

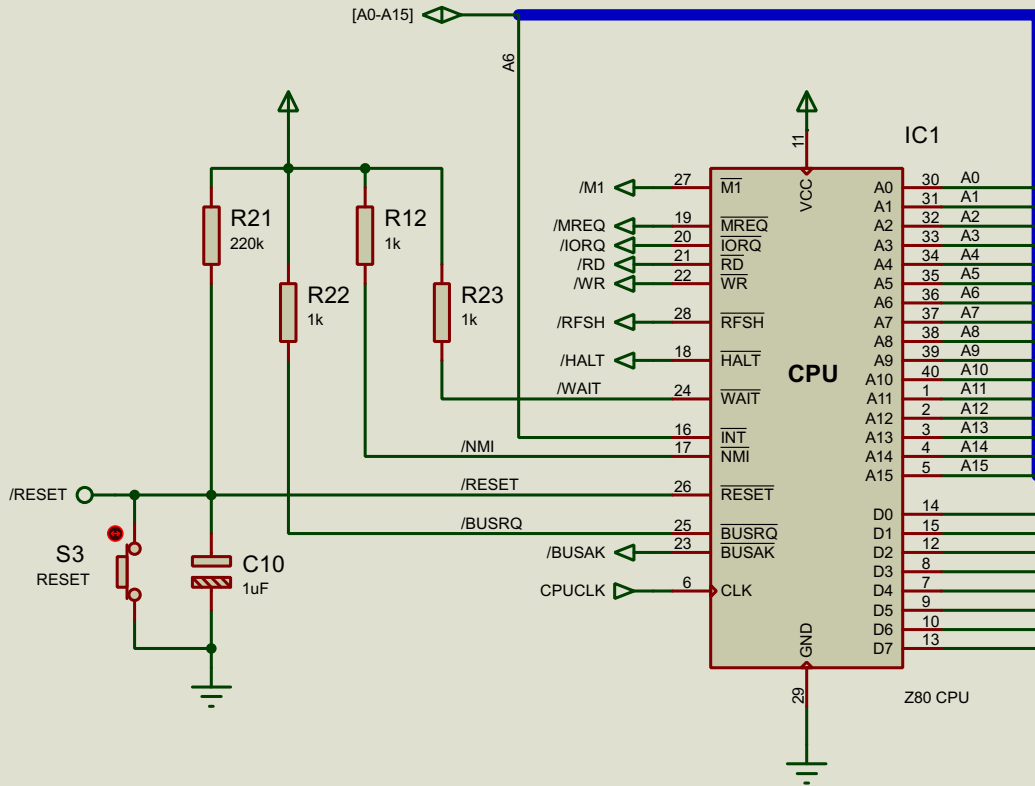
ZX80/81 Project

by Augusto Baffa, Phd

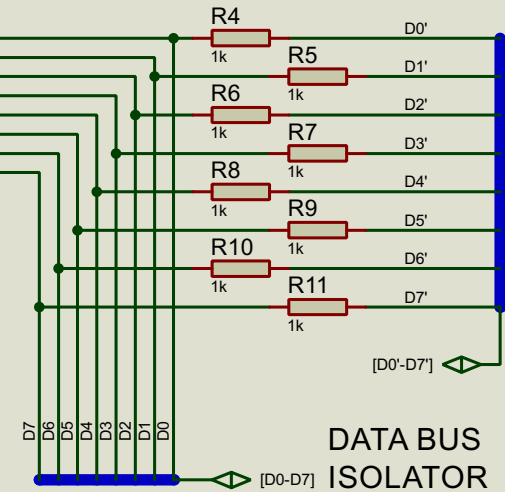
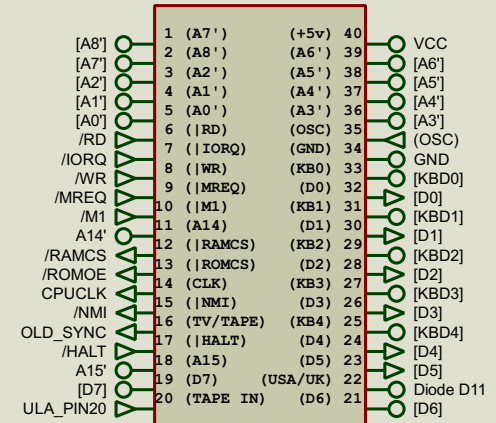
Assembled and Tested - Feb/2021

