NAME

spoiledapples - Emulation of 6502, 680x0 and PowerPC-based Apple computers and clones

SYNOPSIS

spoiledapples [**-s** *version*] [**-m** *model*] [**-c** *cpu*]
spoiledapples -h

DESCRIPTION

spoiledapples is a Bash command-line interface to launch emulators of 6502, 680x0 and PowerPC-based Apple computers with their operating systems on modern x86_64 architectures under Linux, macOS and Windows.

libspoiledapples is a very heavy library aggregating a collection of emulators, various operating systems and many Apple ROM images.

The **Spoiled_Apples** package includes the **libspoiledapples** library and the **spoiledapples** command-line interface to launch the different emulations.

OPTIONS

At least one of operating system, computer model or the architecture should be passed; otherwise this manual page is shown.

BASIC OPTIONS

-s *version***, --system=***version*
emulates the operating system *version*

For 680x0 and PowerPC-based computers the version may be passed as numbers in the *major*[**.***minor*[**.***revision*]] format. If the version provided is not implemented, then the closest one is chosen.

For 6502-based computers the format must be prefixed: **DOS_***major*[**.***minor*[**.***revision*]] or **ProDOS_***major*[**.***minor*[**.***revision*]]. If the version provided is not implemented, then the closest one is chosen.

Some 6502-based computers can receive also a Z80 extension card and run CP/M, which must be prefixed: **CPM_***major*[**.***minor*]. At the moment, only version 2.2 is implemented, but 3.0 may follow at some point.

Many Macintosh can alternatively run A/UX (Apple Unix). The format must be prefixed: **AUX_***major*[**.***minor*[**.***revision*]]. If the version provided is not implemented, then the closest one is chosen.

If this parameter is not passed, then the best possible operating system for the selected computer model or architecture is chosen (in terms of offered possibilities versus running speed).

-m "*model***", --model="***model***"**
emulates the computer *model*

Currently are implemented:

```
Apple II                        Apple II Plus
Apple III                       Apple IIe
Apple IIGS                      Apple IIc Plus


Agat-9


Pravetz 8A


Macintosh 128K                  Macintosh 512K
Macintosh Plus                  Macintosh SE
Macintosh II                    Macintosh IIx
Macintosh SE/30                 Macintosh IIcx
```

```
          Macintosh IIci                    Macintosh IIfx
          Macintosh Classic                 Macintosh LC
          Macintosh IIsi                    Macintosh IIvi
          Macintosh IIvx                    Macintosh Color Classic
          Macintosh Quadra 700              Macintosh Quadra 900
          Macintosh Quadra 950              Macintosh Quadra 800
          Macintosh Centris 610             Macintosh Centris 650
          Macintosh Quadra 610              Macintosh Quadra 650

          Power Macintosh 8100              Power Macintosh 9500
          Power Macintosh 8500              Power Macintosh 8200
          Power Macintosh 4400              Power Macintosh 8600
          Power Macintosh 9600

          StarMax 3000                      StarMax 4000
          StarMax 5000                      StarMax 5500

          MaxxBoxx 860                      MaxxBoxx 930
          MaxxBoxx 960

          Power Macintosh G3 (Minitower)    Power Mac G4 (PCI Graphics)
          Power Mac G4 (AGP Graphics)       Power Mac G4 Cube
          Power Mac G4 (Digital Audio)
```

If this parameter is not passed, then the best possible computer model for the selected operating system or architecture is chosen (in terms of offered possibilities versus running speed).

-c (*6502|680x0|PowerPC*)**, --cpu=**(*6502|680x0|PowerPC*)
the implemented architectures are *6502*, *680x0* and *PowerPC*

This allows to run System 7.1 or 7.5 or Mac OS 7.6 or 8.1 on both 680x0 and PowerPC computers.

If this parameter is not passed, then the best possible architecture for the selected operating system or computer model is chosen (in terms of offered possibilities versus running speed).

ADVANCED OPTIONS
--rom=*rom*

Please do not use this option unless you know exactly what you are doing. For legal reasons the ROM images cannot be documented yet. (Complain at Apple ;-) We are working on a "fair use" solution for this factual abandonware, in order to make preservation of computer and media history possible.

If this parameter is not passed, then the computer model defines its ROM.

--prom=*prom*

Please do not use this option unless you know exactly what you are doing. It allows to emulate specific hardware settings.

This option may be repeated.

Note that when A/UX is selected, the FPU (floating point unit) and PMMU (paged memory management unit) which are needed on some models are enabled automatically.

Note that when CP/M is selected, the Z80 extension card is enabled automatically.

--plugin=(*algol68|cobol74|fortran77|modula2|newton|pascal|prolog|rapira|* ...)

A plug-in can be used to add functionalities to the emulated computer.

