bus

File: bus.kicad_sch

VDC

File: VDC.kicad_sch

GAL

File: GAL.kicad_sch

IO

File: IO.kicad_sch

power

File: power.kicad_sch

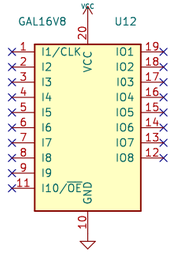
ENET

File: ENET.kicad_sch

buffers

File: buffers.kicad_sch

## SPARE GAL FOR DEBUGGING

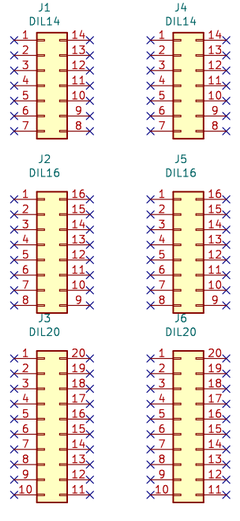



## THROUGH HOLES FOR PATCH WIRE ROUTING ACROSS SIDES

H3
MountingHole

H4
MountingHole

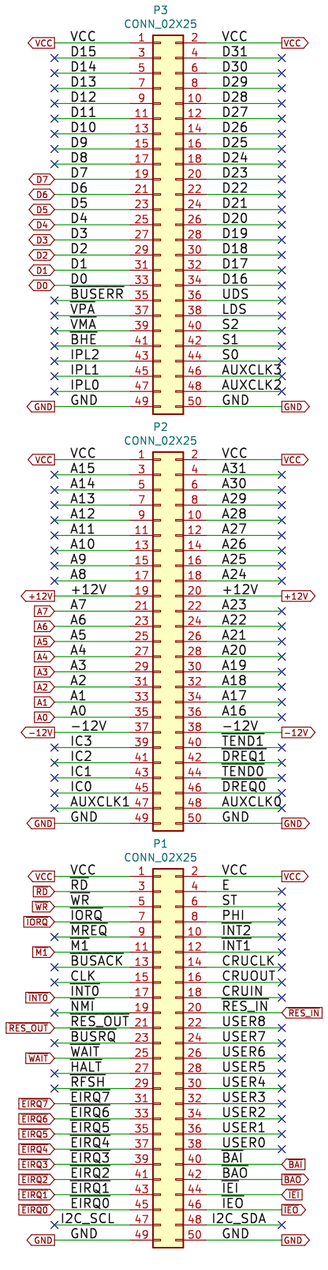
## SPARE SOCKETS FOR DEBUGGING



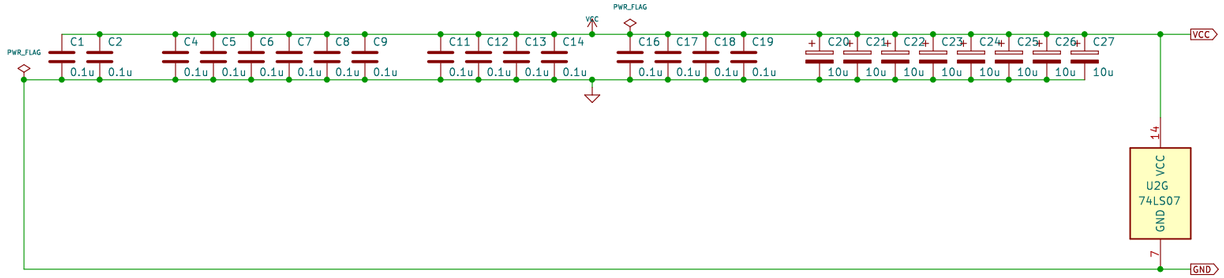

Sheet: /
File: input-output.VDCENET.kicad_sch

**Title:**

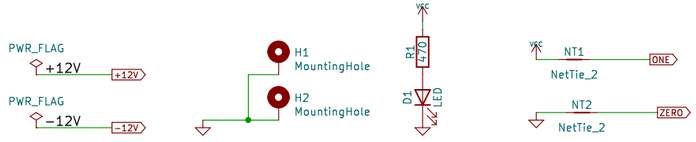
| Size: B | Date: | **Rev:** |
|---|---|---|
| KiCad E.D.A. kicad (6.0.11) | | Id: 1/8 |




| | | |
|---|---|---|
| Sheet: /bus/ | | |
| File: bus.kicad_sch | | |
| **Title:** | | |
| Size: B | Date: | **Rev:** |
| KiCad E.D.A. kicad (6.0.11) | | Id: 2/8 |




