1971

Kenbak-1
- First commercially assembled personal computer.
- Small and large integrated circuits
- Memory capacity of 256 bytes
- Switches for input/ lights for output
- Limited input/output capabilities

1972

1973

MCM-70
- Intel 8008 processor
- 2 kB RAM, 14kB ROM
- Cassette drive

1974

Altair 8800
- 2 MHz Intel 8080 microprocessor
- Memory 256 bytes expandable to 64kB
- Open 100 line bus structure
- Space for 18 cards

1975

BASIC
- Originally designed for the Altair computer.
- Required 6k of memory
- Other versions were created at 4k, 8k, and 12k
- The software was licensed to MITS and Microsoft received royalties on the sale of each computer with the Operating System installed.
- Many versions of BASIC were written since it worked as a na interpreter and therefore had to change depending on the hardware and the original language. Other interpreters were written after BASIC for the programming languages COBOL, FORTRAN, PASCAL. It was originally written to work with the CP/M system but versions were

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3. [Chronology of Personal Computers](http://www.islandnet.com/~kpolsson/comphist/index.htm); (page accessed in November and December of 2007)
written to work with other systems as well. Each company would contract with Microsoft, and license the right to use the system on their machine)\(^6\)

1976
Altair 680b
Motorola 6800 processor\(^7\)
Memory 256 bytes expandable to 64kB
open 100line bus structure
space for 18 cards

IBM 5100
Originally Released in Japan
16 kB RAM expandable to 64 kB
BASIC
tape storage drive holding 204 kB per tape
keyboard
built-in 5-inch screen\(^8\)

1977
TRS-80
Zilog Z80 microprocessor
4kB RAM 4kB ROM
tape cassette
Stopped in 1981 due its failure to meet new FCC radio frequency interface regulations\(^9\)

VDP-80
Intel 8085
3 MHz RAM
48 or 64 KBROM
CP/M 1.4 to 2.2
Two PERSCI 8" FDD\(^{10}\)

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\(^7\) Chronology of Personal Computers [http://www.islandnet.com/~kpolsson/comphist/index.htm](http://www.islandnet.com/~kpolsson/comphist/index.htm); (page accessed in November and December of 2007)


1978
Atari 400
MOS 6502 microprocessor at 1.8 MHz
8kB of RAM (expandable to 16)
Display: 16 lines of 32 characters
high resolution 320 by 192 Pixels

Atari 800
MOS 6502 microprocessor at 1.8 MHz
8kB of RAM (expandable to 16)
Improved keyboard over the 400

1979
TRS-80 Model II
4 MHz Zilog Z80 A
32 / 64 KB RAM depending on models
TRS-DOS

TI-99/4
TI9940 16bit microprocessor

1980
XENIX OS
advanced version of UNIX
Uses Intel8086, Zilog Z8000, Motorola M68000, or DECPDP-11
Not available to individual consumers, it is only licensed
More stable than GUI since the code is simpler

DEC Data system 408
separate dual density disk drive unit

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British
6502 CPU1 mHz
6847 Video Display Generator, PIA 8255 (keyboard & tape)
2 KB RAM(up to 12 KB, or 32 KB using external RAM expansion kit.)
6 K VRAM
8 KB ROM (up to 16kB)
Atom BASIC and COS

TRS-80 Model III
Zilog Z80 processor
4kB RAM

1981
MS-DOS
Requires 136K bytes of storage
Command line driven
can support up to 320kB disk size
can not support hierarchical directory structure
can not support hard drives
can not support double sided floppy disks or High density floppy disks
Originally shipped with the IBM personal Computer

XEROX 8010 Star Information System
  bitmapped screen
  WYSIWYG word processor
  SmallTalk language
  Ethernet
  mouse