This package includes, as examples, the compilers Reto Kromer wrote in the 1980s and 1990s for five programming languages plus three and a half he wrote during the SARS-CoV-2 pandemic in

2020-2021:

```
language    | architecture              | implemented syntax
-----------+---------------------------+----------------------
Pascal      | 6502        680x0         | doc/bnf_pascal.txt
Modula-2    |             680x0         | doc/bnf_modula2.txt
ALGOL 68    |             680x0  PowerPC | doc/bnf_algol68.txt
Newton      |             680x0  PowerPC | doc/bnf_newton.txt
Prolog      |             680x0  PowerPC | doc/bnf_prolog.txt
-----------+---------------------------+----------------------
COBOL-74    |             680x0  PowerPC | doc/bnf_cobol74.txt
FORTRAN 77  |             680x0  PowerPC | doc/bnf_fortran77.txt
Rapira      | 6502   Z80  680x0  PowerPC | doc/bnf_rapira.txt
Pascal      |        Z80         PowerPC | doc/bnf_pascal.txt
```

This option may be repeated.

If a plug-in is incompatible with the emulated computer, then the option is silently discarded.

Newton is a programming language developed by Charles Rapin at the Swiss Federal Institute of Technology in Lausanne (EPFL) in 1977-1987 and used there for undergraduate teaching.

Rapira is a procedural programming language from the former Soviet Union.

INFORMATIVE OPTION
   -h, --help
      display a help message

NOTES
   This piece of software uses Reto Kromer's own emulators for 6502 and Z80, flavours of **Mini vMac**, **Basilisk II** and **Shoebill** for 680x0, and flavours of **SheepShaver** and **QEMU** for PowerPC.

   The following operating systems and architecture combinations are currently implemented:

```
operating system   | architecture        | remarks
-------------------+---------------------+----------------------
Apple DOS 3.3      | 6502                | including clones
Apple ProDOS 1.0.2 | 6502                |
Apple ProDOS 2.0.3 | 6502                |
ProDOS 2.4.2       | 6502                | all Apple II
ProDOS 2.5 alpha 8 | 6502                | all Apple II and III
-------------------+---------------------+----------------------
CP/M 2.2           | Z80                 | Apple II, Plus, IIe;
                   |                     | Agat-9, Pravetz 8A
-------------------+---------------------+----------------------
System Software 6.0.8 |      680x0       |
A/UX 1.1.1         |      680x0          | some Macintosh II
A/UX 2.0.2         |      680x0          | more Macintosh II
A/UX 3.1.1         |      680x0          | many Macintosh II
-------------------+---------------------+----------------------
System 7.1.2       |      680x0  PowerPC |
System 7.5.5       |      680x0  PowerPC | including clones
Mac OS 7.6.1       |      680x0  PowerPC | including clones
Mac OS 8.1         |      600x0  PowerPC | including clones
-------------------+---------------------+----------------------
Mac OS 8.5.1       |             PowerPC | including clones
Mac OS 8.6         |             PowerPC | including clones
Mac OS 9.0.4       |             PowerPC | including clones
Mac OS 9.2.2       |             PowerPC |
```

and have been successfully tested on modern x86_64 and AArch64 architectures running the following operating systems:

Linux: Debian 12.4, 11.8, 10.13, 9.13, 8.11 and 7.11; Ubuntu 23.10, 22.04.3 LTS, 20.04.6 LTS, 18.04.6 LTS, 16.04.7 LTS, 14.04.6 LTS and 12.04.5 LTS; Slackware 15.0, 14.2, 14.1 and 14.0; Qubes OS 4.1.2, 4.0.4 and 3.2.1

Macintosh: macOS 14.4, 13.6.4, 12.7.3, 11.7.10, 10.15.7, 10.14.6, 10.13.6 and 10.12.6; OS X 10.11.6, 10.10.5, 10.9.5, 10.8.5, 10.7.5, 10.6.8, 10.5.8 and 10.4.11

Windows: 11 version 22H2 and 21H2 and 10 version 22H2, 21H2, 21H1, 20H2, 2004, 1909, 1903, 1809, 1803 and 1709, running Terminal or Subsystem for Linux

In addition, cross-compilation from Debian works fine.

ProDOS 2.4 has been released by John Brooks on 2016-09-15 and runs on all Apple II computers, unlike Apple's own ProDOS. And ProDOS 2.5 runs even on Apple III computers.

CP/M 2.2 runs on Apple II, II Plus and IIe, as well as on the Soviet Agat-9 and Bulgarian Pravetz 8A clones.

A/UX 1.1.1 runs on Macintosh II, IIx, SE/30, IIcx and IIci.

A/UX 2.0.2 runs on Macintosh II, IIx, SE/30, IIcx, IIci, IIfx and IIsi.

A/UX 3.1.1 runs on Macintosh II, IIx, SE/30, IIcx, IIci, IIfx, IIsi; Macintosh Quadra 700, 900 and 950; Centris 610 and 650; Quadra 610, 650 and 800.

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