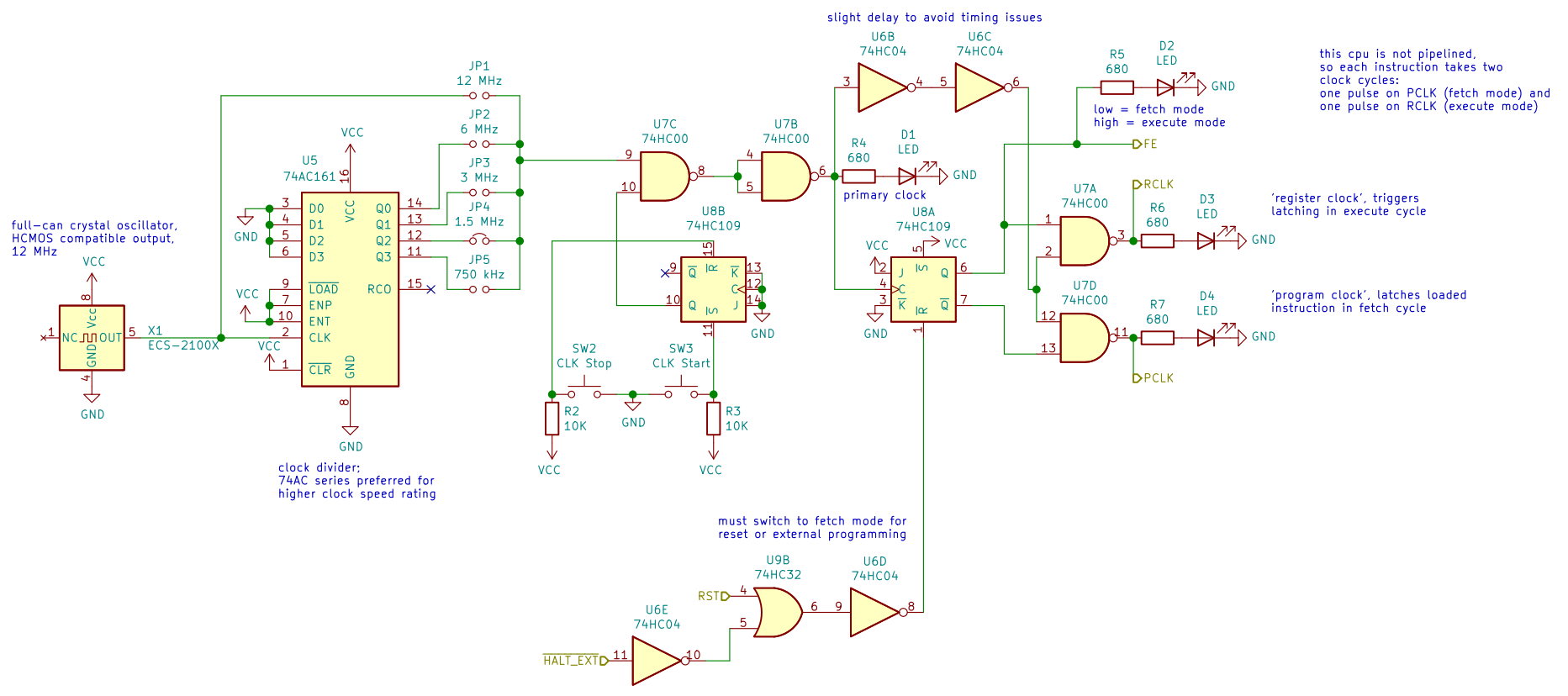


© 2021 Kyle Holland  
 This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License (<http://creativecommons.org/licenses/by-sa/4.0/>).

Sheet: /	
File: 8-bit.sch	
<b>Title: 8-bit computer v2</b>	
Size: A4	Date: 2021-08-01
KiCad E.D.A. kicad 5.1.10	Rev: A
	Id: 1/11



full-can crystal oscillator, HCMOS compatible output, 12 MHz

clock divider: 74AC series preferred for higher clock speed rating

slight delay to avoid timing issues

this cpu is not pipelined, so each instruction takes two clock cycles: one pulse on PCLK (fetch mode) and one pulse on RCLK (execute mode)

