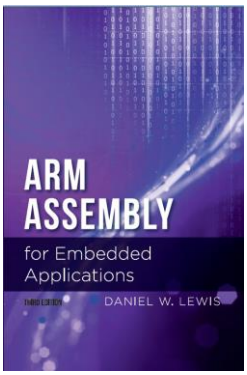

Programming Lab #8

Fixed vs. Floating Point

Prerequisite Reading: Chapters 1-10
Revised: October 24, 2017

This lab displays a traveling sine wave. The sine function is computed using a series approximation, implemented as a polynomial evaluation.

Create a single assembly language file containing two polynomial functions - one using floating-point values and a second using Q16 fixed-point values, (Remember that a Q16 variable is 32 bits wide.)

```
float FloatPoly(float x, float a[], int32_t n) ;
Q16   FixedPoly(Q16   x, Q16   a[], int32_t n) ;
```

Each function evaluates the following expression:

$$a_0x^0 + a_1x^1 + a_2x^2 + \cdots + a_{n-1}x^{n-1}$$

Test your functions using the C main program downloaded from here. If your code is correct, the display should look like the image to the right although it will be animated and your cycle counts may differ. Error messages (if any) will appear as white text on a red background.