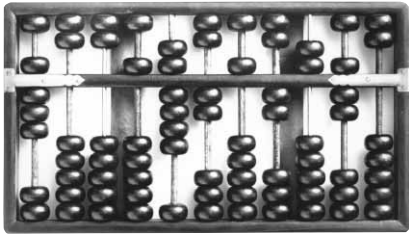
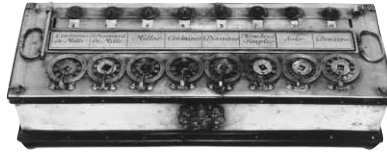


# COMPUTER HISTORY TIMELINE



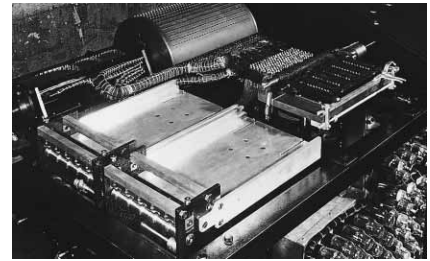
The earliest recorded calculating device, the abacus, is believed to have been invented by the Babylonians sometime between 500 B.C. and 100 B.C. It and similar types of counting boards were used solely for counting.

500 B.C.



Blaise Pascal invented the first mechanical calculator, called the Pascaline Arithmetic Machine. It had the capacity for eight digits and could add and subtract.

1642



Dr. John V. Atanasoff and Clifford Berry designed and built ABC (for Atanasoff-Berry Computer), the world's first electronic computer.

1937

## Precomputers and Early Computers

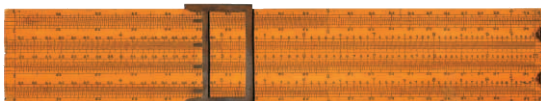
1621

French silk weaver Joseph-Marie Jacquard built a loom that read holes punched on a series of small sheets of hardwood to control the weave of the pattern. This automated machine introduced the use of punch cards and showed that they could be used to convey a series of instructions.

1804



The slide rule, a precursor to the electronic calculator, was invented. Used primarily to perform multiplication, division, square roots, and the calculation of logarithms, its wide-spread use continued until the 1970s.



1944

The Mark I, considered to be the first digital computer, was introduced by IBM. It was developed in cooperation with Harvard University, was more than 50 feet long, weighed almost five tons, and used electromechanical relays to solve addition problems in less than a second; multiplication and division took about six and twelve seconds, respectively.



## Precomputers and Early Computers (before approximately 1945)

Most precomputers and early computers were mechanical machines that worked with gears and levers. Electromechanical devices (using both electricity and gears and levers) were developed toward the end of this era.

## First Generation (approximately 1946–1957)

Powered by vacuum tubes, these computers were faster than electromechanical machines, but they were large and bulky, generated excessive heat, and had to be physically wired and reset to run programs. Input was primarily on punch cards; output was on punch cards or paper. Machine and assembly languages were used to program these computers.



The UNIVAC 1, the first computer to be mass produced for general use, was introduced by Remington Rand. In 1952, it was used to analyze votes in the U.S. presidential election and correctly predicted that Dwight D. Eisenhower would be the victor only 45 minutes after the polls closed, though the results were not aired immediately because they weren't trusted.

1951



The COBOL programming language was developed by a committee headed by Dr. Grace Hopper.

1960

The first floppy disk (8 inches in diameter) was introduced.



IBM unbundled some of its hardware and software and began selling them separately, allowing other software companies to emerge.

1967

1969

REF

First Generation

Second Generation

Third Generation

1947

John Bardeen, Walter Brattain, and William Shockley invented the transistor, which had the same capabilities as a vacuum tube but was faster, broke less often, used less power, and created less heat. They won a Nobel Prize for their invention in 1956 and computers began to be built with transistors shortly afterwards.

1957

The FORTRAN programming language was introduced.

1964

The first mouse was invented by Doug Engelbart.



1968

Robert Noyce and Gordon Moore founded the Intel Corporation.

