APPLE

A Closer Look
Introduction

- Announced on May 19, 1980 at the National Computer Conference in Anaheim, California and shipped to dealers in June.

- Became available in limited quantities at retail in the fall of 1980, but it wasn't until spring 1981 that volume shipments began.

- A revised 5-volt edition was introduced in the fall of 1981, intended to address numerous problems.

- A redesigned and greatly improved model, the Apple III+ was introduced in December 1983.
Specs

- SynerTek 6502A processor at 2 MHz
- 128K RAM (later 256K), supporting up to 512K
- Display: Color Composite, Digital XRGB
- 16 Colors at 280 x 192, 16 Shades at 560 x 192 (same in B/W)
- 3 text modes: 40 column, 80 column, 40 column colored text (each letter, and each background could be any of 16 colors)
- 1 Internal 140K 5.25” floppy drive
- Minimal ROM code
- User-definable character sets
- Ports: 2 Serial, 1 external floppy supporting up to 3 external Disk floppy drives
- Sound: 6-bit audio out
- Internal Expansion: 4 slots, electrically compatible with Apple II slots
- Apple II mode: emulates a 48K Apple II
- $7800 (initial price), revised III: $3495, III+: $2995

(AppleMatters.com This Week in Apple History Podcast: Worst. Apple. Ever.)
What did Apple think?

“It just wasn’t a good enough machine and it had so many flaws from the start that when we reintroduced it we should have called it the Apple IV.”
- Woz

“[We lost] infinite, incalculable amounts.”
- Steve Jobs
“"The Apple III was kind of like a baby conceived during a group orgy, and [later] everybody had this bad headache and there's this bastard child, and everyone says, 'It's not mine.'"”

- Randy Wigginton

“It would be dishonest for me to sit here and say it's perfect.”

- Mike Markkula
Case Design

- Heavy cast aluminum case intended to act as a heat sink

- Designed by Steve Jobs without consulting the engineering team

- Fan-free design because Jobs felt fans were "noisy and inelegant"
  - Led to board failure brought on by overheating.

- Forced the engineers to redesign the board layout to fit the case

- Manufactured by a company that normally made engine blocks for automobiles
Board Design

- Due to the redesign forced by Jobs, board traces were too close together, leading to shorting
- Non-gold connectors
- Flaw in manufacturer’s flux washing process led to corrosion
- Problems with sockets led to chips loosening during transport
  - 20% of all Apple ///’s shipped in 1980 arrived DOA
Clock Chip

(AppleMatters.com This Week in Apple History Podcast: "What Time Is It? I Have No Idea – I Use An Apple III")
- National Semiconductor clock/calendar chip began failing
- Month would show as "???", hour would often go to "30" or "40" before rolling over
- Apple removed the chip on all ///'s after February 1981, offered rebates
- Later started selling a separate "upgrade kit" for $50
- No explanation was ever given
Very little software was ready when the /// shipped

- VisiCalc /// was the only third-party application available for several months.
- Apple's own word processor, Apple Writer /// didn't ship until Fall 1981

- Early versions of SOS and Business BASIC were buggy. SOS was a memory hog
- Pascal wasn’t released until late 1981. COBOL and Fortran repeatedly missed ship dates.

- The “Developer Problem” – who wants to develop for a buggy machine?

- SOS was considered complicated and hard to use.

  - Users took to pronouncing it “S-O-S” rather than “sauce” as Apple had hoped.
Underpowered?

- Missing features users felt should come in a business-class personal computer
- No internal hard drive
- No Pascal or other high-level language in ROM
- No high-resolution color monitor to take advantage of improved graphical specs and in-built RGB
- No 68000 chip
When is emulation not emulation?

- An emulation mode was included to allow users access to the Apple II’s software library.
- Emulation requirement seriously limited Sander's options for development (6502 vs 68000, etc).
- Additional circuitry was added to limit emulation capability.
  - No access to extended memory, improved graphics or 80-column modes.
- Apple wanted users to think of the /// as a “serious” computer.
- Didn’t want to cut into Apple II sales.
- Want to play games? Get an Apple II.
SOS and ProDOS

- Many concepts and techniques introduced in SOS live on in ProDOS
  - Prefixes and Pathnames
- Second block of a ProDOS boot disk contains Apple /// SOS boot loader
- Everything is viewed as a device
  - Most expansion cards made for the II can be made to work with the ///
  - Device driver and fit
Discontinuation

- Apple tried to revive the /// with the ///+ but sales remained flat.
- Steve Jobs had already decided that Macintosh represented the future of Apple.
- Apple /// line quietly discontinued on April 24, 1984.
- Final estimated installed base was 75,000 (65,000 Apple ///’s plus 10,000 ///+ machines).
Life After Death

○ User groups and magazines
  ○ Washington Apple Pi, Call-A.P.P.L.E., On Three continued to provide support long after Apple killed the ///
  ○ On Three was the only source for the 512K memory boards and other /// add-ons and hardware post-Apple

○ Sun Remarketing
  ○ Did the same thing they would do later with Lisa hardware
  ○ As late as 1995, you could get a nicely outfitted /// for less than $500
Today’s Apple

- Emulation
  - MESS and SARA

- Hardware Projects
  - Apple3 List
  - CFFA
  - Disk II on a ///
Recommended Reading
And Online Resources

- Washington Apple Pi
  - [http://www.wap.org/a3](http://www.wap.org/a3)
  - Apple /// Archive DVD and Apple /// in 10 EZ Lessons DVD

- Apple3.org

- Apple3-L mailing list

- Call-A.P.P.L.E.
  - [http://applearchives.org/apple/](http://applearchives.org/apple/)