'register clock', triggers latching in execute cycle

'program clock', latches loaded instruction in fetch cycle

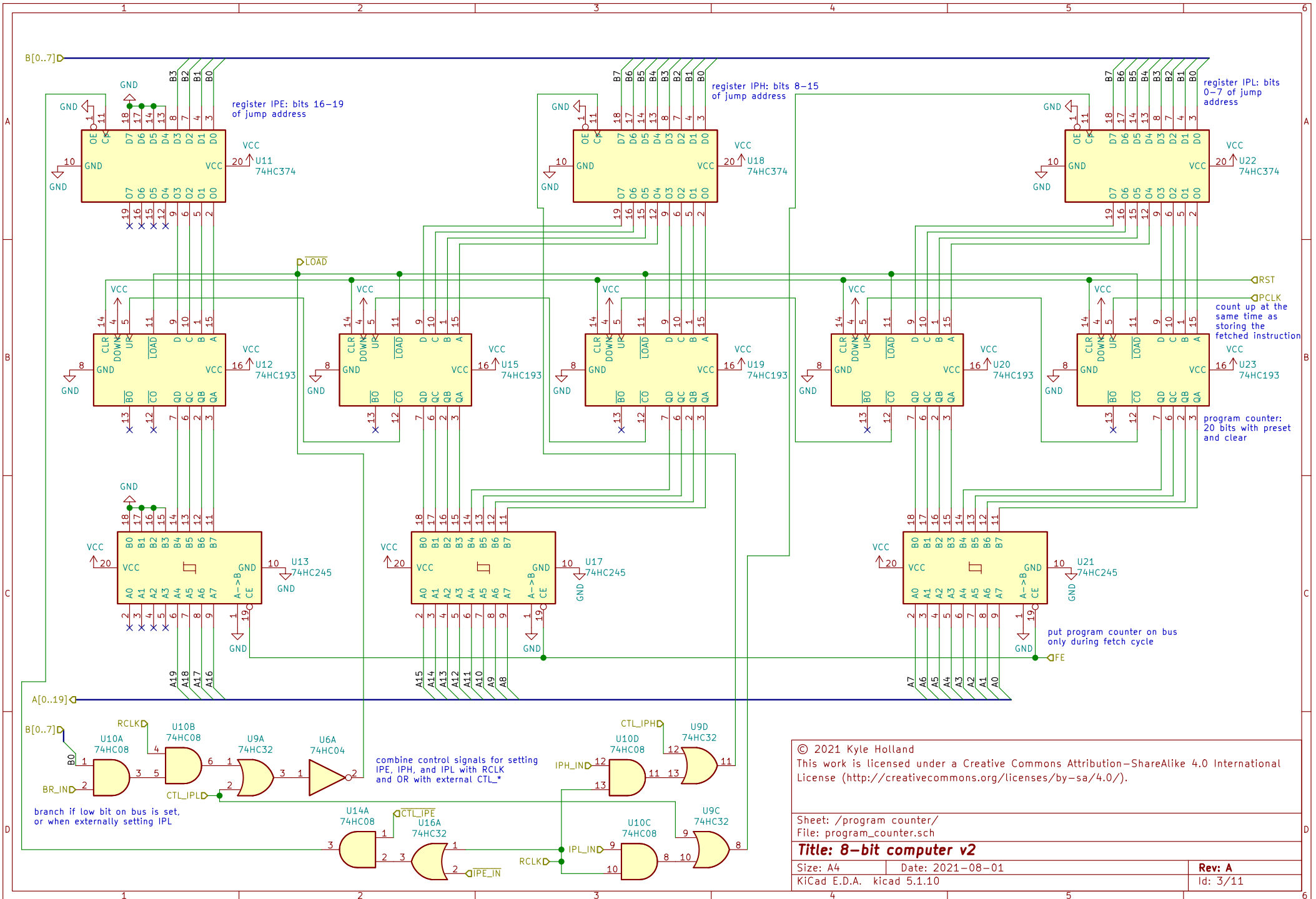
must switch to fetch mode for reset or external programming

