# J1
## EXPSLOT

| | | | |
|---|---|---|---|
| D1# | 2 | 1 | D0# |
| D3# | 4 | 3 | D2# |
| D5# | 6 | 5 | D4# |
| D7# | 8 | 7 | D6# |
| | 10 | 9 | |
| A1# | 12 | 11 | A0# |
| A5# | 14 | 13 | A4# |
| A7# | 16 | 15 | A6# |
| A9# | 18 | 17 | A8# |
| A11# | 20 | 19 | A10# |
| A13# | 22 | 21 | A12# |
| A15# | 24 | 23 | A14# |
| R/W# | 26 | 25 | RESET# |
| | 28 | 27 | |
| | 30 | 29 | PH0# |
| | 32 | 31 | |
| | 34 | 33 | |

+5V_A
PWR_FLAG
GND
PWR_FLAG
+5V_A
GND

# U2
## GAL16V8

| | | | |
|---|---|---|---|
| A4# | 1 | I0/CLK | I00 | 19 | DEVSEL# |
| A5# | 2 | I1 | I01 | 18 | PICOWR |
| A6# | 3 | I2 | I02 | 17 | PH0# |
| A7# | 4 | I3 | I03 | 16 | R/W# |
| A8# | 5 | I4 | I04 | 15 | A15# |
| A9# | 6 | I5 | I05 | 14 | A14# |
| A10# | 7 | I6 | I06 | 13 | BUF_DIR# |
| A11# | 8 | I7 | I07 | 12 | BUF_OE# |
| A12# | 9 | I8 | | | |
| A13# | 11 | I9/OE | | | |

VCC 20
GND 10
+5V
GND

# U4
## Pico
### Raspberry Pi

| | | | |
|---|---|---|---|
| | 1 | GPIO0 | VBUS | 40 | |
| | 2 | GPIO1 | VSYS | 39 | |
| | 3 | GND | GND | 38 | |
| SPI0_SCK | 4 | GPIO2 | 3V3_EN | 37 | |
| SPI0_TX | 5 | GPIO3 | 3V3 | 36 | |
| SPI0_RX | 6 | GPIO4 | ADC_VREF | 35 | |
| SPI0_CS0 | 7 | GPIO5 | GPIO28_ADC2 | 34 | SPI0_CS1 |
| | 8 | GND | AGND | 33 | |
| A0 | 9 | GPIO6 | GPIO27_ADC1 | 32 | |
| A1 | 10 | GPIO7 | GPIO26_ADC0 | 31 | |
| | 11 | GPIO8 | RUN | 30 | |
| | 12 | GPIO9 | GPIO22 | 29 | PICOWR |
| | 13 | GND | GND | 28 | |
| R/W | 14 | GPIO10 | GPIO21 | 27 | RESET |
| D0 | 15 | GPIO11 | GPIO20 | 26 | DEVSEL |
| D1 | 16 | GPIO12 | GPIO19 | 25 | PH0 |
| D2 | 17 | GPIO13 | GPIO18 | 24 | D7 |
| | 18 | GND | GND | 23 | |
| D3 | 19 | GPIO14 | GPIO17 | 22 | D6 |
| D4 | 20 | GPIO15 | GPIO16 | 21 | D5 |

SWCLK 41 GND 42 SWDIO 43
GND
PWR_FLAG D2 SS12 +5V_A
Power
+3.3V_P
GND

# U1
## 74LVCH16T245DLR

| | | | |
|---|---|---|---|
| A0# | 47 | 1A1 | 1B1 | 2 | A0 |
| A1# | 46 | 1A2 | 1B2 | 3 | A1 |
| | 44 | 1A3 | 1B3 | 5 | |
| | 43 | 1A4 | 1B4 | 6 | |
| PH0# | 41 | 1A5 | 1B5 | 8 | PH0 |
| R/W# | 40 | 1A6 | 1B6 | 9 | R/W |
| RESET# | 38 | 1A7 | 1B7 | 11 | RESET |
| DEVSEL# | 37 | 1A8 | 1B8 | 12 | DEVSEL |
| | 1 | 1DIR | | | |
| | 48 | 1OE | | | |
| D7# | 36 | 2A1 | 2B1 | 13 | D7 |
| D6# | 35 | 2A2 | 2B2 | 14 | D6 |
| D5# | 33 | 2A3 | 2B3 | 16 | D5 |
| D4# | 32 | 2A4 | 2B4 | 17 | D4 |
| D3# | 30 | 2A5 | 2B5 | 19 | D3 |
| D2# | 29 | 2A6 | 2B6 | 20 | D2 |
| D1# | 27 | 2A7 | 2B7 | 22 | D1 |
| D0# | 26 | 2A8 | 2B8 | 23 | D0 |
| BUF_DIR# | 24 | 2DIR | | | |
| BUF_OE# | 25 | 2OE | | | |

VCCA 42 VCCA 31 VCCB 7 VCCB 18
+5V +3.3V
+5V
GND
GND 45 GND 39 GND 34 GND 28
GND 4 GND 10 GND 15 GND 21
GND GND

# U3
## AMS1117-3.3

| | | |
|---|---|---|
| 3 | VI | VO | 2 |

GND 1
+5V_A D1 SS12 +5V
PWR_FLAG
C4 22uF
C5 22uF
+3.3V
GND

C1 0.1u  C2 0.1u  C3 0.1u
+5V
GND

C6 0.1u  C7 0.1u
+3.3V
GND

RN1 47k
8 7 6 5
1 2 3 4
+3.3V_P
BUF_OE#
DEVSEL#
+5V

# U5
## W25Q01JVZE

| | | |
|---|---|---|
| SPI0_CS0 | 1 | CS |
| SPI0_SCK | 6 | CLK |
| SPI0_TX | 5 | DI(IO0) |
| SPI0_RX | 2 | DO(IO1) |
| | 3 | WP(IO2) |
| | 7 | HOLD(IO3) |

VCC 8
GND 4
+3.3V_P
GND

# U6
## W25Q01JVZE

| | | |
|---|---|---|
| SPI0_CS1 | 1 | CS |
| SPI0_SCK | 6 | CLK |
| SPI0_TX | 5 | DI(IO0) |
| SPI0_RX | 2 | DO(IO1) |
| | 3 | WP(IO2) |
| | 7 | HOLD(IO3) |

VCC 8
GND 4
+3.3V_P
GND

C8 0.1u  C9 0.1u
+3.3V_P
GND

1) Power can be supplied to USB port of Pico. The diodes make sure
the current from Pico USB port cannot flow into Apple.
2) The flash chips are powered by 3.3V from Pico so that
they can be accessed when Apple is turned off but Pico is powered
by USB port.
3) A 3.3V regulator provides power to 5V-to-3.3V level shifter
to make sure the level  shifter is powered when Pico is removed.