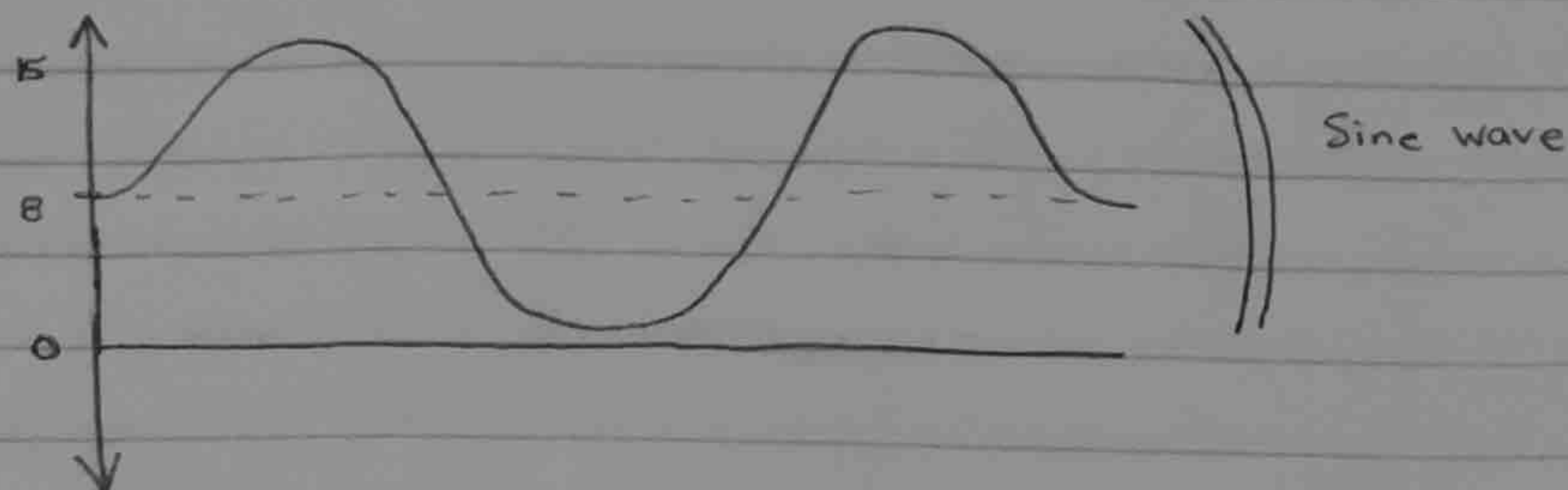
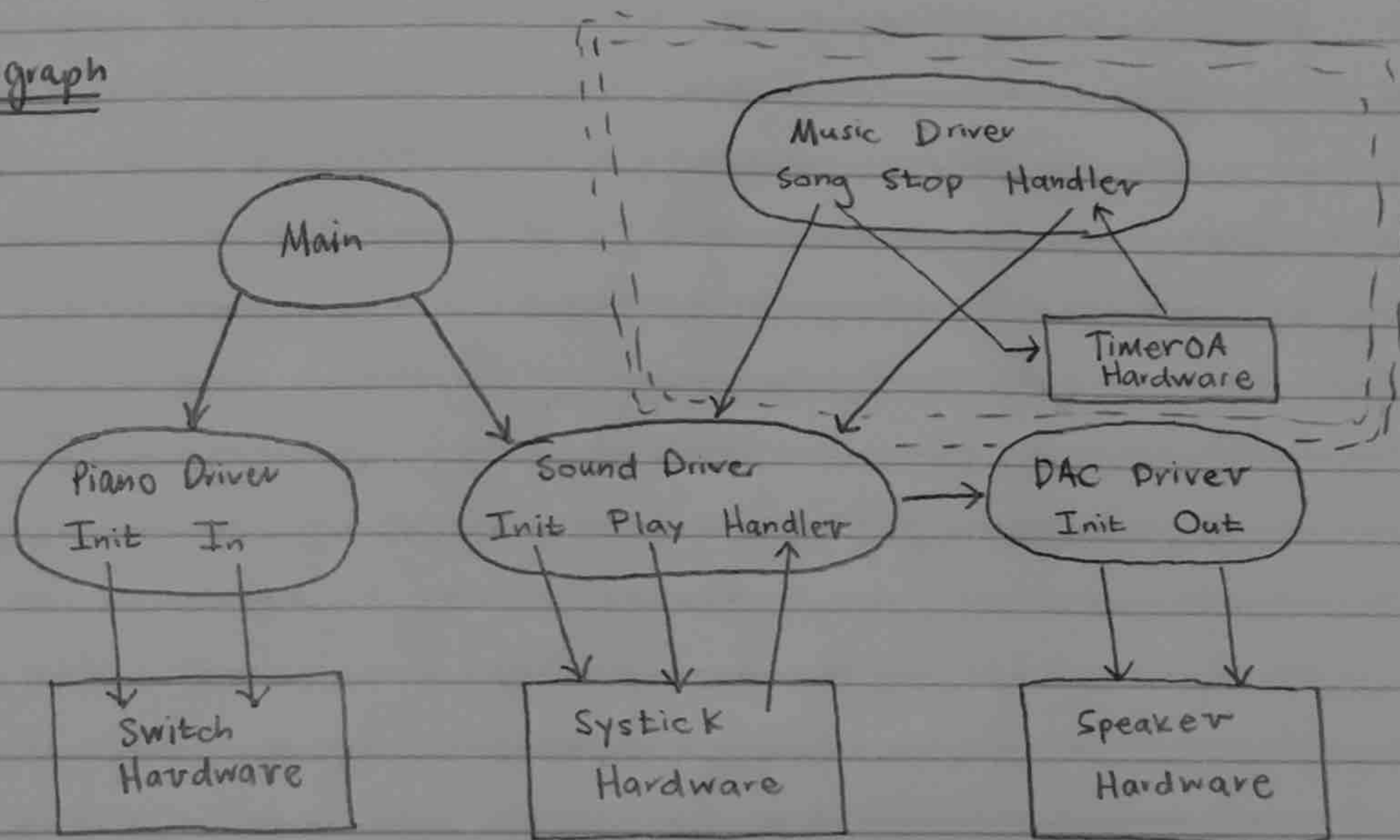


