

SRAM

volatile cache

DRAM

RAM 4-16 GB

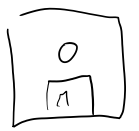
Flash

- solid-state non volatile

disk

magnetic

- HDD



↳ 1TB

$2^{40} \text{ B} = 2^{43} \text{ bits}$

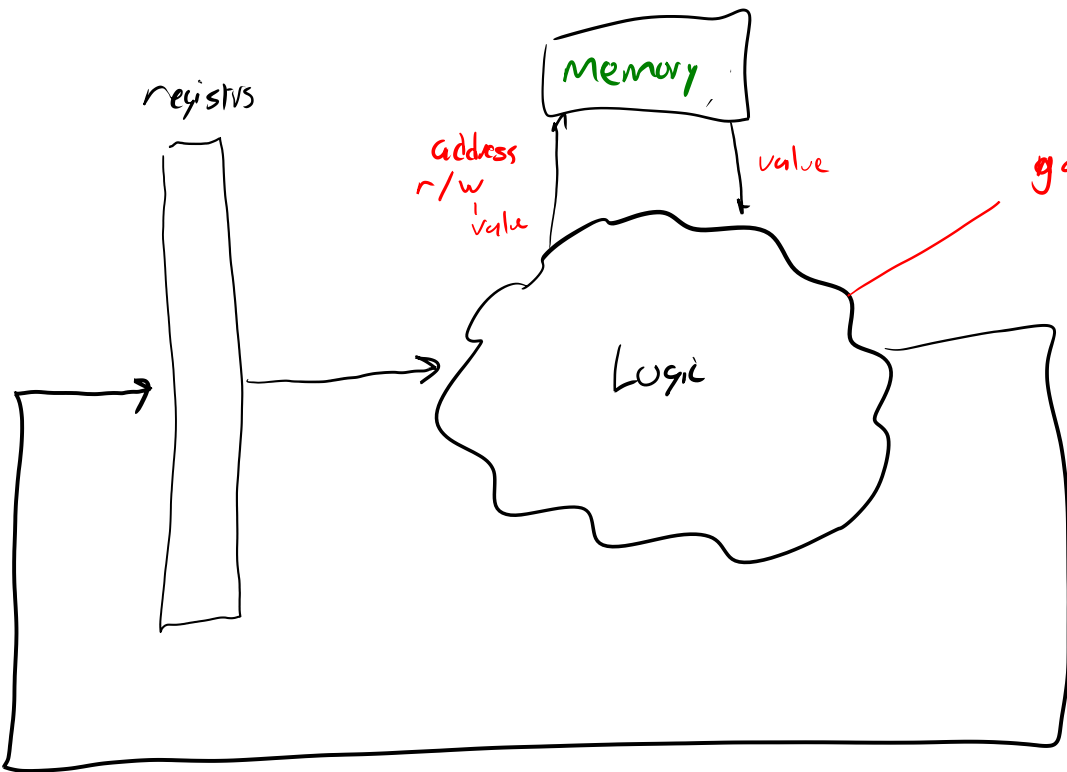
16 GB

2^{34} Byte

