



Introduction to 8085 MicroProcessor, 8085 Architecture - Part I

Course on Advanced Electronics - 8085 Micro Processors

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8085

ESE



E&T



Advanced Electronics



HP

EE



Computer Basics

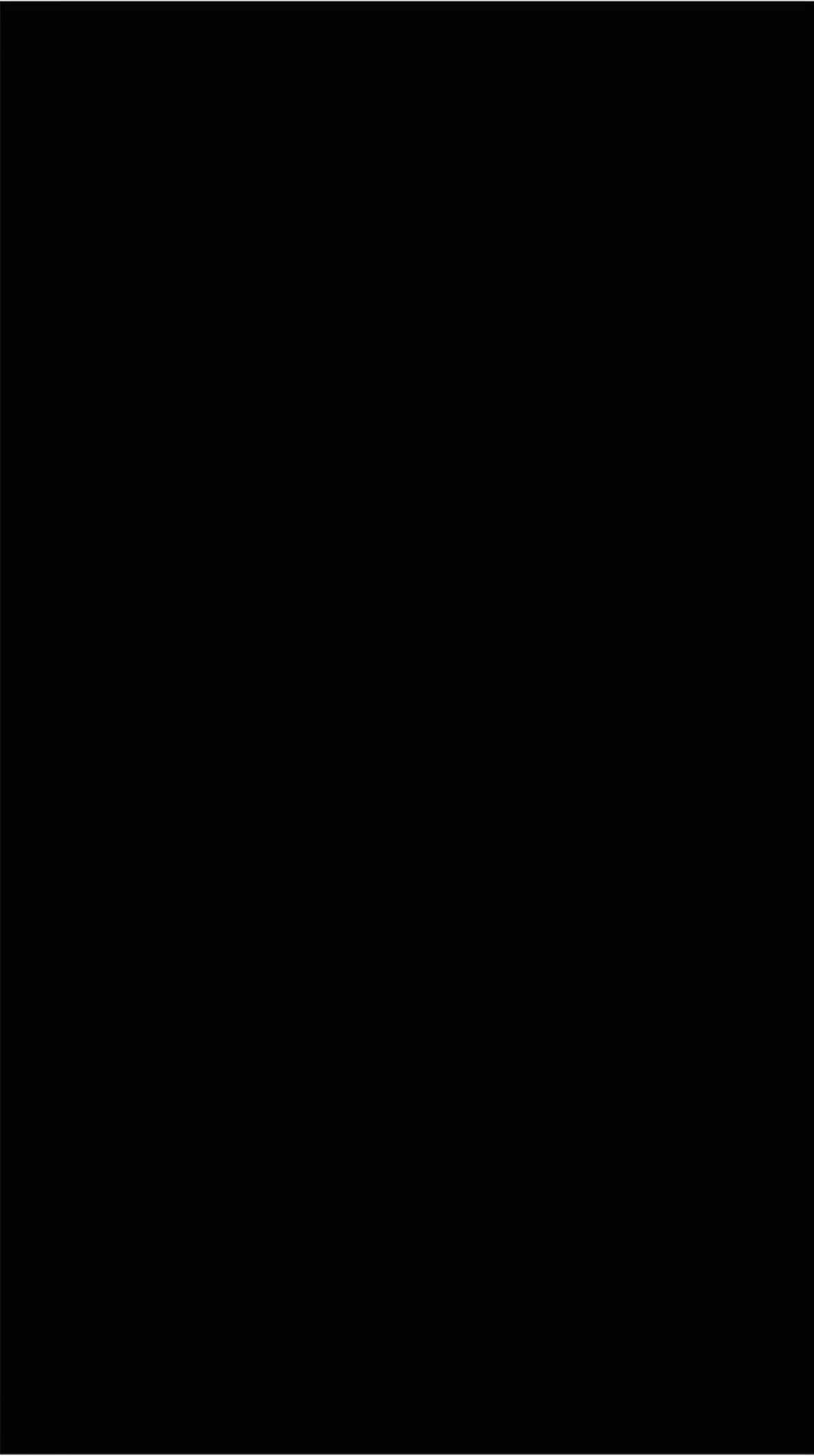
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Syllabus:

- 1. BASICS .
- 2. Block Diagram Architecture of 8085 and Pin Diagram.
- 3. Machine Cycles of 8085.
- 4. Addressing Modes of 8085. ✓
- ✓ 5. Instruction Set of 8085.
- ✓ 6. Programming.
- 7. Memory and I/O Interfacing to 8085.

