

# Microprocessadores e Microcontroladores (27146)



## Breve História dos Computadores

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**Departamento de Computação**

Centro de Ciências Exatas e de Tecnologia

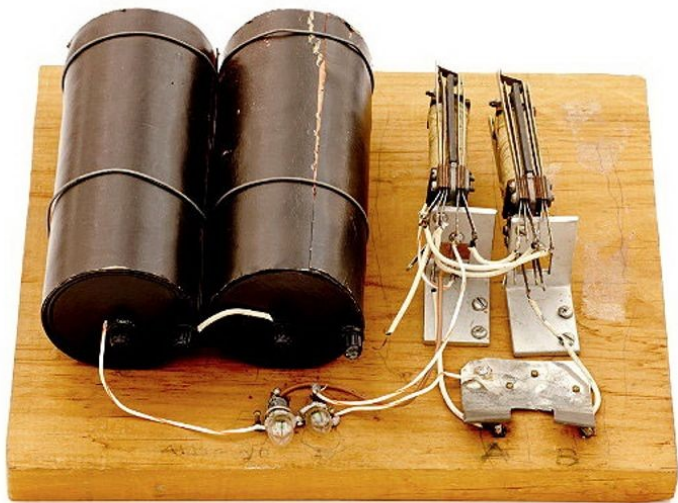
Universidade Federal de São Carlos

1. **Fundamentos (1947 - 1974)**: levando ao 4004 da Intel, o primeiro microprocessador comercial
2. **Nova indústria (1974 - 1980)**: fim do duopólio Intel/Motorola
3. **x86 (1980 - 1984)**: IBM PC e o ataque dos clones
4. **Consolidação (1984 - 1996)**: o poderoso império Wintel
5. **Novas fronteiras (1996 e além)**: a computação se tornou dominante, móvel, onipresente

## Fundamentos (1947 - 1974)

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## 1937: Bell Laboratories: somador feito com relés



## 1939: Hewlett-Packard



## 1946: ENIAC



## 1951: Univac 1



## 1964: IBM System/360





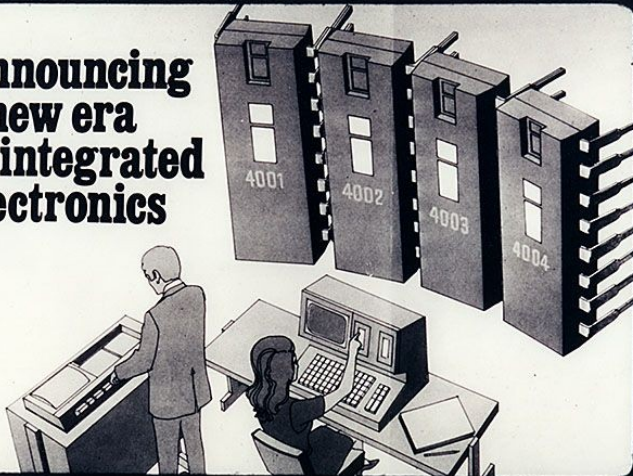
## 1964: DEC PDP-8



## 1971: Hewlett-Packard HP-35

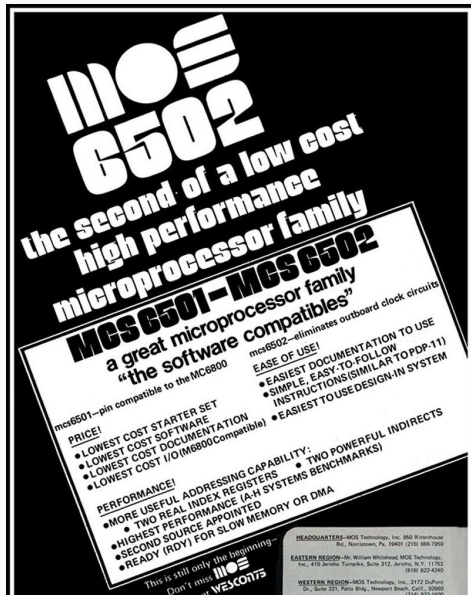


**Announcing  
a new era  
of integrated  
electronics**



## **Nova indústria (1974 - 1980)**

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A black and white advertisement for the MOS 6502 microprocessor. The top half features the 'MOS 6502' logo in a large, stylized font. Below it, the text 'the second of a low cost high performance microprocessor family' is written in a bold, sans-serif font. The bottom half of the ad is a tilted rectangular box containing the text 'MCS 6501-MCS 6502 a great microprocessor family "the software compatibles"'. This box is divided into several sections: 'PRICE!' with a list of cost advantages, 'PERFORMANCE!' with a list of capabilities, 'EASE OF USE!' with a list of usability features, and contact information for MOS Technology, Inc. at the bottom. The overall design is clean and professional, typical of 1970s technical marketing.

