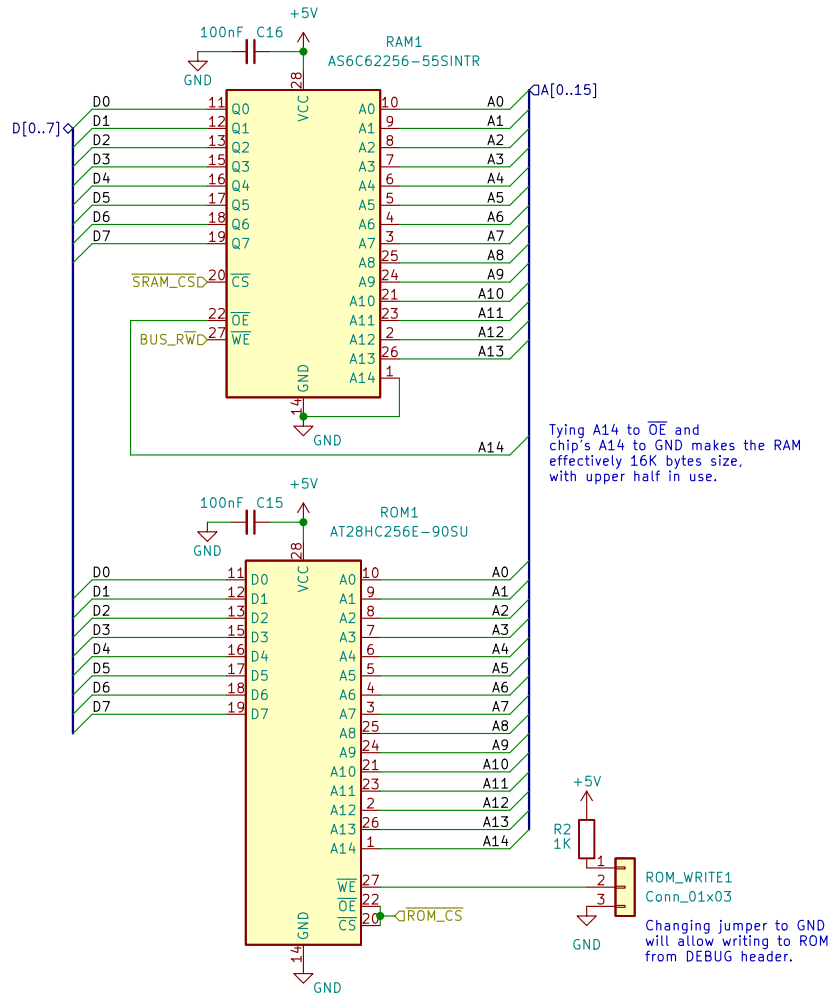


## System Memory

RAM: 0x0000 - 0x3FFF

ROM: 0x8000 - 0xFFFF



zrthxn

Sheet: /Memory Unit/  
File: memory.kicad\_sch

**Title: 8puter**

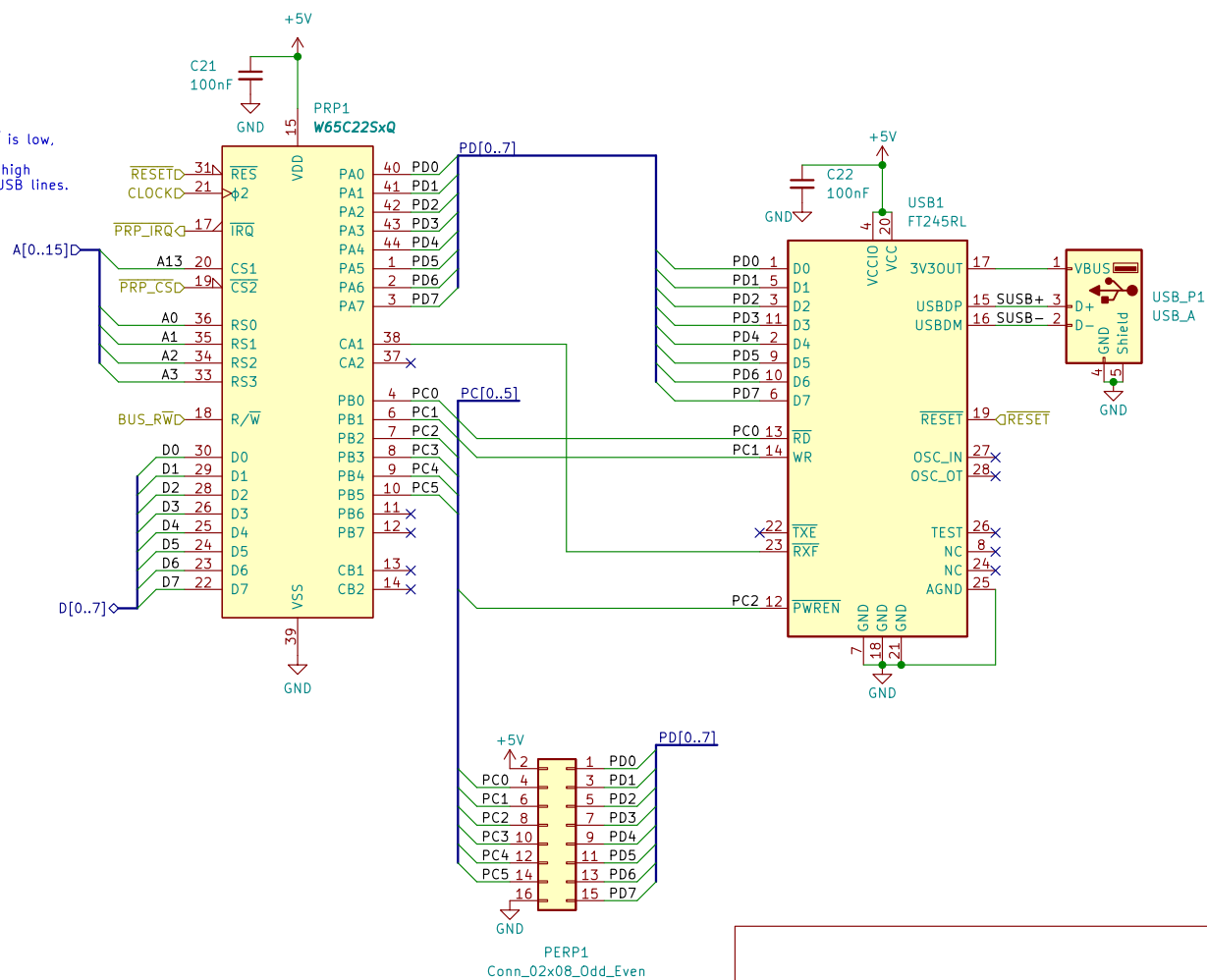
Size: A4 Date: \_\_\_\_\_  
KiCad E.D.A. eeschema 6.0.4-1.fc35

**Rev: 1.0**  
Id: 2/7

0x6000 – 0x600F

Controller's  $\overline{RD}$  (PC0) is set low.  
USB data is shifting onto PORT A.  
Controller pulls  $\overline{RXF}$  low, PORT A is latched  
onto DATA bus and IRQ is set.

When the VIA's both CS are active and  $\text{BUS\_RW}$  is low, it latches DATA bus onto PORT A. On the next clock edge, controller's WR is set high and it starts transmitting from PORT A to the USB lines. Then WR is set low again.



