

Organisasi dan Arsitektur Komputer 1

REVOLUSI *PC*

Santika WP

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Pengertian Dasar

- Definisi [www.hyperdictionary.com]
 - *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*: 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"
 - *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

Pengertian Dasar

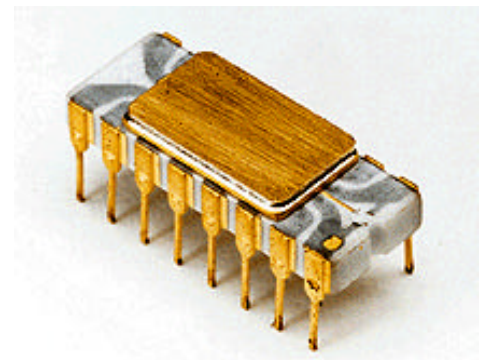
- Definisi [www.hyperdictionary.com]
 - **PC BOARD:** *a removable circuit board for a PC; fits into a slot in the mother board*
 - **BOARD:** *a printed circuit that can be inserted into expansion slots in a computer to increase the computer's capabilities*
 - **CIRCUIT CARD:** *a printed circuit that can be inserted into expansion slots in a computer to increase the computer's capabilities*
 - **CPU BOARD:** *the main circuit board for a computer*
 - **INTEGRATED CIRCUIT:** *a microelectronic computer circuit incorporated into a chip or semiconductor; a whole system rather than a single component* ; khusus ==> **APPLICATION-SPECIFIC INTEGRATED CIRCUIT**

Kronologi Revolusi PK

- 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 germanium panjang inch lebih tipis dibanding tusuk gigi.
 - 1959, Di Fairchild Semiconductor, Robert Noyce membangun seguah *IC* di mana komponen saling terhubung dengan alur aluminum di atas lapisan permukaan *silicon-oxide* pada lempeng silicon.

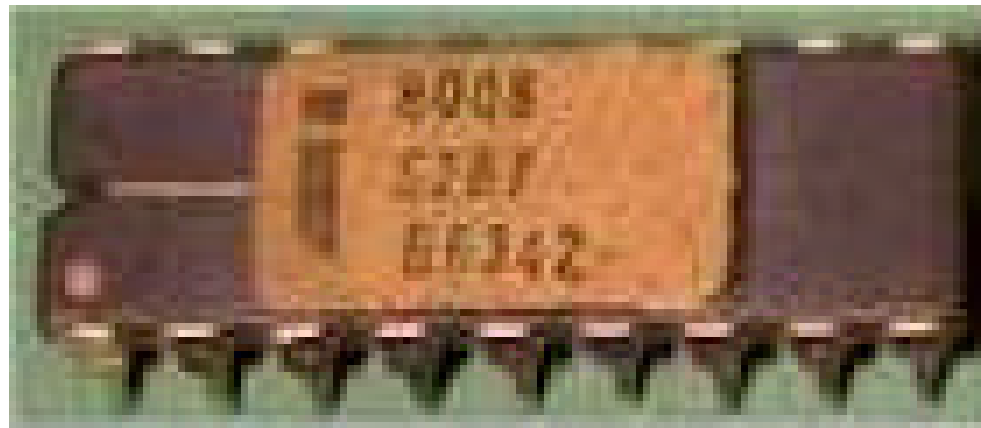
Kronologi Revolusi PK

- 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 [dir.Federico Fagin] dan chip 1103 [*DRAM memory chip* pertama]
- Era 1971 - 1980
 - 1971
 - Intel memasarkan *4000 family*
 - Texas Instruments mengembangkan *microcomputer-on-a-chip*, berisi ~ 15,000 transistors;
 - National Radio Institute memperkenalkan *computer kit* pertama



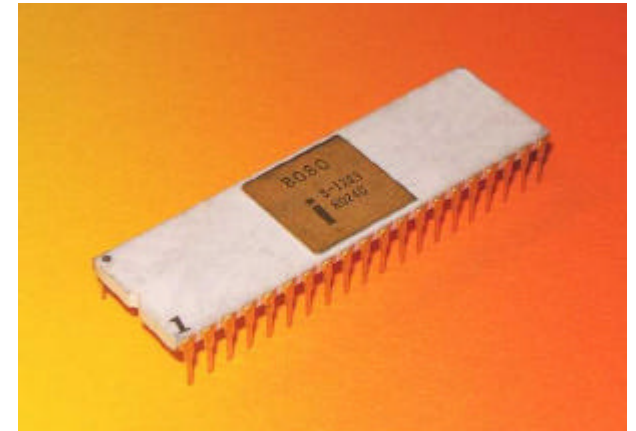
Kronologi Revolusi PK

- Era 1971 - 1980
 - 1971, Intel memperkenalkan chip 1101 [256-bit programmable memory, dan 1701 chip [256-byte erasable read-only memory (EROM)].
 - 1972, April. Intel memperkenalkan 200-KHz 8008 chip, mikroprosesor 8-bit komersil perama, mengakses memori 16 KB, 3500 transistor, berbasis pada teknologi 10-micron, kecepatan 60,000 instruksion per detik.



