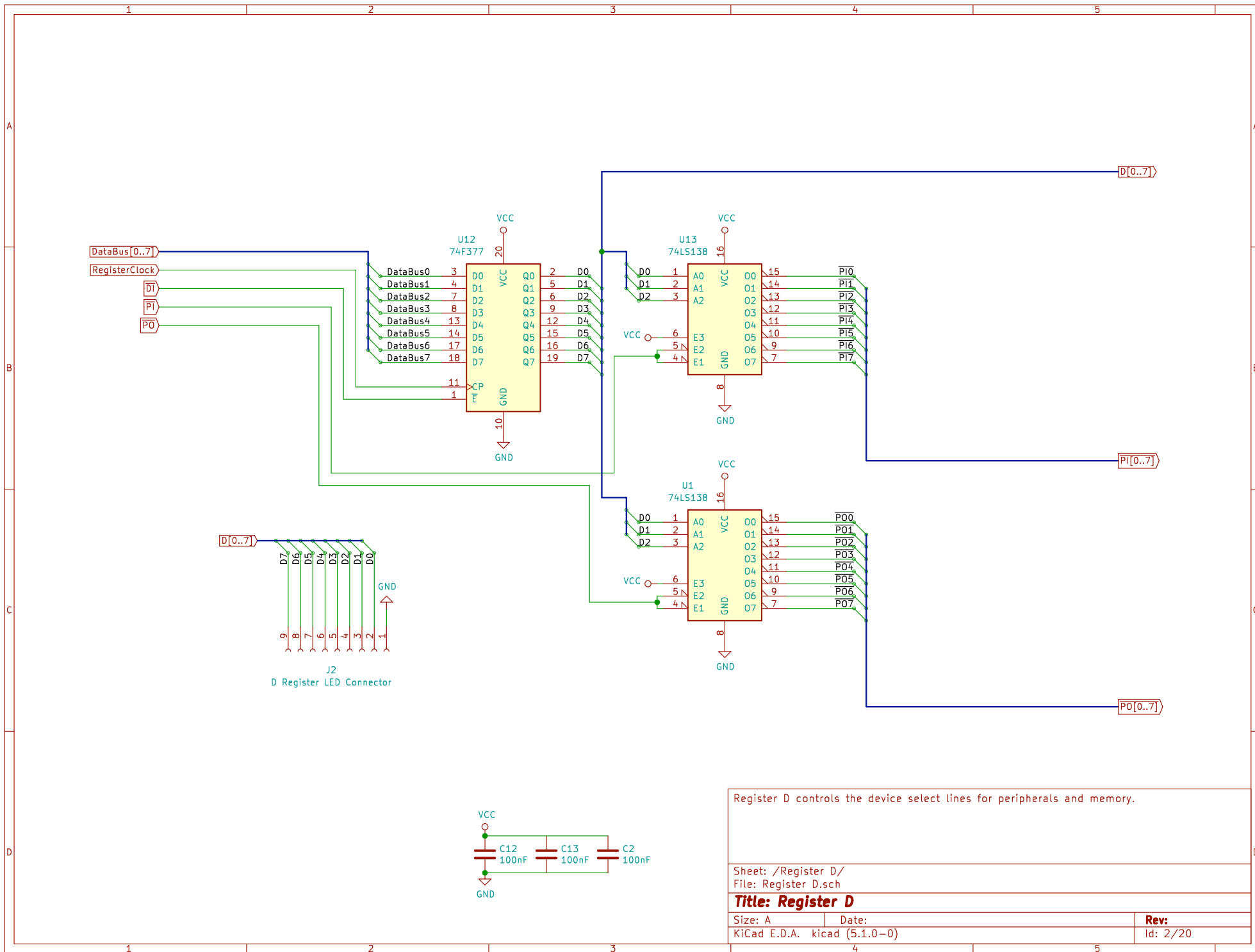


TTL microcomputer built from 74xx series logic chips.		
Sheet: /		
File: MainBoard.sch		
Title: TurtleTTL: Main Board		
Size: A	Date:	Rev:
KiCad E.D.A. kicad (5.1.0-0)		Id: 1/20



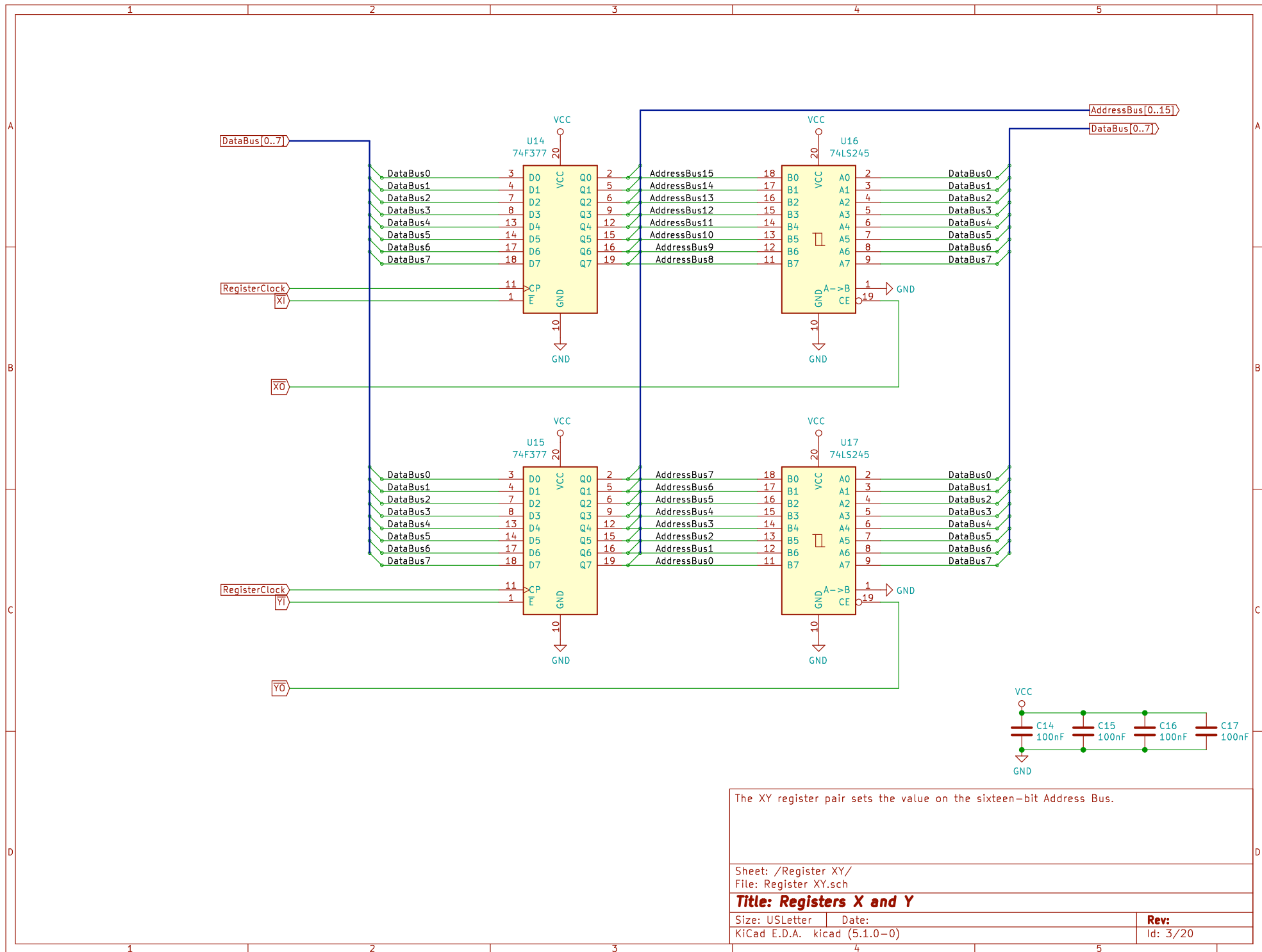
Register D controls the device select lines for peripherals and memory.

