

FastJPEG.doc

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Chapter 1

FastJPEG.doc

1.1 FastJPEG Documentation - Contents

FastJPEG 1.0

A fast JPEG picture viewer for the Amiga
Copyright © 1993 Christoph Feck, TowerSystems
All Rights Reserved.

Dedicated to Stefan Schulz
I hope you had a great time over there.

Introduction	What is FastJPEG ?
Features	What makes FastJPEG so special?
Requirements	What systems will FastJPEG run on?
Installation	Before using FastJPEG.
Usage	How to use FastJPEG.
- from Workbench	Starting FastJPEG via icon.
- from CLI/Shell	Starting FastJPEG via command line.
Known Bugs	What does not work?
History	What is new in this version?
Future	What may the future bring?
Acknowledgments	Whom I want to thank.
Disclaimer	Short: Use it at your own risk!
Copyright	About legal issues.
License	What you have to agree on.
Support	What I will do for you.
Author	Where you can reach me.

1.2 FastJPEG Documentation - Introduction

Introduction

FastJPEG (or abbreviated: FJPEG) is nothing less - but also nothing more - than a fast JPEG picture viewer. Let me claim that it is the fastest JPEG viewer freely available for the Amiga.

Besides being fast, it has many other advantages. Just take a look at the list of features .

An important goal was to not trade quality for speed. In fact, FastJPEG is both fast and has an excellent quality. Most other JPEG viewers either produce ugly pictures, or need ages to perform the conversion to HAM mode.

The key to the improved quality is a technique called 'dithering', where colors not displayable on the Amiga are approximated by giving neighboring pixels similar colors, which the eye then mixes to the desired one.

A common variety of this method is the 'Floyd Steinberg' error dispersion algorithm, which is very time intensive, but produces the best pictures.

FastJPEG does not use this method, as it would drastically reduce performance. The dithering method used in FastJPEG, however, produces pictures of similar quality.

I wrote and released this program for the Amiga community, which has deserved such a program. For too many months we have had to stay with an ugly looking viewer, whose name I just forgot...

I have not written this for me. I prefer TowerView, which is window based, and is a real application. I will release TowerView when it is ready, but this will take more time than I had originally envisioned, because the 'todo' list currently grows faster on the end, than it shrinks on the top.

If you are interested in a preview, you can get the file 'TV_Preview.lha', which is on any Aminet ftp site.

1.3 FastJPEG Documentation - Features

Features

- It's free!
 - Runs on any Amiga.
 - Special AGA version included (for HAM8 mode).
 - Supports OS 2.0 features, such as overscan and autoscroll.
 - Both CLI/Shell and Workbench interface.
 - Only 20 kByte in size.
-

- Reentrant (resident loadable).
 - Excellent quality, even in standard HAM.
 - Carefully selected color palettes and conversion algorithms.
 - Dithering to increase the number of apparent colors.
 - Smoothing, if the image width is halved to fit on the screen.
 - Minimal 'fringing'.
- ...and of course:
- It's fast!

1.4 FastJPEG Documentation - Requirements

Requirements

FastJPEG runs on any Amiga. Bigger pictures might require 1 meg memory, especially, if you have some other programs running in the background.

There is a special AGA version included, which performs the conversion to HAM8 mode. This version requires a 68020 processor (or better), at least OS 3.0, and - surprise - the AGA chip set.

Some features of FastJPEG are only available if you have OS 2.0 or better. Among these are overscanned screens (FastJPEG uses your preferred graphics overscan setting, if the picture doesn't fit into the text overscan area), automatic scrolling of the screen (if you try to move the pointer outside to reveal other parts of large images), and the ability to specify a pattern as a file argument, when using the Shell interface.

1.5 FastJPEG Documentation - Installation

Installation

Choose either FJPEG_ECS (the OCS/ECS version) or FJPEG_AGA (the AGA version) and rename it to FJPEG for easier use. You can do this by selecting either FJPEG icon, and selecting the 'Rename' command from the Icon (2.0) or Workbench (1.3) menu. After deleting the trailing four characters, press the RETURN key.

* Note that you should use the FJPEG_AGA version if you are lucky owner of an A1200 or A4000. This version supports the HAM8 mode (and only this mode), for much better quality.

FastJPEG runs fine from both harddisk and floppy disk. If you want to copy it to another drawer, just move the icon onto it.

1.6 FastJPEG Documentation - Usage

Usage

FastJPEG can be started in two ways:

- from the Workbench , by double clicking on a picture's icon, while holding down the shift key, and having selected the FJPEG icon, or
- from the CLI/Shell , by entering the command FJPEG in a CLI or Shell window, along with the name of the file you wish to view.

FastJPEG supports multiple arguments, meaning that you can either select more than one icon or name on the command line at one time. For details, see the specific section.

After FastJPEG is running, it processes each argument you supplied. It will check if it is a JPEG file (JFIF, or raw JPEG) and start loading the data as it displays on a custom screen. The screen is a 'quiet' screen, having neither a title bar nor a window border, so that you can use one of your preferred screen grabbers to capture the rendered picture to a file.

