Keypad Controller
 - Hardware True Random-Number Generator
 - Die Shield with Dynamic Fault Detection
 - 4 External Tamper Sensors with Independent Random Dynamic Patterns
 - 256-Bit Flip-Flop-Based Battery-Backup AES Key Storage
 - Temperature and Voltage Tamper Monitor
 - Real-Time Clock
- Integrated Peripherals Reduce External Component Count
 - Triple-Track Magnetic Stripe Head Interface
 - One ISO 7816 Smart Card Interface with Integrated Transceiver (1.8V, 3V, and 5V)
 - USB 2.0 Device with Internal Transceiver and Dedicated PLL
 - 3 SPI Ports, 3 UART Ports, and 1 I²C Controller
 - 8 Timers, All with PWM Capability
 - Up to 70 General-Purpose I/O Pins
 - 6-Channel, 10-Bit ADC and 1-Channel, 8-Bit DAC
 - Monochrome LCD Controller
 - 4-Channel DMA Controller
- Power Management Optimizes Battery Life and Reduces Active Power Consumption
 - Single 3.3V Supply Operation*
 - Integrated Battery-Backup Switch
 - Clock Gating Function
 - Low-Current Battery-Backup Operation

Ordering Information appears at end of data sheet.