

## A bit of DEC History



<b>Industry</b>	Computer manufacturing
<b>Fate</b>	Acquired by <a href="#">Compaq</a> , after divestiture of major assets.
<b>Successor</b>	<a href="#">Hewlett-Packard</a> (2002–present) <a href="#">Compaq</a> (1998–2002)
<b>Founded</b>	1957; 59 years ago
<b>Defunct</b>	1998
<b>Headquarters</b>	<a href="#">Maynard, Massachusetts</a> , United States
<b>Key people</b>	<a href="#">Ken Olsen</a> (founder, president, and chairman) <a href="#">Harlan Anderson</a> (co-founder) <a href="#">C. Gordon Bell</a> (VP Engineering)
<b>Products</b>	<a href="#">PDP</a> minicomputers <a href="#">VAX</a> minicomputers <a href="#">Alpha</a> servers and workstations <a href="#">DECnet</a> <a href="#">VT100</a> terminal <a href="#">LAT</a> and <a href="#">Terminal server</a> <a href="#">StrongARM</a> microprocessors <a href="#">Digital Linear Tape</a>

**Number of employees**

Over 140,000 at one time

**Digital Equipment Corporation**, also known as **DEC** and using the [trademark Digital](#), was a major American company in the [computer industry](#) from the 1950s to the 1990s.

DEC was a leading vendor of computer systems, including computers, software, and [peripherals](#). Their [PDP](#) and successor [VAX](#) products were the most successful of all [minicomputers](#) in terms of sales.

DEC was acquired in June 1998 by [Compaq](#), in what was at that time the largest merger in the history of the computer industry. At the time, Compaq was focused on the enterprise market and had recently purchased several other large vendors. DEC was a major player overseas where Compaq had less presence. However, Compaq had little idea what to do with its acquisitions, and soon found itself in financial difficulty of its own. The company subsequently merged with [Hewlett-Packard](#) (HP) in May 2002. As of 2007 some of DEC's product lines were still produced under the HP name.

From 1957 until 1992, DEC's headquarters were located in a former wool mill in [Maynard, Massachusetts](#) (renamed Clock Tower Place, and now called Mill and Main).

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Initially focusing on the small end of the computer market allowed DEC to grow without its potential competitors making serious efforts to compete with them. Their PDP series of machines became popular in the 1960s, especially the [PDP-8](#), widely considered to be the first successful [minicomputer](#). Looking to simplify and update their line, DEC replaced most of their smaller machines with the [PDP-11](#) in 1970, eventually selling over 600,000 units and cementing DEC's position in the industry.

Originally designed as a follow-on to the PDP-11, DEC's [VAX-11](#) series was the first widely used [32-bit](#) minicomputer, sometimes referred to as "[superminis](#)". These

systems were able to compete in many roles with larger [mainframe computers](#), such as the [IBM System/370](#). The VAX was a best-seller, with over 400,000 sold, and its sales through the 1980s propelled the company into the second largest computer company in the industry. At its peak, DEC was the second largest employer in Massachusetts, second only to the Massachusetts State Government.

The rapid rise of the business [microcomputer](#) in the late 1980s, and especially the introduction of powerful 32-bit systems in the 1990s, quickly eroded the value of DEC's systems. DEC's last major attempt to find a space in the rapidly changing market was the [DEC Alpha 64-bit RISC processor architecture](#). DEC initially started work on Alpha as a way to re-implement their VAX series, but also employed it in a range of high-performance [workstations](#). Although the Alpha processor family met both of these goals, and, for most of its lifetime, was the fastest processor family on the market, extremely high asking prices<sup>[1]</sup>[|better source needed](#) were outsold by lower priced x86 chips from Intel and clones such as AMD.

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## Products

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Beyond DECsystem-10/20, PDP, VAX and Alpha, DEC was well respected for its communication subsystem designs, such as Ethernet, DNA ([DIGITAL Network Architecture](#): predominantly DECnet products), DSA (Digital Storage Architecture: disks/tapes/controllers), and its "dumb terminal" subsystems including VT100 and DECserver products.<sup>[2]</sup>

## Research

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DEC's Research Laboratories (or Research Labs, as they were commonly known) conducted DEC's corporate research. Some of them were operated by [Compaq](#) and are still operated by [Hewlett-Packard](#). The laboratories were:

- [Western Research Laboratory](#) (WRL) in [Palo Alto, California](#), US
- [Systems Research Center](#) (SRC) in [Palo Alto, California](#), US
- [Network Systems Laboratory](#) (NSL) in [Palo Alto, California](#), US
- [Cambridge Research Laboratory](#) (CRL) in [Cambridge, Massachusetts](#), US
- [Paris Research Laboratory](#) (PRL) in [Paris, France](#)
- [MetroWest Technology Campus](#) (MTC) in [Maynard, Massachusetts](#), US

## Accomplishments and legacy

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DEC supported the [ANSI](#) standards, especially the [ASCII](#) character set, which survives in [Unicode](#) and the [ISO 8859](#) character set family. DEC's own [Multinational Character Set](#) also had a large influence on [ISO 8859-1](#) (Latin-1) and, by extension, Unicode .

The first versions of the [C](#) language and the [Unix](#) operating system ran on DEC's [PDP](#) series of computers (first on a PDP-7, then the [PDP-11](#)'s), which were among the first commercially viable [minicomputers](#), although for several years DEC itself did not encourage the use of Unix.

