

acm The History of Electronic Computing (The Beta Release)

"I thought [computers] would be a universally applicable idea, like a book is. But I didn't think it would develop as fast as it did, because I didn't envision we'd be able to get as many parts on a chip as we finally got. The transistor came along unexpectedly. It all happened much faster than we expected."

J. Presper Eckert co-inventor of ENIAC Speaking in 1991.

1940



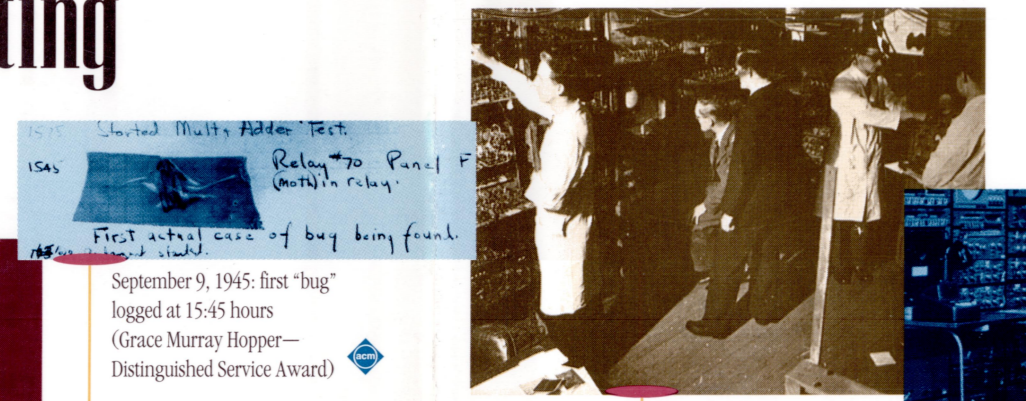
Dickinson files patent for electronic storage element

Konrad Zuse completes the Z3 64 word memory, 3 sec./multiplication

Colossus helps British crack German codes

Government funds Eckert & Mauchly's work on ENIAC—the Electrical Numerical Integrator and Calculator—for use in computing ballistic tables Use of subminiature 18,000 tubes, 360 multiplications/sec

1945



September 9, 1945: first "bug" logged at 15:45 hours (Grace Murray Hopper—Distinguished Service Award)

John von Neumann's EDVAC report on the idea of a general purpose, stored-program computer

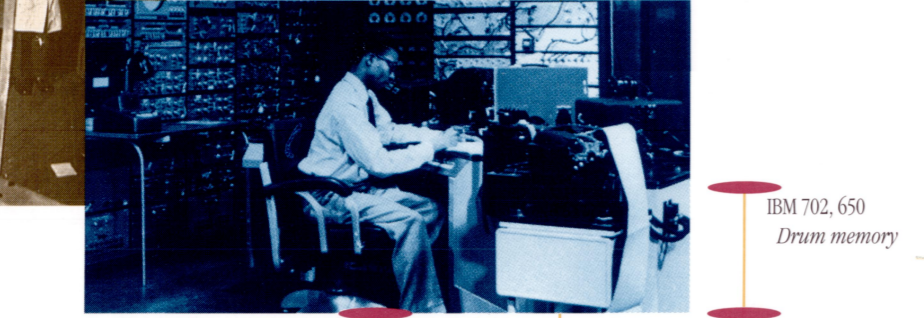
John von Neumann begins influential IAS project at Princeton

Vannevar Bush's article, "As We May Think," appears in Atlantic Monthly, foreseeing use of Hypertext.

Harvard Mark I dedicated 6 sec./multiplication

First transistor (Bell Labs)

1950



Manchester Mark I goes operational (Experimental stored-program computer) 800 multiplications/sec

Forrester and Everett design Whirlwind at MIT

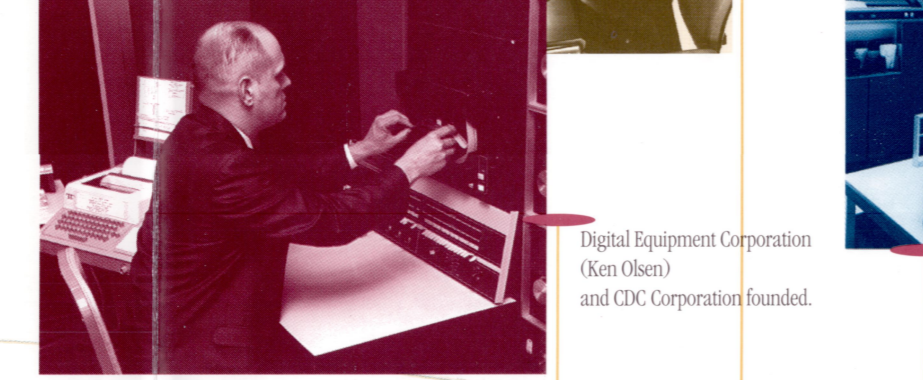
Remington-Rand acquires Eckert-Mauchly (the latter having lost crucial contracts due to McCarthy trials)

