

## History of MicroComputers

# Chronology of Events

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*The following is an ongoing history of microcomputers. It can always be considered a work-in-progress. If you would like to volunteer information, please e-mail us with information and sources for additions and revisions.*

## 1948

### JAN

- John Bardeen, Walter Brattain, and William Shockley of Bell Labs file for a patent on the first transistor. Transistors are small, reliable, produce little heat, and took the place of vacuum tubes in computers. [9]

## 1949

## 1950

## 1951

### JAN

- Coronado Corporation changes its name to Texas Instruments Incorporated. [110]

## 1952

## 1953

## 1954

### MAY

- Texas Instruments announces the start of commercial production on silicon transistors. [110]

## 1955

**1956**

**1957**

**AUG**

- Digital Equipment Corporation is founded. [112]

**1958**

**MON**

- Texas Instruments demonstrates the first integrated circuit. [110] (1959 [9])

**1959**

**JUL**

- Fairchild Semiconductor files a patent application for the planar process for manufacturing transistors. The process made commercial production of transistors possible and led to Fairchild's introduction, two years later, of the first integrated circuit.

**1960**

**1961**

**1962**

**JUN**

- Teletype ships its Model 33 keyboard and punched-tape terminal, used for input and output on many early microcomputers. - Ivan Sutherland creates a graphics system called Sketchpad. [30]

**1963**

**1964**

**JUL**

- John Kemeny and Thomas Kurtz develop the BASIC programming language. [9] [132]

- Texas Instruments receives a patent on the integrated circuit. [110]

1965

1966

1967

JAN

- The first Consumer Electronics Show is held in New York City.

1968

JUL

- Intel Corporation is founded by Gordon E. Moore, Dr. Robert Noyce, Andrew Grove, and others to pursue very large scale transistor integration.

1969

JAN

- Intel announces a 1 KB RAM chip, which was significantly larger than any produced before. [9]
- Advanced Micro Devices Incorporated is founded. [141]

1970

AUG

- Dennis M. Ritchie, Ken Thompson, and Brian Kernighan while working at AT&T Bell Laboratories developed the C programming language from 1966 to 1970. C enabled abstract programming for all computer file operations, enabling development of processor independent Operating Systems and application programs. AT&T commercially introduced UNIX in 1970, and it quickly became popular at corporations and universities, especially University of California, Berkeley and Santa Cruz which worked with AT&T to greatly advance development of C and UNIX. [9]

1971

NOV

- Intel introduces its 4004 chip - the first microprocessor. Initial price is US\$200. Speed was 60,000 operations per second. [9] (1970 [106])
- Niklaus Wirth invents the Pascal programming language. [132]

## 1972

### SEP

- Texas Instruments unveils its first line of electronic calculators, the TI-2500, TI-3000, and TI-3500. [110]

### NOV

- Intel releases its 8008 chip, the first 8-bit microprocessor. Speed of operation is 300,000 instructions per second. It accesses 16KB of memory. [9] [106] - Atari is founded by Nolan Bushnell, and ships Pong, the first commercial video game. [9] [30]

## 1973

### MAY

- Design completed on the Micral, the first non-kit computer based on a microprocessor (the Intel 8008). Built in France, the Micral was advertised in the U.S., but not successful there.

### JUN

- The term "microcomputer" first appears in print, in reference to the Micral. - Scelbi Computer Consulting offers the 8008-based Scelbi-8H computer kit, for US\$565 with 1KB RAM. [9]

## 1974

### APR

- Intel releases its Intel 8080 chip, an early industry-standard 8-bit microprocessor. Its 75 instructions achieve an average throughput of 3 MIPS, accessing a huge 64KB of memory. [9] [41] [108]

### JUN

- Texas Instruments receives a patent for miniature electronic calculators. [110]

### JUL

- Radio Electronics magazine runs a feature article on building your own microcomputer - the Mark-8.

## AUG

- Motorola introduces its 6800 chip, an early 8-bit microprocessor used in microcomputers and industrial and automotive control devices.

## SEP

- Creative Computing, the first magazine for home computerists, is founded. [9] - Texas Instruments introduces the TMS1000 one-chip microcomputer. [110]

- Gary Kildall develops the CP/M Operating System (OS). [9]

## NOV

- The RCA 1802, running at a blazing 6.4 MHz appears, considered one of the first RISC chips. [32]

# 1975

## JAN

- Home computer excitement begins with an article in Popular Electronic on the MITS Altair 8800, the first machine to be called a "Personal Computer." It is based on the Intel 8080 chip. [9] [106] [123]

## FEB

- William H. Gates III and Paul Allen license their newly adapted BASIC to MITS, their first customer. This is the second computer language program rewritten for a personal computer, the first having been PL/1 written by Dr. Gary A. Kildall in order to create the CP/M OS and application programs for it.

## APR

- Bill Gates and Paul Allen found Traf-O-Data, which they later rename to Microsoft Corporation. [41]

## JUN

- MOS Technology announces the MC6501 at US\$20 and the MC6502 at US\$25. At this point, the Intel 8080 costs about US\$150. [9]

## JUL

- MITS announces availability of BASIC 2.0 for its Altair 8800, in 4K and 8K editions. [9] [123] - MOS Technology announces the KIM-1 microcomputer (6502 CPU, 1KB RAM, 2KB ROM monitor, keypad, LED readout, cassette and serial interfaces) for US\$245. [9]

## SEP

- IBM announces the IBM 5100, a briefcase-size computer with BASIC, 16KB RAM, tape storage, for US\$9000. [9] - The first issue of Byte magazine is published. [9]

## DEC

- Paul Terrell opens the Byte Shop, in Mountain View, California, one of the first computer stores in the US. [34]

# 1975

## MAR

- Steve Wozniak and Steve Jobs finish work on a computer circuit board, that they call the Apple I. [46] - First Annual World Altair Computer Convention is held in Albuquerque, New Mexico. [123]

## APR

- The Apple Computer Company is formed, on April Fool's Day. [9] [46] [140]
- The National Semiconductor SC/MP 8-bit microprocessor appears with advanced multiprocessing. [32]

## MAY

- Digital Research copyrights CP/M, its industry-standard microcomputer Operating System (OS), created by company founder Dr. Gary A. Kildall. [41]

## JUN

- The Western Digital MCP-1600 3-chip CPU appears. [32] - The Texas Instruments TMS 9900, one of the first true 16-bit microprocessors, appears. [32]

## JUL

- The Apple I board is sold in kit form, are delivered to stores by Steve Jobs and Steve Wozniak. Price: US\$666.66. [46] - Zilog releases the Z80, an 8-bit microprocessor whose instruction set is a superset of the Intel 8080. [32]

## AUG

- iCOM advertises their "Frugal Floppy" in BYTE magazine, an 8" floppy drive, selling for US\$1200. [9]

## NOV

- The tradename "Microsoft" is registered. [123]

## DEC

- Michael Shrayner writes Electric Pencil, the first popular word-processing program for microcomputers. [9]
- Shugart, established by Alan Shugart, announces its 5.25" "minifloppy" disk drive for US\$390. [9]
- Steve Wozniak proposes that Hewlett-Packard create a personal computer. Steve Jobs proposes the same to Atari. Both are rejected. [9]
- Atari is sold to Warner Communications for US\$26 million. [30]
- Wang word processing is introduced, and became popular in corporate America. [33]

## 1977

### JAN

- Apple Computer is incorporated. [46]

### FEB

- Computer Shack opens its first store. They later changed their name to ComputerLand. [9]
- Bill Gates and Paul Allen sign a partnership agreement to officially create the Microsoft company. [123]

### APR

- Commodore Business Machines Inc. unveils its PET computer (6502, 4KB RAM, 14KB ROM, keyboard, display, tape drive) for US\$600. [9] (March [41])
- The Apple II debuts, featuring 6502 CPU, 4KB RAM, 16KB ROM, keyboard, 8-slot motherboard, game paddles, graphics/text interface to color display, for US\$1300. It is the first personal computer with color graphics. [9] [41] [46] [120] [140]

### JUN

- Camp Retupmoc, the first week-long computer camp, is held in Terre Haute, Indiana. [9]
- Apple II computers are shipped to Europe by independent distributor Eurapple. [46]

