

aMiPEG

Miloslaw Smyk Rausch

COLLABORATORS

	<i>TITLE :</i> aMiPEG		
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WRITTEN BY	Miloslaw Smyk Rausch	June 24, 2025	

REVISION HISTORY

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Chapter 1

aMiPEG

1.1 aMiPEG v1.1

aMiPEG - a MPEG video stream player for the Amiga

This is version 1.1 (27-Jan-98), ©1994-98 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	- 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 PicassoIV-PIP support is based on the Picasso96 software.

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 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. Version 1.0 adds support for system-streams and video hardware found on some gfx-boards.

In addition, aMiPEG comes with full source code supplied for the technically interested
(available on Aminet:gfx/show/aMiPEG_1.1_src.lha).

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, 68040 and 68060 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](#) .

Since version 0.8, aMiPEG uses and requires asyncio.library v39 by Martin Taillefer, Magnus Holmgren and Olaf Barthel for faster and smoother playback (included in the binary archive).

PicassoIV-PIP mode requires a PicassoIV gfx-board.

Vlayer and vlayergray modes require gfx-board compatible with cgxvideo.library - only CyberVision64/3D supports it as of this writing.

For recompilation, SAS/C and Devpac assembler is required. Other compilers and/or assemblers may work with some fiddling. Be especially careful if you are using PhxAss, there were problems reported when people tried to run aMiPEG assembled with PhxAss.

1.6 Speed comparisions

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

	6.62	5.60	10.66	11.73	14.87	3.79	4.80	5.11
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,FILES/A,FULL/S
```

And the meaning of the options is:

```
FILES - filename(s) of MPEG stream(s). Supports wildcards.
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
            vlayer      - display using video overlay of CV64/3D
            vlayergray  - as above, in gray
            pivpip      - display using PIP feature of PicassoIV
                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. When used with vlayer(gray), may
            name any public screen, as long as it is the screen of a gfx-board
            compatible with cgxvideo.library.
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).
FULL     - open full-screen, borderless window. Most useful with vlayer(gray) or ←
            PicassoIV-PIP
```

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.

If you have a gfx-board supporting cgxvideo.library (currently only CV64/3D, but CVPPC and BVPPC are expected to do so in the future), you should try vlayer option that employs video support hardware of mentioned boards. You get hardware YCbCr->RGB conversion and scaling with horizontal interpolation that takes virtually no CPU time. Thus, FULL option is especially enjoyable with this option.

For slower machines there is also vlayergray mode.

1.8 Credits

Credits

Originally aMiPEG has been written by Michael Rausch. Since version 0.5 Miloslaw Smyk took over. For version 1.0 Jussi T. Lindgren contributed patches to allow aMiPEG play system streams, handle wildcards and ASL. For version 1.1 Tobias Seiler did the PicassoIV-PIP support.

aMiPEG also requires asyncio.library which was written by Martin Taillefer, Magnus Holmgren and Olaf Barthel.

You can reach Michael via email, but please remember that he no longer supports aMiPEG.

linux@uni-koblenz.de

In fact, his account is rausch@uni-koblenz.de; but with this, he's 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

Milek's email is:
thorgal@amiga.com.pl

WWW:
<http://wfmh.org.pl/~thorgal/>

Jussi's email is:
jtlindgr@cc.helsinki.fi

Tobi's email is:
seiler@village.de

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
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.

V0.8
* a long-standing bug in stream parser fixed. Should play more movies now.
* uses NewLook under Picasso96, too.
* pressing ESCAPE aborts playback.
* now uses (and requires) the shared version of asyncio library v39

- * file remained locked after unsuccessful playback
- * recompiled with SAS/C 6.58

V1.0 MAJOR RELEASE (with guest appearance from Jussi T. Lindgren)

- * system-streams (interleaved video and audio) supported. (JTL)
- * YCrCb->RGB and scaling hardware of CV64/3D (and upcoming CVPPC/BVPPC) supported. (MS)
- * pattern matching and ASL file-requester (JTL)
- * full screen playback (MS)

V1.1

- * now also PicassoIV-PIP with YCrCb->RGB and scaling hardware is supported, done by Tobias Seiler
- * PIPE: works again
- * LOOP mode with HAM8 display works correctly now
- * minor modifications in stream parser, by Tobias Seiler
- * some small fixes regarding scaling
- * docs updated

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 WritePixelArray8() call. Please use Michael Van Elst's NewWPA8 (available from Aminet) to fix this - as a bonus you will get faster playback. SetPatch 43.5 fixes this, too.
- * when using video overlay feature of CV64/3D, display may get distorted and video-artifacts may appear. This is due to hardware limitations of Virge chip.
- * Bug in scaling in CGFX 3.0 sometimes makes the picture one line too high and it overlaps window border.
- * 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.

1.11 Support sites

The official aMiPEG WWW page is:

<http://amiga.com.pl/amipeg>

where you can always download the newest version.

There is also a mailing list for discussing topics related to aMiPEG.
To subscribe, please send an email to

amipeg-request@amiga.com.pl

With "subscribe <your_email>" in the mail body.

* * * * * * * *

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.

* * * * * * * *

Modem traders may try our support BBS - newest version is always placed in section "Files/W.F.M.H. Support", which is available even for guests.

```

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```

1.12 To do

TODO (sorted by priority)

- ```
* MPEG audio - now when mpeg.a.library is available it should be easy
* scaling in 8-bit modes (now possible thanks to CGFX 3.0)
* 96 pixels or 80 pixels wide animations look awful.
 New scaling modes are not ready yet.
```

## 1.13 Thanks

Special thanks to Jussi T. Lindgren and Tobias Seiler for sending me valuable patches.

Sebastian Krawczuk and Arkadiusz Jarzâbek borrowed me their CV64/3D boards so I could test and debug video overlay support. Thanks guys!

I would also 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
- \* Marek Jablonski

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.