XC866 HOT

First 8-bit Microcontroller for High Temperature Applications

HOT !

A SET OF STRONG peripheral features along with high quality standards has already positioned the XC866, 8-bit microcontroller ahead of the competition in demanding applications such as automotive and industrial control. This high standard of performance and quality is now further enhanced with the introduction of the XC866 HOT; the same high performance 8051 microcontroller, now qualified to 140°C ambient.

The XC866 HOT with up to 16KB eFlash or ROM is one of the first 8-bit microcontrollers offering special value to the customer through the possibility of using the controller without limitations under the extreme conditions of high temperatures.

Target automotive applications are those which require high temperatures such as engine close cooling fans, throttle controls or turbo chargers. In the industrial sector the XC866 HOT could be used in controls for heating and furnace systems or electronic controls embedded inside the motor.

Features

- High performance XC800 core, based on industry standard 8051 architecture
- 75 machine cycle time @ 26.67 MHz CPU clock
- 2 data pointers
- 4/8/16 KByte of Flash memory
  - Built-in Error Correction (ECC) to target automotive zero defect quality standard
  - Up to 4 KByte of the Flash ideal for Data Flash and EEPROM emulation
- Or 8/16 KByte of ROM
  - Additional 4 KByte of Flash (with ECC) for Data Flash and EEPROM emulation
- 256 Byte RAM, 512 Byte XRAM
- UART (with LIN support capability)
- High speed SPI Compatible Synchronous Serial Interface (SSC)
- Brown-out detection for core logic supply
- On-chip OSC (10 MHz) and PLL for clock generation
- High performance capture compare unit for PWM signal generation (CCU6E) with special modes for motor control
- 10-bit ADC with high accuracy (8 channels)
  - Fast conversion time of less than 1.5 µs
  - TUE less than ±2 LSB
- Three 16 bit timers
- Interrupts
  - 14 interrupt vectors with 4 priority levels
  - Non-maskable interrupt (NMI)
- On-chip debug support (JTAG)
- Port- and core-voltage watchdog circuit with RESET generation
- Power saving modes
  - Slow-down mode
  - Idle mode
  - Power-down mode with wake-up capability via RxD (LIN) or EXINTo
  - Clock gating control to each peripheral
- Programmable 16-bit Watchdog Timer (WDT)
- 27 general purpose I/O Ports
- Flexible single voltage supply of 3.3 V or 5.0 V; core logic supply at 2.5 V (generated by embedded voltage regulator)
- Package: PG-TSSOP-38 (green)
- Temperature range:
  - SAF (-40°C to 85°C)
  - SAK (-40°C to 125°C)
  - SAA (-40°C to 140°C)
- Temperature profile covered with SAA (XC866 HOT)
  - T_A = 140°C 500 h
  - T_A = 125°C 2000 h
  - T_A = 85°C 10000 h
  - T_A = -40°C 1500 h

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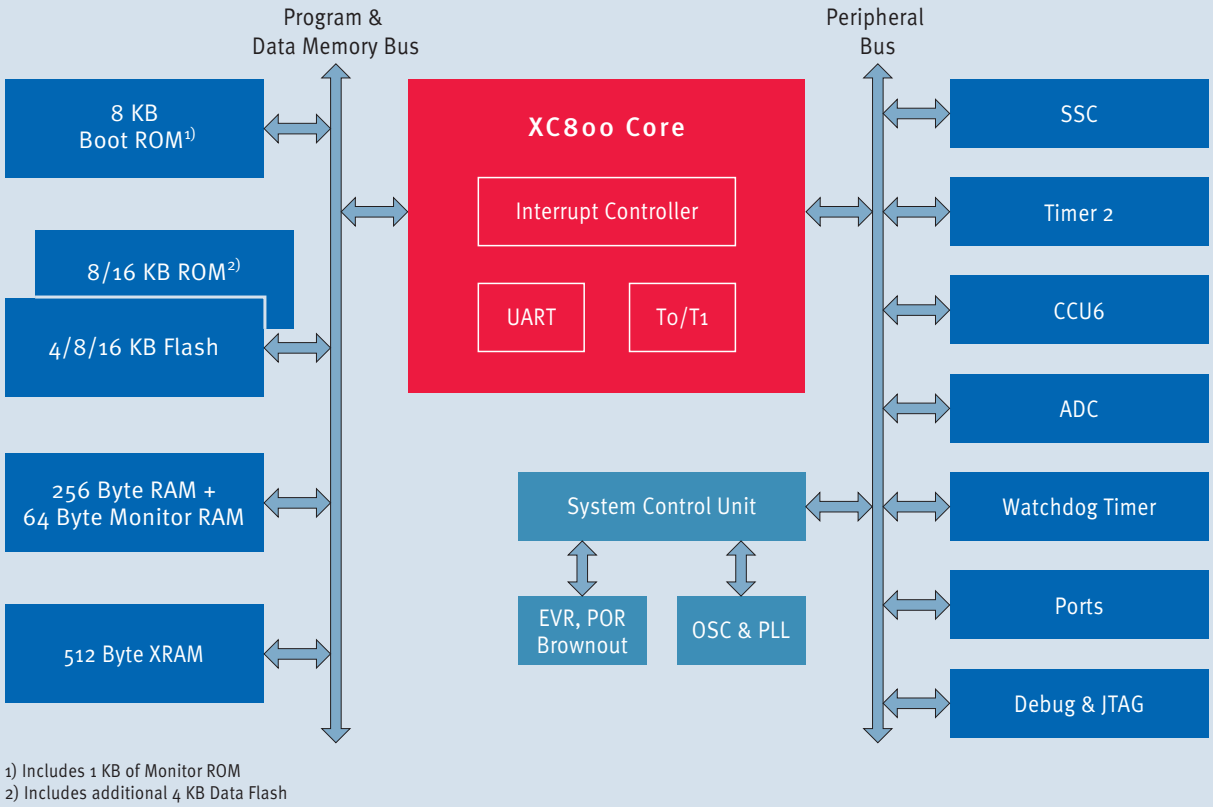
Never stop thinking

XC866 Block Diagram



1) Includes 1 KB of Monitor ROM
2) Includes additional 4 KB Data Flash

XC866 HOT – Application Examples

- Automotive
  - Turbo charger
  - Engine cooling fan
  - Throttle control
  - Failsafe EPS
- Industrial
  - Controls for heating and furnace systems
  - Electronic controls embedded inside the motor

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