### JUL

- Microsoft ships its second language product, "Microsoft FORTRAN". [123]

### AUG

- Tandy/Radio Shack introduces the TRS-80, later dubbed the TRS-80 Model I (Z80 CPU, 4KB RAM, 4KB ROM, keyboard, display, cassette) for US\$600. [9] (June [41])

# 1978

## FEB

- The first major microcomputer bulletin board, run by Ward Christensen and Randy Seuss, goes online. [9]

## JUN

- Intel releases its 8086 16-bit microprocessor. [108] (1979 [120])
- Apple's Disk II is introduced. [46]

## DEC

- Epson announces the MX-80 dot matrix printer, which established a new standard in high performance with low price for printers. [9]
- Atari announces its models 400 and 800. The 800 was not available until late 1979. [9]
- Microsoft's sales for the year reach US\$1 million. [123]
- Tandy opens its first dedicated computer center. [34]
- Intel unveils its 8085 CPU chip. [120]

# 1979

## JAN

- Microsoft moves from New Mexico to Bellevue, Washington. [123]

## FEB

- Intel's 8088 microprocessor, an 8-bit internal and 16-bit external chip used in the IBM PC, debuts. [108] (1981 [120])

## APR

- MicroPro's WordStar word processor, the early industry- standard, appears.
- Microsoft 8080 BASIC wins the ICP Million Dollar Award, the first microprocessor product to do so. [123]

## MAY

- VisiCalc, the first commercial spreadsheet program, is released by Software Arts, Inc. for the Apple II. [9] [80] (June, for Apple II [41] (OCT [46] [140]) (NOV [120]))



- Tandy/Radio Shack introduces the TRS-80 Model II.
- Seattle Computer Products makes the first prototype of its 8086 microprocessor card for the S-100 bus. [2]

## JUN

- The Source telecommunications service goes online. [9]
- Apple introduces the Apple II+, with 48K memory, for US\$1195. [46]
- Apple's first printer, the Silentype, is introduced. [46]
- Texas Instruments unveils the TI-99/4. [9]
- Microsoft announces Microsoft BASIC for the Intel 8086. [123]
- Wayne Ratliff develops the Vulcan database program (Ashton- Tate later markets it as dBASE II). [9]

## AUG

- CompuServe goes online under the name MicroNet. It became CompuServe about a year later.

## SEP

- Motorola's 68000 16-bit microprocessor, used in the Apple Macintosh, appears. (1980 [120])

## DEC

- The first Comdex show is held in Las Vegas.
- Niklaus Wirth invents the Modula-1 programming language. [132]

# 1980

## FEB

- Sinclair announces the ZX80, predecessor of the ZX81. A slightly altered ZX81 was marketed by Timex as the Timex 1000. [9]

## APR

- Seattle Computer Products decides to make their own disk operating system (DOS), due to delays by Digital Research in releasing a new CP/M-86 16-bit operating system to replace the prior 8-bit version for the Intel PC. [2]
- Microsoft Corp. announces its first hardware product, the Z80 SoftCard for the Apple II.

This card gives the Apple II CP/M capability as a result of Microsoft licensing CP/M from Digital Research. This combination contributed greatly to Apple Computer's success as Apple's computers could then run all of the popular CP/M application programs. [123] (MAR [9])

## MAY

- The Apple III is announced, and delivered a year late. [9]

## JUN

- Shugart begins selling Winchester hard-disk drives. [9]
- Commodore unveils the VIC-20, for US\$300. [9]

## JUL

- Tandy/Radio Shack introduces the TRS-80 Model III and the Color Computer. [9]

## AUG

- QDOS v0.10 (Quick and Dirty Operating System) is shipped by Seattle Computer Products. Even though it had been created in only two man-months as a quick copy of Digital Research CP/M, QDOS worked but had many serious bugs and was an imperfect copy of CP/M. A week later, the EDLIN line editor was created. EDLIN was supposed to last only six months, before being replaced. [2]
- Microsoft announces the Microsoft XENIX OS, a portable UNIX-derived operating system for the Intel 8086, Zilog Z8000, Motorola M68000, and DEC PDP-11 in conjunction with SCO (The Santa Cruz Operation Inc.) with whom Microsoft jointly developed and marketed XENIX under license from AT&T Bell Laboratories. [123]

## SEP

- The "Dirty Dozen" is formed, the 12 engineers assembled to design and build the IBM PC, in Boca Raton, Florida. The PC's code name is Acorn. [41]
- Apple introduces the Apple III. [120]

## NOV

- Microsoft get a deal to develop PC-DOS for IBM's upcoming PC on a non-exclusive basis and Microsoft also develops a version called MS-DOS for license to clone vendors of the Intel-based IBM PC. [41]

## DEC

- The archetypical fantasy adventure game, Zork, is brought from a mainframe at M.I.T. into the world of microcomputers by Infocom, which was founded for the purpose.
- IBM delivers the first PC prototype to Microsoft, so they can begin developing BASIC and

the machine's operating system. [41]

- Apple becomes a publicly held company, selling 4.6 million shares at US\$22 per share. [46]

- Seattle Computer Products renames QDOS to 86-DOS Version 0.3. Microsoft then bought non-exclusive rights to market 86-DOS, which was a clone of Digital Research CP/M in virtually every respect. [2]

- Intel's iAPX 432 32-bit processor is created. Intel intended the 80286 as a step between the 8086 and the 432. [32]

## 1981

### APR

- Adam Osborne, of Osborne Books, introduces the Osborne 1 portable computer (Z80 CPU, 5-inch display, 64KB RAM, keyboard, keypad, two 5.25" disk drives) for US\$1800. [9] (July [41])

### MAY

- Xerox Corp. unveils the Star, following a decade of research at Xerox PARC. Costing over US\$50,000, the computer itself is a failure, but the use of a mouse and icons was a great influence on the microcomputer market. [9]

### JUN

- Microsoft reorganizes into Microsoft Incorporated, with Bill Gates as Presiden and Chairman, and Paul Allen as Executive Vice President. [123]

- Hayes Microcomputer Products Inc. releases the Smartmodem 300, which becomes the industry standard. [9]

### JUL

- Microsoft buys all rights to QDOS from Seattle Computer Products, and the name MS-DOS is adopted for Microsoft's purposes and IBM PC-DOS for shipment with IBM PCs. [2] [31]

- IBM introduces its first desktop computer, the Datamaster. It uses a 16-bit 8086, and is a dedicated data processing machine. [41]

### AUG

- IBM announces the IBM Personal Computer (PC), featuring a 4.77-MHz Intel 8088 CPU, 64KB RAM, 40KB ROM, one 5.25" floppy drive, and MS-DOS 1.0, for US\$3000. The plunge of IBM into the microcomputer market legitimized the industry for the rest of the world. This also established the preeminence of the Intel 8086-family and the Microsoft MS-DOS operating system. [9] [35] [41] [108] [120] [123]

- IBM announces the CGA graphics card for the PC, giving 640x200 resolution with 16 colors.