Sheet: /Register D/
File: Register D.sch

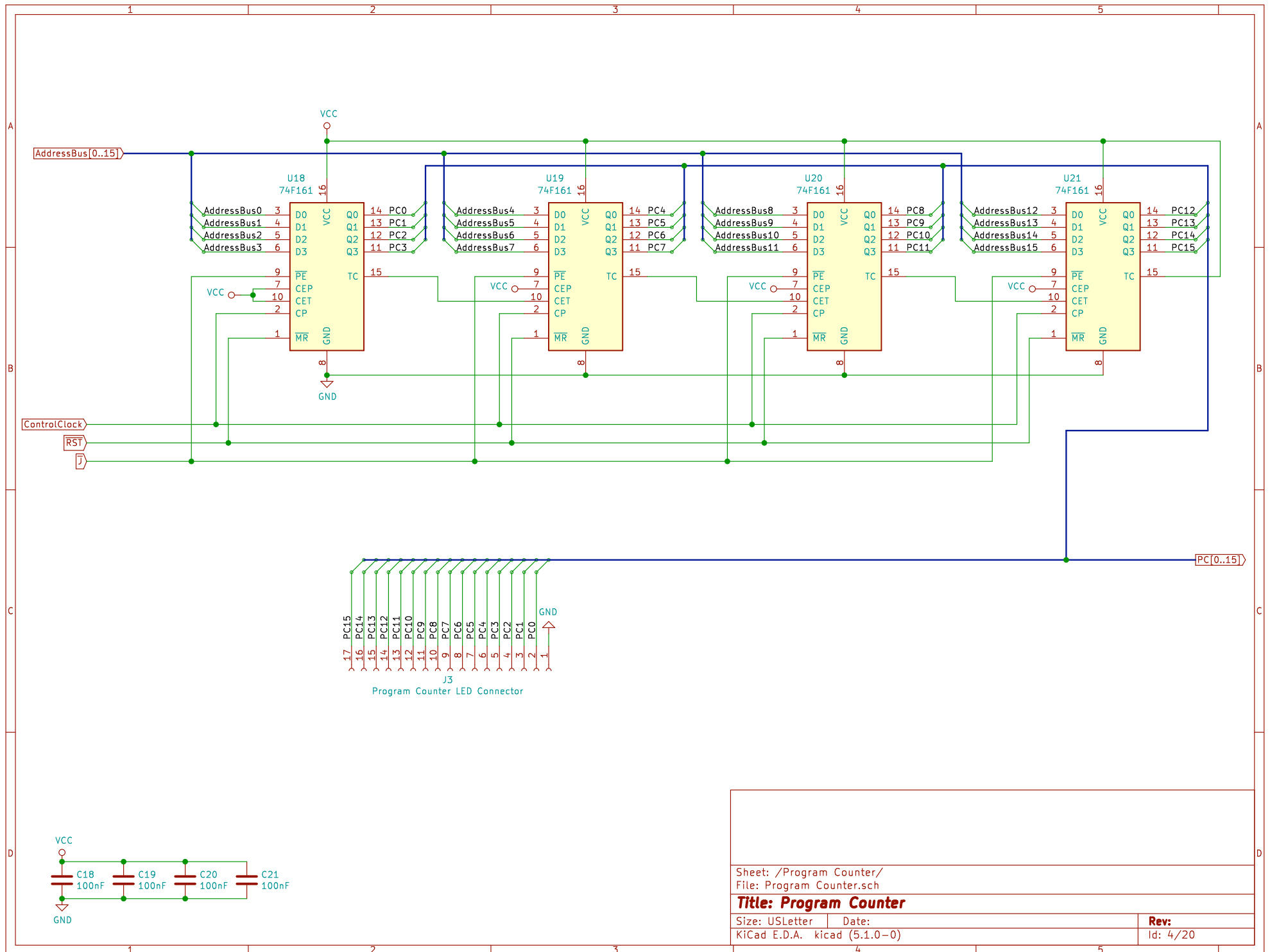
Title: Register D

Size: A Date:
KiCad E.D.A. kicad (5.1.0-0)

Rev:
Id: 2/20



The XY register pair sets the value on the sixteen-bit Address Bus.



Sheet: /Program Counter/
File: Program Counter.sch

Title: Program Counter

Size: USLetter Date:
KiCad E.D.A. kicad (5.1.0-0)

Rev:
Id: 4/20

1	2	3	4	5	6
A					A
B					B
C					C
D					D
1	2	3	4	5	6

Sheet: PC/IF

File: PC_IF.sch
Sheet: Instruction ROM

Sheet: Instruction RAM Address

File: Instruction RAM Address.sch
Sheet: Instruction RAM

File: Instruction ROM.sch
Sheet: Instruction Register

File: Instruction RAM.sch

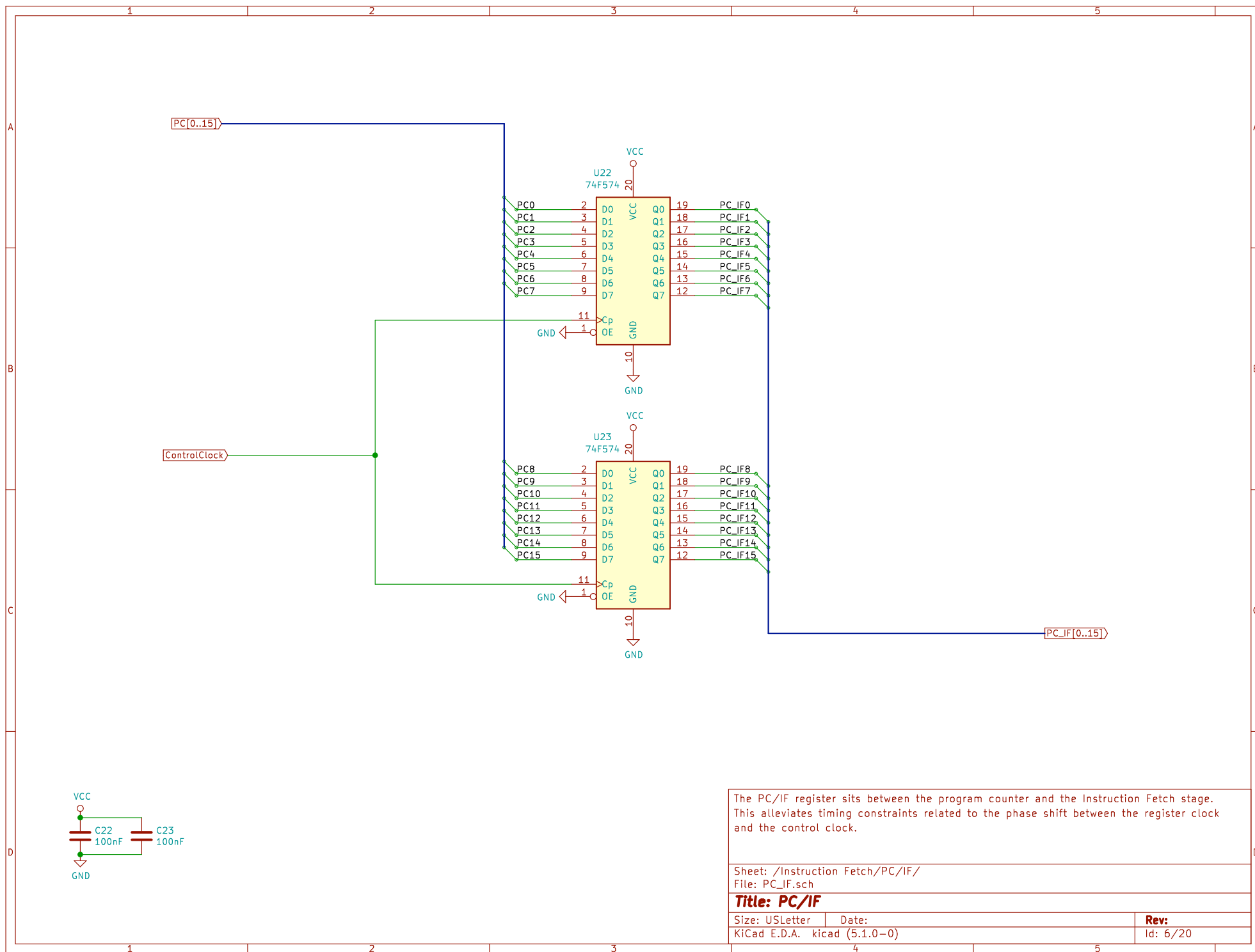
File: Instruction Register.sch

Instructions can be fetched from either Instruction ROM or Instruction RAM.
The lower 32KB of the address space is mapped to ROM, the remainder to RAM.

