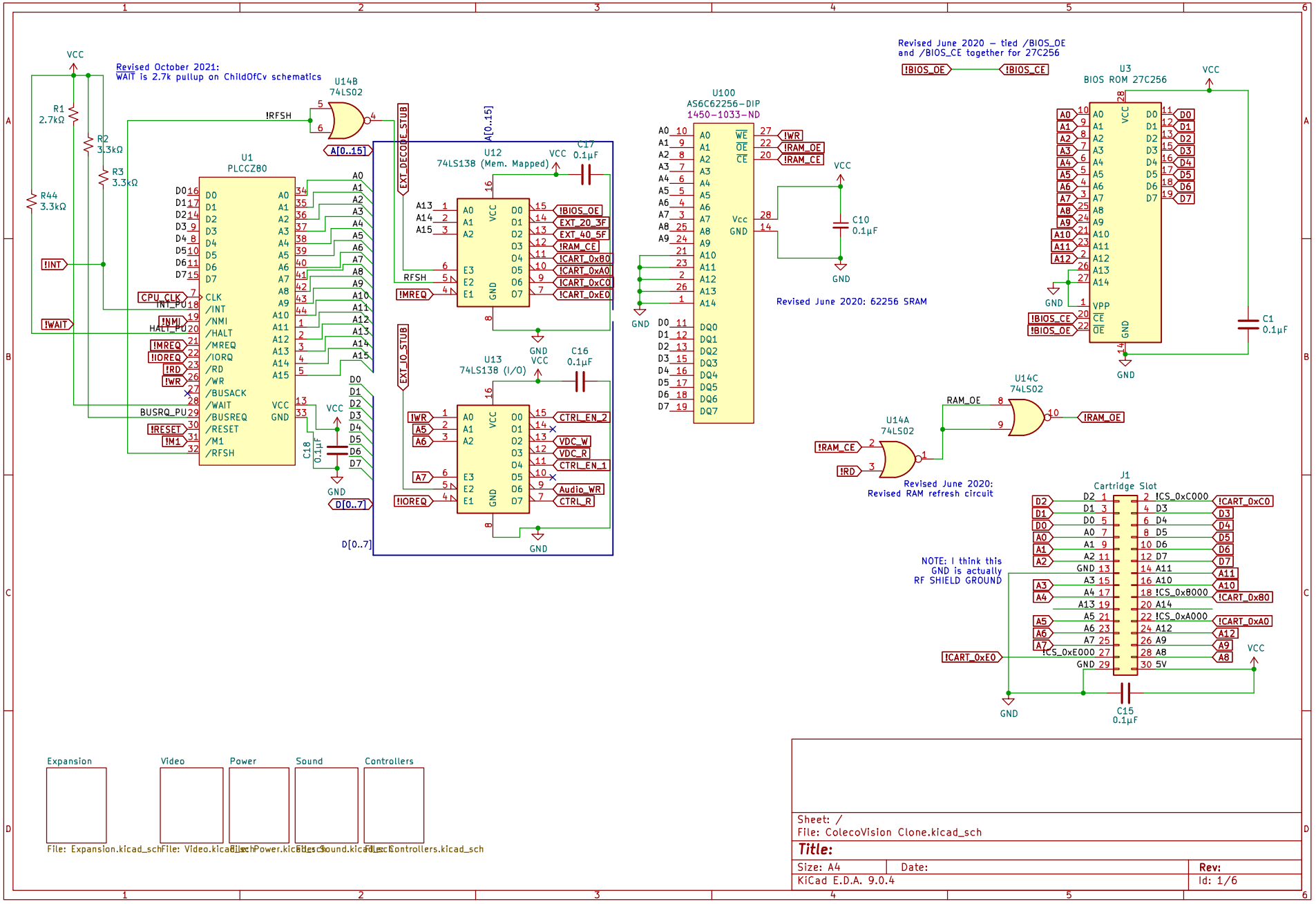
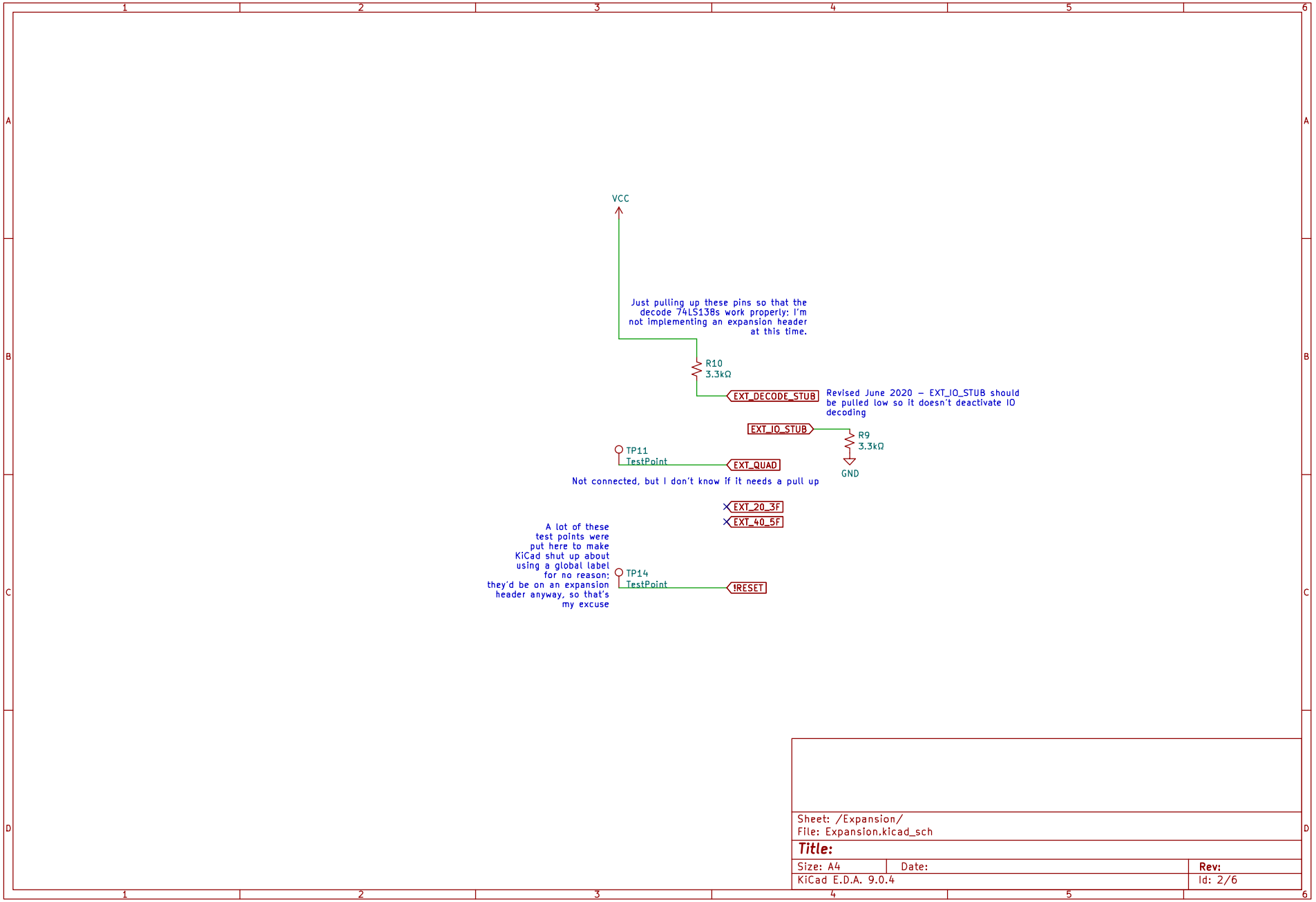
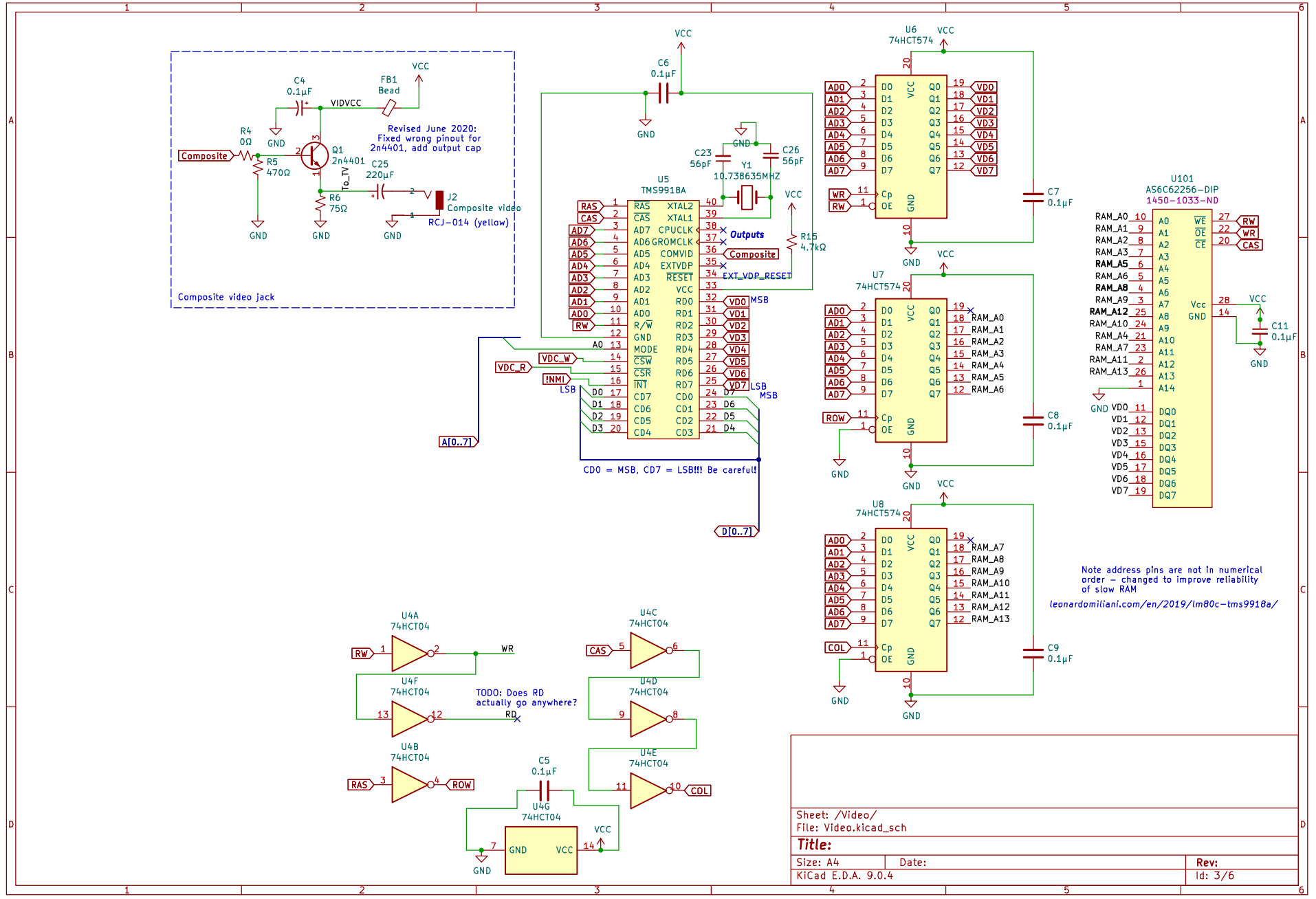
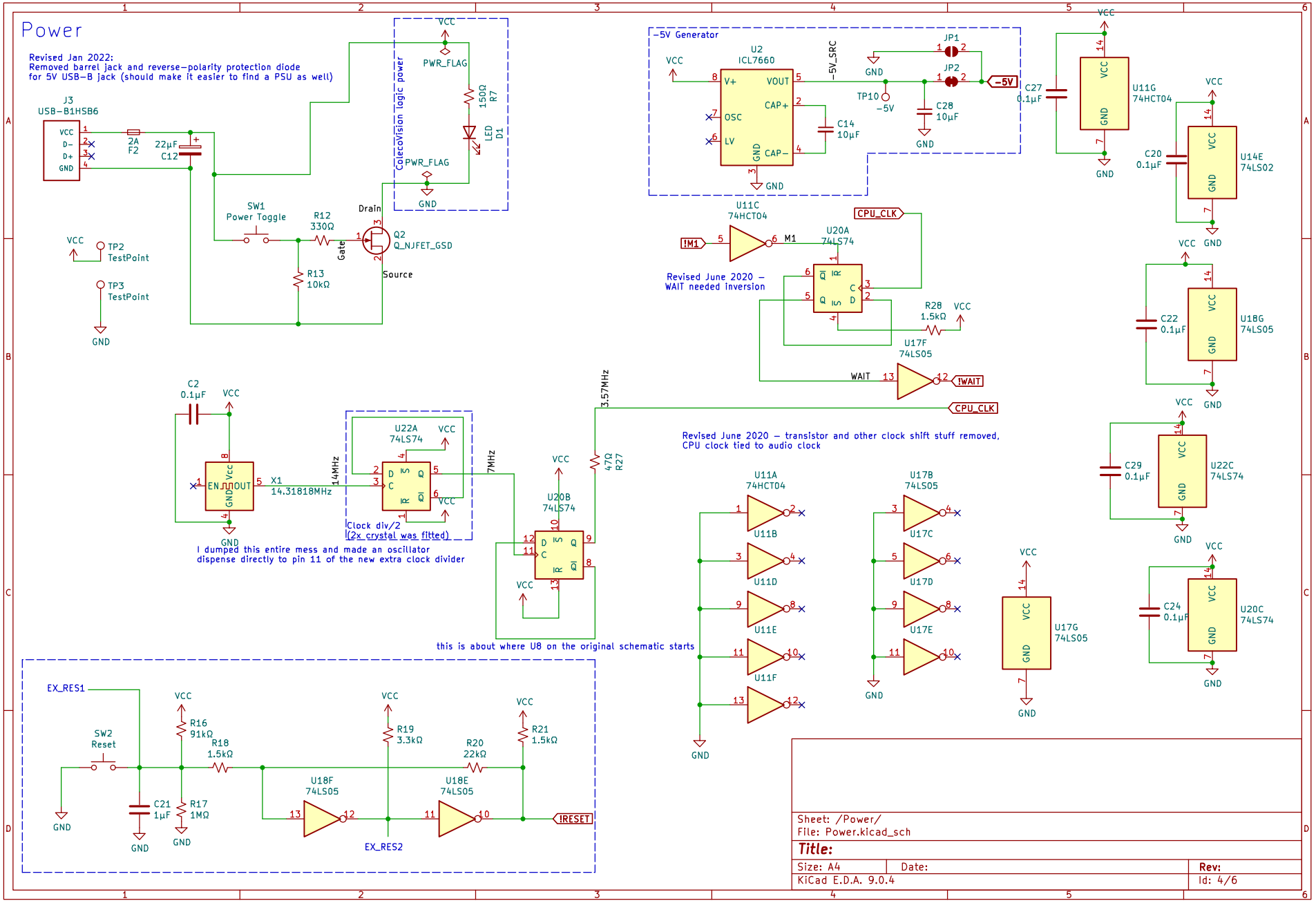
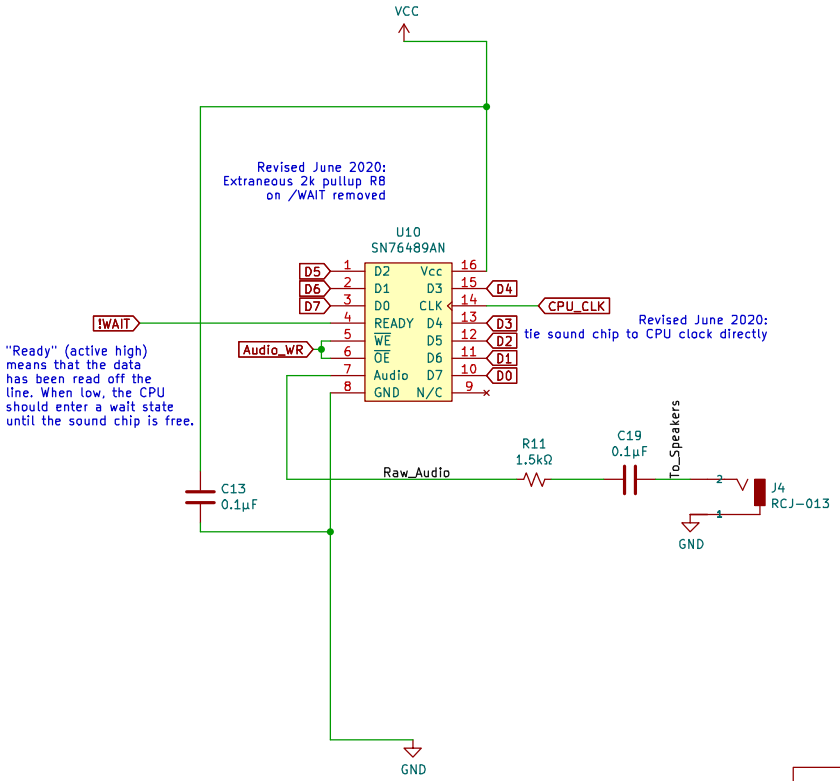

Revised October 2021:
WAIT is 2.7k pullup on ChildOfCv schematics
U14B
74LS02
!RFSH
A[0..15]
EXT_DECODE_STUB
EXT_IO_STUB
R1
2.7kΩ
R2
3.3kΩ
R3
3.3kΩ
R44
3.3kΩ
U1
PLCCZ80
!INT
!WAIT
CPU_CLK
!NMI
!MREQ
