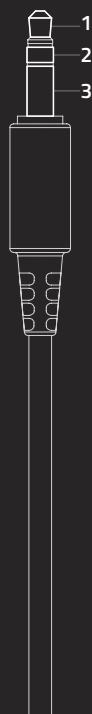
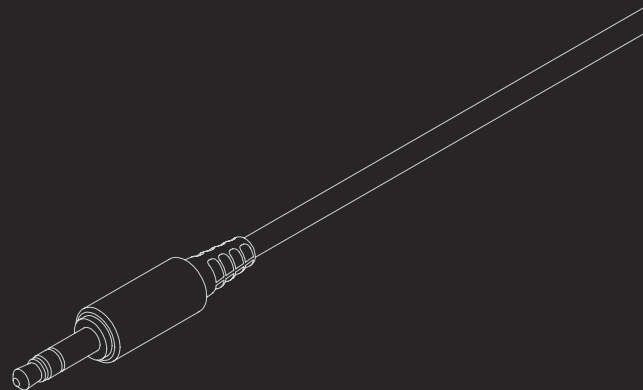
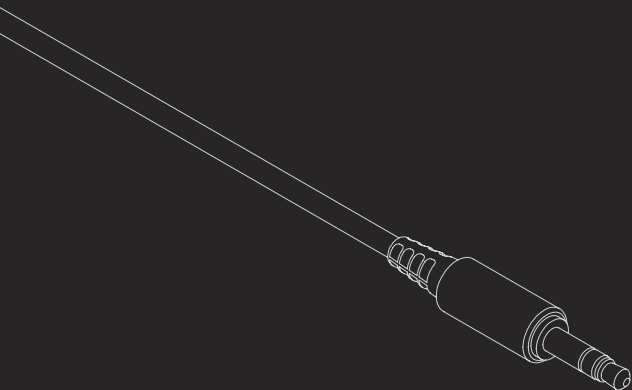


| # | NAME   | TYPICAL FUNCTION* |
|---|--------|-------------------|
| 1 | TIP    | MONO SIGNAL (+)   |
| 2 | SLEEVE | GROUND (-)        |

*\*May vary depending on application*

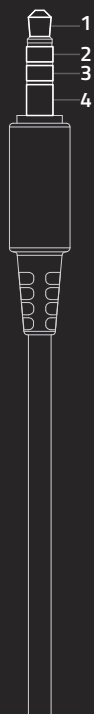
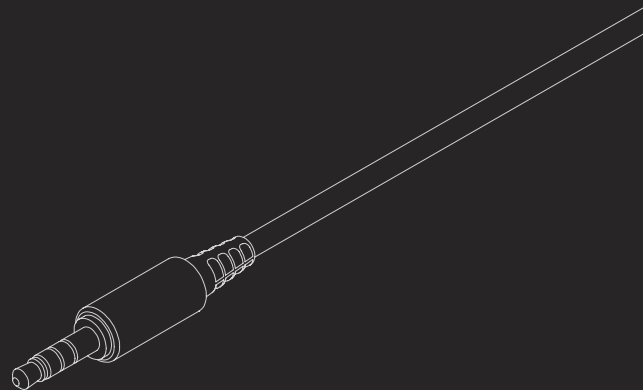
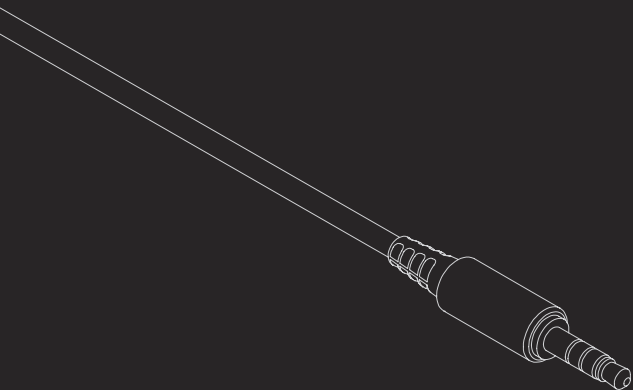
CONNECTORS / AUDIO & VIDEO / 3.5MM (3 CONTACT / TRS)

[PINOUTS.ORG/A02](http://PINOUTS.ORG/A02)