<http://www.augustobaffa.pro.br/>

CPU



ULA



ZX81 Project - Base

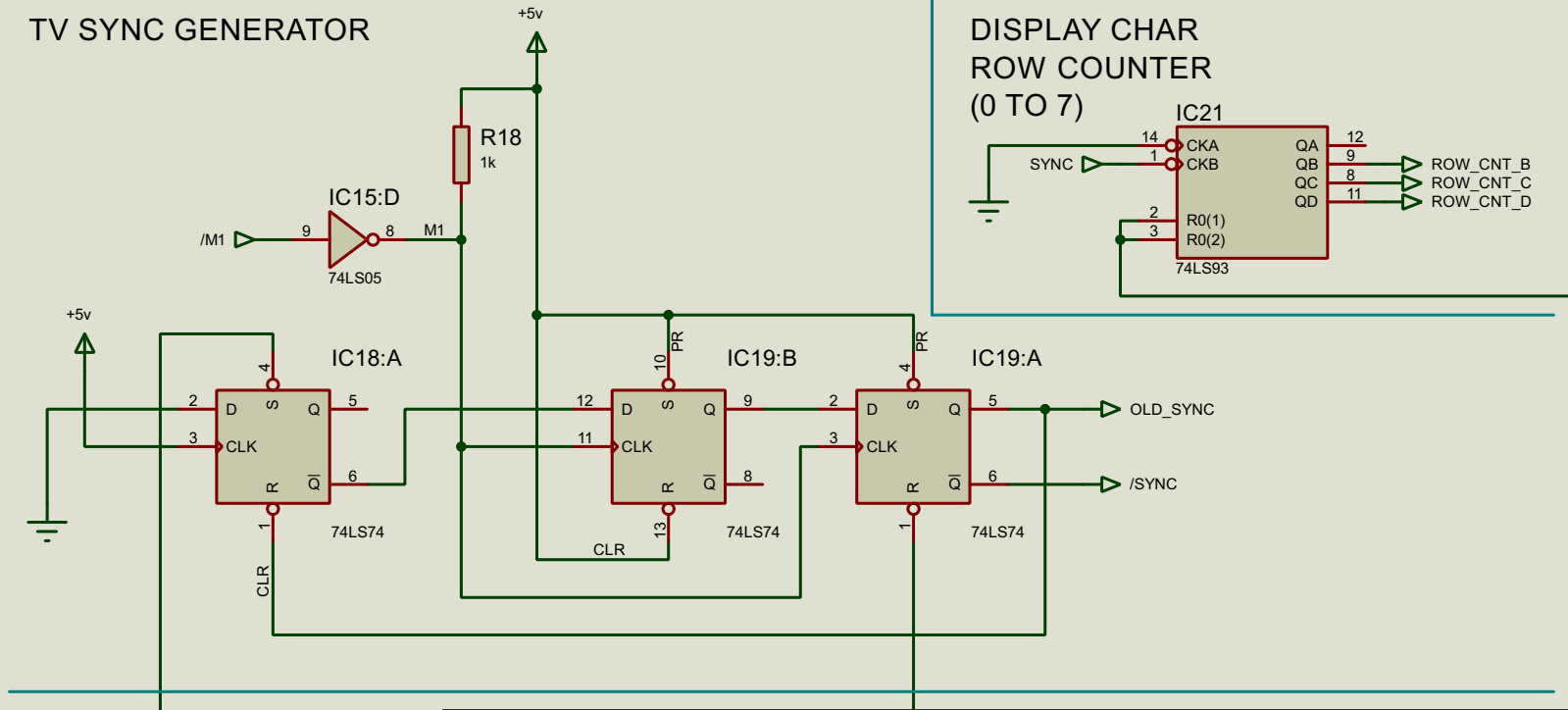
Augusto Baffa © Feb/2021

Based on original design by Grant Seale

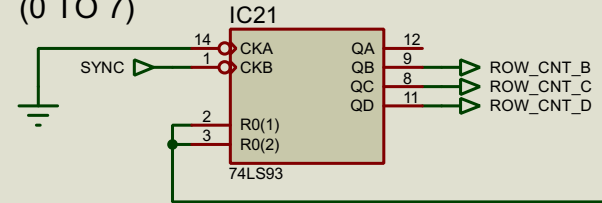
[illegible]

Based on original design by Grant Seale

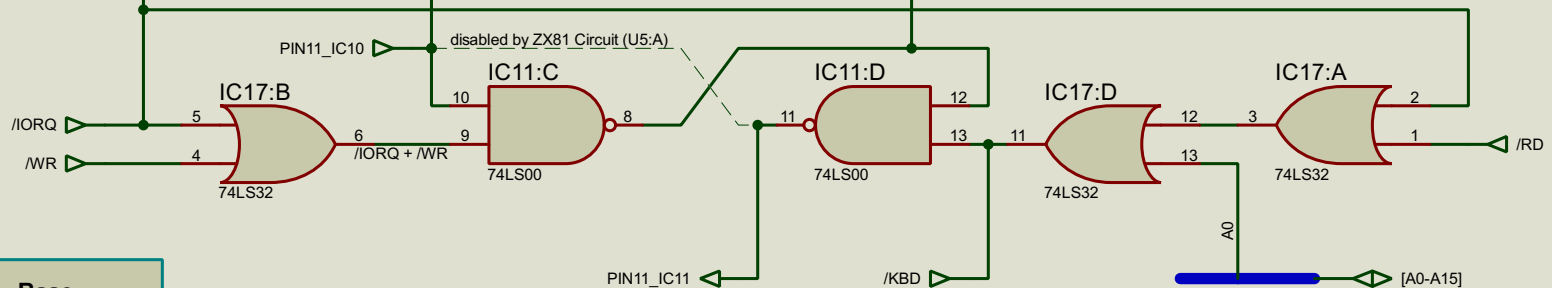
TV SYNC GENERATOR



DISPLAY CHAR ROW COUNTER (0 TO 7)



