NAME

spoiledapples -- Emulation of 6502, 65C816, 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, 65C816, 680x0 and PowerPC-based Apple computers with their operating systems on modern x86-64 (AMD64) and AArch64 (ARM64) 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.

The 65C816-based Apple IIgs can run GS/OS, which must be prefixed: **GS**_*major*[**.***minor*]. Only version 4.02 is implemented.

The 65C816-based Apple IIgs can also run GNO/ME (GNO Multitasking Environment), which must be prefixed: **GNO**_*major*[**.***minor*[**.***revision*]]. Only version 2.0.6 is implemented.

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 *cpu*, **--cpu=***cpu*
emulates the *cpu*

Currently are implemented:
6502
Z80
65C816
680x0
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.

Currently are implemented:
- 68851
- 68881
- 68882
- SoftCard
- SoftCard II
- SoftCard IIe

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="*plugin***"**

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

Currently are implemented:
- algol68
- cobol74
- fortran77
- modula2
- newton
- pascal
- prolog
- rapira

This option may be repeated.

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

INFORMATIVE OPTION

-h, --help

display a help message

NOTES

This piece of software uses Reto Kromer's own emulators for 6502, 65C816 and Z80, flavours of **Mini vMac**, **Basilisk II** and **Shoebill** for 680x0, and flavours of **SheepShaver** and **QEMU** for PowerPC.

The following operating system 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 2.4.3	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
GS/OS 4.02	65C816	only Apple IIgs
GNO/ME 2.0.6	65C816	only Apple IIgs
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 (AMD64) and AArch64 (ARM64) architectures running the following operating systems:

Linux: Debian 13.6, 12.15 and 11.11
Linux: Ubuntu 26.04 LTS, 24.04.4 LTS and 22.04.5 LTS

Macintosh: macOS 26.6.2, 15.7.9 and 14.8.9

Windows 11 version 26H1, 25H2, 24H2 and 23H2 running Subsystem for Linux (WSL 2.7.11)

In addition, cross-compilation from Debian works fine.

Until version 2024-08-10 we tested the **Spoiled_Apples** package also under the following operating systems:

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

Macintosh: macOS 13.7.8, 12.7.6, 11.7.11, 10.15.8, 10.14.6, 10.13.6 and 10.12.6
Macintosh: 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 running Subsystem for Linux (WSL)
Windows: 10 version 22H2, 21H2, 21H1, 20H2, 2004, 1909, 1903, 1809, 1803 and 1709 running Subsystem for Linux (WSL)

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 illegal Soviet Agat-9 and Bulgarian Pravetz 8A clones.

GS/OS 4.02 and GNO/ME 2.0.6 run only on Apple IIgs.

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

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

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

This package includes, as examples of plugins, 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, and he added two more compilers in 2024:

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
Pascal	65C816	doc/bnf_pascal.txt
Rapira	65C816	doc/bnf_rapira.txt

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.

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