

EE 1910

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Homework 1

1 – Identify the 5 stages of processor operation and give a short description of each. 60pts

Fetch – get the next instruction from the instruction memory

Decode – Determine what the instruction is and prepare

Mem

Load – Load any needed values from data memory into registers

Store – Store any needed values from registers to data memory

Execute – Perform the desired instruction on the registers

Write Back – Store values to the registers

2 – Write a short description for each item.

40pts

SRAM

Static Random Access Memory – volatile memory (loses its value when the power is removed – fast but expensive)

DRAM

Dynamic Random Access Memory – volatile memory (loses its value when the power is removed – must be refreshed even with power on – medium speed but medium cost)

Flash

Non-volatile memory (retains its value when the power is removed – slow but cheap)

Word Aligned

Variable can only be assigned to “aligned” memory locations – e.g. 4 byte aligned memory would store integers in locations 0, 4, 8, 16, ...

Little Endian

The lowest byte in a multi-byte word is stored in the lower memory location e.g. 2D34 would store 34 in mem[22] and 2D in mem[23]