

# Retro<br/>Arch (v0.9.9) - Cores Manual

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## 2 About Us

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## 1 Introduction

Listed below are all the cores that RetroArch supports.

• SNES9x

Used for: playing SNES games (Super Nintendo Entertainment System) Author(s): Original SNES9x team, OV2, Bearoso, zones Minimum system requirements (Android): ARM Cortex A9 multi-core device (and up) Extensions: "smc|fig|sfc|gd3|gd7|dx2|bsx|swc"

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• SNES9x Next

Used for: playing SNES games (Super Nintendo Entertainment System) Author(s): Original SNES9x team, OV2, Bearoso, zones, Squarepusher (fork)

Recommended system requirements: ARM Cortex A9 multi-core device (and up)

Extensions: "smc|fig|sfc|gd3|gd7|dx2|bsx|swc"

• VBA Next

Used for: playing Game Boy Advance games Recommended system requirements: ARM Cortex A9 multi-core based device (and up) Author(s): Forgotten, VBA-M team, Squarepusher (fork) Extensions: "gba"

- FCEUmm Used for: playing NES games (Nintendo Entertainment System) Author(s): CaH4e3, original FCEU authors Extensions: "fds|nes|unif"
- NEStopia Used for: playing NES games (Nintendo Entertainment System) Author(s): Marty Extensions supported: "nes|fds"
- Gambatte Used for: playing GameBoy / GameBoy Color games Author(s): Sinamas Extensions supported: "gb|gbc|dmg"
- Final Burn Alpha Used for: playing arcade games Author(s): Dave, FBA Team (Barry Harris & co) Extensions supported: "zip"
- Genesis Plus GX Used for: playing Sega Genesis / Master System / Game Gear / Sega CD games Author(s): Charles McDonald, ekeeke Extensions supported: "md|smd|bin|cue|gen|bin|iso| sms|gg|sg"
- NX Engine Used for: playing Cave Story / Doukutsu Monogatari Author(s): Caitlin Shaw (rogueeve) Extensions supported: "exe"
- PCSX ReARMed Used for: playing PlayStation1 games Author(s): PCSX Team, Notaz, Exophase (GPU plugin) Extensions supported: "bin|cue|img|mdf|pbp|cbn"
- Prboom Used for: playing Doom, Doom 2, Ultimate Doom, Final Doom, and mods Author(s): Various Extensions supported: "wad|iwad"
- Quake

Used for: playing Quake 1, Quake 1 Mission Pack - Scourge of Armagon and Quake Mission Pack - Dissolution of Eternity Author(s): Various Extensions supported: "pak"

- Mednafen NGP Used for: playing Neo Geo Pocket Color games Author(s): Original Neopop authors, Ryphecha Extensions supported: "ngp|ngc"
- Mednafen WonderSwan Used for: playing WonderSwan / WonderSwan Color / WonderSwan Crystal games Author(s): Original Cygne authors, Ryphecha Extensions supported: "ws|wsc"
- Mednafen Virtual Boy Used for: playing Virtual Boy games Author: Ryphecha Extensions supported: "vb|vboy|bin"
- Mednafen PC Engine Used for: playing PC Engine / Supergrafx 16 / PC Engine CD games Author: Ryphecha Extensions supported: "pce|sgx|cue"

We'll go over each of these.

## 1.1 SNES9x

## 1.2 SNES9x Next

#### **Version:** v1.52.3

Android performance: This emulator should run at fullspeed on an Android device with a dual-core ARM Cortex A9-based CPU.

**iOS performance:** This emulator should run all games at fullspeed on an iPad 2/Mini. Your mileage may vary on different devices.

#### 1.2.1 CHANGELOG

#### v1.52.4

• Speed optimizations for Star Fox 1 / Star Wing - now makes them fast enough for fullspeed gameplay on Wii.

#### v1.52.3

- Fixed DKC2 graphics inaccuracies
- Fixed issue that could corrupt memory addresses over time found while deiniting Super Mario Kart.
- Updated to use RGB565 as pixel format.
- Speed hacks for Final Fantasy III/VI makes it fullspeed for Wii.
- Fixed Super Double Dragon input issue.

## 1.3 VBA Next

#### **Version:** v1.0.2

Android performance: This emulator needs at least a dual-core ARM Cortex A9-based CPU and up, but even this will not guarantee full-speed performance. Due to VBA having an interpreter CPU core, system requirements are rather high.