[117] [120]

- Apple runs a full-page ad in the Wall Street Journal with a headline that reads "Welcome IBM. Seriously.". [46]

## SEP

- Apple introduces its first hard drive, the 5MB ProFile, for US\$3500. [46]

## NOV

- Epson introduces its HX-20, the first laptop computer. It weighs only 3 pounds, but its 20-character by 4-line display reduces its usefulness. [9]
- Ashton-Tate ships Dbase II, the early industry-standard database program. [41]

## DEC

- National Semiconductor announces the 32000 chip, the first commercial 32-bit microprocessor. The 32000 family includes CPUs and peripheral chips. Roughly 900,000 personal computers were shipped worldwide. [1]

# 1982

## FEB

- IBM split its Personal Computer development team into three groups: one to work on the PC XT, one to develop the PCjr, and one to start work on the PC AT. [41]
- Compaq Computer Corporation is founded by Rod Canion, Jum Harris, and Bill Murto, all former senior managers of Texas Instruments. [47] [113]

## APR

- Xedex Corp. builds the Baby Blue card (a Z80 coprocessor card) to increase software availability for the IBM PC. [9]
- Franklin Computer Corp. unveils the Ace 100, the first legal (at the time) Apple II clone. [9]

## MAY

- Future Computing Inc. quote: "CP/M 2.2 is extremely important, and the Z80 chip will live forever because of it." [9]

## JUN

- The first IBM PC clone, the MPC, is advertised by Columbia Data products. [9]
- Commodore announces the C-64 (6510, 64KB RAM, 20KB ROM with Microsoft BASIC, custom sound, color graphics, for US\$600). During 1983, the price dropped to US\$200. [9]

## JUL

- Boston's Computer Museum, devoted to documenting and displaying the evolution of computer technology, is incorporated.
- The Apple Dot Matric printer is introduced for US\$2200. [46]
- Intel announces the 80186 and 80286 chips. [9]

## AUG

- Hercules announces the Hercules Graphics Card (HGC or HGA), with monochrome graphics at 720x348 resolution. [117] [120]

## OCT

- Lotus announces the Lotus 1-2-3 spreadsheet program. [9] (NOV [41]) (JAN [120])

## NOV

- Compaq introduces the Compaq Portable PC: 4.77MHz 8088, 128KB RAM, 9-inch monochrome monitor, one 320KB 5.25" disk drive, price US\$3000. [1] [108] [117] (JAN 1983 [47])

## DEC

- Apple becomes the first personal computer company to reach US\$1 billion in annual sales. [46]
- An insurance company contracts with programmer Wilton Jones to create a PC word processing program that mimicks Wang word processing. That program became MultiMate. [33]
- Businessland opens. [34]
- Roughly 1.4 million personal computers shipped worldwide, more than 1 million in the US alone. [1]

# 1983

## JAN

- Apple unveils the Lisa computer. It is slow, but innovative. Its initial price of US\$10,000 soon drops to US\$4500, but by then, the Macintosh is in the news. The Lisa is based on the Xerox Star System, and cost Apple US\$50 million to develop. It is the first personal computer (the Xerox Star was a business computer) with a graphical user interface (GUI). [9] [41] [46] [75] [80] [140] (1982 JAN [120])
- Apple introduces the Apple IIe for US\$1400. [46] [75] [120]

- A full-page ad by Media Distributing offers a 44MB hard drive for US\$4400; 22MB for US\$3600; 11MB for US\$2700.
- Commodore's sales of VIC-20s reaches 1,000,000. [9]
- Time magazine selects the computer as its "Man" of the Year. [9] (1982 DEC [46])
- Lotus 1-2-3 ships, sells 60,000 copies in the first year. [41]

## MAR

- Radio Shack announces its Model 100 laptop computer. Its light weight and built-in software and modem make it popular with journalists and businessmen. [9]
- The IBM PC XT is announced. It adds a 10 MB hard drive, three more expansion slots, and a serial interface. With 128KB RAM and a 360KB floppy drive, it costs US\$5000. [35] [41] [75] [116] [120] (FEB [9])
- MS-DOS 2.0 for PCs is announced. [117] [130]
- The Compaq Portable, the first PC clone, ships. [41]
- The Eagle 1600, the first 8086-based PC, ships. [108]

## APR

- Tandy/Radio Shack's TRS-80 Model IV appears.

## MAY

- Microsoft introduces its first mouse, "The Microsoft Mouse", including card and software, for US\$200. [3] [123]

## JUN

- Microsoft quote: "We have a long-term relationship with IBM and have solid plans involving PC-DOS." [2]
- The 1,000,000th Apple II is made. [46] [75]
- Intel quote: "Accessing memory using a segmented architecture holds many advantages over the earlier linear-addressing method." [2]
- Coleco announces the Adam, a Z80-based computer with daisy-wheel printer, 64KB RAM, and tape-cartridge device, for US\$600. Coleco delivers late, raises the price, and discontinues the product by the end of 1984. [9]
- Shipments of Apple computers reaches 1,000,000. [9]

## AUG

- A US federal appeals court judge rules that Franklin Computers did violate Apple copyrights on computer programs and the Apple operating system in ROM. [80]

## SEP

- Osborne Computer Corp. files for Chapter 11 bankruptcy protection. [9]
- Microsoft introduces Microsoft Word v1.0 for DOS. [123]

## OCT

- IBM announces the IBM PCjr, using Intel's 8088, for US\$700 for the bare configuration. [9] [116] [120] (NOV [35] [41])
- IBM announces the IBM 3270 PC, an 8088-based system, for US\$4290. [116] - IBM announces the IBM PC-XT Model 370, with 8088 CPU, 768K RAM, 360K drive, and 10 MB hard drive for US\$9000. [116]
- Compaq introduces the Portable Plus. [108]
- Borland International Inc., founded by Philippe Kahn, advertises Turbo Pascal for CP/M and DOS 8086-based computers. Its quality, speed, and low price soon make it the standard on PCs. [9]

## NOV

- Microsoft formally announces Microsoft Windows, but does not have a working copy. Meanwhile, Digital Research debuts its GEM GUI for the IBM PC at Fall COMDEX 1983, and also debuts its first multiuser and multitasking version of CP/M, Concurrent CP/M (MP/M) for the Intel-based IBM PC. [9] [45] [123] [137]
- Microsoft again shows Windows to IBM, and again IBM is not interested. [45]

## DEC

- Apple announces the Apple III+ for US\$3000. [46] [75]
- Compaq makes its first public stock offering, raising US\$67 million. [113]
- Roughly US\$10 billion worth of personal computers shipped worldwide, with US\$6 billion in the US alone. [80]
- Apple shipped 15,000 Lisa computers, far from initial estimates of 50,000. [80]
- Compaq ships more than 53,000 portable PCs. [113]
- IBM and Microsoft begin co-developing OS/2. [38]
- Microsoft shows IBM a raw version of Windows. IBM is not interested as they are already developing what would be called TopView. [45]

- Bjarne Stroustrup creates the C++ object-oriented architectural extensions to the C programming language at AT&T Bell Laboratories, and it immediately becomes a software programming standard. [132]

## 1984

### JAN

- Jack Tramiel, founder and president of Commodore, leaves the company.
- Compaq reports first year revenues of US\$111.2 million, a U.S. business record. [113]
- Apple runs its "1984" commercial during the SuperBowl, introducing the Macintosh computer. Apple runs the ad only once, but dozens of news and talk shows replay it, making it one of the most memorable ads in TV history. [46]
- Apple introduces the Macintosh, for US\$2500. Sales reach 100,000 within six months. [9] [41] [46] [75] [120] [140]
- Apple introduces its 300-baud modem for US\$300, and 1200-baud modem for US\$500. [75]
- Seiko Instruments U.S.A. Inc. displays the first wristwatch computer, with a 10-character, 4-line LCD. [9]
- Hitachi ad for their 3 " compact floppy disk drive: "It's clear that the 3 " floppy will become the new standard." [4]
- Microsoft ships Microsoft BASIC and Microsoft Multiplan for the Macintosh. [123]

### FEB

- IBM announces the IBM Portable PC, for US\$2900. [35] [41] (MAR [116] [117] [120])

### MAR

- Nadir Engineering announces the April 1st debut of its Shrinter, the first combination printer/shreader.
- IBM ships the IBM PCjr. It uses the 8088 CPU, includes 64KB RAM, a "Freeboard" keyboard, and one 5.25" disk drive, no monitor, for US\$1300. [5] [9] (JAN [35])

### APR

- Development of the Apple III line is discontinued. [46] [75]
- Compaq introduces its PCs to Europe. [113]
- Apple unveils the IIc with an intense publicity extravaganza. Priced at US\$1300, 2,000 dealers place orders for more than 52,000 units. [46] [75] [120] (MAY [9])



## JUN

- Tom Jennings creates the FidoNet BBS network. [6] [9]
- Motorola adds the 68020 32-bit processor to its line. [9] (1986 [120])
- Compaq introduces the Compaq Deskpro. [108] [113] JUL Communications. [9] [30]