!IOREQ
!RD
!WR
BUSRQ_PU
!RESET
!M1
INT_PU
HALT_PU
C18
0.1µF
D[0..7]
U12
74LS138 (Mem. Mapped)
C17
0.1µF
A13
A14
A15
RFSH
!MREQ
!BIOS_OE
EXT_20_3F
EXT_40_5F
!RAM_CE
!CART_0x80
!CART_0xA0
!CART_0xC0
!CART_0xE0
U13
74LS138 (I/O)
C16
0.1µF
!WR
A5
A6
A7
!IOREQ
CTRL_EN_2
VDC_W
VDC_R
CTRL_EN_1
Audio_WR
CTRL_R
U100
AS6C62256-DIP
1450-1033-ND
Revised June 2020: 62256 SRAM
C10
0.1µF
Revised June 2020 – tied /BIOS_OE
and /BIOS_CE together for 27C256
U3
BIOS ROM 27C256
C1
0.1µF
U14C
74LS02
U14A
74LS02
RAM_OE
!RAM_CE
!RD
Revised June 2020:
Revised RAM refresh circuit
J1
Cartridge Slot
NOTE: I think this
GND is actually
RF SHIELD GROUND
!CS_0xC000
!CS_0x8000
!CS_0xA000
!CS_0xE000
C15
0.1µF
Expansion
Video
Power
Sound
Controllers
File: Expansion.kicad_sch
File: Video.kicad_sch
File: Power.kicad_sch
File: Sound.kicad_sch