If there is an error, FastJPEG will display a requester, or print the message into the Shell window. Currently, the following messages can appear:

"Required argument missing"	- You started FastJPEG without any arguments.
"Not enough memory"	- Should be pretty self explanatory.
"Can't open screen"	- The picture is too big to fit into chip ram.
"Can't open file"	- The file was not found. Check the file name. With OS 2.0, the exact reason will be printed into the Shell window instead.
"Can't read file"	- There was a DOS error while reading.
"Not a JPEG file"	- You can only view JPEG files with FastJPEG. Formats such as IFF-ILBM or GIF are not supported.
"Error in JPEG file"	- The JPEG code reported any error, such as corrupted file, or unsupported modes.

If the picture loaded correctly, just press the left mouse button to proceed with the next picture, or to quit FastJPEG on the last picture. Pressing the right mouse button quits FastJPEG without processing any remaining arguments.

1.7 FastJPEG Documentation - Workbench Usage

Workbench Usage

You have to start FastJPEG with arguments. Otherwise it will display an error requester and exit.

There are two ways to do so. The first is to use extended selection in conjunction with the shift key. The second is to use FastJPEG as the

default tool for JPEG pictures having an icon. This way, you can view the files by just double clicking on them.

I did not add those fancy file requesters and AppIcons. If you like these features, use ToolManager or MegaView, a frontend for file viewers.

1.8 FastJPEG Documentation - CLI/Shell Usage

CLI/Shell Usage

The template for FastJPEG is "Files/M/A", meaning that you must specify at least one file name after the command name. The number of files you can specify is limited to 10 when running under OS 1.3.

Starting with OS 2.0, you can specify any valid AmigaDOS pattern here. For a description of all possibilities to build patterns, check your AmigaDOS manual. The easiest is probably the #? joker, which replaces any number of any characters.

An example would be:

```
FJPEG #?.jp#g
```

This will match any names ending in an extension '.jpg', '.jpeg', and so on. If you have still OS 1.3 you can't use such patterns.

FastJPEG is reentrant, and can be loaded resident in memory with the 'resident' command.

1.9 FastJPEG Documentation - Known Bugs

Known Bugs

FastJPEG cannot load greyscale JPEG files. The message "Error in JPEG file" will appear if you try to load a greyscale JPEG. If you really need to view greyscale pictures, I may add this feature at the cost of code size.

Also, FastJPEG is not able to deal with 'multiple scan' files. I know of no software which produces such files.

Due to limitations in OS 1.3, you cannot view pictures larger than the size of your screen. FastJPEG will not scale them to fit, other than the regular halving of the width to compensate the non-square pixel aspect in standard HAM interlaced mode.

1.10 FastJPEG Documentation - History

History

Version 1.0, released on 15-Dec-93:

- First public release.

1.11 FastJPEG Documentation - Future

Future

As you might imagine, I already have plans for the future. However, they will likely go into TowerView. This should not prevent you from making suggestions. If I think that a feature is useful, and both my programming capabilities and my time table permits it, I will try to implement it.

I already got some requests for making a picture datatype class for OS 3.0 users. My current plan is to write an interface between the datatypes library and the Tower loader libraries. There are already a handful of loader libraries for 24 bit picture formats. The datatypes interface would obtain the 24 bit raw data from the Tower loaders and then convert the data to either HAM, HAM8 or a fixed amount of colors. This would also allow an easy transition to RTG, where the interface could directly pass the 24 bit data to the requesting application, if it is 24 bit aware.

1.12 FastJPEG Documentation - Acknowledgments

Acknowledgments

First, I must state that this program is based in part on the work of the Independent JPEG Group. Without their priceless work, FastJPEG would not even exist. Special thanks to Tom for guiding me to the right places for possible optimizations.

Thanks to all beta testers:

- Martin Apel, for letting me test all my AGA programs on his A4000.
 - Jason N. Lee, for polishing up my bad english, and for testing FastJPEG on his accelerated A2000.
 - Borge Noest and Frank Grimm, who provided me with snapshots of AGA renderings, so that I could discover the evil fringing bug.
 - Osma Ahvenlampi, for creating the MagicWB icon, and for testing on his 68010 Amiga.
 - Scott Ellis, for making suggestions and testing FastJPEG with OS 3.1.
 - Billy Laughlin, for spellchecking the documentation, and for testing
-

FastJPEG on his OS 1.3 Amiga.

Further testing was done by Martin Schulze, Rick Gideon, Vikram Kimyani, and Jon M. Price. Thanks to all of them!

1.13 FastJPEG Documentation - Disclaimer

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1.16 FastJPEG Documentation - Support

Support

No software is perfect. If there are any new versions available, perhaps because there is a bug fixed or a feature was added, I will announce it in the international Usenet newsgroup comp.sys.amiga.announce, and will upload it to the Aminet ftp sites. I will also send new versions to Fred Fish, to let him publish it in his wonderful Amiga software library.

I'm open to suggestions and comments. Also, if you have problems with FastJPEG, you can contact me to ask for help. However, you cannot expect me to do everything. You get the support for free, and I must keep an eye

on my CS studium, so if you don't get a reply within a week or two, I'm probably busy writing exams.

1.17 FastJPEG Documentation - Author

Author

To send suggestions, bug reports, comments, flames, etc., you can contact me at one of the following addresses. Even if FastJPEG is free, I certainly won't refuse any kind of donations, being a poor student :)

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Have fun and thanks for your time reading this!

3k// Christoph Feck, TowerSystems
\X/ Amiga - Intuition inside.