Colour Maximite right shift VGA mod.

It has been known for some time that the Colour Maximite (CMM) has a minor alignment problem where the text is shifted to the left approximately 1 character. Whilst I don't profess to know anything about `C' and/or video generation, I do know that video is generated through raw CPU grunt using 3 SPI channels for a purpose they weren't designed for. In short it is near miraculous that we get colour VGA at all.

That aside, generally it is possible to adjust the VGA monitor to the right to overcome this problem, however, some (especially smaller) monitors do not have this luxury. After consultation with Geoff about this he replied with this snippet:

Another solution that might appeal to someone who is good with a soldering iron is to delay the trailing edge of the horiz sync pulse as seen by the SPI peripherals. On the UBW32 CMM the horiz sync pulse is fed back to the three SPI channels using pins D9 (green channel), G9 (red) and D14 (blue). If you delayed the sync pulse going into these pins it would delay the trigger as seen by the SPI peripherals, which would have the effect of shifting the video to the right. You could accomplish the delay using a cap+resistor or by passing the signal through a few gates. Don't delay the sync pulse as seen by the monitor as that would undo the shift.

Using the above I was able to successfully right shift the text approximately 1 character to the right (just under 1 chr actually) which was enough to get a good full representation on my cheapo 8" VGA monitor. Increasing the delay further only causes the video to `tear' as I think the SPI channels get upset, but it is stable using the values I indicate here.

The description I include here is for the UBW32-MCC PCB and its CPU module UBW32, as that is what I have but the general description can be applied to all genre' of CMM and personally I think should be catered for in new generics if/when they are designed.

Based on Geoff's suggestion (Modified original CMM schematic)
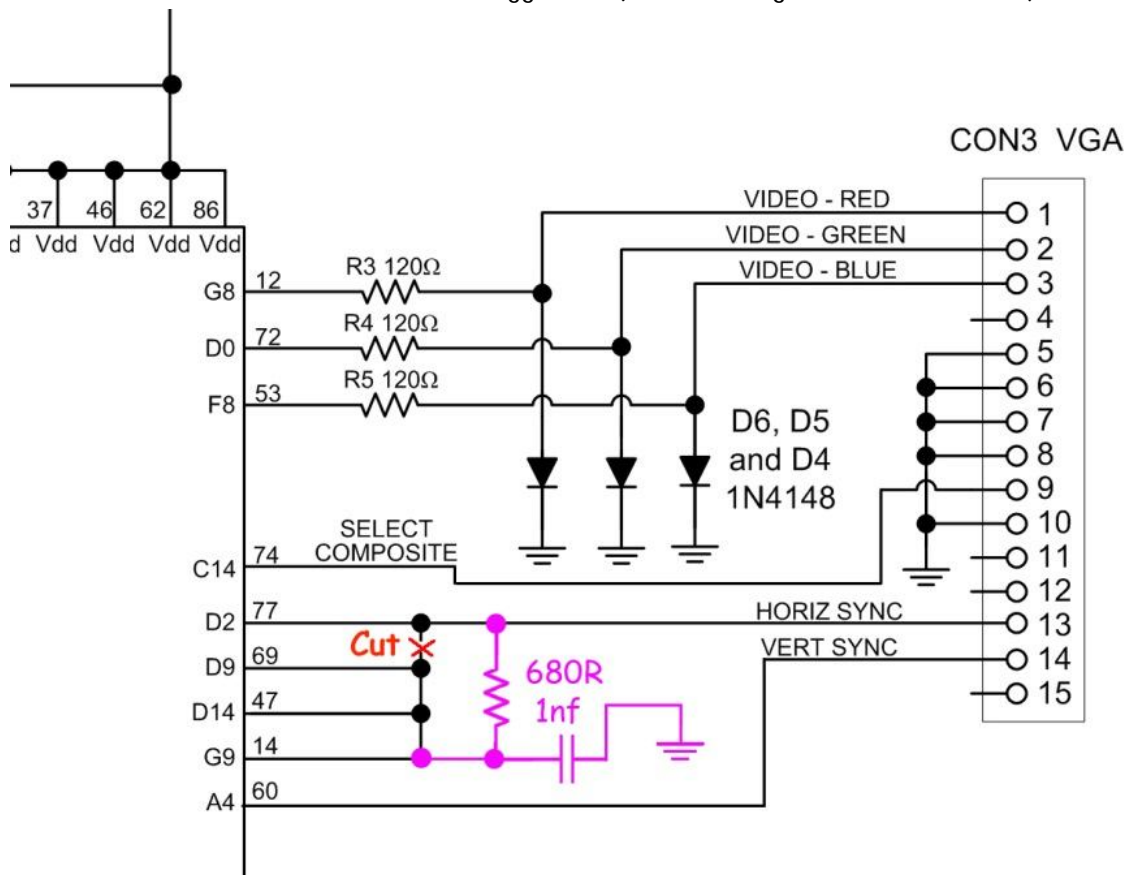
In practice the mod is very easy to perform on the UBW32-MCC platform.