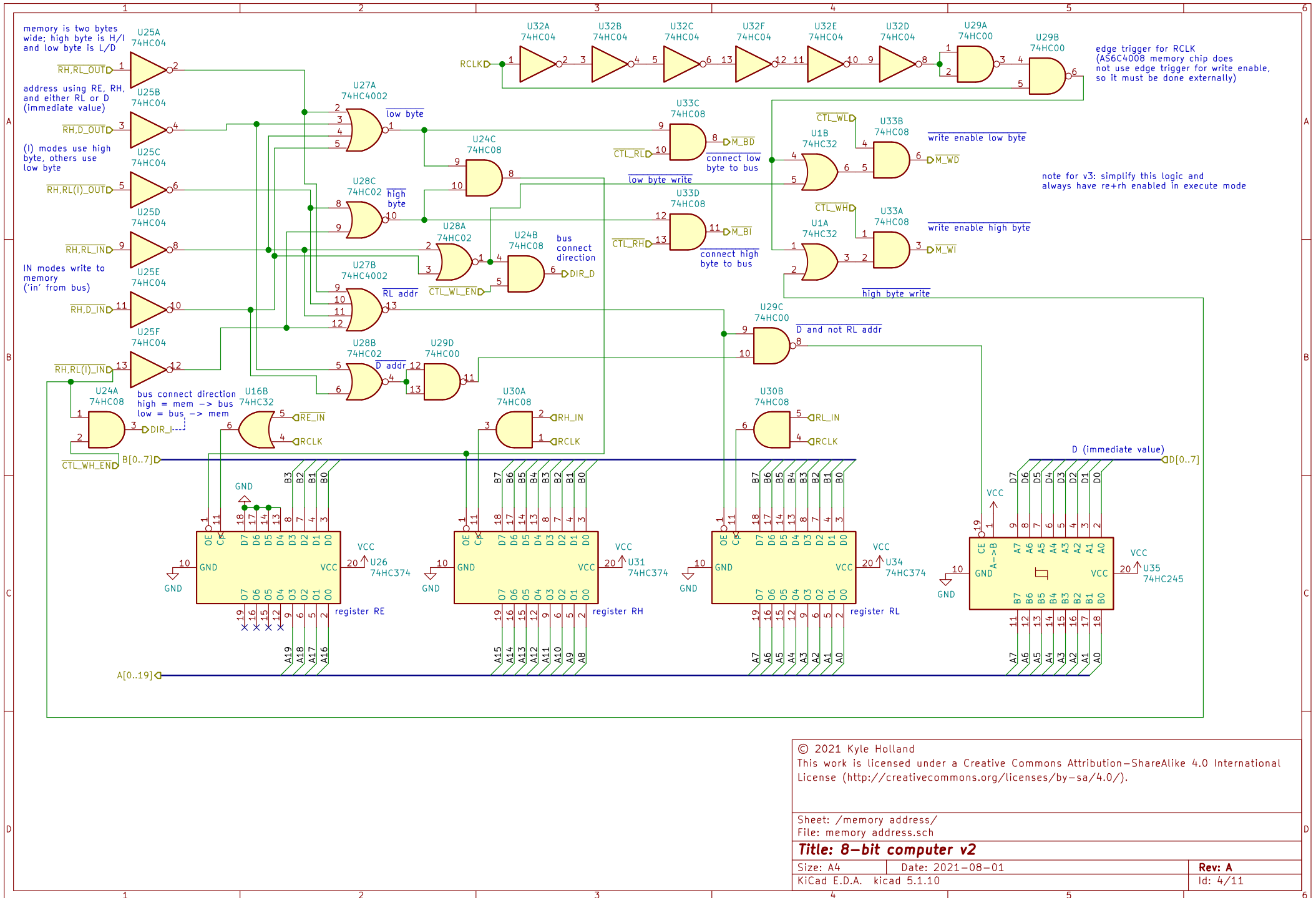
© 2021 Kyle Holland  
 This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License (<http://creativecommons.org/licenses/by-sa/4.0/>).