I/O DECODER

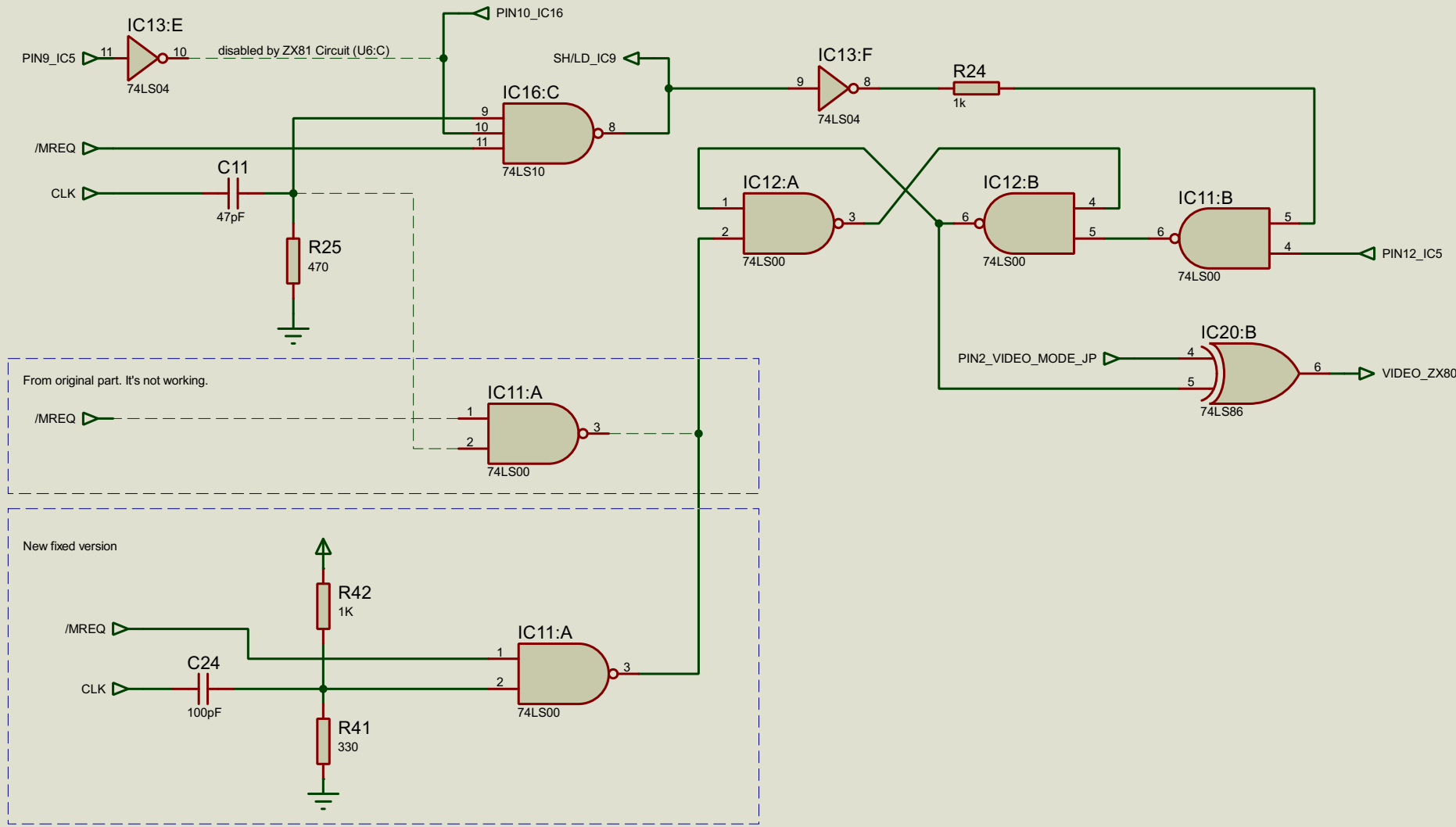


ZX81 Project - Base

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NORMAL/INVERT CHARACTER LATCH

