

Re: Multiplexing LEDs – calculating resistor value

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On 27 Jun 2006 04:18:54 -0700, "roxlu" <diederickh@xxxxxxxx> wrote:

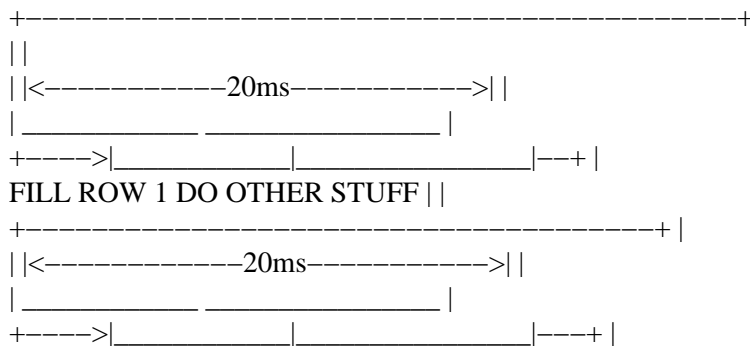
Hi John and Jonathan,

Really thanks a lot!! Now I get what you mean...I'm not a electronics-man and still learning. When I'm using a current limiting resitor of 100R, could I let my circuit as it is now? And what about the speed? As suggested I need to shift in 48 bits for each row instead of 8 (for all the rows). I can imagine this will take a lot more processing power which will cause flickering.

If you assume that a frame rate of 50Hz will be adequate to prevent flickering, then that means you'll need to update the array every 20 milliseconds.

Since you have 8 rows which you're strobing, one at a time, during that 20ms you'll have each one of them on for 2.5ms, and since you have 48 pixels in each row, the longest time you can take, per pixel, to shift in a new row before the strobe happens is 52.08µs.

You should be able to do it much faster than that, though, the limit being how fast your µC can fill up the shift register, which will determine how much time you've got left over to do other stuff. Like this:



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```
FILL ROW 2 DO OTHER STUFF ||  
. |  
. |  
. |  
||  
+-----+ |  
||  
|<-----20ms----->||  
|_____ |  
+---->|_____ |-----+  
FILL ROW 8 DO OTHER STUFF
```

I think I'd use an internal timer (if I could) to get the 20ms ticks, then use the timer interrupt to jump to my ISR, which would fill the shift register with new data, then latch it and increment the row counter when the 48th bit clock went true, then exit and wait for the next timer interrupt.

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