



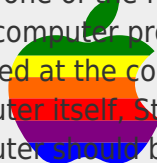
This article is still under construction.

Apple][line

The Apple][is a family of 8-bit computers developed by Apple (primarily by [Steve Wozniak](#)) dating back to 1977. The most recent model is the Apple IIc Plus, which was discontinued on November 1993.



It was one of the first majorly successful consumer-oriented microcomputer products, and opened the way for software targeted at the consumer audience. Regarding the design of the computer itself, Steve Wozniak stated "To me, a personal computer should be small, reliable, convenient to use, and inexpensive."



Apple IIGS

The line includes:

- **Apple][** The first one. Features a 6502 CPU at 1.023 MHz and 4KB of RAM.
- **Apple][+** An incremental upgrade featuring four times the RAM (16KB).
- **Apple //e** Even more RAM (64KB), a full ASCII keyboard and better display modes.
- **Apple IIc** The first CPU upgrade, opting to use a 65C02 CPU at 1.023 MHz and 128KB of RAM.
- **Apple IIGS** Has [its own section](#) in this article.
- **Apple //e Enhanced** The Apple //e but with the 65C02 CPU.
- **Apple //e Platinum** The Apple //e Enhanced with extra RAM (128KB).
- **Apple IIc Plus** Allowed the user to change the CPU clock between 1.023MHz and 4MHz and had an 8KB SRAM cache.



This system scrapes metadata for the "apple2" group and loads the apple2 set from the currently selected theme, if available.

Quick reference

- **Accepted ROM formats:** .nib, .do, .po, .dsk, .mfi, .dfi, .rti, .edd, .woz, .wav, .zip, .7z
- **Folder:** /userdata/roms/apple2

| Emulators | Accepted ROM formats |
|--------------------------------|---|
| libretro: mame | .nib, .do, .po, .dsk, .mfi, .dfi, .rti, .edd, .woz, .wav, .zip, .7z |
| MAME | .nib, .do, .po, .dsk, .mfi, .dfi, .rti, .edd, .woz, .wav, .zip, .7z |

| Emulators | Accepted ROM formats |
|--------------------------|----------------------------|
| GSplus | .nib, .do, .po, .dsk |
| LinApple | .nib, .do, .po, .dsk, .2mg |

BIOS

| MD5 checksum | Share file path | Description |
|----------------------------------|--------------------|-------------|
| 4431aea380185e3f509285540d7cb418 | bios/apple2e.zip | |
| e6d453d8738e6df4f73df8c8051df3e8 | bios/apple2e.zip | |
| 72924019cf1719765e4fde35e59c1c7d | bios/apple2e.zip | |
| 0b150f4bfa090770a866cc5d214703f4 | bios/apple2e.zip | |
| 2020aa1413ff77fe29353f3ee72dc295 | bios/a2disking.zip | |
| 95b91e4a2fe7d6f13d353ba1827d37f9 | bios/votrax.zip | |
| 5f1be0c1cdf26f5956eef9643911886 | bios/d2fdc.zip | |

ROMs

Place your Apple][ROMs in /userdata/roms/apple2.

Place your Apple IIGS ROMs in /userdata/roms/apple2gs.

.2mg ROMs will only be recognized in the apple2gs folder.

Emulators

RetroArch

RetroArch has [its own page](#).

libretro: mame

libretro: mame configuration

Standardized features for this core: apple2.autosave, apple2.netplay

| ES setting name batocera.conf_key | Description ⇒ ES option key_value |
|--|---|
| Settings that apply to all systems this core supports | |
| OVERCLOCK (UNSTABLE) global.mame_cpu_overclock | Enhancement. Reduces system slowdown. Causes issues in some games. ⇒ default default, 30 30, 35 35, 40 40, 45 45, 50 50, 55 55, 60 60, 65 65, 70 70, 75 75, 80 80, 85 85, 90 90, 95 95, 100 100, 105 105, 110 110, 115 115, 120 120, 125 125, 130 130, 135 135, 140 140, 145 145, 150 150. |


