

*****DRAFT*****
UART No Flow Ctrl
06/28/18
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UART simulation: Universal Asynchronous Receiver Transmitter. Using Iverilog the following simulation of helloworld with no flow control.

iverilog -o uart tb_txuart.v txuart.v creates uart which is executed with the vvp command

vvp uart This creates the Value Change Dump VCD file dump.vcd.

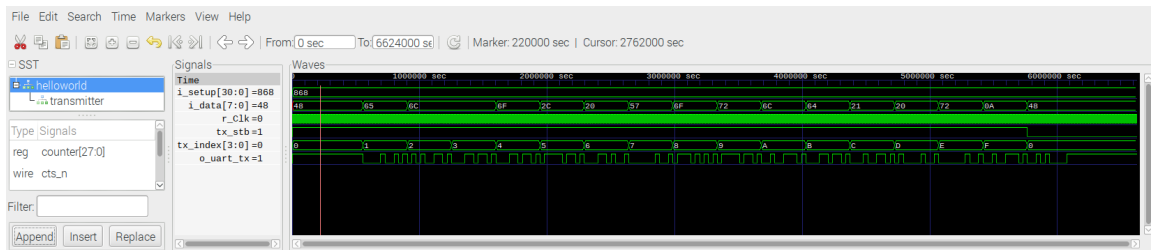
VCD info: dumpfile dump.vcd opened for output.

gtkwave dump.vcd

GTKWave Analyzer v3.3.79 (w)1999-2017 BSI

[0] start time.

[6624000] end time.



iverilog -o echo tb_echo.v txuartlite.v rxuartlite.v

vvp echo This creates the Value Change Dump VCD file dump.vcd.

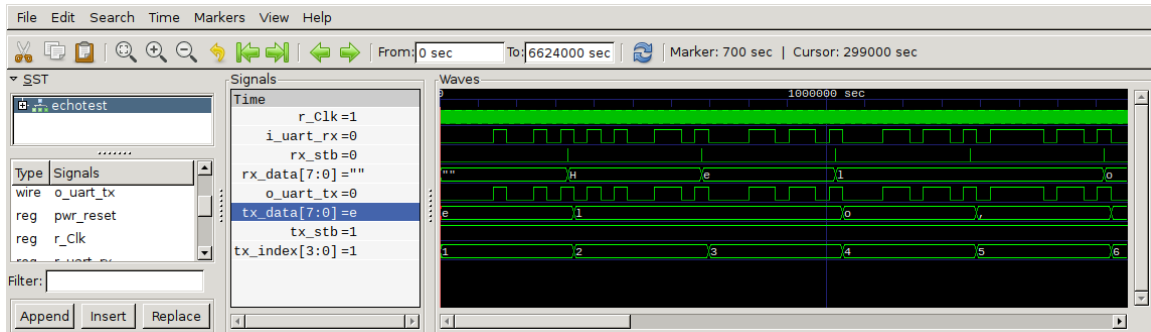
VCD info: dumpfile dump.vcd opened for output.

gtkwave dump.vcd

GTKWave Analyzer v3.3.79 (w)1999-2017 BSI

[0] start time.

[6624000] end time.



minicom

```

Main Options  VT Options  VT Fonts
+-----+
| A -   Serial Device       : /dev/serial0 |
| B - Lockfile Location    : /var/lock    |
| C -   Callin Program      :             |
| D - Callout Program      :             |
| E -   Bps/Par/Bits        : 115200 8N1  |
| F - Hardware Flow Control : No          |
| G - Software Flow Control : No          |
|                                     |
|   Change which setting? █             |
+-----+
| Screen and keyboard      |
| Save setup as dfl        |
| Save setup as..          |
| Exit                     |
| Exit from Minicom        |
+-----+

```

Note: A change to file `/boot/cmdline.txt` is required when using the RPi on board UART. This is only require with RaspBian.

```
diff /boot/cmdline.txt /boot/cmdline.txt.orig
1c1
< dwc_otg.lpm_enable=0 root=PARTUUID=0015d3fb-02 rootfstype=ext4
elevator=deadline fsck.repair=yes rootwait quiet splash plymouth.ignore-serial-
consoles
---
> dwc_otg.lpm_enable=0 console=serial0,115200 console=tty1
root=PARTUUID=0015d3fb-02 rootfstype=ext4 elevator=deadline fsck.repair=yes
rootwait quiet splash plymouth.ignore-serial-consoles
```

```
ls -la /dev/serial0
lrwxrwxrwx 1 root root 5 Jun 26 15:45 /dev/serial0 -> ttyS0
```

```
Serial Device   : /dev/serial0
Bps/Par/Bits    : 115200 8N1
Hardware Flow Control : No
```

```
/home/pi/Ultibo_Projects/progcat
sudo config_cat speechfifo.bin
```