Kronologi Revolusi PK

- 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.



Kronologi Revolusi PK

- Era 1971 - 1980
 - 1974
 - Juni, RCA mengenalkan *1802 processor*, 6.4-MHz dipandang sebagai chip RISC pertama.
 - Agustus, MITS selesai membuat *first prototype microcomputer Altair 8800 [PE-8]*.
 - 1975 Digital Equipment mengenalkan mikrokomputer LSI-11 (*board with microprocessor, 8 KB RAM*) mikrokomputer pertama arsitektur 16-bit
 - 1976
 - Januari, Hewlett-Packard memulai Project Capricorn, membuat *computer-like calculator* - hasilnya *HP-85*.

Kronologi Revolusi PK

- Era 1971 - 1980

- 1976

- Steve Wozniak & Steve Jobs menyelesaikan *computer circuit board*, dinamakan *Apple I computer*.
 - Maret, Intel mengenalkan mikroprosesor 5-MHz 8085, 0.37 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

Kronologi Revolusi PK

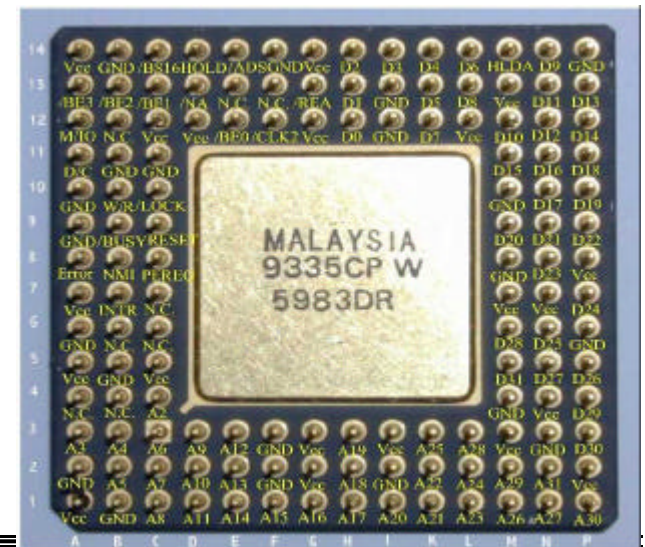
- Era 1981 - 2003

- 1981

- Industri IBM PC/XT-set [Ag. 12]: 16-bit CPU pada 8-bit bus ([Intel 8088](#)), 5 exp. slots, 16K RAM, 2 full-height 5.25" drive bays, 2 floppy drives, monochrome display adapter+monitor (atau color display adapter + monitor), parallel card, dot matrix printer
 - Adam Osborne mengenalkan *portable computer* pertama, Osborne 1, ukuran *suitcase*, CP/M, 2 disket drive 5.25", dan *tiny 5" display*.
 - Epson HX-20, *first laptop computer*, 8.5" x 11", tebal 1.5-2", *microcassette* display 4 baris @ 40 characters pada LCD screen di atas keyboard.

Kronologi Revolusi PK

- Era 1981 - 2003
 - 1983 *Apple's Lisa*, komputer pertama memakai *mouse* dan *graphical user interface (GUI)*
 - 1984, *IBM PC/AT* - 6 MHz Intel [80286](#)-based, 16-bit bus, *high density 5.25" floppies*, dan *new video standard - EGA*.
 - 1985, *Apple Macintosh + LaserWriter*
 - 1986, *IBM PC* berbasis Intel 80386
 - 1987
 - Apple Mac II
 - Sun Acorn Archimedes [RISC pertama]



Kronologi Revolusi PC

- 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 Iifx + video card
 - 1993, IBM PC berbasis Intel Pentium [80586] 60 MHz CPU [*Superscalar, multiple instructions executed in parallel*]
 - 1994
 - Apple Mac PowerPC 601 (*Quadra 610 DOS compatible card*)