## AUG

- Commodore purchases Amiga Corporation. [6] [9]
- IBM announces the PC AT, a 6MHz 80286 computer using PC-DOS 3.0, a 5.25" 1.2MB floppy drive, with 256KB RAM, for US\$4000, which doesn't include hard drive or monitor/card. With a 20MB hard drive, color card and monitor: US\$6700. [6] [9] [35] [41] [75] [108] [116] [120]
- IBM announces its PC Network local area network. [9] [81]
- IBM introduces PC/IX, based on UNIX System III from AT&T, for the PC AT. [81]
- IBM announces TopView, a DOS multitasking program. [35]
- IBM announces the Enhanced Color Display monitor with 640x350 resolution, priced at US\$850. [81] - IBM announces the Enhanced Graphics Adapter (EGA), supporting up to 640x350 resolution in 16 colors. With 64K, the card costs US\$524. For 640x350x16 mode, a US\$200 64KB RAM expander is required. [81] [120]
- IBM announces the Professional Graphics Display monitor, for US\$1300. The 14-inch monitor will display up to 256 colors (from 4096) simultaneously at 640x480 resolution. [81]
- IBM announces the Professional Graphics Controller card, for US\$3000. The card takes up two adjacent slots of a PC, and includes an 8-MHz 8088 chip and 384KB of memory. [81]
- Microsoft announces MS-DOS 3.0 for PCs. [117] [130]
- Apple introduces the Apple LaserWriter printer. [120] (1985 JAN [140])

## SEP

- The Tandy 1000 debuts.
- Apple introduces the Macintosh 512K for US\$3200. [46] [75]
- Digital Research releases its GEM icon/desktop user interface for 8086-based computers. [9]

## OCT

- Microsoft gives a demonstration of the final version of Windows to IBM. For the third time, IBM is not interested. [45]

- The number of hosts on the Internet reaches 1000. [56]

## NOV

- The Tandy 1200 debuts.
- Apple launches the "Test Drive a Macintosh" promotion. About 200,000 take a Macintosh home for a free 24-hour trial. [46]
- The 2,000,000 the Apple II computer is sold. [46] [75]
- Microsoft MS-DOS 3.1 ships. [130]

## DEC

- Several companies introduce 2400 baud modems at COMDEX, priced at US\$800-900. [7]
- Motorola unveils its 68010 CPU chip. [120]
- Satellite Software International introduces WordPerfect, available on several platforms. [16]
- Hewlett-Packard introduces the LaserJet laser printer, featuring 300dpi resolution, for US\$3,600. [16] [117]
- Microsoft licenses Mac OS technology for use in Windows 1.0. [38]
- Intel introduces the 80186, 80188, and 80286 processors. [108] [120]
- Revenues of some microcomputer companies, in millions: IBM US\$4000, Apple US\$1900, Commodore US\$1130, HP US\$510, Tandy US\$400, Compaq US\$329. [9]
- Compaq ships more than 149,000 PCs worldwide. [113]

# 1985

## JAN

- Commodore unveils the C128. [8] - The Atari XE and 520ST debut.
- Compaq reports second year revenues of US\$329 million, an industry record. [113]
- Apple officially renames the Lisa the Macintosh XL. [46] [75]

## FEB

- Apple co-founder Steve Wozniak resigns from Apple, to start a company that will develop home video products. [46] [75]
- TopView is released by IBM, for US\$150. [35] [107] [130]

## APR

- IBM abandons production of the IBM PCjr. [13] [35]
- The Macintosh XL (formerly called Lisa) is dropped from Apple's product line. [46] [120]
- Compaq introduces the Compaq Deskpro 286 and Portable 286. [108]

## JUN

- Apple reports its first quarterly loss. [75]
- Microsoft announces Windows 1.0. [75]

## JUL

- Commodore announces the Amiga 1000, with a multitasking, windowing operating system, for US\$1300. [16]
- Wang announces a series of products to turn PCs into local and remote Wang terminals. [33]
- PageMaker is released for the Apple. [120]
- Quarterdeck's DESQview 1.0 ships. [130]

## AUG

- Microsoft and IBM sign a joint-development agreement to work together on future operating systems and environments. [45] [106] [123]

## SEP

- Apple co-founder Steve Jobs resigns from Apple to start a new computer company. [16] [46] [75]

## OCT

- Intel announces the 32-bit 80386 microprocessor. [41] [75]
- Apple discontinues its 128K Mac. [75]

## NOV

- Microsoft ships Microsoft Windows 1.0, for US\$100. [16] [107] [117] [120] [123] [130] [134] (v1.01 [136])
- The Acorn Advanced RISC Machine (ARM), a 32-bit processor for home use, appears. [32]
- Microsoft purchases all rights to QDOS from Seattle Computer Products for US\$925,000. [41]

- Motorola unveils its 68008 CPU chip. [120]

## 1986

### JAN

- Apple introduces the Macintosh Plus, priced at US\$2600. [46] [75] [120] [140]
- John Sculley becomes chairman of Apple. [75]
- Compaq reports third year revenues of US\$503.9 million, a U.S. business record. [113]
- IBM announces the IBM RT PC, one of the first commercially- available 32-bit RISC-based computers. The base configuration has 1MB RAM, a 1.2MB floppy, and 40 MB hard drive, for US\$11,700. With performance of only 2 MIPS, it was doomed from the beginning. [31] [116]
- Microsoft MS-DOS 3.2 ships. [130]

### FEB

- Compaq introduces the Compaq Portable II. [108]
- Quarterdeck's DESQview 1.1 ships. [130]

### MAR

- The First International Conference on CD ROM was held in Seattle, Washington, hosted by Microsoft. [58]
- IBM begins shipping the IBM RT PC. [117]
- Microsoft first sells shares to the public, for US\$21 per share. The initial public offering raises US\$61 million. [75] [123]
- Microsoft purchases Dymanical Systems, Inc., makers of a TopView clone called Mondrian. [45]

### APR

- IBM announces the IBM PC Convertible, 80C88-based, 256K RAM, and two 720K floppies, for US\$2000. [35] [41] [109] [116] [120]
- IBM discontinues the IBM Portable PC. [117]
- IBM boosts the speed of the IBM PC AT by replacing the CPU with a 8-MHz Intel 80286. [117] [120]
- Compaq joins the Fortune 500 list faster than any company in history. [113]

- Compaq ships its 500,000th personal computer. [113]
- Apple replaces the Macintosh 512K with the Macintosh 512K Enhanced, for US\$2000. [46] [75]

## MAY

- IBM's TopView 1.1 ships. [130]

## JUL

- Apple discontinues the Macintosh XL. [75]

AUG - Intel ships the 80386. [31] [108]

- Little-known company Advanced Logic Research announces the first 386-based PC, the Access 386. [16]

## SEP

- Compaq introduces the first 16-MHz Intel 80386-based PC, the Compaq Deskpro 386. [31] [41] [108] [117]
- Apple introduces the IIs, for US\$1000. [46] [75] [120]
- IBM announces the IBM PC-XT Model 286, with 640KB RAM, 1.2MB floppy drive, 20MB hard drive, serial/parallel ports, and keyboard for US\$4000. [35] [109] [116] [117] [120]
- Quarterdeck's DESQview 1.3 ships. [130]

## DEC

- PageMaker is released for the PC. [120]
- Motorola announces the 68030 microprocessor. [16]
- NEC Home Electronics introduces its NEC JC-1401P3A Multisync monitor. [109] (1986 [117])
- Software Publishing Corporation introduces Harvard Presentation Graphics for the PC. [109]
- Satellite Software International changes its name to WordPerfect Corporation. [109]

# 1987

## JAN

- Lotus files a lawsuit against Paperback Software (maker of VP-Planner) and Mosaic Software (maker of The Twin), claiming infringement of copyrights over the look and feel of 1-2-3. [116]

## FEB

- Commodore announces the Amiga 500 and 2000. [16]

## MAR

- Apple introduces the open architecture Macintosh II. The basic system sells for US\$3900. A system with 1MB RAM, one 800K floppy drive, and a 40MB hard drive is priced at US\$5500. The system features a plug-and-play architecture for expansion cards. [16] [41] [46] [75] [120] [140]
- Apple introduces the expandable Macintosh SE for US\$2900 for a dual floppy system. [16] [46] [75] [120]

## MAR

- US Robotics unveils its 9600 bps Courier HST modem, for US\$995. BBS sysops can purchase the modem for US\$495. [111]