| ES setting name batocera.conf_key | Description ⇒ ES option key_value |
|--|--|
| RENDERING RESOLUTION <code>global.mame_altres</code> | Enhancement. Increase the rendering resolution. Makes 3D objects clearer. ⇒ 640×480 640×480, 800×600 800×600, 960×720 960×720, 1024×768 1024×768, 1280×720 1280×720, 1600×800 1600×800, 1920×1080 1920×1080, 2560×1440 2560×1440, 3840×2160 3840×2160. |
| SPECIAL CONTROL LAYOUTS <code>global.altlayout</code> | Controls for 5/6 button games and other unique controls ⇒ Default Only default, SNES Style snes, Genesis/Megadrive Style megadrive, Modern Fightstick Style fightstick, Neo Geo Mini Pad neomini, Neo Geo CD Pad neocd, Twin Stick with Triggers twinstick, Rotated 4-Way Stick (Q*Bert) qbert. |
| HIGH SCORE PLUGIN <code>global.hiscoreplugin</code> | Enable or disable high score saving ⇒ Enabled (Default) 1, Disabled 0. |
| COIN SOUND PLUGIN <code>global.coindropplugin</code> | Play a coin drop sound effect when an insert coin button is pressed ⇒ Enabled 1, Disabled (Default) 0. |
| SHARE MAME ARTWORK <code>global.sharemameart</code> | Use the same art paths as standalone MAME - not recommended if using decorations or shaders. ⇒ On (Default) 1, Off 0. |
| CROP ARTWORK <code>global.artworkcrop</code> | Crop MAME artwork to maximize the game screen and only fill unused space. ⇒ On (Default) 1, Off 0. |
| CUSTOM MAME CONFIG <code>global.customcfg</code> | Set system-wide controls via MAME menu ⇒ On 1, Off 0. |
| OFF-SCREEN RELOAD BUTTON <code>global.offscreenreload</code> | Set gun button 2 to reload. ⇒ On 1, Off (Default) 0. |
| Settings specific to apple2 | |
| SOFTWARE LIST <code>apple2.softList</code> | Use MAME software lists to identify ROM ⇒ Don't Use (Default) none, Apple II cleanly cracked disks <code>apple2_flop_clcracked</code> , Apple II miscellaneous disks <code>apple2_flop_misc</code> , Apple II original disks <code>apple2_flop_orig</code> . |
| MEDIA TYPE <code>apple2.altromtype</code> | Type of ROM file to load. ⇒ Cassette <code>cass</code> , Disk (Drive 1) <code>flop1</code> , Disk (Drive 2) <code>flop2</code> . |
| UI KEYS <code>apple2.enableui</code> | Toggle with hotkey + D-pad up or Scroll Lock in-game. ⇒ Off at Start 0, On at Start 1. |
| CUSTOM GAME CONFIG <code>apple2.pergamecfg</code> | Enable per-game custom configuration via MAME menu. ⇒ On 1, Off 0. |

MAME

[MAME](#), the Multiple Arcade Machine Emulator, is a multi-purpose emulation framework which facilitates the emulation of vintage hardware and software. Originally targeting vintage arcade machines, MAME has since absorbed the sister-project [MESS](#) (Multi Emulator Super System) to support a wide variety of vintage computers, video game consoles and calculators as well. MAME

doesn't use an individual "core" for each system like RetroArch does, instead the ROM itself usually contains the necessary information to accurately emulate it, thus making it specific to the version of MAME it was made for. Overall it's a very complicated subject, we have a [guide specific to arcade](#) just for it.

MAME configuration

MAME offers a **Menu** in-game ([HOTKEY] +  or [Tab] on the keyboard). This can be used to manually adjust inputs or game settings. If you're having issues with a specific game, check the [MAMEdev FAQ for that game here](#). For MESS systems specifically, you might find more information on [MESS's wiki](#). All options can also be edited by opening the `mame.ini` file.

Standardized features available to all versions of this emulator: `apple2.videomode`, `apple2.padtokeyboard`, `apple2.videomode`, `apple2.bezel`, `apple2.bezel_stretch`, `apple2.hud`, `apple2.hud_corner`, `apple2.bezel.tattoo`, `apple2.bezel.tattoo_corner`, `apple2.bezel.tattoo_file`, `apple2.bezel.resize_tattoo`

