**CPU Architecture**

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**CPU Architecture**

Design a four bit CPU architecture which is capable of adding/subtracting two integer numbers.

1. Identify the the arithmetic capability of the machine.
2. Sketch the CPU architecture of the machine showing all components.
3. Calculate the addressable memory space. Note: - ROM programs will occupy the first two memory locations.
4. Design an assembly instruction set for the machine, and map this instruction set to machine code.
5. Write a program in assembly code for the machine that will add/subtract two numbers stored in RAM and store the result in RAM.
6. Draw a memory map displaying the contents of the machine before and after execution of your program.