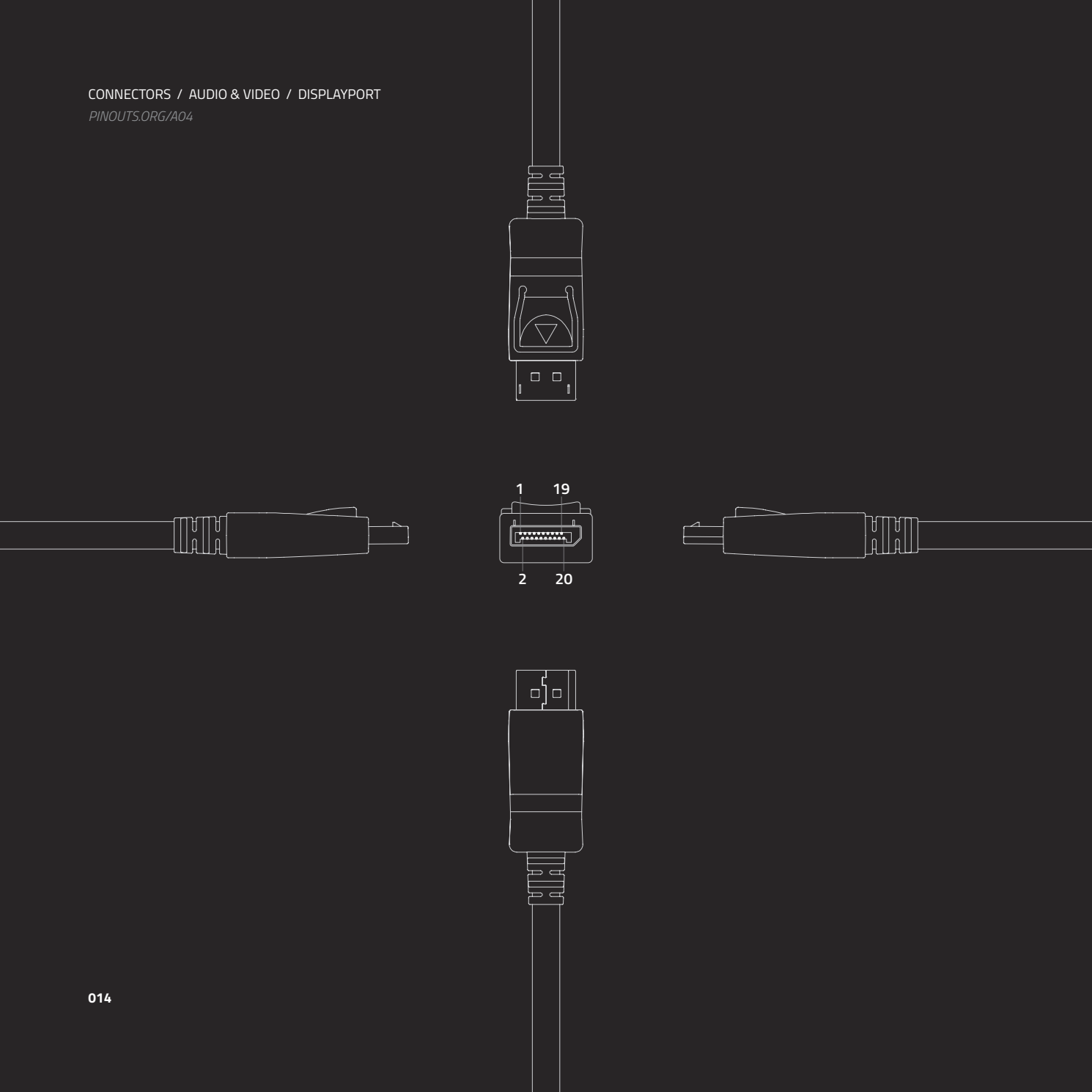
| # | NAME   | TYPICAL FUNCTION* |
|---|--------|-------------------|
| 1 | TIP    | LEFT CHANNEL      |
| 2 | RING   | RIGHT CHANNEL     |
| 3 | SLEEVE | GROUND            |

*\*May vary depending on application*



| # | NAME   | TYPICAL FUNCTION* |
|---|--------|-------------------|
| 1 | TIP    | LEFT CHANNEL      |
| 2 | RING   | RIGHT CHANNEL     |
| 3 | RING   | GROUND            |
| 4 | SLEEVE | MICROPHONE        |