Census Bureau takes delivery of Remington-Rand UNIVAC1 16,000 pounds 5,000 vacuum tubes 1,000 calculations/sec. \$150,000 (later units, \$250,000)

EDSAC, the first production stored program computer, runs its first program (Maurice Wilkes—Turing Award, Eckert-Mauchly Award)

First programming error at Census Bureau, June 16

1955



IBM 701 "Defense Calculator"

First use of magnetic core memory, on Whirlwind (Jay Forrester)

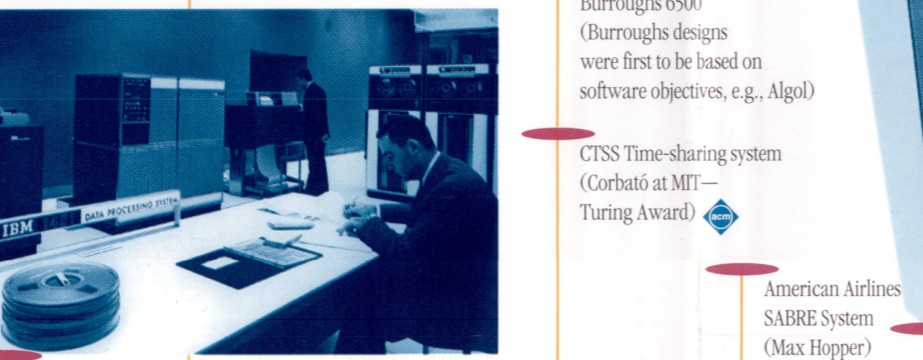
ENIAC turned off for the last time

GE's UNIVAC put to work on payroll: first commercial application

UNIVAC I program correctly predicts outcome of Eisenhower-Stevenson election. Initial forecast, based on very early results, is doubled and withheld from broadcast.

ACM launches Journal of the ACM

1960



IBM 1401 Transistors

Whirlwind shut down

December: DEC announces PDP-1 4K 18 bit words of core, paper tape, CRT, \$150,000

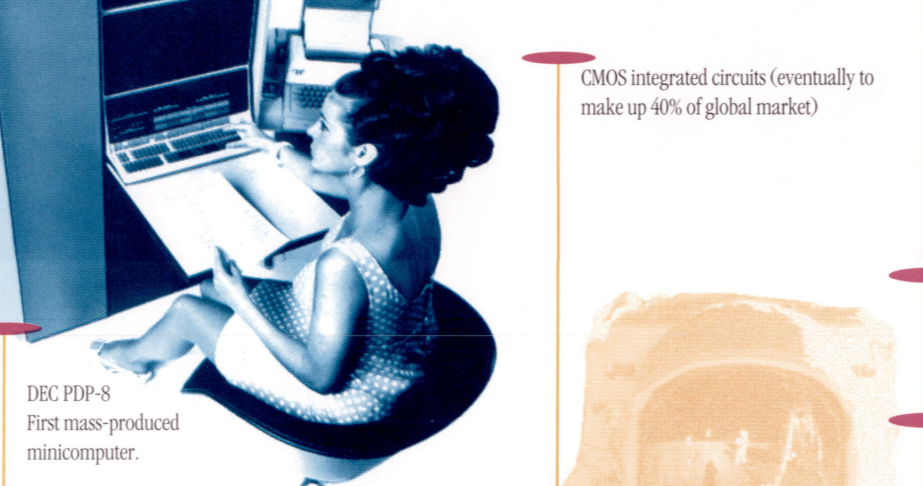
Backus-Naur Form (Backus received Turing Award)

COBOL

1st Design Automation Conference

First volume of Computing Reviews

1965



IBM 360 Binary addressing, cheap feasible time-sharing, virtual memory (Fred Brooks—Distinguished Service Award)