**MOS 6502**

the second of a low cost  
high performance  
microprocessor family

**MCS 6501-MCS 6502**  
a great microprocessor family  
"the software compatibles"

mcs6501-pin compatible to the MC6800

**PRICE!**

- LOWEST COST STARTER SET
- LOWEST COST SOFTWARE
- LOWEST COST DOCUMENTATION
- LOWEST COST I/O (M6800 Compatible)

**PERFORMANCE!**

- MORE USEFUL ADDRESSING CAPABILITY:
  - TWO REAL INDEX REGISTERS
  - HIGHEST PERFORMANCE (A-H SYSTEMS BENCHMARKS)
- SECOND SOURCE APPOINTED
- READY (RDY) FOR SLOW MEMORY OR DMA

**EASE OF USE!**

mcs6502-eliminates outboard clock circuits

- EASIEST DOCUMENTATION TO USE
- SIMPLE, EASY-TO-FOLLOW INSTRUCTIONS (SIMILAR TO PDP-11)
- EASIEST TO USE DESIGN-IN SYSTEM

Two POWERFUL INDIRECTS

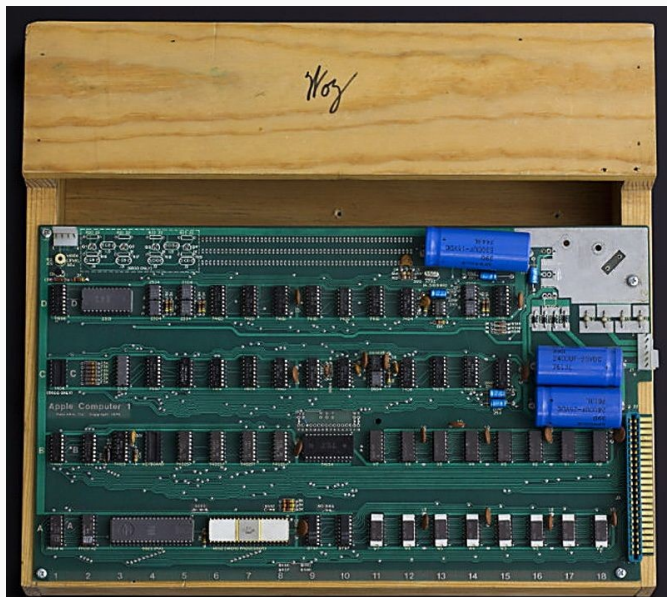
This is still only the beginning—  
Don't miss **MOS** **WESCON**

**HEADQUARTERS**—MOS Technology, Inc. 950 Rittenhouse Rd., Norristown, Pa. 19401 (215) 666-7950

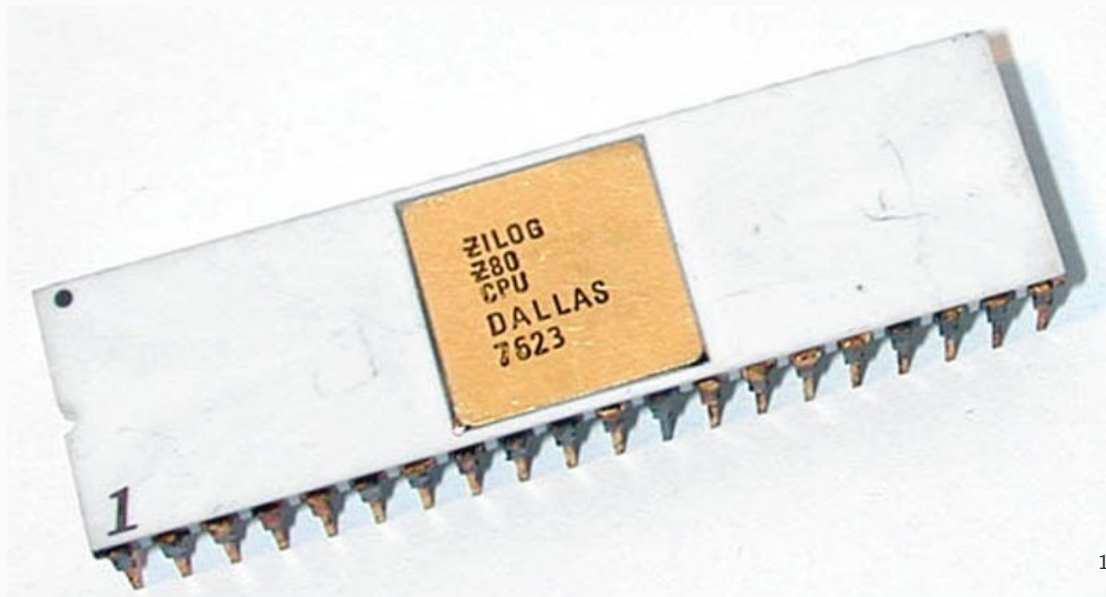
**EASTERN REGION**—Mr. William Whitehead, MOS Technology, Inc., 410 Jericho Turnpike, Suite 312, Jericho, N.Y. 11753 (516) 822-4240