DEC produced widely used and influential interactive operating systems, including [OS-8](#), [TOPS-10](#), [TOPS-20](#), [RSTS/E](#), [RSX-11](#), [RT-11](#), and [OpenVMS](#). PDP computers, in particular the [PDP-11](#) model, inspired a generation of programmers and software developers. Some PDP-11 systems more than 25 years old (software and hardware) are still being used to control and monitor factories, transportation systems and nuclear plants. DEC was an early champion of [time-sharing](#) systems.

The command-line interfaces found in DEC's systems, eventually codified as [DCL](#), would look familiar to any user of modern microcomputer CLIs; those used in earlier systems, such as [CTSS](#), [IBM's JCL](#), or [Univac's](#) time-sharing systems, would look utterly alien. Many features of the CP/M and MS-DOS CLI show a recognizable

family resemblance to DEC's OSES, including command names such as DIR and HELP and the "name-dot-extension" file naming conventions.

VAX and [MicroVAX](#) computers (very widespread in the 1980s) running [VMS](#) formed one of the most important proprietary networks, [DECnet](#), which linked business and research facilities. The [DECnet](#) protocols formed one of the first peer-to-peer networking standards, with DECnet phase I being released in the mid-1970s. Email, file sharing, and distributed collaborative projects existed within the company long before their value was recognized in the market.

DEC, [Intel](#) and [Xerox](#) through their collaboration to create the DIX standard, were champions of [Ethernet](#), but DEC is the company that made Ethernet commercially successful. Initially, Ethernet-based DECnet and [LAT](#) protocols interconnected VAXes with [DECserver terminal servers](#). Starting with the [Unibus](#) to Ethernet adapter, multiple generations of Ethernet hardware from DEC were the de facto standard. The CI "computer interconnect" adapter was the industry's first network interface controller to use separate transmit and receive "rings".

DEC also invented [clustering](#), an operating system technology that treated multiple machines as one logical entity. Clustering permitted sharing of pooled disk and tape storage via the HSC50/70/90 and later series of Hierarchical Storage Controllers (HSC). The HSCs delivered the first hardware [RAID 0](#) and [RAID 1](#) capabilities and the first serial interconnects of multiple storage technologies. This technology was the forerunner to architectures such as [Network of Workstations](#) which are used for massively cooperative tasks such as web-searches and drug research.

The LA36 and LA120 [dot matrix printers](#) became industry standards and may have hastened the demise of the [Teletype Corporation](#).

The [VT100 computer terminal](#) became the industry standard, implementing a useful subset of the [ANSI X3.64](#) standard, and even today terminal emulators such as [HyperTerminal](#), [PuTTY](#) and [Xterm](#) still emulate a VT100 (or its more capable successor, the [VT220](#)).

The [X Window System](#), the network transparent window system used on [UNIX](#) and [Linux](#), and also available on other operating systems, was developed

at [MIT](#) jointly between [Project Athena](#) and the [Laboratory for Computer Science](#). DEC was the primary sponsor for this project, which was a contemporary of the [GNU Project](#) but not associated with it.

In the period 1994–99 [Linus Torvalds](#) developed versions of Linux on early [AlphaServer](#) systems made available to him by the engineering department. Compaq software engineers developed special Linux kernel modules.<sup>[5]</sup> A well-known [Linux distribution](#) that ran on AlphaServer systems was [Red Hat 7.2](#).<sup>[6]</sup> Another distribution that ran on Alpha was [Gentoo Linux](#).

Microsoft was not exclusively bound to the Alpha chip so it pursued other processor makers such as IBM with the [PowerPC](#) architecture and eventually capitalized on the emerging strength of the Intel x86-based processors.

Notes-11 and its follow-on product, VAX Notes, were two of the first examples of online collaboration software, a category that has become to be known as [groupware](#). [Len Kawell](#), one of the original Notes-11 developers later joined [Lotus Development Corporation](#) and contributed to their [Lotus Notes](#) product.

DEC was one of the first businesses connected to the Internet, with *dec.com*, registered in 1985,<sup>[7]</sup> being one of the first of the now ubiquitous *.com* domains. DEC's *gatekeeper.dec.com* was a well-known [software repository](#) during the pre-[World Wide Web](#) days, and DEC was also the first computer vendor to open a public website, on 1 October 1993.<sup>[8]</sup> The popular [AltaVista](#), created by DEC, was one of the first comprehensive Internet [search engines](#). (Although [Lycos](#) was earlier, it was much more limited.)

DEC invented [Digital Linear Tape](#) (DLT), formerly known as Compactape, which began as a compact backup medium for MicroVAX systems, and later grew to capacities of 800 gigabytes.

Work on the first hard-disk-based MP3-player, the [Personal Jukebox](#), started at the [DEC Systems Research Center](#). (The project was started about a month before the merger into [Compaq](#) was completed.)

DEC's Western Research Lab created the [Itsy Pocket Computer](#). This was developed into the Compaq [iPaq](#) line of [PDAs](#), which replaced the [Compaq Aero](#) PDA.

[Digital Federal Credit Union](#) (DCU) is a [credit union](#) which was chartered in 1979 for employees of DEC. Today its field of membership is open to existing family members, over 900 different sponsors, several communities in Massachusetts and several organizations. DCU has over 700 different sponsors, including the companies that acquired pieces of DEC.

DEC once held the [Class A IP address](#) block 16.0.0.0/8.<sup>[9]</sup>

## User organizations

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Originally the [users' group](#) was called [DECUS](#) (Digital Equipment Computer User Society) during the 1960s to 1990s. When [Compaq](#) acquired DEC in 1998, the users group was renamed CUO, the Compaq Users' Organisation.

When [HP](#) acquired [Compaq](#) in 2002, CUO became [HP-Interex](#), although there are still DECUS groups in several countries. In the United States, the organization is represented by the [Encompass](#) organization; currently [Connect](#).