The IBM System/360 computer was introduced. Unlike previous computers, System/360 contained a full line of compatible computers, making upgrading easier.

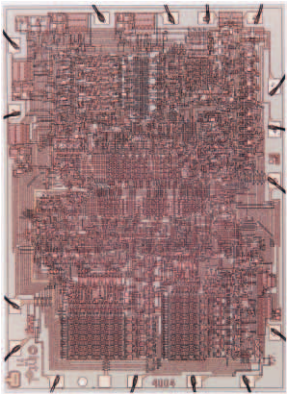


### Second Generation (approximately 1958–1963)

Second-generation computers used transistors instead of vacuum tubes. They allowed the computer to be physically smaller, more powerful, more reliable, and faster than before. Input was primarily on punch cards and magnetic tape; output was on punch cards and paper; and magnetic tape and disks were used for storage. High-level programming languages were used with these computers.

### Third Generation (approximately 1964–1970)

The third generation of computers evolved when integrated circuits (IC)—computer chips—began being used instead of conventional transistors. Computers became even smaller and more reliable. Keyboards and monitors were introduced for input and output; magnetic disks were used for storage. The emergence of the operating system meant that operators no longer had to manually reset relays and wiring.



The first microprocessor, the Intel 4004, was designed by Ted Hoff. The single processor contained 2,250 transistors and could execute 60,000 operations per second.

**1971**



Bill Gates and Paul Allen wrote a version of BASIC for the Altair, the first computer programming language designed for a personal computer. Bill Gates dropped out of Harvard to form Microsoft with Paul Allen.

**1975**



Hailed as the first “personal computer,” the Altair—allegedly named for a destination of the Starship Enterprise from a Star Trek TV episode—began to be sold as a kit for \$395. Within months, tens of thousands were ordered.



Software Arts Inc.'s VisiCalc, the first electronic spreadsheet and business program for PCs, was released. This program is seen as one of the reasons PCs first became widely accepted in the business world.

**1979**

Fourth Generation

**1972**

The C programming language was developed by Dennis Ritchie at Bell Labs.

Seymour Cray, called the “father of supercomputing,” founded Cray Research, which would go on to build some of the fastest computers in the world.



**1976**

Steve Wozniak and Steve Jobs' founded Apple computer and released the Apple I (a single-board computer), followed by the Apple II (a complete PC that became an instant success in 1977). They originally ran the company out of Jobs' garage.



**1980**

Sony Electronics introduced the 3.5-inch floppy disk and drive.

Seagate Technology announced the first Winchester 5.25-inch hard disk drive, revolutionizing PC storage.

IBM chose Microsoft to develop the operating system for its upcoming PC. That operating system was PC-DOS.

**Fourth Generation (approximately 1971–present)**

The fourth generation of computers began with large-scale integration (LSI), which resulted in chips that could contain thousands of transistors. Very large-scale integration (VLSI) resulted in the microprocessor and the resulting microcomputers. The keyboard and mouse are predominant input devices, though many other types of input devices are now available; monitors and printers provide output; storage is obtained with magnetic disks, optical discs, and memory chips.





IBM introduced the IBM PC. This DOS-based PC used a 4.77 MHz 8088 CPU with 64 KB of RAM and quickly became the standard for business PCs.



Compaq Corporation released the first IBM-compatible PC that ran the same software as the IBM PC, marking the beginning of the huge PC-compatible industry.

The first general-interest CD-ROM product (*Grolier's Electronic Encyclopedia*) was released, and computer and electronics companies worked together to develop a universal CD-ROM standard.



Tim Berners-Lee of CERN invented the World Wide Web.

Intel introduced the Intel386 CPU.

Quantum Computer Services was founded; this company became AOL.

Intel introduced the Intel486 chip, the world's first million transistor CPU.

1981

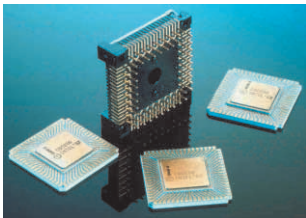
1983

1985

1989

1982

Intel introduced the 80286 CPU.



