Re: Saving three 16 bit RGB values in 32 bits::

Source: http://sci.tech−archive.net/Archive/sci.image.processing/2005−09/msg00055.html

- *From*: davem@xxxxxxxxx (Dave Martindale)
- *Date*: Sat, 10 Sep 2005 07:16:28 +0000 (UTC)

Wenny Macura <wmacu@xxxxxxxxx> writes:
>I have been fiddling with large 16 bit images for a while.
>and have been trying to save the image allocation space on the disk.

>Since the image RGB values are independent of each other
>and the individual color component values are in the range of 0 to 65535,
>they can be stored as a single 32 bit floating point number.

No, you need at least 47 bits of mantissa to store three arbitrary 16−bit values. (47 instead of 48 because of the free "hidden bit" in IEEE floating point representation). And that's using the optimum scale factor of 65536, not 100000.

> * double Utility::RGB_ToDBL(int R, int G, int B)

Your code *should* work, but it's storing the values in a double which is 64 bits total, with something like 51 or 52 bits of mantissa precision. But note that sizeof(double) == 8, which is 2 more bytes than you started with.

Try recompiling your code using "float" instead of "double". Test it and see whether you get any useful blue bits back at all.

Dave
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- ***References***:
  - ***Saving three 16 bit RGB values in 32 bits::***
    - *From:* Wenny Macura

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