

LAB Assignment #2  
DUE and DEMO:1-30-2020

PART 0:

Do the assembly programs C2.1, C2.2 in Chpater2.  
No need to turn in anything.

PART 1: UART Driver

1. Download samples/LAB2 files:

mk file : answer questions listed in the mk file

t.ld file : answer question listed in the file

2. uart.c : complete this file (same as in book) for ARM versatilepb board.

WRITE YOUR own ufprintf(UART \*up, char \*fmt, . . .) function for  
formatted printing of char, string, u32 in HEX and intger

3. Use the t.c file as is. It prinst to each of the 4 UARTs.

To use (Linux) pseudo terminals as serial ports:

open a terminal, use ps to see its /dev/pts/NUMBER

Make sure they match the /dev/pts/number in the QEMU command.

enter sleep 10000 to put the (Linux) sh process to sleep.

PART 2: LCD Driver

The image file wsu.bmp is bigger than 640x480 pixels.

The vid driver displays only 640x480 pixels, so the image is cropped.

Rewrite the showbmp() function to display wsu.bmp in 1/2 size.

Sample solution: LAB2.post/LAB2.2:

qemu-system-arm -M versatilepb -m 128M -kernel LAB2.2 -serial mon:stdio