Sheet: /clock/  
 File: clock.sch

**Title: 8-bit computer v2**

Size: A4	Date: 2021-08-01	Rev: A
KiCad E.D.A. kicad 5.1.10		Id: 2/11



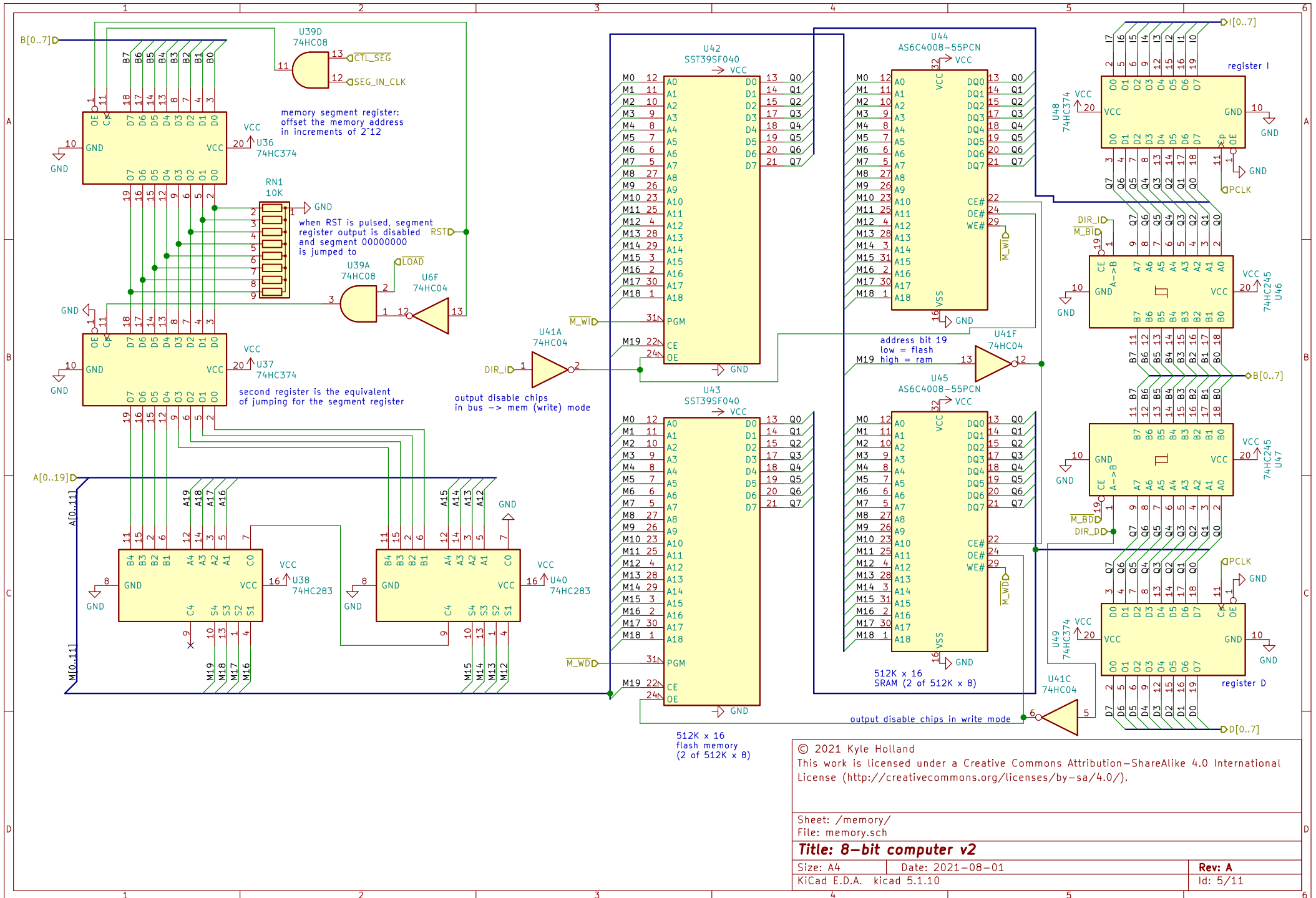


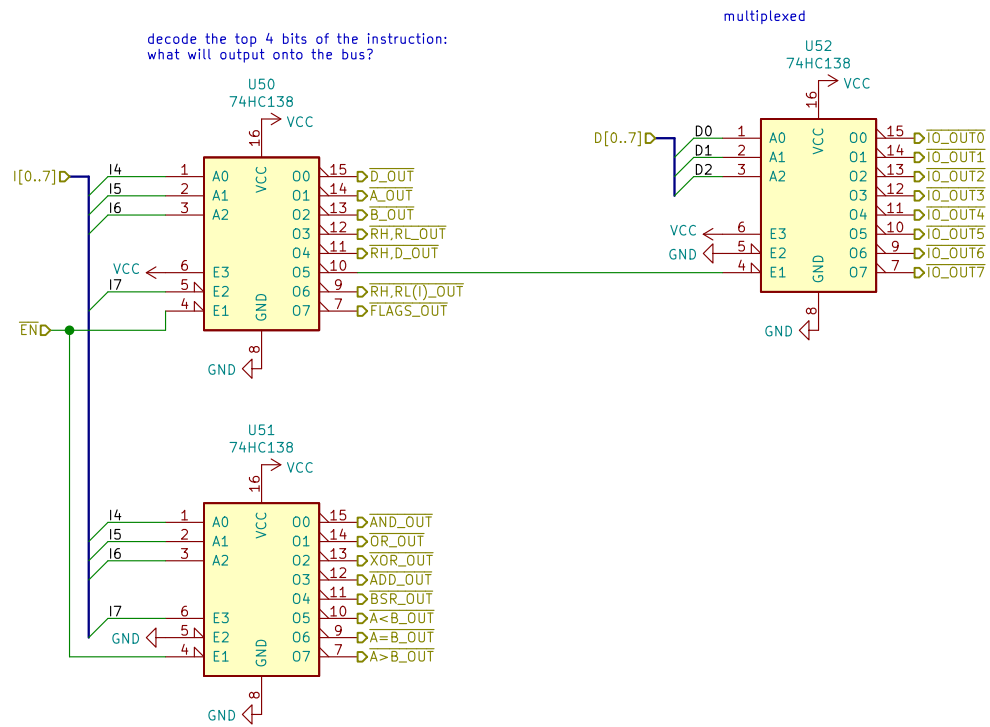
© 2021 Kyle Holland  
 This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License (<http://creativecommons.org/licenses/by-sa/4.0/>).

