

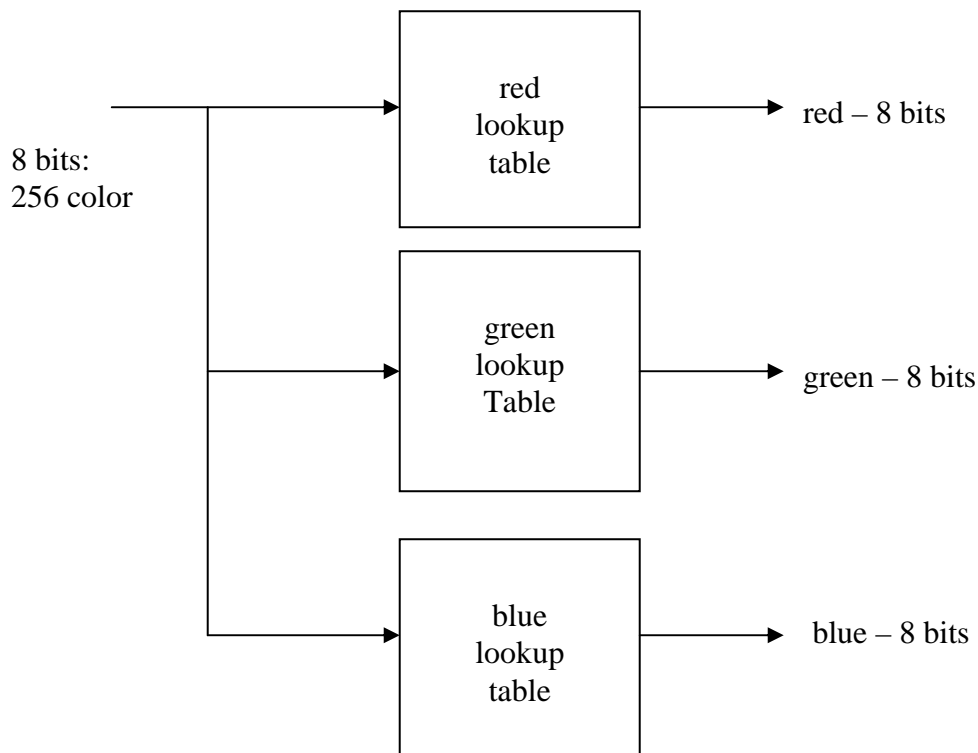
JPG to RGB conversion

Many images are stored in JPG format, a compressed format at that. However, the VGA display requires 24 bits of RGB information for each pixel to be displayed. While there are a number of ways to perform this conversion, using the MATLAB is the simplest.

However, converting and storing each video bit as a 24 bit RGB value will generally exceed the available BRAM in the labkit. In addition, it is unlikely that the image will use even 1% of the available 16 million colors. The solution is to limit the number of colors used in the image and use a color map look up table to generate the 24-bit RGB value.

The MATLAB examples attached convert an image with 16 colors and an image with 256 colors to 24-bit RGB. Three color map look up tables are created, one each for red, green, and blue. An alternative is to modify the MATLAB script to create one lookup table with 24 bit output.

8 bit to 24 bit color mapping



Prior to using the MATLAB program, convert the JPG to either a 16 color image or a 256 color image BMP file. Using a program such as Photoshop or GIMP rather than PAINT for converting a JPG file to 16 colors or 256 colors will result in a better picture. In GIMP or Photoshop, go to

menu > image>index>color map>generate optimum palette 256 or 16 colors
Save as bmp file.

Photoshop and other more sophisticated programs will select the best 16 or 256 colors.

The MATLAB script with sample images are included in this ZIP file. Special thanks to Edgar Twigg for creating the MATLAB scripts.

G. Hom updated Fall 2013