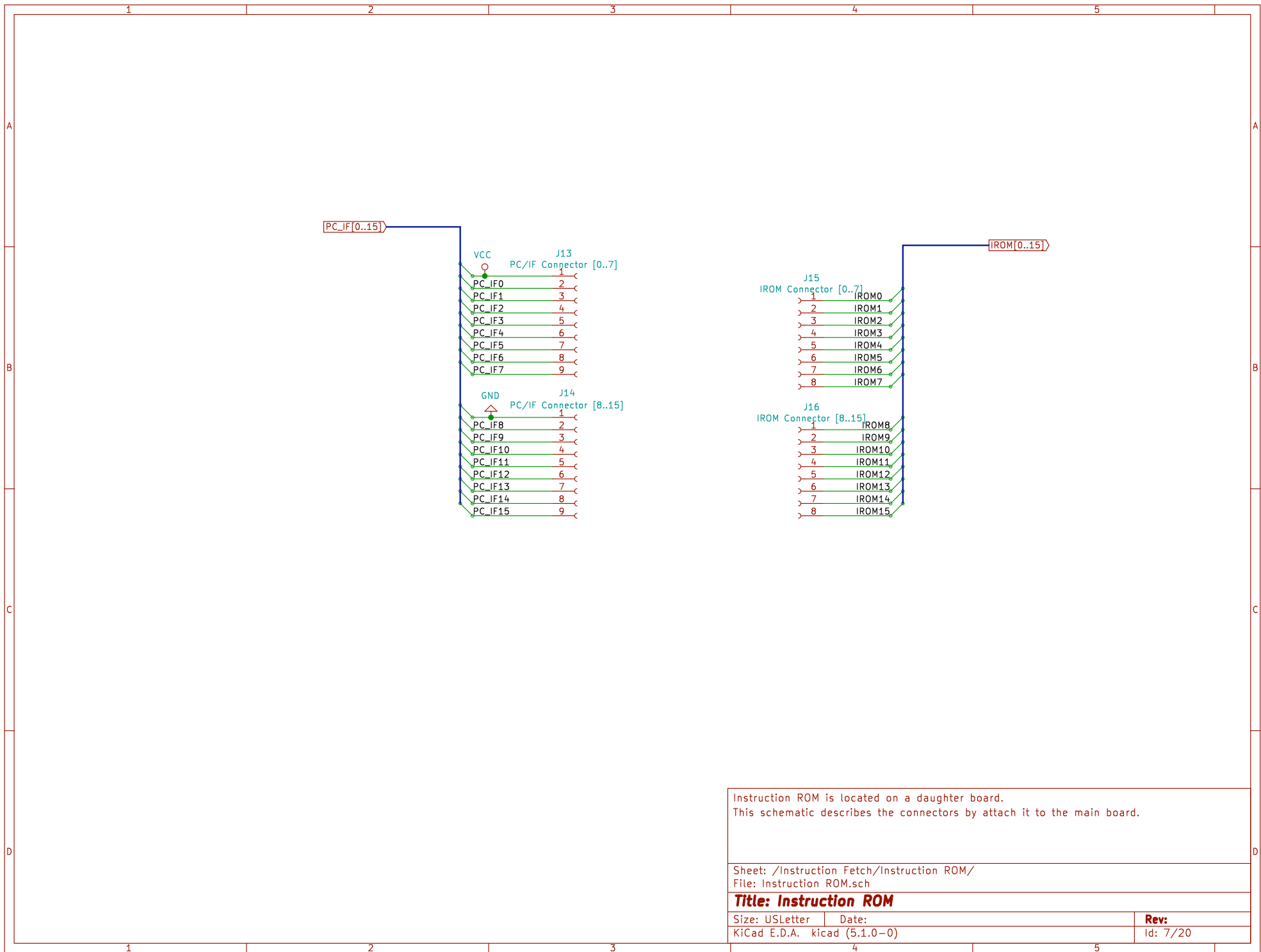
Sheet: /Instruction Fetch/
File: Instruction Fetch.sch

Title: Instruction Fetch

Size: A4	Date:	Rev:
KiCad E.D.A. - kicad (5.1.0-0)		Id: 5/20



The PC/IF register sits between the program counter and the Instruction Fetch stage. This alleviates timing constraints related to the phase shift between the register clock and the control clock.	
Sheet: /Instruction Fetch/PC/IF/ File: PC_IF.sch	
Title: PC/IF	
Size: USLetter	Date:
KiCad E.D.A. kicad (5.1.0-0)	
Rev:	
Id: 6/20	

