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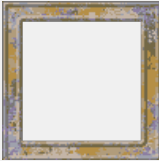## 📋 UART high speed problem with VNC1L                    << Prev Thread | Next Thread >>

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**engineering@skutchelectronics.com** ⓞ

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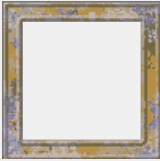📄 **UART high speed problem with VNC1L** - Friday, July 02, 2010 10:26 AM ( #1 )    📋 Message Options

We are developing a new product based on the dsPIC33FJ256GP710 and we added a USB interface to the board using the VNC1L on UART2.  The current trace runs are about 7 inches to the PIC and I am using 22 ohm resisters at each receiving end to clean up any jitter.  I have the UART set on interrupts, no DMA, to get the data in/out of separate buffers.  I can get bi-directional communications going up to 115200 baud reliably, but beyond that, I can't get reliable communication between the devices.  I've scoped the lines and found timing differences between the 2 devices at the standard higher baud rates, but I finally found a higher baud with basically identical pulse widths at 3us per bit (333,333 baud).  I have the VNC1L hard coded to boot up at 115200,8 bits,no parity,1 stop,hardware flow.  After the VNC1L boots up, I successfully capture all of the bootup info from the VNC1L, then I switch it over to 333,333 baud and I can insert a flash stick and remove it and successfully capture all of the responses from the VNC1L at the higher baud rate; but once I send a CR to the VNC1L to check disk status, it returns the proper data (as captured via scope), but the PIC gives me garbage in the receive buffer from then on, even though the scope still shows the correct information.  I did notice that the VNC1L is outputting 2 extra bit widths of OFF time between each byte that is transmitted, but that shouldn't mean anything to a UART (and it does the same thing before I transmit the CR), it just receives each byte starting at the start bit.  I have tried using no flow control and just clearing the RTS line manually, and I even tried setting the RTS before I transmit, waited for the transmit to finish, then clear the RTS, with the same results.  I've put in plenty of time delays after switching the baud rate without any success.  I've tried using BRGH = 0 and 1, with correct BRG values for each, with the same results.

An unusual anomaly in the PIC is that when I switch to high speed BRG (UxMODE.BRGH = 1) the start bit is a little shorter and the 1st data bit is a little longer, depending on the baud rate.

I am currently relaying the board out and we are cutting 2 inches off the lines between the VNC1L and the PIC, but I need to decide if I need to also wire the VNC1L to an SPI port as well and add a comm mode selection input to the PIC.

#1 ⬆

**kurenai_ryu** ⓞ

New Member
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| Reward points : 0 |
| Joined: 6/19/2007 |
| Location: 0 |
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📄 **Re:UART high speed problem with VNC1L** - Saturday, July 03, 2010 6:38 PM ( #2 )    📋 Message Options

how much time do you wait after changing the baudrate? which crystal value are you using and which values at BRG? how much error rate (%) do you have? at those frequencies, you need  near 0 error rate, also, have you set your scope before or after your resistors? maybe with some pcb capacitance, it just distords the signal before going to the PIC.

so, with your scope, have you seen the output signal from the PIC? (try to output coherent commands and check also the input response from the VNC1L) if both (tx and RX) signals are ok, then maybe it's a silicon issue...

#2 ⬆

UART high speed problem with VNC1L

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