1.) Remove the Pin from D2 of the UBW32, this isolates D2 from the rest of the HSync circuit.

2.) Cut a track on the underside of the UBW32-MCC mother board to isolate VGA pin 13 from the SPI inputs (D9, D14 & G9) as shown (marked in Purple).
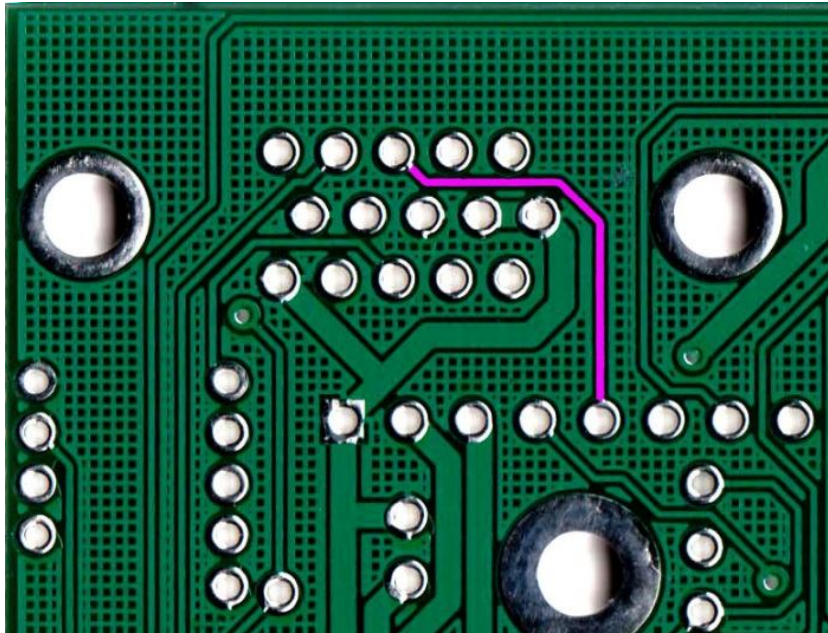
3.) Solder a 680R resistor on the topside of the UBW32 CPU board between D2 and D9

4.) Solder a 1nf ceramic cap on the topside of the UBW32 CPU board between D9 and the GND pad of the nearby USB `extra' header (clearly labeled).

5.) Solder a short thin wire from Pin 13 of the VGA connector to D2 on the topside of the UBW32 CPU board.
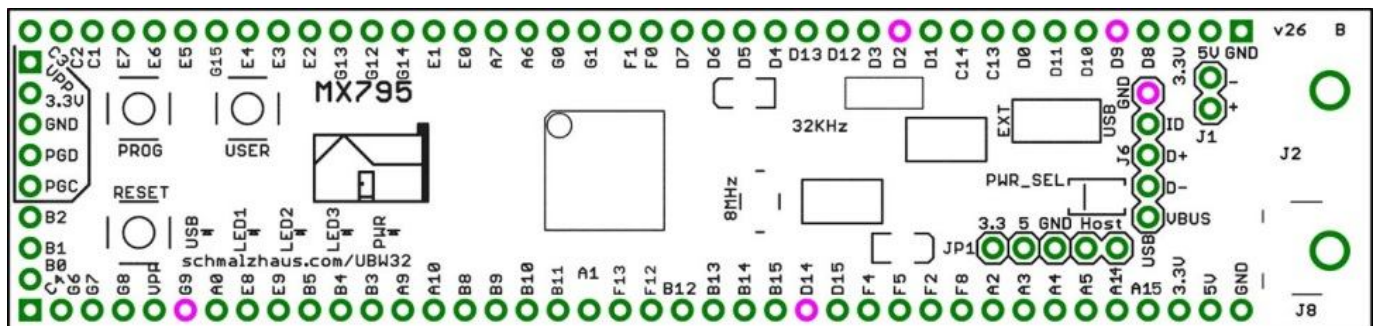
That's it.

I am keen to hear feedback and any improvements you may have.

Regards,

Mick