Spare Components




| | | |
|---|---|---|
| Sheet: /power/ | | |
| File: power.kicad_sch | | |
| **Title:** | | |
| Size: B | Date: | **Rev:** |
| KiCad E.D.A. kicad (6.0.11) | | Id: 3/8 |

NOTE: MOS tech data on 8568 is wrong
and Commodore C128D schematic is
right.  Pin 22 is INIT, not RESET#.
Pin 23 is RESET#, not INIT.

COLOR VDU

8568 U7

DD0 DD1 DD2 DD3 DD4 DD5 DD6 DD7

DA0 DA1 DA2 DA3 DA4 DA5 DA6 DA7

bD0 bD1 bD2 bD3 bD4 bD5 bD6 bD7

CAS# RAS# DR-W CCLK

ZERO ZERO

CV R G B I VSYN HSYN CSYNC DCLK#

CS_VDC bA0 CS_VDC RD

INTR# bRESET LP2#

4700 R3

L1 INDUCTOR

U5 DOT CLK C42 10p

DCLK#

DRAM chips must be 64Kx4
4464 or 41464

U8 U16 41464

C43 C45 C44 0.22u

DA0 DA1 DA2 DA3 DA4 DA5 DA6 DA7

DD0 DD1 DD2 DD3 DD4 DD5 DD6 DD7

ZERO DR-W RAS# CAS#

NOTE: Caution, this interface uses much lower dot clock than
nearly all VGA monitors can sync with.  Only a few monitors
support low frequency sync (Vizio VA19L HDTV10T & Acer V193HD)

U6 74LS138

A0 A1 A2 E3 E2 E1 O0 O1 O2 O3 O4 O5 O6 O7

MUST BE 74LS OR 74ALS SINCE
ONLY PULL-DOWN IS DESIRED

FIX_BROWN

74LS244 OR 74ACT244
FROM 8568

IOUT ROUT GOUT BOUT

390 R4 390 R5 390 R6 820 R8 820 R10 820 R12 820 R17

VGA-RED VGA-GREEN VGA-BLUE

I CV CSYNC

U2B U2C U2D 74LS07

R11 120 R7 120 R9 100 R13 330 R18 47 R19 82

Q1 2N3904

FB1 Ferrite_Bead_Small

MONOCHROME CVBS

Composite Video Circuit

P6 RGBI TTL

GND GND ROUT GOUT BOUT IOUT CVBS VSYNOUT LP2#

HSYNOUT CSYNOUT K3 RGBI CSYN

P26 connects to DE-9 female CGA
connector with ribbon cable crimp
Connect Pins 1, 2, 3, 5, 6, 7, 8, 9
Composite Video Output on Pin 4
Light Pen Input on Pin 10

P7

VGA-RED VGA-BLUE GND GND VCC VGA-GREEN GND GND GND VGA-CSYNC VGA-HSYNC VGA-VSYNC VGA-CSYNC

PIN13 K2

ANALOG RGB

NOTE: P7 FOR VGA
HD15F OPTION

INTR# U2A 74LS07

VDC Interrupt Circuit

J7 INTERRUPT

EIRQ0 EIRQ1 EIRQ2 EIRQ3 EIRQ4 EIRQ5 EIRQ6 EIRQ7

U9 74LS244

I B G R HSYN VSYN CSYNC ZERO ZERO ZERO

IOUT BOUT GOUT ROUT HSYNOUT VSYNOUT CSYNOUT

HSYNOUT VSYNOUT

Vertical and Horizontal Sync Circuit

VGA-HSYNC VGA-VSYNC

P5 SELECTORS SYNC

SYNC POLARITY

TO VGA CONNECTOR
(PLUS GROUNDS)

CSYNOUT

Composite Sync Circuit

CSYNC K1

VGA-CSYNC

VCC 10K R2 1000 R15 AV 180 R14 120 R16 YS AUDIO GND JP2 AUD GND GND

J10 RGB

VGA-RED VGA-GREEN VGA-BLUE CVBS

J11 Composite GND

| | |
|---|---|
| Sheet: /VDC/ | |
| File: VDC.kicad_sch | |
| **Title:** | |
| Size: B | Date: |
| KiCad E.D.A. kicad (6.0.11) | **Rev:** Id: 4/8 |