8 bits

2^3 bit

$2^{34} \cdot 2^3 \text{ bits} \rightarrow 2^{37} \text{ bits}$



gates w/ no clock

Single-assign
no loops

```

if ( a ) {
  x = b
  y = c
} else {
  x = d
}

```



```

x = a ? b : d
y = a ? c : y

```

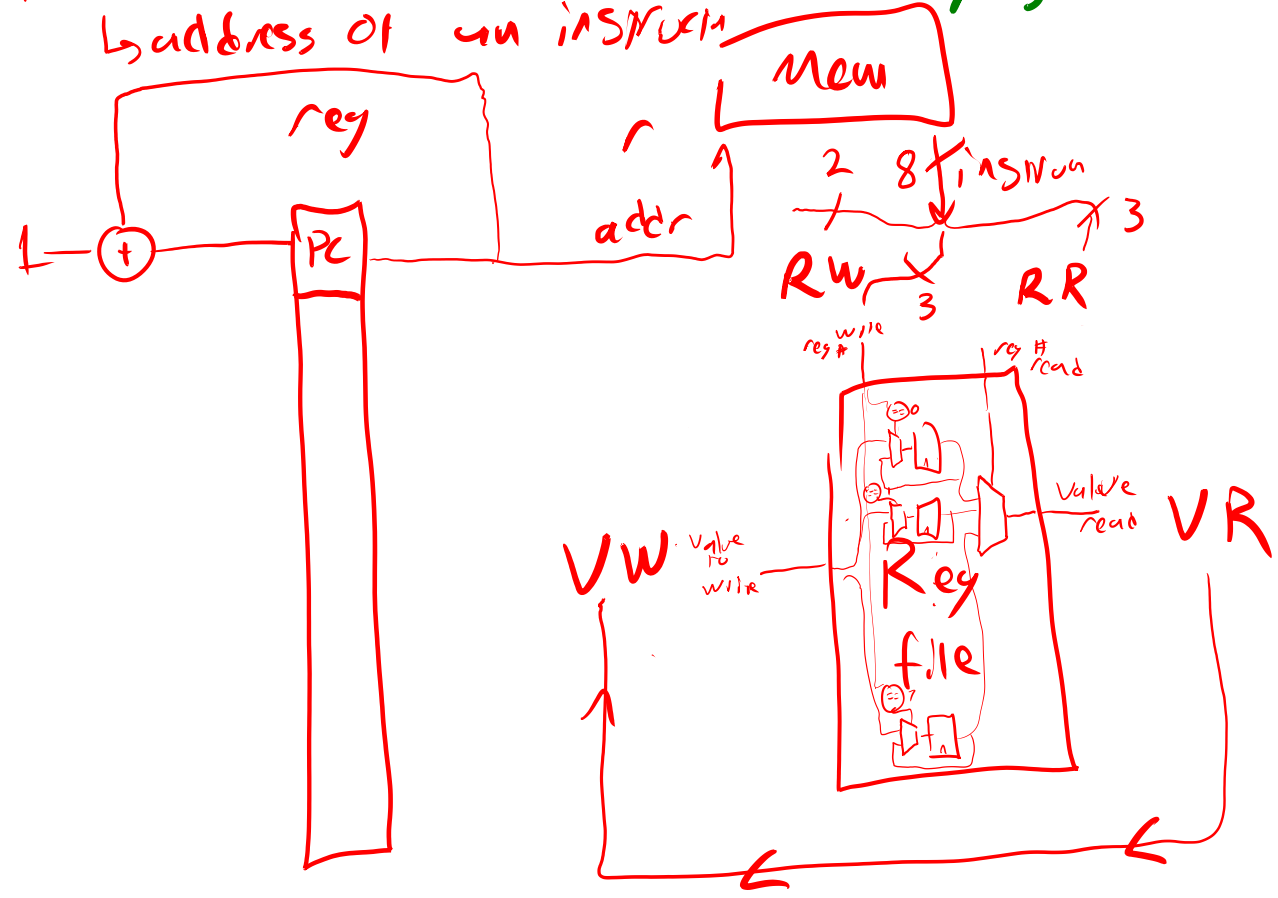