**WESTERN REGION**—MOS Technology, Inc., 2172 DuPont Dr., Suite 221, Palo Alto, Calif., 94303 (415) 351-1000

## 1976: Apple-1



## 1976: Intel 8080 e Zilog Z-80



**x86 (1980 - 1984)**

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## 1981: IBM PC



## 1982: Sun Microsystems



## 1983: Apple Lisa



## 1983: Compaq Portable



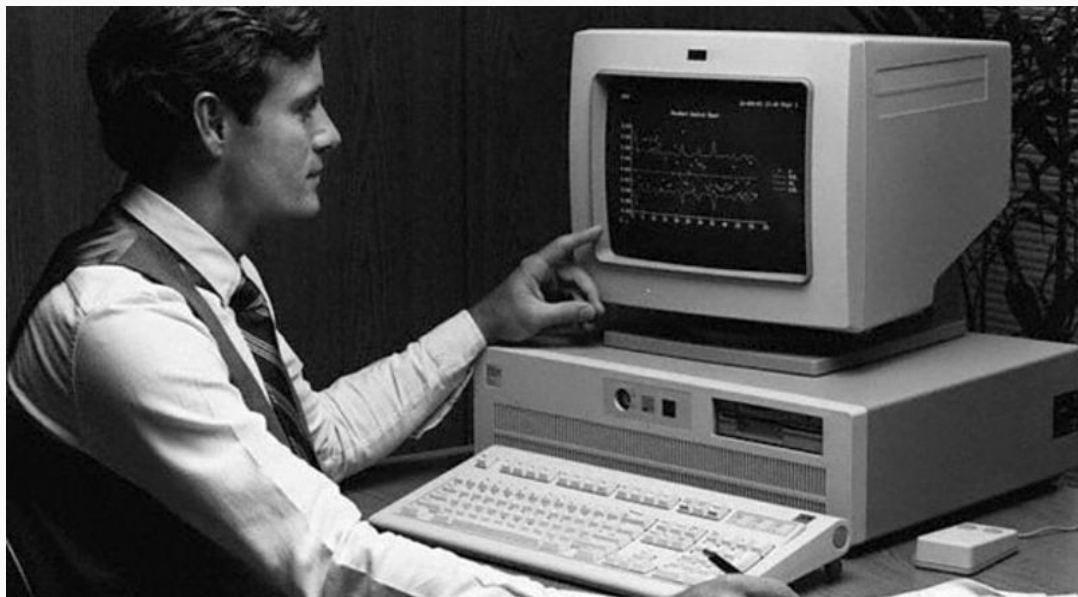
## 1984: Apple Macintosh



## **Consolidação (1984 - 1996)**

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## 1986: IBM RISC



## 1991: PowerBook





## **Novas fronteiras (1996 e além)**

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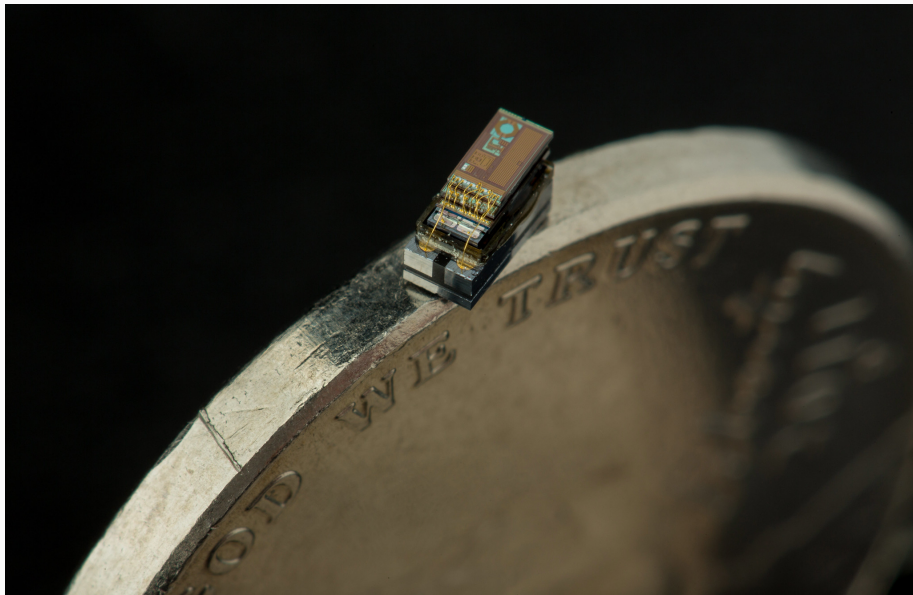
## 2005: Arduino



## 2012: Raspberry Pi



## 2014: Michigan Micro Mote (M3)



## 2015: Apple Watch



## Referências

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- History of Computer Processors, TechSpirited
- 25 Microchips That Shook the World, IEEE Spectrum
- IBM's 100 Icons of Progress
- PARC History - A Legacy Of Creative Innovation And Inventing The Future
- Max Roser and Hannah Ritchie, Technological Progress.

- Computer History Museum
- The History of the Microprocessor and the Personal Computer



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