*\*May vary depending on application*



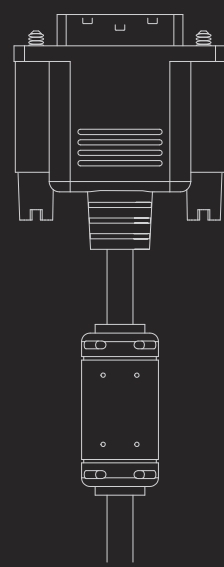
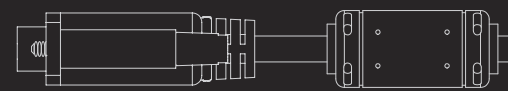
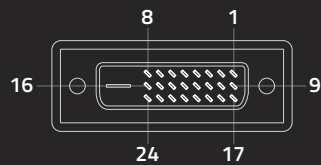
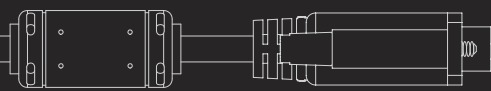
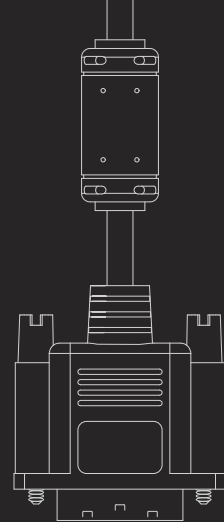
| SOURCE / DOWNSTREAM SIDE |           |                 |
|--------------------------|-----------|-----------------|
| #                        | NAME      | NOTES           |
| 1                        | OUT       | ML_LANE 0 (+)   |
| 2                        | GND       | GROUND          |
| 3                        | OUT       | ML_LANE 0 (-)   |
| 4                        | OUT       | ML_LANE 1 (+)   |
| 5                        | GND       | GROUND          |
| 6                        | OUT       | ML_LANE 1 (-)   |
| 7                        | OUT       | ML_LANE 2 (+)   |
| 8                        | GND       | GROUND          |
| 9                        | OUT       | ML_LANE 2 (-)   |
| 10                       | OUT       | ML_LANE 3 (+)   |
| 11                       | GND       | GROUND          |
| 12                       | OUT       | ML_LANE 3 (-)   |
| 13                       | CONFIG*   | CONFIG1         |
| 14                       | CONFIG*   | CONFIG2         |
| 15                       | I/O       | AUX CH (+)      |
| 16                       | GND       | GROUND          |
| 17                       | I/O       | AUX CH (-)      |
| 18                       | IN        | HOT PLUG DETECT |
| 19                       | RTN       | RETURN          |
| 20                       | PWR OUT** | DP_PWR          |

| RECEIVING / UPSTREAM SIDE |           |                 |
|---------------------------|-----------|-----------------|
| #                         | NAME      | NOTES           |
| 1                         | IN        | ML_LANE 3 (-)   |
| 2                         | GND       | GROUND          |
| 3                         | IN        | ML_LANE 3 (+)   |
| 4                         | IN        | ML_LANE 2 (-)   |
| 5                         | GND       | GROUND          |
| 6                         | IN        | ML_LANE 2 (+)   |
| 7                         | IN        | ML_LANE 1 (-)   |
| 8                         | GND       | GROUND          |
| 9                         | IN        | ML_LANE 1 (+)   |
| 10                        | IN        | ML_LANE 0 (-)   |
| 11                        | GND       | GROUND          |
| 12                        | IN        | ML_LANE 0 (+)   |
| 13                        | CONFIG*   | CONFIG1         |
| 14                        | CONFIG*   | CONFIG2         |
| 15                        | I/O       | AUX CH (+)      |
| 16                        | GND       | GROUND          |
| 17                        | I/O       | AUX CH (-)      |
| 18                        | OUT       | HOT PLUG DETECT |
| 19                        | RTN       | RETURN          |
| 20                        | PWR OUT** | DP_PWR          |

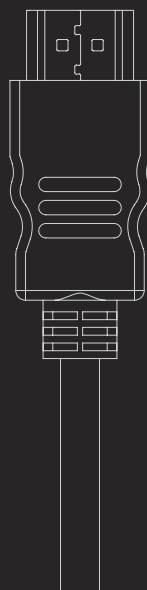
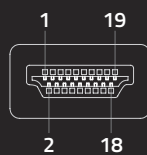
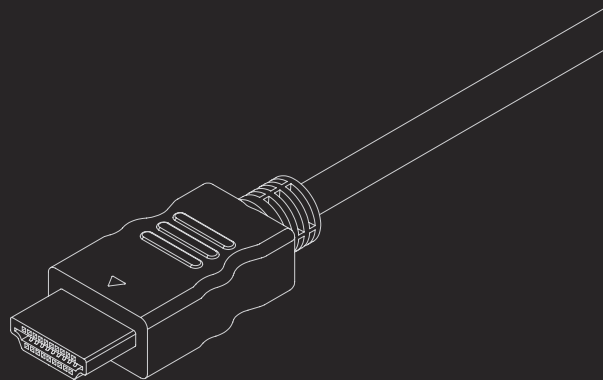
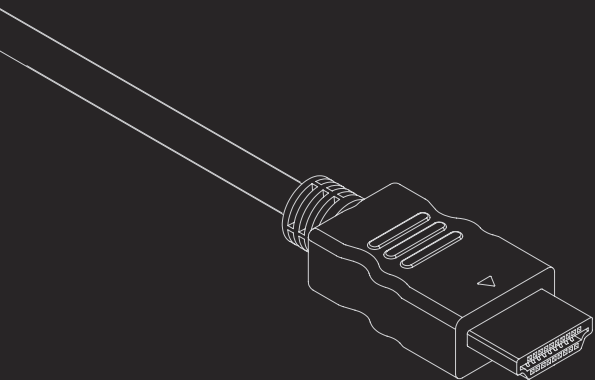
\* 13 & 14 must be connected to ground through a pull-down device

