+$#What is SuperFlip!?

SuperFlip!

SuperFlip! is a flexible WIN 95/98/XP/NT/2000/Vista program for interlacing graphic images to fit a lenticular screen. **SuperFlip!** can be used to make winkie-blinkie flip images, motion, or 3-D lenticulars. **SuperFlip!** accepts unlimited images in the tiff, CMYK tiff, gif, bmp, jpeg, png, targa, or pcx formats and outputs a tiff file ready for printing, outputting to film, or color separations. **SuperFlip!** will resize, crop, or stretch images to fit a desired output size, saving lots of preparation time.

SuperFlip! requires only a few MB of RAM to process even GB size files but is blazingly fast. It uses a proprietary slice and dice method to avoid using virtual memory which slows down processing.

SuperFlip! has no limit on the pixel size of images that can be processed or created. Many other programs including Photoshop have a limit of 32,000 pixels in any dimension. Large high resolution images can bump up against this limit.

SuperFlip! will automatically detect when a resolution enhancement is possible and give you a choice of how much of a resolution boost to make. A new proprietary optical compression algorithm produces noticeably superior results with fine details. More on resolution enhancement.

SuperFlip! has many tools and features which make image production easier.
Projects can be named and saved. **SuperFlip!** will remember the files used and the settings when a project is loaded.
The user can specify the size and location of alignment lines around the image.
The interlaced image can be printed directly from within **SuperFlip!** with the option to change the target linescreen lpi.
The target linescreen can instantly be changed in a saved file without waiting for the file to load. This makes it fast and easy to make small tweaks to the image to best fit the lens screen.
SuperFlip! will print a screen pitch test (in the Utilities Menu) to help you determine the exact linescreen lpi.
Interlaced images can be produced at a fixed output resolution or resampled to a specified resolution. This can sometimes help control banding.
Another tool helps bust ghosting between flip images by introducing thin spacers which can be any color or a morph color calculated from the adjoining image pixels.

SuperFlip! can be customized to default to the options you use most. Dimensions can be input in cm instead of inches.

SuperFlip! retains the same easy to use interface pioneered by **Flip!** which has become the professional standard. It is simply the easiest most powerful way to interlace images.

New in SuperFlip! Version 4 Very large output image files, up to 4 GB, can now be created either compressed or uncompressed. Some tiff readers in other software and RIPS cannot reliably handle tiffs larger than 2 GB, so to be safe, you might want to limit your image size to 2 GB. For those situations where this is still too small, version 4 allows you to output RGB or CMYK color separations, each layer of which can be 4 GB (or 2 GB for some software). This can make compressed images of up to16 GB. This feature is set on the *Utilities/ Flip Options* screen. Another improvement allows the **alignment marks** to be made much thinner than before which can make the alignment easier and faster. This is set on the *Utlities/ Alignment settings* screen.

New in SuperFlip! Version 3 New **Quickcrop** options have been added. If the aspect ratio of all the images doesn□t match, **Quickcrop** can be used most of the time to crop or stretch each image to fit the output size.

