



daveho hacks

Sheet: /VCount/

File: VCount.kicad_sch

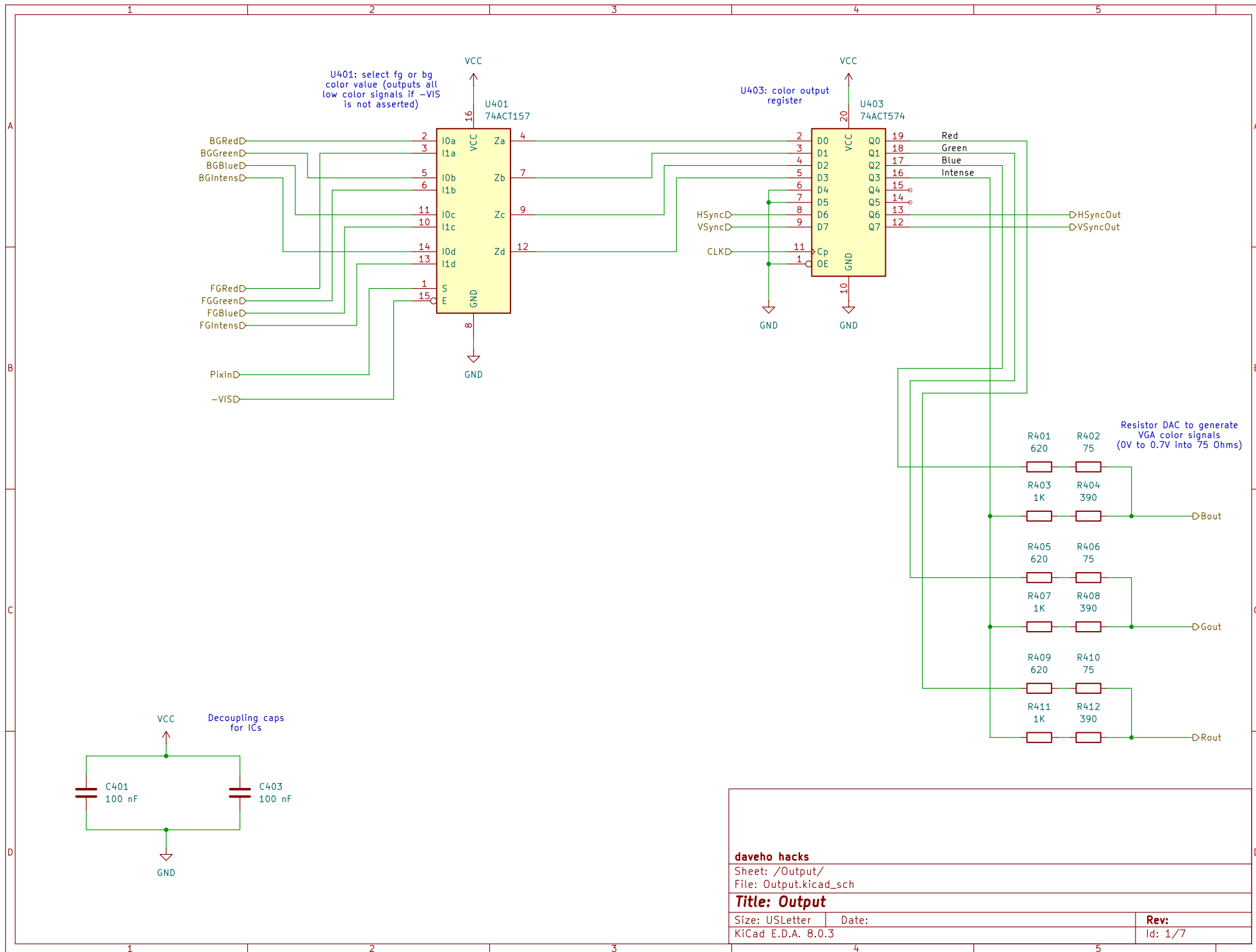
Title: Vertical count

Size: USLetter Date:

