

Question 1 - Instruction Set 1 – x295

C. Evaluating our x295 instruction set using Memory Traffic criteria

Table 2

x295 program (1 assembly instruction/ machine code instruction per row)	Fetch (number of word size memory accesses) + Provide an explanation explaining the count	Decode/Execute (number of word size memory accesses) + Provide an explanation explaining the count
Assembly instruction: ADD x, y, tmp1 Machine code instruction: 0001 <Dest 12 bits> 0000 <Src1 12 bits> 0000 <Src2 12 bits>	Count: 1 + 1 + 1 Explanation: microprocessor fetches word 1, 2, and 3 of each x, y, and tmp1	Count: 1 + 1 + 1 Explanation: value is read from memory and stored in memory for each x, y, tmp1
Assembly instruction: SUB x, y, tmp2 Machine code instruction: 0010 <Dest 12 bits> 0000 <Src1 12 bits> 0000 <Src2 12 bits>	Count: 1 + 1 + 1 Explanation: microprocessor fetches word 1, 2, and 3 of each x, y, and tmp2	Count: 1 + 1 + 1 Explanation: value is read from memory and stored in memory for each x, y, tmp1
Assembly instruction: MUL tmp1, tmp2, z Machine code instruction:	Count: 1 + 1 + 1 Explanation: microprocessor fetches word 1, 2, and 3 of each tmp1, tmp2, and z	Count: 1 + 1 + 1 Explanation: value is read from memory and stored in memory for each x, y, tmp1

0011 <Dest 12 bits> 0000 <Src1 12 bits> 0000 <Src2 12 bits>		
Grand Total: 18	Total: 9	Total: 9

Once completed, submit it on [Crowdmark](#) as your answer to Question 1.