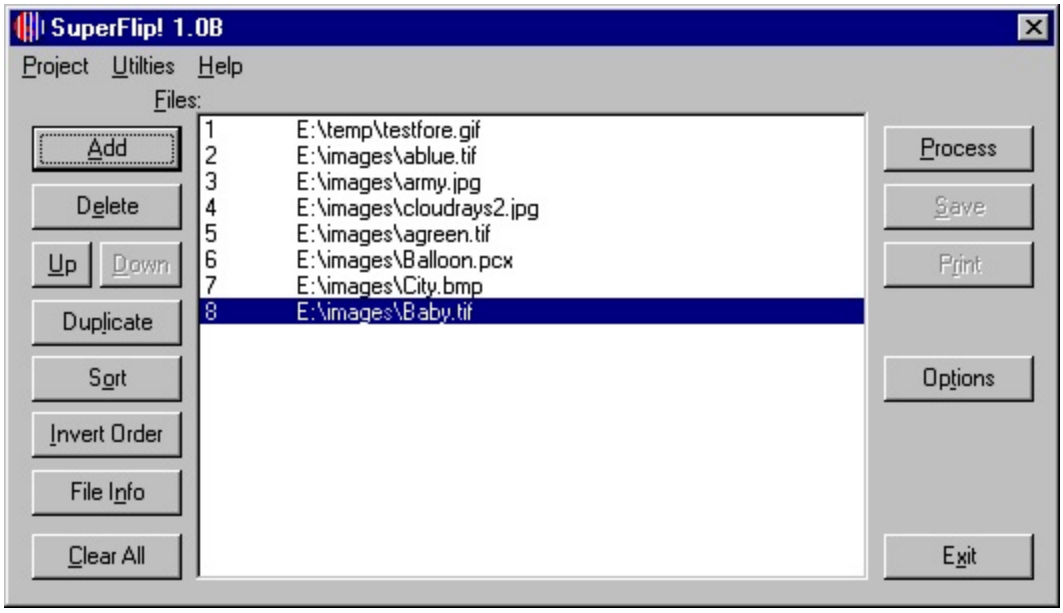
+$#Installation/Uninstall

To install, double-click on Setup.exe on the CD-ROM or floppy disk or, from the Start menu, Run A:Setup.exe (where A: is the location of the floppy disk or CD-ROM). The program files take about 1.5 MB of drive space. Setup will install shortcut icons on the Desktop and in the Start Programs menu. If you don't want the shortcut on the Desktop, drag the icon to the Trash to delete it. The program can also be run from the directory where it is installed.

To uninstall the program, go to Control Panel\Add-Remove Programs and select SuperFlip!. This will delete all the program files, shortcut icons, and Registry entries.

+$#Load the Files

Select the files to be interlaced using the *Add*, *Delete*, *Move, Sort,* and *Invert Order* buttons on **SuperFlip!**'s opening screen. File types can be tiff, CMYK tiff, gif, bmp, jpeg, targa, png, or pcx formats. If CMYK tiff files are used, all the input files must be CMYK tiff. Multiple file selects are permitted. You can also drag and drop file icons onto the **SuperFlip!** window and they will be added automatically. Double clicking on the highlighted file, or using the *File Info* button will provide information about the file selected and show a thumbnail view. The quality of the thumbnail may be poor but it won't affect the output quality. If **SuperFlip!** can't read the file correctly it will be reported in *File Info.*



To take full advantage of **SuperFlip!**'s slice and dice technology, all the input files should be tiff. This allows the files to be processed in very little memory without using any virtual memory. Accessing virtual memory slows the process down for very large files.

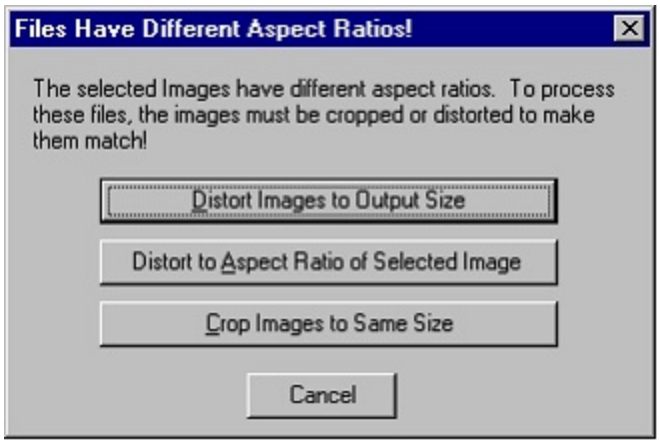
CMYK Files

SuperFlip! will process and create **CMYK** tiff images, as long as all the input images are CMYK tiffs. You cannot mix RGB with CMYK images. **SuperFlip!** will automatically detect the file type and the *Process Setup* screen will show whether the processing is RGB or CMYK. If the input files are CMYK, the output file will also be CMYK. You can save but not print CMYK tiffs from within **SuperFlip!**. They can be printed from another graphics program.

