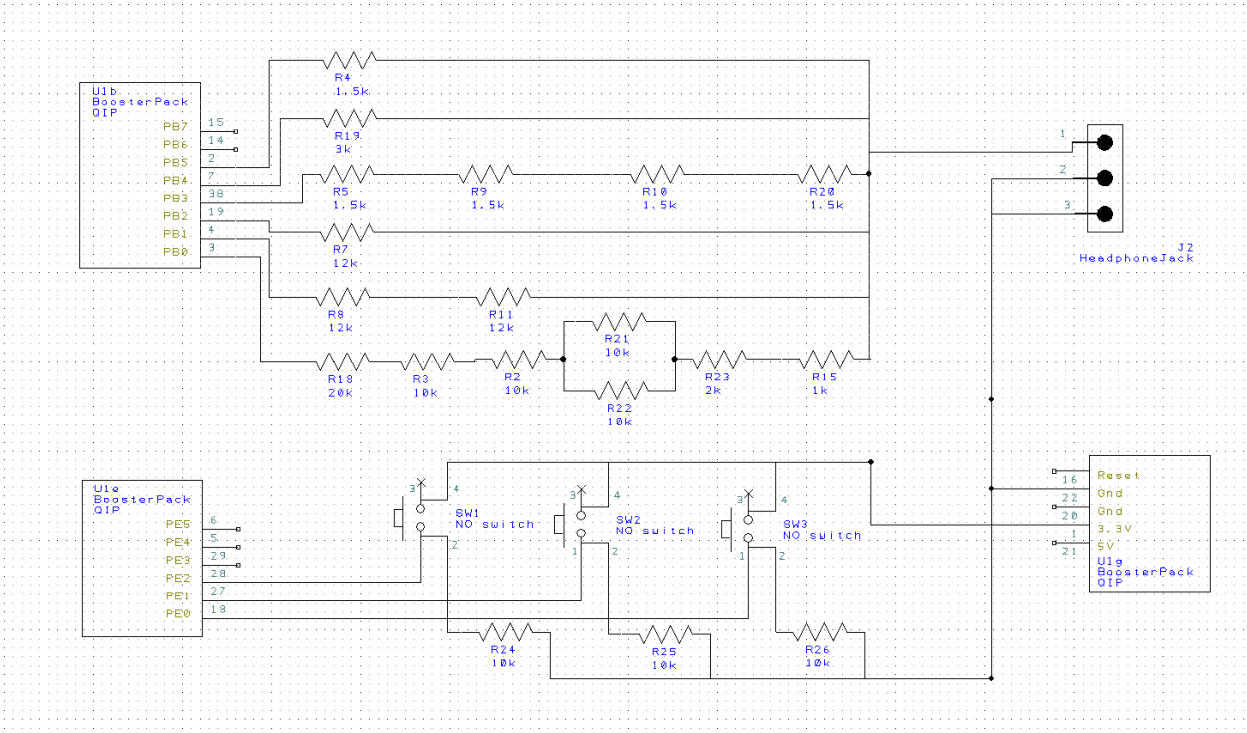
2. Circuit Diagram



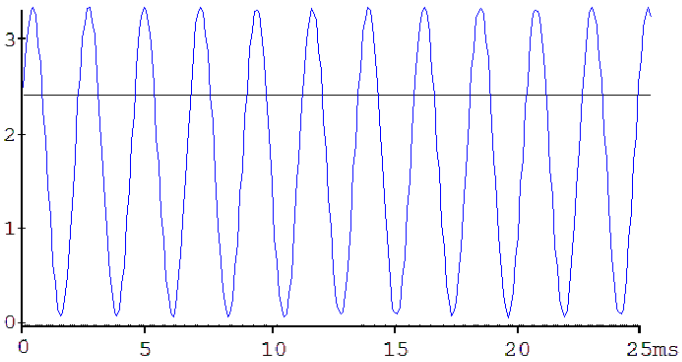
3. Software Design

n	Sin Wave Value
0	32
1	35
2	38
3	41
4	44
5	47
6	49
7	52
8	54
9	56
10	58
11	59
12	61
13	62
14	62
15	63
16	63
17	63
18	62
19	62
20	61
21	59
22	58
23	56
24	54
25	52
26	49
27	47
28	44
29	41
30	38
31	35