INTERNAL DECODE TO IO BASE 0300H

C54 0.1u GND

C55 0.1u GND

U18 RTL8019AS

VCC 6 17 47 57 70 89

GND 14 28 44 52 83 86

bA0 5 A0
bA1 7 A1
bA2 8 A2
bA3 9 A3
bA4 10 A4
11 A5
12 A6
ZERO 13 A7
15 A8
ONE 16 A9
18 A10
19 A11
20 A12
21 A13
22 A14
23 A15
24 A16
25 A17
26 A18
ZERO 27 A19

bD0 36 D0
bD1 37 D1
bD2 38 D2
bD3 39 D3
bD4 40 D4
bD5 41 D5
bD6 42 D6
bD7 43 D7
95 D8
94 D9
93 D10
92 D11
91 D12
90 D13
88 D14
87 D15

ONE 32 SMEMWB
31 SMEMRB

35 IOCHRDY
bRD 29 *IORB
bWR 30 *IOWB
bRESET 33 RSTDRV

CS_ENET 34 *AEN
96 IOCS16B

TPIN- 58
TPIN+ 59
TPOUT- 46
TPOUT+ 45

JP 65 ONE
AUI 64 ZERO

LEDBNC 60
LED0 61
LED1 62
LED2 63

INT0 4 ENET_INT0
INT1 3
INT2 2
INT3 1
INT4 100
INT5 99
INT6 98
INT7 97

X2 51
X1 50

EECS 76
EEDO 77
EEDI 78
EESK 79

NOTE: 1%
200 R24

P8 HR911105A
RD- 6
RD+ 3
TD- 2
TD+ 1
P4 4
P5 5
GND
Shell
Shell
NC 7
LED_GREEN_P 9
LED_GREEN_M 10
LED_YELLOW_P 12
LED_YELLOW_M 11

C58 0.01u
C59 0.01u
FB2 Ferrite_Bead_Small
8
SH
SH
GND

D6 LED
R25 1000
VCC

1000 R26
1000 R27

1K R23
20MHz X1
10p C56
10p C57

U19 93CxxC
CS 1
ORG 6
SCLK 2
DI 3
DO 4
VCC 8
GND 5

NOTE: USE AT93C46C
64X16 BIT

JP1 WAIT EN
WAIT 1 2

U2F 74LS07 12 13

NOTE: WAIT# RELIES ON
4700 PULL UP RESISTOR
ON PROCESSOR BOARD

27K R22

U2E 74LS07 11 10

J8 INTERRUPT
1 INT0
3 EIRQ0
5 EIRQ1
7 EIRQ2
9 EIRQ3
11 EIRQ4
13 EIRQ5
15 EIRQ6
17 EIRQ7

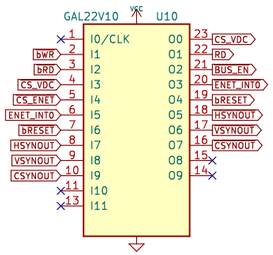
NOTE: INT0 RELIES ON
4700 PULL UP RESISTOR
ON PROCESSOR BOARD