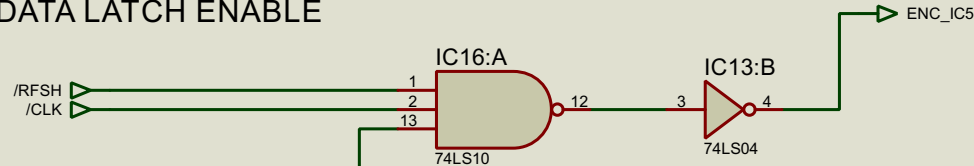


ZX81 Project - Base

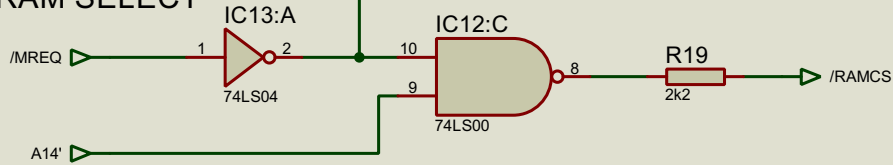
Augusto Baffa © Feb/2021

Based on original design by Grant Seale

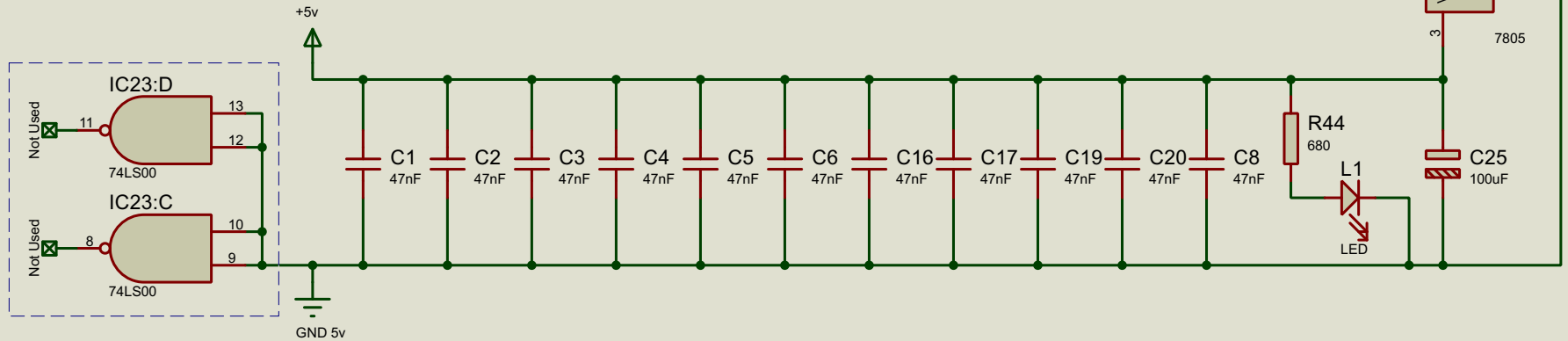
DATA LATCH ENABLE



RAM SELECT



POWER REGULATOR 5v

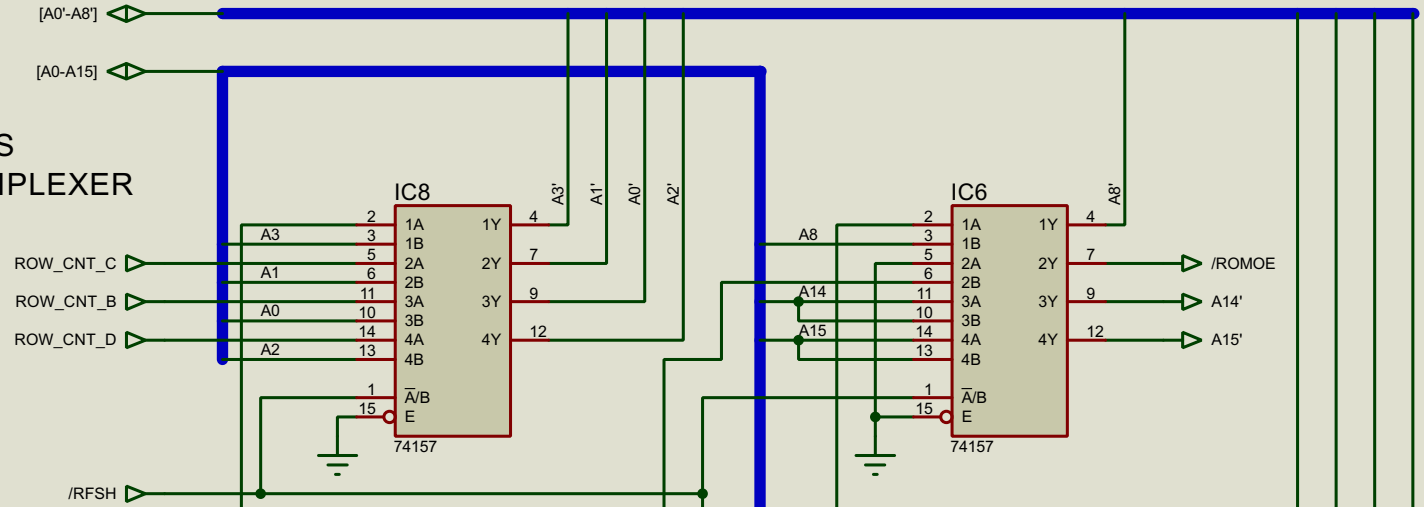


ZX81 Project - Base

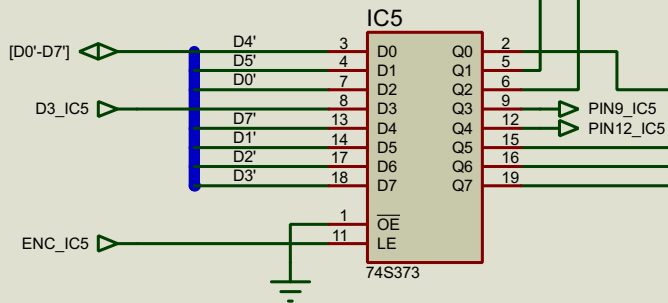
Augusto Baffa © Feb/2021

Based on original design by Grant Seale

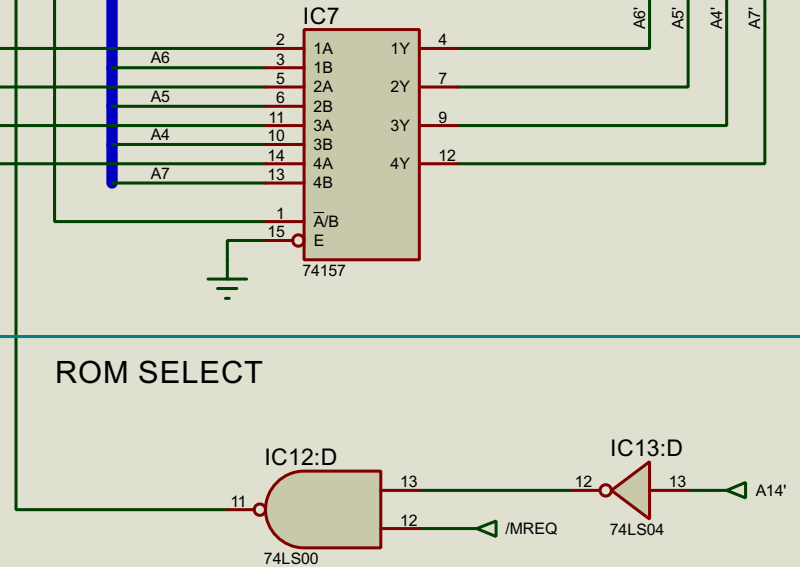
CPU/DISPLAY ACCESS ROM ADDRESS MULTIPLEXER