SKETCHPAD Ivan Sutherland (Turing Award) Interactive drawing tool (precursor to CAD), constraint solver, WYSIWYG (What You See is What You Get)

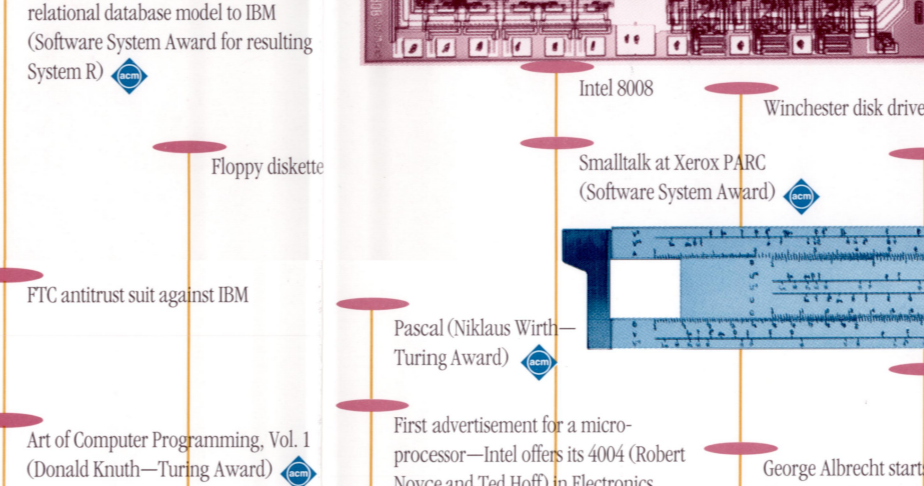
PL/I

Chip in a DIP (Dual Inline Package)

IBM designer Gene Amdahl (Eckert-Mauchly Award) forms Amdahl Corp., makers of mainframes plug-compatible with IBM. Competition leads to dramatic change in IBM prices.