File: Controllers.kicad_sch
Sheet: /
File: ColecoVision Clone.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 9.0.4
Id: 1/6

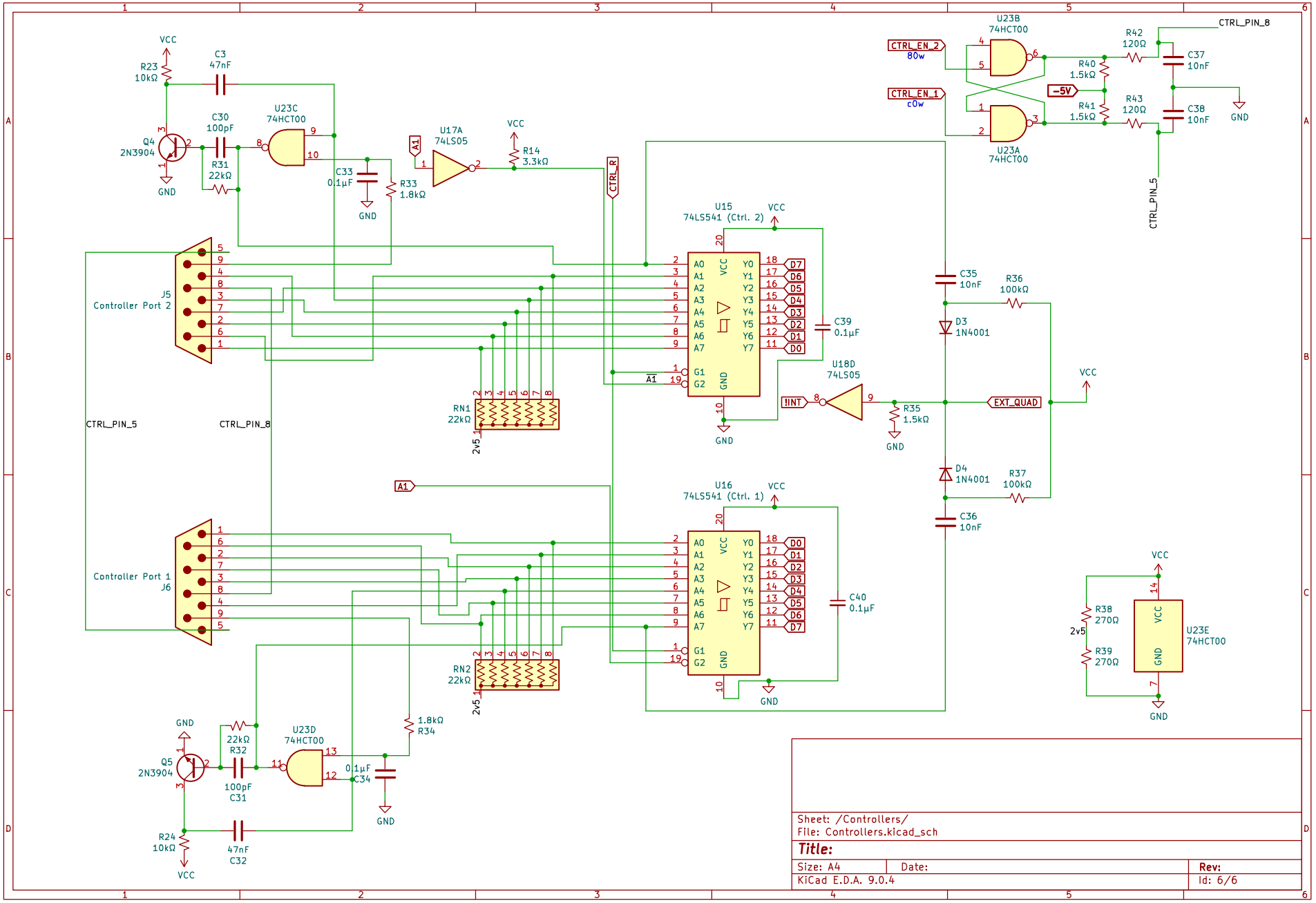

VCC
Just pulling up these pins so that the decode 74LS138s work properly: I'm not implementing an expansion header at this time.
R10
3.3kΩ
EXT_DECODE_STUB
Revised June 2020 – EXT_IO_STUB should be pulled low so it doesn't deactivate IO decoding
EXT_IO_STUB
R9
3.3kΩ
GND
TP11
TestPoint
EXT_QUAD
Not connected, but I don't know if it needs a pull up
EXT_20_3F
EXT_40_5F
A lot of these test points were put here to make KiCad shut up about using a global label for no reason: they'd be on an expansion header anyway, so that's my excuse
TP14
TestPoint
!RESET
Sheet: /Expansion/
File: Expansion.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 9.0.4
Id: 2/6


Composite video jack
C4 0.1µF
FB1 Bead
VCC
VIDVCC
R4 0Ω
GND
Q1 2n4401
Revised June 2020:
Fixed wrong pinout for
2n4401, add output cap
Composite
R5 470Ω
C25 220µF
To_TV
R6 75Ω
J2
Composite video
RCJ-014 (yellow)
C6 0.1µF
C23 56pF
C26 56pF
Y1 10.738635MHZ
U5 TMS9918A
Outputs
R15 4.7kΩ
EXT_VDP_RESET
MSB
LSB
A[0..7]
D[0..7]
VDC_R
VDC_W
!NMI
CD0 = MSB, CD7 = LSB!!! Be careful!