**iOS performance:** This emulator should run (mostly if not all) games at fullspeed on an iPad 4. Your mileage may vary on different devices.

#### 1.3.1 CHANGELOG

#### v1.0.2

- Added Pokemon Emerald to built-in vbaover fixes white screen
- Lessens RAM footprint makes Mother 3 fit into memory on Wii.
- More consistent syncing.
- Updated to use RGB565 as pixel format.

#### 1.4 FCEUmm

#### Version: 98.13 SVN

Android performance: This emulator has been tested to run at fullspeed on an ARM Cortex A8 single-core CPU. Your mileage may vary on slower devices.

iOS performance: This emulator should run all games at fullspeed on an iPad 2/Mini and lower-specced devices as well. Your mileage may vary on different devices.

## 1.4.1 CHANGELOG

#### For 0.9.8 point release

- Upgraded to latest SVN (r134)
- Updated to use RGB565 as pixel format.

#### 1.5 NEStopia

#### Version: 1.44

Android performance: This emulator has been tested to run at fullspeed on an ARM Cortex A8 single-core CPU. Your mileage may vary on slower devices.

iOS performance: This emulator should run all games at fullspeed on an iPad 2/Mini and lower-specced devices as well. Your mileage may vary on different devices.

## 1.5.1 NOTES

- There might still be an audio desync that happen at the half hour mark. Ever since NEStopia 1.36 some kind of APU bug has been inadvertently introduced. We will be researching this.
- For Famicom Disk System games Y Button will switch sides of a disk.
  If you get any problems of the sort DISK A / B ERR 07' pressing Y button again or letting it run its course should do it.
- Famicom Disk System loading is slow, so you might be tempted to fast forward through most of it. However, I'd advise caution when doing so and to savestate regularly in case 'fast forwarding' can negatively affect disk loading.

#### 1.5.2 CHANGELOG

#### For 0.9.8.3 point release

• Famicom Disk System support. Put disksys.rom inside your system directory.

#### For 0.9.8 point release

• New port

#### 1.6 Gambatte

#### **Version:** 0.50

Android performance: This emulator has been tested to run at fullspeed on an ARM Cortex A8 single-core CPU. Your mileage may vary on slower devices.

**iOS performance:** This emulator should run all games at fullspeed on an iPad 2/Mini. Your mileage may vary on different devices.

#### 1.6.1 CHANGELOG

#### For 0.9.8 point release

- Now makes use of GBC BIOS color palettes.
- Can also make use of custom color palettes.
- Updated to use RGBX8888 as pixel format.

## 1.7 Final Burn Alpha

#### Version: 0.2.97.28

Android performance: Performance varies based on the game you're trying to play. Systems like CPS2 and Neogeo have been tested to run at fullspeed

on an ARM Cortex A8 single-core CPU. CPS3 needs a dual-core ARM Cortex A9-based CPU for fullspeed gameplay. Your mileage may vary on slower devices.

**iOS performance:** Performance varies based on the game you're trying to play.

#### 1.7.1 NOTES

- Savestates are hooked up but games can't have their 'state restored' after unloading the game and loading it again.
- If you want to play Warzard or Red Earth and you happen to get a 'No CD-ROM drive' message do the 'Reset' combo (see above) it should work then.

#### 1.7.2 CHANGELOG

#### For 0.9.8 point release

- Upgraded to 0.2.97.28.
- Controls have been revised most of the controls should now be properly hooked up.
- Button combos have been changed -RetroPad L2 + RetroPad R2 + RetroPad L + RetroPad R + Select = Service Menu button
  RetroPad L2 + RetroPad R2 + RetroPad L + RetroPad R + Start = Diagnostic button
  RetroPad L2 + RetroPad R2 + RetroPad L + RetroPad R + Left = Reset button
  RetroPad L2 + RetroPad R2 + RetroPad L + RetroPad R + Right = DIP A Pressed
  RetroPad L2 + RetroPad R2 + RetroPad L + RetroPad R + Up = DIP B Pressed
  RetroPad L2 + RetroPad R2 + RetroPad L + RetroPad R + Up = DIP B Pressed
  RetroPad L2 + RetroPad R2 + RetroPad L + RetroPad R + Up = DIP B Pressed
- Uses RGBX8888 as a color format for Psikyo SH2 games and RGB565 for everything else.