RAM DATA LATCH



ROM SELECT

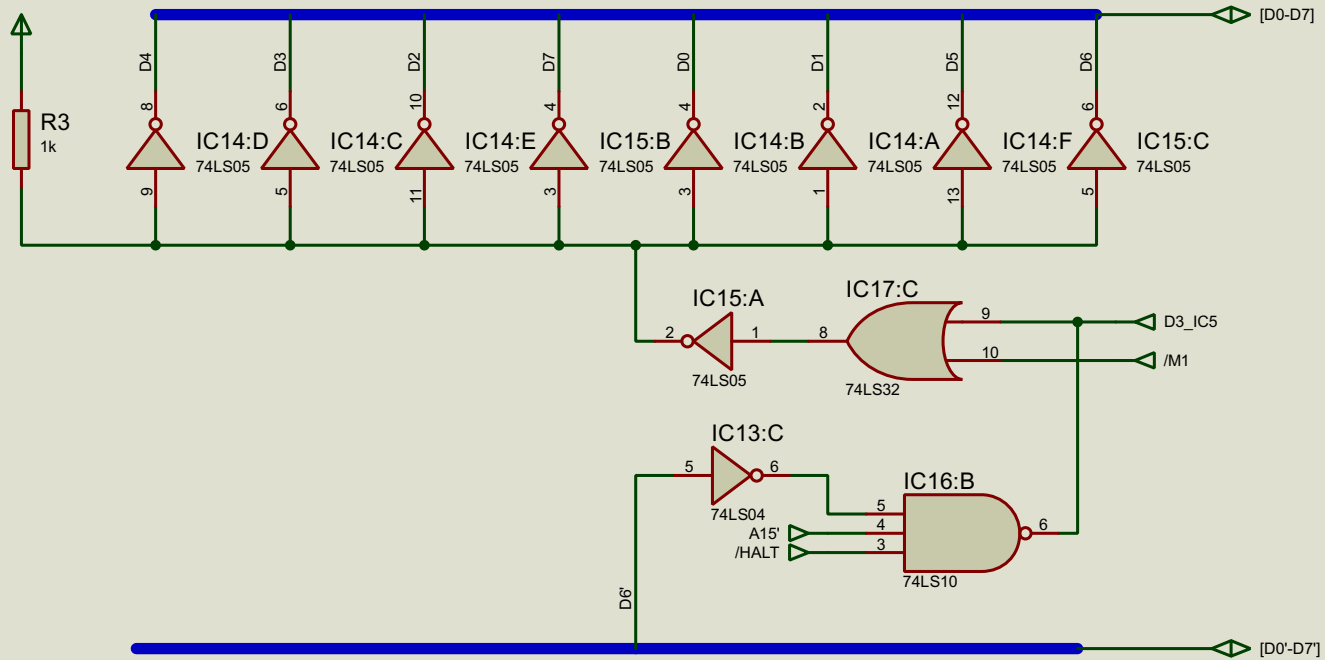


ZX81 Project - Base

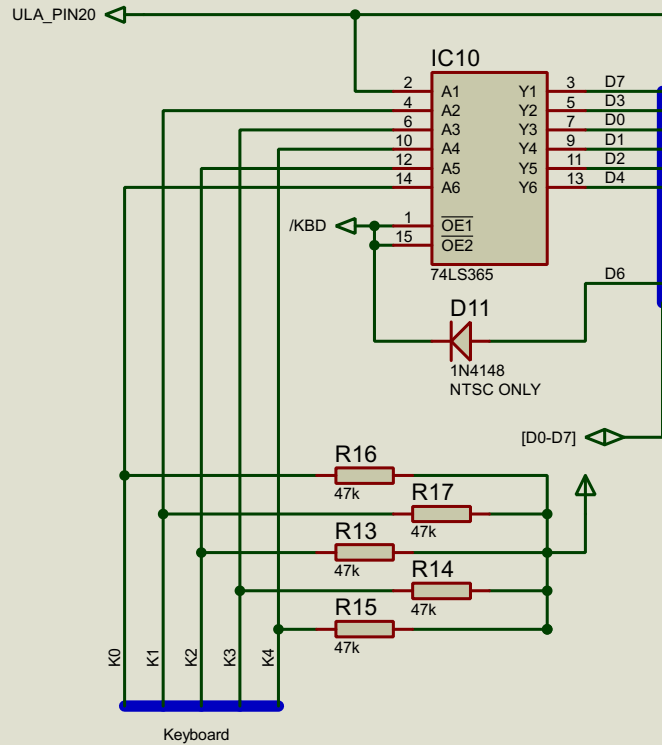
Augusto Baffa © Feb/2021

Based on original design by Grant Seale

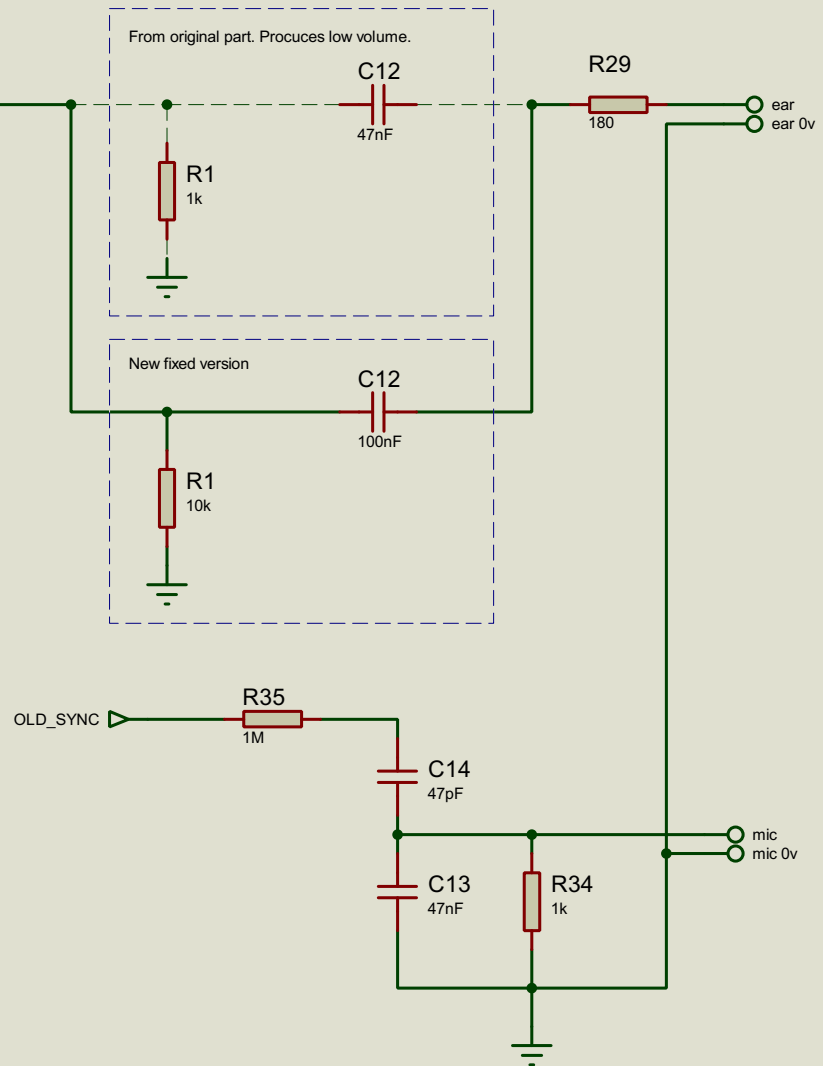
"NOP" OPCODE GENERATOR