+$#KProcess the Images

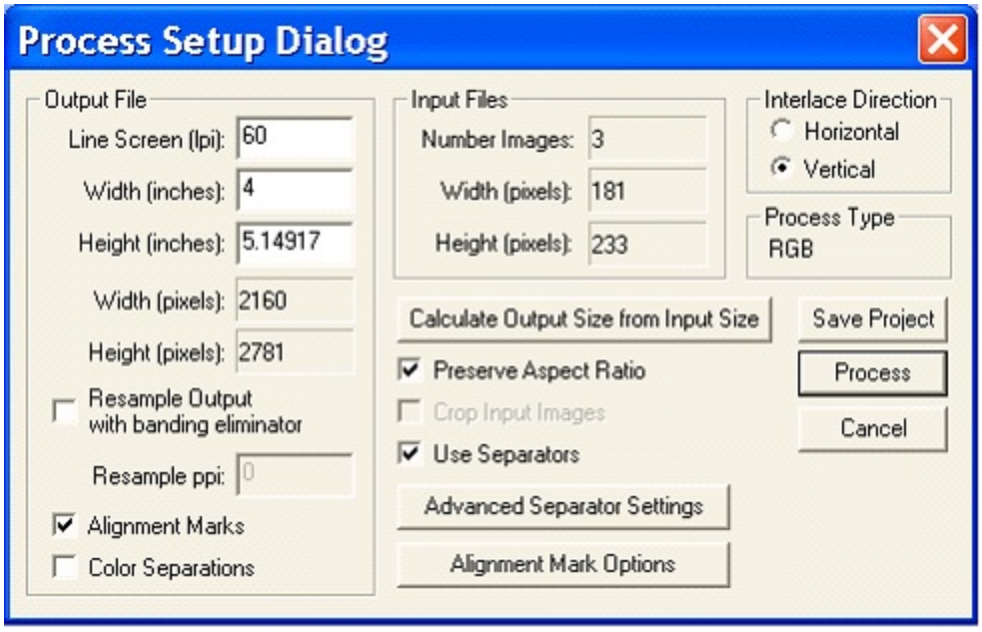
The *Process* button will bring up the Process Setup screen.

SuperFlip! will accept image files of any size and aspect ratio and attempt to automatically produce a pleasing interlaced image at the output dimensions you specify. If the aspect ratios of the input images are different, or different from the aspect ratio of the desired output size, some stretching or clipping will be necessary. If you process files which have different aspect ratios, you will see the *Files Have Different Aspect Ratios* screen. This screen gives you three choices; deform all the files to fit the desired output size, deform all the input files to the aspect ratio of the selected (highlighted) input file, or crop each file to the smallest width and height (cropped from the bottom left corner).

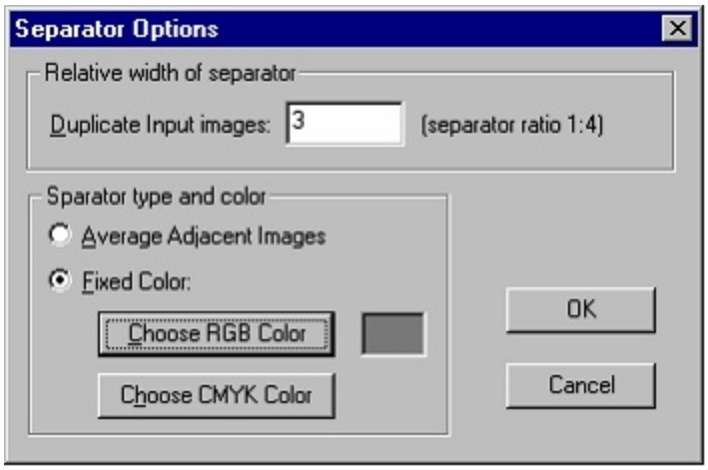


When you crop or distort to the aspect ratio of a particular input image, *Preserve Aspect Ratio* will be automatically selected in the *Process Setup Dialog*. If you want the output image to be exactly the same pixel size as the selected input image, you can choose the *Calculate Output Size from Input Size* button in the *Process Setup Dialog.*

A new *Quickcrop* option is now the default and can be used most of the time to crop or stretch each image to fit the output size.



