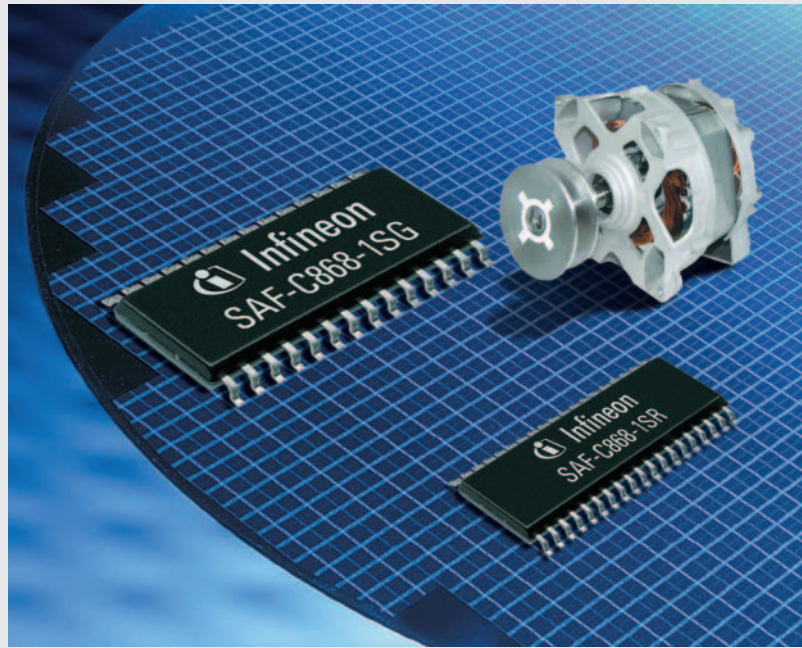


The C868 is a new member of our 8-bit μ C portfolio. It provides advanced control over your application and system costs.

For development and ramp up a SRAM version offers high flexibility at lowest system costs. An onchip monitor helps for system evaluation and debugging. A compatible ROM version provides further cost saving potential.

The C868 fulfills all requirements for low cost power bridge control, where a fast and high resolving PWM (CAPCOM6E) is needed. All time critical issues are managed by hardware with the flexible CAPCOM6E, whereas the CPU handles user commands and can be used for respective control algorithms. Thereby the embedded 5 ch/8-bit ADC helps analyzing relevant system parameters.

The C868 is well positioned for all kinds of consumer and industrial power control applications where reduction of system costs is a key challenge.



C868

Key Features

- Standard 8051 architecture
- 300 ns instruction cycle time at 40 MHz CPU clock
- PLL (factor 1-4)
- 8 Kbytes ROM/SRAM
- 256 byte RAM, 256 byte XRAM
- 8 DPTR
 - For powerful table handling
- Three 16-bit timer/counters
- Powerful PWM Unit (CAPCOM6E)
 - Perfect fitting for:
 - Induction machine,
 - DC brushless
 - Switched reluctance drives
 - Power factor correction
 - Lamp ballast
 - Battery management
 - HW emergency stop
 - 25 ns resolution
- Bootstrap loader
 - from PC via UART
 - from EEPROM via SPI
- ADC
 - 5 channels/8 bit
 - 2 pure analog channels/
 - 3 mixed with external interrupt
- Interrupt
 - 4 priority levels
 - 4-8 external interrupts
 - 9 peripheral interrupts
- UART
 - Full duplex mode
- 18 I/O pins with push/pull and sink capability (10 mA)
- Flexible power management
 - Slowdown
 - Powerdown
 - Idle mode
- Wake up from power down via ext. interrupt
- Fail save mechanism
 - Oscillator Watchdog
 - Watchdog timer
 - Brown-out detection
- Packages: P-TSSOP-38, P-DSO-28
- Single voltage supply:
 - 3.3 V
 - Core gets 2.5 V from internal voltage regulator
- Temperature range:
 - SAF (-40°C - +85°C)
 - SAK (-40°C - +125°C)