U6 74HCT574
U7 74HCT574
U8 74HCT574
C7 0.1µF
C8 0.1µF
C9 0.1µF
U101
AS6C62256-DIP
1450-1033-ND
C11 0.1µF
Note address pins are not in numerical order – changed to improve reliability of slow RAM
leonardomiliani.com/en/2019/lm80c-tms9918a/
U4A 74HCT04
U4B 74HCT04
U4C 74HCT04
U4D 74HCT04
U4E 74HCT04
U4F 74HCT04
U4G 74HCT04
C5 0.1µF
TODO: Does RD actually go anywhere?
Sheet: /Video/
File: Video.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 9.0.4
Id: 3/6


Power
Revised Jan 2022:
Removed barrel jack and reverse-polarity protection diode
for 5V USB-B jack (should make it easier to find a PSU as well)
J3
USB-B1HSB6
2A
F2
22µF
C12
SW1
Power Toggle
R12
330Ω
R13
10kΩ
Q2
Q_NJFET_GSD
Drain
Gate
Source
TP2
TestPoint
TP3
TestPoint
ColecoVision logic power
PWR_FLAG
150Ω
R7
LED
D1
-5V Generator
U2
ICL7660
-5V_SRC
JP1
JP2
TP10
-5V
C14
10µF
C28
10µF
C27
0.1µF
U11G
74HCT04
C20
0.1µF
U14E
74LS02
U11C
74HCT04
!M1
M1
U20A
74LS74
CPU_CLK
Revised June 2020 -
WAIT needed inversion
R28
1.5kΩ
U17F
74LS05
WAIT
!WAIT
C22
0.1µF
U18G
74LS05
C2
0.1µF
X1
14.31818MHz
14MHz
U22A
74LS74
Clock div/2
(2x crystal was fitted)
7MHz
3.57MHz
R27
47Ω
U20B
74LS74
I dumped this entire mess and made an oscillator
dispense directly to pin 11 of the new extra clock divider
this is about where U8 on the original schematic starts
Revised June 2020 - transistor and other clock shift stuff removed,
CPU clock tied to audio clock
U11A
74HCT04
U11B
U11D
U11E
U11F
U17B
74LS05
U17C
U17D
U17E
U17G
74LS05
C29
0.1µF
U22C
74LS74
C24
0.1µF
U20C
74LS74
EX_RES1
SW2
Reset
R16
91kΩ
R18
1.5kΩ
C21
1µF
R17
1MΩ
R19
3.3kΩ
R20
22kΩ
R21
1.5kΩ
U18F
74LS05
U18E
74LS05
EX_RES2
!RESET
Sheet: /Power/
File: Power.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 9.0.4
Id: 4/6




| | | |
|---|---|---|
| Sheet: /Sound/ | | |
| File: Sound.kicad_sch | | |
| **Title:** | | |
| Size: A4 | Date: | **Rev:** |
| KiCad E.D.A. 9.0.4 | | Id: 5/6 |


VCC
R23
10kΩ
C3
47nF
Q4
2N3904
C30
100pF
R31
22kΩ
U23C
74HCT00
C33
0.1µF
R33
1.8kΩ
U17A
74LS05
R14
3.3kΩ
CTRL_R
U23B
74HCT00
CTRL_EN_2
80w
CTRL_EN_1
c0w
R42
120Ω
R40
1.5kΩ
-5V
R41
1.5kΩ
R43
120Ω
C37
10nF
C38
10nF
CTRL_PIN_8
CTRL_PIN_5
U23A
74HCT00
U15
74LS541 (Ctrl. 2)
C39
0.1µF
J5
Controller Port 2
RN1
22kΩ
2v5
U18D
74LS05
!INT
R35
1.5kΩ
EXT_QUAD
C35
10nF
R36
100kΩ
D3
1N4001
D4
1N4001
R37
100kΩ
C36
10nF
U16
74LS541 (Ctrl. 1)
C40
0.1µF
Controller Port 1
J6
RN2
22kΩ
R38
270Ω
R39
270Ω
U23E
74HCT00
U23D
74HCT00
Q5
2N3904
22kΩ
R32
100pF
C31
0.1µF
C34
1.8kΩ
R34
R24
10kΩ
47nF
C32
GND
Sheet: /Controllers/
File: Controllers.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 9.0.4
Id: 6/6