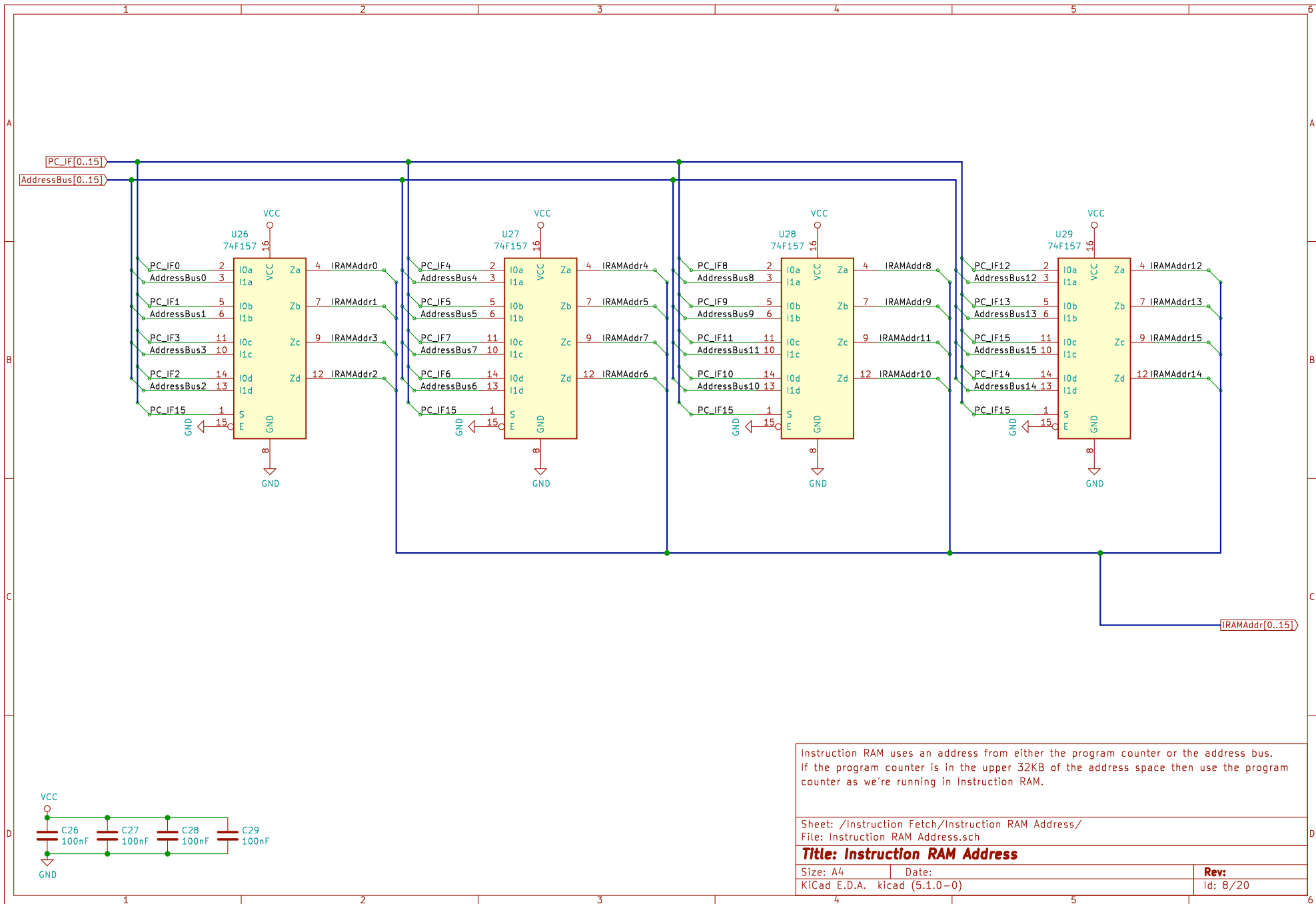


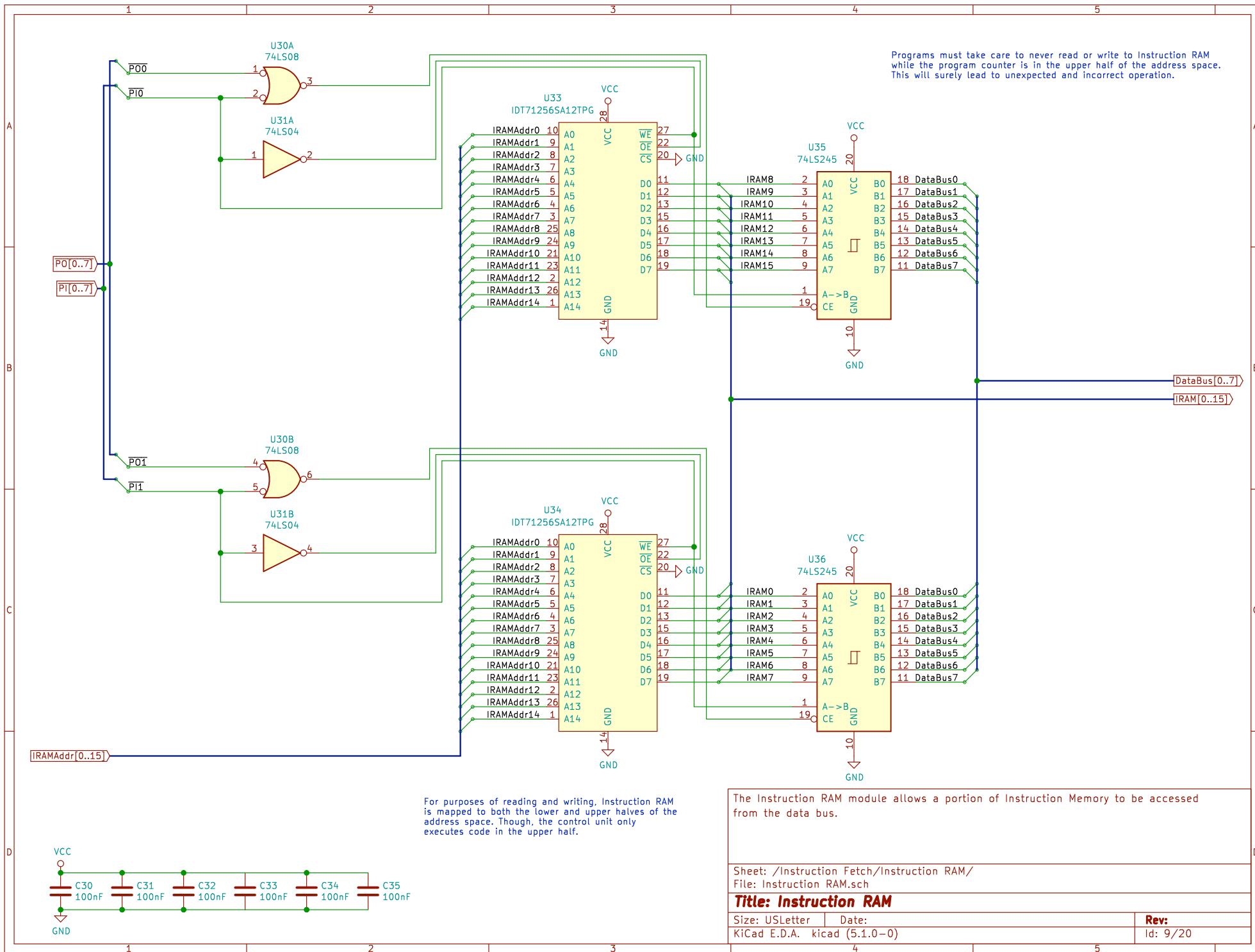
Instruction ROM is located on a daughter board.
This schematic describes the connectors to attach it to the main board.

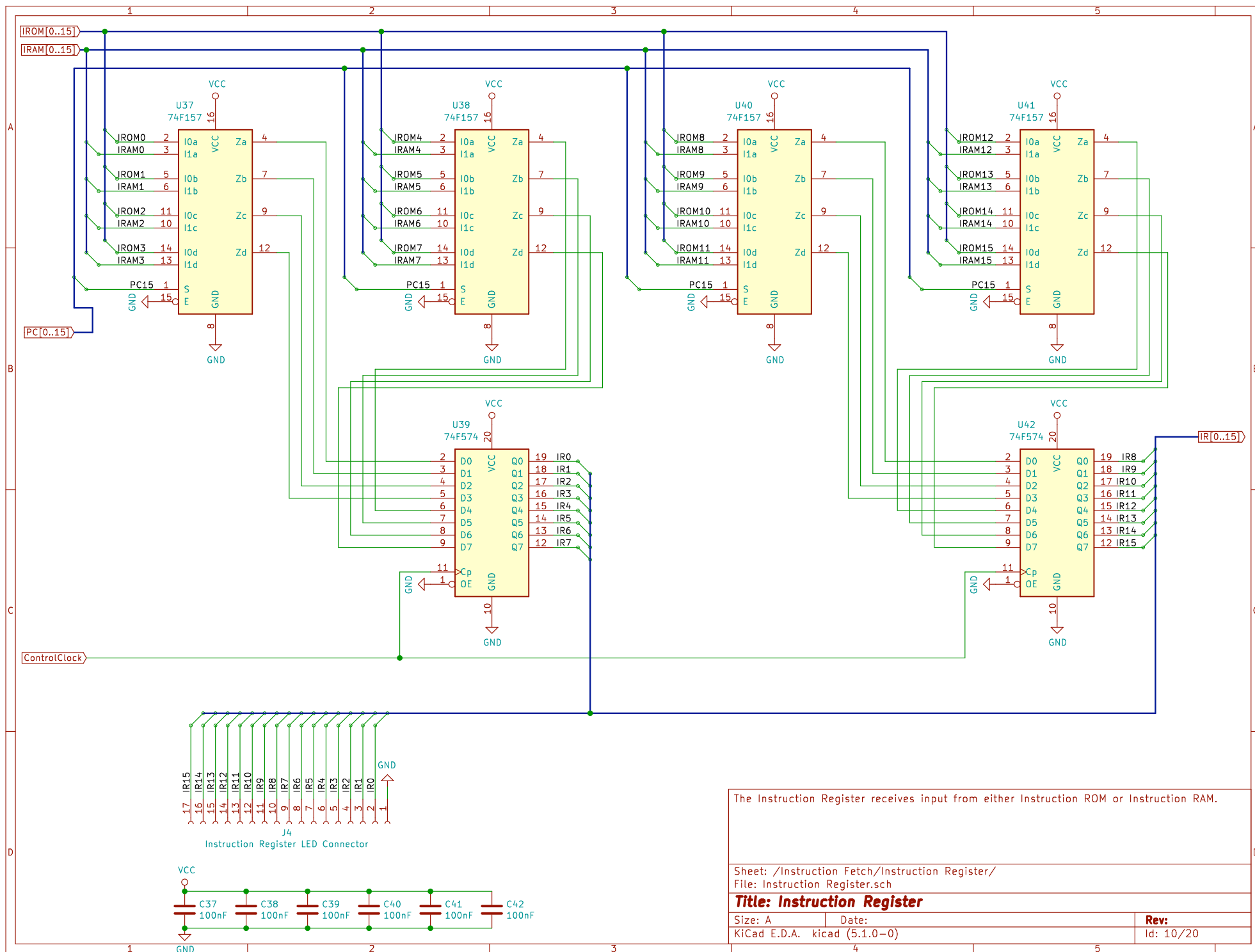
Sheet: /Instruction Fetch/Instruction ROM/
File: Instruction ROM.sch

Title: Instruction ROM

Size: USLetter	Date:	Rev:
KiCad E.D.A. kicad (5.1.0-0)		Id: 7/20







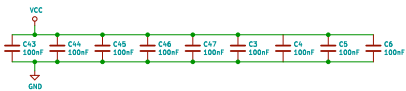
The Instruction Register receives input from either Instruction ROM or Instruction RAM.

