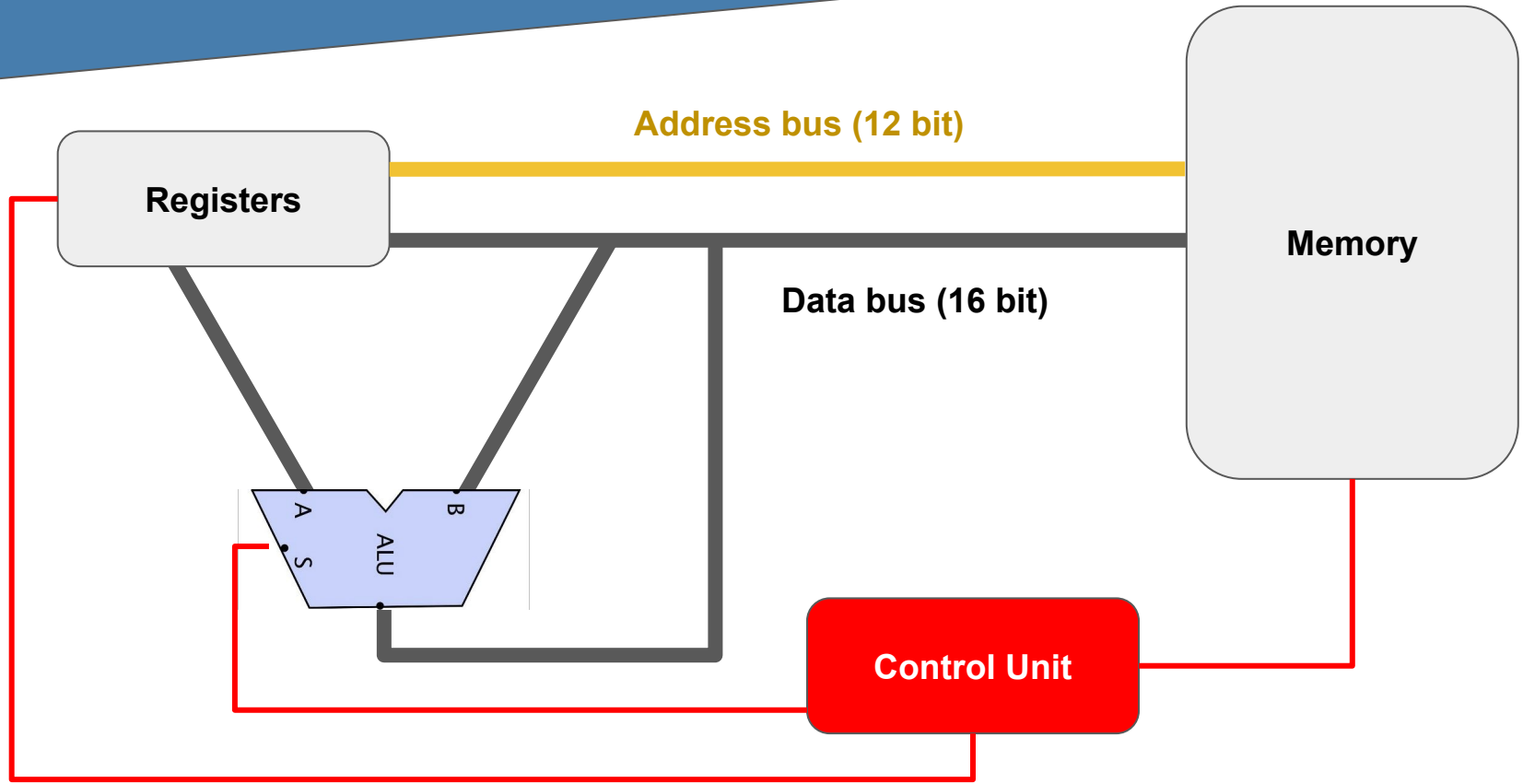
MARIE Programming

Load, Store, Add, Subt, Halt

MARIE Architecture



MARIE Machine Model

- Each memory location (“box”) holds a 16-bit word
- The CPU has only one general purpose register: The **accumulator** AC
- Each instruction is a 16-bit word composed of
  - a 4-bit op-code (what to do)
  - and a 12-bit address (which memory location to use)
- Example: **0001000110001110**

Op-code: **Load**

Address: **$18E_{16}$**

“Load the value from memory address 18E into the AC register”

MARIE instructions

Opcode	Assembly instruction	Meaning
`0001`	**`Load`**	Load value from given memory address into AC
`0010`	**`Store`**	Store value currently in AC into given memory address
`0011`	**`Add`**	Add value in given memory address to current AC value, store result in AC
`0100`	**`Subt`**	Subtract value in given memory address from current AC value, store result in AC
`0111`	**`Halt`**	Halt execution

(more instructions later…)

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