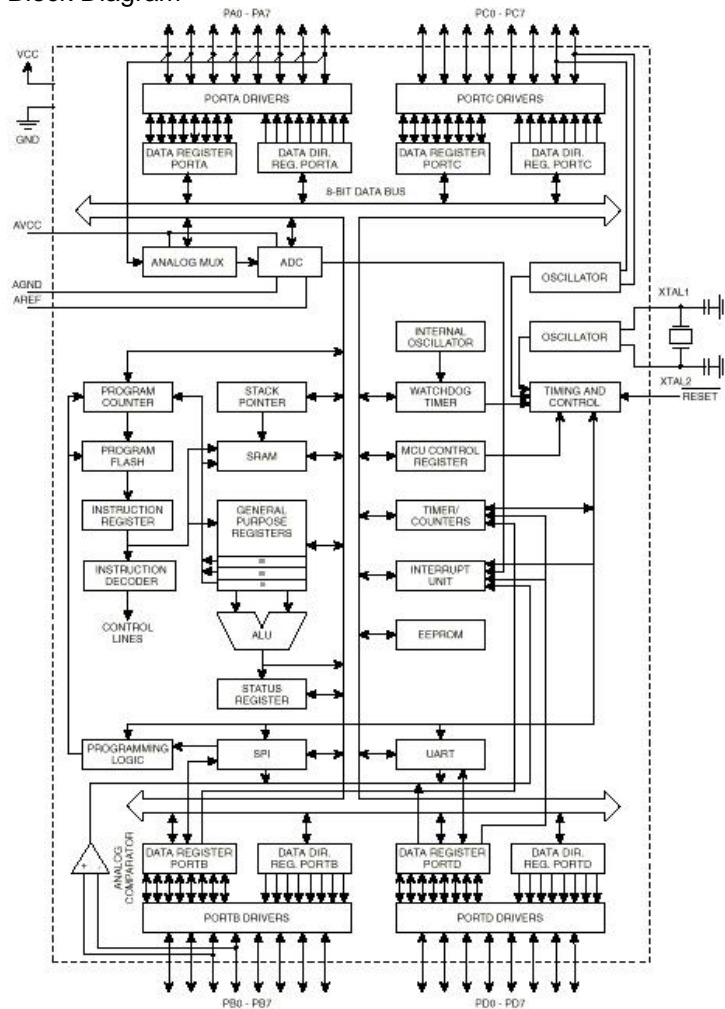


## Description

The AT90S4434/8535 is a low-power CMOS 8-bit microcontroller based on the AVR enhanced RISC architecture. By executing powerful instructions in a single clock cycle, the AT90S4434/8535 achieves throughputs approaching 1 MIPS per MHz allowing the system designer to optimize power consumption versus processing speed.

### Block Diagram



The AVR core combines a rich instruction set with 32 general purpose working registers. All the 32 registers are directly connected to the [Arithmetic Logic Unit \(ALU\)](#), allowing two independent registers to be accessed in one single instruction executed in one clock cycle. The resulting architecture is more code efficient while achieving throughputs up to ten times faster than conventional CISC micro-controllers.

The AT90S4434/8535 provides the following features: 4K/8K bytes of [In-System Programmable Flash](#), 256/512 bytes [SRAM](#), 32 general purpose [I/O](#) lines, 32 general purpose working registers, RTC, three flexible timer/counters with compare modes, internal and external interrupts, a programmable serial UART, 8-channel, 10-bit ADC, programmable [Watchdog Timer](#) with internal oscillator, an SPI serial port and three software selectable power saving modes. The Idle mode stops the CPU while allowing the SRAM, timer/counters, SPI port and interrupt system to continue functioning. The Power Down mode saves the register contents but freezes the oscillator, disabling all other chip functions until the next interrupt or hardware reset. In Power Save mode, the timer oscillator continues to run, allowing the user to maintain a timer base while the rest of the device is sleeping.

The device is manufactured using Atmel's high density non-volatile memory technology. The on-chip ISP Flash allows the program memory to be reprogrammed in-system through an SPI serial interface

or by a conventional nonvolatile memory programmer. By combining an 8-bit RISC CPU with In-System Programmable Flash on a monolithic chip, the Atmel AT90S4434/8535 is a powerful microcontroller that provides a highly flexible and cost effective solution to many embedded control applications.

The AT90S4434/8535 AVR is supported with a full suite of program and system development tools including: C compilers, macro assemblers, program debugger/simulators, in-circuit emulators, and evaluation kits.

Comparison between AT90S4434 and AT90S8535:

The AT90S4434 has 4K bytes of In-System Programmable Flash, 256 bytes of EEPROM, and 256 bytes of internal SRAM.

The AT90S8535 has 8K bytes of In-System Programmable Flash, 512 bytes of EEPROM, and 512 bytes of internal SRAM.

Table 1 summarizes the different memory sizes for the two devices.

**Table 1.** Memory Size Summary

<b>Part</b>	<b>Flash</b>	<b>EEPROM</b>	<b>SRAM</b>
AT90S4434	4K bytes	256 bytes	256 bytes
AT90S8535	8K bytes	512 bytes	512 bytes