\*\* Must provide +3.3V  $\pm$  10% with a max current of 500mA and a min capability of 1.5 watts

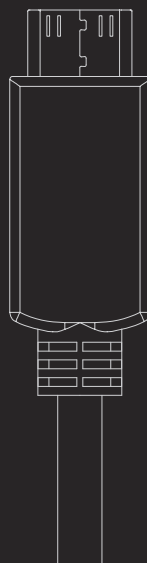
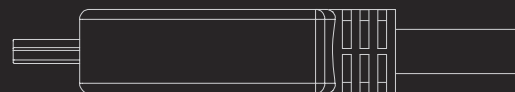
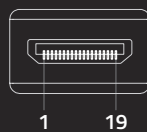
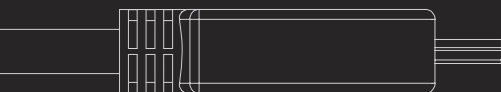
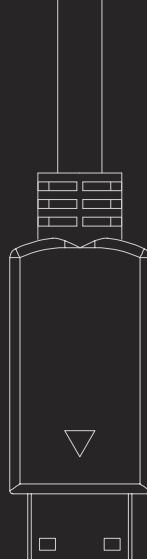




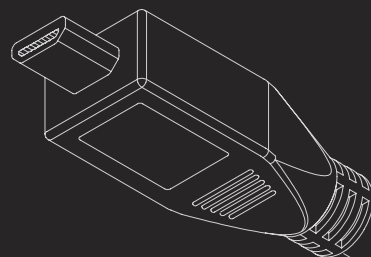
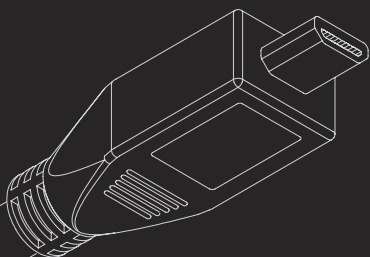
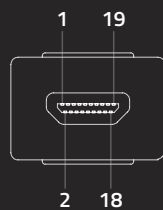
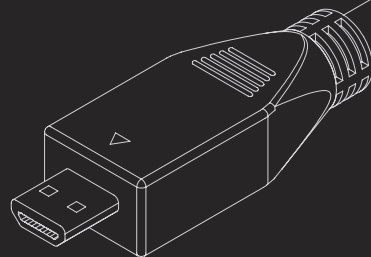
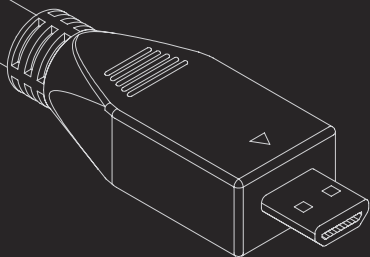
| #  | NAME                | #  | NAME                |
|----|---------------------|----|---------------------|
| 1  | TMDS DATA2-         | 13 | TMDS DATA3+         |
| 2  | TMDS DATA2+         | 14 | +5V POWER           |
| 3  | TMDS DATA2/4 SHIELD | 15 | GROUND (FOR +5V)    |
| 4  | TMDS DATA4-         | 16 | HOT PLUG DETECT     |
| 5  | TMDS DATA4+         | 17 | TMDS DATA0-         |
| 6  | DDC CLOCK           | 18 | TMDS DATA0+         |
| 7  | DDC DATA            | 19 | TMDS DATA0/5 SHIELD |
| 8  | NO CONNECT          | 20 | TMDS DATA5-         |
| 9  | TMDS DATA1-         | 21 | TMDS DATA5+         |
| 10 | TMDS DATA1+         | 22 | TMDS CLOCK SHIELD   |
| 11 | TMDS DATA1/3 SHIELD | 23 | TMDS CLOCK+         |
| 12 | TMDS DATA3-         | 24 | TMDS CLOCK-         |



| #  | NAME                 |
|----|----------------------|
| 1  | TMDS DATA2+          |
| 2  | TMDS DATA2 SHIELD    |
| 3  | TMDS DATA2-          |
| 4  | TMDS DATA1+          |
| 5  | TMDS DATA1 SHIELD    |
| 6  | TMDS DATA1-          |
| 7  | TMDS DATA0+          |
| 8  | TMDS DATA0 SHIELD    |
| 9  | TMDS DATA0-          |
| 10 | TMDS CLOCK+          |
| 11 | TMDS CLOCK SHIELD    |
| 12 | TMDS CLOCK-          |
| 13 | CEC                  |
| 14 | UTILITY              |
| 15 | SCL                  |
| 16 | SDA                  |
| 17 | DDC/CEC GROUND       |
| 18 | +5V POWER (MIN 55mA) |
| 19 | HOT PLUG DETECT      |

