

# Howework 8 – Computer Architecture

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## 1 Question 1

Please find our solutions in the file `ex1.ods`.

## 2 Question 2

Please find our overall Logisim solution in the file `ex2.circ`.

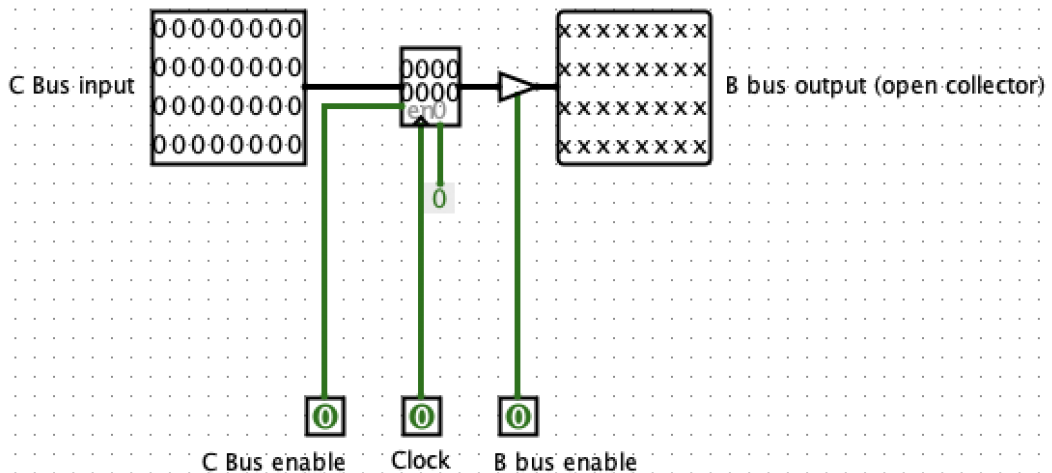


Figure 1: The SP register of the MIC-1 built with Logisim

### 2.1 Sub Question b

We can build MBR using the 8 lower bits of SP as both memory input and B bus output. Additional circuitry is needed to handle both MBR and MBRU select inputs and provide sign extension when needed.

## 3 Question 3

Please find our solutions in the file `maggioni_rodolfo_masera_ca8_ex3.jas`. An higher level description of the algorithm used can be found as the `maggioni_rodolfo_masera_ca8_ex3.py` Python script.

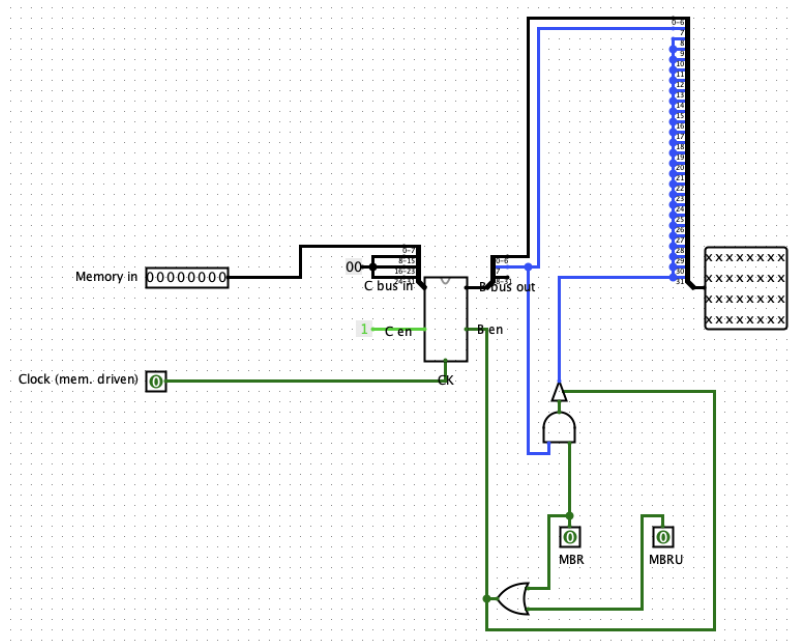


Figure 2: The MBR register of the MIC-1 built with Logisim using the SP register