Sheet: /memory address/  
 File: memory address.sch

**Title: 8-bit computer v2**

Size: A4 Date: 2021-08-01 Rev: A  
 KiCad E.D.A. kicad 5.1.10 Id: 4/11





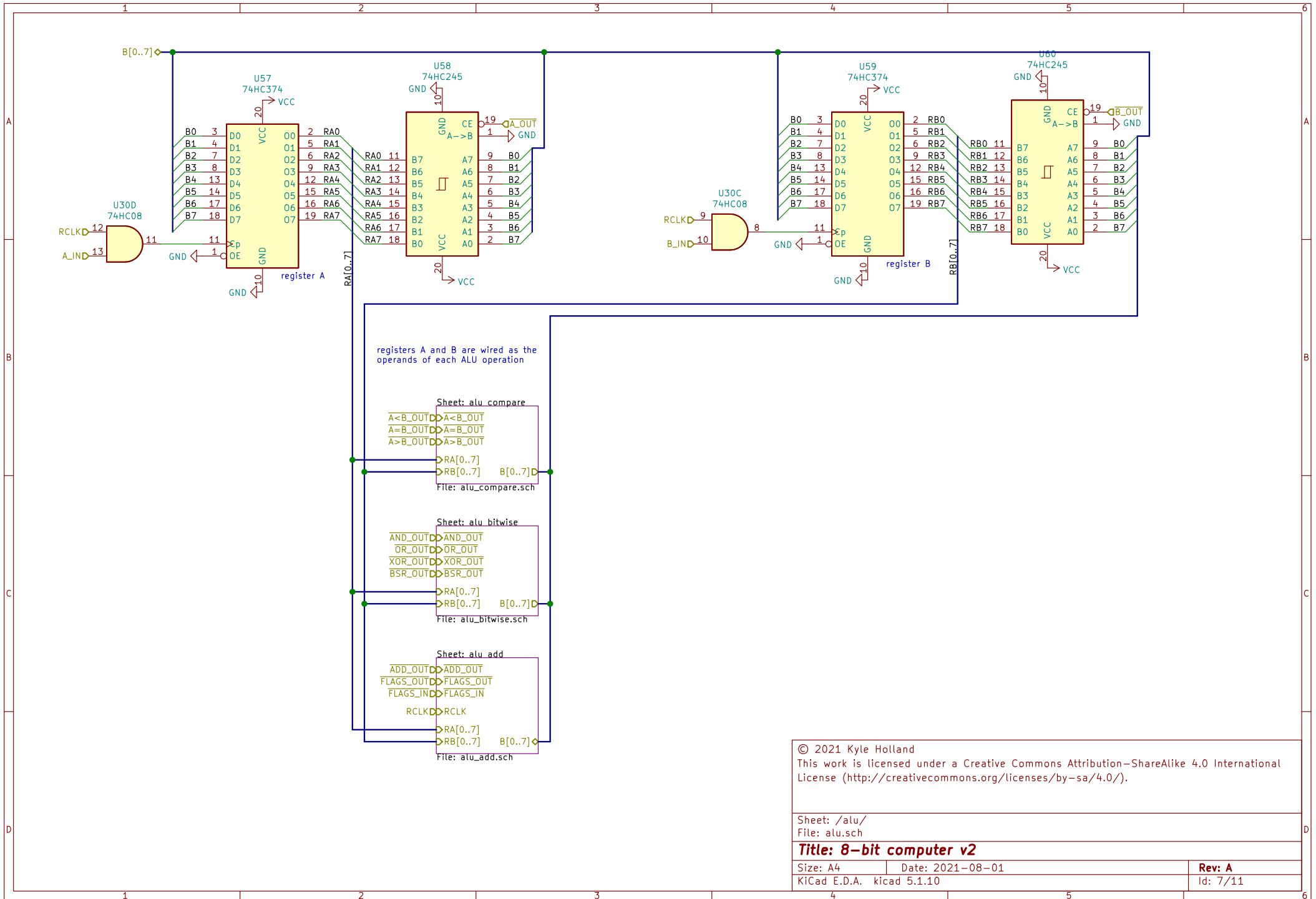
© 2021 Kyle Holland  
 This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License (<http://creativecommons.org/licenses/by-sa/4.0/>).