CASSETTE I/O AND KEYBOARD READ



CASSETTE INTERFACE

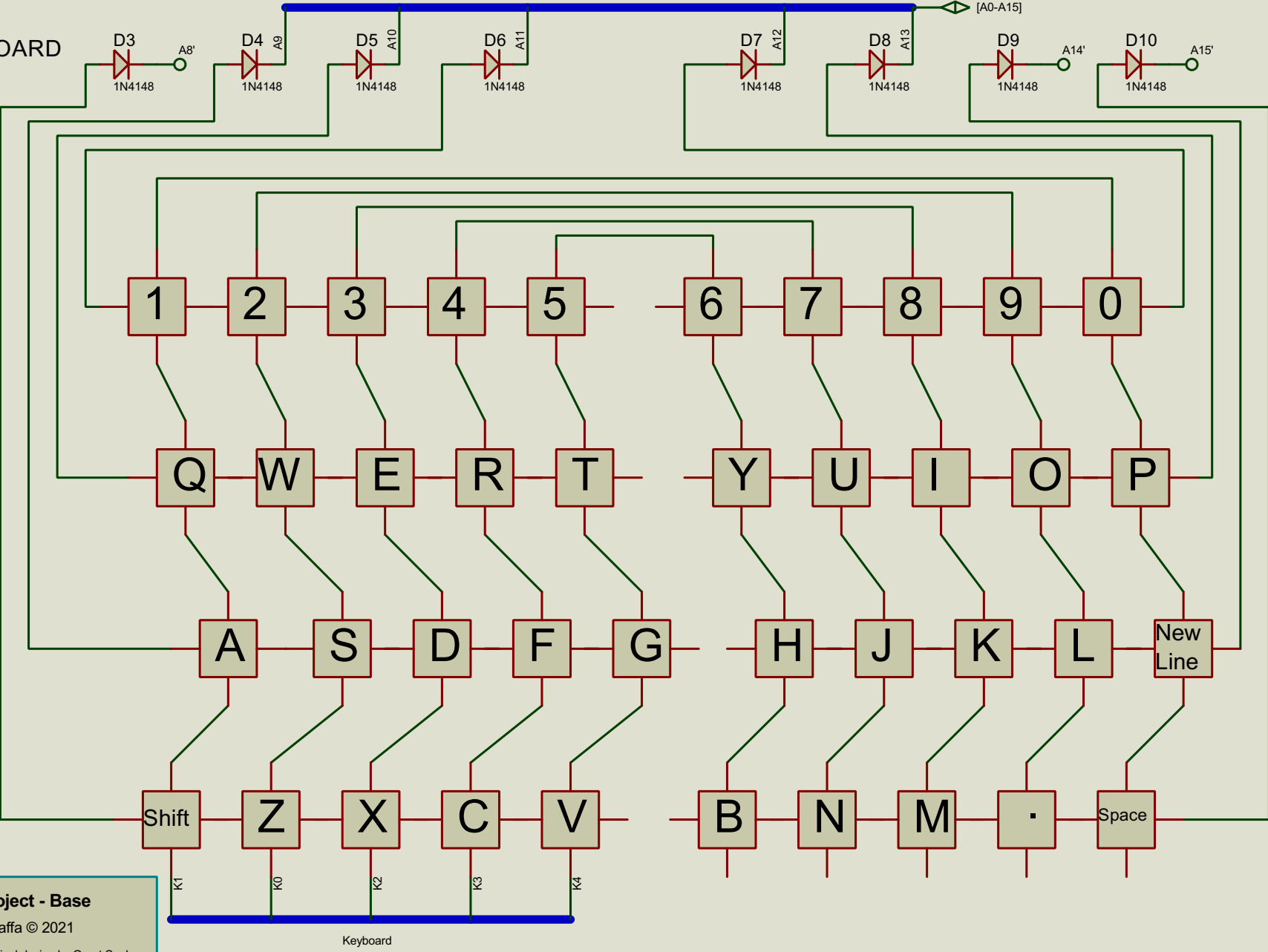


ZX81 Project - Base

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KEYBOARD

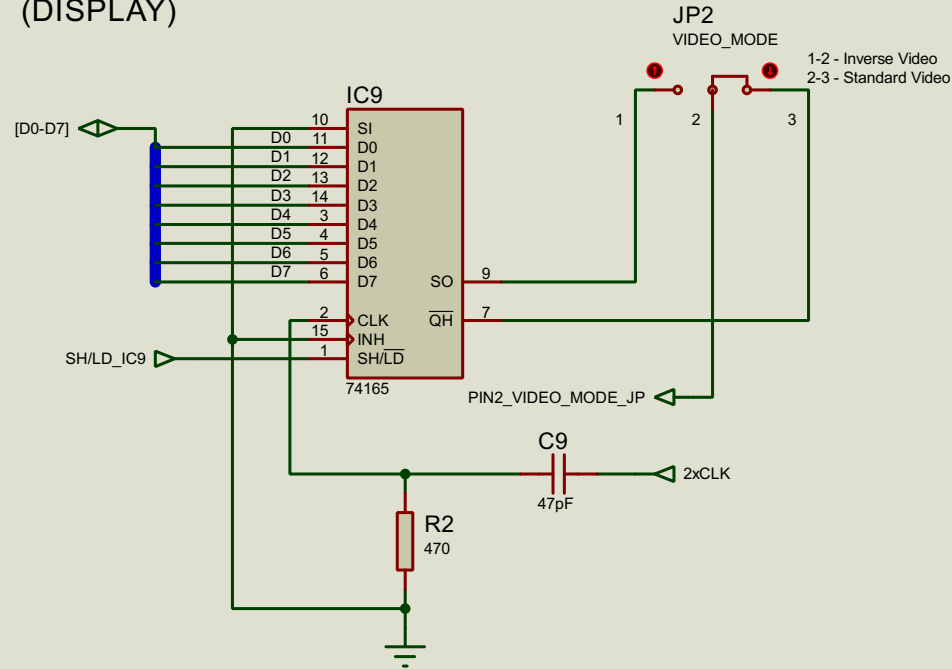


ZX81 Project - Base

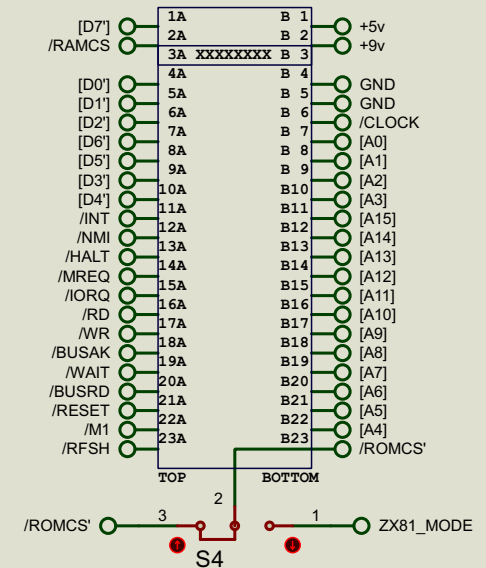
