FastJPEG

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Chapter 1

FastJPEG

1.1 FastJPEG Documentation - Contents

```
  ----------------------------------------------------------------------

                    FastJPEG 1.10

        A fast JPEG picture viewer for the Amiga
    Copyright © 1993,1994 Christoph Feck, TowerSystems
              All Rights Reserved.

          Dedicated to Stefan Schulz
            I hope you like it
  ----------------------------------------------------------------------
```

          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.

          Tips & Hints
                          Some useful notes.

          Known Bugs
                          What does not work?

          History
                          What is new in this version?

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 tale 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 been forced to use an
ugly looking viewer, the name of which has momentarily slipped my mind...

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 longer than I had originally envisioned, because the 'To Do'
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!

– Special AGA version included (for HAM8 mode).

– Both a Shell and Workbench interface.

– Keyboard and mouse control.

– ASL file and screenmode requesters supported.

– Reentrant (resident loadable).

– Only 27 Kbytes in size.

– 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 Mbyte memory,
especially if you have some other programs running in the background.

Most features of FastJPEG are only available if you have OS 2.0 or newer.
This documentation assumes that you are running OS 2.0 or better, so some

notes might not apply to you, if you still use OS 1.3.

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.

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. This is required, because icons or Shell
scripts will refer to the name "FJPEG" on most systems. You can rename it
by selecting either FJPEG icon, and selecting the 'Rename' command from the
Icon menu. After deleting the trailing four characters, press the RETURN
key.

FastJPEG runs fine from both harddisk and floppy disk. If you want to copy
it to another drawer, just move the icon onto it. It is adviced that you
place it into the path searched by the Workbench and Shell, such as "C:" or
"SYS:Utilities/". This way you can avoid absolute path names in icons or
the configuration file for your favorite file manager.


```
Deinstallation
**************
```

In case you want to get rid of FastJPEG (why would you?), just delete it.

1.6   FastJPEG Documentation - Usage: Contents

```
             Usage
*****
```

This part of the documentation has several chapters. If you press the
'Contents' button in one of these chapters, you will get back here first.
Pressing it again sets you back to the main contents.


```
             Starting FastJPEG
                          How to get FastJPEG started.

             – from Workbench
                          Starting via icon.

             – from Shell
                          Starting via command line.


             Running FastJPEG
                          What happens after start?
```

1.7   FastJPEG Documentation - Usage: Starting FastJPEG

                    Starting FastJPEG
****

FastJPEG can be started in two ways:

-

                    from the Workbench
                    , by double clicking on its icon, then selecting the
   file you wish to view in the ASL file requester, or
-

                    from the Shell
                    , by entering the command "FJPEG" in a Shell window, and
   optionally the name of the picture you want to display.

For details, please refer to the specific section.

FastJPEG supports multiple arguments, meaning that you can either select
more than one file or name on the command line at one time.

If you started the AGA version on an ECS system, you will get the error
message 'Requires OS 3.0'. Use the FJPEG_ECS program in this case.

1.8   FastJPEG Documentation - Usage: from Workbench

Starting from Workbench
****

There are three ways to start FastJPEG from the Workbench:

- Double-click on the FJPEG icon, and select the files in the ASL file
  requester. You can select multiple files.

- Enter "FJPEG" as the default tool in the icons of your JPEG pictures (use
  'Information' from the Icon menu to do this). You can now run it by

```
    double-clicking on the icons.
```

- Click on the FJPEG icon, then hold down the 'Shift' key, and select all
  JPEG files you wish to view. Use double click on the last icon to run
  it.

1.9   FastJPEG Documentation - Usage: from Shell

```
Starting from Shell
*******************
```

FastJPEG takes as the arguments the names of the JPEG pictures you wish to
view. You can specify any amount of filenames on the command line, it will
show them one by one in that order. Filenames containing spaces must be
enclosed in double quotes. If you don't give any names, FastJPEG will open
an ASL file requester from where you can select the files.

You can also specify valid AmigaDOS patterns here. For information on
building patterns, check your AmigaDOS manual. The simplest is probably
the #? wildcard, which replaces any character sequence. As an example:

```
    FJPEG #?.jpg
```

This will show any files with the extension 'jpg'. Using such a pattern is
faster than letting FastJPEG examine all files.

1.10   FastJPEG Documentation - Usage: Running FastJPEG

```
Running FastJPEG
****************
```

After FastJPEG has been started, it processes each argument you supplied.
It will check if the argument is a valid JPEG file (JFIF or raw JPEG), and
if it is, start displaying it on a custom screen.

If the picture loaded correctly, just press the left mouse button or a key
to proceed with the next picture. Pressing the right mouse button quits
FastJPEG without processing any remaining arguments. Keyboard addicts can
use either 'Escape', 'Q', or 'Ctrl-C'. Note that the clicks or keys have
to be invoked while the current screen is active (the one which is rendered
into). Only Ctrl-C works in the Shell window, too.

