# **ANES**

Fredrik Schultz Johansson

ANES

COLLABORATORS					
	TITLE :				
	ANES				
ACTION	NAME	DATE	SIGNATURE		
WRITTEN BY	Fredrik Schultz Johansson	August 24, 2022			

REVISION HISTORY				
NUMBER	DATE	DESCRIPTION	NAME	

ANES

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# **Chapter 1**

# **ANES**

## 1.1 $-\div \times \div - \text{A/NES} - \div \times \div -$

-\$\div\$- Amiga Nintendo Emulator -\$\div\$-Version 0.99.CSX GIFTWARE

Development started: 8:th of May 1997

Created by:

Morgan Johansson Fredrik Schultz

NOTE: Giftware IS NOT the same as freeware, we would really like some support from YOU!

Documentation

The authors cannot be held responsible for any possible damage caused by this program. You are using it at your own risk!

## **1.2** -÷×÷- A/NES -÷×÷-

Welcome to A/NES - Amiga Nintendo 8-bit emulator.

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```
Introduction
A short introduction to A/NES...
 Requirements
What do you need to run this..?
 Installation
 Shouldn't be a problem...
Registered User?
Read this if you're a registered user.
    Features
 Preferences
    Controls
 If you don't already know them...
 Sending gifts
     Authors
 How you can contact us...
 Technical info
     Future
What will the future be?
    History
Link to the past ;)
      Bugs
 Still some to fix...
      FAQ
Frequently Asked Questions
 Is this legal?
A legal notice found on the Net...
 Greetings to
```

## 1.3 $-\div \times \div - \text{A/NES} - \div \times \div -$

TECHNICAL INFORMATION

The following utilities was used during the development of  $\mbox{A/NES}$ .

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- \* ASM-ONE / ASM-PRO
- \* GADTOOLSBOX

A/NES consists of more than 17.000 lines of pure assembly code. The source code (including gui) is about 300 Kbyte in size.

The 6502 cpu emulation is NOT based on any existing source and is written from scratch in assembly, making special use of the 68020 processor or better.

## 1.4 -÷×÷- A/NES - GUI & Preferences -÷×÷-

GUI

Explaning about Load / Start ROM is not needed I guess.:) The "continue" button will let you continue your game when you have aborted it (by for example pressing the escape-key). However this button is not entirely reliable yet so use it with care.

The "Mem" button will bring you to the Memory Monitor window.

PREFERENCES

Features enabled at this time are:

GENERAL

EMULATION

MISC

CHEAT

# 1.5 $-\div \times \div - \text{A/NES} - \div \times \div -$

NESA

 ${\mbox{A/NES}}$  now allows the user to rip the audio played by the ROM and save it to a standard NESA-file.

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Title - Enter the title of the song in this field (not required).

Comment - Additional comments here (not required)

Buffer - This cycle button allows you to change

the buffer that are used for ripping audio. Choose between 64K, 128K & 256K. Note! This setting is not activated until

A/NES is restarted.

When the buffer is filled the audio-

ripping will simply stop.

Some tunes requires a larger buffer than

others (depending on how complex the

song is!).

Grab - Select "Never" if you don't want to rip

any audio. Or "Always" and A/NES will rip

audio all the time.

The F1/F2-mode allows you to press F1 for start ripping and F2 to stop.

The Save-button will save your audio to disk.

Note! NESA is a work-in-progress and more functions will be added in the future.

## 1.6 $-\div \times \div - \text{A/NES} - \div \times \div -$

GENERAL WINDOW

#### LIMIT SPEED

This function disables all speed-limitation code. So, if your favourite game always run at 50fps, it should now run even faster (even if it will probably flicker even more)....

On 68040/060 you can really enjoy FAAAST NES emulation.

About 2 - 3x NES speed is not unusual...:)

Default = checked

#### AUTOSAVE BATTERY

Turn this function off if you don't want to save the battery.

Default = checked

#### USE BATTERY PATH

As default, all battery files (.sav) will be saved in the same directory as the .NES file. But when this box is checked you can have your battery files in a different directory. Remember to set your default battery-path by pressing the Battery-button. ANES 5 / 19

#### AUTOSAVE PREFS

When this function is on, preferences-settings will be saved when you quit A/NES. If turned off, no settings will be automatically saved.

#### IGNORE LED

Here is a real usefull option! :D
When this button is cleared, A/NES automatically
takes care of switching on/off the hardware soundfilter to improve sound quality.
Check this if you don't want A/NES to do that.
Default = cleared

#### USE COMMENT AS TITLE

When this function is active, the game title will be grabbed from the file-comment instead of the game itself. Could be usefull for XPK-packed ROMs.

