

## 1971

### Kenbak-1

First commercially assembled personal computer.  
Small and large integrated circuits  
Memory capacity of 256 bytes  
switches for input/ lights for output<sup>1</sup>  
limited input/output capabilities<sup>2</sup>

## 1972

## 1973

### MCM-70

Intel 8008 processor  
2 kB RAM, 14kB ROM  
cassette drive<sup>3</sup>

## 1974

### Altair 8800

2 MHz Intel 8080 microprocessor  
Memory 256 bytes expandable to 64kB  
open 100line bus structure<sup>4</sup>  
Space for 18 cards<sup>5</sup>

## 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 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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<sup>1</sup> <http://www.computerhistory.org/timeline/> ; (page accessed in November and December of 2007)

<sup>2</sup> *A History of the Personal Computer*, Roy A. Allan, Allan Publishing London, 2001. pg. AA/7

<sup>3</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>4</sup> <http://www.computerhistory.org/timeline/> ; (page accessed in November and December of 2007)

<sup>5</sup> *A History of the Personal Computer*, Roy A. Allan, Allan Publishing London, 2001. pg. AA/7

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)<sup>6</sup>

## 1976

### Altair 680b

- Motorola 6800 processor<sup>7</sup>
- 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<sup>8</sup>

## 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<sup>9</sup>

### VDP-80

- Intel 8085
- 3 MHz RAM
- 48 or 64 KBROM
- CP/M 1.4 to 2.2
- Two PERSCI 8" FDD<sup>10</sup>

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<sup>6</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pp. 6/5-6/12.

<sup>7</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>8</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>9</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>10</sup> <http://www.old-computers.com/museum/default.asp> (accessed in November and December of 2007)

## 1978

### Atari 400

MOS 6502 microprocessor at 1.8 MHz  
8kB of RAM (expandable to 16)  
Display: 16lines of 32 characters  
high resolution 320 by 192 Pixels<sup>11</sup>

### Atari 800

MOS 6502 microprocessor at 1.8 MHz  
8kB of RAM (expandable to 16)  
Improved keyboard over the 400<sup>12</sup>

## 1979

### TRS-80 Model II

4 MHz Zilog Z80 A  
32 / 64 KB RAM depending on models  
TRS-DOS<sup>13</sup>

### TI-99/4

TI9940 16bit microprocessor<sup>14</sup>

## 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<sup>15</sup>

### DEC Data system 408

separate dual density disk drive unit<sup>16</sup>

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<sup>11</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AA/4

<sup>12</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. 4/18

<sup>13</sup> <http://www.old-computers.com/museum/default.asp> (accessed between November and December of 2007)

<sup>14</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>15</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>16</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

## Atom

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<sup>17</sup>

## TRS-80 Model III

Zilog Z80 processor  
4kB RAM<sup>18</sup>

## 1981

### MS-DOS

Requires 136K bytes of storage<sup>19</sup>  
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<sup>20</sup>

### XEROX 8010 Star Information System

bitmapped screen  
WYSIWYG word processor  
SmallTalk language  
Ethernet  
mouse

### XEROX 820

Z80 CPU  
CP/M and BASIC

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<sup>17</sup> <http://www.old-computers.com/museum/default.asp> (accessed November and December 2007)

<sup>18</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>19</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/1

<sup>20</sup> 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 floppydrive (160kB)  
MS-DOS operating system  
Offered options of PC-DOS, Microsoft BASIC, VisiCalc, UCSD Pascal,  
CP/M-86, and Easywritter1.0<sup>21</sup>

## 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)<sup>22</sup>

### MS-DOS 1.25

Same as 1.1 but made for IBM compatible computers<sup>23</sup>

### 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<sup>24</sup>

### 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<sup>25</sup>

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<sup>21</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>22</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/1

<sup>23</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/1

<sup>24</sup> <http://www.old-computers.com/museum/default.asp> (accessed November and December 2007)

<sup>25</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

## 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<sup>26</sup>

## 1983

### MS-DOS 2.0

Additions to previous versions:

- Support for IBM 10MB hard drives
- 360kB double density 5.25inches floppy disk<sup>27</sup>
- Hierarchical directories
- UNIX features
- limited multitasking for printing<sup>28</sup>

### 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<sup>29</sup>

### 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<sup>30</sup>

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<sup>26</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