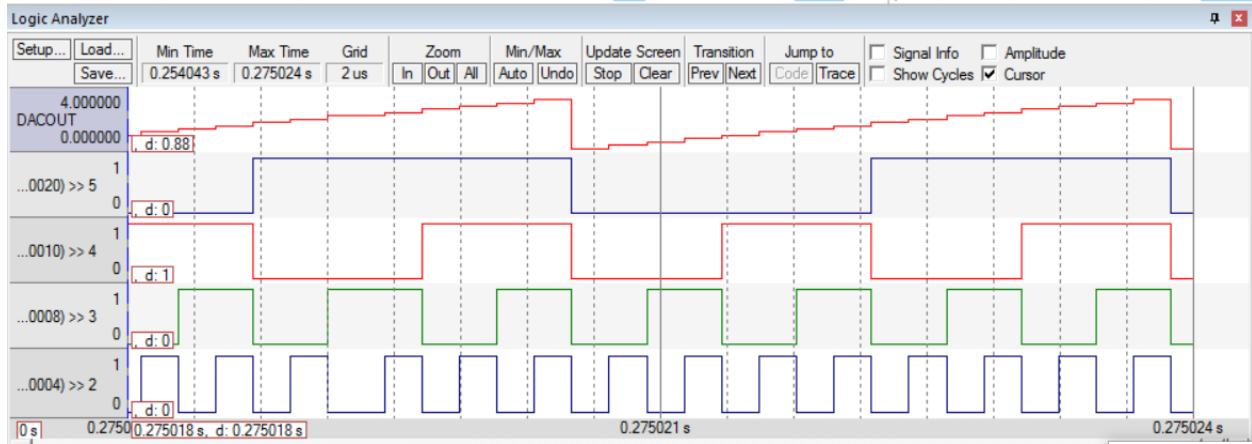
# Lab 6 Data Structures

Sine Wave



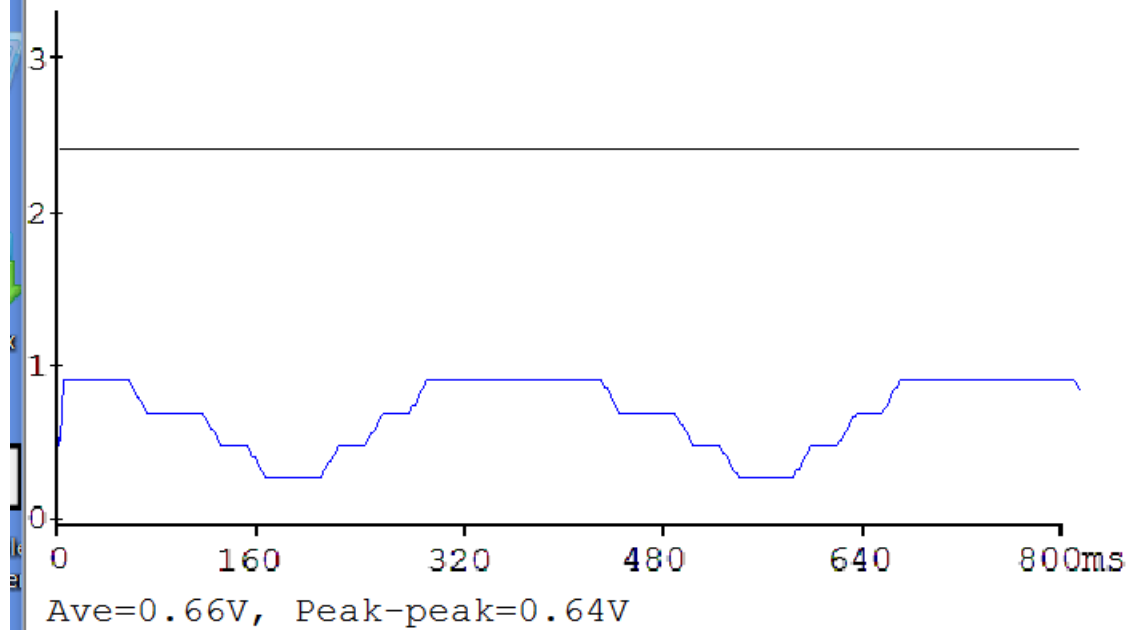
Call graph





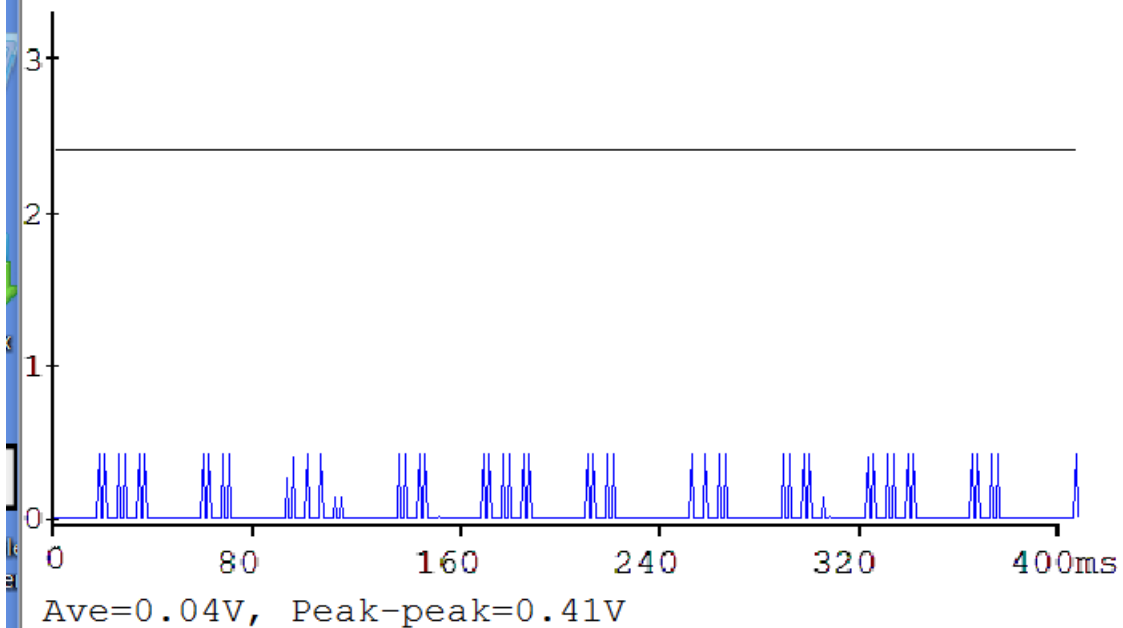
Untitled - TExaS display

File Edit COM Action View Help



Untitled - TExaS display

File Edit COM Action View Help



## Questions

- (1) When does interrupt trigger occur?
  - a. When the NVIC\_ST\_CURRENT\_R value counts down from the RELOAD value to 0
- (2) In which file is the Interrupt Vector?  
In the Sound.c file
- (3) Steps that occur before processor executes the Handler
  - Pushes 8 registers to the stack
  - PC gets Address of SysTick\_Handler Routine
  - Link Register gets 0xFFFFFFFF
- (4) Registers are pushed when Interrupt happens. When you do a BX LR it checks to see if the Link Register has 0xFFFFFFFF and if it does it pops the pushed registers from the stack.