Augusto Baffa © 2021

Based on original design by Grant Seale

PARALLEL TO SERIAL BIT SHIFT (DISPLAY)



EDGE CONECTOR

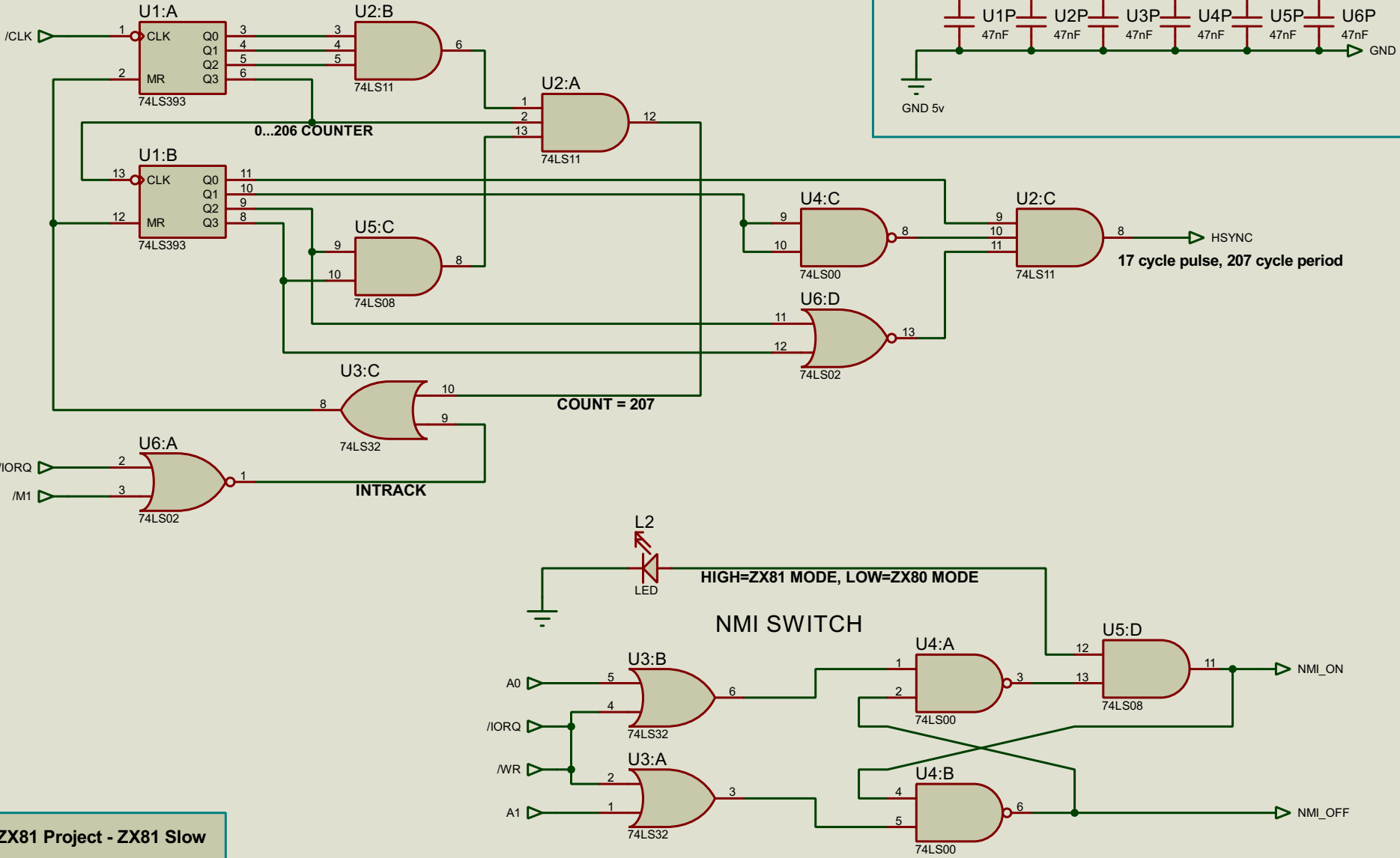


ZX81 Project - Base

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Based on original design by Grant Seale