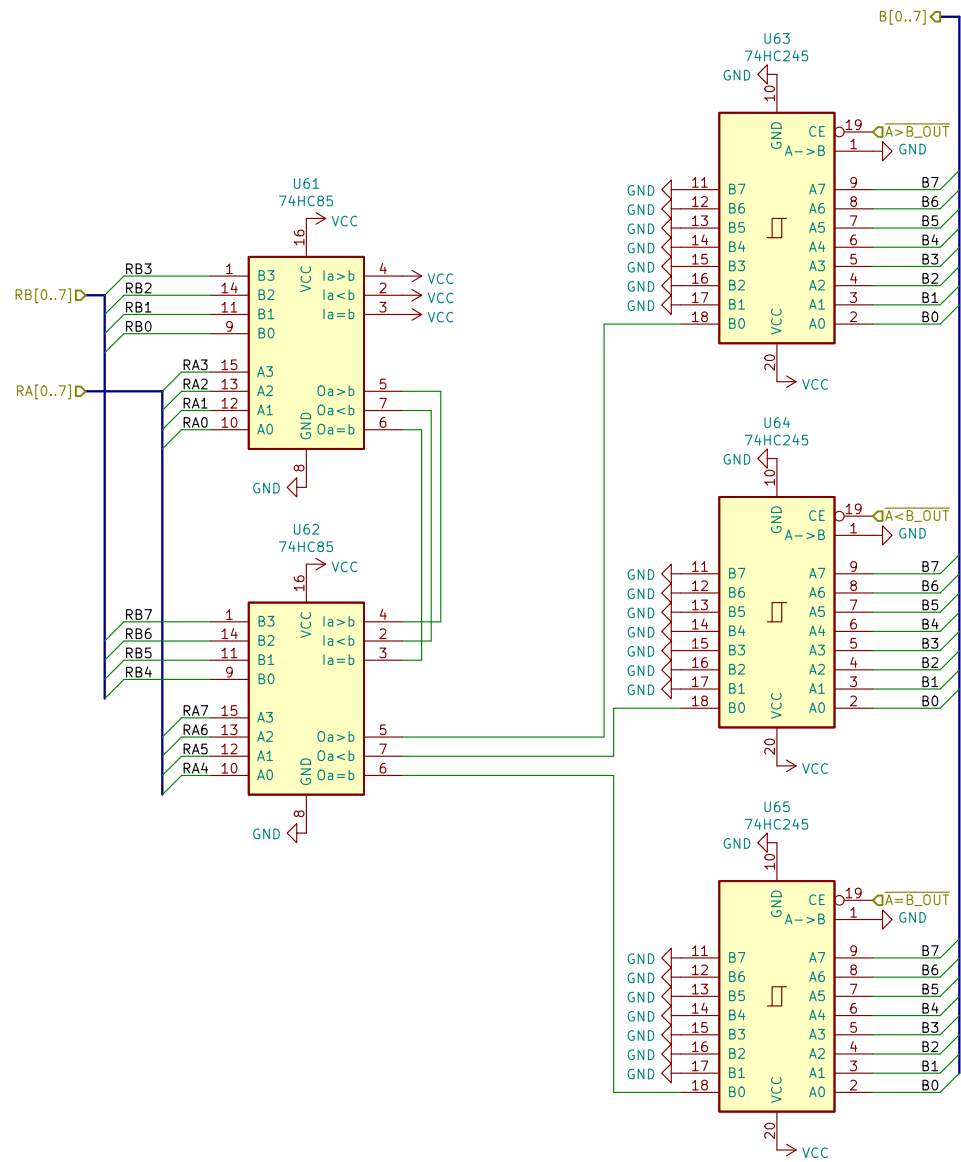
Sheet: /decode high/  
 File: decode\_high.sch

**Title: 8-bit computer v2**

Size: A4 Date: 2021-08-01  
 KiCad E.D.A. kicad 5.1.10

Rev: A  
 Id: 6/11





note for v3: combine these three operations into a single output and use a bitmask for conditional branch

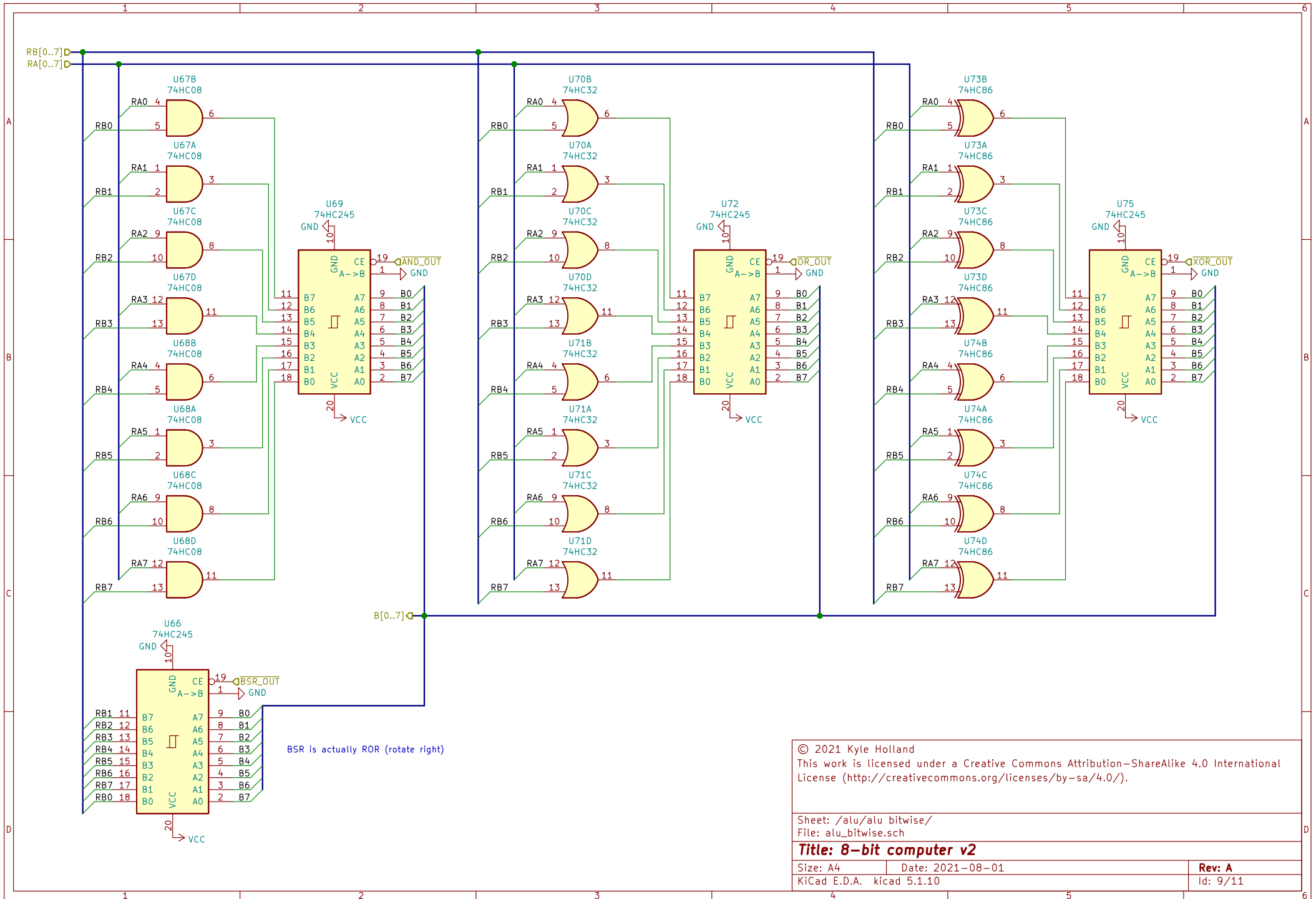
© 2021 Kyle Holland  
 This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License (<http://creativecommons.org/licenses/by-sa/4.0/>).