| ES setting name batocera.conf_key | Description ⇒ ES option key_value |
|--|---|
| Settings that apply to all versions of this emulator | |
| VIDEO MODE <code>apple2.video</code> | BGFX for post-processing, accel/opengl for raw image. ⇒ BGFX <code>bgfx</code> , Accel <code>accel</code> , OpenGL <code>opengl</code> . |
| VSYNC <code>apple2.vsync</code> | Fix screen tearing, but may drop frames. ⇒ Off (Default) <code>0</code> , On <code>1</code> . |
| BGFX GRAPHICS API <code>apple2.bgfxbackend</code> | Depends on video mode being set to BGFX. Vulkan is better, when supported. ⇒ MAME Detect <code>automatic</code> , OpenGL <code>opengl</code> , OpenGL ES <code>gles</code> , Vulkan <code>vulkan</code> . |
| BGFX VIDEO FILTER <code>apple2.bgfxshaders</code> | Apply a post-processing effect. ⇒ Off <code>None</code> , Bilinear <code>default</code> , CRT Geom <code>crt-geom</code> , CRT Geom Deluxe <code>crt-geom-deluxe</code> , CRT Geom Deluxe (RGB) <code>crt-geom-deluxe-rgb</code> , CRT Geom Deluxe (Composite) <code>crt-geom-deluxe-composite</code> , Super Eagle <code>eagle</code> , HLSL <code>hls1</code> , HQ2X <code>hq2x</code> , HQ3X <code>hq3x</code> , HQ4X <code>hq4x</code> . |
| CRT SWITCHRES <code>apple2.switchres</code> | Allows the use of switchres profiles if present. ⇒ Off <code>0</code> , On <code>1</code> . |
| VERTICAL ROTATION (TATE) <code>apple2.rotation</code> | Rotates screen by 90 degrees. Intended for rotating displays. ⇒ Off <code>None</code> , Rotate 90 <code>autoror</code> , Rotate 270 <code>autorol</code> . |
| ARTWORK CROP <code>apple2.artworkcrop</code> | Crop artwork to only unused space, keeping the game as large as possible. ⇒ Off (Default) <code>0</code> , On <code>1</code> . |
| CUSTOM MAME CONFIG <code>apple2.customcfg</code> | Set system-wide controls via MAME menu ⇒ On <code>1</code> , Off <code>0</code> . |
| DATA PLUGIN <code>apple2.dataplugin</code> | Make game history, setup instructions, and special moves viewable in the menu ⇒ Enabled <code>1</code> , Disabled (Default) <code>0</code> . |
| OFF-SCREEN RELOAD BUTTON <code>apple2.offscreenreload</code> | Set gun button 2 to reload. ⇒ On <code>1</code> , Off (Default) <code>0</code> . |
| Settings specific to apple2 | |

| ES setting name batocera.conf_key | Description ⇒ ES option key_value |
|---|---|
| SOFTWARE LIST apple2.softList | Use MAME software lists to identify ROM ⇒ Don't Use (Default) none, Apple II cleanly cracked disks apple2_flop_clcracked, Apple II miscellaneous disks apple2_flop_misc, Apple II original disks apple2_flop_orig. |
| MEDIA TYPE apple2.altromtype | Type of ROM file to load. ⇒ Cassette cass, Disk (Drive 1) flop1, Disk (Drive 2) flop2. |
| UI KEYS apple2.enableui | Toggle with hotkey + D-pad up or Scroll Lock in-game. ⇒ Off at Start 0, On at Start 1. |
| CUSTOM GAME CONFIG apple2.pergamecfg | Enable per-game custom configuration via MAME menu. ⇒ On 1, Off 0. |

GSplus

GSplus is an open source, cross-platform Apple II/IIGS emulator, based on the KEGS and GSPort emulators.

The goals of this project are to make an easier to install and easier to use emulator, and to modernize the overall codebase and emulation platform.

While much work has been done, adding new drivers and features over the past year, it is still in alpha phase. Feel free to download the package for your platform and play around, but beware there are many bugs still.

GSplus configuration

Standardized features available to all cores of this emulator: apple2.videomode, apple2.padtokeyboard, apple2.decoration

LinApple



LinApple is no longer available on newer versions of Batocera (when exactly?) since around **v30**.



LinApple is a cross-platform Apple II/IIIe emulator. It is probably not capable of running Apple IIGS software.

The Pi port of it has a [readme](#).

LinApple configuration

Standardized features available to all cores of this emulator: apple2.videomode, apple2.ratio,

apple2.padtokeyboard, apple2.decoration

Apple IIGS

About halfway through the life of the Apple][family line, Apple released the Apple IIGS which was a significant change in hardware to the previous Apple 8-bit computers, using a 16-bit 65C816 microprocessor, 256KB or 1MB of RAM (expandable up to 1MB) and the highest resolution display (up to 640×200) and state-of-the-art sound capabilities with the Ensoniq ES5503 DOC 8-bit wavetable synthesis sound chip. Among all the other computers in the line, the Apple IIGS remained the most performant of the bunch, and for this reason it is usually the “default” system that Apple][emulators will use for running its software.

However, the Apple IIGS was only around 95% backwards compatible with software designed for the original Apple][computers.



How do you change it back to emulating an Apple][? Or is this limitation not imposed by the emulator (like with Game Boy software)?

Controls

Here are the default Apple II's controls shown on a [Batocera RetroPad](#):



Troubleshooting

Further troubleshooting

For further troubleshooting, refer to the [generic support pages](#).

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