Pick the *Linescreen* lines per inch (lpi), output image size, and *Interlace Direction*. If *Preserve Aspect Ratio* is selected, the output image aspect ratio is fixed by the input image aspect ratio. If you change the horizontal dimension, the vertical dimension will automatically change. If *Preserve Aspect Ratio* isn't checked, the input images will be stretched as necessary to fit the output size. *Vertical Interlace Direction* is for vertical lenticules. You can select to have alignment marks printed around the image. In the *Utilities* pull-down menu you can customize the alignment marks in *Alignment Settings*.



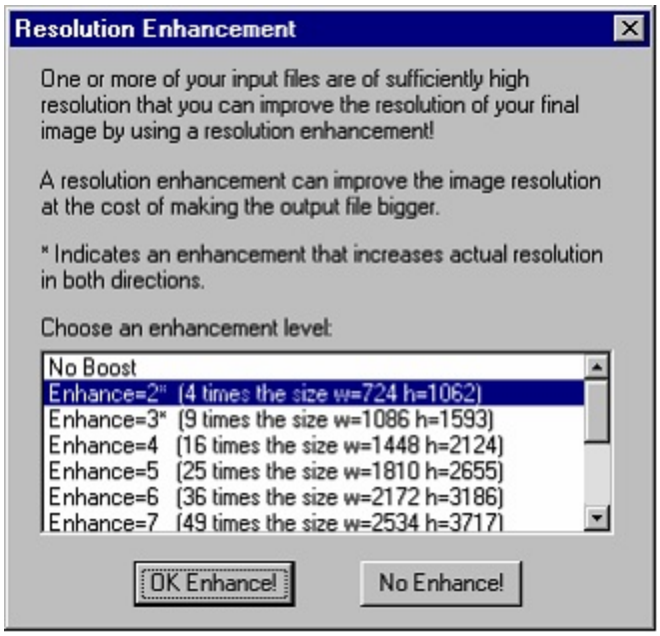
There are two other options that you can choose here. First is *Use* image *Separators.* These may be useful to separate winky-blinky flip images from each other.so that they flip cleanly without ghosting. The *Separator Settings* button gives many options for the separators. You first select the amount of image space taken up by the separator strip by entering how many times each input image should be used. If each input image is used 1 time with separators, ˝ the usable image space will be separators and the separator ratio will be 1:2. If each input image is used 2 times, the separators take up 1/3 of the image space for a separator ratio of 1:3. 1:3 or 1:4 are good choices to start. Then you select the color of the buffer strip. The most useful colors are probably gray or tan depending on the colors of the adjoining images. You can also choose a morph buffer, which calculates a color intermediate between the pixels of the adjacent images. Image separators are put between each of the images.

The other option is to *Resample* the *Output* file resolution to a pixels per inch (ppi) which your printer can handle without banding. This is not the printer dpi rating but usually a much smaller number. If banding in the printed output is a problem, or the printer requires a fixed ppi, the interlaced image can be resampled to any **greater** output resolution. If the resample resolution is too low, important parts of the image will be dropped or get out of order destroying the effect. A special algorithm is employed to reduce banding in the output.

If the printer can handle the unresampled output, it will be more accurate. If there is more resolution available in the input images, it is better to access it through the resolution enhancement feature described next rather than resampling up. The output file can also be resampled later by using **SuperFlip!□s** resample tool.

+$#Resolution Enhancement

SuperFlip! will automatically detect if some input files have enough resolution to boost the resolution of the output image. It will pop up the Resolution Enhancement screen giving you a choice of how much of a resolution enhancement to make. It will also inform you how much the enhancements will increase the output file size.