Main Options VT Options VT Fonts

```
| come to dedicate a portion of that field, as a final resting |
| place for those who here gave their lives that that nation might |
| live. It is altogether fitting and proper that we should do this. |
|
| But, in a larger sense, we can not dedicate—we can not consecrate— |
| we can not hallow—this ground. The brave men, living and dead, |
| who struggled here, have consecrated it, far above our poor power |
| to add or detract. The world will little note, nor long remember |
| what we say here, but it can never forget what they did here. It |
| is for us the living, rather, to be dedicated here to the |
| unfinished work which they who fought here have thus far so nobly |
| advanced. It is rather for us to be here dedicated to the great |
| task remaining before us—that from these honored dead we take |
| increased devotion to that cause for which they gave the last |
| full measure of devotion—that we here highly resolve that these |
| dead shall not have died in vain—that this nation, under God, |
| shall have a new birth of freedom—and that government of the |
| people, by the people, for the people, shall not perish from the |
| earth.
|
|
|=====
```



helloworld.bin

Main Options VT Options VT Fonts

```
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
Hello, World!
```



Ultibo programming FPGA

Utiibo Core (Release: Beetroot Version: 2.0.375 Date: 18 June 2018)

```
Program FPGA
setting IOB_100_SS low
IOB_100_SS 0
Resetting FPGA
Setting Reset low
Reset 0
Setting Reset high
Reset 1
CDONE 0
Sending to SPI speechfifo.bin
In SPISendFile2 135100
In SPISendFile2 131004
In SPISendFile2 126908
In SPISendFile2 122812
In SPISendFile2 118716
In SPISendFile2 114620
In SPISendFile2 110524
In SPISendFile2 106428
In SPISendFile2 102332
In SPISendFile2 98236
In SPISendFile2 94140
In SPISendFile2 90044
In SPISendFile2 85948
In SPISendFile2 81852
In SPISendFile2 77756
In SPISendFile2 73660
In SPISendFile2 69564
In SPISendFile2 65468
In SPISendFile2 61372
In SPISendFile2 57276
In SPISendFile2 53180
In SPISendFile2 49084
In SPISendFile2 44988
In SPISendFile2 40892
In SPISendFile2 36796
In SPISendFile2 32700
In SPISendFile2 28604
In SPISendFile2 24508
In SPISendFile2 20412
In SPISendFile2 16316
In SPISendFile2 12220
In SPISendFile2 8124
In SPISendFile2 4020
Setting True in SPISendFile2
True returned from SPI wr speechfifo.bin
In SPISendFile2 6
Setting True in SPISendFile2
True returned from SPI wr sixzeros.bin
CDONE 1
setting IOB_100_SS high
IOB_100_SS 1
CDONE 1
uart opened successfully
```

Ultibo

```

In SPISendFile2 44900
In SPISendFile2 40892
In SPISendFile2 36796
In SPISendFile2 32700
In SPISendFile2 28604
In SPISendFile2 24500
In SPISendFile2 20412
In SPISendFile2 16316
In SPISendFile2 12220
In SPISendFile2 8124
In SPISendFile2 4028
Setting True in SPISendFile2
True returned from SPI wr speechfile.bin
In SPISendFile2 6
Setting True in SPISendFile2
True returned from SPI wr sixzeron.bin
CDONE 1
setting 10B 100_33 high
10B_100_33 1
CDONE 1
Dart opened successfully
Received a line: |=====|
Received a line: |
Received a line: | Four score and seven years ago our fathers brought forth on this |
Received a line: | continent, a new nation, conceived in Liberty, and dedicated to |
Received a line: | the proposition that all men are created equal. |
Received a line: |
Received a line: | Now we are engaged in a great civil war, testing whether that |
Received a line: | nation, or any nation so conceived and so dedicated, can long |
Received a line: | endure. We are met on a great battle-field of that war. We have |
Received a line: | come to dedicate a portion of that field, as a final resting |
Received a line: | place for those who here gave their lives that that nation might |
Received a line: | live. It is altogether fitting and proper that we should do this. |
Received a line: |
Received a line: | But, in a larger sense, we can not dedicate-we can not consecrate- |
Received a line: | we can not hallow-this ground. The brave men, living and dead, |
Received a line: | who struggled here, have consecrated it, far above our poor power |
Received a line: | to add or detract. The world will little note, nor long remember |
Received a line: | what we say here, but it can never forget what they did here. It |
Received a line: | is for us the living, rather, to be dedicated here to the |
Received a line: | unfinished work which they who fought here have thus far so nobly |
Received a line: | advanced. It is rather for us to be here dedicated to the great |
Received a line: | task remaining before us-that from these honored dead we take |
Received a line: | increased devotion to that cause for which they gave the last |
Received a line: | full measure of devotion-that we here highly resolve that these |
Received a line: | dead shall not have died in vain-that this nation, under God, |
Received a line: | shall have a new birth of freedom-and that government of the |
Received a line: | people, by the people, for the people, shall not perish from the |
Received a line: | earth. |
Received a line: |
Received a line: |
Received a line: |=====|
Received a line: |