## 1.8 Genesis Plus GX

#### **Version:** 1.7.3

Android performance: This emulator has been tested to run regular Genesis and Sega CD games at fullspeed on an ARM Cortex A8 single-core CPU. Virtua Racing runs at half realtime speed on the same hardware and thus needs better system requirements. Your mileage may vary on slower devices. iOS performance: This emulator should run all games at fullspeed on an iPad 2/Mini (with the exception of the SVP-chip based game Virtua Racing) and possibly lower specced ones as well. Your mileage may vary on different devices.

#### 1.8.1 NOTES

• To play Sega CD/Mega CD games, you will need Sega CD BIOS files inside the system directory. They should be named as follows: bios\_CD\_E.bin (for EU BIOS), bios\_CD\_U.bin (for US BIOS), bios\_CD\_J.bin (for Japanese BIOS).

#### 1.8.2 CHANGELOG

#### For 0.9.8 point release

- Upgraded to 1.7.3 (might report 1.7.1 but is really 1.7.3).
- Updated to use RGB565.

## 1.9 NX Engine

#### **Version:** 1.0.4

Android performance: This game has been tested to run at fullspeed on an ARM Cortex A8 single-core CPU. Your mileage may vary on slower devices.

iOS performance: This game engine should run at full speed on an iPad 2/Mini and lower-specced devices as well. Your mile age may vary on different devices.

#### 1.9.1 HOW TO USE

You need to copy all the 'datafiles' directory in the repository over. Start the core with doukutsu.exe - it should properly extract the needed archives from the EXE on initial boot. From there on it will use those extracted asset files.

#### 1.9.2 NOTES

• Savestates are not hooked up - therefore rewind is also not possible.

## 1.9.3 CHANGELOG

#### For 0.9.8 point release

- Upgraded to 1.0.4.
- Did major changes to path handling code and got rid of the hardcoded paths should now handle paths correctly on \_WIN32 targets.
- Fixed save files not working.
- Updated to use RGB565.

## 1.10 PCSX ReARMed

#### Version: r19

Android performance: This emulator has been tested to run most games at fullspeed on an ARM Cortex A8 single-core CPU. Higher-resolution interlaced games like Tekken 3 and Tobal 2 require higher system specs (Cortex A9 and up). Your mileage may vary on slower devices.

**iOS performance:** This emulator should run most games at fullspeed on a **jailbrokeni**Pad 2/Mini and possibly lower devices as well. Devices specced lower than an iPad 2/Mini might struggle with high-resolution interlaced games like Tobal 2 and Tekken 3, though. Your mileage may vary on different devices. **Note to people on non-jailbroken devices:** Apple expressly forbids nonjailbroken devices the ability to run apps that need the ability to generate machine code at runtime. This is needed for the dynamic recompiler CPU core - which in turn makes it possible to run PCSX ReARMed at fullspeed on low-power CPUs such as Android and iOS devices. Without this, only the interpreter CPU core remains, which is unplayable on nearly all iOS devices out now due to them not being fast enough.

#### 1.10.1 NOTES

- PCSX ReARMed supports the loading of EBOOT (pbp) files as well.
- Although PCSX ReARMed comes with built-in HLE BIOS code, it is recommended that you put real BIOS files inside the system directory. Some of the BIOS files used are: scph1001.bin, scph5500.bin, scph5501.bin, scph5502.bin, scph7502.bin.
- If an image might not load correctly, try it with and without BIOS files inside the 'system directory'. If you are not loading a game with a real BIOS, the emulator will display a warning message startup.
- This is an ARM architecture-centric port right now it is not of much use on other architectures and therefore consoles.

#### 1.10.2 CHANGELOG

#### For 0.9.8 point release

• New port.

### 1.11 Prboom

#### **Version:** 2.5.0

Android performance: This game engine has been tested to run most games at fullspeed on an ARM Cortex A8 single-core CPU. Your mileage may vary on slower devices.

iOS performance: This game engine should run at fullspeed on an iPad 2/Mini and lower-specced devices as well. Your mileage may vary on different devices.

## 1.11.1 NOTES

- You need to have prboom.wad in the same directory as the Doom WAD file you're going to load.
- Savestates are currently not hooked up, and therefore rewind is not possible.
- Re-entrancy does not work correctly yet don't try to load a second WAD file. Instead, exit prboom first and then launch it again (only applies to consoles).
- This is the only Doom port in existence right now where you have the option to play at variable framerates. The option exists to play at 35, 40, 50 and 60fps. Doom originally ran at 35fps due to performance reasons and the slow CPUs available at the time.