#### JOYPAD 1

Selects if you want to use keyboard/CD32 pad for emulating joypad 1. Support for more pads will be added later.

#### JOYPAD 2

Selects between "Disable" or "CD32". You should choose "disable" if you don't want to use joypad2 (will save a few cycles) or if you haven't got a CD32 compatible joypad.:)

## **1.7** -÷×÷- **A**/**NES** -÷×÷-

#### EMULATION WINDOW

#### HBLANK

Number of cycles / row. Only for advanced users. Default value is 115.

#### Ignore bad opcodes?

Some ROMs floating around contain flaws (Adventure of Lolo 1). Check this option if you don't want A/NES to quit emulation when executing a bad opcode.

#### EMULATE SOUND

Turn sound emulation on / off. Saves a few cycles but shouldn't be noticable.

#### CHANNELS

There are four separate channels emulated yet by

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A/NES. Here you can de-select any channel you don't want to listen too.

The different channels are squarewave 1, square wave 2, triangle wave and PCM.

The PCM channel isn't 100% emulated yet but you can always turn it off if it doesn't sound too good.

VOLUME

Sets the master volume of the sound.

## 1.8 $-\div \times \div - \text{A/NES} - \div \times \div -$

CHEAT WINDOW

ACTION REPLAY INFORMATION

If you look on the left side of this window, you will discover several "string gadgets", they look something like this:

action rep	play						
·	   /	   	    '	   	   '	   '	    ,
game genie	e						
`	,	`	,	`	,	•	,

In the Action Replay gadgets you can input Action Replay
codes (really!) :)
You can have four different codes activated at once.

Game Genie codes works just like the ActionReplay codes. These codes will also be saved along with your saved patch files.

Note that all values you type are default as HEX code, which means you don't have to type \$-signs or similar. Valid characters are 0-F, any other characters will be ignored. Also, be sure to "fill" the entire "string-fields", for example if you want to "poke" at adress 10, be sure to write 010!

Cheat description - here you type a 64 character long description of your cheat. This is only usefull if you want to save your cheat into a special patch (.pat) file, so you don't have to type your cheatcodes more than once.

Activate - Be sure this button is activated if you

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want to use the current cheat codes.

Save - Press this and your current cheat will be saved as a file.

Load - Loads a cheatfile.

Get filepath - Press this button to select a suitable path for storing your cheatfiles.

There seems to be some kind of bug left in this code since the ROM path & cheat files path are mixed sometimes. Nothing serious though...

## 1.9 $-\div \times \div$ A/NES - Registered Users $-\div \times \div$

Information for registered users

A/NES is not shareware anymore but it IS giftware (which is NOT the same as freeware). If you want to support our project, be sure to support us (read elsewhere in this guide-file for details).

A keyfile is a nice thing to have since it gives you certain benefits...

## 1.10 $-\div \times \div -$ A/NES What's new? $-\div \times \div -$

#### Features

- Full 6502 emulation (incl. ALL timings!)
- Battery backup
- Nice looking gui! :)
- Action Replay/Game Genie code support!
- Sound support
- OCS/ECS support! (AGA recommended!)
- Splitscreen scrolling
- Two player support
- Horizontal/ Vertical / Panning mirroring modes supported!
- CD32 joypad support
- XPK support
- Supports the most common mappers (more or less).
- Written in 100% 680x0 assembler code

Note! A/NES only supports loading of XPK packed ROM files, not battery save files (\*.sav).

Compability

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A/NES supports several file-formats. The most common is the iNES-format. A/NES supports the following iNES-mappers (more or less): 1,2,3,4,7,9,10,11,15,22,23,34. fwNES mapper 66,71 & 79 area also supported.

Note! fwNES mappers are no standard mappers and may and probably will be replaced by iNES mapper-numbers in the near future.

A/NES also partly supports the FAM4(.FAM) format. This format is especially created for the Famicon emulator available on PC. Most games in FAM4 format are FDS-games, which means they are normally disk-based(!). This is not entirely yet supported by A/NES.

 ${\ensuremath{\mathsf{A}}}/{\ensuremath{\mathsf{NES}}}$  also emulates the basic hardware of the  ${\ensuremath{\mathsf{Vs.}}}{\ensuremath{\mathsf{Unisystem.}}}$ 

### 1.11 $-\div \times \div -$ A/NES Controls $-\div \times \div -$

# JOYSTICK 1

When selecting "keyboard" in the preferences window, the following keys will work:

```
ENTER - Start
RIGHT SHIFT - Select
LEFT AMIGA - A
LEFT ALT - B
```

ARROWKEYS - Guess what? :)

BACKSPACE - Insert Coin (VS.Unisystem ROMS only!)

ESCAPE - Abort emulation

... or if you decide to use a CD32 compatible joypad:

CD32

YELLOW - Start
GREEN - Select
RED - A
BLUE - B

PAUSE - Abort emulation

# JOYSTICK 2

\_\_\_\_\_

Choose between "disabled" or "CD32", that suites you

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the best.

The keyboard is always locked to joystick 1 and may not be used by player 2.

Always set this to "disable" when not using joystick 2.

Support for more pads will be added in the future.

# 1.12 $-\div \times \div -$ A/NES Bugs $-\div \times \div -$

Reporting bugs

Please report bugs to us that causes your computer to behave strangly. (See our addresses elsewhere in this guide file).
BUT! Don't report about non-working ROMS!
Many things is NOT emulated properly / yet, so please have patience...

When reporting bugs to us, don't forget to mention:
\* Your complete machine setup! (cpu, ram, PAL/NTSC?, etc)
And anything else that may be usefull for us to know..

Known bugs/problems

- \* Games crash when pressing "continue"-button.
- \* Problems with some MMC's.
- \* Scrolling wrong / flickers.
- \* Sound problems.
- \* Graphics bugs.
- \* Sprites sometimes appear on strange places or flickers.
- \* CPU emulation bugs

# 1.13 $\div \times \div - \text{A/NES Requires} \div \times \div -$

Requirements

- OCS/ECS/AGA chipset (AGA is recommended for best performance)
- 68020+
- ~2Mb of Memory
- reqtools.library
- lowlevel.library (if you want CD32 joypad support!)
- xpkmaster.library (for loading XPK files!)

 $\mbox{A/NES}$  sometimes have problems to run on unexpanded  $\mbox{A1200}$  machines, so a fastram expansion is a good thing to have.

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However a 68030/050 should be enough to play most games at a decent framerate.

NOTE! You can not view the NES title if your ROM files are packed with XPK.

# 1.14 -÷×÷- Register A/NES Today! -÷×÷-

If you like A/NES and use it, you may want to become a registered user by sending us a gift.

By registering and sending us gifts, you will support us in our effort to develop the \*ultimate\* NES-emulator for Amiga.

Although this version of A/NES isn't crippled, we sure would appreciate some support as it keeps us motivated to continue further development.

Preferred gifts are of course money. 100 SEK is a good amount but equal amount in other currency is of course also appreciated.

NOTE: To be considered as a registered user, your gift should be worth atleast 100 SEK (US\$15).

In other words, you will not become a registered user by sending us a postcard or likewise.

All registered users will recieve a personal keyfile that will come in handy in future versions of A/NES.

Even if you don't have the money to register or have already registered, you're more than welcome to send us an e-mail with some moral-support.

Send gifts to:

FREDRIK SCHULTZ TORGVÄGEN 12b 715 31 ODENSBACKEN SWEDEN

Send Metallica related stuff to this guy and you've got a friend for life! :)

Or

MORGAN JOHANSSON MÖRBY 715 92 STORA MELLÖSA SWEDEN ANES 11 / 19

This dude is a total NES-Maniac. Send everything related to NES to him. An IO-48/56 unit would be very appreciated. :) Also, NES games is also fine (check with him first though...:)

### 1.15 $-\div \times \div -$ A/NES Introduction- $\div \times \div -$

Introduction

It all started a day in may in the year of 1997. I was watching Nesticle on a PC machine and started to wonder why there wasn't any decent NES emulator for Amiga... So I (Morgan) and my friend Fredrik started this little project.

We had never done anything like this before so it was a challenge.

The CPU emulation (it's incredible fast) was written from scratch in 68020 assembly language and everything else concerning the emulation is also written in assembly.

Enjoy it, and remember, if you like it and use it,
send us gifts! :)

## 1.16 $-\div \times \div - \text{A/NES} - \div \times \div -$

The Legalities of Console Copying and Emulation 3-11-97, Copyright Anthony DiPasquale http://www.pce.net/anthony, anthony@pce.net