It is not always necessary or desirable to boost the resolution to the maximum possible. The maximum possible will use every pixel in every input image but at the expense of duplicating many pixels many times and making very large files which may have too many dots/per inch for the output device. Boosts which will enhance resolution in both directions are indicated by asterisks. After that point, pixels are duplicated in one direction (usually the direction along the lenticules or barriers) in order to boost resolution in the other direction. It certainly makes sense to boost at least up to the end of the asterisks. Resolution enhancement uses a proprietary optical compression algorithm which effectively gives high resolution from moderate boosts.

For maximum resolution and quality, the images should be prepared as described in the section below *Preparing Your Images* and then enhanced the full amount to use every pixel.

+$#Interlace and Save the Images

Hit the *process* button and the files will be interlaced. You will be asked for a file name for the output file. The saved file will be a tiff file and .tif will be appended automatically to the file name. This file is ready for printing, color separation, or film recording.

If the *Color Separations* box is checked on the *process screen* **SuperFlip!** will output grayscale tiff files for each color layer, up to 4 GB each. This will work for RGB or CMYK files, and is used when the maximum tiff image size of 4 GB is not large enough. Sometimes the CMYK layers need to be inverted for color separations and this can be set on the *options* screen.

SuperFlip! writes the final image size and resolution into the output file. Photoshop will read these tags and output the file correctly. Other programs may or may not read the right image size and resolution from the file and these may need to be set by hand.

CMYK Files

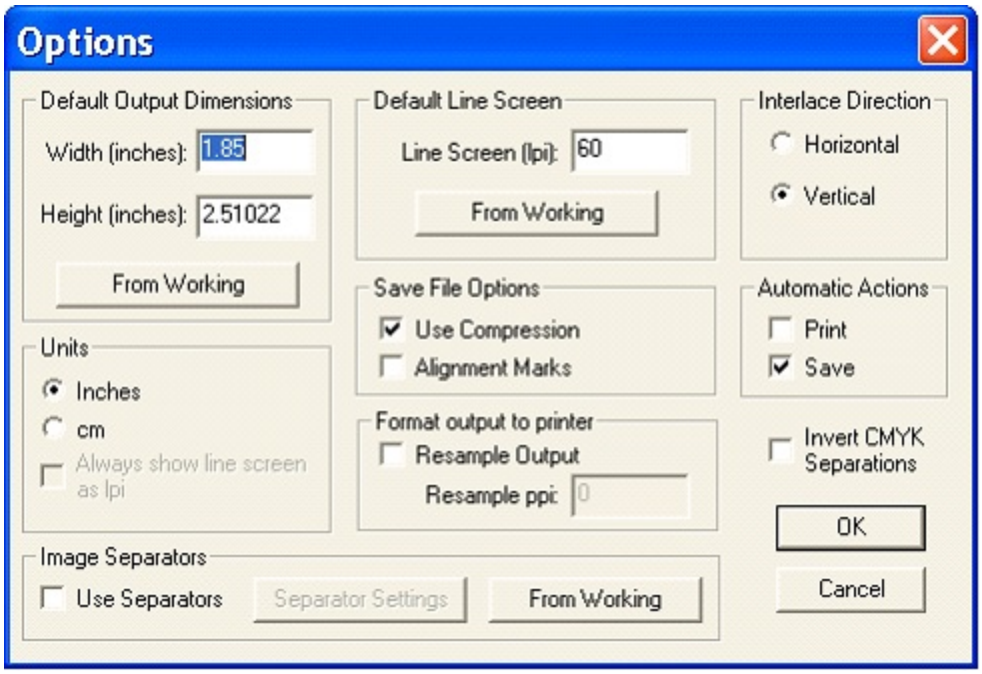
If the input files are CMYK tiff, the output file will also be CMYK. You can save but not print a CMYK tiff from within **SuperFlip!**. It can be printed from another graphics program.

