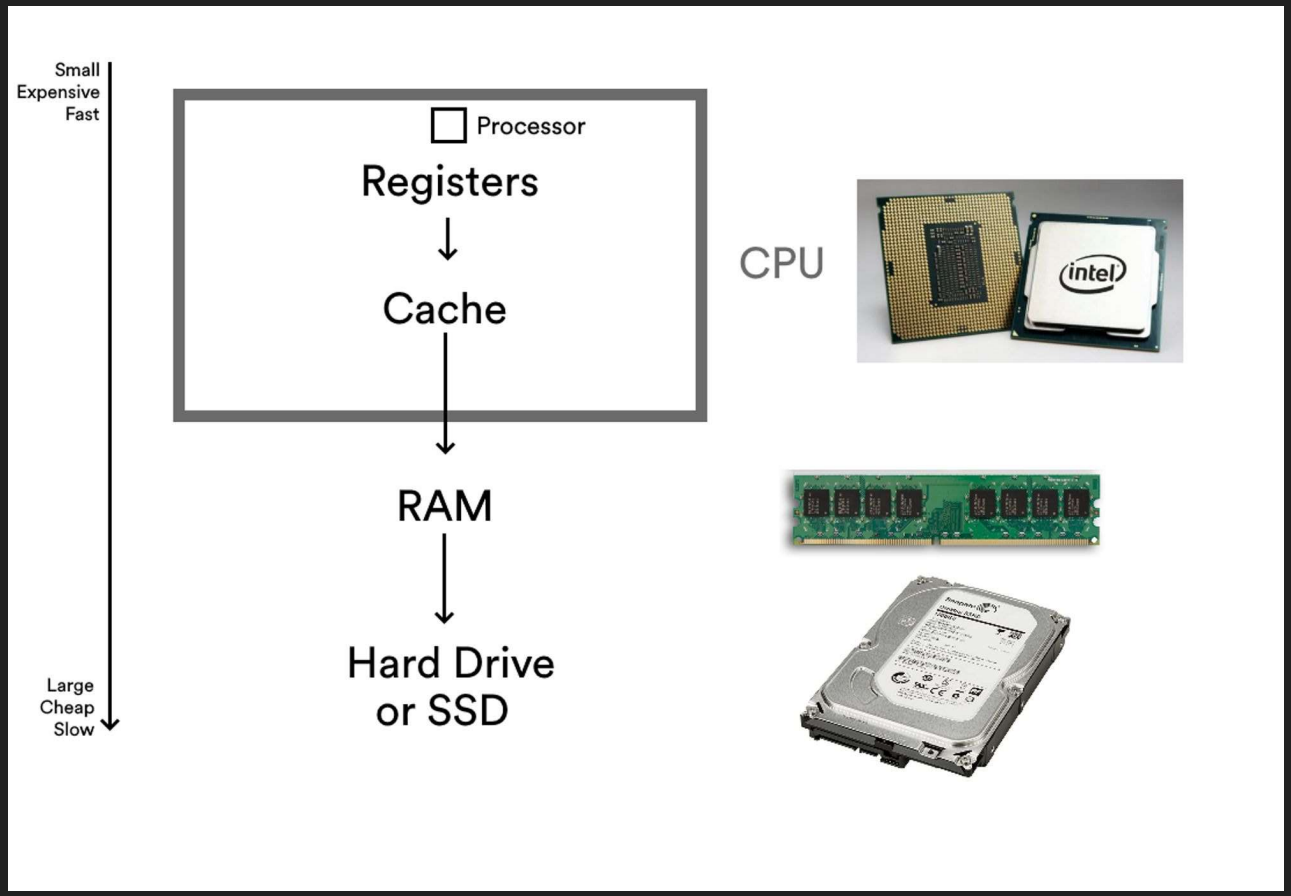
Week 2 

MIPS

- **MIPS** is an instruction set architecture - so a MIPS CPU would be able to run MIPS instructions
- **mipsy** is an emulator which allows us to run MIPS instructions on our computer
- **mipsy_web** allows you to run MIPS in your own browser!!
  - https://cs1521.web.cse.unsw.edu.au/mipsy/

What are registers?



Registers

Registers	Names	Description
$0	$zero	the value **0**; writes are discarded
$1	$at	**a**ssembler **t**emporary; reserved for assembler use
$2, $3	$v0, $v1	**v**alue from expression evaluation or function return
$4 - $7	$a0 - $a4	first four **a**rguments to a function/subroutine
$8 - $15, $24 - $25	$t0 - $t7, $t8 - $t9	**t**emporary; callers relying on their values must save them before calling subroutines as they may be overwritten
$16 - $23	$s0 - $s7	**s**aved; subroutines must guarantee their values are unchanged (by, for example, restoring them)
$26 - $27	$k0 - $k1	for **k**ernel use; may change unexpectedly — avoid using in user programs

Registers

Registers	Names	Description
$28	$gp	**g**lobal **p**ointer (address of global area)
$29	$sp	**s**tack **p**ointer (top of stack)
$30	$fp	**f**rame **p**ointer (bottom of current stack frame); if not using a frame pointer, becomes a save register
$31	$ra	**r**eturn **a**ddress of most recent caller