## 1.11.2 CHANGELOG

#### For 0.9.8 point release

• Now uses RGB565 as pixel format.

#### 1.11.3 SOUNDTRACK LIST

Prboom supports MP3 soundtracks. The files must be in the same directory as the WAD file and should be correctly named.

DOOM 1 e1m1.mp3 e1m2.mp3 e1m3.mp3 e1m4.mp3 e1m5.mp3 e1m6.mp3 e1m7.mp3 e1m8.mp3 e1m9.mp3 e2m1.mp3 e2m1.mp3 e2m3.mp3 e2m3.mp3 e2m4.mp3 e2m5.mp3 e2m6.mp3e2m7.mp3e2m8.mp3e2m9.mp3e3m1.mp3e3m2.mp3e3m3.mp3e3m4.mp3e3m5.mp3e3m6.mp3e3m7.mp3e3m8.mp3intermid1.mp3intro.mp3 bunny.mp3 victor.mp3

#### DOOM 2

stalks.mp3 runnin.mp3 countd.mp3 betwee.mp3  $\rm doom.mp3$ the da.mp3 shawn.mp3 ddtblu.mp3  $in\_cit.mp3$ dead.mp3 romero.mp3messag.mp3 ampie.mp3 tense.mp3 openin.mp3 evil.mp3 ultima.mp3 read m.mp3 dm2ttl.mp3dm2int.mp3

## 1.12 Mednafen NGP

#### **Version:** 0.9.28

Android performance: This emulator has been tested to run at fullspeed on an ARM Cortex A8 single-core CPU. Your mileage may vary on slower devices. iOS performance: This emulator should run all games at fullspeed on an iPad 2/Mini and lower-specced devices as well. Your mileage may vary on different devices.

## 1.12.1 CHANGELOG

#### For 0.9.8 point release

• New port.

## 1.13 Mednafen Wonderswan

#### Version: 0.9.28

Android performance: This emulator has been tested to run at fullspeed on an ARM Cortex A8 single-core CPU. Your mileage may vary on slower devices.

iOS performance: This emulator should run all games at fullspeed on an iPad 2/Mini and lower-specced devices as well. Your mileage may vary on different devices.

#### 1.13.1 NOTES

- The music is incorrect on Xbox 360. This seems to be a 360-specific bug.
- Because Wonderswan has a 75Hz refresh rate, V-sync is specifically disabled for this core so that the framerate and sound is as it should be that's why you might notice some negligible tearing.

## 1.13.2 CHANGELOG

#### For 0.9.8 point release

- Upgraded to 0.9.28 version.
- Fixes save file issues on MSVC-based consoles (Xbox 1/360).
- Now uses RGB565 as a pixel format.

#### 1.14 Mednafen Virtual Boy

#### **Version:** 0.9.28

Android performance: You will need at least a Cortex A9 CPU and/or higher for this.

iOS performance: This emulator should run all games at fullspeed on an iPad 2/Mini and lower-specced devices as well. Your mileage may vary on different devices.

#### 1.14.1 NOTES

• Some games will still exhibit bugs on Xbox 1 and 360 which don't manifest themselves on other platforms.

## 1.14.2 CHANGELOG

#### For 0.9.8 point release

• New port.

## 1.15 Mednafen PC Engine

#### Version: 0.9.28

Android performance: This emulator has been tested to run at fullspeed on an ARM Cortex A8 single-core CPU. Your mileage may vary on slower devices.

 ${\bf iOS}$  performance: This emulator should run all games at full speed on an iPad 2/Mini and lower-specced devices as well. Your mile age may vary on different devices.

#### 1.15.1 NOTES

- FOR ANDROID USERS: You will need a BIOS file called 'syscard3.pce' placed in the same directory as the ISO/CUE you want to play to be able to play PC Engine CD games.
- FOR ANYBODY ELSE: You will need a BIOS file called 'syscard3.pce' in your system directory in order to be able to play PC Engine CD games.

## 1.15.2 CHANGELOG

#### For 0.9.8 point release

- Upgraded to 0.9.28.
- Fixes save file issues on MSVC-based consoles (Xbox 1/360).
- Updated to use RGB565 as pixel format.

## 2 About Us

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