Sheet: /Instruction Fetch/Instruction Register/
File: Instruction Register.sch

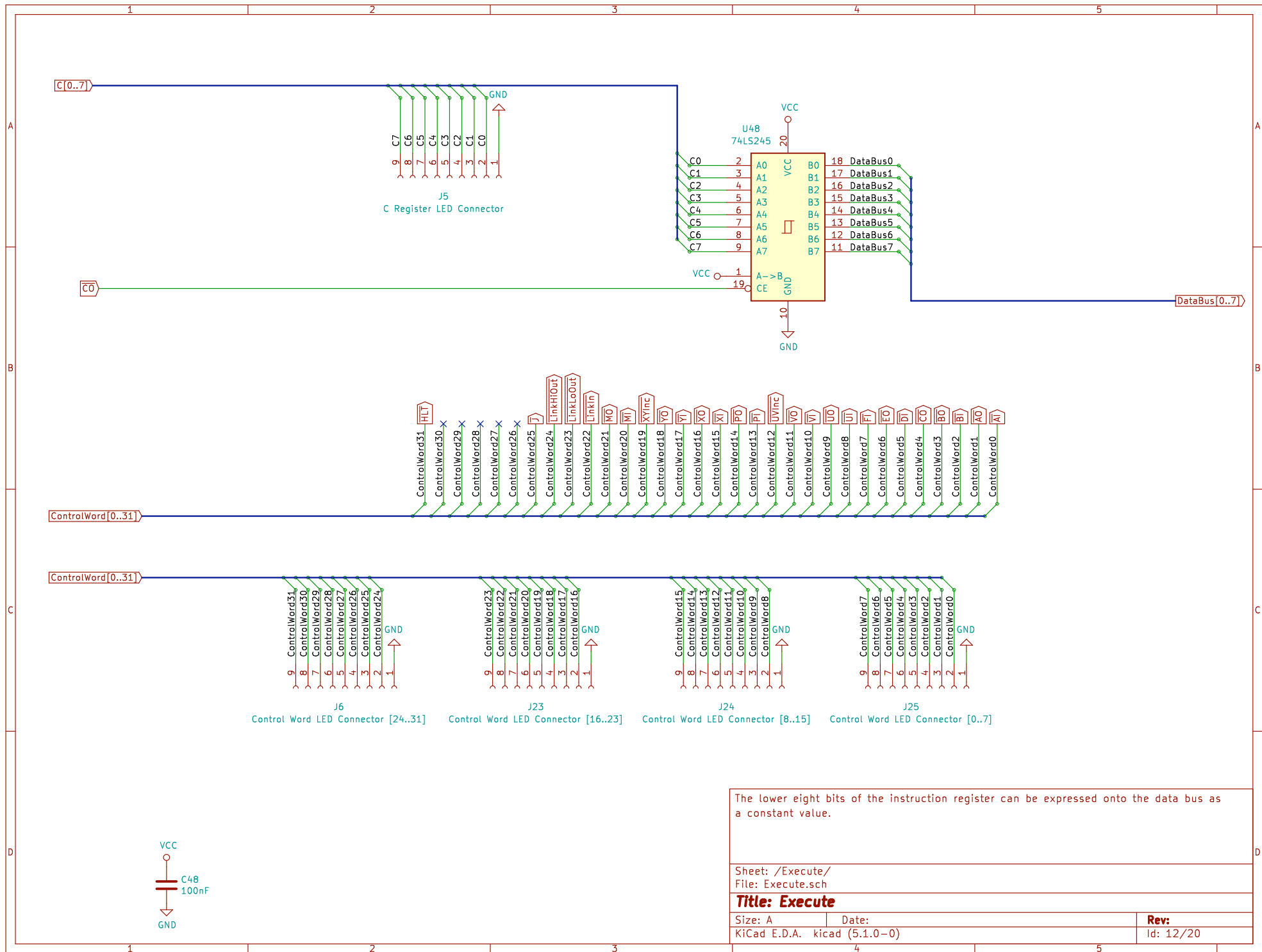
Title: Instruction Register

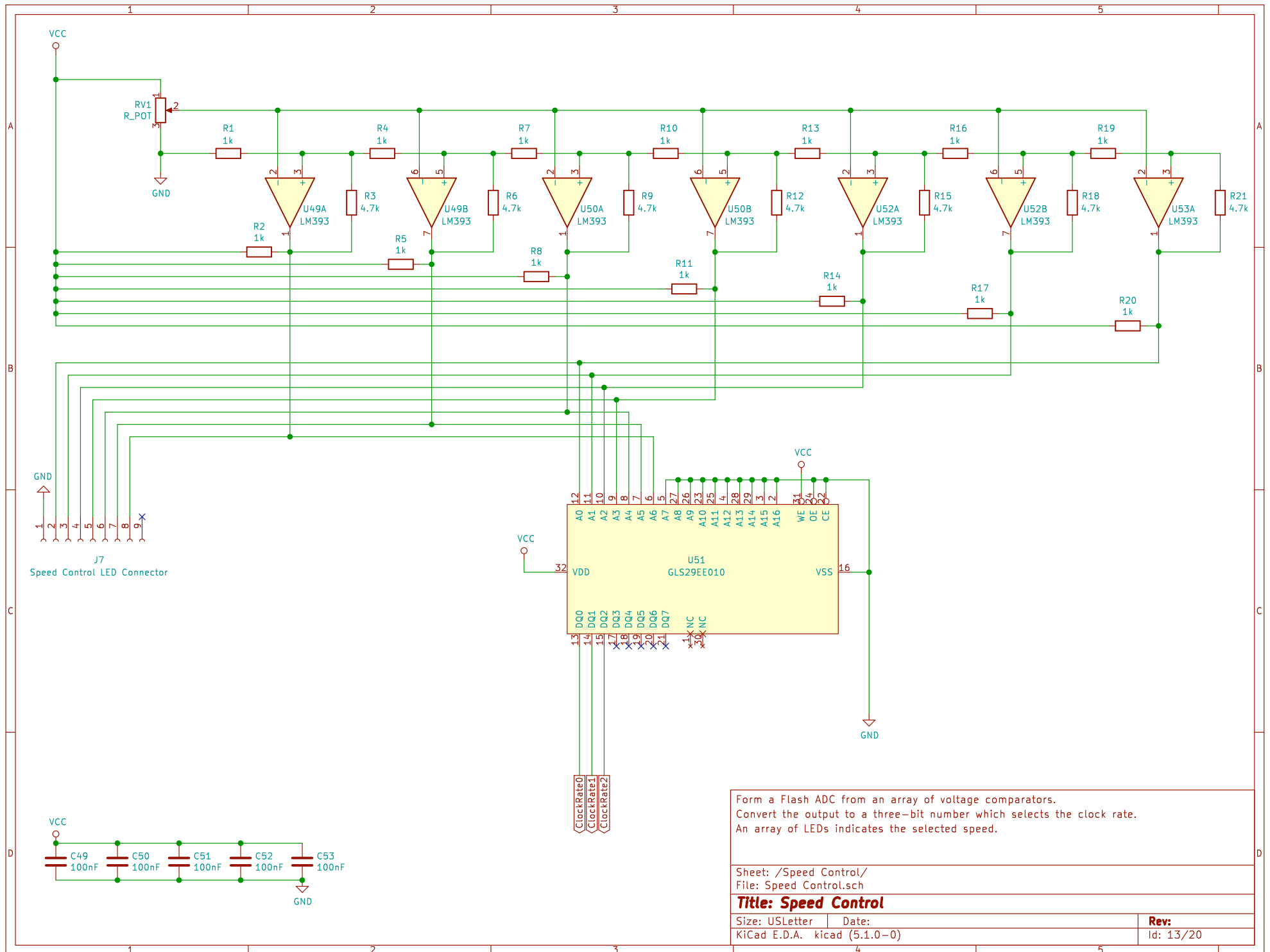
Size: A Date:
KiCad E.D.A. kicad (5.1.0-0)