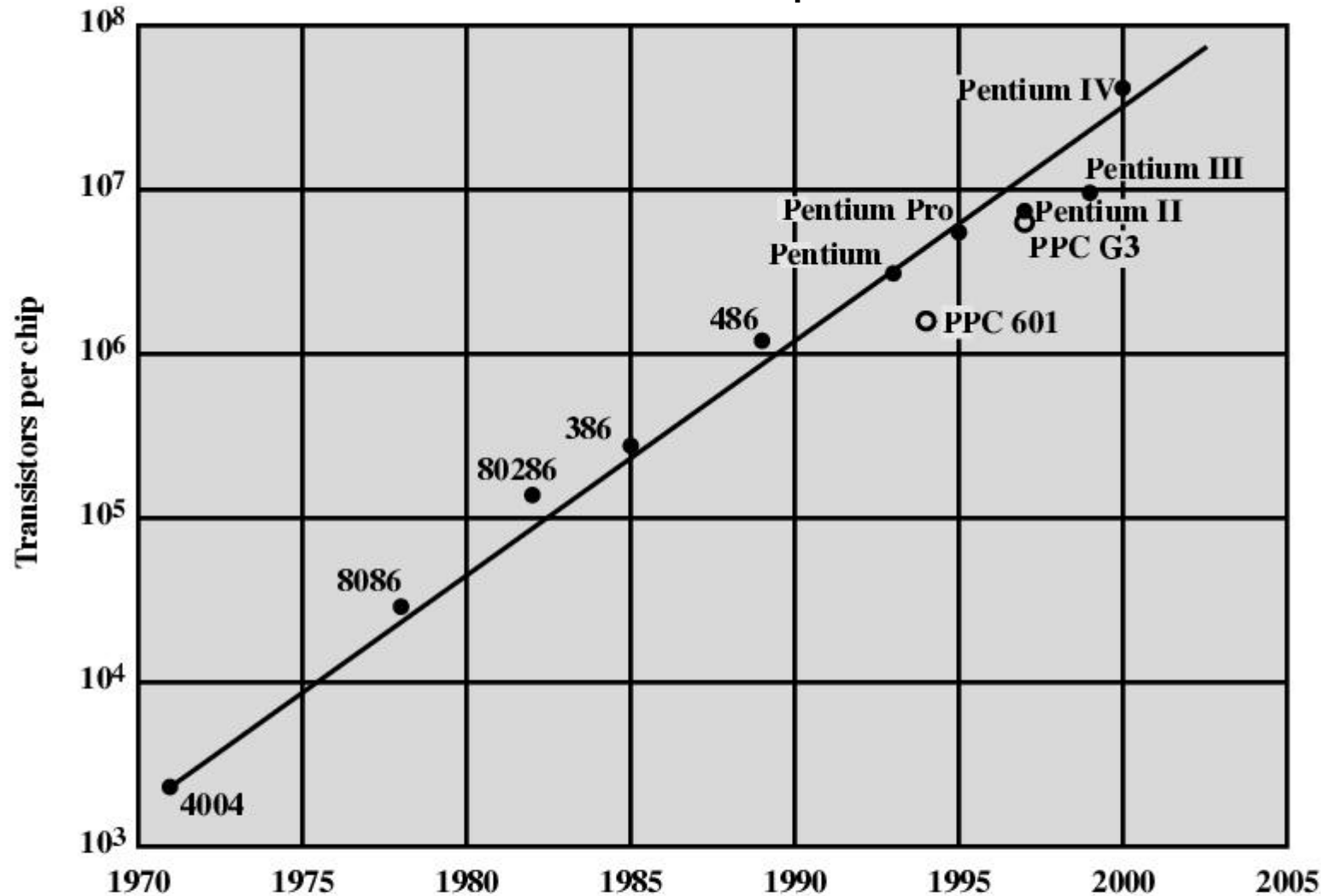
Kronologi Revolusi PC

- Era 1981 - 2003
 - 1995, PC berbasis Intel Pentium Pro [*aggressive register renaming, branch prediction, data flow analysis, speculative execution*]
 - 1997, PC berbasis Intel Pentium II [graphics, video & audio processing], teknologi MMX
 - 1998, PC berbasis Intel Celeron
 - 1999
 - Apple iMac
 - Intel Pentium III [flo.-point ins. u.3D graphics]
 - AMD Athlon 800 MHz
 - 2000, PC berbasis AMD Athlon 1 GHz
 - 2001, PC berbasis Pentium 4 [1.4 - 2 GHz]



Kronologi Revolusi PC

- Jumlah Transistor dalam chips CPU



Kronologi Revolusi PL-PC

- *Operating System (OS)*

- 1972, Gary Kildall implements PL/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, Unix untuk PC, *opensource*

Kronologi Revolusi PL-PC

- 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*

Kronologi Revolusi PL-PC

- Bahasa & PL Aplikasi
 - 1979, PL basisdata (DBMS) *Vulcan*, pendahulu *dBase II*
 - 1983
 - *Lotus 1-2-3* untuk IBM PC
 - *MS Words 1* untuk IBM PC
 - 1985, Aldus mengenalkan *PageMaker*

Kronologi Revolusi PL-PC

- **Gates** [1998, Graduate School of Business, Stanford,

<http://www.stanford.edu/dept/news/report/news/january28/gates128.html>]:

- *Software changing the 'very mechanism of capitalism'.*
- *If you think that computers have had a major impact on your life, you haven't seen anything yet.*
- *We are really just at the beginning of the information age. The thing that is going to separate the successful organizations from unsuccessful ones will be the way that they deal with information: the way that they make decisions, the way they use the tools of the information age to help them design products, communicate with customers and do all the things that are crucial in a business of any kind.*
- *If you are as lucky as I am, it is worthwhile giving money back to worthy causes. There is a certain rationale that it is better for society [if you] do this rather than giving all your money to your kids or spending it all.*