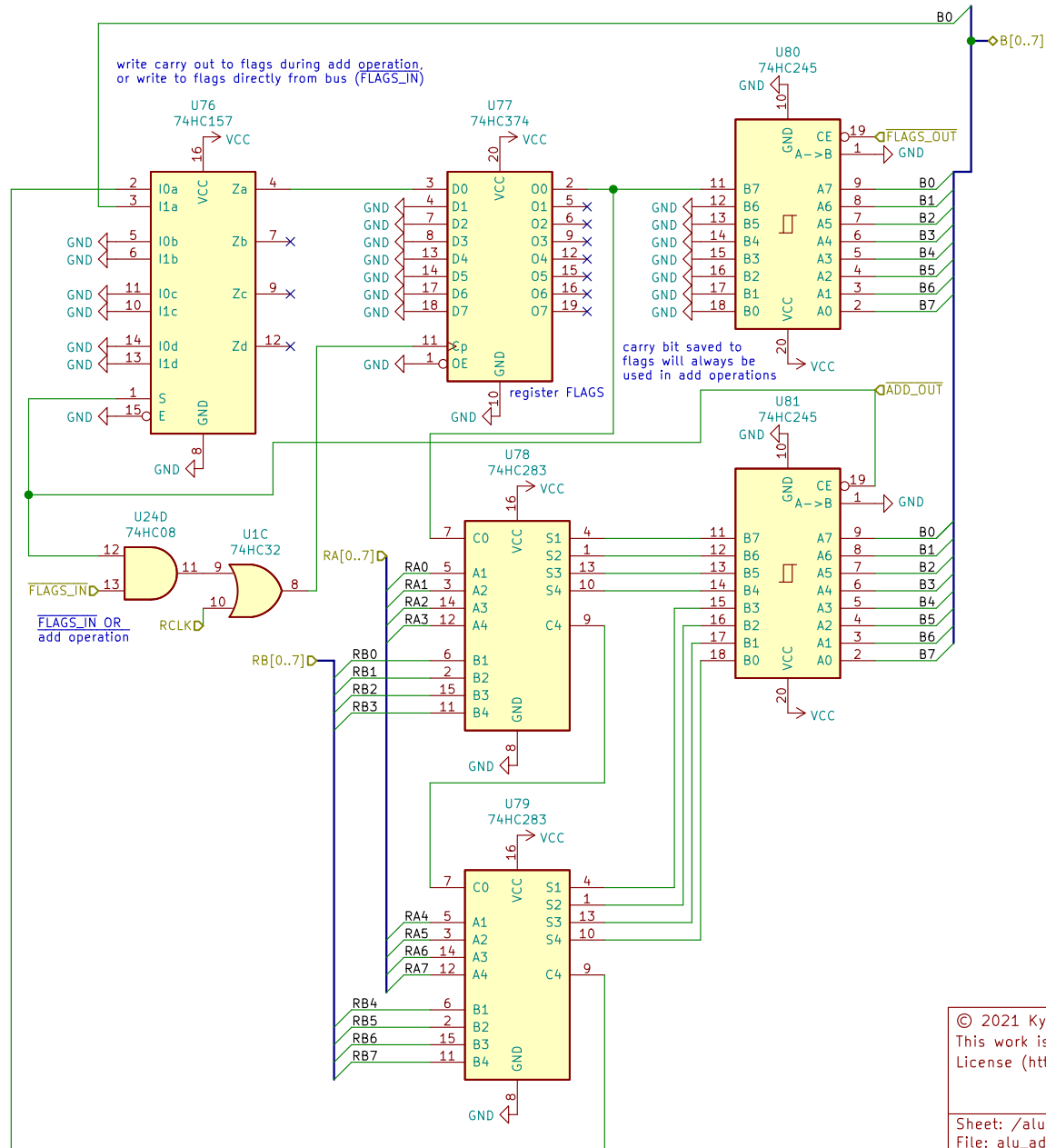
Sheet: /alu/alu compare/  
 File: alu\_compare.sch