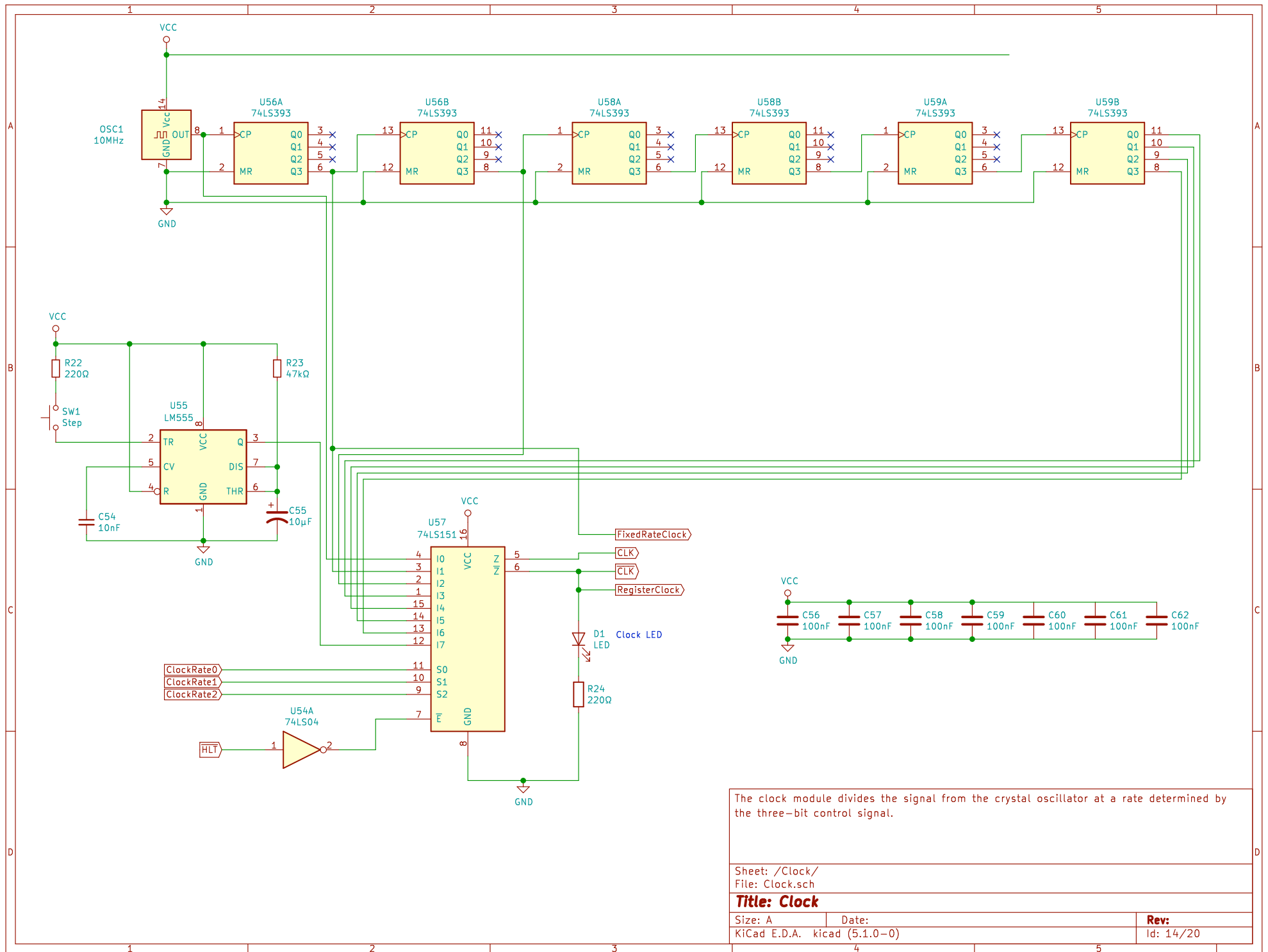
Rev:
Id: 10/20



Size: A2	Date:	Rev:
KiCad E.D.A. kicad (5.1.0-0)		Id: 11/20







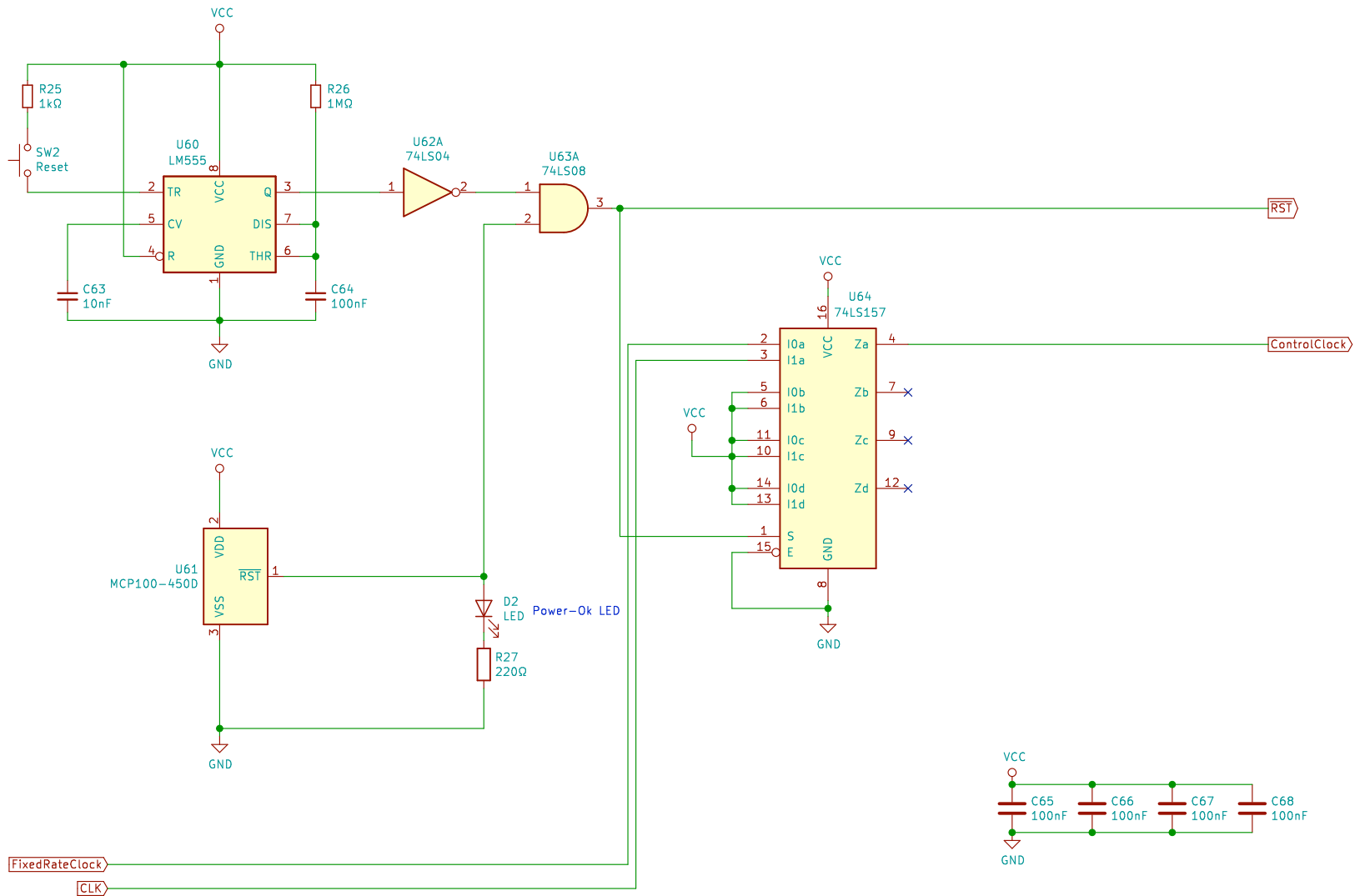
The clock module divides the signal from the crystal oscillator at a rate determined by the three-bit control signal.

