

# **aMiPEG**

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**COLLABORATORS**

|               |                          |                  |                  |
|---------------|--------------------------|------------------|------------------|
|               | <i>TITLE :</i><br>aMiPEG |                  |                  |
| <i>ACTION</i> | <i>NAME</i>              | <i>DATE</i>      | <i>SIGNATURE</i> |
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# Chapter 1

## aMiPEG

### 1.1 aMiPEG v0.7

aMiPEG - a MPEG video stream player for the Commodore Amiga  
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This is version 0.7 (07-Feb-97), ©1994-97 Michael Rausch & Miloslaw Smyk  
This version is based on aMiPEG 0.4 ©1994 Michael Rausch

|               |                                     |
|---------------|-------------------------------------|
| Copyrights    | - no comments                       |
| Disclaimer    | - so you can't sue us               |
| Introduction  | - brief description                 |
| Installation  | - bring a hammer with ya            |
| Requirements  | - Cray recommended                  |
| Speed tests   | - how well it performs?             |
| Usage         | - plain and simple                  |
|               |                                     |
| Credits       | - author info                       |
| Known bugs    | - read before sending bug-report!   |
| History       | - what has been already done        |
| Support sites | - where to get the updates          |
| To do         | - what you can expect in the future |
| Thanks        | - people that were helpful          |

### 1.2 Copyrights

The main work is based upon mpeg\_play 2.0, which is

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The idct algorithm is loosely based upon jrevdct.c, which is

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For conditions of distribution and use, see the accompanying README file.

This implementation is based on an algorithm described in  
C. Loeffler, A. Ligtenberg and G. Moschytz, "Practical Fast 1-D DCT  
Algorithms with 11 Multiplications", Proc. Int'l. Conf. on Acoustics,  
Speech, and Signal Processing 1989 (ICASSP '89), pp. 988-991.

The CyberGraphX support is based on the CyberGraphX software ©1995-97  
Vision Factory Development.

## 1.3 Disclaimer

### DISCLAIMER

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## 1.4 Introduction

### INTRODUCTION

aMiPEG is a player for MPEG video streams for the Commodore Amiga. It is based upon the Berkeley X-Windows player version 2.0, with major changes in speed and size.  
Main advantages are much faster decoding of the streams compared with other products based on the Berkeley sources, and a real-time scaling to fit on a complete HAM screen (no thumbnail animations anymore!).  
If you are using CyberGraphX software from Vision Factory Development you can also play MPEG streams in resizeable, true color window on an Intuition screen. Starting with version 0.7, aMiPEG uses asyncIO link library by Martin Taillefer and Magnus Holmgren for smoother and faster playback.

In addition, aMiPEG comes with full source code supplied for the

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technically interested. You will need `asyncior.lib` link library (available from `Aminet:dev/c`) to be able to compile aMiPEG.

## 1.5 Requirements

### REQUIREMENTS

AGA chipset is recommended, OS 2.04 or up required. With version 0.3, rendering to a HAM6 screen is supported. From version 0.5 CyberGraphX is supported. Versions optimized for 68020 and 68040 are provided.

Implied with the usage of MPEG is some speedy processor as well. 68020 will do, but don't expect too much. "DebbieHarry.mpeg", which I use for testing purposes, is played with 1.0 fps on my chipmem-only A1200 (PAL screen), compared with 6.5 fps on the A4000/040 (Euro72 screen) and 3.1 fps on an A2000 with 28Mhz 2630 (PAL screen). On the A4000/040 with CyberVision64 and CyberGraphX 2.15 it managed 7.1 fps on 24-bit screen in color and 11.0 fps on the same screen in gray. For some more comparisions see [here](#) .

For recompilation, SAS/C and Devpac assembler is required. Other compilers and/or assemblers may work with some fiddling.