SYNC AND NMI PULSE GENERATOR

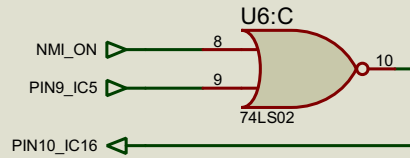


ZX81 Project - ZX81 Slow

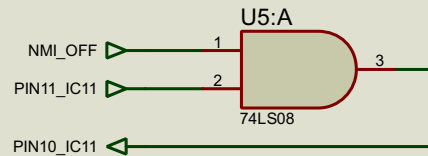
Augusto Baffa © Feb/2021

Based on original design by Grant Seale

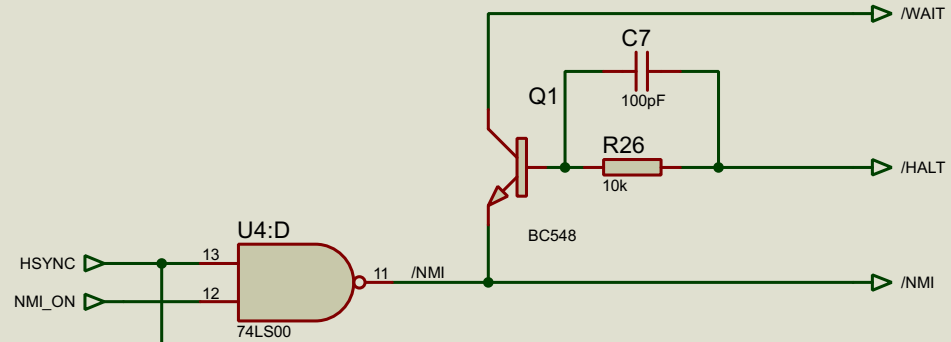
VIDEO LOGIC DISABLE



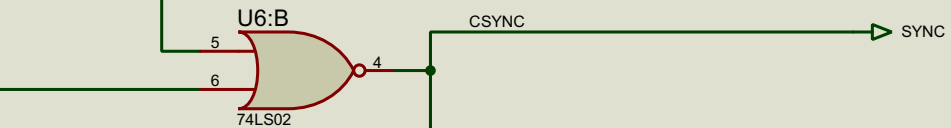
SYNC LOGIC DISABLE



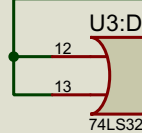
T-STATE SYNCHRONIZER



SYNC MIXER

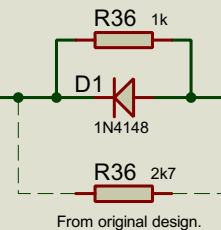


WHITE-LEVEL RESTORATION (Optional, but recommended)



SYNC PULSE STRETCHER

New fixed version



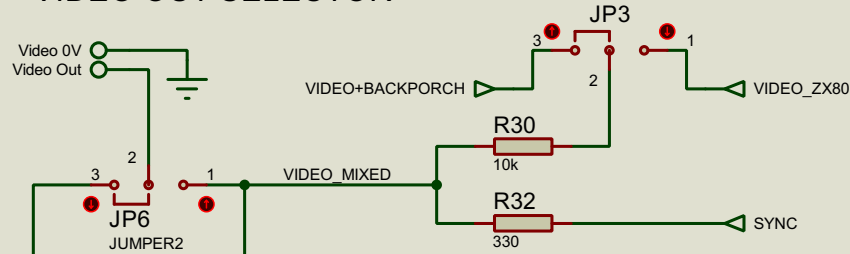
Back porch Grant Seale solution

ZX81 Project - ZX81 Slow

Augusto Baffa © Feb/2021

Based on original design by Grant Seale

VIDEO OUT SELECTOR



Back porch Grant Searle solution:

JP3 = 2-3

JP5 = OFF

JP6 = 1-2

Back porch generation José Leandro solution:

Adjust image with R37 & R33

JP3 = 1-2

JP5 = ON

JP6 = 2-3

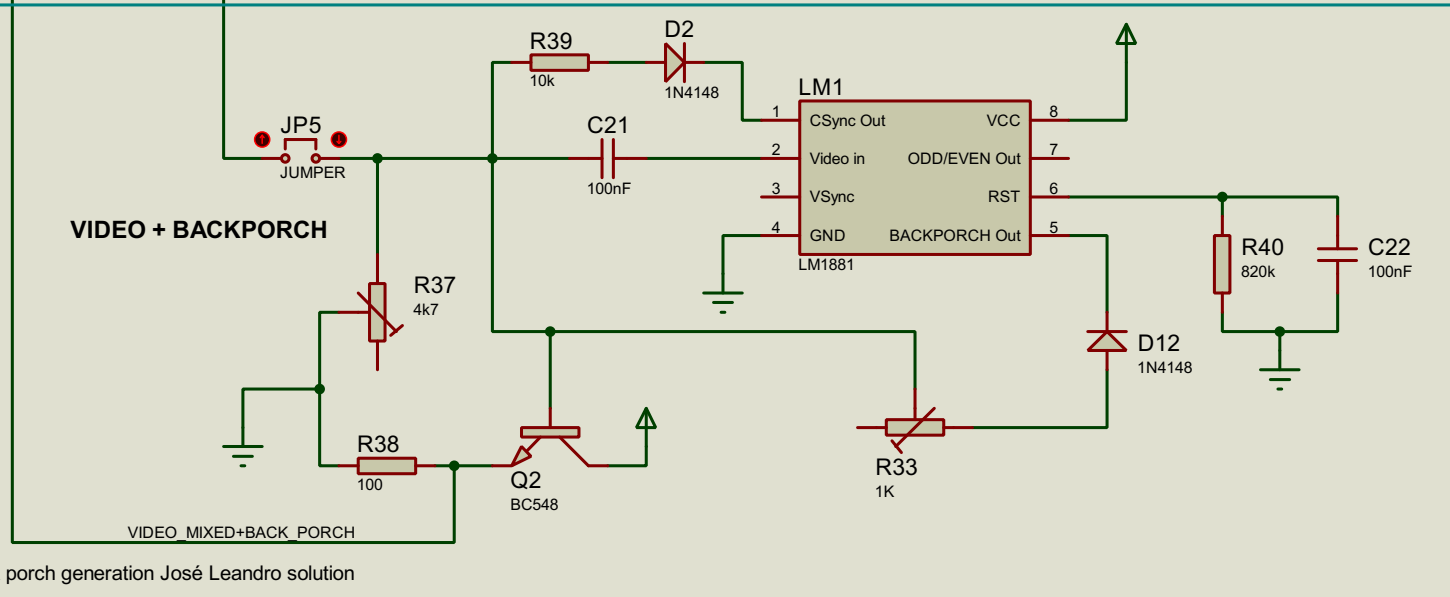
Without Backporch generation (original ZX80 video)

JP3 = 1-2

JP5 = OFF

JP6 = 1-2

VIDEO + BACKPORCH



Back porch generation José Leandro solution

ZX81 Project - Video BP

Augusto Baffa © Feb/2021

Based on original design by José Leandro