

aMiPEG

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COLLABORATORS

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<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
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REVISION HISTORY

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Chapter 1

aMiPEG

1.1 aMiPEG v0.6

aMiPEG - a MPEG video stream player for the Commodore ↔
Amiga

This is version 0.6 (07-Jul-96), ©1996 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

Requirements

- Cray recommended

Speed tests

- how well it performs?

Usage

- plain and simple

Credits

- author info

Known bugs

- read before you send 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 jrevidct.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 ©1995-96 Vision Factory Development.

1.3 Disclaimer

DISCLAIMER

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expressed or implied. In no event will the authors be liable for direct, indirect, incidental or consequential damages or data loss resulting from the use or application of this software. The entire risk as to the results and performance of this software is assumed by the user.

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 resizable, true color window on an Intuition screen.

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

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 comparisons 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 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

Milek's email is

`smykm@felix.univ.szczecin.pl`

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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
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.

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 Pawel
Hernik's PatchWPA8 (available from Aminet or

1.12 To do

TODO (sorted by priority)

- * asynch I/O
- * 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