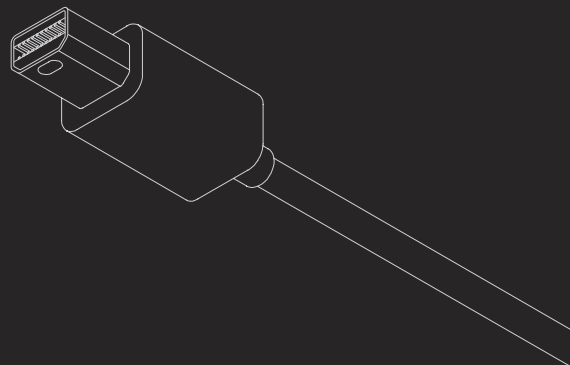
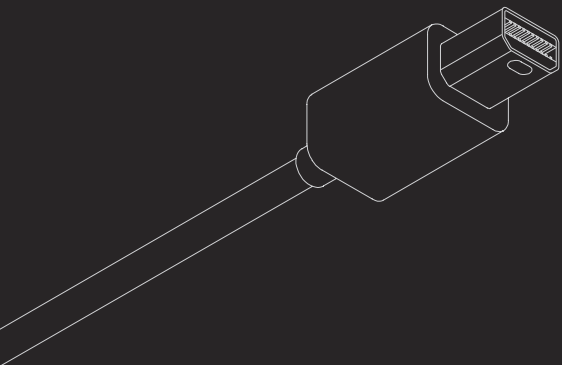
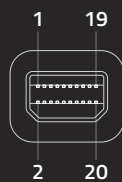
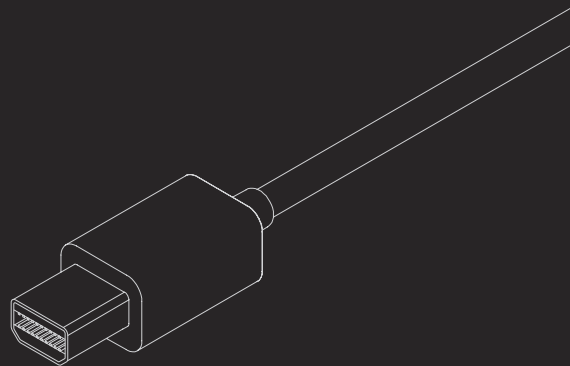
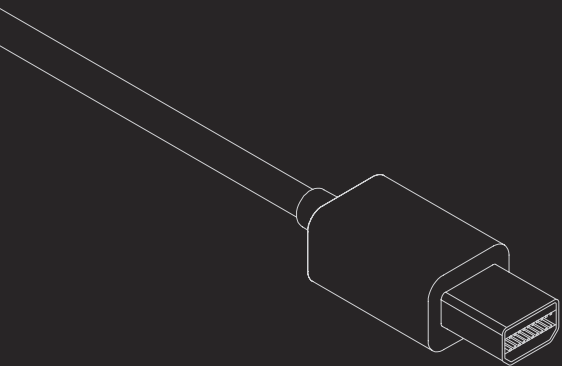


| #  | NAME                 |
|----|----------------------|
| 1  | TMDS DATA2 SHIELD    |
| 2  | TMDS DATA2+          |
| 3  | TMDS DATA2-          |
| 4  | TMDS DATA1 SHIELD    |
| 5  | TMDS DATA1+          |
| 6  | TMDS DATA1-          |
| 7  | TMDS DATA0 SHIELD    |
| 8  | TMDS DATA0+          |
| 9  | TMDS DATA0-          |
| 10 | TMDS CLOCK SHIELD    |
| 11 | TMDS CLOCK+          |
| 12 | TMDS CLOCK-          |
| 13 | DDC/CEC GROUND       |
| 14 | CEC                  |
| 15 | SCL                  |
| 16 | SDA                  |
| 17 | UTILITY              |
| 18 | +5V POWER (MIN 55mA) |
| 19 | HOT PLUG DETECT      |



| #  | NAME                 |
|----|----------------------|
| 1  | HOT PLUG DETECT      |
| 2  | UTILITY              |
| 3  | TMDS DATA2+          |
| 4  | TMDS DATA2 SHIELD    |
| 5  | TMDS DATA2-          |
| 6  | TMDS DATA1+          |
| 7  | TMDS DATA1 SHIELD    |
| 8  | TMDS DATA1-          |
| 9  | TMDS DATA0+          |
| 10 | TMDS DATA0 SHIELD    |
| 11 | TMDS DATA0-          |
| 12 | TMDS CLOCK+          |
| 13 | TMDS CLOCK SHIELD    |
| 14 | TMDS CLOCK-          |
| 15 | CEC                  |
| 16 | DDC/CEC GROUND       |
| 17 | SCL                  |
| 18 | SDA                  |
| 19 | +5V POWER (MIN 55mA) |

