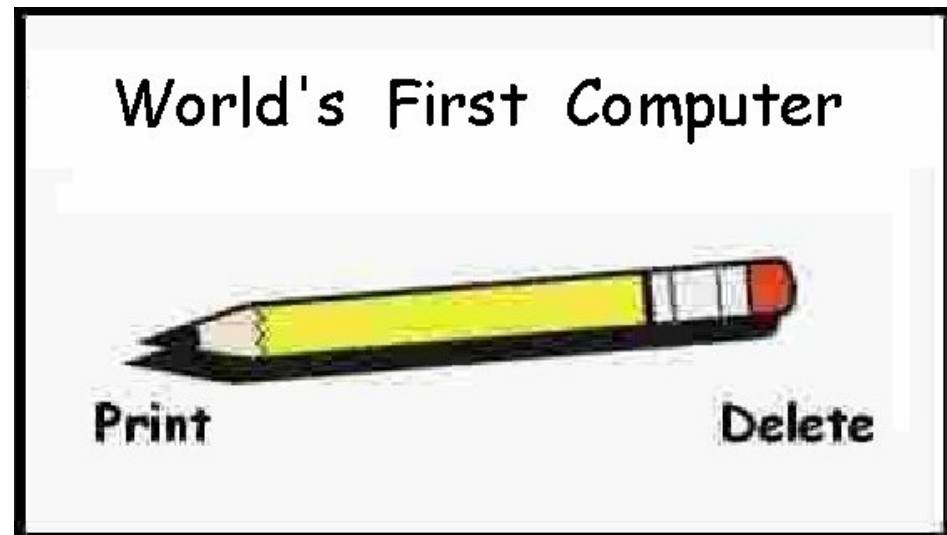


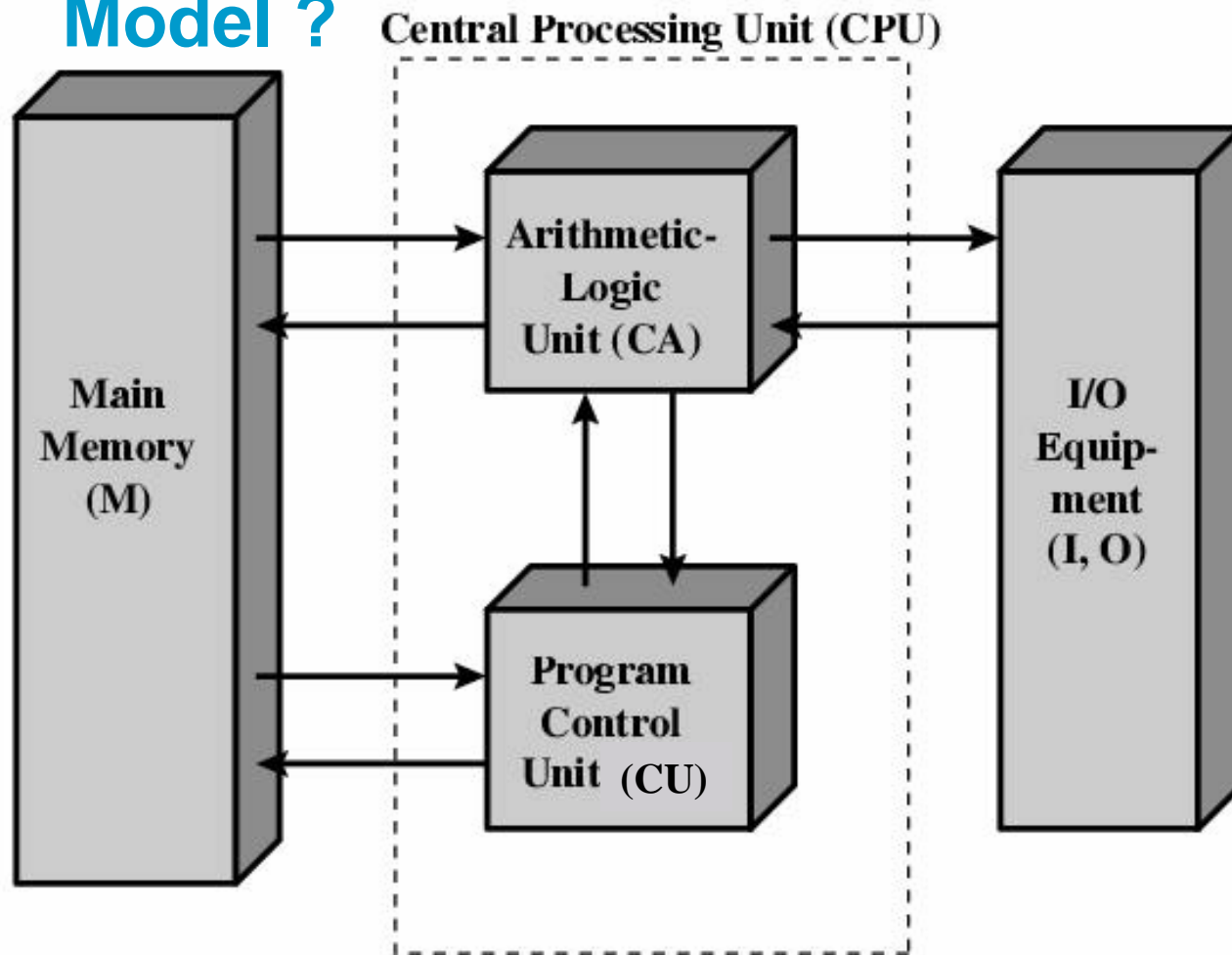
Introduction to Hardware

- Review
- Definisi