XEROX 820
  Z80 CPU
  CP/M and BASIC

A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/1
The History and Future of Microsoft Operating Systems
http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
IBM PC 5150
- 4.77MHz Intel 8088 microprocessor CPU
- 16kB RAM (expandable to 256kB)
- 40kB ROM
- one 5.25 inches floppy drive (160kB)
- MS-DOS operating system
- Offered options of PC-DOS, Microsoft BASIC, VisiCalc, UCSD Pascal, CP/M-86, and Easywirter 1.0

1982

MS-DOS 1.1
- Additions to previous versions:
- Requires two disk drives
- Enabled writing on both sides of a disk (doubles capacity from 160K to 320K bytes)

MS-DOS 1.25
- Same as 1.1 but made for IBM compatible computers

TRS-80 Model 16
- Zilog Z80 A + Motorola MC 68000 CPU 4 MHz (Z80) + 6 MHz (68000)
- 128 KB (up to 512 KB) RAM
- New DOS / Xenix
- Memory cards up to 7 MB

Compaq Portable PC
- compatible with the IBM PC
- 4.77 MHz Intel 8088 processor
- 128 kB RAM
- 320 kB 5.25-inch disk drive
- 9-inch monochrome monitor

__References__

22 A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/1
23 A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/1
Commodore 64
6510 processor
64 kB RAM, 20 kB ROM
Microsoft BASIC
custom SID sound chip
8 sprites
16-color graphics
40-column screen
First personal computer with an integrated sound synthesizer chip

1983
MS-DOS 2.0
Additions to previous versions:
Support for IBM 10MB hard drives
360kB double density 5.25inches floppy disk
Hierarchical directories
UNIX features
limited multitasking for printing

IBM PC XT
Intel 8088 processor
10 MB hard drive
128 kB RAM, 40 kB ROM
double-sided 360 kB floppy drive
eight expansion slots
serial port

IBM 5160 Model 588
Intel8088 CPU
768 kB RAM 40 kB ROM
360 KN disk drive
10 MB hard drive
double-sided 360 kB floppy drive
eight expansion slots
serial port
add-in card containing an Intel 8087 math coprocessor
two Motorola 68000 chips to execute or emulate System/370 instructions

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27 The History and Future of Microsoft Operating Systems http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
1984

MS-DOS 2.1
Extends foreign and character support

MS-DOS 2.11
Same as 2.0 but for International use:
supports commas instead of decimal points and varied date format

MS-DOS 3.0
Added features:
High density 1.2MB 5.25 inches High Density Floppy Disk
32MB hard drive
volume names
RAM disk
ATTRIB command

MS-DOS 3.1
Added features:
networking capabilities for Microsoft MS-NET and IBM PC Network

IBM PCjr
Intel 8088 CPU
64 kB RAM (expandable to 128kB)
detached keyboard
two cartridge slots
joystick
light pen
serial port
5.25-inch floppy drive
PC-DOS 2.1 operating system available as an option

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31 The History and Future of Microsoft Operating Systems http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
32 A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/1
33 The History and Future of Microsoft Operating Systems
IBM PC/AT
- 6 MHz 80286 processor
- PC-DOS 3.0
- 5.25-inch 1.2 MB floppy drive
- 256 or 512 kB RAM
- optional 20 MB hard drive
- monochrome or color monitor
  *XENIX* operating system from Microsoft is also available  

1985

Windows 1.01
- requires 192kB RAM
- acts as the GUI
- taskbar
- tiled windows
- drop down menus
- Is really a shell enhancement that runs on top of MS-DOS
- Can’t detect hardware so the user has to specify the I/O address of all the additional hardware the computer may have  

Commodore 128 PC
- Three computers in one:
  - Z80 processor
  - 128 kB RAM
  - 8502 processor
  - complete Commodore 64
  - a CP/M mode
  - new 128 kB mode
  - ROM cartridge port  

Amiga 1000
- Motorola 68000 CPU
- 256 kB RAM
- 880 kB 3.5-inch disk drive
- multitasking, windowing operating system
- color graphics with a 4096-color palette
- stereo sound  

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1986
MS-DOS 3.2
Support for 720kB 3.5 inch floppy disk

MS-DOS 3.25
support for 1.44MB 3.5 inch High density Floppy Disk
Allows for hard drive partitions

MS-DOS 4.0
Requires 1.1 MB of storage
Added features:
   Can be used with a mouse due to new DOS shell or graphical user interface
   support for hard disk partitions over 32 megabytes
   Hard Drive limit of 2GB
   extended memory above 1024kB of RAM
   Extended memory allowed programmers to write larger and more complex code.

