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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	Obsolete
Core Processor	8051
Core Size	8-Bit
Speed	25MHz
Connectivity	I²C, SPI, UART/USART
Peripherals	DMA, LCD, POR, PWM, WDT
Number of I/O	34
Program Memory Size	32KB (32K x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	8.25K x 8
Voltage - Supply (Vcc/Vdd)	1.8V ~ 3.8V
Data Converters	A/D 16x10b/12b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	40-VFQFN Exposed Pad
Supplier Device Package	40-QFN (6x6)
Purchase URL	https://www.e-xfl.com/product-detail/silicon-labs/c8051f967-a-gm

The level of flash security depends on the flash access method. The three flash access methods that can be restricted are reads, writes, and erases from the C2 debug interface, user firmware executing on unlocked pages, and user firmware executing on locked pages. Table 18.1 summarizes the flash security features of the C8051F96x devices.

Table 18.1. Flash Security Summary

Action	C2 Debug Interface	User Firmware executing from:	
		an unlocked page	a locked page
Read, Write or Erase unlocked pages (except page with Lock Byte)	Permitted	Permitted	Permitted
Read, Write or Erase locked pages (except page with Lock Byte)	Not Permitted	Flash Error Reset	Permitted
Read or Write page containing Lock Byte (if no pages are locked)	Permitted	Permitted	Permitted
Read or Write page containing Lock Byte (if any page is locked)	Not Permitted	Flash Error Reset	Permitted
Read contents of Lock Byte (if no pages are locked)	Permitted	Permitted	Permitted
Read contents of Lock Byte (if any page is locked)	Not Permitted	Flash Error Reset	Permitted
Erase page containing Lock Byte (if no pages are locked)	Permitted	Flash Error Reset	Flash Error Reset
Erase page containing Lock Byte—Unlock all pages (if any page is locked)	C2 Device Erase Only	Flash Error Reset	Flash Error Reset
Lock additional pages (change 1s to 0s in the Lock Byte)	Not Permitted	Flash Error Reset	Flash Error Reset
Unlock individual pages (change 0s to 1s in the Lock Byte)	Not Permitted	Flash Error Reset	Flash Error Reset
Read, Write or Erase Reserved Area	Not Permitted	Flash Error Reset	Flash Error Reset

C2 Device Erase—Erases all flash pages including the page containing the Lock Byte.

Flash Error Reset—Not permitted; Causes Flash Error Device Reset (FERROR bit in RSTSRC is '1' after reset).

- All prohibited operations that are performed via the C2 interface are ignored (do not cause device reset).

- Locking any flash page also locks the page containing the Lock Byte.

- Once written to, the Lock Byte cannot be modified except by performing a C2 Device Erase.

- If user code writes to the Lock Byte, the Lock does not take effect until the next device reset.