XC835/XC836

Smart 8-bit Microcontrollers for Industrial Applications

The XC83x-Series is the advanced entry level for Infineon's 8-bit microcontroller family XC800 running at 24MHz. A comprehensive set of peripherals with 4KB and 8KB Flash memory is now available in low pin count packages.

Communication interfaces and fast control loops with multichannel 10-bit ADCs and PWM signal generation are featured as well as safety and low power modes. The vector computer co-processor (MDU + CORDIC) boosts up standard 8-bit processing performance and supports field oriented motor control at 8-bit cost. This enables more efficient and intelligent designs for motor control (e.g. sensorless motors), lighting or power stage control.

With the I²C interface and the integrated capacitive touch control functionality the XC835 and XC836 expand the feature set of the XC800 family to fit more industrial and home appliance markets.

Applications

- Efficient Drives & Automation
  - Field oriented control of sensor less motor drives
  - Direct operation of stepper motors for displays
  - Automation networks for industrial production or building services
- Intuitive human machine interfaces
  - Multi gestural touch screens for industrial automation, medical devices or POS terminals
  - Integrated control elements with motor control, communication or power conversion functionality
- Intelligent Lighting
  - Dimming and color control of high brightness LEDs
  - Power, ignition or wear out control of HID
  - Lighting communication networks
- Smart Power Management
  - Efficient power conversion
  - Battery management
  - Induction cooking
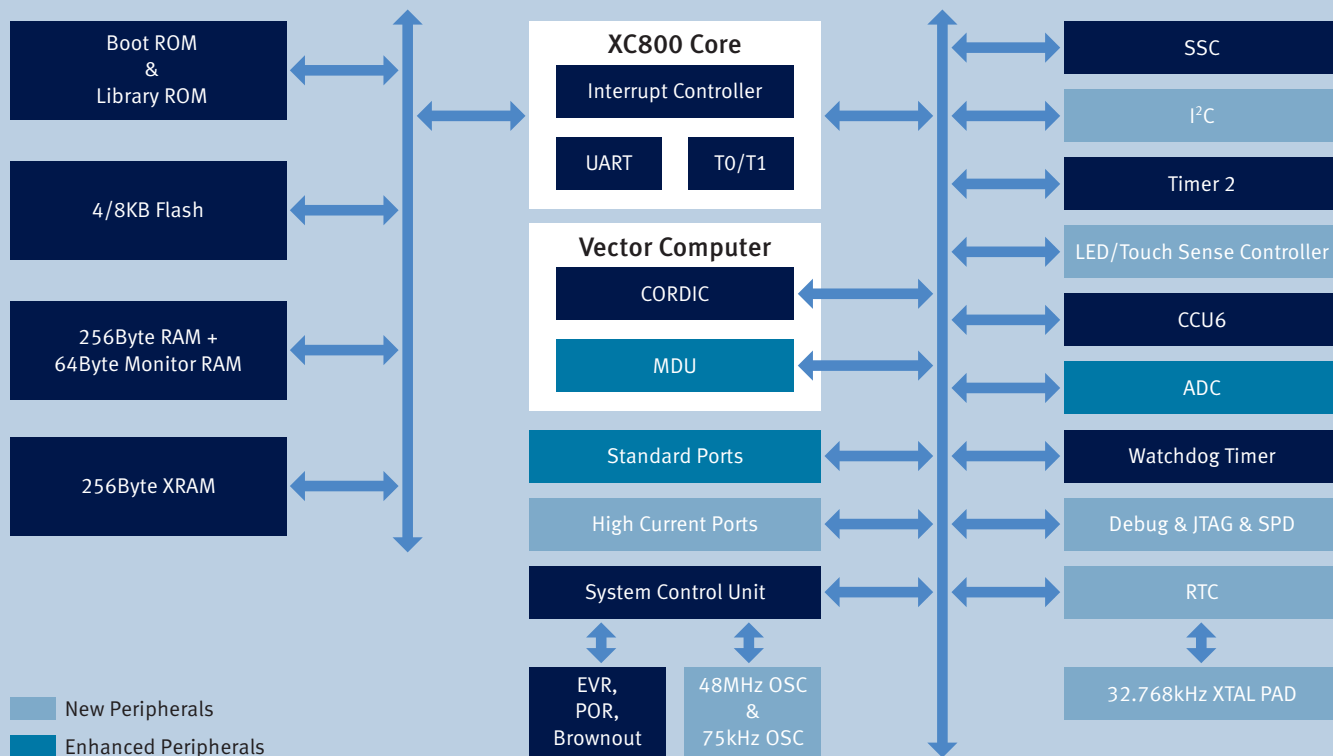
www.infineon.com

Key Features

- Touch control with advanced ROM-library
- Vector computer co-processor for field oriented control of sensor less motors
- 10-bit ADC with high accuracy over 8 channels. Fast conversion in 1μs.
- Capture/Compare Unit (CCU6) dedicated for flexible PWM signal generation over 4 channels
- Direct HW-link between ADC and CCU6 for fast control loops
- Serial interfaces: UART, SPI, I²C
- Power down/wake up modes
- Real time clock
- High current pads to directly drive stepper motors or LED-displays
- Background E²PROM emulation

The XC83x-Series is fully supported by Infineon's free tool chain DAvE Bench for fast time to market.

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Block Diagram

| Boot ROM & Library ROM |
| 4/8KB Flash |
| 256Byte RAM + 64Byte Monitor RAM |
| 256Byte XRAM |

XC800 Core
- Interrupt Controller
- UART
- T0/T1

Vector Computer
- CORDIC
- MDU

- Standard Ports
- High Current Ports
- System Control Unit
- EVR, POR, Brownout
- 48MHz OSC & 75kHz OSC

- SSC
- I²C
- Timer 2
- LED/Touch Sense Controller
- CCU6
- ADC
- Watchdog Timer
- Debug & JTAG & SPD
- RTC
- 32.768kHz XTAL PAD

New Peripherals
Enhanced Peripherals

Availability

Sales Code	Flash [KB]	Touch Control	VC [1]	Temperature [°C]	Package
SAF-XC835MT-2FGI	8	yes	yes	-40 … 85	PG-DSO-24
SAF-XC836T-2FRI	8	yes	no	-40 … 85	PG-TSSOP-28
SAF-XC836M-1FRI	4	no	yes	-40 … 85	PG-TSSOP-28
SAF-XC836M-2FRI	8	no	yes	-40 … 85	PG-TSSOP-28
SAF-XC836MT-2FRI	8	yes	yes	-40 … 85	PG-TSSOP-28
SAF-XC836-2FRI	8	no	no	-40 … 85	PG-TSSOP-28

1) VC = Vector Computer (MDU + CORDIC)