KiCad E.D.A. 8.0.3

Rev:

Id: 1/7



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Sheet: /Output/

File: Output.kicad_sch

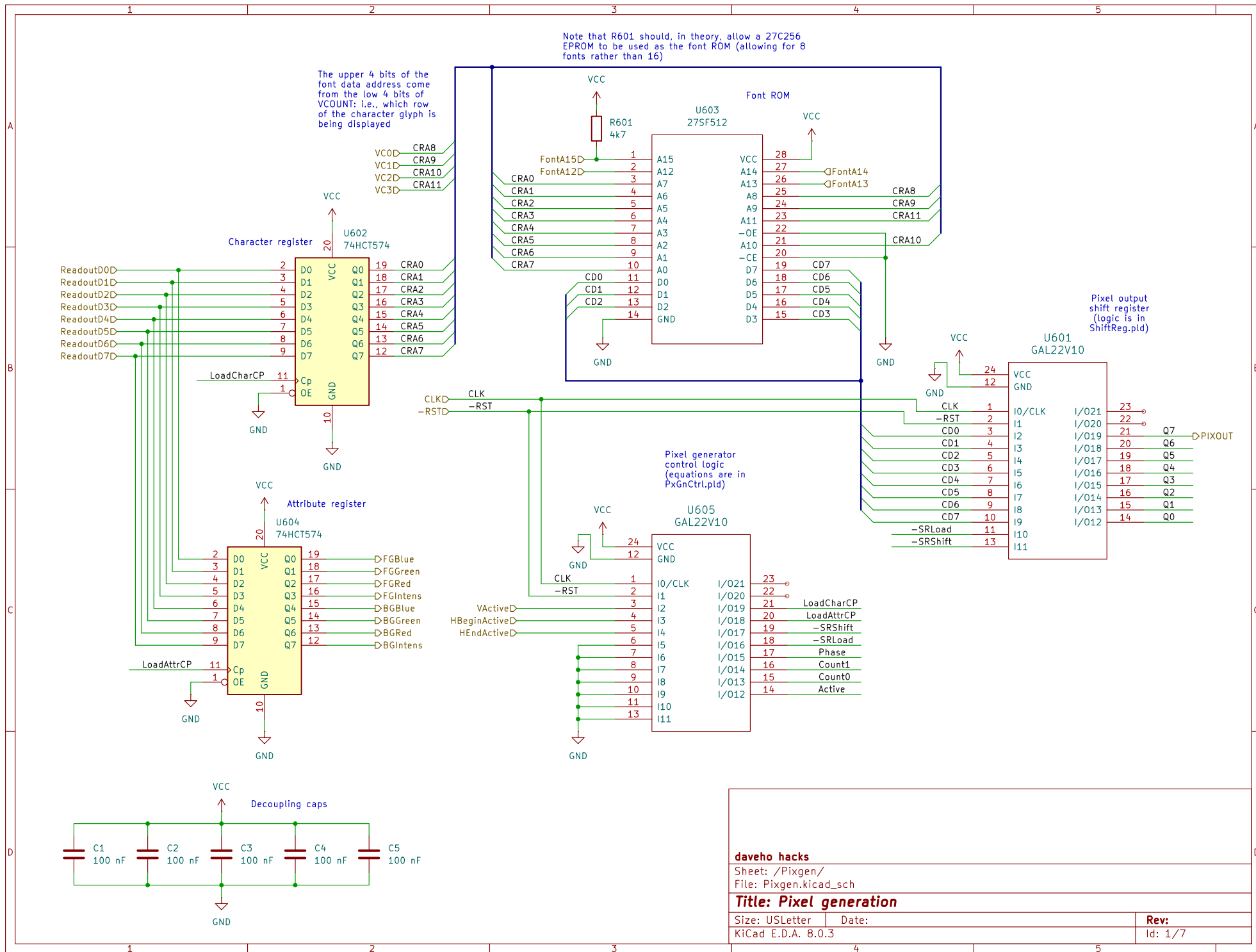
Title: Output

Size: USLetter Date:

KiCad E.D.A. 8.0.3

Rev:

Id: 1/7



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Sheet: /Pixgen/

File: Pixgen.kicad_sch

Title: Pixel generation

Size: USLetter Date:

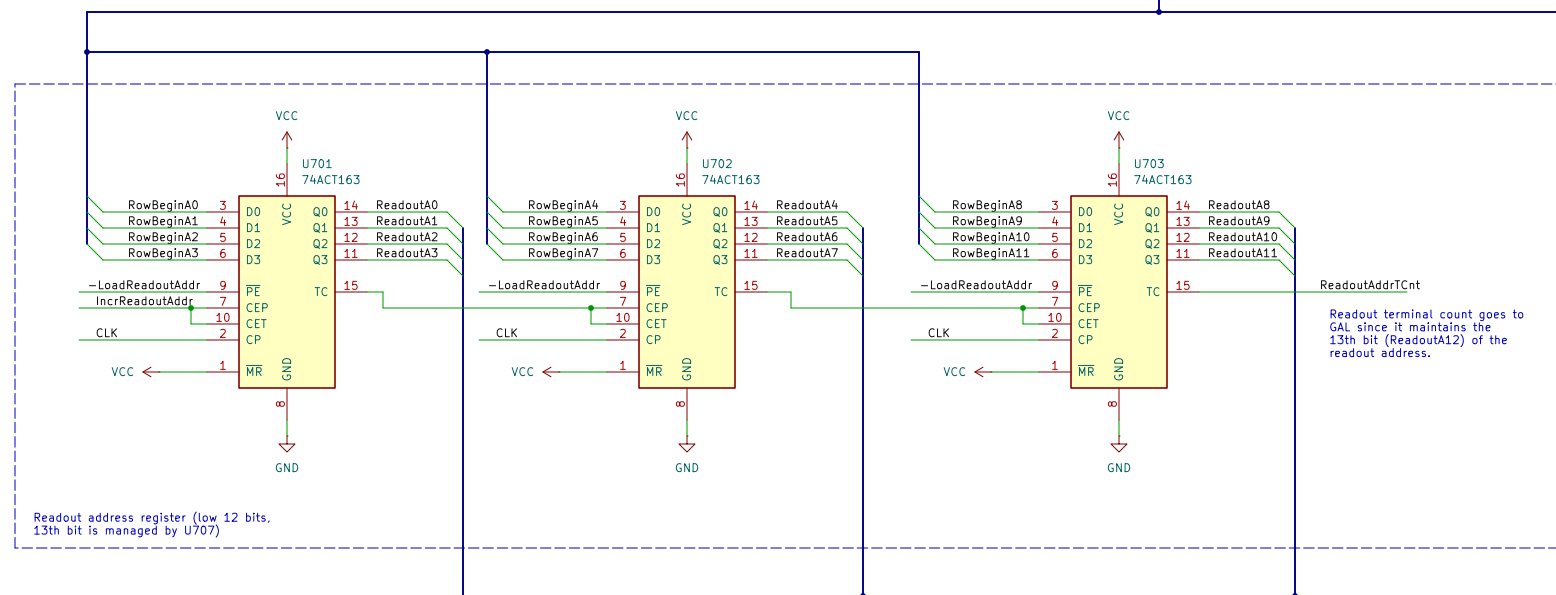
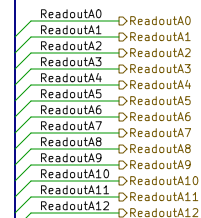
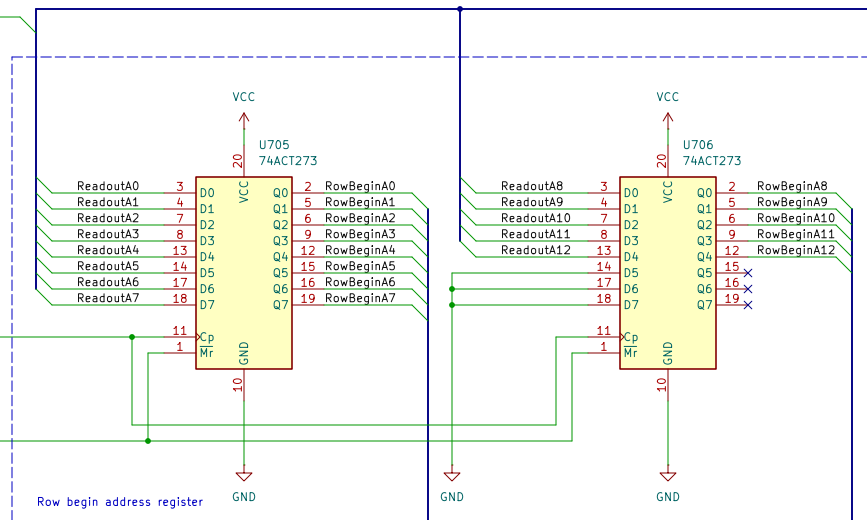
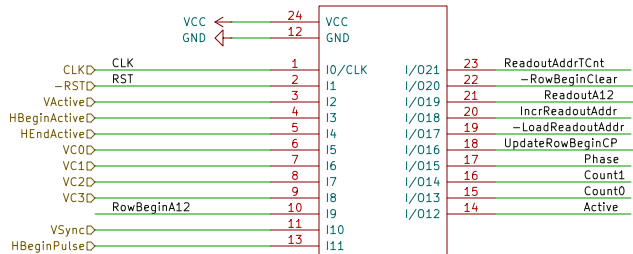
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Rev:

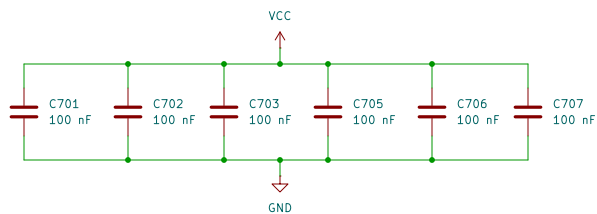
Id: 1/7

Logic is defined in
ROutCtrl.pld

U707
GAL22V10



Readout terminal count goes to
GAL since it maintains the
13th bit (ReadoutA12) of the
readout address.



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Sheet: /Readout/
File: Readout.kicad_sch

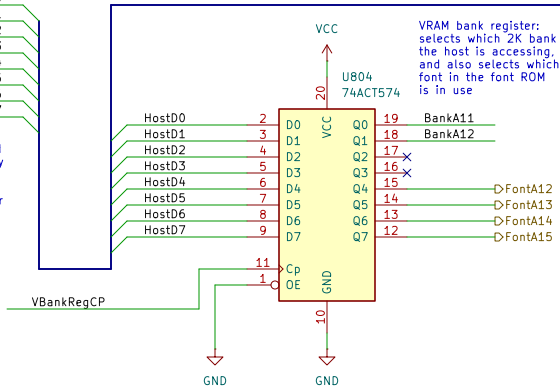
Title: Readout

Size: User Date:
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HostD0
HostD1
HostD2
HostD3
HostD4
HostD5
HostD6
HostD7