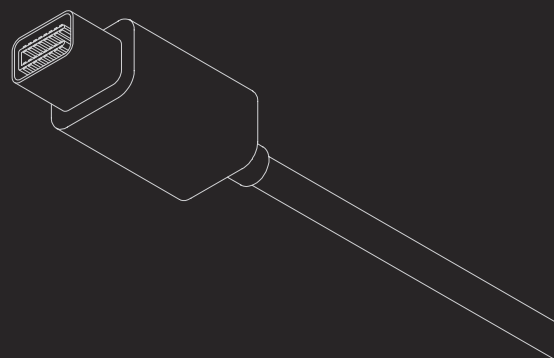
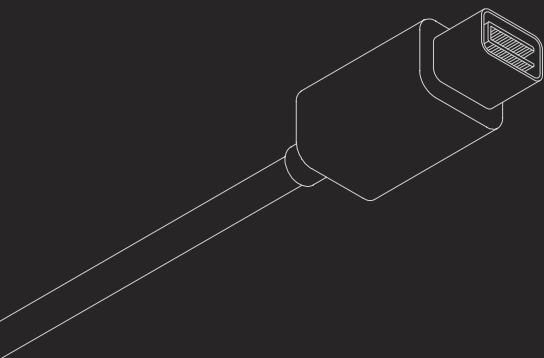
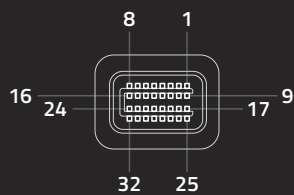
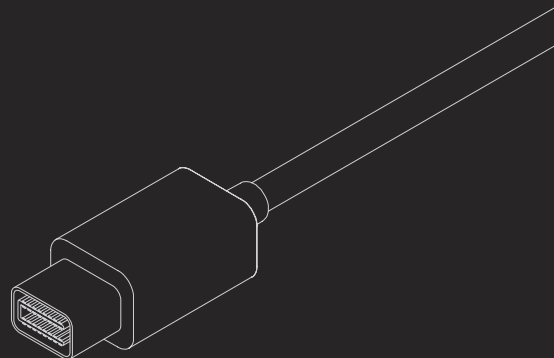
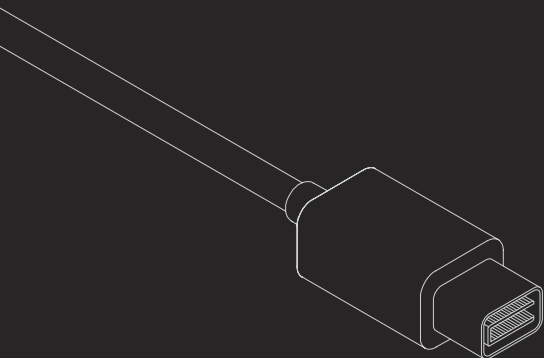