- Sub Sistem CPU
- Sub Sistem Memori
- Sub Sistem Periferal

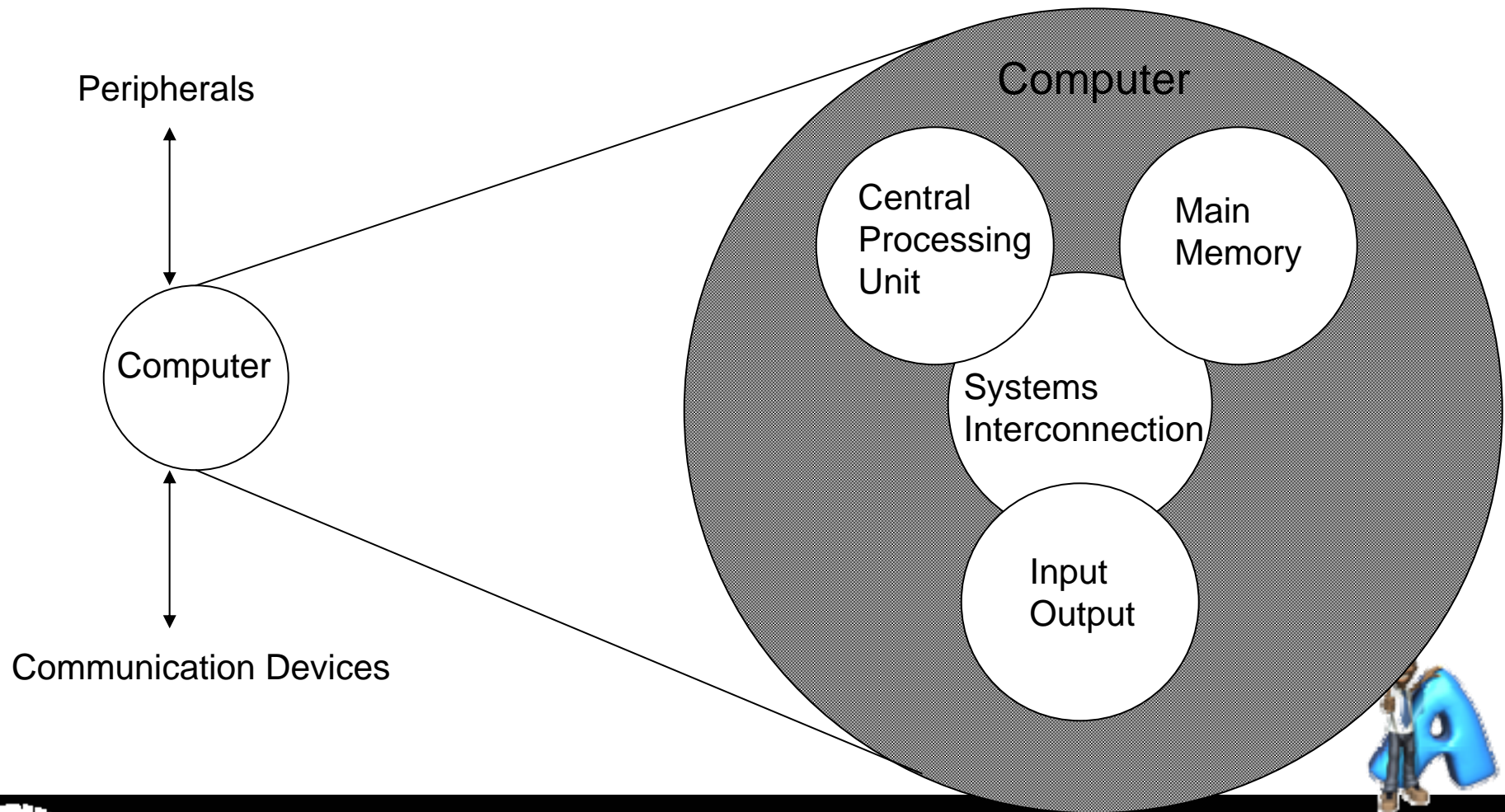


Review

Model ?