Evolution of Processors :-

4004 → 4-bits → 1971, Processor

8008 } → 8-bit
8080 } → 8-bit Processor → 1973

8085 → 8-bit Processor → 1976

8086 → 16-bit

80186 →

Virtual memory { 80286 } → 32-bit
80386



8085

Intel Microprocess

Name	Year	Transistors	Clock speed	Data width
8080	1974	6,000	2 MHz	8 bits
8085	1976	6,500	3- 5 MHz	8 bits
8086	1978	29,000	5 MHz	16 bits
8088	1979	29,000	5 MHz	8 bits
80286	1982	134,000	6 MHz	16 bits
80386	1985	275,000	16 MHz	32 bits
80486	1989	1,200,000	25 MHz	32 bits
Pentium	1993	3,100,000	60 MHz	32/64 bits
Pentium II	1997	7,500,000	233 MHz	64 bits
Pentium III	1999	9,500,000	450 MHz	64 bits
Pentium IV	2000	42,000,000	1.5 GHz	64 bits
Pentium IV "Prescott"	2004	125,000,000	3.6 GHz	64 bits
Intel Core 2	2006	291 million	3 GHz	64 bits
Pentium Dual Core	2007	167 million	2.93 GHz	64 bits
Intel 64 Nchalem	2009	781 million	3.33 GHz	64 bits

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Manufacturer	Processor	Date of introduction	Number of transistors	Process	Area [nm ²]
Intel	Intel4004	1971	2,300	10 μm	12
	Intel8008	1972	3,500	10 μm	14
	Intel8080	1974	4,400	6 μm	20
	Intel8085	1976	6,500	3 μm	20
	Intel8086	1978	29,000	3 μm	33
	Intel80286	1982	134,000	1.5 μm	44
	Intel80386	1985	275,000	1.5 μm	104
	Intel80486	1989	1,180,235	1 μm	173
	Pentium	1993	3,100,000	0.8 μm	294
	Pentium Pro	1995	5,500,000	0.5 μm	307
	Pentium II	1997	7,500,000	0.35 μm	195
	Pentium III	1999	9,500,000	0.25 μm	128
	Pentium 4	2000	42,000,000	180 nm	217
	Itanium 2 McKinley	2002	220,000,000	180 nm	421
	Core 2 Duo	2006	291,000,000	65 nm	143
	Core i7 (Quad)	2008	731,000,000	45 nm	263
	Six-Core Core i7	2010	1,170,000,000	32 nm	240
	Six-Core Core i7/i8-Core Xeon E5	2011	2,270,000,000	32 nm	434
	8-Core Itanium Poulson	2012	3,100,000,000	32 nm	544
	MIPS	R2000	1986	110,000	2.0 μm
R3000		1988	150,000	1.2 μm	56
R4000		1991	1,200,000	0.8 μm	213
R10000		1994	2,600,000	0.5 μm	299
R10000		1996	6,800,000	0.35 μm	299
R12000		1998	7,1500,000	0.25 μm	229
POWER3		1998	15,000,000	0.35 μm	270
IBM	POWER4	2001	174,000,000	180 nm	412
	POWER4+	2002	184,000,000	130 nm	267
	POWER5	2004	276,000,000	130 nm	389
	POWER5+	2005	276,000,000	90 nm	243
	POWER6+	2009	790,000,000	65 nm	341
	POWER7	2010	1,200,000,000	45 nm	567
	POWER7+	2012	2,100,000,000	32 nm	567

Basic Terminology

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• Hard Ware →

✓ Soft Ware →

• Prog

• Instructions →

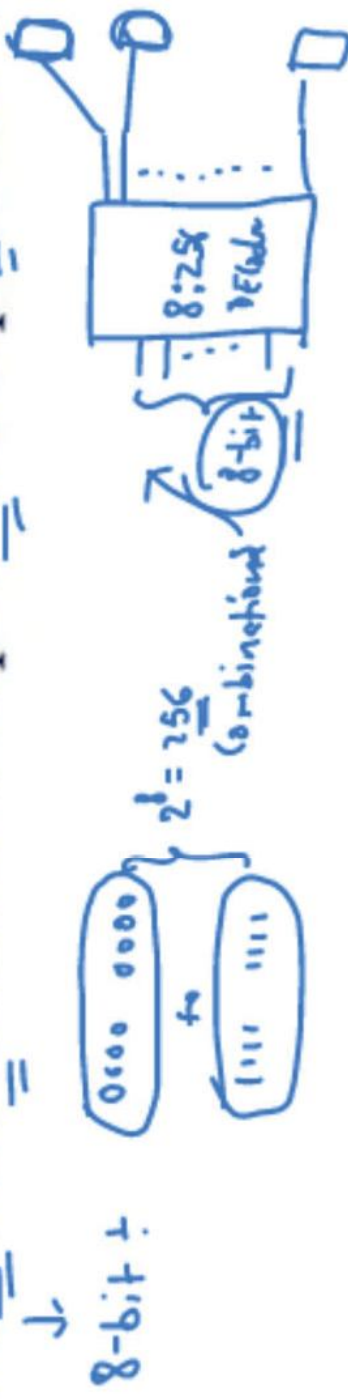
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- **Hardware:** Physical devices like Keyboard, Mouse, Printer etc.,
- **Software:** Set of Programs.
- **Program:** Set of Instructions.

• **Instruction:** It is a basic command to do a particular operation.



Block Diagram of Micro Computer