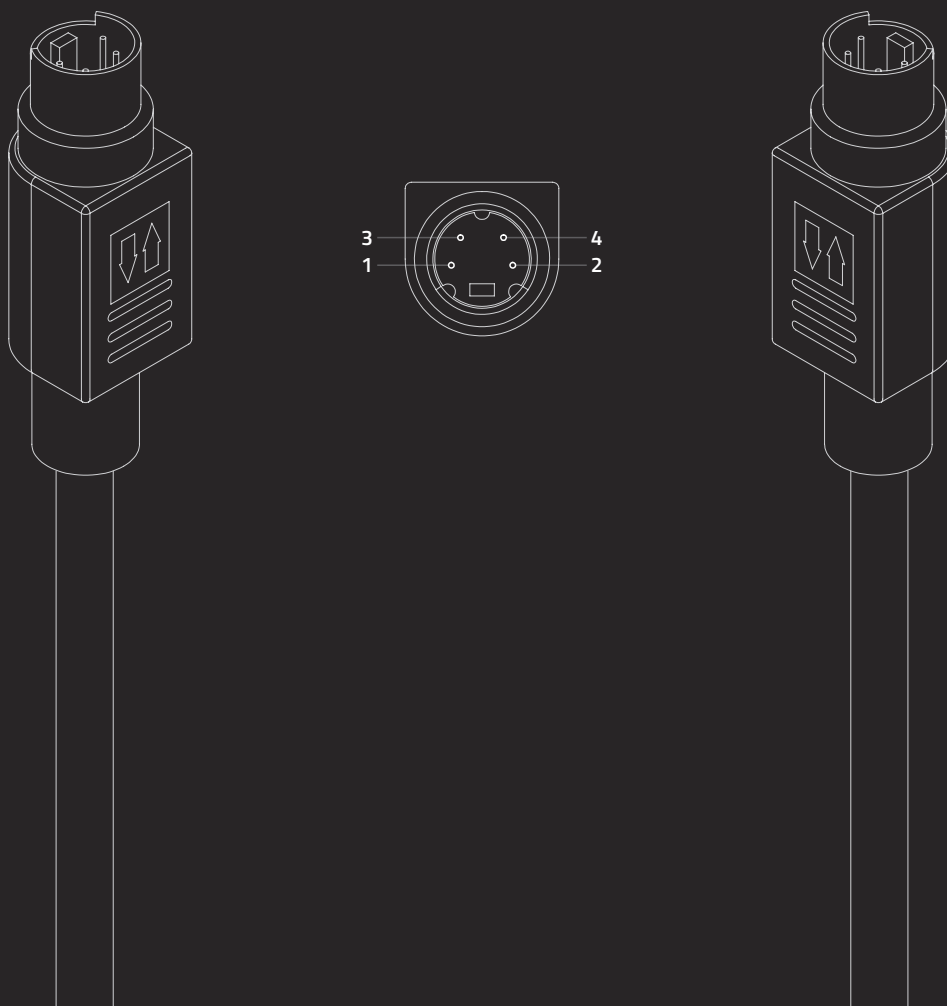
| SOURCE / DOWNSTREAM SIDE |           |                 |
|--------------------------|-----------|-----------------|
| #                        | NAME      | NOTES           |
| 1                        | GND       | GROUND          |
| 2                        | IN        | HOT PLUG DETECT |
| 3                        | OUT       | ML_LANE 0 (+)   |
| 4                        | CONFIG*   | CONFIG1         |
| 5                        | OUT       | ML_LANE 0 (-)   |
| 6                        | CONFIG*   | CONFIG2         |
| 7                        | GND       | GROUND          |
| 8                        | GND       | GROUND          |
| 9                        | OUT       | ML_LANE 1 (+)   |
| 10                       | OUT       | ML_LANE 3 (+)   |
| 11                       | OUT       | ML_LANE1 (-)    |
| 12                       | OUT       | ML_LANE 3 (-)   |
| 13                       | GND       | GROUND          |
| 14                       | GND       | GROUND          |
| 15                       | OUT       | ML_LANE 2 (+)   |
| 16                       | I/O       | AUX_CH (+)      |
| 17                       | OUT       | ML_LANE 2 (-)   |
| 18                       | I/O       | AUX_CH (-)      |
| 19                       | GND       | GROUND          |
| 20                       | PWR OUT** | DP_PWR          |

| RECEIVING / UPSTREAM SIDE |           |                 |
|---------------------------|-----------|-----------------|
| #                         | NAME      | NOTES           |
| 1                         | GND       | GROUND          |
| 2                         | OUT       | HOT PLUG DETECT |
| 3                         | IN        | ML_LANE 3 (-)   |
| 4                         | CONFIG*   | CONFIG1         |
| 5                         | IN        | ML_LANE 3 (+)   |
| 6                         | CONFIG*   | CONFIG2         |
| 7                         | GND       | GROUND          |
| 8                         | GND       | GROUND          |
| 9                         | IN        | ML_LANE 2 (-)   |
| 10                        | IN        | ML_LANE 0 (-)   |
| 11                        | IN        | ML_LANE 2 (+)   |
| 12                        | IN        | ML_LANE 0 (+)   |
| 13                        | GND       | GROUND          |
| 14                        | GND       | GROUND          |
| 15                        | IN        | ML_LANE 1 (-)   |
| 16                        | I/O       | AUX_CH (+)      |
| 17                        | IN        | ML_LANE 1 (+)   |
| 18                        | I/O       | AUX_CH (-)      |
| 19                        | GND       | GROUND          |
| 20                        | PWR OUT** | DP_PWR          |

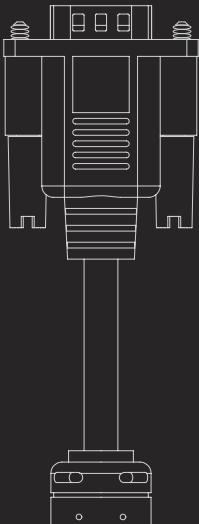
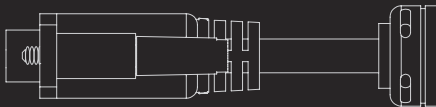
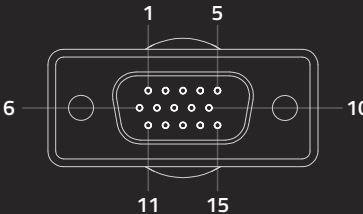
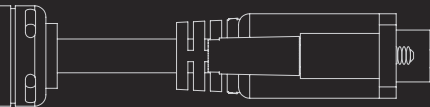
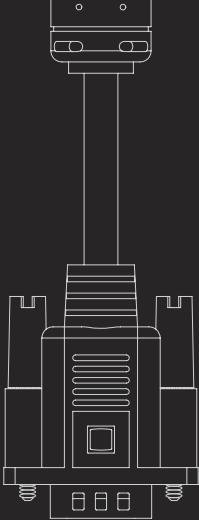
\* 4 & 6 must be connected to ground through a pull-down device  
\*\* Must provide +3.3V ± 10% with a max current of 500mA and a min capability of 1.5 watts



