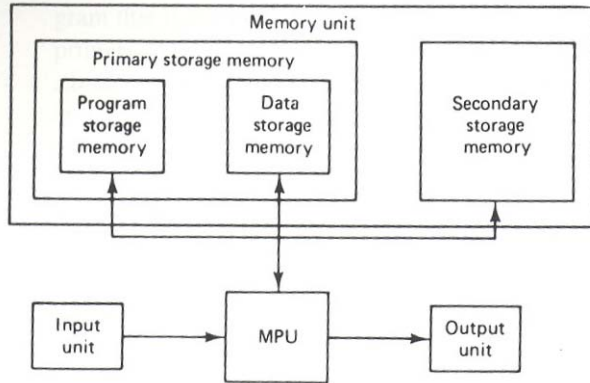CET 302

Lecture #1 (8/26/04)

- History of computers (see Computer History.doc)
- Architecture of a microcomputer system (fig 1-4)

MPU – microprocessor unit
    VLSI (vary large-scale integrated device)
    IC - Integrated circuit

Talk about each block in terms of the common PC

RAM – Random access memory

ROM – Read Only Memory (nonvolatile)

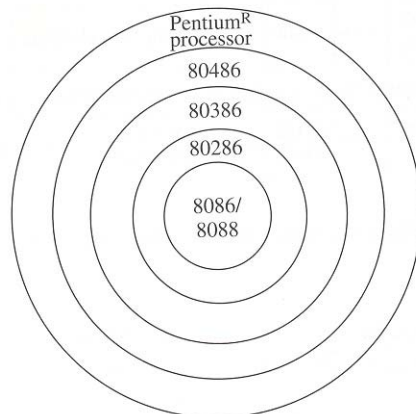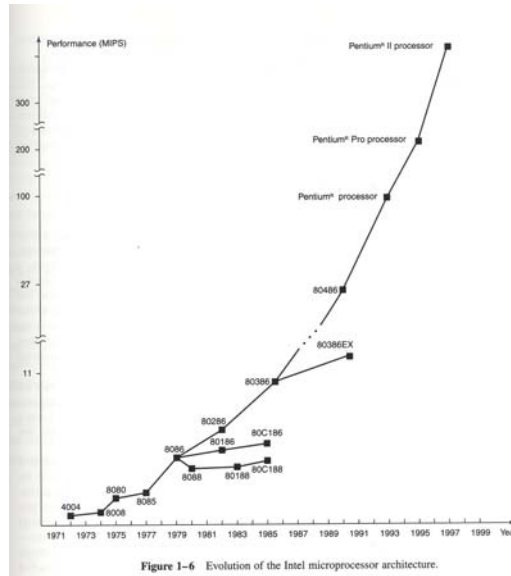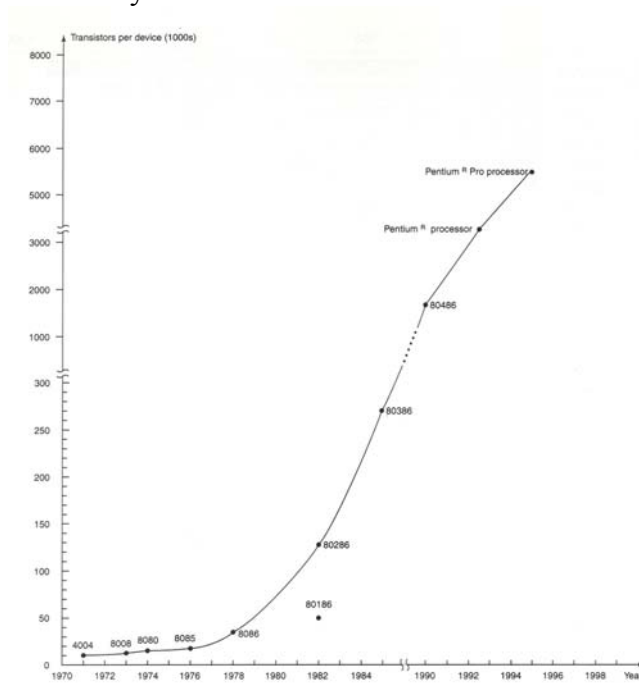- Evolution of the Intel Microprocessor architecture

Figure 1–10 Code and system-level compatibility.

Figure 1-6   Evolution of the Intel microprocessor architecture.

MIPS – Millions of instructions per second (calculate using DryStone Program)

IComp – intel performance scale (proprietary)

- Transistor Density

Figure 1-8   Device complexity.

CPU	Date	No. of transistors
4004	11/15/71	2,300
8008	4/72	3,500
8080	4/74	6,000

8086	6/8/78	29,000
80286	2/82	134,000
Intel 386DX	10/17/85	275,000
Intel 486DX	4/10/89	1,200,000
Intel DX2	3/3/92	1,200,000
Pentium	3/22/93	3,100,000
Pentium Pro	11/1/95	5,500,000
Pentium II	5/7/97	7,500,000

From http://www.sosu.edu/st/math/courses/algsci/projects/Logarithms/TransGrowth.htm

note: According to the article "They've got the Silicon Transistor down in Texas" in IEEE Spectrum May 2004 *some estimates suggest that today there are 100 million transistors for every human on the planet*

- ~~Reprogrammable and embedded~~
- Microprocessor vs microcontroller

Microprocessor	Microcontroller
- Needs external components to operate (ram / rom / addressing etc) - Made to run multiple applications - Needs external ICs for IO	- Only needs a clock - Usually only runs one program (stored in ROM) - Built in IO

- o Risc vs cisc
    - ▪ RISC Reduced instruction set computer
    - ▪ CISC Complex Instruction Set Computers
- o (Blurred line of RISC VS CISC)

NUMBERING SYSTEMS

Go over quiz with emphasis on question 1

Binary numbers (MSB LSB)

Hex numbers

Other Number systems

HW – 2, 10, 11, 12, 14, 15, 18, 20, 24, 37, 40, 42, 47, 48, 49, 51