Review



Definition

- Personal Computer → a small digital computer based on a microprocessor and designed to be used by one person at a time
- DESKTOP COMPUTER: a personal computer small enough to fit conveniently in an individual workspace
- MICROPROCESSOR (μ PF): integrated circuit semiconductor chip that performs the bulk of the processing and controls the parts of a system; "a microprocessor functions as the central processing unit of a microcomputer"; "a disk drive contains a microprocessor to handle the internal functions of the drive"



Definition

- **MICROCHIP:** electronic equipment consisting of a small crystal of a silicon semiconductor fabricated to carry out a number of electronic functions in an integrated circuit
- **PC Board / CIRCUIT CARD:** a printed circuit that can be inserted into expansion slots in a computer to increase the computer's capabilities
- **CPU BOARD:** the main circuit board for a computer (mother board / mobo / mainboard)
- **INTEGRATED CIRCUIT:** a microelectronic computer circuit incorporated into a chip or semiconductor; a whole system rather than a single component ;



Chronologies of Computer Hardware Revolution

Era 1947 - 1970 <http://www.islandnet.com/~kpolsson/comphist/>

- 1947, December 23. Tiga saintis Bell Telephone Labs, William Shockley, Walter Brattain, dan John Bardeen mendemonstrasikan penemuan yang disebut *point-contact transistor amplifier, transistor ~ "transfer resistance"*.
- 1956, MIT membuat *TX-O (Transistorized Experimental computer)*
- 1958, September 12. Di Texas Instruments, Jack Kilby selesai membuat IC pertama, 5 komponen pada lempeng germanium lebih tipis dibanding tusuk gigi.
- 1959, Di Fairchild Semiconductor, Robert Noyce membangun IC di mana komponen saling terhubung dengan alur aluminium di atas lapisan permukaan *silicon-oxide* pada lempeng silicon.



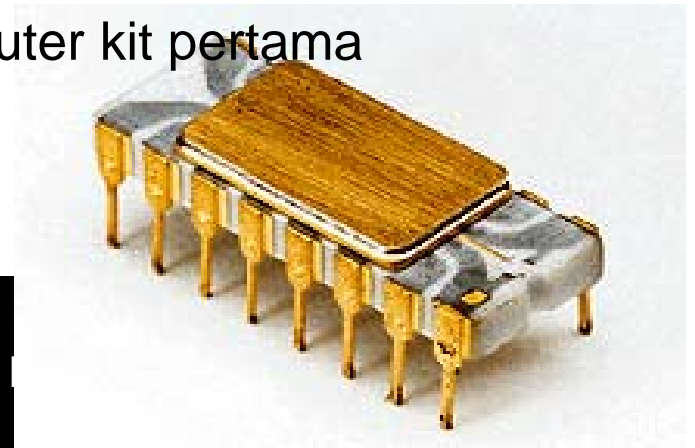
Chronologies of Computer Hardware Revolution

Era 1947 - 1970

- 1963, Douglas Engelbart menciptakan *mouse*
- 1969 Mei, IBM membuat *SCAMP*, PC pertama
- 1969, Intel mengumumkan sebuah *1 kilobit RAM chip*
- 1970, Intel membuat mikroprosesor 4004 dan chip 1103 [DRAM memory chip pertama]

Era 1971 - 1980

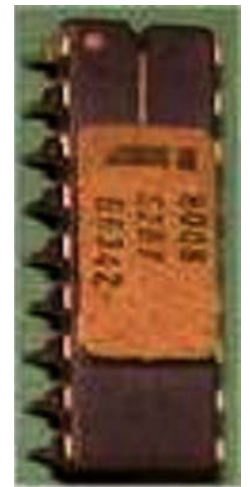
- Intel memasarkan 4000 family
- Texas Instruments mengembangkan microcomputer-on-a-chip, berisi ~ 15,000 transistors;
- National Radio Institute memperkenalkan computer kit pertama