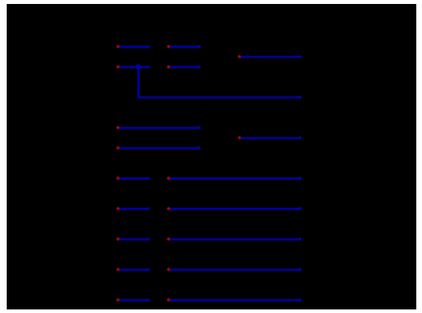
Sheet: /ENET/
File: ENET.kicad_sch

**Title:**

Size: B | Date: | **Rev:**
KiCad E.D.A. kicad (6.0.11) | Id: 5/8

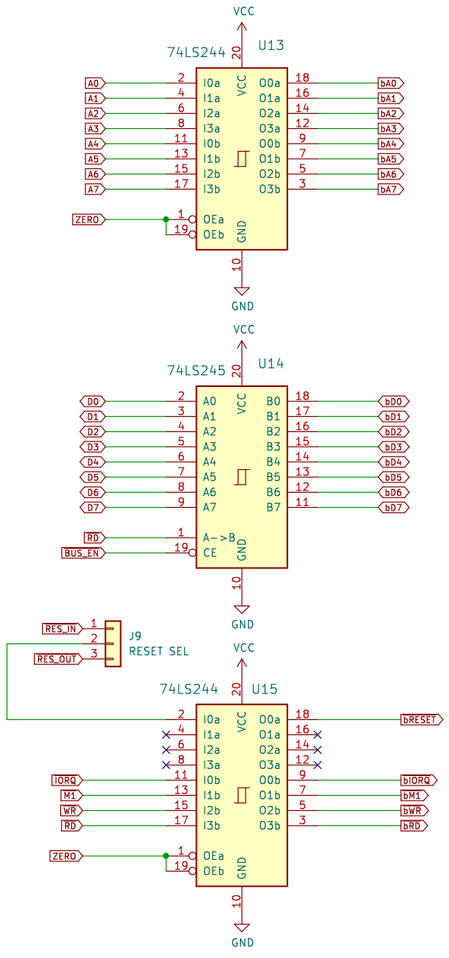
# VDCENET CS GAL22V10



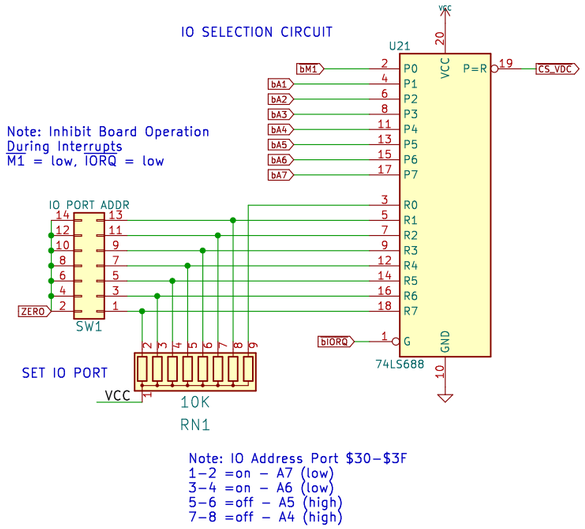
| | | |
|---|---|---|
| Sheet: /GAL/ | | |
| File: GAL.kicad_sch | | |
| **Title:** | | |
| Size: B | Date: | **Rev:** |
| KiCad E.D.A. kicad (6.0.11) | | Id: 6/8 |

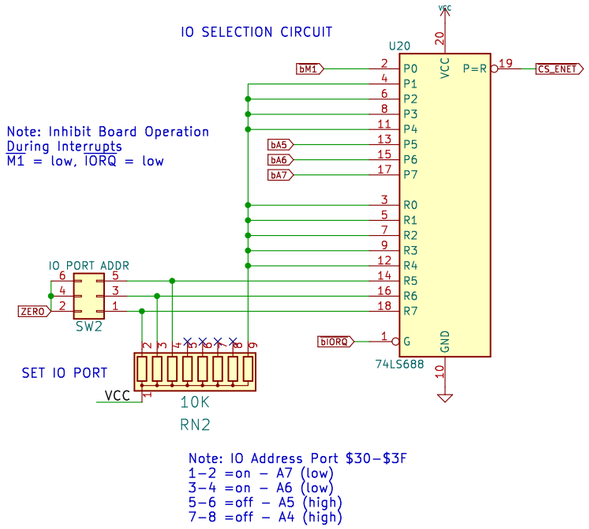
# Z80 BUS INTERFACE




Note: Buffers and Transceivers
respond to IO and MEM cycles

| | | |
|---|---|---|
| Sheet: /buffers/ | | |
| File: buffers.kicad_sch | | |
| **Title:** | | |
| Size: B | Date: | **Rev:** |
| KiCad E.D.A. kicad (6.0.11) | | Id: 7/8 |




Sheet: /IO/
File: IO.kicad_sch

**Title:**

| Size: B | Date: | **Rev:** |
|---|---|---|
| KiCad E.D.A. kicad (6.0.11) | | Id: 9/8 |