IBM 7090

1970



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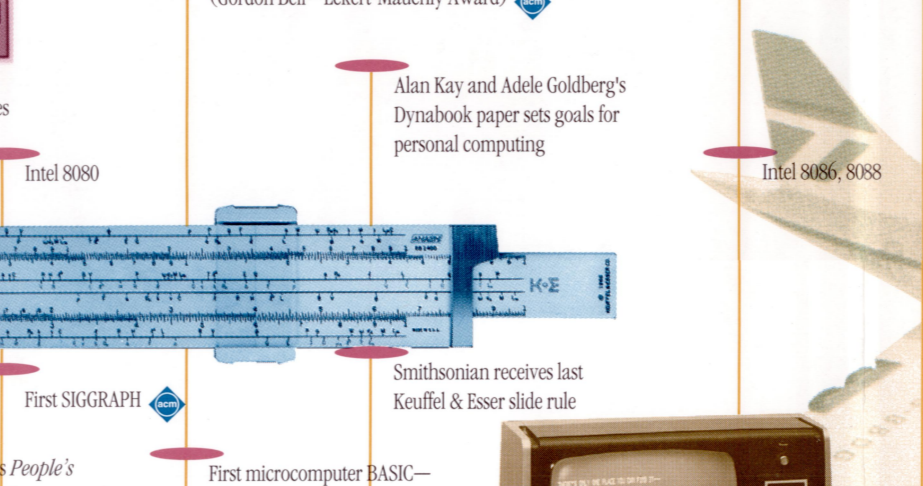
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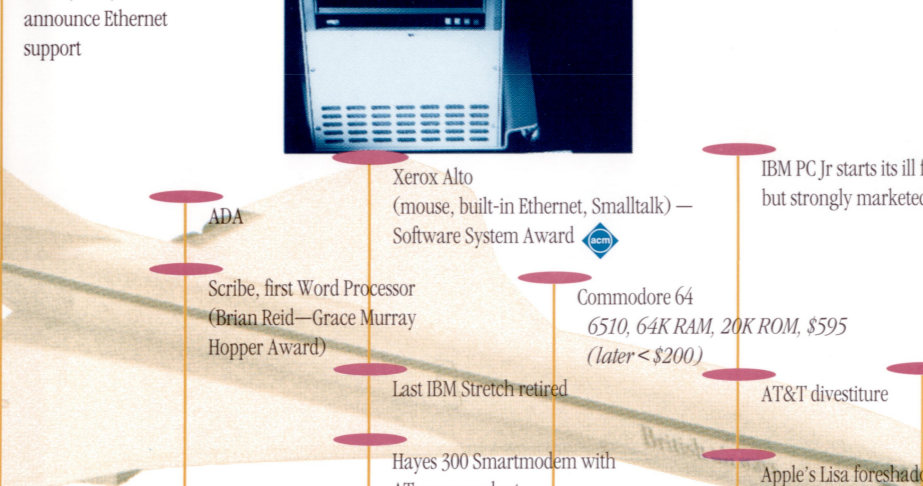
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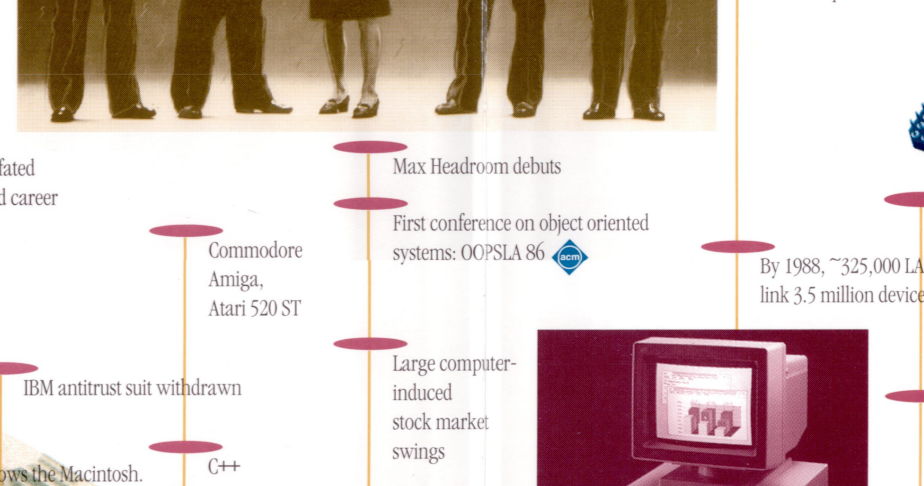
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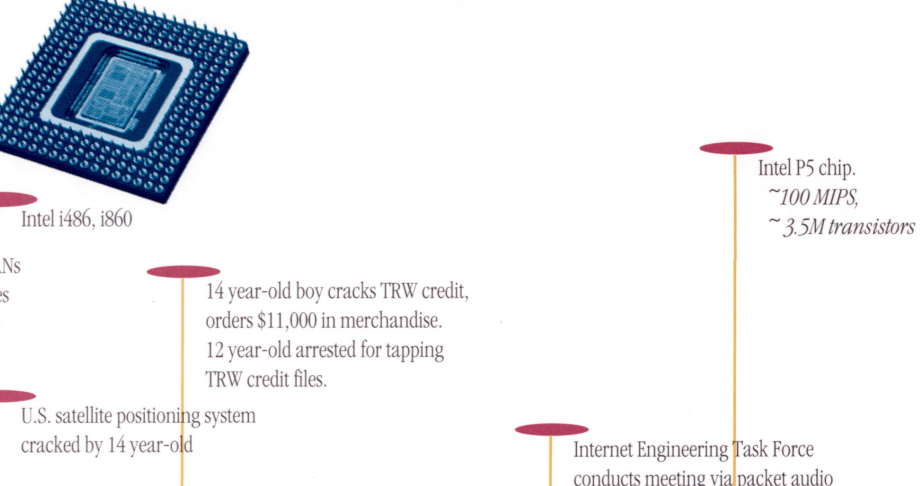
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Note: This is a work in progress, not intended to be a definitive history of electronic computing. Influential people and significant events have no doubt been omitted. A future version will incorporate reader feedback. Send suggestions, corrections, and comments to Timeline Comments, Member Services Department, ACM, 1515 Broadway, New York, NY 10036, or email TMEI@ACM.COM. BTNET. Compiled and written by Marc Rettig. Special thanks to The Computer Museum and Smithsonian Institute (research assistance), Reuter and Associates (design and photo research), Peter Neumann (Risks archive), Walter Carlson, J.A.N. Lee, Aaron Finerman, and Paul Ceruzzi (reviewers). Photos courtesy of International Business Machines Corporation, Intel Corporation, Xerox, Inc., and The Computer Museum.