## 1.6 Speed comparisons

DebbieHarry.mpg [160x128]

|          |      | CyberGfx |       | CyberGfxGray |       | Gray   |       |               | HAM   |
|----------|------|----------|-------|--------------|-------|--------|-------|---------------|-------|
|          |      | 24       | 16    | 24           | 16    | 8 CGFX | 8 AGA | 8 AGA w/patch | 8     |
| 40/25MHz | CV64 | 6.93     | 6.46  | 10.52        | 11.26 | 12.18  | 6.01  | 7.42          | 6.49  |
| 40/40MHz | CV64 | 14.00    | 12.69 | 20.58        | 21.47 | 23.94  | 10.36 | 11.76         | 12.19 |
| 60/50MHz | CV64 | 24.45    | 22.68 | 37.55        | 40.93 | 45.74  | 14.53 | 18.00         | 24.11 |

RedsNightmare.mpg [320x240]

|          |      | CyberGfx |      | CyberGfxGray |       | Gray   |       |               | HAM  |
|----------|------|----------|------|--------------|-------|--------|-------|---------------|------|
|          |      | 24       | 16   | 24           | 16    | 8 CGFX | 8 AGA | 8 AGA w/patch | 8    |
| 40/40MHz | CV64 | 6.62     | 5.60 | 10.66        | 11.73 | 14.87  | 3.79  | 4.80          | 5.11 |
| 60/50MHz | CV64 | 9.75     | 8.71 | 16.73        | 19.17 | 25.27  | ----  | 7.31          | 7.63 |

## 1.7 Usage

### USAGE

The template for aMiPEG is:

NOB/S, NOP/S, LOOP/S, EACHSTAT/S, ND=NODISPLAY/S, QUIET/S, DITHER/K, PS=PUBSCREEN/K, MODEID/K, FILE/A

And the meaning of the options is:

NOB - ignore and not display any B frames.  
 NOP - ignore and not display any P frames.  
 LOOP - makes the player loop back to the beginning after reaching the end.  
 EACHSTAT- causes statistics to be displayed after each frame.  
           Only valid when compiled with -DANALYSIS  
 NODISPLAY- dithers, but does not display, usually used for testing and timing purposes.  
 QUIET - supresses printing of frame numbers, timing information, and most error messages.  
 DITHER - selects from a variety of dither options.  
           The possible values are:  
           color - lores HAM8 screen  
           hiresham - hires HAM8 screen (better but slower)  
           ham6 - for OCS users  
           cybergfx - 15/16/24-bit CyberGraphX display  
           cybergfxgray - gray display on 15/16/24-bit screen  
           gray - gray display on 8-bit screen  
           none - no display at all

PUBSCREEN- open window on selected "deep" public screen. Only valid with DITHER cybergfx or cybergfxgray. Use with "DEFAULT" to open on current default public screen.

MODEID - select modeid for screen to open and play on.

FRAMERATE- speed in frames per second. (0 - as fast as possible).

BUFFER - size of the async I/O buffer (default - 65536).

FILE - filename of MPEG stream.

#### CYBERGRAPHICS

You can choose true color output by specifying "DITHER cybergfx" option on the command line, or gray output on the "deep" screen using "DITHER cybergfxgray". ScreenMode requester will pop up and ask you for exact screenmode, unless you specify "MODEID" followed by modeid number. ModeID used for display is always printed in the end of successful run, so you know where to look for it.

Window which appears on CyberGraphX screen can be resized using standard gadget in the right-bottom corner. If you resize the window, output will be slowed down, because player switches from WritePixelArray() to ScalePixelArray(). If you want it to get back to the original size (and speed) you can just double-click in the window and it will be done automatically.

#### Notes on gray output:

Gray mode output on 8-bit screen is not scalable, mostly due to the fact that in CyberGraphX 2.18 BitMapScale() is still not implemented on gfx-board screens. Also, please note the graphics boards based on popular VGA chips (Cirrus Logic, S3) have 6-bit color gun resolution in 8-bit modes, hence really only 64 shades of gray can be seen on 256 color screen.

Those are the reasons I left cybergfxgray mode in aMiPEG, as it's both scalable and has 8-bit gray resolution.

## 1.8 Credits

### CONTACT

You can reach Michael via email at

linux@uni-koblenz.de

In fact, my account is rausch@uni-koblenz.de; but with this, I'm not allowed to receive/send any mail from/to outside the campus. Alternatively, you might try FidoNet

2:245/5618.3

or snail-mail:

Michael Rausch  
Schanzenpforte 33-35  
D-56068 Koblenz

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thorgal@dedal.man.szczecin.pl

WWW:  
<http://www.szczecin.pl/~thorgal>

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POLAND

## 1.9 History

### HISTORY

V0.1 \* First public release  
\* Some cosmetic changes to be done.