8 reg
r0...r7

$r0 = r7$
 $r7 = r3$
 $r3 = r0$

Memory

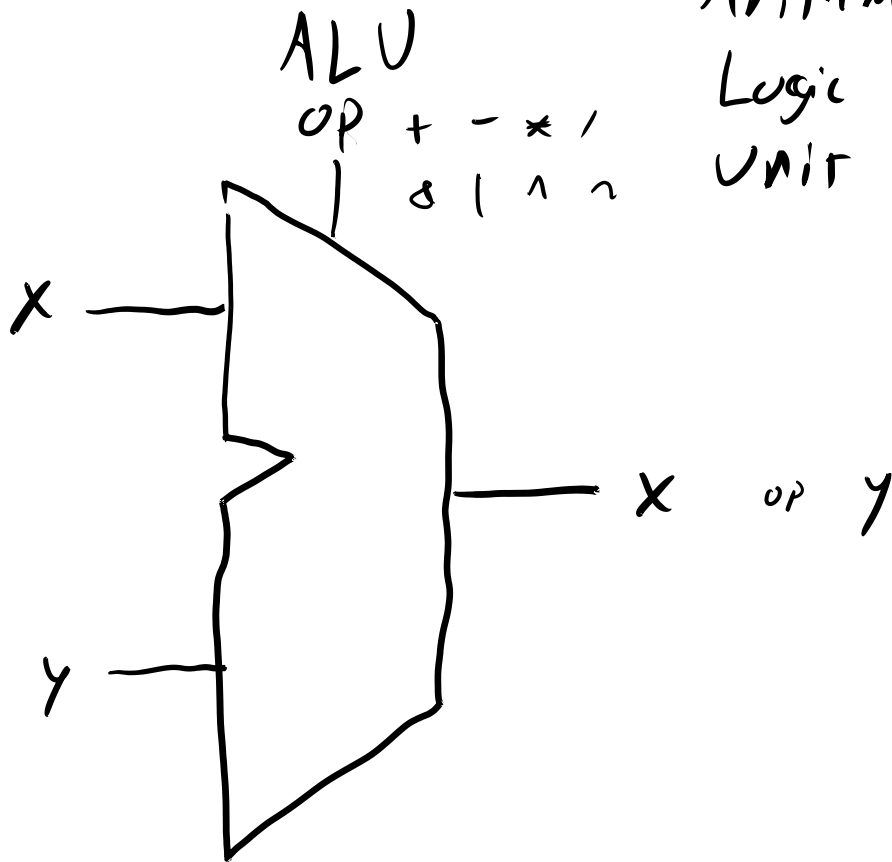
0 00000111
1 00111011
2 0011000

PC Program Counter
↳ address of an instruction

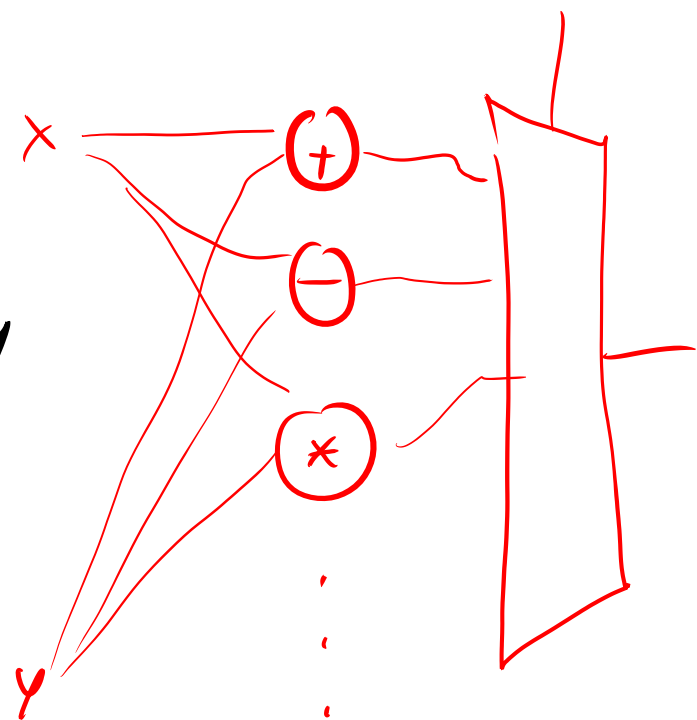


new
2 8 instruction
RW RR
3