Sheet: /Clock/
File: Clock.sch

Title: Clock

Size: A Date:
KiCad E.D.A. kicad (5.1.0-0)

Rev:
Id: 14/20



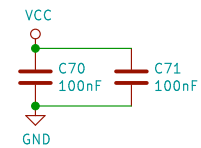
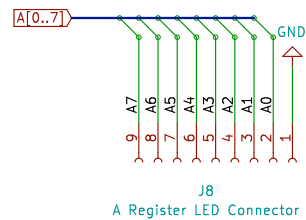
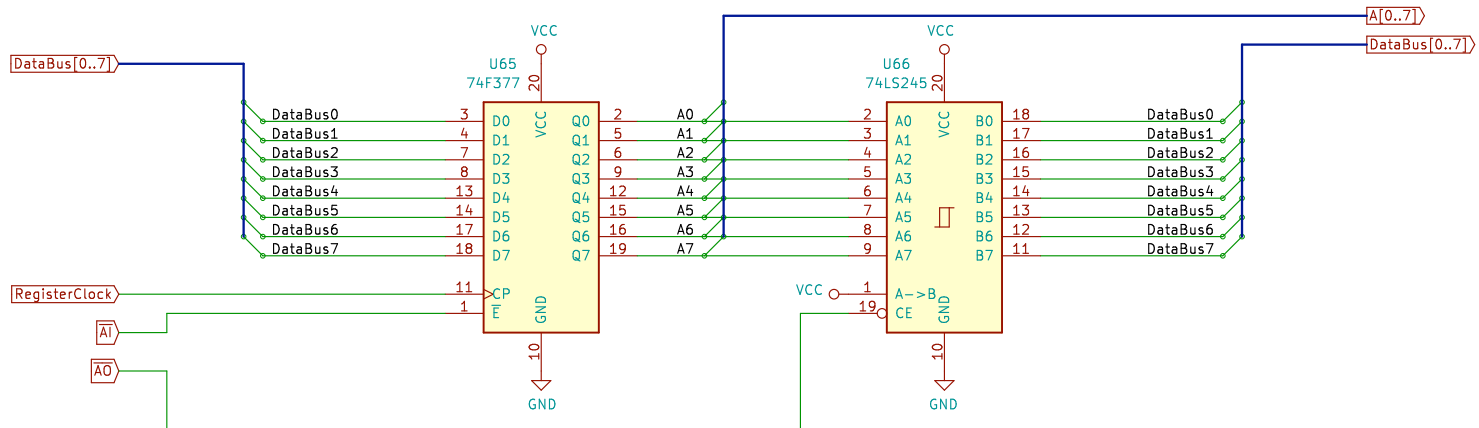
The MCP100 provides Power-on Reset functionality.
A button is also provided to manually reset the machine.
During reset, the control clock is pulsed repeatedly to flush the pipeline.

Sheet: /Power-on Reset/
File: Power-on Reset.sch

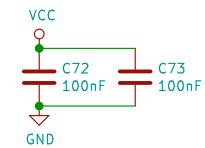
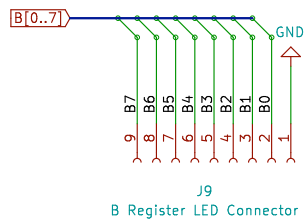
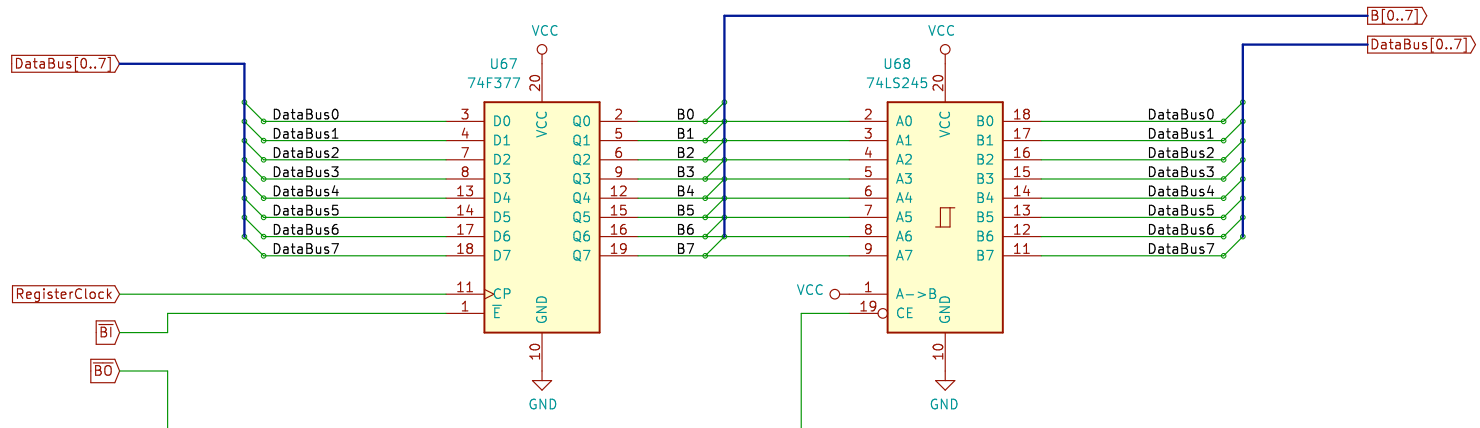
Title: Power-on Reset

Size: A Date:
KiCad E.D.A. kicad (5.1.0-0)

Rev:
Id: 15/20



Register A is wired to the ALU's A operand.		
Sheet: /Register A/		
File: Register A.sch		
Title: Register A		
Size: A	Date:	Rev:
KiCad E.D.A. kicad (5.1.0-0)		Id: 16/20



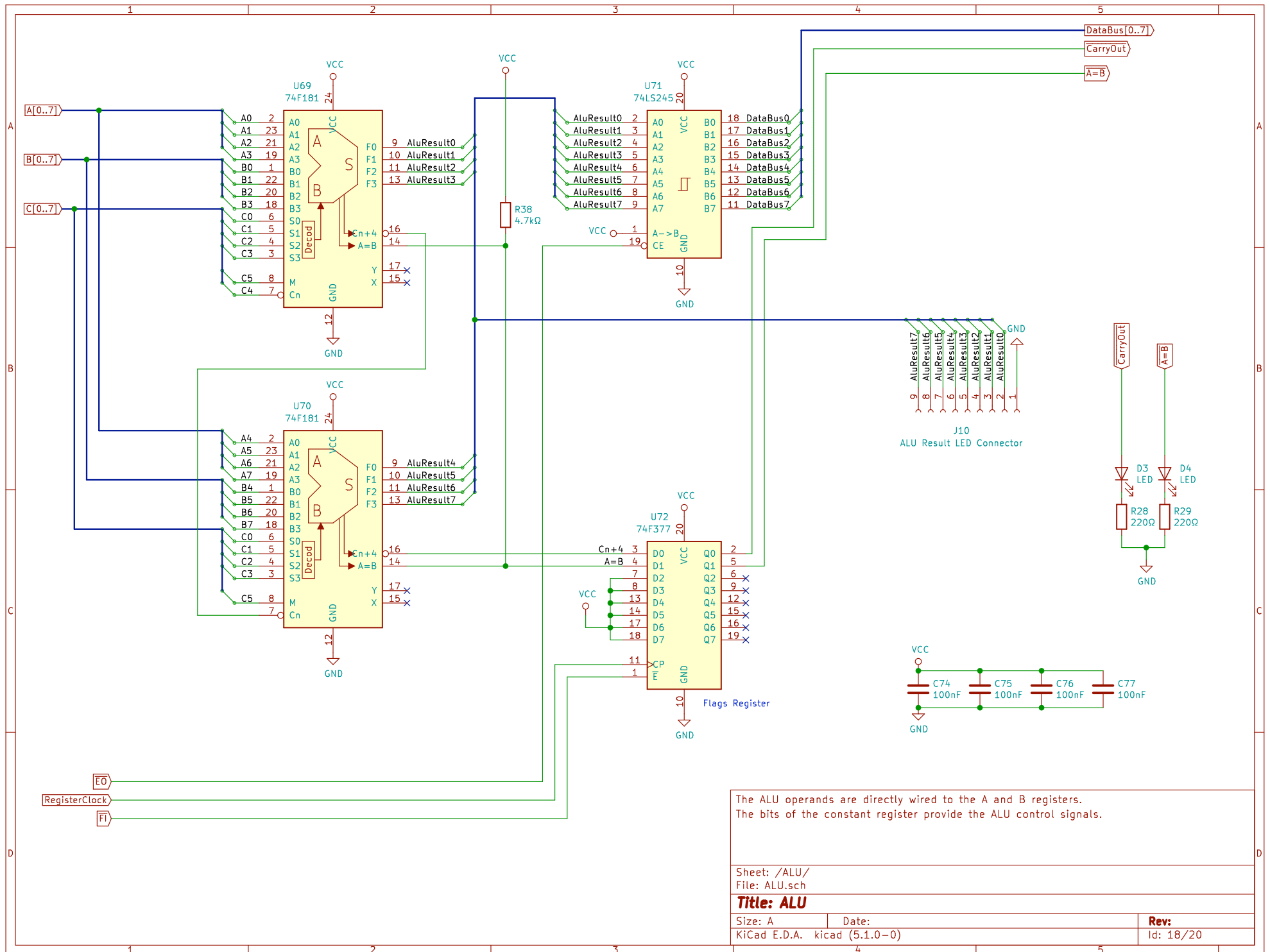
Register B is wired to the ALU's B operand.