+$#Save/Load Project

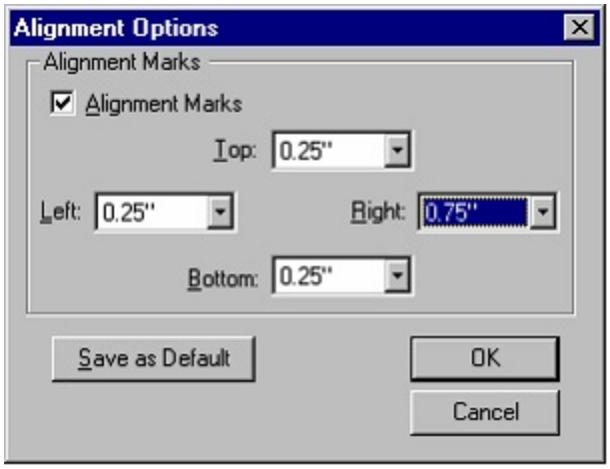
From the Project Menu you can save or load projects you are working on. A project includes the names of the input files, the linescreen, output size, etc.

+$#Options

The *Options* screen allows you to set the default values for *linescreen*, *output image size*, interlace direction, whether to use measurements in *inches* or *cm*, whether alignment marks and image separators should be used and whether resampling should be turned on. You can also choose to save the output file uncompressed if other programs have trouble reading the compressed files.
The *From Working* buttons allow you to import the values from the project you are currently working on to be the new default values for all projects.



In the *Utilities/Alignment Settings* menu you can customize the alignment marks.



+$#Preparing Your Images

SuperFlip! will accept image files of any size and aspect ratio and attempt to automatically produce a pleasing interlaced image at the output dimensions you specify. If the aspect ratios of the input images are different, or

different from the aspect ratio of the desired output size, some stretching or clipping will be necessary. (see Distort Aspect Ratio Screen.)

If you desire more control over the resampling, proportions, and scaling of the images, prepare your images in a graphics program so that they are all the same pixel size and the same proportions as the output image size. Then select the *calculate output size from input size* button on the process screen and process the image. If you desire to use every pixel from the input files in the output file, which preserves all the details and geometry exactly, then pick the maximum automatic Resolution Enhancement. The Resolution Enhancement feature uses a proprietary optical compression algorithm which preserves the details and geometry even when all the pixels are not used, giving superior results with a smaller file size. You will rarely if ever need to use the maximum enhancement to produce an excellent image.

The output file pixel dimensions are the product of the lenticular line screen used in lines/inch (lpi) **x** the final output size desired in inches **x** the number of images to be interlaced. *Calc Input* or *Calc Output* in the Utilities Menu leads to an optional calculator screen that will perform the necessary calculations for you automatically.

You can also manually enhance the resolution as described in the next section.

+$#Getting More Resolution Manually

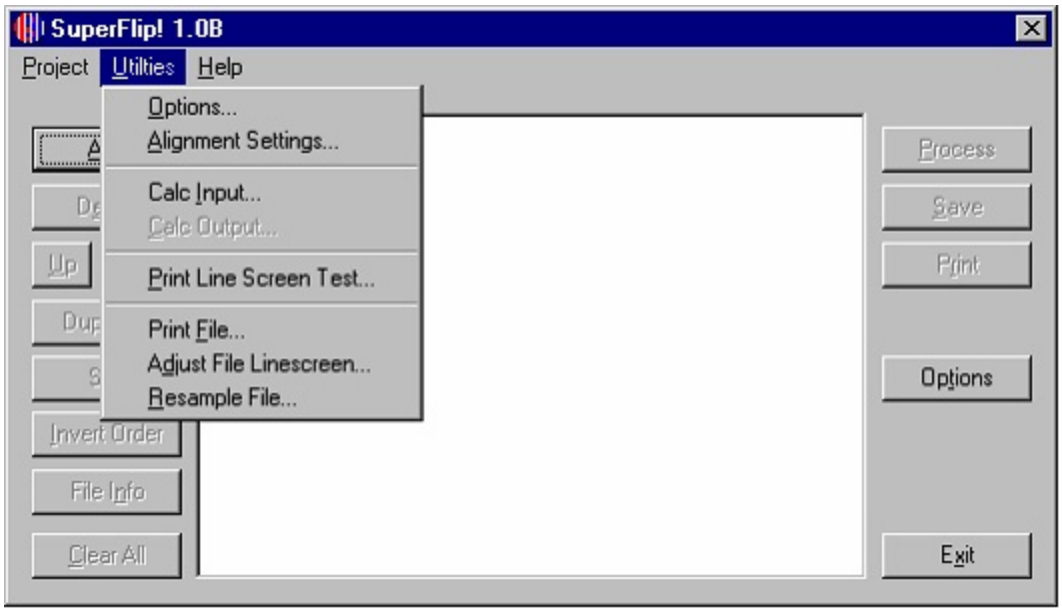
If the original artwork has more resolution that you want to preserve in the output image, or if you want to increase the flip frequency, you can load the same image more than once. There are two ways to do this. Say you are doing a two image flip and your original artwork has twice the number of pixels required by the linescreen and output size. In the *add file* screen, you can do either