1. Is it legal to create an emulator?

There has been some discussion on this. To create an emulator one must have a high level of knowledge of the source platform to be emulated, and the target platform the emulator runs on. To find out info about the source, usually takes reverse engineering, of the original console, which may be considered illigal.

2. Is it illegal to run/use an emulator?

This goes along with the above question. There is debate around this as well. The general rule to follow is: You are allowed to own/run an emulator, as long as you actually own a corresponding hardware device. Example, you own a game boy, so you are allowed to run a game boy emulator on your computer.

3. Is downloading ROM images illegal?

No, it is not, as long as you own a hardware copy of each rom image you download. If you download images you do not own a copy of, you are commimiting piracy. By now, I'm sure Nintendo has realized that all the game boy game roms have been being illigally copied, that being one of the most popular emulators, and they do not seem to care.

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Chances are if you copy a Coleco, Atari, Sega Master System, etc, it wouldn't matter too much. The general rule is: If the company is no longer collecting royalties, they probably won't mind. Who would pay \$30 for a Coleco Vision ROM nowadays when you can go out and get the latest CD Rom game for about the same? Most people don't pirate roms because they are too cheap, they do it because they may miss an old game that you could no longer purchase even if you wanted to.

4. Is storing/distributing ROM images illegal?

It may not nessisarily be illegal, it is more up to the person who downloads the image then the person who provides it. It is a questionable practice, and I wouldn't recommend it. Even though you may see various web pages and FTP sites doing it, that doesn't make it legal.

## 1.17 $-\div \times \div$ How 2 A/NES $-\div \times \div$

Installation

Use the installer script that is included in this archive to install  ${\tt A/NES}$ .

Thanks for the script, Lennart Johannesson!

## 1.18 $-\div \times \div$ - The future of A/NES $-\div \times \div$ -

The future

\* Who knows....

# 1.19 $-\div \times \div - \text{A/NES History} - \div \times \div -$

History

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Version: Released:

0.99.CSX 31/10-98

- \* Compusphere X release!
- \* NESA title/comments now available.
- \* Added a "ignore bad opcodes" option.
- \* Many small bugfixes/improvements.

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0.99.96b	4/10-98	* NESA-code bugfixed and improved. * Manual NESA-rip mode available. * Added partial fwMapper65 support. * Minor GUI-changes.
0.99.95b	2/8-98	<pre>* Prefs-enforcer hit fixed! * Small prefs-changes. * Improved iNES format supported    (Vs.Unisystem). * Battery-files can now be saved    into a separate directory. * Fixed an ugly CPU-emulation bug. * Optimised the CPU emulation (+128Kb). * Optimised the PPU code which    reduced memory-needs by 192Kb! * NESA sound system added! * Mapper 4 fixes (compability improved!) * Mapper 19 finally works. * Added fwMapper79.</pre>
0.99.11b	13/6-98	* Changed the memory-monitor.  * Optimised the graphics-engine.  * Small mapper 3 fixes.  * Bugfixed mapper 22/23.  * Primitive Vs.Unisystem support.  * Added fwMapper66.
0.99.10a	31/5-98	<ul> <li>* Many fixes concerning PCM.</li> <li>* Big bugfix in Mapperl-code, more games work.</li> <li>* Small optimisation in scan- line-counter code.</li> </ul>
0.99.9a	7/5-98	<ul> <li>* Added PCM sound.</li> <li>* Many fixes in CPU-emulation.</li> <li>* Added memory-monitor.</li> <li>* Background-graphics engine improved.</li> <li>* Many small bugs fixed.</li> </ul>
0.99.6b	1/4-98	<pre>* Game Genie support.  * "Continue"-button implemented.  * FAM-fileformat support.  * Added mapper 10.  * The usual bugfixes</pre>
0.99.5b	22/3-98	<ul> <li>* A/NES is now giftware! All features enabled for everyone!</li> <li>* Sound emulation rewritten.</li> <li>* PPU-related bugs fixed.</li> <li>* Other minor fixes.</li> </ul>
0.99.1b	31/1-98	* Doesn't crash anymore if the lowlevel.library isn't present.