## APR

- IBM introduces the PS/2 line, with IBM's first 386 PC, and 3.5" floppy drives as standard. The PS/2 Model 30 uses a 8-MHz 8086, the Model 50 and 60 use the 10-MHz 80286, and the Model 80 uses a 20-MHz 80386. [35] [75] [116] [120]
- IBM unveils its Video Graphics Array (VGA) in its Model 50 and higher of the PS/2 line. VGA offers 256 simultaneous colors at a resolution of 320x200, and 16 colors at 640x480. The colors displayed have six bits of depth for each primary color, giving a palette of 262,144 different colors to select from. [116] [120]
- IBM unveils its Multicolor Graphics Array (MCGA) on its PS/2 Model 30. The MCGA is limited to 64K of memory, limiting 640x480 resolution to just 2 colors, but still allowing 320x200 in 256 colors. [116]
- IBM introduces its Micro Channel Architecture (MCA) on its Model 50 and higher of the PS/2 line. [116]
- IBM and Microsoft announce Operating System/2 (OS/2). [16] [31] [41] [123] [130]
- IBM announces the 8514/A Display Adapter, a high-resolution graphics card for the MCA PS/2 line. The 8514/A adds 1024x768 in 16 colors to the standard VGA, at a cost of US\$1290. With the addition of a US\$270 Memory Expansion Kit, 640x480 and 1024x768 resolutions can be had in 256 colors. [117]
- IBM announces the 8514 16-inch monitor, for US\$1550. [117]
- IBM announces DOS 3.3 for PCs, for US\$120. [117]
- Microsoft announces Microsoft Windows 2.0. [123] [137]

- IBM ships TopView 1.12. [130]

## MAY

- PC MOS 1.0 ships. [130]
- Quarterdeck ships DESQview 2.0. [130]

## JUL

- Zilog introduces its Z-280 16-bit version of the Z-80 CPU. [32]

## AUG

- IBM introduces the PS/2 Model 25, with an 8-MHz Intel 8086, combined system unit with monitor, no hard drive, and reduced-size keyboard, starting at US\$1350. [118] [120]
- Microsoft ships MS-DOS 3.3. [130]
- Apple introduces HyperCard for the Macintosh. [140]

## AUG

- The Association of Shareware Professionals (ASP) is formed. [10]

## SEP

- Microsoft ships Microsoft Bookshelf, its first CD-ROM application. [123]

## OCT

- Microsoft unveils the Microsoft Excel spreadsheet for Windows. [119] [123]
- Compaq introduces the 20-MHz Compaq Deskpro 386/20. [119]
- Compaq introduces the 20-MHz Compaq Portable 386. [119]
- Microsoft releases Microsoft Windows/386, priced at US\$195. [120] [130]
- Microsoft ships Windows 2.0 [75] [130] (v2.03 [136])
- Ven-Tel unveils its EC18K-34 modem, which it claims can operate at up to 18,000 bps, with data compression achieving a throughput of 19,200 bps on normal voice phone lines. The cost of the modem is US\$1400. [120]
- Ad Lib Incorporated unveils its Ad Lib Personal Computer Music System for US\$245. The card provides FM synthesis with 11 simultaneous voices. [120]

## NOV

- Compaq makes its 1 millionth personal computer. [47] [113]

## DEC

- IBM ships first copies of OS/2 Standard Edition 1.0. [31] [75] [130] [134] [135]
- Commodore launches its first IBM PC-compatible machines, the PC10-1 and PC10-2. Both use a 4.77 MHz Siemens 8088. [115]
- Motorola unveils the 68030 microprocessor. [120]

# 1988

## FEB

- Apple ships A/UX for the Macintosh II, Apple's combination of the Mac interface with Unix. [46] [75]
- Digital Research ships Concurrent DOS 386 Version 2.0 which enables a PC to be a mainframe using the DOS application program API, enabling up to 24 users to run on a PC using standard PCTERM terminals.
- Compaq reports sales for the year reach US\$1.2 billion, setting the record as the fastest company to reach that mark. [113]

## MAR

- Apple sues Microsoft and Hewlett-Packard for copyright infringement regarding Windows and the Mac OS. [38] [46] [75]

## JUN

- IBM announces the PS/2 Model 70, as 16-, 20-, and 25-MHz 80386 systems. [131]

## AUG

- Steve Jobs' new company, NeXT Inc., unveils the NeXT computer. For US\$6500, it features: 25-MHz Motorola 68030 processor and 68882 math coprocessor, 8 MB RAM, 17-inch monochrome monitor, and 256MB read/write magneto-optical drive. [11] (OCT [139])

## JUL

- IBM ships OS/2 Extended Edition 1.0. [31]
- IBM ships PC-DOS 4.0. [31]

## AUG

- Microsoft ships Windows 2.1 as Windows/286 and Windows/386. [136] (1987 [45])



## SEP

- Apple introduces the Apple IIc Plus for US\$1100. [46] (APR [75])
- IBM introduces the IBM PS/2 Model 30 286, using the AT-bus. [133]
- 61 companies support the formation of the Extended Industry Standard Architecture (EISA). [113]
- Apple introduces the Macintosh IIx computer, using Motorola's 68030 and 68882 processors. It is priced at US\$7770. [46] [75]

## SEP

- Tandy ships the first MCA-bus-based clone PC, the Tandy 5000 MC. [133]
- Compaq produces the first portable PC with VGA graphics, the Compaq SLT/286. [133]

OCT - Microsoft and IBM ship OS/2 1.1 Standard Edition with Presentation Manager. [16] [45] [123] [134] [135]

- Apple reports net sales of US\$4 billion for fiscal 1988. [46]

## NOV

- Ashton-Tate sues Fox Software and Santa Cruz Operations for infringing copyrights on the Dbase language. [25]

# 1989

## JAN

- Apple introduces the Macintosh SE/30, with MS-DOS and OS/2 disk compatibility, for US\$4370. [46]

## FEB

- Intel unveils the i860 chip, and announces the i486. [16]

## MAR

- Apple introduces its Macintosh IIfx for US\$5370. [46] [75]

## APR

- The VESA standard emerges, providing a uniform method of accessing SuperVGA chipsets. [18]
- Intel ships its 80486 CPU. [75]

## AUG

- Britain's Apricot Computers produces the first PC based on the 25-MHz Intel 80486 chip. [12]

## SEP

- Apple announces the Macintosh Portable. [46] [75]
- Apple announces the 25-MHz Macintosh IIfx. [46] [75]
- IBM releases OS/2 1.2. [135]

## OCT

- Apple reports net sales of US\$5.3 million for fiscal 1989. [46]
- Compaq introduces its first notebook PC, the Compaq LTE. [113]
- Sun announces the 12.5 MIPS SPARCstation 1 for a base price of US\$9000. [16]

## NOV

- At fall Comdex, IBM strongly endorsed Windows for low end PCs, and Microsoft publicly endorsed OS/2 as the future platform for higher-end PCs. IBM and Microsoft agree to jointly develop a consistent, full-range of systems software. [38] [45] [123]
- Compaq introduces its first server PC, the Compaq Systempro. This is also the first EISA PC. [113]

## DEC

- IBM demonstrates its new line of RISC System/6000 workstations. [14]
- Xerox files suit challenging the validity of Apple's copyrights covering the Lisa and Macintosh computers' graphical user interface. [46] [75]
- The Personal Computer Memory Card International Association (PCMCIA) is formed, to develop a memory card standard for PCs. [20]

# 1990

## JAN

- Motorola announces the availability of its 32-bit 25-MHz microprocessor, the 68040. The 68040 incorporates 1.2 million transistors, integrates the FPU, and includes instruction and data caches. [13]
- Apple discontinues the Macintosh II. [75]

- Gilbert Hyatt is granted a basic patent on the microprocessor, 20 years after his first application for the patent. [23]

## MAR

- Apple introduces the 40-MHz Apple Macintosh IIx. [18] [46] [75]

## APR

- Microsoft introduces Russian MS-DOS 4.01 for the Soviet market. [123]

## MAY

- Digital Research DR-DOS 5.0 is released and is far more advanced than MS-DOS 4.0.
- Microsoft Windows 3.0 is released. [15] [28] [45] [75] [123]