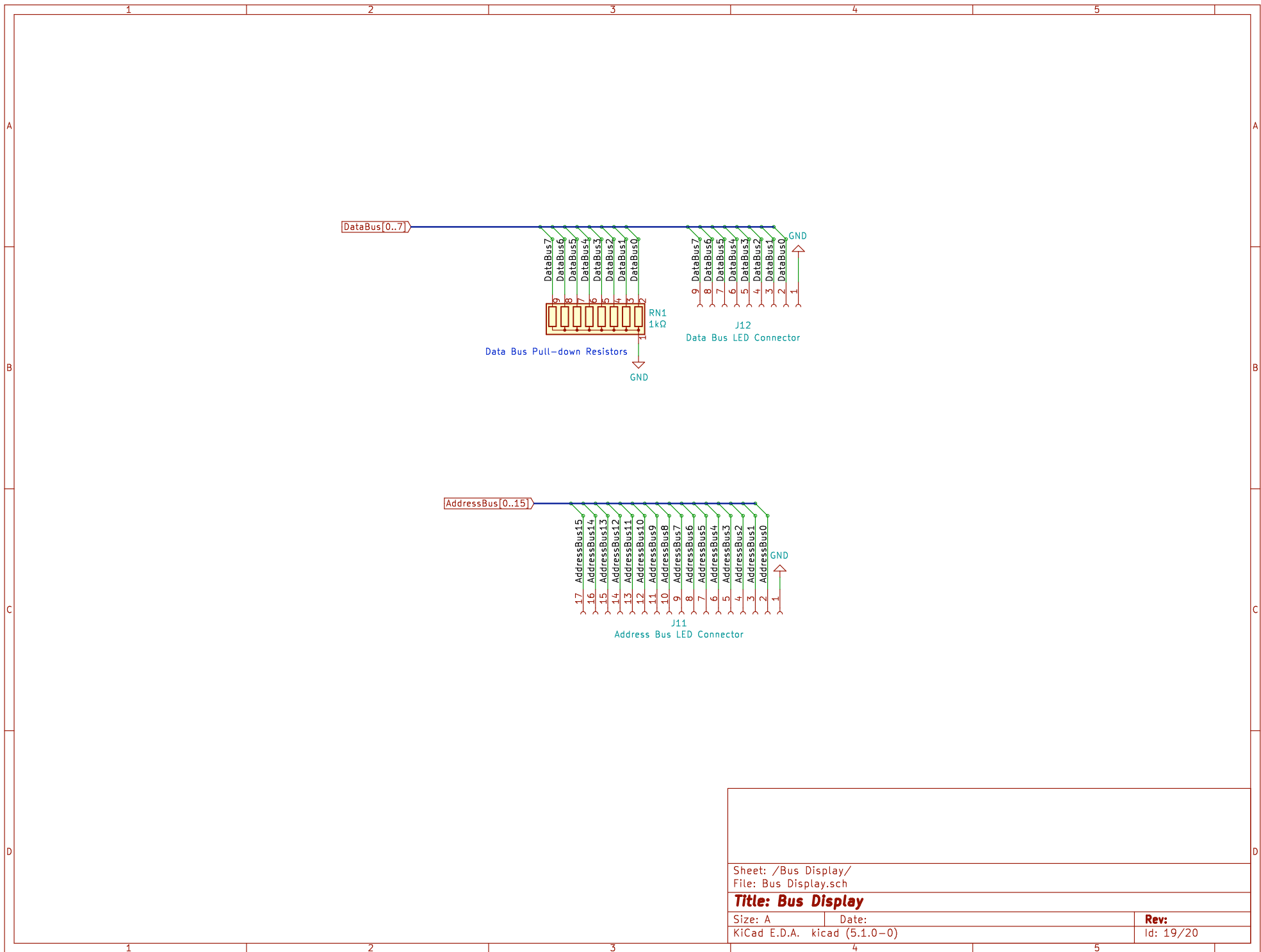
Sheet: /Register B/
File: Register B.sch

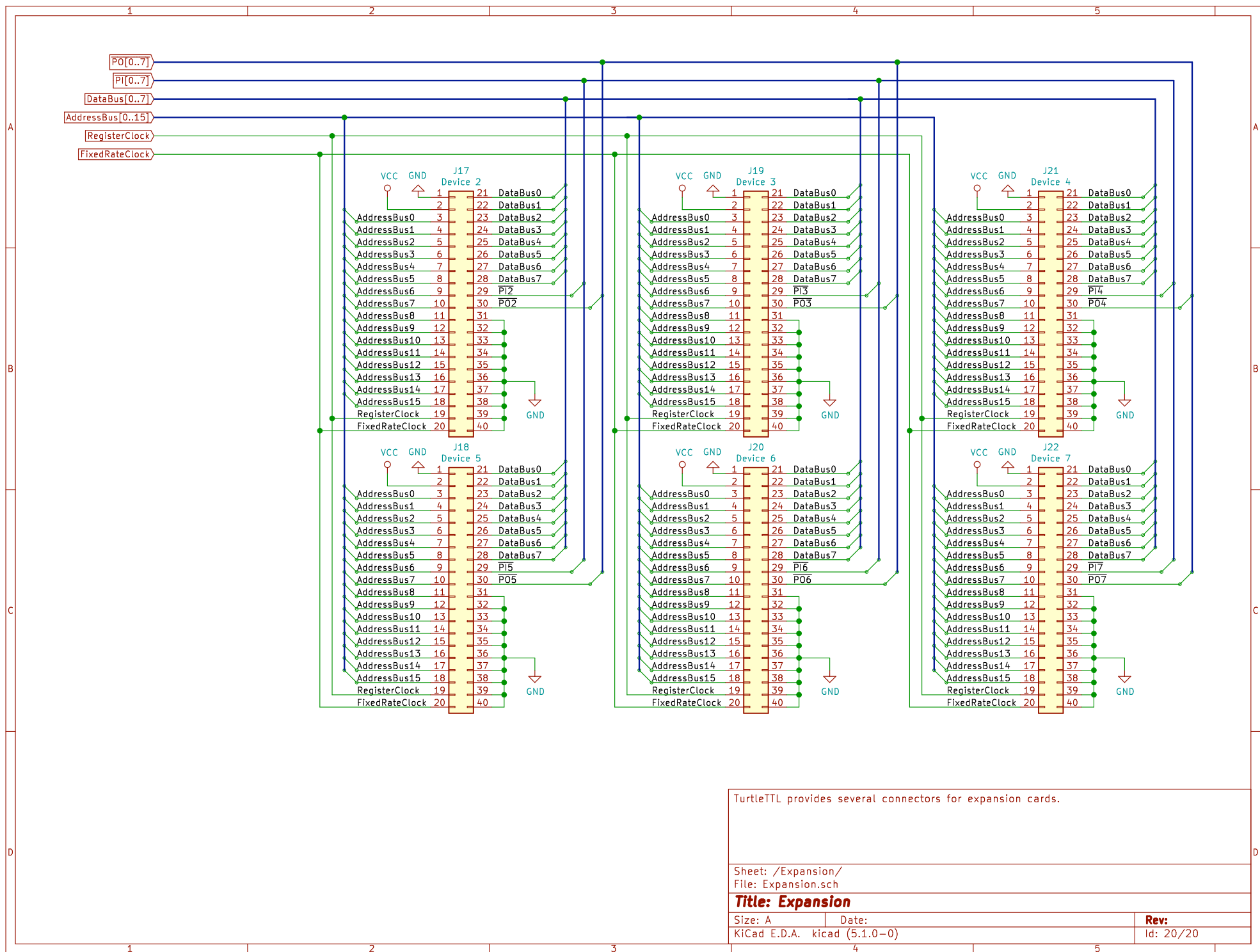
Title: Register B

Size: A Date:
KiCad E.D.A. kicad (5.1.0-0)

Rev:
Id: 17/20







TurtleTTL provides several connectors for expansion cards.