Chronologies of Computer Hardware Revolution

Era 1971 - 1980

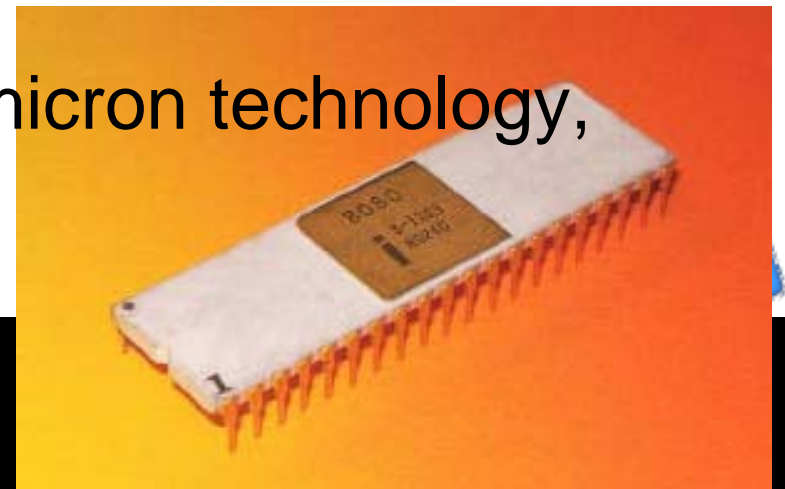
- 1971, Intel memperkenalkan chip 1101 [256-bit programmable memory, dan 1701 chip [256-byte erasableread-only memory (EROM)].
- 1972, April. Intel memperkenalkan 200-KHz 8008 chip, mikroprosesor 8-bit komersil perama, mengakses memori 16KB, 3500 transistor, berbasis pada teknologi 10-micron, kecepatan 60,000 instruksion per detik.



Chronologies of Computer Hardware Revolution

Era 1971 - 1980

- 1973, France, R2E memperkenalkan mikrokomputer Micral berbasis Intel 8008
- 1974 April, Intel memperkenalkan chip 2-MHz 8080, Intel's first general purpose 8-bit microprocessor, akses langsung pd memori sebesar 64 KB via 2-byte memory addressing,
- (6000 transistor), berbasis 6-micron technology, speed 0.64 MIPS.



Chronologies of Computer Hardware Revolution

- 1976, Steve Wozniak & Steve Jobs menyelesaikan computer circuit board, dinamakan Apple I computer.
- Maret, Intel mengenalkan mikroprosesor 5-MHz 8085, 0.37 millions instrction per second (MIPS) 6500 transistors, berbasis 3-micron technology, menunjang 8-bit bus, bekerja menggunakan single 5-volt power supply.
- 1977, Apple [Jobs&Wozniac] mengenalkan Apple II, komputer warna + slots and floppy drive
- Radio Shack mengenalkan TRS-80;
- Commodore mengenalkan PET



Chronologies of Computer Hardware Revolution

Era 1981 - 2003

- 1989, Apple (16 pounds!) Mac Portable, laptop pertama + built-in trackball + active matrix display
- 1990, IBM PC berbasis Intel 80486 [powerful cache, instruction pipelining, built in maths co-processor]
- Apple Mac lifix + video card
- 1993, IBM PC berbasis Intel Pentium [80586] 60 MHz CPU [Superscalar, multiple instructions executed in parallel]
- 1994 Apple Mac PowerPC 601
- 1995, PC berbasis Intel Pentium Pro [aggressive register renaming, branch prediction, data flow analysis, speculative execution]