**Title: 8-bit computer v2**

Size: A4	Date: 2021-08-01	Rev: A
KiCad E.D.A. kicad 5.1.1.0		Id: 8/11







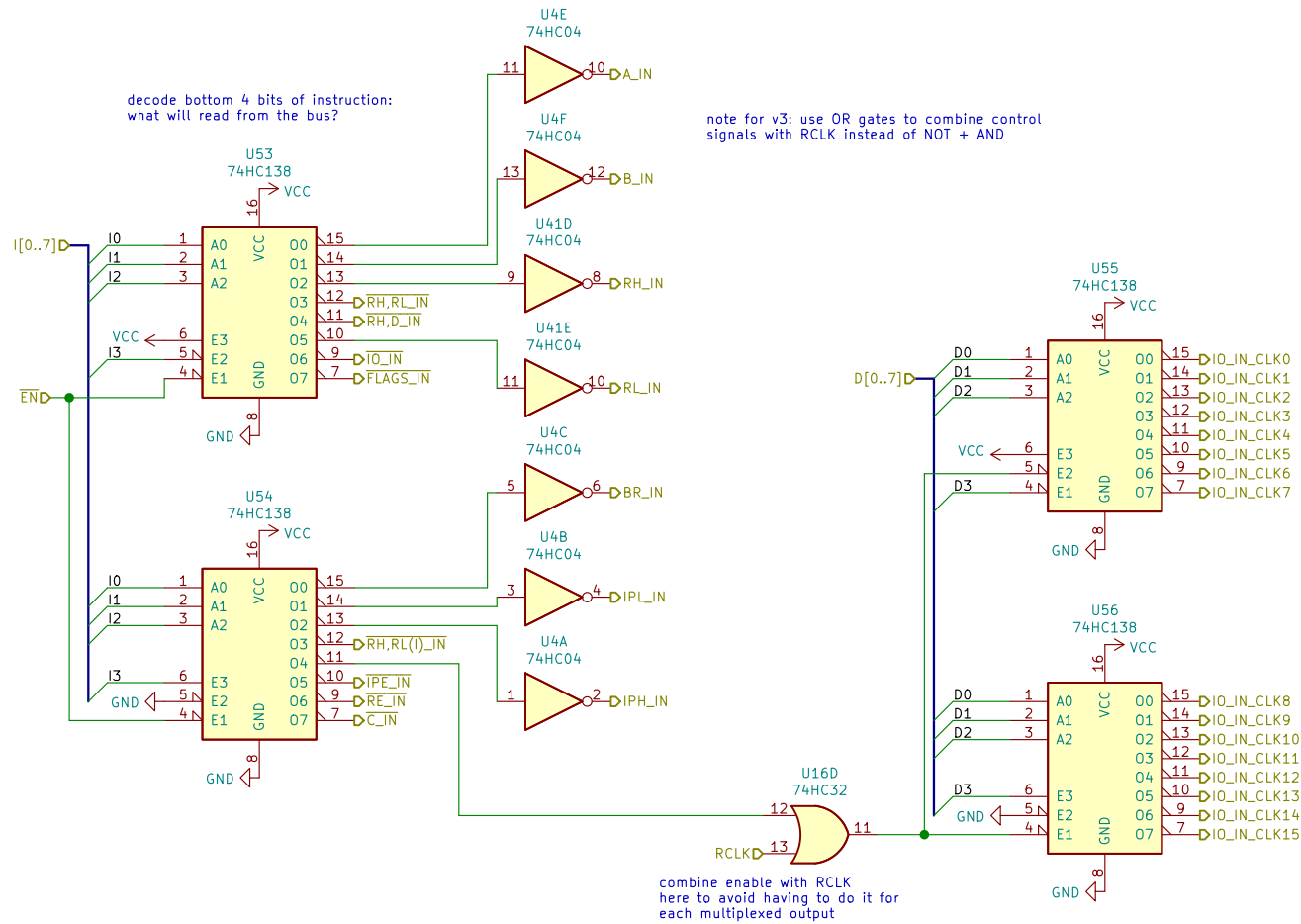
© 2021 Kyle Holland  
 This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License (<http://creativecommons.org/licenses/by-sa/4.0/>).

Sheet: /alu/alu add/  
 File: alu\_add.sch

**Title: 8-bit computer v2**

Size: A4 Date: 2021-08-01  
 KiCad E.D.A. kicad 5.1.10

Rev: A  
 Id: 10/11



© 2021 Kyle Holland  
 This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License (<http://creativecommons.org/licenses/by-sa/4.0/>).

Sheet: /decode low/  
 File: decode\_low.sch

**Title: 8-bit computer v2**

Size: A4 Date: 2021-08-01

KiCad E.D.A. kicad 5.1.10

Rev: A

Id: 11/11