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(Thanks to Jesse Livengood for reporting this ugly bug!)

		reporting this ugly bug:)
0.99b	25/1-98	<pre>* Now supports iNES extended file- format (&gt;16 mappers).  * Mapper #34 support.  * Mapper #7 bugfixed (works again!)  * Partial Mapper #15 support.  * Shouldn't crash anymore on exit.  * Minor CPU emulation speedup.  * Some spritecode optimised.  * Interrupthandler (NES) optimised.  * Keyboard settings changed.  * Spritebugs fixed once again.  * Screenmode related code removed since it only caused trouble (for everyone but me? :-)  * Filerequester code improved.  * Small optimisations here and there.  * Minor GUI bugfixes.</pre>
0.98b	6/1-98	<ul> <li>* Now supports 4 different ActionReplay codes at once.</li> <li>* Major MMC2 improvements.     (Punch-Out looks alot better!)</li> <li>* MMC3 fixes (SMB3, StarTropics     now partially works!)</li> <li>* Major spritebug fixed.</li> <li>* Small changes in GUI.</li> <li>* Minor fixes and optimisations.</li> </ul>
0.97b	1/1-98	<pre>* Happy New Year edition! * Small GUI changes. * Minor MMC3 changes. * Finally, two player support! * ADC instruction optimised! * Other minor changes.</pre>
0.96b	24/12-97	<pre>* Christmas edition! * Filerequester code fixed. * Minor bugs in docs(!) fixed! :) * Small MMC2-fixes. * Cheatcodes can now be saved &amp; loaded.</pre>
0.95b	14/12-97	<ul><li>* Minor sound improvements.</li><li>* Major GUI bug fixed!</li><li>* Cheat preferences window now implemented.</li><li>* Action Replay codes supported!</li></ul>
0.94b	7/12-97	<ul><li>* Preferences is now available.</li><li>* Nintendo MMC2 (Mapper 9) now finally works!</li><li>* Sprite collision register fixed.</li></ul>

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		<pre>Some games works / scrolls much better now. * Small changes in soundroutines. * Minor changes here and there.</pre>
0.93b	22/11-97	<ul> <li>* CPU emulation partly rewritten to improve performance on MMC-based games.</li> <li>* Now less memory hungry (~1Mb!)</li> <li>* Mapper 4 improved.</li> </ul>
0.92b	8/11-97	<pre>* Versionstring is now correct!   (oops!) :)</pre>
0.91b	8/11-97	* GUI font-bug fixed (silly!).  * Bugfixed mapper 1.  * Lots of other small fixes.
0.90b	1/11-97	<pre>* Sprites rewritten (MUCH faster). * Splitscreen scrolling. * Sound code rewritten. * Now in theory works on ECS! * Bank switching code optimised. * Minor code cleanup. * GUI rewritten! * A/NES is STILL shareware, so register today!</pre>
0.36b	28/9-97	<pre>* Major CPU bugfix! * Small fixes (as usual!)</pre>
0.35b	21/9-97	<ul> <li>* Now supports XPK packed files!</li> <li>* A/NES doesn't eat 1mb of fast memory anymore when started from an icon.;)</li> <li>* Small changes here and there.</li> <li>* Small soundfixes.</li> <li>* Internal version for registered users only!</li> </ul>
0.34b	13/9-97	<ul> <li>* Small joypad bug fixed.</li> <li>* Keyfiles are now supported.</li> <li>* Minor speedup and fixes in the spriteroutines.</li> <li>* Bank-switching code optimized.</li> <li>* Triangle Wave soundchannel implemented.</li> <li>* Minor optimisation in PPU code.</li> </ul>
0.33b	3/9-97	<ul><li>* A small (but major) CPU-bug fixed!</li><li>* CD32 joypad support!</li></ul>
0.32b	31/8-97	<pre>* Sound support! (partial) * A spriteregister wasn't   properly emulated. Fixed now!</pre>

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0.31b	23/8-97	<pre>* FAST version included! * Mapper #11 supported. * Small fixes. * A/NES is SHAREWARE! Support us!</pre>
0.30b	5/8-97	* Mapper #4 is now partly supported!  * Mapper #7 supported.  * Mapper #9 now fully supported.  * Minor changes and bugfixes.
0.29b	3/8-97	<ul> <li>* Major improvements in the graphic routines, resulting in an incredible speedup in some games.</li> <li>* Minor fixes.</li> </ul>
0.28b	27/7-97	<ul> <li>* A register wasn't properly emulated. Fixed now! (some games works alot better!)</li> <li>* Battery backup functions added!</li> <li>* Mapper #1 emulation improved and bugfixed (ALOT)!</li> <li>* The filerequester now remembers where you "left it" the last time (saved in S:ANES.prefs).</li> <li>* Small CPU emulation bugs fixed.</li> </ul>