TIME magazine named the computer its "Machine of the Year" for 1982, emphasizing the importance the computer had already reached in our society at that time.

1984

The first version of Microsoft Windows, a graphical environment, was released.

The Apple Macintosh debuted. It featured a simple, graphical user interface, used an 8 MHz, 32-bit Motorola 68000 CPU, and had a built-in 9-inch black and white screen.



1986

Microsoft was listed on the New York Stock Exchange and began to sell shares to the public; Bill Gates became one of the world's youngest billionaires.

Apple's Steve Jobs founded Pixar.

1993

Marc Andreessen and James H. Clark founded Netscape Communications and released Netscape Navigator, a graphical Web browser based on the Mosaic browser Andreessen had created the previous year.



Intel introduced the Pentium CPU.



Linus Torvalds created Linux, which launched the open source revolution. The penguin logo/mascot soon followed.

1994



The first DVD players used for playing movies stored on DVD discs were sold.

After winning 2 of 6 games in their first contest in 1996, the IBM computer Deep Blue beat chess master Garry Kasparov in a chess match.

The Intel Pentium II was introduced.

1997

Shawn Fanning, 19, wrote the software to drive his Napster P2P service and began the debate about P2P filesharing and online music.

Palm released the Palm VII, its first handheld PC with wireless Internet access.

The Intel Pentium III CPU was introduced.

1999



1995

Windows 95 was released and sold more than one million copies in four days.



Both eBay and Amazon.com were founded.



Sun Microsystems released Java, which is still one of the most popular Web programming languages.



1998

Microsoft shipped Windows 98.

Apple released the iMac, a modernized version of the Macintosh computer. Its futuristic design helped to make this computer immensely popular.

Microsoft released the Windows 2000 Professional Server business operating systems and Windows ME for home users.

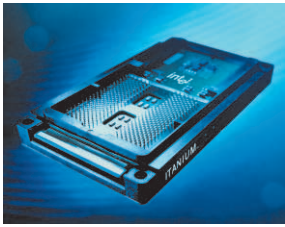
2000

Intel introduced its Pentium 4 CPU chip. A popular advertising campaign, launched in 2001, featured the Blue Man Group.



The first USB flash drives were released.





Intel's first 64-bit CPU, the Itanium, was introduced.



The Internet and wireless networks enabled people to work and communicate with others while on the go.



Delivery of TV shows and other media to mobile phones became more common.



New Internet-enabled gaming consoles, like the Wii shown here, were released.

Blu-ray Disc and HD-DVD movies, discs, and players became available in the U.S.



Microsoft released its XP line of products, including Windows XP and Office XP.

Spyware became a major problem; some studies indicated that over 80% of computers had spyware installed.

Broadband Internet access approached the norm and improvements to wireless networking (such as WiMAX) continued to be developed.

Use of the Internet for online shopping, as well as downloads of music, movies, games, and television shows, continued to grow.

2001

2004

2006

2003

Digital camera sales in the United States exceeded 14 million, surpassing film camera sales for the first time.



Microsoft shipped the Office 2003 editions of its Microsoft Office System.



AMD released the 64-bit Opteron server microprocessor and the Athlon 64, the first 64-bit CPU designed for desktop PC use.



2005

Phishing and identity theft became household words as an increasing number of individuals fell victim to these Internet scams.

The capabilities of mobile devices continued to grow; Palm's LifeDrive came with a 4 GB hard drive and built-in Wi-Fi and Bluetooth support.



Portable media players, such as the iPod, were common; digital music capabilities were built into a growing number of objects and devices, such as the Oakley THUMP sunglasses shown here.



Intel and AMD both released their first dual-core CPUs.

2007

Dual-mode phones that can make calls via both a cellular and a Wi-Fi network became available.



Microsoft released Windows Vista and Office 2007.



Windows Vista

Quad-core CPUs were released by both Intel and AMD.