If you have a three button mouse, pressing the middle button causes the
program to proceed with the next argument, ignoring any remaining matching
names from the current pattern, or any remaining files from your selection
in the ASL file requester. On systems with two-button mice, the same can
be archieved by pressing the 'N' key, or the left mouse button together
with the 'Shift' key.

Note: Version 1.0 of FastJPEG had a bug in the handling of the right mouse
button. It did not abort entirely, but just skipped the current pattern.
Since this functionality was not really useless either, it has been moved

to the middle button.

1.11   FastJPEG Documentation - Usage: Program Options

```
Program Options
***************
```

This section lists all options available for changing the default behavior
of FastJPEG. As of program version 1.10, the only way to use these options
is to enter them on the command line in the Shell window. Future versions
might offer Workbench 'ToolType' support and/or configuration files.

There are two kinds of options: switches and options taking an argument.
To enable a switch (indicated by an /S after the name), enter its name on
the command line. The other options (they are listed with a /K behind
their name) need an argument. You can place either an equal sign or a
space between the option name and the argument. /N denotes numerical
arguments.

Although all option names are listed in mixed case for better readability,
they are not case sensitive. If you must view a file with the same name
as one of the options, put double quotes around the filename.

```
Display Options
===============
```

    ScreenMode/K or SM/K
  Name of the screenmode to use for the display. You must enclose
  the name in double quotes, if it contains spaces. Example:

    ScreenMode="NTSC:Low Res Laced"

  If you enter "?" as the name, the OS 2.1 ASL screenmode requester
  pops up, allowing you to select a mode. If you omit this option,
  FastJPEG uses a default screenmode.

    Grey/S or Gray/S
  Force greyscale display.

    Dirty/S
  Do not use dithering. Gives faster but lower quality results.

```
Slideshow Options
=================
```

    Repeat/K/N
  Number of cycles through the list of pictures. Defaults to 1.

    Forever/S
  Endless loop. Shows the pictures until you abort manually.

    Delay/K/N
  Timeout in seconds after each picture. If you don't specify this,

```
  FastJPEG will wait for a mouse click, or key press.
```

```
Diagnostic Options
==================
```

```
    Quiet/S
  No Shell output.
```

```
    Time/S
  Print out time after completion.
```

```
    Info/S
  Only print size info, no display.
```

```
    Test/S
  Much like Info, but tests the entire file.  Also, if there was any
  wrong file, the return code will be set to 5 (WARN).
```

```
Other Options
=============
```

```
    NoBusy/S
  Do not show the busy pointer.
```

```
    Pointer/S
  Do not blank the mouse pointer.
```

```
    Hide/S
  Decode pictures in background.  If the picture is complete, the
  screen will be put to the front.
```

```
    LowMem/S
  If you set the 'Hide' option, FastJPEG will leave the old screen
  on display, while the new one is opened in background.  Use this
  option to disable this.
```

1.12   FastJPEG Documentation - Usage: Configuration

```
Configuration
*************
```

```
The current version of FastJPEG only provides a limit way of configuration.
```

```
An environment variable can be set with the "Setenv" command to override
the default screenmode.  Examples (note the quotation marks):
```

```
    Setenv FJPEG_SCREENMODE "NTSC:Low Res Laced"
```

```
    Setenv FJPEG_SCREENMODE 0x11004
```

```
    Setenv FJPEG_SCREENMODE "?"
```

```
If you want the "Setenv" command to be executed on every startup, place it
```

somewhere in the S:User-startup script. The environment variable is also
checked if you start FastJPEG from the Workbench. A screenmode specified
on the command line overrides the mode found in the environment variable.

1.13   FastJPEG Documentation - Usage: Keyboard Control

```
Keyboard Control
****************
```

Following is a summary of the actions you can control using the keyboard.
Note that they only have effect on the screen which is currently rendered
into.

```
Cursor keys:         Scrolling around (normal speed).
Alt+Cursor keys:     Scrolling around (slow).
Shift+Cursor keys:   Scrolling around (fast).

Spacebar:            Hold on current picture when using the 'Delay' option.

Ctrl+C, Q, Esc:      Abort FastJPEG (same as right mouse button).

N:                   Next argument (same as middle mouse button).

Any other key:       Show next picture (same as left mouse button).
```


1.14   FastJPEG Documentation - Usage: Errormessages

```
Errormessages
*************
```

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

```
"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.
```


1.15   FastJPEG Documentation - Tips & Hints

```
Tips & Hints
************
```

```
Identifying JPEG Files
======================
```

If you want to use FastJPEG together with a file type detection utility or
a file manager, you need to know how JPEG files can be identified.

Every JPEG file starts with the two 'magic bytes' 255/216 (FF/D8 in hex).
The characters "ÿØ" represent these two bytes. To type them use "Alt-k"
then "y", and "Shift-Alt-o".