0.27b	19/7-97	<pre>* Mappper #1 emulation improved   but not yet perfect. * 8x16 sprites supported. * Some emulation bugs fixed. * GUI changes/fixes. * File requester routines bug-   fixed once again. * And some other changes</pre>
0.26b	13/7-97	<ul> <li>* Keyboard handler a little bit improved.</li> <li>* File requester should now work properly (phew!)</li> <li>* ESCAPE is now used to abort the emulation.</li> </ul>
0.25b	12/7-97	* Damn! Bugfixing the previous version resulted in another bug. The "cannot click any button" bug should now have been removed
0.24b	12/7-97	<ul><li>* Major improvements in the keyboard handler!</li><li>* Mapper #1 partly supported!</li><li>* Minor GUI fixes.</li><li>* Small CPU bugs fixed.</li></ul>

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	0.23b	8/7-97	* Minor fixes.  * Some GUI-NTSC problems fixed.
	0.22b	8/7-97	* Shouldn't crash anymore if started from an icon.
	0.21b	6/7-97	* Fixed some minor stupid bugs!  * 50 FPS speed limit for fast computers. (Could cause very annoying flickering if framerate was more than 50FPS).  * We're still at SCC'97 and we have just found out that we won the democompo! :)
	0.20b	6/7-97	<ul> <li>* Released at the SCC '97 party held in Köping, Sweden.</li> <li>* Mapper 2 and Mapper 3 supported.</li> <li>* Many bugfixes.</li> <li>* Sprite routines optimised.</li> <li>* Colours now look better.</li> </ul>
0.10a	30/6-9	7 * First o	ficial beta release!

## **1.20** -÷×÷- **A/NES** -÷×÷-

Authors of A/NES:

MORGAN JOHANSSON MÖRBY 715 92 ST.MELLÖSA SWEDEN

computer: A1200T, Blizzard 68060/50,

16mb Fast, 6.4Gb HD, 20x IDE CD.

e-mail : morgan.johansson@mbox301.swipnet.se

guilty of: 6502 CPU emulation

Sound

Mapper support ROM-handler Gfx in general

Bugtesting (and finding most of them)

-----

FREDRIK SCHULTZ ÖSTRAVÄGEN 12 715 31 ODENSBACKEN SWEDEN ANES 18 / 19

computer: A1200, Blizzard 68020/28,

4mb Fast, 4.3Gb HD.

e-mail : fredrik.schultz@swipnet.se

guilty of: 6502 CPU emulation

GUI

Gfx in general Sprite & Scrolling Some bugfixing

\_\_\_\_\_

Also big thanks to

Dew / Limited Edition - for fixing the keyboard handler!

# 1.21 -÷×÷- Frequently Asked Questions -÷×÷-

Frequently Asked Questions

- Q: Why is not Mapper5 supported?
- A: Mapper 5 (or MMC5) is an incredible device that almost turns your NES into a new machine. It's VERY complex and the question is if it's ever going to be emulated properly.
- Q: Why is there graphics errors in Punch Out using mapper 9?
- A: Mapper 9 isn't entirely supported yet. Some of it's code has been removed (for now) in this version (0.99.9a) since it wasn't 100% correct anyway.
- Q: My action replay codes doesn't work. Why?
- A: Could be due to several reasons:
  - 1) Check your spelling. Is it 8 characters long?
  - 2) The code may be ROM based, and this does not work yet in  $\mbox{A/NES}$
  - 3) The action replay code may be for a different version of the game and may not work with yours.
  - 4) Is the "activate" switch on? :)
  - 5) Bugs in our code? :) :)
- Q: A/NES just quits when I try to start it. Why?
- A: Check that you have installed the included font in your FONTS: directory properly.

  Do you have enough memory available?

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- Q: Why do I get an 'XPK ERROR' message?
- A: You are trying to load an XPK packed file, that is either corrupt or simply, you don't have the xpkmaster.library and it sub-libraries installed in your LIBS: drawer.
- Q: Why is A/NES written in assembler and not C?
- A: There is enough slow c-ports out there, don't you think?
- Q: I keep getting a "FAILED" message what does that mean?
- A: Well, the game has tried to execute an invalid assembler instruction. This is probably not caused by the game itself, it is just caused by bugs in our emulator. :)

  Or it can also happen if you have an incorrect keyfile available.
- Q: It doesn't work correctly on my NTSC system.
- A: Hopefully most of those problems will be fixed in the future.
- Q: In some games, the graphics looks very strange.
- A: Yes. This could be the result of an unsupported (or not an entirely supported) Mapper chip.

# 1.22 $-\div \times \div$ A/NES Greetings to: $-\div \times \div$

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