



The 8051 Series Microcontroller

Introduction

In 1976, Intel introduced the 8048 series of single-chip microcontrollers, also known as MCS-48. It contains 8-bit CPU, 1/2/4K ROM/EPROM, 64/128/256 bytes of RAM, timer/counter, parallel I/O lines and A/D converter.

In 1980, Intel introduced a more powerful **8051** series of microcontrollers. These are the second generation microcontrollers. They are faster, contain a number of additional electronic circuits, have enhanced instruction sets, and more memory capacity.

Features of the Intel 8051 Microcontroller

- 4KB bytes on-chip program memory (ROM)
- 128 bytes on-chip data memory (RAM)
- Four register banks
- 8-bit bidirectional data bus
- 16-bit unidirectional address bus
- 32 general purpose registers each of 8-bit
- 16 bit Timers (usually 2, but may have more or less)
- Four 8-bit ports, (short model have two 8-bit ports)
- 16-bit program counter and data pointer

To understand these features, swipe down to the resources section and go through the resources provided. Also, it is necessary to get familiar with the **architecture/block diagram and the pin diagram of the Intel 8051**



microcontroller(follow the links provided in the **Resources** section). Make sure that you have a thorough understanding of the 8051 Microcontroller before proceeding to the next module.

Text Resources

- <https://www.elprocus.com/8051-microcontroller-architecture-and-applications/>

Video Resources

- Introduction to the 8051 microcontroller
https://www.youtube.com/watch?v=GPz_mR7Flas
- Block Diagram of 8051 microcontroller
Part-1
<https://www.youtube.com/watch?v=hZDReT0vzBU>
Part-2
<https://www.youtube.com/watch?v=RrPzHwzOGo>
- Pin Diagram of 8051 microcontroller
<https://www.youtube.com/watch?v=CTM0RF1GZZQ>
- Just for fun
https://www.youtube.com/watch?v=i_gldD5fFLo

The tutorials provided in this section belong to the respective sources/publishers/authors. We do not claim ownership of any of the resources provided.

Happy Learning!

References

'Fundamentals of Microprocessors and Microcontrollers', 8th Revised Edition, by B.RAM and SANJAY KUMAR, Dhanpat Rai Publications (P) LTD.