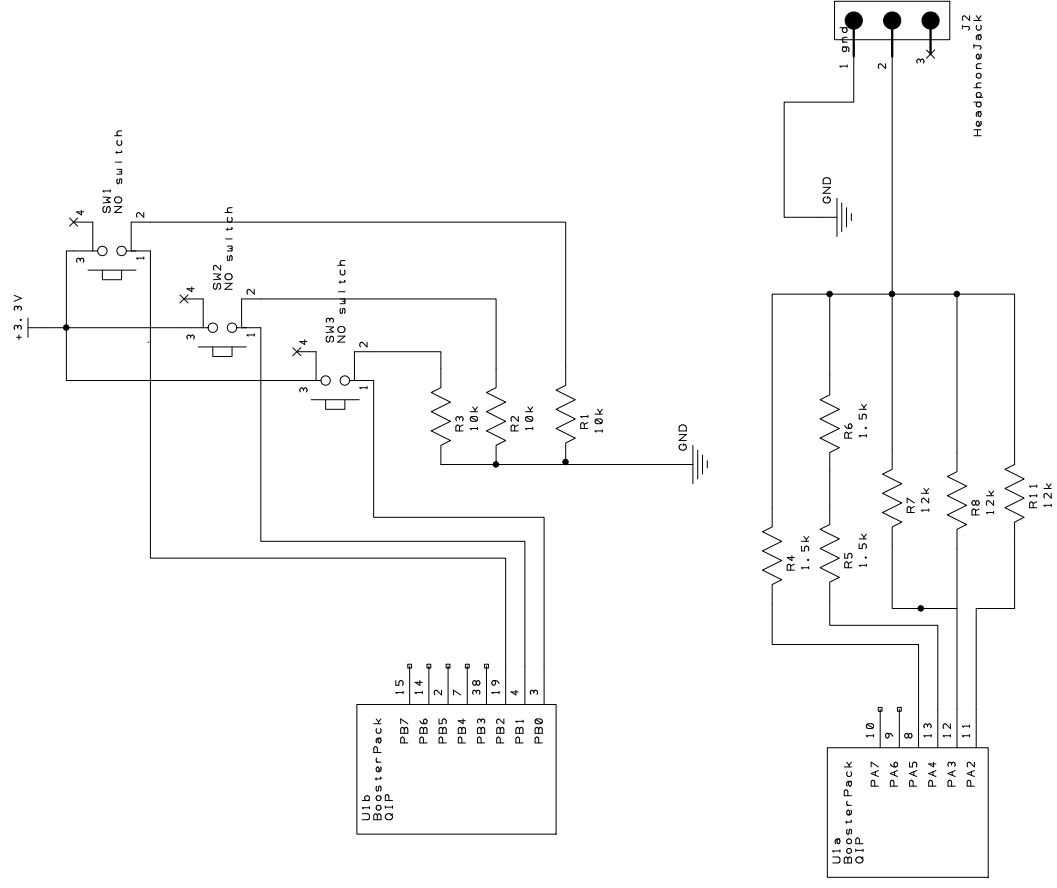
Bits 3-0	Theoretical DAC Voltage (V)	Measured DAC Voltage (V)	Accuracy
0 0 0 0	0	0	0
0 0 0 1	0.22	0.23	0.045455
0 0 1 0	0.44	0.46	0.045455
0 0 1 1	0.66	0.69	0.045455
0 1 0 0	0.88	0.89	0.011364
0 1 0 1	1.1	1.13	0.027273
0 1 1 0	1.32	1.36	0.030303
0 1 1 1	1.54	1.59	0.032468
1 0 0 0	1.76	1.73	-0.017045
1 0 0 1	1.98	1.96	-0.010101
1 0 1 0	2.2	2.19	-0.004545
1 0 1 1	2.42	2.42	0
1 1 0 0	2.64	2.62	-0.007576
1 1 0 1	2.86	2.85	-0.003497
1 1 1 0	3.08	3.08	0
1 1 1 1	3.3	3.31	0.00303
Average			0.012377

Resolution =  $1/2^4 = 0.0625$

Range =  $3.31 - 0 = 3.31$

Precision =  $4.0262$

Accuracy =  $0.012377$



All resistors are 1/4 watt 5% carbon composition  
 C1 is ceramic Z5U  
 Switches are [www.BOMicro.com](http://www.BOMicro.com) SHT1043  
 Red LEDs. T1 3/4. 20mA Digikikey 160-1007-ND  
 Yellow LEDs. T1 3/4. 20mA Digikikey 160-1008-ND  
 Green LEDs. T1 3/4. 20mA Digikikey 160-1009-ND  
 Slide pot. Bourns SSHA2020300 [www.AllElectronics.com](http://www.AllElectronics.com) SP-20K