Tools

- C-Compiler/Assembler
- Starterkit
- On chip debug monitor
- DAVE

www.infineon.com/C868

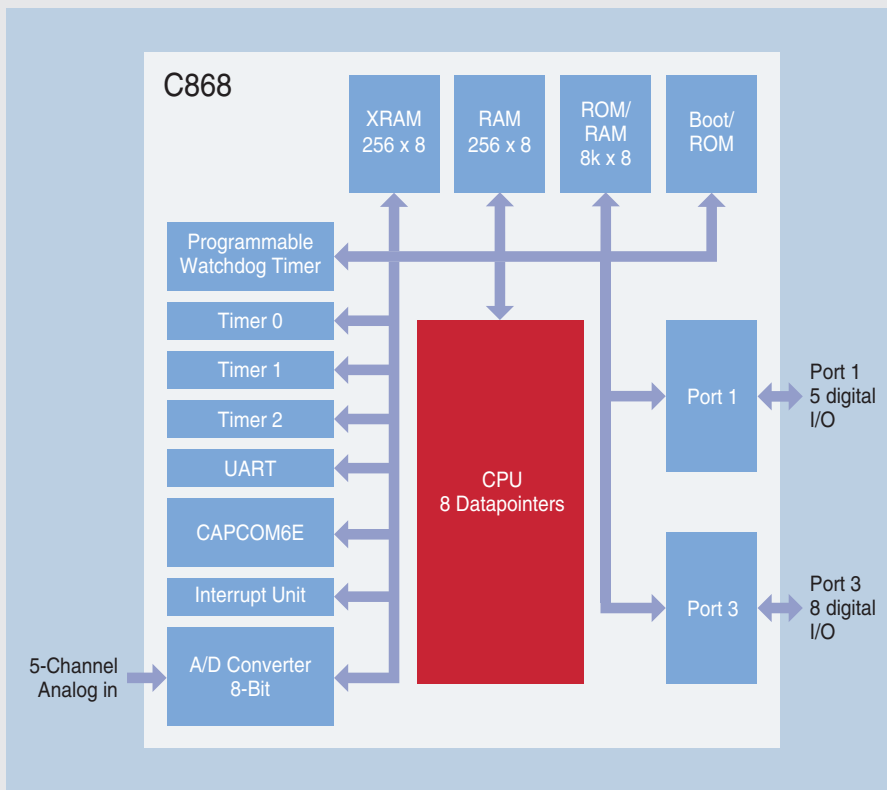
C868

Combines Control over
Power and Costs

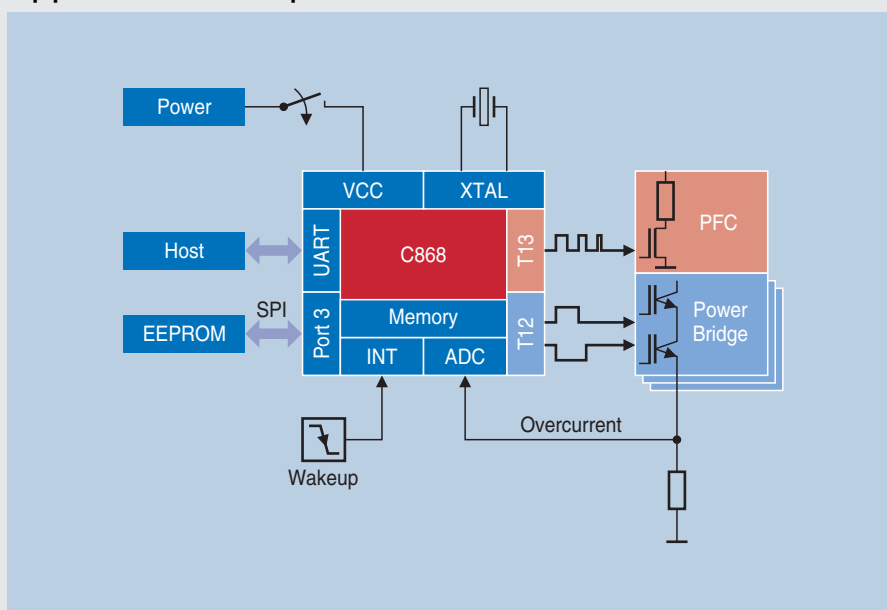


Never stop thinking.

Block Diagram C868



Application Example C868



CAPCOM6E

Timer 12 Features

- Three capture/compare channels, each channel can be used either as capture or as compare channel
- Generation of a three-phase PWM supported (six outputs, individual signals for highside and lowside switches)
- 16 bit resolution, maximum count frequency = peripheral clock
- Dead-time control for each channel to avoid short-circuits in the power stage
- Center-aligned and edge-aligned PWM can be generated - Output of the three channels can be synchronized
- Single-shot mode supported
- Many interrupt request sources

Timer 13 Features

- One independent compare channel with one output
- 16 bit resolution, maximum count frequency = peripheral clock
- T13 can be synchronized to T12
- Interrupt generation at period-match and compare-match
- Single-shot mode supported

Additional Features

- Block commutation for Brushless DC-drives implemented
- Position detection via Hall-sensor pattern
- Automatic rotational speed measurement for block commutation
- Integrated error handling
- Fast emergency stop by HW signal (CTRAP)
- Output levels can be selected and adapted to the power stage

How to reach us:
<http://www.infineon.com>

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