IBM RT PC
   One of the first commercially-available 32-bit RISC-based computers
   1 MB RAM
   40 MB hard drive
   1.2 MB floppy

1987
MS-DOS 3.3
Added features:
   Improved foreign character support
   Accommodates multiple partitions
   Supports a 32MB hard disk

41 The History and Future of Microsoft Operating Systems
   http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
42 The History and Future of Microsoft Operating Systems
   http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
44 The History and Future of Microsoft Operating Systems
   http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
Windows 2.0
   Added features:
   Overlapping resizable windows
   Ability to drag and drop icons to new positions on desktop
   Taskbar removed
   Integrated utilities: clock, calculator, and paint

Amiga 500
   68000 processor
   512 kB RAM
   floppy disk drive
   custom chips for animation, video, and audio

IBM PS/2
   8 MHz 8086 processor
   640 kB RAM
   720 kB 3.5-inch floppy drive
   20 MB hard drive
   three expansion slots
   PC-DOS 3.3

1988
Windows/286 2.1
   Added features:
   Able to run multiple DOS applications at the same time

Windows/386 2.1
   Added features:
   takes advantage of Intel 80386 CPU
   Is able to run multiple DOS applications at the same time

IBM PS/2 Model 30 286
   10 MHz 286
   512 kB RAM

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47 The History and Future of Microsoft Operating Systems
   http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
48 Chronology of Personal Computers http://www.islandnet.com/~kpolsson/comphist/index.htm ; (page
   accessed in November and December of 2007)
49 Chronology of Personal Computers http://www.islandnet.com/~kpolsson/comphist/index.htm ; (page
   accessed in November and December 2007)
50 The History and Future of Microsoft Operating Systems
   http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
51 The History and Future of Microsoft Operating Systems
   http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
20 MB hard drive
VGA
uses the AT-bus\(^52\)

**1989**

IBM PS/2 Model P70 386
- 20 MHz 80386
- 60 MB hard drive
- MCA slots\(^53\)

IBM PS/2 Model 55 SX
- 16 MHz 80386SX processor
- MCA slots
- 30 MB hard drive
- 2 MB DRAM
- 1.44 MB 3.5-inch floppy drive
- VGA
- 13-inch color monitor\(^54\)

**1990**

Windows 3.0
- Improved GUI graphics
- VGA support
- Program Manager
- File Manager
- Can run in three modes: 8086-real mode, 286 standard mode, and 386 enhanced mode
- 8086 and 286 have memory limits of 640kB and 16MB
- 386 can utilize a page file which sits on the hard drive and can be used by the OS as a substitute for RAM\(^55\)

PS/2 Model 90 XP 486- OJ5,OJ9,OKD
- 25 MHz 80486 processor
- 17-ms 80 MB hard drive
- 4 MB RAM
- 8 kB caching controller
- 1.44 MB floppy drive

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\(^{52}\) Chronology of Personal Computers http://www.islandnet.com/~kpolsson/comphist/index.htm ; (page accessed in November and December of 2007)

\(^{53}\) Chronology of Personal Computers http://www.islandnet.com/~kpolsson/comphist/index.htm ; (page accessed in November and December of 2007)

\(^{54}\) Chronology of Personal Computers http://www.islandnet.com/~kpolsson/comphist/index.htm ; (page accessed in November and December of 2007)

\(^{55}\) The History and Future of Microsoft Operating Systems http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
one parallel port
two serial ports
mouse port
XGA video graphics on system board
four 32-bit Micro Channel slots
Processor Complex board
two memory boards
three 3.5-inch drive bays
one 5.25-inch drive bay

