

# CAO HW4

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## 1a

The lower 16 bits are put into the sign extender, which in this instruction is:

0000 1000 0010 0101.

The sign bit is copied to fill the remaining 16 bits, thus the output of the sign extend unit will be:

0000 0000 0000 0000 0000 1000 0010 0101.

The shift left 2 unit will take the lower 26 bits of the instruction and shift these left two bits. The input for this unit is:

1 1000 0010 0000 1000 0010 0101

Shifted left twice to produce:

1 1000 0010 0000 1000 0010 0101 00

and will be the Jump address

At the input of the Adder, this value will be shifted left two bits, thus the value will become:

0000 0000 0000 0000 0010 0000 1001 0100