## JUL

- Microsoft's sales revenues hit US\$1 billion for the past year, the first PC software company to do so. [123]

## AUG

- A US District Court judge rules that Paperback Software's duplicating the menu interface of Lotus' 1-2-3 was a violation of copyright (the "look and feel" lawsuit was filed in 1987). [16]

## OCT

- Apple discontinues the Mac Plus, Mac SE, Mac SE/30 and Mac IIx. [75]
- Apple unveils the Macintosh Classic for US\$1000, the Macintosh LC, and the IIsi. [17] [18] [46] [75]
- Microsoft Bill Gates quote: "Even for the next ten years, [DOS] will have a significant role to play." [23]
- IBM introduces the XGA MCA graphics card, as a replacement for VGA. Resolutions of 640x480 and 1024x768 are supported, with up to 65,536 colors in the 640x480 mode. At the same time, IBM joined the VESA group, making the XGA specification publicly available. [20] [24]
- Apple reports net sales for fiscal 1990 at over US\$5.5 billion. [46]

## NOV

- IBM and Microsoft end cooperative work on operating systems, dividing up work-to-date between them. [38]
- Apple discontinues the Apple IIc Plus. [75]

- Novell purchases Digital Research Inc. from its shareholders for a total amount of \$140 million and acquires DR-DOS, DR Multiuser DOS, and all of the other Digital Research operating system software.
- Michael Spindler becomes president of Apple. [75]
- Sun unveils its SPARCstation 2 series, starting at roughly US\$20,000. [18]

## DEC

- Ashton-Tate's lawsuit regarding the copyright on the Dbase language is dismissed in court. [25]
- Advanced Micro Designs produces its first clone chips of Intel's 386, at speeds of 20, 25, and 33-MHz. [19]
- NewTek's hardware/software package, the Video Toaster, turns the Amiga into a sophisticated, broadcast-quality video-editing system, for US\$1600. [19]
- Hewlett-Packard's introduction of the LaserJet IIP breaks the US\$1000 street price barrier. [19]
- The INMOS T-9000 processor, designed for parallel computing in the Transputer architecture, appears. [32]
- IBM introduces the 10-MHz 80286-based IBM PS/1 systems, with built-in VGA and monitor. Prices range from US\$1000 to US\$2000. [138]

# 1991

## JAN

- Apple discontinues the Mac Portable. [75]
- Compaq reports its first billion dollar quarter. [113]
- Microsoft releases Microsoft Excel for Windows 3.0. [123]
- Motorola's 68040 microprocessor becomes available. [20]

## MAR

- Apple discontinues the Macintosh IICx. [75]
- IBM spins off its entire printer and typewriter division to a New York investment firm. The company Lexmark is born. [121]
- Microsoft announces the Microsoft BallPoint Mouse, incorporating mouse and trackball technology in a pointing device for laptop computers. [123]

## APR

- Intel debuts the i486SX chip, initially at 20-MHz, and the i487SX math coprocessor. [26]
- The December 1990 dismissal of Ashton-Tate's lawsuit is reversed. [26]
- 21 companies create the Advanced Computing Environment (ACE) Initiative. [113]

## MAY

- Apple releases its System 7.0 Macintosh operating system for US\$100. [27] [46] [75]
- Apple announces QuickTime software, for dynamic media on Macintosh computers. [46] [140]
- Microsoft announces Microsoft Visual BASIC for Windows. [123]

## JUN

- Microsoft DOS 5.0 is released. [28]
- Intel introduces its 50-MHz 486 chip. [36]
- Tandy introduces its low-cost CD-ROM drive for PCs. At US\$400, including drive and controller card, it is about half the price of other drives. [21]

## JUL

- Apple and IBM sign a technology sharing agreement, to integrate the Mac into IBM's enterprise systems, to allow future RISC-based Macs to use IBM's Power PC chip, to work together on common multimedia standards, and to cooperatively produce a new object-oriented operating system. [22] [37] [46]
- Borland buys database competitor Ashton-Tate for US\$440 million. [22] [39] [102]
- Microsoft vice president Brad Silverberg quote: DOS will be "with us forever. We've learned how passionate people are about DOS.". [40]
- Microsoft changes the name of OS/2 v3.0 to Windows NT. [40]

## AUG

- Symantec Corp., headed by Gordon Eubanks, former head of Languages at Digital Research, acquires Zortech Inc., maker of C++ compilers for DOS, Windows, OS/2, Macintosh, and UNIX. [42]
- The ban on business is lifted on the Internet. [56]

## SEP

- Digital Research Inc. releases DR DOS v6.0, for US\$100. [43] - Apple, IBM, and Motorola agree to develop PowerPC, PowerOpen, and Taligent. [75] (OCT [145])

## OCT

- Apple and IBM officially sign an accord on technology sharing. [44]

- Apple launches the largest product introduction in its history. Products include the Macintosh Classic II (replacing the Macintosh Classic), Macintosh Quadra 700 and 900, and Macintosh PowerBook 100, 140, and 170. [46] [75]

- MIPS Computer Systems Inc. officially introduces the R4000, its 64-bit RISC processor. [44]

- Quote from IBM's Lee Reiswig: "We will be enhancing OS/2 until the late 1990s." [47]

**NOV** - IBM and Intel sign a 10-year joint development agreement to create a series of integrated processors. [48] - Microsoft announces the Multimedia Edition of Microsoft Works 2.0 for Windows, on CD-ROM. [123]

**DEC** - Apple ships QuickTime 1.0. [75] - The US Federal Trade Commission begins an investigation of Microsoft Corporation for monopolistic practices in the PC software market. [128]

# 1992

## JAN

- IBM reported a year-end loss, for the first time, of US\$564 million, on revenues of US\$64.8 billion. [49]

## MAR

- Apple announces a powerful new Macintosh LC II, replacing the Macintosh LC. [46] [75]

- Microsoft launches its first TV advertising campaign, for Windows. [123]

- Microsoft buys Fox Software for 1.36 million shares of Microsoft's common stock. [123]

## APR

- Microsoft ships Windows 3.1. [75] [123]

## MAY

- Apple introduces the 33-MHz 68040-based Macintosh Quadra 950 (replacing the Quadra 900). [46] [75]

## JUN

- IBM and Microsoft sign a "divorce" document, allowing source code sharing for current versions operating systems up to September 1993. [68]

## JUL

- Apple discontinues the PowerBook 100. [75]

## AUG

- Apple introduces the PowerBook 145, replacing the PowerBook 140). [46] [75]
- The number of users of Apple's System 7 reaches 4 million. [46]
- Compaq introduces its first printer, the Compaq Pagemqrq. [113]

## SEP

- Apple launches the Performa Line, designed for mass merchandisers and superstores. [46] [75]

## OCT

- Apple begins direct mail order sales. [46] [75]
- Apple introduces the PowerBook 160. [46] [75]
- Apple introduces the PowerBook 180, replacing the PowerBook 170. [46] [75]
- Apple announces the Macintosh Duo Systems, 210 and 230. [46] [75]
- Apple introduces the Macintosh IIfx and IIfx. [46] [75]
- Apple reports net annual income of US\$573 million. [75]
- IBM introduces its ThinkPad laptop computer. [75]
- One year after the introduction of Apple's PowerBook, sales of US\$1 billion make it the first personal computer to break that threshold. [75]
- Microsoft ships Microsoft Windows for Workgroups 3.1, which integrates networking and workgroup functionality. [123]

## NOV

- Apple announces QuickTime for Windows. [46] [75] [120]
- Microsoft ships Microsoft Access Database for Windows. [123]

## DEC

- Compaq posts record sales of US\$4.1 billion, with earnings of US\$213 million. [75]
- Apple discontinues the Apple IIgs. [75]
- Novell buys AT&T's Unix Systems Laboratories, gaining all rights to the Unix source code. [79]
- Digital's Alpha 21064 64-bit chip appears. [32]

## 1993

### JAN

- Apple shows off test versions of its Newton Personal Digital Assistants at the Winter Consumer Electronics Show. [46]
- IBM reported a year-end loss, of US\$4.96 billion, on revenues of US\$64.5 billion. This was the highest single-year loss for any US company in history. [50]
- Stac Electronics files a lawsuit against Microsoft over inclusion in MS-DOS 6.0 of file compression, which it claims infringes on Stac's patents. [51]