If the file type detection is based on filename patterns, use the pattern
#?.j[pf]#? as it matches the following extensions (all seen for JPEGs):

```
    .jpeg     .jpg     .jpe     .jfif     .jff
```

```
Viewing Pictures Fast
=====================
```

FastJPEG is already quite fast, but the speed can still be increased:

Use 'Hide', if you have no Fast RAM, and render into 4 Hires (ECS), or 8
Hires (AGA) bitplanes. Rendering in the background is faster.

Enable the 'Dirty' option to gain more speed. The quality, however, can
significantly decrease on ECS machines. The difference should be marginal
on AGA machines.

Specify a 'Lores Laced' type screemode instead of a 'Hires Laced' one.
FastJPEG will scale the picture according to the aspect of the screenmode.

Use 'Grey' to force greyscale output. This is faster than color output,
and can be used as a preview.

Some users have noticed a speed difference when using the ECS version over
the AGA version. Try it out. (Note that the ECS version is not limited to
Lores HAM, but can not display HAM8 or 256 greyscales).

```
Other Notes
===========
```

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

The AGA version can be used to display JPEG pictures on graphicboards.
Most cards, however, are not able to display HAM8 and FastJPEG will fall
back to greyscale display.

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. I recommend using 'QuickGrab' by
Steve Hines, because it is able to deal with interleaved bitmaps.

Even though the screen seems to have no title bar, it is still 'there'.
You can drag and depth arrange it using the mouse like any other screen.

1.16 FastJPEG Documentation - Known Bugs

Known Bugs
****

My AGA beta testers have reported to me, that with the 'Extra Lores' type
screenmodes the pictures come up grey. This is a bug in the display
database of the OS, and can not be fixed by me.

FastJPEG is not able to display 'multiple scan' files. This will probably
never be fixed.

1.17 FastJPEG Documentation - History

History
****

Version 1.10, released on 26-Feb-94:
- Fixed the bug where pressing right mouse button did not abort FastJPEG.
  It continued processing remaining arguments instead.
- No longer quits, if you click into the screen to activate it.
- Fixed memory loosing bug. If there was an error in the JPEG file, it
  didn't always free already allocated memory.
- No longer double buffers, unless 'Hide/S' is specified.
- Now prints filenames along with DOS error messages.
- AGA version no longer pokes bitplanes. Uses OS functions instead.
- Added 'Quiet/S' option, to suppress shell output.
- Added simple slideshow support. 'Forever/S' wraps to the first picture,
  'Repeat/K/N' allows setting a repeat count, and 'Delay/K/N' controls the
  timeout after each picture.
- Added 'Hide/S' option, which opens screens in the background, and pops
  them to front if rendering is completed.
- Added 'Time/S' option, which prints conversion time (unless 'Quiet/S' is
  specified).
- Added 'Info/S' option, which just prints picture size. This option
  overrides all other options. 'Test/S' tests the entire file.
- Added 'NoBusy/S' option, which disables busy pointer sprite.
- Added 'Pointer/S' option, which disables blanking of pointer sprite.
  In conjunction with 'NoBusy/S', no pointer changes occur.
- Added 'LowMem/S' option, which disables double buffering.
- Added greyscale support. You can force greyscale output with 'Grey/S'.
- Added keyboard control. Cursor keys can be used for scrolling, ESC and
  Q abort, N skips to next argument, any other key shows next picture.
- ASL file requester supported. Pops up if started without any files.
- Added screenmode support. 'ScreenMode/K' is used to specify the name
  of the screenmode to use. Optionally, a hex identifier can be given.
  "ScreenMode=?" will pop up the OS 2.1 screen mode requester. This
  option overrides the screenmode specified in the environment variable

```
  'FJPEG_SCREENMODE'.  Choosing a mode incapable of HAM forces greyscale
  output.
- Improved HAM conversion speed.  Also added a 'Dirty/S' option.
- Added asynchronous file reading.

Version 1.0, released on 15-Dec-93:
- First public release.
```

1.18   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:

- Frank Grimm, for his endless critique and suggestions.

- Viljo Viitanen, for spending his nights testing on his A1200 ;)

- Osma Ahvenlampi, for spellchecking the documentation and for testing on
  his 68010 Amiga.

- Daniel Oberlin, for finding bugs and testing on his A4000.

Further testing was done by Rick Gideon, Scott Ellis, and Jason N. Lee.
Thanks to all of them!

Last, but not least, I wish to thank everyone who mailed me and made
suggestions for improvements. Without them, FastJPEG wouldn't evolve.

1.19   FastJPEG Documentation - Disclaimer

```
Disclaimer
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1.22 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 studies, so if you don't get a reply within a week or two, I'm probably busy writing exams.

1.23 FastJPEG Documentation - Author

```
Author
******
```

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

```
    Christoph Feck
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    Germany

    Email: feck@informatik.uni-kl.de
    IRC: Pepo (frequently on #amiga and #amigager)
```

Happy viewing and thanks for your time reading this!

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