



SS8203

MICROCONTROLLER

Introduction

The SS8203C is a high performance, low cost, dual oscillation 8-bit Microcontroller. The device is compatible to the industry standard 80C51 and 80C52 instruction sets. The powerful Microcontroller is embedded with serial input/output ports, analog to digital converter and excess timers such as PWM timers, Capture timers and Time base Timer which make it suitable for High-End home appliances.

General Information

The SS8203C is a high performance CMOS 8-bit microcontroller with 32Kbytes of Flash programmable and erasable read only memory. The device uses the industry standard 8051 instruction set with an extensive set of peripherals to provide user with a powerful solution for consumer appliance applications. The Siliconians SS8203C also provides the user with 256 bytes of additional on-chip data memory accessible by the MOVX command(XRAM). This makes a total of 512 bytes of on-chip data RAM. The versatile design also allows the user to access additional external program ROM or data RAM up to 64Kbytes.

The extensive SS8203C peripheral set includes 32Kbyte Flash electrically erasable ERPOM, 512 byte data RAM, 52 I/O lines, two serial I/O, two 16 bit timers and six 8 bit timers. In addition there is a 10 channel 8 bit A/D, and 17 two level vectored interrupts. The SS8203C is designed for low power with 5 power saving programmable modes using two on-chip oscillators at 12MHz and 32KHz and the CPU halt mode.



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Main features

12MHz clock frequency

CPU Industry standard 8051 code compatible

Extensive boolean processing (single bit logic) capabilities.

- Arithmetic 8 bit including multiply and divide
- Jumps, 8/16 bit address, conditional and unconditional
- Logical separation of program and data memory
- Six addressing modes

Memory

- 32K Bytes of user FLASH MEMEORY/ROM
- 256 Bytes of user RAM
- 256 Bytes of user auxiliary RAM
- External Data RAM access allowed (Up to 64K Bytes)
- External Program ROM access allowed (Up to 64K Bytes)

I/O Ports

- Total 52 I/O pins which include:
 - Standard I/O pins: 40
 - Standard output pins: 4
 - High current sink I/O pins for LED: 8

Interrupt

- Six external interrupt pins (IRQ0 to IRQ5)
- Eleven internal interrupt sources (Timer: 8, SIO: 2, ADC: 1)

Two Serial I/O Ports (SIOP)

- SIOP-1: 8-bit/16-bit transfer
- SIOP-2: 8-bit transfer

Dual Oscillation Circuit

- 12MHz oscillation circuit for bus operation frequency
- 32KHz oscillation circuit for Real Time Clock (RTC)



Timers and Real Time Clock

Watch-Dog Timer: 1CH x 8-bit, prescaler, reset or interrupt

Watch & Buzzer: 1K/2K/4KHz Buzzer Output, 1Sec/1Min/1Hour interrupt

Time Base Timer: 1 CH x 8-bit, Auto-Reload, 125mS/1Sec/1Min/1hr interrupt.

PWM Timers: 3 CH x 8 bit, Event Counter, PWM or 50% duty output

Capture Timer/Event Counter: 2 CH x 16 bit, capture/count on input edge

Analog to Digital Converter (ADC)

10 channels, 8 bit resolution

Power Management Mode

StopAll Mode: CPU and Peripheral halted. Register and RAM contents retained.

SlowAll Mode: CPU and Peripherals reduce clock rate from 12MHz to 32KHz.

FastPeri Mode: CPU halts and Peripherals continue to clock at 12MHz

SlowPeri Mode: CPU halts and peripherals reduce clock to 32KHz.

HIZ State: All pins except bus pins become high-impedance state.

Operating Voltage: 5V +/- 10%

Package: 64 pins SDIP/PQFP, 68 pin PLCC

Operating temperature: -20C to +85C.

Block Diagram