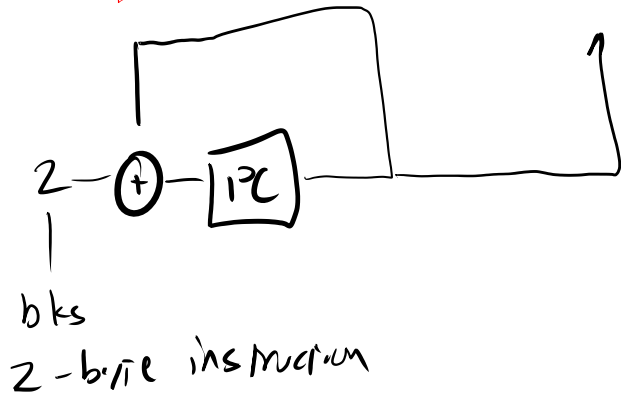
=
+ =
- =
* =
/ =



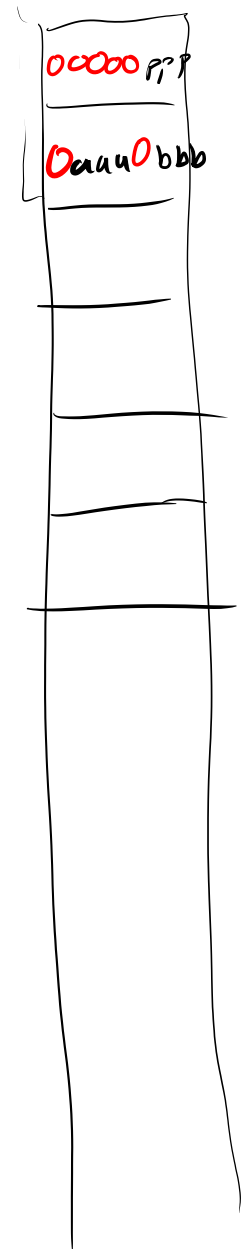
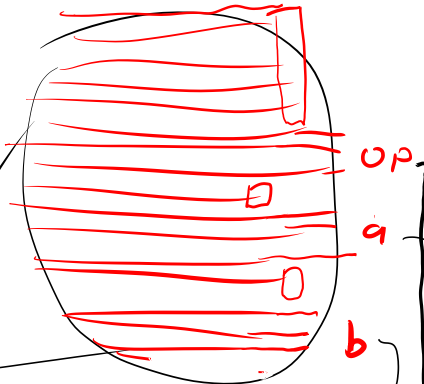
Arithmetic
Logic
Unit



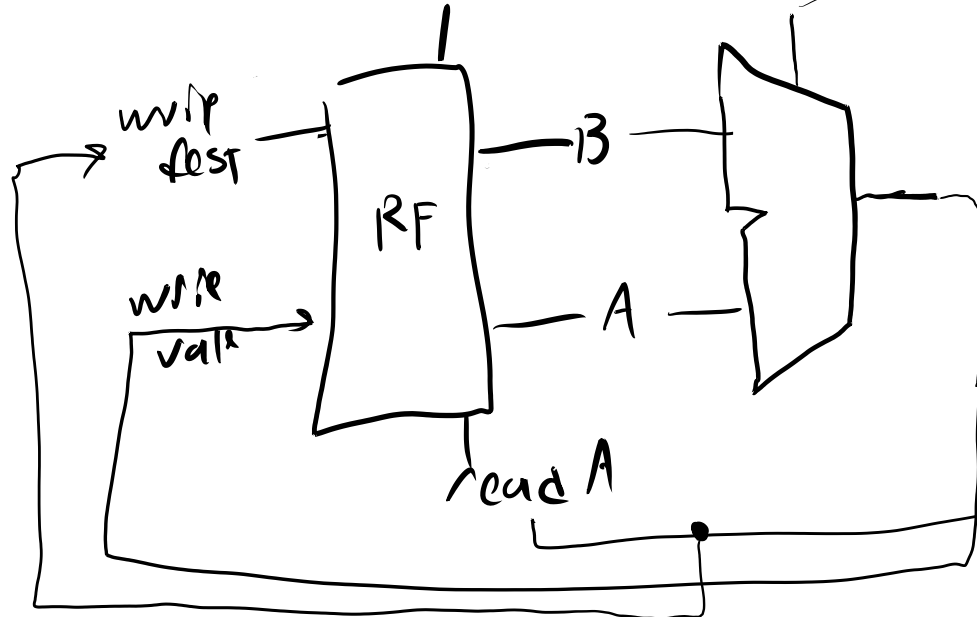
$x = y$
 $rA + = rB$
 $- =$
 $* =$
 $/ =$



