EE312: Assignment VI

Embedded Systems

November 12, 2020

Report the contents of the Flag Registers and Calculate T-States for the execution of each code.

Compute the inner product between the vectors $\mathbf{x} = [3.2, -2.1, 1.1]$ and $\mathbf{y} = [-2.5, -1.5, 3.2]$. The list of necessary subroutines are as follows.

(a) $[cI8h@C_1, cF8h@C_2] = ADDFPNUM(aI8h@A_1, aF8h@A_2, bI8h@B_1, bF8h@B_2)$ – Subroutine for adding two fixed point numbers ($c = a + b$). Their integer ($aI8h$, $bI8h$) and fractional parts ($aF8h$, $bF8h$) are respectively stored at addresses (A_1, B_1) and (A_2, B_2). The integer ($cI8h$) and fractional ($cF8h$) of the result c are stored at C_1 and C_2 respectively.

(h) $[cI8h@C_1, cF8h@C_2] = MULFPNUM(aI8h@A_1, aF8h@A_2, bI8h@B_1, bF8h@B_2)$ – Subroutine for multiplying two fixed point numbers ($c = a \times b$). Their integer ($aI8h$, $bI8h$) and fractional parts ($aF8h$, $bF8h$) are respectively stored at addresses (A_1, B_1) and (A_2, B_2). The integer ($cI8h$) and fractional ($cF8h$) of the result c are stored at C_1 and C_2 respectively.