```

```

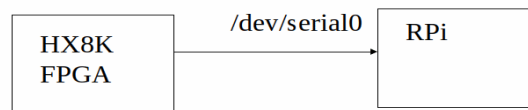
/home/pi/catzip/rtl/uart/noflowcntl/pi
helloworld.v includes txuart.v
make helloworld
sudo config_cat helloworld.bin
helloworld.pcf
# pin definitions

```

```

set_io i_clk C8
#set_io i_uart_rx B5
#set_io o_uart_tx B3
set_io o_uart_tx T14

```



o_uart_tx T14 BCM15 RXD 10

```

/home/pi/catzip/rtl/uart/noflowcntl/
helloworld.v includes txuart.v
make helloworld
sudo config_cat helloworld.bin
helloworld.pcf
# pin definitions

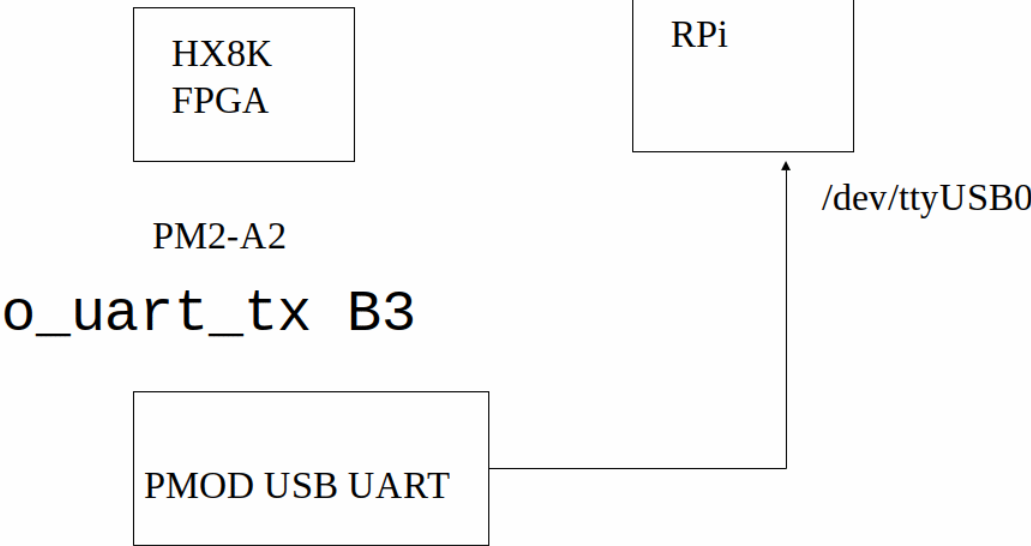
```

```

set_io i_clk C8
#set_io i_uart_rx B5
set_io o_uart_tx B3

```





Main Options VT Options VT Fonts

```
+-----+
| A -   Serial Device       : /dev/ttyUSB0      |
| B - Lockfile Location    : /var/lock          |
| C -   Callin Program     :                    |
| D -   Callout Program    :                    |
| E -   Bps/Par/Bits       : 115200 8N1        |
| F - Hardware Flow Control : No                |
| G - Software Flow Control : No                |
|                                         |
|   Change which setting? █                |
+-----+
| Screen and keyboard      |
| Save setup as df1       |
| Save setup as..         |
| Exit                    |
| Exit from Minicom       |
+-----+
```

Serial Device : /dev/ttyUSB0
Bps/Par/Bits : 115200 8N1
Hardware Flow Control : No

```
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!  
Hello, World!
```