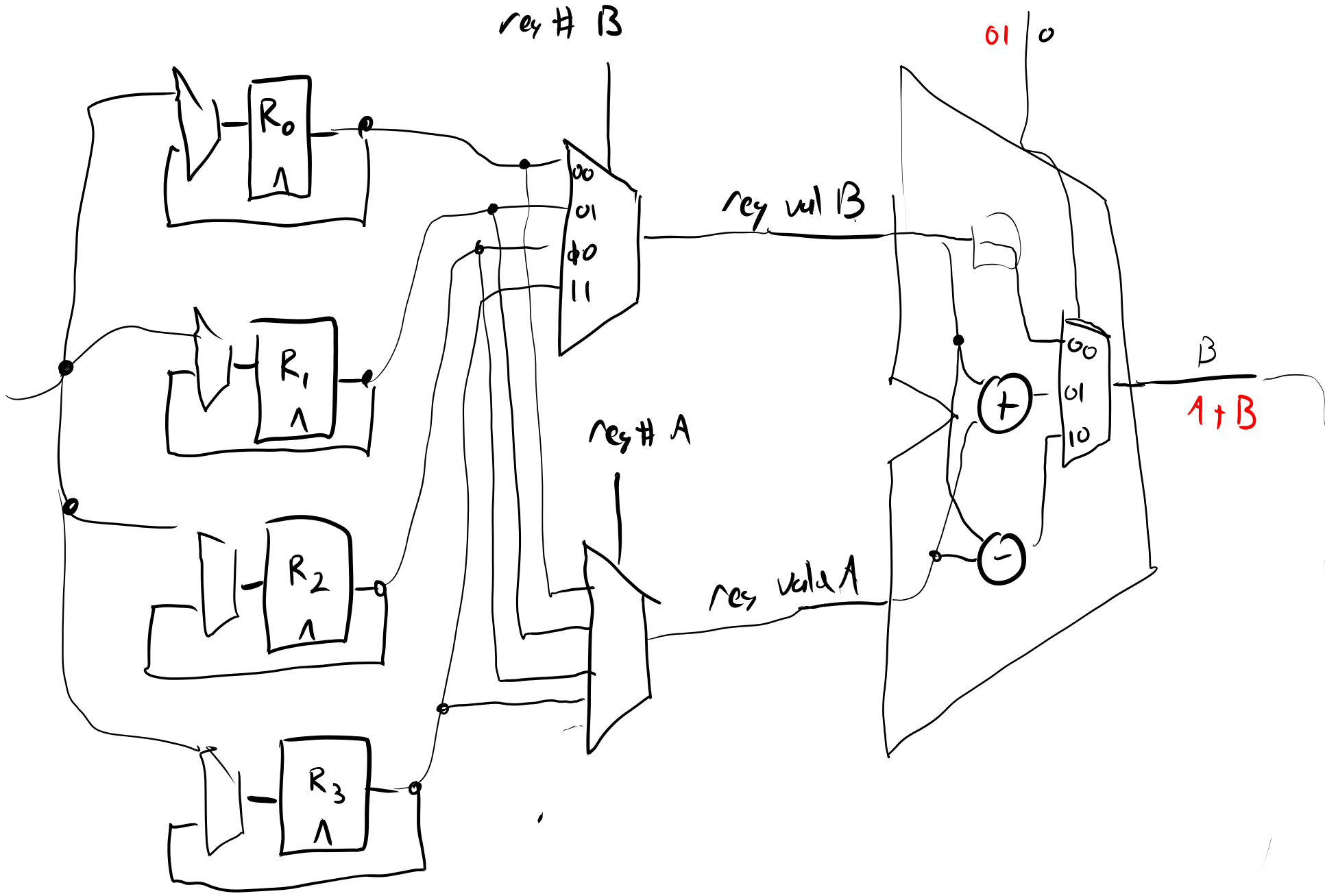
Mem



read B



WIR
Vak



reg # B

01 0

reg val B

reg # A

reg val A

B
A+B