1.	image1.tif	or	image1.tif
2.	image1.tif		image2.tif
3.	image2.tif		image1.tif
4.	image2.tif		image2.tif

The output image will use twice the horizontal and vertical resolution and 4 times the pixels as a simple two image flip. Otherwise, the first method will act the same as a two image flip. The second method will flip at twice the frequency, which may sometimes be desirable.

The automatic resolution enhancement feature uses the first method along with a proprietary optical compression algorithm which gives superior results with fewer pixels and smaller file size. The only case where you might desire to use method one and add images multiple times by hand is if you want to give different weights to the images. In that case you might load image one twice and image 4 four times. Image one would then be 1/3 of the output flip and image two would be 2/3. In all other cases you will get better results using the built-in Resolution Enhancement.

+$#Utilities



The *Utilities* Menu has some very useful tools.

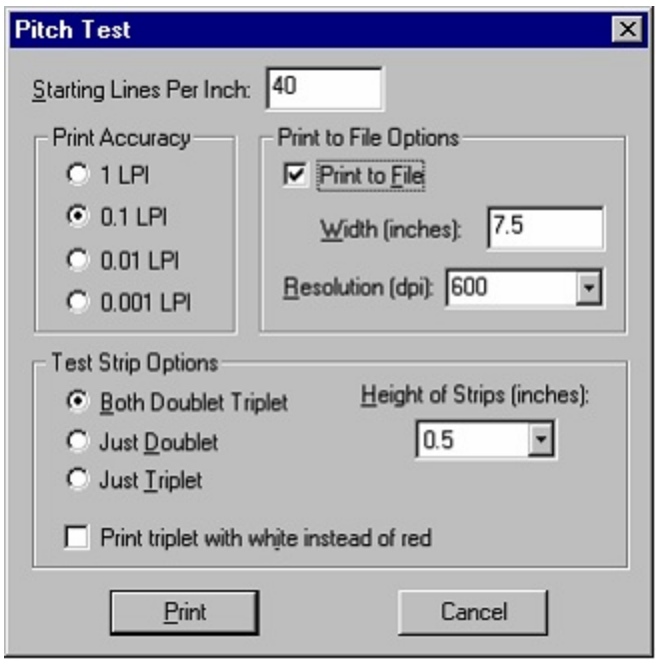
The *Print File* tool allows the interlaced image to be printed directly from within **SuperFlip!** with the option to change the target linescreen lpi. The image file is not changed when the file is printed for a different linescreen.

The *Adjust File Linescreen* makes it fast and easy to make small tweaks to the image to best fit the lens screen. The target linescreen can instantly be changed in a saved file without waiting for the file to load or reinterlacing the file. This tool only works on files that were created with **SuperFlip!**. If you want to preserve the original file, copy it before adjusting the linescreen.

The *Resample File* tool will resample an interlaced file to a fixed pixel resolution. This sometimes helps to reduce printer banding and crosstalk between flip images. You will be able to save the resampled file with a different name.

The Line Screen pitch Test is described in the next section.

