Unit 1

Introduction to Microprocessors 16/32/64 Bit

Evolution & Comparison

Evolution and Comparison of Intel Microprocessors

Processor	Year	Bit	Clk Speed/ MIPS	Data Bus	Address Bus/ Memory
4004		4	50 KIPS	4	4KB
8008	1971	8		8	16 KB
8080	1973	8	0.5MIPS/ 3 MHz	8	16 64 KB
8085 100 Million Sold	1977	8	0.5MIPS/ 3 MHz	8	16 64 KB
8086 Instruction Queue (Pipelining) 20000 Variations in Inst.	1978	16	2.5 MIPS	16	20 1 MB

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Processor	Year	Bit	Clk Speed/ MIPS	Data Bus	Address Bus/ Memory
8088	1979	16	2.5 MIPS	8	1 MB
80286	1981	16	4 MIPS	16	16 MB
80386 MMU	1986	32	33 MHz	32	32 / 4 GB
80386 SX		32		16	24/ 16 MB
80386 SL/SLC 80386 EX DRAM Controller GUI, VGA 640 x 480		32		16	25/32 MB

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Processor	Year	Bit	Clk Speed/ MIPS	Data Bus	Address Bus/ Memory
80486	1989	32	50 MHz/50 MIPS	32	8 KB Cache
80486 DX2 Double Clocked					
80486 DX4 Triple Clocked					16 KB C
Pentium Superscalar Technology , Branch Prediction	1993	32	60/66 MHz 110 MIPS 100 MHz/ 150 MIPS	64	64 GB 16 KB C

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Processor	Year	Bit	Clk Speed/ MIPS	Data Bus	Address Bus/ Memory
Pentium MMX	1996	32	200 MHz/266 MHz	64	
Pentium II		32	200/ 266MHz	64	64 GB 16 K L1 + 512 K L2 C
Pentium III	1997	32	433/ 750 MHz	64	64 GB 32 K L1 + 512 K L2 C

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Processor	Year	Bit	Clk Speed/ MIPS	Data Bus	Address Bus/ Memory
Pentium IV Aluminum to Copper conductors	2000	32	1.3 GHz/ 1.5 /1.8 /2.4/3.0 GHz	64	64 GB 32 K L1 + 512 K L2 C

H.W Overdrive Processors

Reference : The Intel Microprocessors by Barry B.Brey PHI (P 5-15)

Drawbacks of 8 Bit Microprocessors

- Low speed of Execution.
- Low Memory addressing Capability.
- Limited no. of registers.
- 8 bit (number size)
- Less powerful instruction set.
- Multiprogramming and multiprocessing.

THANK YOU