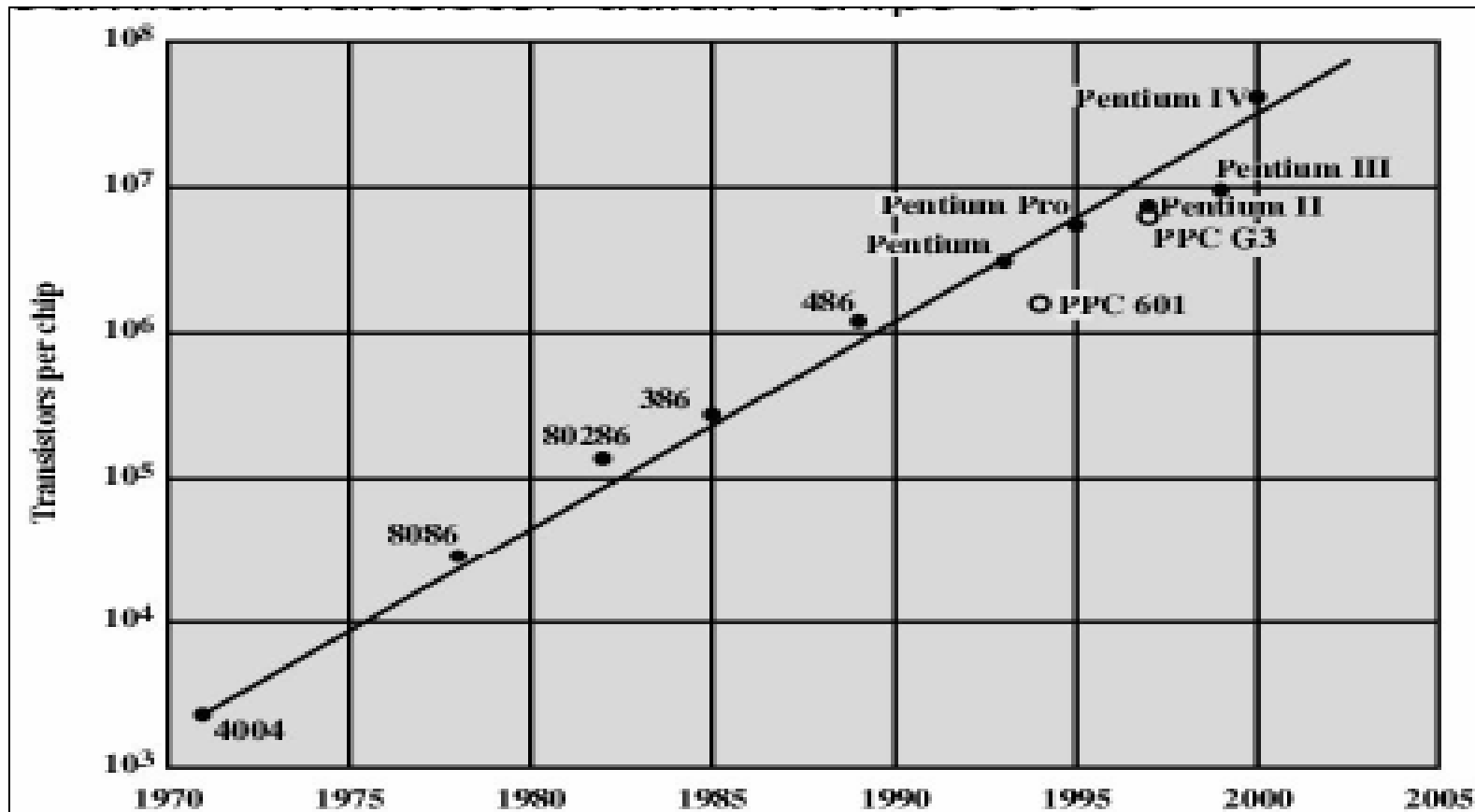
Chronologies of Computer Hardware Revolution

- 1998, PC berbasis Intel Celeron
- 1999, Apple iMac
- Intel Pentium III [floating point instruction, micro 3D graphics]
- AMD Athlon 800 MHz
- 2000, PC berbasis AMD Athlon 1 GHz
- 2001, PC berbasis Pentium 4 [1.4 - 2 GHz]



Chronologies of Computer Hardware Revolution

Jumlah Transistor dalam chips CPU



Chronologies of Computer Software Revolution

Operating System (OS)

- 1972, Gary Kildall implements PL/I (Programming Language I) on the Intel 4004 processor, dasar PL/M
- 1973, Gary Kildall membuat OS sederhana , bahasa PL/M, namanya CP/M (Control Program/Monitor [Microprocessor])
- 1977, DE memasarkan CPM
- 1985, MS Windows 1.0
- 1986, UCSD mengembangkan CP/M-86 untuk IBM PC/XT
- PC DOS, dikembangkan Microsoft - MS DOS
- 1991, Linus Torvalds menciptakan Linux Open Source, Unix untuk PC



Chronologies of Computer Software Revolution

Bahasa & PL Aplikasi

- 1975, [Januari] Bill Gates & Paul Allen mengembangkan BASIC-PLUS (Beginners All-purpose Symbolic Instruction Code - John Kemeny & Thomas Kurtz, Dartmouth College) untuk Altair, uji coba pada DE RSTS-11.
- 1976, [Juni] Wang Laboratories mengenalkan word-processing system (WPS)
- Xerox menciptakan WordMaster, jadi WordStar (WS)
- 1978, Dan Bricklin and Bob Frankston menciptakan VisiCalc, first spreadsheet



Chronologies of Computer Software Revolution

Bahasa & Perangkat Lunak Aplikasi

- 1979, Perangkat Lunak basisdata (DBMS) Vulcan, pendahulu dBase II
- 1983, Lotus 1-2-3 untuk IBM PC
- MS Words 1 untuk IBM PC
- 1985, Aldus mengenalkan PageMaker