PS/2 Model 95 XP 486- OJ9, OJD, OKD
25 MHz 80486 processor
16-ms 160 MB SCSI hard drive
4 MB RAM
8 kB caching controller
1.44 MB floppy drive
one parallel port
two serial ports
eight SIMM sockets
XGA Display Adapter/A
eight 32-bit Micro Channel slots
Processor Complex board
two memory boards
two 3.5-inch drive bays
five 5.25-inch drive bay

PS/2 Model 75
33 MHz 486
8 MB RAM
160 MB SCSI hard drive
1.44 MB floppy drive
10-inch gas-plasma VGA screen

Amiga 3000
2 MB RAM
40 or 100 MB hard drive
Motorola 16 or 25 MHz 68030
68881 or 68882 math coprocessor

Zorro III bus
AmigaDOS v2.0
AmigaVision authoring system
new Enhanced Chip Set

1991
MS-DOS 5.0
 Added features:
  Kernel that would load into HMA
  Limited switching capabilities
  New Shell
  Improved multitasking
  On-line help
  Full screen editor
  80386 memory management
  MS-DOS editor
  QBASIC

1992
Microsoft Windows for Working Groups 3.1
  16bit 64kB
  True Type Fonts
  ability to “Drag and Drop” in the File Manager
  Object Linking and Embedding
  multimedia support: sound, graphics, animation, video, CD-ROM
  Provides full networking support

PS/2 Ultimedia Model M57SLC
  20 MHz IBM 386SLC processor
  4 MB RAM
  160 MB SCSI hard drive
  VGA
  six MCA slots
  XGA video adapter
  M-Audio audio board
  3.5-inch 2.88 MB floppy drive
  600 MB SCSI CD-ROM drive

61 The History and Future of Microsoft Operating Systems
   http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
62 The History and Future of Microsoft Operating Systems
   (page accessed in November and December 2007)
Thinkpad series

300:
- 25 MHz 386SL processor

700:
- monochrome 9.5-inch display
- 25 MHz 486SLC
- 80/120 hard drive
- 4 MB RAM

700C:
- 4 MB RAM
- removable 120 MB hard drive
- Microchannel bus
- 10.3-in TFT active-matrix VGA
- DOS 5.0
- TrackPoint II integrated pointing device

1993

Windows NT 3.1

- 32bit
- Maximum of 4GB
- First version of Windows NT released
- First true operating system (not just a shell on top of MS-DOS)
- Has two parts the workstation and the server
  - Workstation is the desktop PC
  - Server Primarily controls network logons and security
- User interface is the same as Windows 3.1
  - except: existence of Personal and Common Program Manager Groups
- New Control Panel Icons
- Administrative tools program group
- Able to accommodate longer file names

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64 Chronology of Personal Computers http://www.islandnet.com/~kpolsson/comphist/index.htm ; (page accessed in November and December of 2007)
65 The History and Future of Microsoft Operating Systems
   http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
MS-DOS 6.0
  Requires 8.4MB of storage
  Added features:
  Improved memory management
  Multi-configuration support on startup
  Improved SmartDrive
  File transfer utility: Interlink
  DoubleSpace disk compression
  Anti-virus and undelete utilities (licensed from Central Point Software Inc.)
  Backup and defrag utilities (licensed from Symantec Corporation)66

1994
MS-DOS 6.21
  Deletes DoubleSpace67
  Added:
    Scandisk
    Double Guard68

MS-DOS 6.22
  Adds DriveSpace (disk compression system)69

Windows NT Workstation 3.5, Server 3.5
  New and updated networking components:
  Account lockout feature
  network administration can remotely boot computer
  OLE support
  Open GL support70

IBM ThinkPad 755
  First Portable computer with a CD-ROM drive71

68 The History and Future of Microsoft Operating Systems
     http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)
70 The History and Future of Microsoft Operating Systems
     http://www.thezac.com/MicrosoftHistory/index.htm ; (page accessed in November and December 2007)