### FEB

- Apple makes its largest product announcement in its history, and makes it in Japan: the Macintosh Color Classic, Macintosh LC III, Macintosh Centris 610 and 650, Macintosh Quadra 800, and PowerBook 165c. [46] [53] [75]
- Apple discontinues the Macintosh IIfx and the Quadra 700. [75]
- Apple ships the 10 millionth Macintosh computer. [46] [75]
- IBM announces nine new systems in its RS/6000 line, priced between US\$4000 and US\$25000. [52]
- Next Computer Inc. announces that it will drop its hardware line, to focus on becoming a larger player in the object-oriented software industry. [53]
- The US Federal Trade Commission decides to take no action against Microsoft, after two years of investigating complaints of anticompetitive behavior. The US Department of Justice begins its own antitrust investigation of Microsoft. [59] [128]

### MAR

- Intel introduces its 60-MHz Pentium processor. [54] [75]
- Microsoft introduces MS-DOS 6.0 Upgrade, including DoubleSpace disk compression. [55] [123]



- Microsoft ships Microsoft Encarta, the first multimedia encyclopedia for a computer. [123]

## APR

- Motorola Corp. ships the first PowerPC 601 chips. [57]
- Apple demonstrates a prototype Macintosh running on an 80-MHz PowerPC 601 processor. [46]
- Microsoft reports that there are 25 million licensed users of Microsoft Windows. [123]

## MAY

- IBM releases OS/2 v2.1. [60]
- Microsoft formally launches Microsoft NT. [123]

## JUN

- Apple expands its PowerBook line with the PowerBook 180c and 145B. [46]
- Apple's 63-month legal suit against Microsoft and Hewlett-Packard comes to a close, as a US District Court judge throws out Apple's remaining claim. [61] [75] [123]
- John Sculley steps down as CEO of Apple Computer. [63] [71] [75] - Michael Spindler is appointed as CEO of Apple Computer. [75]
- Disk drive maker Seagate reports sales of US\$3 billion for the past year. [88]

## JUL

- Apple introduces the Macintosh Quadra 840AV and Macintosh Centris 660AV. These computers integrate telecommunications, video and speed technologies on the desktop for the first time, but don't work very well. [46] [75] (JAN [140])
- The US Federal Trade Commission decides to take no action against Intel, after three years of investigating complaints of forcing exclusive dealing practices. [64]
- IBM introduces its clock-tripled 25/75MHz Blue Lightning 486-based processor. [65]
- Apple reports US\$188 million quarterly loss. [75]
- Digital Equipment Corp. creates the Digital Personal Computer Business unit, to focus on PC sales. [144]

## AUG

- Apple's Newton MessagePad is introduced at Macworld. 50,000 units are sold in the first 10 weeks. [46] [140]

- IBM creates the Ambra Computer Corporation, a subsidiary of the IBM PC Company, to sell a new low-cost line of PCs. [65] [66]
- Microsoft begins shipping Windows NT. [66]
- Microsoft reports first US\$1 billion sales quarter. [75]
- IBM posts a US\$8 million quarterly loss. [75]
- IBM demos its first PowerPC RS/6000 workstation. [66]
- Lotus Development Corporation wins its copyright infringement lawsuit over Borland, but decision is overturned in 1995. [67] [103]
- Compton's New Media Incorporated receives a patent on multimedia search and retrieval technology, from the U.S. Patent and Trade Office. The Office reversed the decision a year later, annulling the patent. [99]

## SEP

- Apple's net sales hit a record US\$8 billion. [46]
- Symantec Corporation acquires Fifth Generation Systems, maker of backup and security utilities for various operating systems. [68]
- IBM debuts and ships its first PowerPC-based RS/6000 systems. [69]

## OCT

- John Sculley announces his resignation from Apple Computer. [46] [71] [75]
- Motorola produces the first copies of the PowerPC 603, the second chip in the PowerPC family. [46] [71]
- Apple announces Macintosh TV, which combines an Apple Macintosh, television, and CD-ROM. [46] [140]
- NEC Technologies unveils the first triple-speed (450KBps) CD-ROM drive. [70]
- Apple renames the Centris 610 and 650 as Quadras. [75]
- Apple introduces the Quadra 605. [75]
- Apple introduces the PowerBook Duo 250, and 270c. [75]

## NOV

- Apple quietly discontinues the Apple II product line. In its 17 year history, 5 million units were shipped. [46] [75]

- Sales of Apple's PowerBook series hits the 1 million mark. [46] [75]
- Microsoft ships Windows for Workgroups 3.11. [123]
- Microsoft releases MS-DOS 6.2. [72]

## DEC

- SunSoft Incorporated (a subsidiary of Sun Microsystems) ships the first version of WABI, providing basic but very limited support for Microsoft Windows application compatibility on Solaris, Intel, and Sparc versions of UNIX. [73]
- IBM posts a year-end loss of US\$8.1 billion, on total sales of US\$62.7 billion. [75]
- Compaq posts record sales of US\$7.2 billion, with earnings of US\$462 million. [75]
- Compaq, Intel, Microsoft, and Phoenix Technologies define the Plug and Play specification for PCs. [122]
- Apple tops PC Vendor List in US shipments for the second consecutive year. [46]
- Desktop PC sales for the year total US\$50 billion. Portable PC sales total US\$12 billion. [141]
- Worldwide shipments of workstations: 621,919. [143]
- Estimated worldwide shipments of personal computers: 38.8 million. [143]

# 1994

## JAN

- Shipments of Apple Macintosh computers hits 1 million for the previous four month period, for the first time. [46]
- NEC Technologies ships its quad-speed CD-ROM, priced at US\$1000. [74]
- Apple announces that it will license its System 7.x operating system to other hardware companies. [75]

## FEB

- Apple introduces the Macintosh LC 575 and LC 550. [46]
- Apple introduces QuickTime 2.0, with interactive television, music and full-screen video support. [46]
- IBM announces the shutdown its Ambra Europe company by the end of the quarter. [76]
- A US District Court rules that Microsoft violated patents held by Stac Electronics, in data

**compression used in Microsoft's DoubleSpace in DOS 6. Microsoft is ordered to remove or replace the technology. [82]**

**- Microsoft releases MS-DOS 6.21, removing DoubleSpace disk compression. [90]**

## **MAR**

**- Apple unveils its first computers based on the PowerPC, the Power Macintosh 6100/60, 7100/66, and 8100/80. [46] [75] [140]**

**- Apple releases System 7.1, the OS for the Mac. [140]**

**- Apple introduces QuickTake 100, the first 24-bit color digital camera for under US\$1000. [140]**

**- Apple announces the Newton MessagePad 110 and 100. [46]**

**- Apple ships the Macintosh Quadra 610 DOS Compatible. It features a 40-MHz Motorola 68LC040 chip and a 25-MHz Intel 486SX chips, for US\$1580. [77]**

**- Intel ships its clock-tripling IntelDX4 processors, at 25/75-MHz and 33/100-MHz. [78]**

**- Novell Inc. buys WordPerfect Corporation for US\$1.4 billion. [79]**

**- Intel ships its 25/50-MHz IntelSX2 486 processor. [79]**

## **APR**

**- Symantec Corporation buys Central Point Software Incorporated for a stock swap valued at about US\$60 million. [82]**

**- Motorola releases small quantities of its 68060 microprocessor, operating at 50- and 66-MHz. [83]**

**- IBM and Motorola announce the PowerPC 604 microprocessor. [84]**

**- IBM releases PC-DOS 6.3. [90]**

## **MAY**

**- Apple introduces six new PowerBook computers. [46]**

**- Motorola ships sample copies of the PowerPC 603 processor. [85]**

## **JUN**

**- Apple launches eWorld, its new online community, in the US. [46]**

**- Apple unveils System 7.5 operating system. [46]**

**- Apple introduces new Macintosh 630 computers, and the PowerBook 150. [46]**

- Microsoft and Stac settle their legal differences over data compression patents. Microsoft agrees to buy US\$40 million of Stac stock, and to pay Stac a further US\$43 million in royalties. [86]
- Disk drive maker Seagate reports sales of US\$3.5 billion for the past year. [88]
- Microsoft releases MS-DOS 6.22, bringing back disk compression under the name DriveSpace. [90]
- Microsoft is granted a trademark to the name "Windows" for software products. [91]

