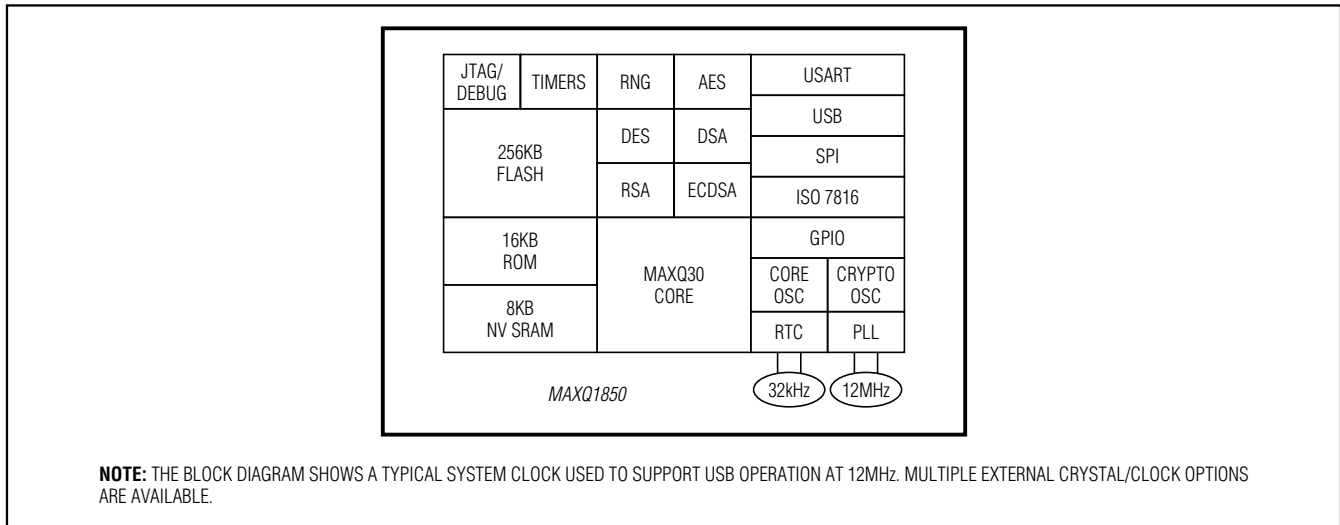


ABRIDGED DATA SHEET

MAXQ1850

DeepCover Secure Microcontroller with Rapid Zeroization Technology and Cryptography

Block Diagram



Detailed Features

- ◆ **High-Performance, Low-Power, 32-Bit MAXQ30 RISC Core**
- ◆ **Single 3.3V Supply Enables Low Power/Flexible Interfacing**
- ◆ **DC to 16MHz Code Execution Across Entire Operating Range**
- ◆ **65MHz Cryptography Engine Execution to Reduce Processing Time**
- ◆ **On-Chip 2x/4x Clock Multiplier**
- ◆ **33 Instructions**
- ◆ **Three Independent Data Pointers Accelerate Data Movement with Automatic Increment/Decrement**
- ◆ **16-Bit Instruction Word, 32-Bit Internal Data Bus**
- ◆ **16 x 32-Bit Accumulators**
- ◆ **Up to 16 General-Purpose I/O Pins**
- ◆ **5V Tolerant I/O**
- ◆ **Virtually Unlimited Software Stack**
- ◆ **Optimized for C-Compiler (High-Speed/Density Code)**
- ◆ **Memory Features**
 - 256KB Flash, Composed of 2048 Byte Sectors (1K Erase/Write Cycles per Sector)
 - 8KB Battery-Backed Data SRAM
 - Dedicated Cryptographic Memory Space

Security Features

- Unique ID
- Tamper Detection with Rapid Key/Data Destruction
- Four Self-Destruct Inputs
- Hardware AES and DES Engines
- Public Key Cryptographic Accelerator for DSA, ECDSA, and RSA
- Supports SHA-1, SHA-224, and SHA-256
- Real Hardware RNG and PRNG
- Hardware CRC-32/16
- Unalterable, Battery-Backed Real-Time Clock

Additional Peripherals

- Power-Fail Warning
- Power-On Reset/Brownout Reset
- JTAG I/F for System Programming and Accessing On-Chip Debugger
- USB I/F with Four End-Point Buffers
- ISO 7816 Smart Card UART with FIFO
- Four 16-Bit Timer/Counters, Two with PWM Function
- SPI and USART Communication Ports
- Programmable Watchdog Timer

Low-Power Consumption

- 150nA Typical Current Draw in Battery-Backed Mode, Preserving 8KB NV SRAM and with Security Sensors Active (460nA with RTC Active)

Note to readers: This document is an abridged version of the full data sheet. To request the full data sheet, go to www.maximintegrated.com/MAXQ1850 and click on **Request Full Data Sheet**.