n	Sin Wave Value
32	32
33	29
34	26
35	23
36	20
37	17
38	15
39	12
40	10
41	8
42	6
43	5
44	3
45	2
46	2
47	1
48	1
49	1
50	2
51	2
52	3
53	5
54	6
55	8
56	10
57	12
58	15
59	17
60	20
61	23
62	26
63	29

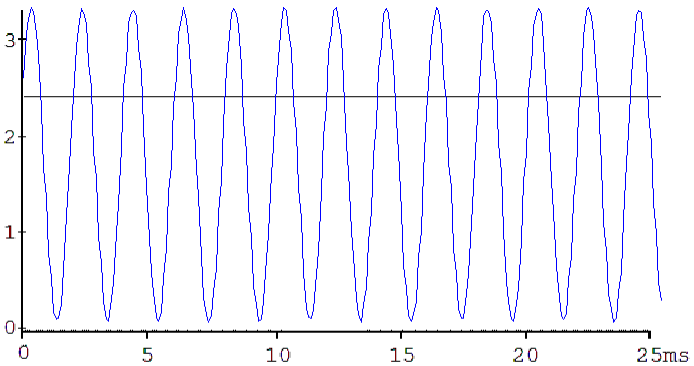
4. Screenshots of TexasDisplay

Note A



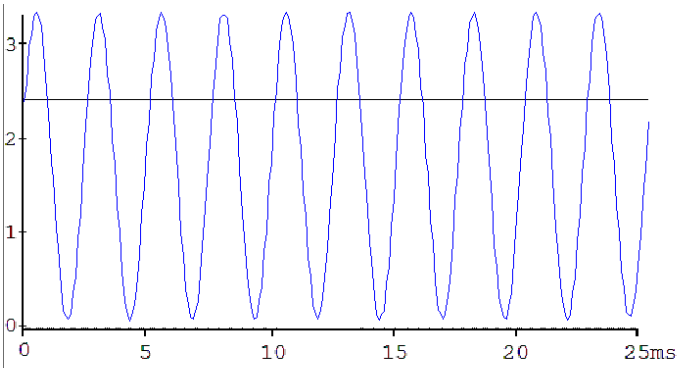
Ave=1.70V, Peak-peak=3.25V, Period=2.3ms, Freq=439Hz
high-pulse=1.0ms, low-pulse=1.3ms

Note B



Ave=1.70V, Peak-peak=3.24V, Period=2.0ms, Freq=495Hz
high-pulse=0.8ms, low-pulse=1.2ms

Note G



Ave=1.68V, Peak-peak=3.25V, Period=2.6ms, Freq=391Hz
high-pulse=1.1ms, low-pulse=1.4ms

5. Measurements

PortB Data_R	Theoretical DAC voltage	Measured DAC voltage
0	0	0
1	.05238092	.04
7	.36666667	.39
8	.41904761	.39
15	.78571428	.77
16	.83809523	.85
17	.89047619	.91
18	.94285714	.99
31	1.62380952	1.59
32	1.67619048	1.66
33	1.72857143	1.74
47	2.46190476	2.42
48	2.51428571	2.53
49	2.56666667	2.56
62	3.24761905	3.21
63	3.3	3.25

Resolution = 0.052

Accuracy = 0.210

Precision = 64 Levels

Range = (3.25V-0V)

6.

a) The interrupt trigger occurs after the amount of time the specified period has passed.

b) The interrupt vector is stored in startup.s

c) The CPU is saved to the Link Register, and the CPU is set to the address of the ISR

d) When the interrupt is called the PC is saved to the LR so that when the ISR is finished it can return the LR to the OC so that it will continue executing instruction in the main function where it left off