## JUL

- IBM makes available sample quantities of the PowerPC 603 processor. High quantity pricing is US\$165 for the 66-MHz chip, and US\$195 for the 80-MHz version. [87]
- IBM reports that it has shipped 1 million PowerPC 601 processors in the first 10 months of production. [87]
- Digital Equipment Corporation ships its AXP 21064A 64-bit 275-MHz Alpha RISC processor in volume quantities, at US\$1083 per chip pricing. [88]
- IBM announces that it will shut down its Ambra subsidiary later in the year. [89]
- Microsoft reaches a settlement with the US Department of Justice. [128]

## SEP

- Advanced Micro Devices ships its Am486DX2-80 40/80-MHz processor. [91]
- Microsoft ships its first keyboard, the Microsoft Natural Keyboard". [91]
- Microsoft announces the name of its upcoming Windows upgrade: Windows 95. [92] [123]
- Digital Equipment Corporation formally introduces its next-generation Alpha AXP processors, including a 300-MHz version that can execute 1 billion instructions per second. [92]
- IBM introduces the Aptiva line, to replace the PS/1 line. [93]

## OCT

- Apple expands its Macintosh Performa 6100 line with five new computers based on the PowerPC. [46]
- Microsoft ships Windows NT 3.5. [94]
- Microsoft makes a bid to buy Intuit (maker of Quicken) for US\$1.5 billion stock swap. [95] [128]

- IBM formally launches OS/2 Warp. [95] [142]
- IBM and Motorola announce and introduce the prototype of the PowerPC 620 processor, operating at 133-MHz. [95]
- Motorola announces availability of the PowerPC 603 processor, at US\$175 for the 66-MHz chip, and US\$199 for the 80-MHz version. [145]
- Motorola announces availability of the PowerPC 601 processor, at US\$189 for the 66-MHz chip, and US\$299 for the 80-MHz version. [145]
- IBM introduces the 100-MHz PowerPC 601 and 604 processors, and the 66-MHz and 80-MHz PowerPC 603 processors. [95] [142]
- IBM drops the PS/2, PS/1, Ambra, and ValuePoint lines, and XGA graphics, in favor of industry standards for its new PC line, the Series 300 and Series 700. [95] [96]
- Hayes Microcomputer Products Incorporated files for Chapter 11 bankruptcy protection. [129]
- Gateway 2000 Incorporated sells the first PC powered by Intel's 75-MHz Pentium. [97]

## NOV

- Apple debuts the Power Macintosh 8100/100. [46] (8100/110 [98] [140])
- Sun Microsystems Computer Corporation announces the Sparcstation 20 Model HS11, using a 100-MHz HyperSparc processor from Ross Technology. [98]
- DEC introduces its AlphaStation computers, with 166-MHz and 233-MHz Alpha AXP 21064 processors incorporating a PCI bus, and sell for US\$7000-\$16000. [98]
- Apple delivers QuickTime 2.0 for Windows. [46] - Intel confirms that about 2 million Pentium chips have been shipped with a defective floating-point unit. [100]
- Borland sells Quattro Pro spreadsheet to WordPerfect Corp. [102] - Compaq sales for the year reach US\$10.9 billion. [113]
- Worldwide shipments of workstations: 779,385. [143]
- Estimated worldwide shipments of personal computers: 46.5 million. [143]

# 1995

## JAN

- Apple ships QuickTime VR, bringing "Virtual Reality" to Macintosh and Windows personal computers. [46]

- Apple ships the 1 millionth Power Macintosh. [46]
- Apple announces the Newton MessagePad 120. [46]
- Microsoft unveils Bob, a "superapplication" for Windows consumer users, with a "social interface". [101] [123]
- Radius Incorporated demonstrates the first Power Macintosh clone, using Apple's licensed System 7 operating system. [101]
- Borland founder Philippe Kahn resigns as president and CEO. [102]
- AMD (Advanced Micro Devices Incorporated) and Intel Corporation settle all outstanding processor related legal issues. AMD pays Intel US\$58 million in licensing fees to microcode in Intel 386 and 486 chips. [102] [141]
- Compaq reaches worldwide number one PC marketshare position. [113]
- IBM announces that 1 million copies of OS/2 Warp have shipped. [142]

## **FEB**

- IBM announces PC DOS 7, with integrated data compression from Stac Electronics (Stacker). [142]
- IBM and Motorola announce that test samples have been made of the PowerPC 603e (100-MHz) and PowerPC 602 (66MHz) microprocessors. [145]

## **MAR**

- Apple launches QuickTime On-Line, an Internet World Wide Web server. [46] - Lotus' lawsuit win over Borland, regarding the copying of features from Lotus 1-2-3 to Quattro Pro, is overturned. Borland is saved US\$100 million that it might have been required to pay. [103]
- Intel introduces the 120-MHz Pentium. [62]

## **APR**

- Apple announces the Power Macintosh 5200/75 LC for the education market, using the 75-MHz PowerPC 603 processor. [46] [104]
- IBM releases PC DOS 7. [105] - The US Department of Justice files a lawsuit to block the merger of Intuit and Microsoft. [128]

## **MAY**

- Microsoft and Intuit announce the termination of their planned merger. [123] [128]
- IBM unveils its new IBM PC 300 desktop systems, with 75-MHz and 90-MHz Pentium CPUs. Complete systems start at US\$2000. [127]

## JUN

- IBM makes a hostile takeover bid to buy control of Lotus for US\$3.3 billion in cash. The offer is to buy outstanding shares of Lotus stock for US\$60 per common share. [124] [142]
- Intel introduces the 133-MHz Pentium. [62] [124] [126]
- Apple introduces its first color laser printer, the Color Laser Printer 12/600PS. The 600x600 dpi printer comes with 12 MB of RAM, uses a Canon-based engine, and costs about US\$7,000. [124]
- Apple introduces its first PowerMac system using Intel's PCI bus, the Power Macintosh 9500, available with a 120-MHz or 132-MHz PowerPC 604 CPU. The 9500/120 with a 1 GB hard drive costs US\$5000. The 9500/132 with 2 GB drive costs US\$5800. [125] [145]
- IBM and Motorola announce that test samples have been made of the PowerPC 604 microprocessor at 120-MHz and 133-MHz. [145]
- IBM debuts RS/6000 workstations with the PowerPC 604 microprocessor (100-133 MHz). [142]
- IBM adds the 133-MHz Pentium to its IBM PC 700 line. [142]
- IBM unveils its first PowerPC systems, based on the PowerPC 603e and 604 chips. The Power Series 830 retails for US\$2800, and comes with Windows NT, a 100-MHz 604 CPU, 16 MB RAM, 540 MB hard drive, and quad-speed CD-ROM drive. The ThinkPad Model 830 portable costs US\$6,000. [125] [128] [145]
- Boca Research Inc. buys Hayes Microcomputers, using the Hayes name for the merged company. [129]
- AMD announces sample availability of the clock-tripled 120-MHz Am486 processor. [141]

## JUL

- IBM acquires Lotus Development Corporation. [142]

## AUG

- Apple expands its line of PowerMac systems using Intel's PCI bus, with the Power Macintosh 8500, 7500, and 7200. The 8500 uses a 120-MHz PowerPC 604 processor. [114]
- Intel demonstrates a system using a 150-MHz P6 CPU, running Windows 95. [114]
- IMS Ltd. introduces REAL/32, the latest version of Digital Research CP/M supporting full 32-bit DOS and enabling MS-Windows 3.x to run for multiplex users on the same PC using the Maxspeed Maxstation Thin Client hardware. IBM introduces REAL/32 as the OS for its new Flat Panel Touch Screen Point-of-Sale (POS) systems.
- Microsoft introduces Windows 95 with great fanfare and a very buggy Win32 API and a



patented kluge of the FAT16 file system for long file names, deliberately making it incompatible with Novell DR-DOS, IBM PC-DOS, IMS REAL/32, Caldera Linux, SCO UnixWare, Sun Solaris, and other non-MS operating systems.

1996

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