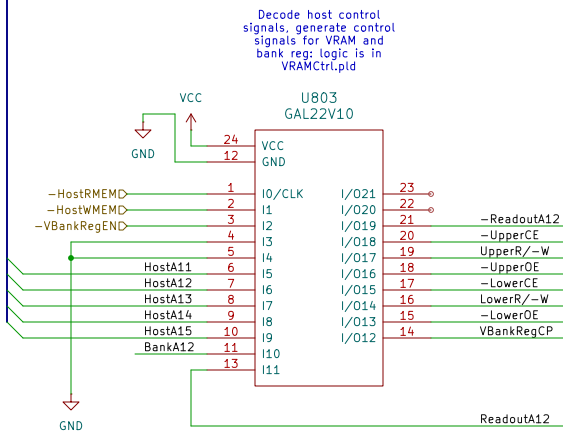
Host can read and write video memory and can write the contents of the VRAM bank register



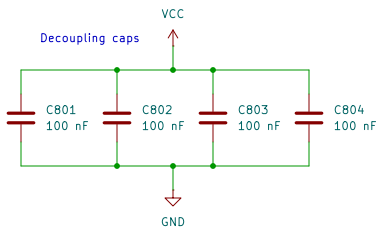
VRAM bank register:
selects which 2K bank
the host is accessing,
and also selects which
font in the font ROM
is in use

HostA0D
HostA1D
HostA2D
HostA3D
HostA4D
HostA5D
HostA6D
HostA7D
HostA8D
HostA9D
HostA10D
HostA11D
HostA12D
HostA13D
HostA14D
HostA15D

All host address lines are used because the VRAM hardware does its own address decoding (to know when video memory is being accessed by the host)



Decode host control signals, generate control signals for VRAM and bank reg; logic is in VRAMCtrl.pld

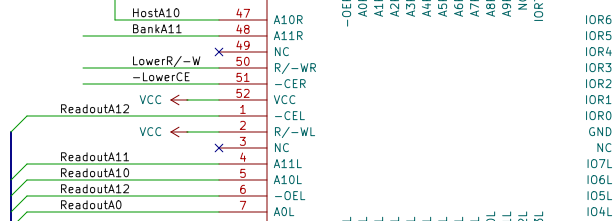


The readout address signals select which byte of video memory the memory fetch hardware wants to access. ReadoutA12 (the highest address line) is used to select the lower or upper VRAM chip.

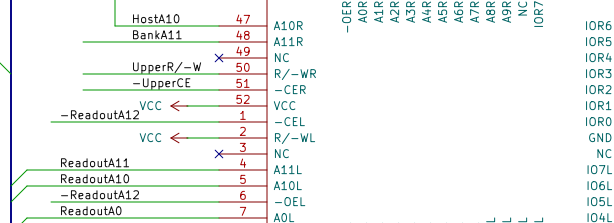
ReadoutA0D ReadoutA0
ReadoutA1D ReadoutA1
ReadoutA2D ReadoutA2
ReadoutA3D ReadoutA3
ReadoutA4D ReadoutA4
ReadoutA5D ReadoutA5
ReadoutA6D ReadoutA6
ReadoutA7D ReadoutA7
ReadoutA8D ReadoutA8
ReadoutA9D ReadoutA9
ReadoutA10D ReadoutA10
ReadoutA11D ReadoutA11
ReadoutA12D ReadoutA12

Note that the "inversion" of ReadoutA12 (generated by the control signal GAL) is used to select the high VRAM chip and enable its output.

Lower 4K VRAM

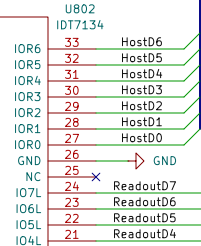
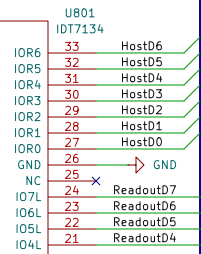


Upper 4K VRAM



Data values read from VRAM (to be used for rasterization)

ReadoutD0
ReadoutD1
ReadoutD2
ReadoutD3
ReadoutD4
ReadoutD5
ReadoutD6
ReadoutD7



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Sheet: /VRAM/
File: VRAM.kicad_sch

Title: VRAM

Size: User Date:
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