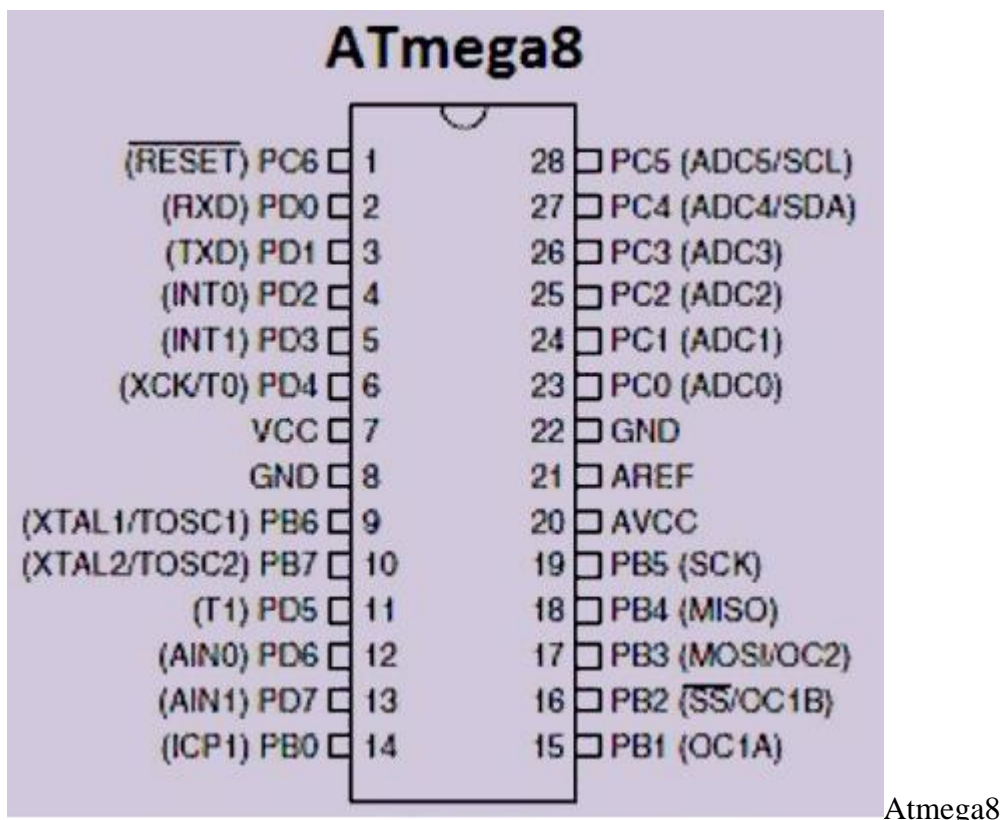


Introduction to 8-bit ATmega microcontroller

AVR Microcontroller was produced by the “Atmel Corporation”. The Microcontroller includes the Harvard architecture that works rapidly with the RISC. The features of this Microcontroller include different features compared with other like sleep modes-6, inbuilt ADC (analog to digital converter), internal oscillator and serial data communication, performs the instructions in a single execution cycle. These Microcontrollers were very fast and they utilize low power to work in different power saving modes. There are different configurations of AVR microcontrollers are available to perform various operations like 8-bit, 16-bit, and 32-bit.

Atmega8 Microcontroller Pin Description

The **main feature of Atmega8 Microcontroller** is that all the pins of the Microcontroller support two signals except 5-pins. The Atmega8 microcontroller consists of 28 pins where pins 9,10,14,15,16,17,18,19 are used for port B, Pins 23,24,25,26,27,28 and 1 are used for port C and pins 2,3,4,5,6,11,12 are used for port D.



Microcontroller Pin Configuration

- Pin -1 is the RST (Reset) pin and applying a low-level signal for a time longer than the minimum pulse length will produce a RESET.
- Pin-2 and pin-3 are used in USART for serial communication
- Pin-4 and pin-5 are used as an external interrupt. One of them will activate when an interrupt flag bit of the status register is set and the other will activate as long as the intrude condition succeeds.
- Pin-9 & pin-10 are used as a timer counters oscillators as well as an external oscillator where the crystal is associated directly with the two pins. Pin-10 is used for low-frequency crystal oscillator or crystal oscillator. If the internal adjusted RC

oscillator is used as the CLK source & the asynchronous timer is allowed, these pins can be utilized as a timer oscillator pin.

- Pin-19 is used as a Master CLK o/p, slave CLK i/p for the SPI-channel.
- Pin-18 is used as Master CLK i/p, slave CLK o/p.
- Pin-17 is used as Master data o/p, slave data i/p for the SPI-channel. It is used as an i/p when empowered by a slave & is bidirectional when allowed by the master. This pin can also be utilized as an o/p compare with match o/p, which helps as an external o/p for the timer/counter.
- Pin-16 is used as a slave choice i/p. It can also be used as a timer or counter1 comparatively by arranging the PB2-pin as an o/p.
- Pin-15 can be used as an external o/p of the timer or counter compare match A.
- Pin-23 to Pins28 have used for ADC (digital value of analog input) channels. Pin-27 can also be used as a serial interface CLK & pin-28 can be used as a serial interface data
- Pin-12 and pin-13 are used as an Analog Comparator i/ps.
- Pin-6 and pin-11 are used as timer/counter sources.