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

<sup>28</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/1

<sup>29</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

## 1984

### MS-DOS 2.1

Extends foreign and character support<sup>31</sup>

### MS-DOS 2.11

Same as 2.0 but for International use:  
supports commas instead of decimal points and varied date format<sup>32</sup>

### MS-DOS 3.0

Added features:

High density 1.2MB 5.25 inches High Density Floppy Disk  
32MB hard drive<sup>33</sup>  
volume names  
RAM disk  
ATTRIB command<sup>34</sup>

### MS-DOS 3.1

Added features:  
networking capabilities for Microsoft MS-NET and IBM PC Network<sup>35</sup>

### 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<sup>36</sup>

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<sup>30 30</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>31</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>32</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/1

<sup>33</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>34</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/2

<sup>35</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/2

<sup>36</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

## 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<sup>37</sup>

## 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<sup>38</sup>

### 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<sup>39</sup>

### 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<sup>40</sup>

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<sup>37</sup>) Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>38</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>39</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)



## 1986

### MS-DOS 3.2

Support for 720kB 3.5 inch floppy disk<sup>41</sup>

### MS-DOS 3.25

support for 1.44MB 3.5 inch High density Floppy Disk  
Allows for hard drive partitions<sup>42</sup>

### 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<sup>43</sup>

Hard Drive limit of 2GB

extended memory above 1024kB of RAM

Extended memory allowed programmers to write larger and more complex code.<sup>44</sup>

### 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<sup>45</sup>

## 1987

### MS-DOS 3.3

Added features:

Improved foreign character support

Accommodates multiple partitions

Supports a 32MB hard disk<sup>46</sup>

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<sup>40</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>41</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>42</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>43</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/2

<sup>44</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>45</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 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<sup>47</sup>

## Amiga 500

- 68000 processor
- 512 kB RAM
- floppy disk drive
- custom chips for animation, video, and audio<sup>48</sup>

## 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<sup>49</sup>

# 1988

## Windows/286 2.1

### Added features:

- Able to run multiple DOS applications at the same time<sup>50</sup>

## Windows/386 2.1

### Added features:

- takes advantage of Intel 80386 CPU
- Is able to run multiple DOS applications at the same time<sup>51</sup>

## IBM PS/2 Model 30 286

- 10 MHz 286
- 512 kB RAM

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<sup>46</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/2

<sup>47</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>48</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>49</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>50</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>51</sup> 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<sup>52</sup>

## 1989

IBM PS/2 Model P70 386

20 MHz 80386  
60 MB hard drive  
MCA slots<sup>53</sup>

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<sup>54</sup>

## 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<sup>55</sup>

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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<sup>52</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>53</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>54</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>55</sup> 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<sup>56</sup>

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<sup>57</sup>

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<sup>58</sup>

Amiga 3000

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

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<sup>56</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>57</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>58</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

Zorro III bus  
AmigaDOS v2.0  
AmigaVision authoring system  
new Enhanced Chip Set<sup>59</sup>

## 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<sup>60</sup>  
MS-DOS editor  
QBASIC<sup>61</sup>

## 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<sup>62</sup>

### 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<sup>63</sup>

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<sup>59</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>60</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/2

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

<sup>62</sup> The History and Future of Microsoft Operating Systems  
<http://www.thezac.com/MicrosoftHistory/index.htm> ; (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<sup>64</sup>

## 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<sup>65</sup>

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<sup>63</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>64</sup> Chronology of Personal Computers <http://www.islandnet.com/~kpolsson/comphist/index.htm> ; (page accessed in November and December of 2007)

<sup>65</sup> 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)<sup>66</sup>

## 1994

### MS-DOS 6.21

Deletes DoubleSpace<sup>67</sup>

Added:

Scandisk

Double Guard<sup>68</sup>

### MS-DOS 6.22

Adds DriveSpace (disk compression system)<sup>69</sup>

### 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 support<sup>70</sup>

### IBM ThinkPad 755

First Portable computer with a CD-ROM drive<sup>71</sup>

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<sup>66</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/3

<sup>67</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/3

<sup>68</sup> The History and Future of Microsoft Operating Systems

<http://www.thezac.com/MicrosoftHistory/index.htm> ; (page accessed in November and December 2007)

<sup>69</sup> A History of the Personal Computer, Roy A. Allan, Allan Publishing London, 2001. pg. AB/3

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