Sheet: /Peripheral Handler/  
File: peripheral.kicad\_sch

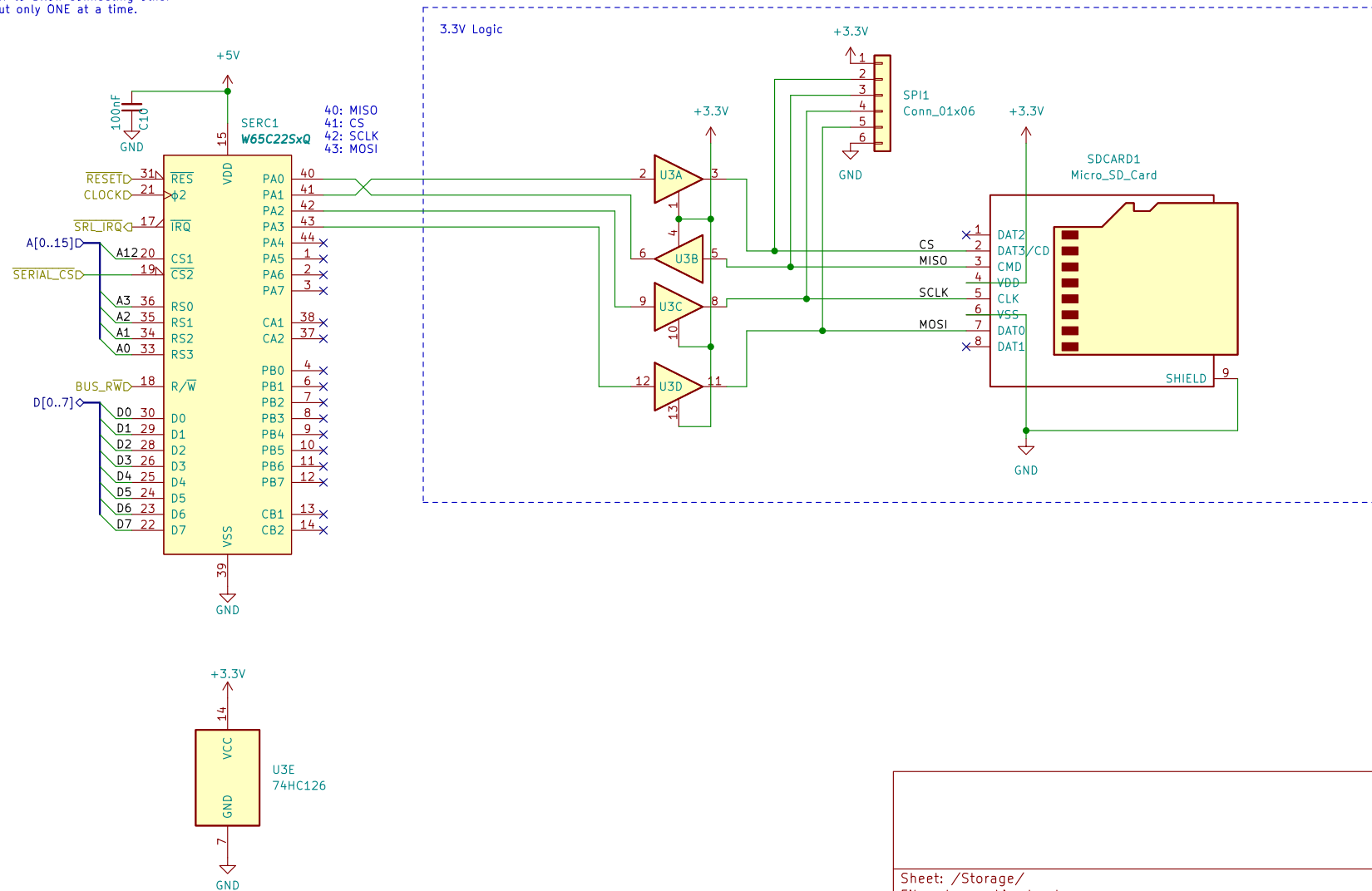
Size: A4	Date:
KiCad E.D.A. eeschema 6.0.4-1.fc35	

Size: A4	Date:	Rev: 1.0
KiCad E.D.A. eeschema 6.0.4-1.fc35		Id: 3/7

## SPI SD Card Interface

0x5000 - 0x500F

Serial SPI Interface will be used to interact primarily with SD cards. There is also a SPI Header to allow connecting other devices but only ONE at a time.



