Activity and Debug LEDs

ACT
DBG_LED
R1 330
R2 330
D2 LED
D3 LED
J6
Activity_LED_Header
1
2
GND

Pull-up resistors for Raspberry Pi 3.3v Signals

+3V3
+3V3
RN2 10k
RN1 10k
PI-ATN PI-BSY PI-ACK PI-RST PI-MSG PI-SEL PI-C_D PI-REQ PI-I_O
PI-DP PI-D7 PI-D6 PI-D5 PI-D4 PI-D3 PI-D2 PI-D1 PI-D0

SCSI Termination Resistors

+5V
Term_Enable_5v
JP2
Term_Enable_GND
JP1
GND
Jumpers to enable or disable SCSI termination
RN5 220
RN3 220
RN6 330
RN4 330
C-ATN C-BSY C-ACK C-RST C-MSG C-SEL C-C_D C-REQ C-I_O
C-DP C-D7 C-D6 C-D5 C-D4 C-D3 C-D2 C-D1 C-D0

Terminating Resistor Power

D1 1N4004
+5V
R-US_0204_7
F1
TERMPOW

Raspberry Pi Connector

J1
Raspberry_Pi_2_3
+5V +3V3
5V 5V 3V3 3V3
PI-I_O 8 GPIO14/TXD
PI-C_D 10 GPIO15/RXD
ID_SD/GPIO0 27
ID_SC/GPIO1 28
PI-D4 36 GPIO16
PI-MSG 11 GPIO17
PI-SEL 12 GPIO18/PWM0
SDA/GPIO2 3 PI_SDA
SCL/GPIO3 5 PI_SCL
PI-D3 35 GPIO19/MISO1
PI-D2 38 GPIO20/MOSI1
PI-D0 40 GPIO21/SCLK1
GCLK0/GPIO4 7 PI-REQ
GCLK1/GPIO5 29 DBG_LED
GCLK2/GPIO6 31
PI-BSY 15 GPIO22
PI-ACK 16 GPIO23
PI-ATN 18 GPIO24
PI-DP 22 GPIO25
PI-D1 37 GPIO26
PI-RST 13 GPIO27
CE1/GPIO7 26
CE0/GPIO8 24
MISO0/GPIO9 21
MOSI0/GPIO10 19 ACT
SCLK0/GPIO11 23 PI-D7
PWM0/GPIO12 32 PI-D6
PWM1/GPIO13 33 PI-D5
GND
6 9 14 20 25 30 34 39 GND
GND

OLED I2C Pinout

PI_SDA 5
PI_SCL 4
+3V3 3
GND 2
+5V 1
J4

SCSI Bus Transceivers

Change direction based upon PI-I_O
Change direction based upon PI-I_O
Change direction based upon ACT
DIR = GND: B is input, A is output

74LS641
U1
+5V 20 VCC
GND 19 G
PI-DP 18 B1 DIR 1 PI-I_O
17 B2 A1 2 C-DP
16 B3 A2 3
15 B4 A3 4
14 B5 A4 5
13 B6 A5 6
12 B7 A6 7
11 B8 A7 8
GND A8 9
GND 10
GND

74LS641
U3
ACT DIR
PI-BSY 2 A1 VCC 20 +5V
3 A2 G 19
4 A3 B1 18 C-BSY
PI-MSG 5 A4 B2 17
6 A5 B3 16 C-MSG
PI-C_D 7 A6 B4 15
PI-REQ 9 A7 B5 14 C-C_D
PI-I_O A8 B6 12 C-REQ
10 GND B7 11 C-I_O
B8
GND

74LS641
U2
+5V 20 VCC
GND 19 G
PI-D7 18 B1 DIR 1 PI-I_O
PI-D6 17 B2 A1 2 C-D7
PI-D5 16 B3 A2 3 C-D6
PI-D4 15 B4 A3 4 C-D5
PI-D3 14 B5 A4 5 C-D4
PI-D2 13 B6 A5 6 C-D3
PI-D1 12 B7 A6 7 C-D2
PI-D0 11 B8 A7 8 C-D1
GND A8 9 C-D0
GND 10
GND

74LS641
U4
PI-ATN 1 DIR
2 A1 VCC 20 +5V
PI-ACK 3 A2 G 19
PI-RST 4 A3 B1 18 C-ATN
5 A4 B2 17
PI-SEL 7 A5 B3 16 C-ACK
8 A6 B4 15 C-RST
9 A7 B5 14
10 A8 B6 12 C-SEL
GND B7 11
B8
GND

Note the original RaSCSI design calls the DIR pin "ATOB"
Enable Input ("G") is active low, so always grounded.

This card include bus transceiver logic to allow a Raspberry Pi to connect to vintage 68k computers SCSI port. (It may work with other systems as well)

This design is based upon fran-cap's design
https://github.com/fran-cap/RASCSI-68kmlaver
... which was based on the original Gimmons design:
http://retropc.net/gimons/rascsi/

Thank you to everyone who has worked on this project!!

Transceivers Decoupling Capacitors

+5V
C1 100n
C2 100n
C3 100n
C4 100n
GND

Mounting Holes

H1 Hole1
H2 Hole2
H3 Hole3
H5 Hole4
H4 Hole5
H6 Hole6
GND

RTC I2C Pinout

PI_SCL 1
PI_SDA 2
+3V3 3
GND 4
J5

SCSI IDC Connector

GND
C-D0 C-D1 C-D2 C-D3 C-D4 C-D5 C-D6 C-D7 C-DP TERMPOW C-ATN C-BSY C-ACK C-RST C-MSG C-SEL C-C_D C-REQ C-I_O
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49
2x25x2.54mm_Straight J3
GND

SCSI Centronics Connector

GND
C-D0 C-D1 C-D2 C-D3 C-D4 C-D5 C-D6 C-D7 C-DP TERMPOW C-ATN C-BSY C-ACK C-RST C-MSG C-SEL C-C_D C-REQ C-I_O
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
50-PIN-CENTRONICS-F J2
GND