

UCSD Pascal

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UCSD Pascal was a popular implementation of the programming language Pascal.

Notable extensions to standard Pascal include separately compilable **Units** and a **String** type. Both of these extensions influenced the design of the Ada programming language. Some intrinsics were provided to accelerate string processing (e.g. scanning in an array for a particular search pattern); other language extensions were provided to allow the UCSD p-System to be self-compiling and self-hosted.

UCSD Pascal was based on a p-code machine architecture. Its contribution to these early virtual machines was to extend p-code away from its roots as a compiler intermediate language into a full execution environment. The UCSD Pascal p-Machine was optimized for 16-bit microcomputers with only 64KB of memory. James Gosling cites UCSD Pascal as a key influence (along with the Smalltalk virtual machine) on the design of the Java virtual machine.

The UCSD Pascal compiler was distributed as part of a portable operating system, the p-System.

There were four versions of UCSD p-code engine (p-code incompatible) each with several revisions of the p-System (and UCSD Pascal); represented with the leading Roman Numeral; operating system revisions were enumerated as the "dot" number following the p-Code Roman Numeral. vis: II.3 represented the third revision of the p-System running on the second revision of the p-Machine.

- Version I

Original version, never officially distributed outside of the University of California, San Diego. However the Pascal sources for both Versions I.3 and I.5 were freely exchanged between interested users. Specifically the patch revision I.5a was known to be one of the most stable.

- Version II

Widely distributed, available on many early microcomputers.

- Version III

Custom version written for Western Digital to run on their Pascal MicroEngine microcomputer. Included support for parallel processes for the first time.

- Version IV

Commercial version, developed and sold by SofTech Microsystems. Did not sell well due to combination of their pricing structure, performance problems due to p-Code interpreter, and competition with native operating systems (which it often ran on top of). After SofTech dropped the product it was picked up by Pecan Systems (a relatively small company formed of p-System users and fans). Sales revived somewhat, due mostly to Pecan's *reasonable* pricing structure, but the p-System and UCSD Pascal gradually lost the market to native operating systems and compilers.

External links

- As of May, 2006 UCSD has released portions of the p-System (<http://invent.ucsd.edu/technology/cases/1995-prior/SD1991-807.htm>) written before June 1, 1979 for non-commercial use. (warning: link resizes browser window!)
- There was a 30th reunion of the UCSD Pascal team at UCSD. An article in UCSD's alumni magazine (<http://alumni.ucsd.edu/magazine/vol1no3/features/pascal.htm>) and slides plus video (<http://www.jacobsschool.ucsd.edu/Pascal/>) are available from the event.
- The UCSD Pascal Reunion website (<http://www.jacobsschool.ucsd.edu/Pascal/>)
- The Jefferson Museum (<http://www.threedee.com/jcm/psystem/index.html>) has a virtual exhibit of UCSD Pascal's history.
- Hans Otten's (<http://www.hansotten.com/pascal.html>) pages on Pascal.
- There's a Yahoo Group (<http://groups.yahoo.com/group/UCSDPascal/>) where UCSD Pascal is discussed.
- Gosling's ACM Interview, see page 2 (<http://www.acmqueue.org/modules.php?name=Content&pa=showpage&pid=173&page=2>) .

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