+$#Screen Pitch Test



Knowledge of the exact linescreen lpi is very important for wide images. Even if you are told a screen is a certain lpi, it may be a little off. Say you are told a linescreen is 40 lpi, but it is really 40.1 lpi. That means that in every 10 inches there is one extra lenticule. If you are doing a two image flip, the picture will go completely out of phase in only 5 inches. If the output image is more than 5 inches, you will not get a single picture across the whole image that nicely flips all at once. If this is a problem, try accurately measuring the linescreen lpi over a large distance or using the pitch test utility.

SuperFlip! will print a pitch test (in the Utilities Menu) to help you determine the exact linescreen lpi. This screen would create a test which would show 40.00 lpi, 40.01, 40.02, &, 40.09, and 40.1. Normally, **SuperFlip**! will print each pitch as a black and white pair and a black, red, white triplet. This allows finer calibration of the grid. Optionally, you can have the triplet printed as 2/3 white and 1/3 black by selecting *Print triplet with white instead of Red.*

It is most accurate and faster to print the pitch test directly to the printer. If this does not work with your printer or RIP configuration, select the *print to file* option and save the pitch test as a tiff file. You can select the width of the pitch test and the resolution for the file. You can enter custom printer resolutions in the resolution input box.

If the black line in the triplet is not directly under the black line in the doublet all across the page as it is on the left hand side of the page, then the triplet test may not be accurate for that lpi setting. This is due to the finite printer resolution.

Be careful using the pitch test. The results may change as you view the screen at different distances or in different lighting.

+$#Hints

The number of images that can be used depends on the linescreen and the output device. If you notice banding in the printed image, the printing device is not able to maintain the precise pixel placement required and the images may not have good separation. A finer linescreen or more images require higher resolution printing. Say you want to put 6 images under a 40 lpi screen. A pixel needs to be placed every 1/(40 x 6) = 1/240 inch. A printer engine that can print 300 dpi may be able to print a dot every 1/300, but it may not be able to print a dot every 1/240 inch. It may not even be able to print a pixel every 1/40 inch. Some dots will be too close together and some too far apart resulting in banding and image ghosting.

Banding or striping on coarse screens may sometimes be fixed by resampling the image to a resolution which is more compatible with the printer. Use the resample and banding eliminator option on the process screen. Sometimes image ghosting can be reduced by using image separators found on the process screen.

Printer settings may be important. Dithering trades off spatial resolution to get more colors. Lenticular images require a high degree of spatial accuracy which may require the dithering option to be changed or turned off.

+$#K Troubleshooting

Memory problems/Large file sizes---If there are any memory problems, convert input files to the tiff format. **SuperFlip!** is most efficient handling tiff files and can quickly process large files in very little memory without using any virtual memory.
SuperFlip! can process and create very large tiff files including files with pixel dimensions over 32,000 pixels. Many programs cannot handle files with over 32,000 pixels in any dimension. Photoshop cannot open these files and most other graphics programs report errors such as □version not supported□ or □problem parsing the file□. If you need to load the output file into these other programs, create a smaller file by using less resolution enhancement, use fewer input files, or use **SuperFlip!** to resample the output resolution to make a smaller file.

Can□t open file□If there is an error such as □LZW decode, not enough data scanline 120 (short 1 byte)□, go back

into the application that created the image and save it without any compression. **SuperFlip!** reads correctly compressed files, but some programs, including Photoshop, occasionally write nonstandard compressed files.

Files not read correctly□Photoshop appears to write 8 bit bmp files that can□t be read. Most other 8 bit bmp□s read fine. In the worst case, you can always convert a file that can□t be read to a 24 bit uncompressed tif or bmp file. These can always be read. JPG□s saved with the progressive option cannot be read correctly. Resave without the progressive option or convert to another file format such as tiff.

CMYK tiff files should not have an alpha channel or they will not be processed correctly.

Printer pitch test --- The pitch test is designed to work with most Win95/98/XP/NT/2000 printer drivers but may not work for every printer or RIP configuration. You have the option to create a pitch test tiff file of any width and resolution if the direct print test doesn□t work. If the black line in the triplet is not directly under the black line in the doublet all across the page as it is on the left hand side of the page, then the triplet test may not be accurate for that lpi setting.