V0.2 \* Oops, wrong ZIP code in the snail-mail address  
\* Bug with scaling of animations >200 pixel vertical is fixed.  
\* Little bit faster & tighter

V0.3 \* HAM6 rendering  
\* Somehow, the times got mixed up. NOW it renders to HAM8 with

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6.5 fps (was 6.3) on the A4000/040 as the code is somewhat streamlined and more parts are moved to assembler.

- \* Uses default public screen's mode ID now instead of default monitor's.

V0.4 \* Forgot the Multiscan monitor ID (several people mailed me about this; really sorry guys)

- \* Autodetect non-AGA chipset, force HAM6 in this case
- \* Minor speed-up in the iDCT (in fact not worth mentioning)
- \* This is an intermediate release; 0.5 will contain the TODO stuff listed down there.

V0.5 by Miloslaw Smyk from now on

- \* CyberGraphX support
- \* TODO stuff is still "to do"

V0.6 \* command line parsing is now done with ReadArgs()

- \* DITHER GRAY support added
- \* PUBSCREEN keyword lets you easily select "deep" screen to open CyberGraphX window on.
- \* MODEID now works with all dithers. You can play MPEGs in HAM even if your default screen doesn't support it.
- \* fix for streams with width not divisible by 16
- \* framerate control added (useful on "too fast" Amigas).
- \* i/o buffer size can be changed from command line.
- \* AmigaGuide documentation.

V0.7

- \* asynchronous I/O for faster/smooth playback from HD
- \* now aMiPEG works with OCS/ECS under Kick v40+, too.

## 1.10 Known bugs

### BUGS

- \* in "gray" mode on native Amiga screen with non-XING streams some frames are corrupted. This is due to the bug in graphics.library's WritePixelFormat8() call. Please use Pawel Hernik's PatchWPA8 (available from Aminet or aMiPEG's home page) to fix this - as a bonus you will get faster playback. Alternative solution is to use new SetPatch, which fixes the bug in WritePixelFormat8().
- \* When dragging the screen on a Kick 2 machine, the copper stuff gets messed up and it displays video in the vblank. No idea why, but who cares anyway.
- \* Problems with large anims on a PAL screen; don't know why and don't care either.
- \* Scaling under CyberGraphX 2.21 in 15-bit mode is still broken and displays trash. In CyberGraphX < 2.14 scaling might not work at all (due to bugs), so upgrade now.

## 1.11 Support sites

The official aMiPEG WWW page is:

<http://www.szczecin.pl/~thorgal/AMIPEG/>

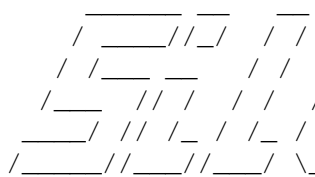
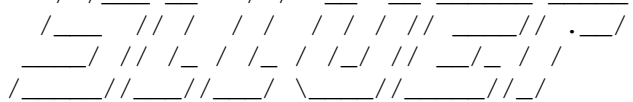

where you can always download the newest version.

\*\* \*\* \* \* \*

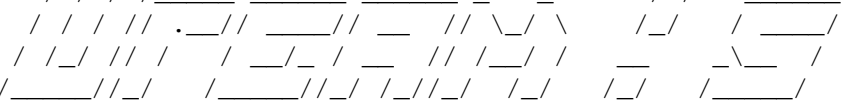
This archive is also available from any Aminet site, e.g.  
wuarchive.wustl.edu  
ftp.luth.se  
aminet.org  
where it can be found in gfx/show directory.

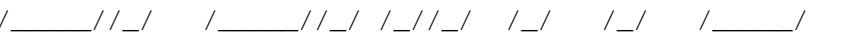
\*\* \*\* \* \* \*

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## 1.12 To do

TODO (sorted by priority)

- \* 96 pixels or 80 pixels wide animations look awful.  
New scaling modes are not ready yet.
- \* MPEG audio is on its way. The demo codec from DEC is running,  
Tobias Bading's maplay is ported to Amiga and rewritten for integer arithmetic ...

## 1.13 Thanks

I would like to thank my beta-testers, who always had time and patience to find bugs in new versions of aMiPEG :-)

- \* Chris J. Coulson
- \* Walter Dees
- \* Michael Krause

and all other people who contacted me, reporting bugs and sending MPEG-streams.

## 1.14 Installation

Installation of aMiPEG is very simple - just copy the version for your CPU to directory of your choice, perhaps renaming it on the way. And that's it.