Sheet: /Storage/  
File: storage.kicad\_sch

### Title:

Size: A4 Date:  
KiCad E.D.A. eeschema 6.0.4-1.fc35

Rev:  
Id: 4/7

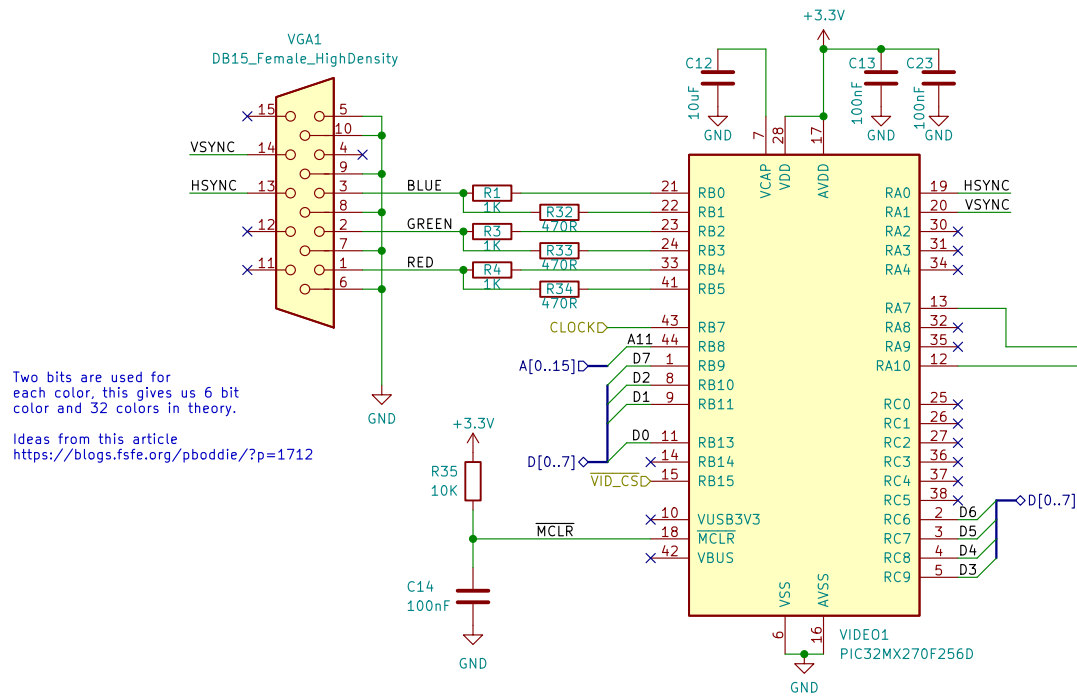
## Video Controller

0x4800 – 0x480F

Video will be generated using a microcontroller which is fast enough to generate the VGA timing signals.

CPU will send a single byte to the MCU which can be a char code or index of glyph, and the MCU just generates the video signal.

This setup is limited in generating graphics but it avoids having to keep a large framebuffer in system memory.



Two bits are used for each color, this gives us 6 bit color and 32 colors in theory.

Ideas from this article  
<https://blogs.fsfe.org/pboddie/?p=1712>

Programming can be done with  
PICkit3 programmer made by Microchip.  
They provide an IDE called MPLAB X  
which take a .hex file and flashes it into memory.

zrthxn

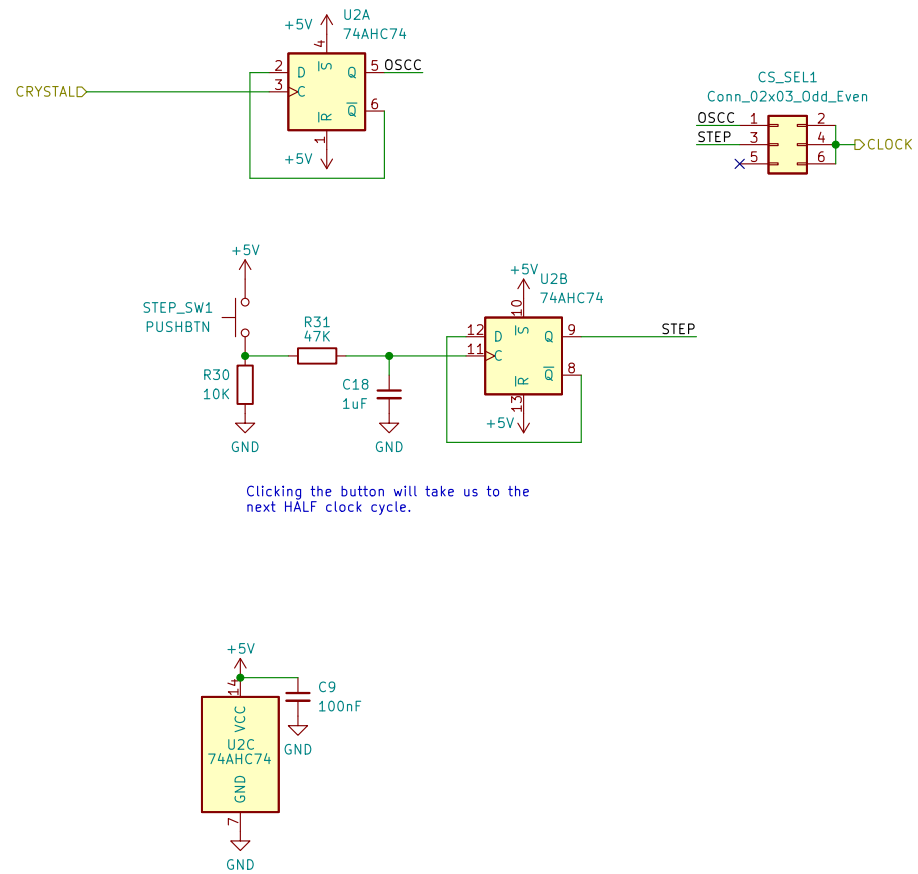
Sheet: /Video/  
File: video.kicad\_sch

**Title: 8puter**

Size: A4 Date:  
KiCad E.D.A. eeschema 6.0.4-1.fc35

**Rev: 1.0**  
Id: 5/7

## Clock Source Select



zrthxn

Sheet: /Clock/  
File: clock.kicad\_sch

**Title: 8puter**

Size: A4 Date:  
KiCad E.D.A. eeschema 6.0.4-1.fc35

**Rev: 1.0**  
Id: 6/7

Power Delivery

