Module 8  
Due the next class meeting after Module 8 is done in class.

1. **Modify the dot product routine to use Word-Wide Optimization**

   MVK .S1 40, A2  ; A2 = 40, loop count

   loop:   LDH .D1 *A5++, A0  ; A0 = a(n)
            LDH .D1 *A6++, A1  ; A1 = x(n)
            MPY .M1 A0, A1, A3  ; A3 = a(n) * x(n)
            ADD .L1 A3, A4, A4  ; Y = Y + A3
            SUB .L1 A2, 1, A2  ; decrement loop count

   [A2] B .S1 loop  ; if A2 ≠ 0, branch

   STH .D1 A4, *A7  ; *A7 = Y

2. **How many cycles does the original code take?** Be sure to include nop’s.

3. **How many cycles does the Word-Wide optimized code take?**