| #  | NAME    | #  | NAME          |
|----|---------|----|---------------|
| 1  | DATA2 + | 17 | +5V POWER     |
| 2  | DATA2 - | 18 | DDC_DATA      |
| 3  | DATA1 + | 19 | SPARE         |
| 4  | DATA1 - | 20 | BLUE          |
| 5  | DATA0 + | 21 | NOT INSTALLED |
| 6  | DATA0 - | 22 | GREEN         |
| 7  | CLOCK + | 23 | NOT INSTALLED |
| 8  | CLOCK - | 24 | RED           |
| 9  | DGND    | 25 | DETECT        |
| 10 | DGND    | 26 | DDC_CLOCK     |
| 11 | DGND    | 27 | SPARE         |
| 12 | DGND    | 28 | DGND          |
| 13 | DGND    | 29 | HSYNC         |
| 14 | DGND    | 30 | DGND          |
| 15 | DGND    | 31 | VSYNC         |
| 16 | DGND    | 32 | DGND          |

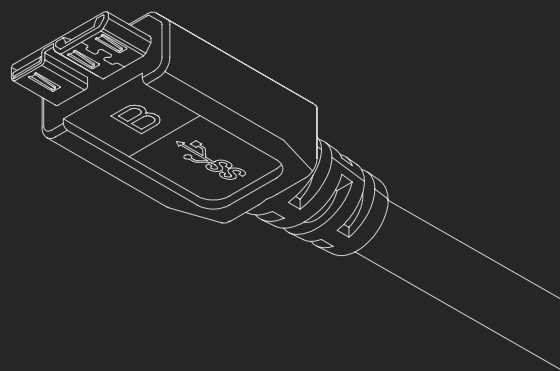
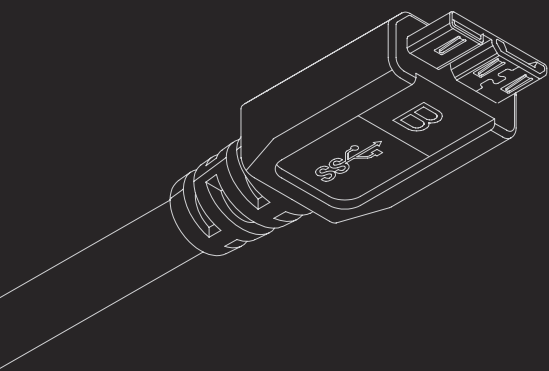
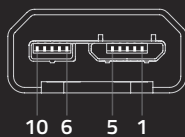
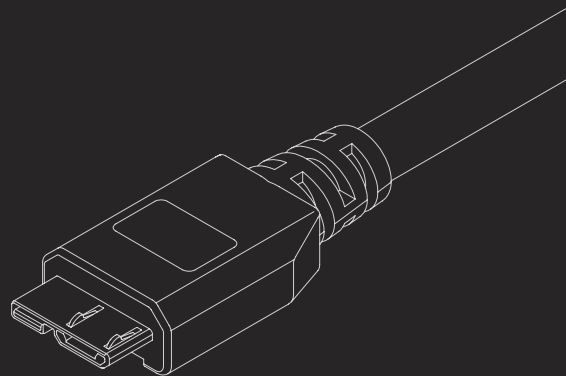
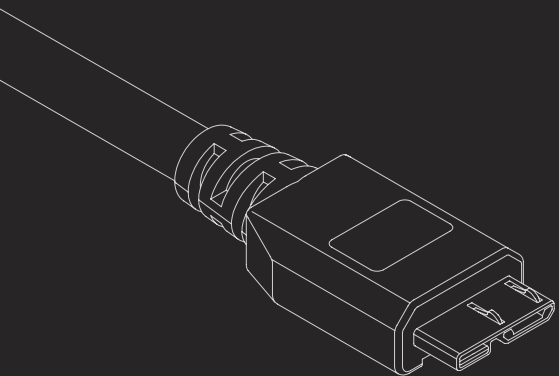


| # | NAME | NOTES                 |
|---|------|-----------------------|
| 1 | GND  | GROUND (Y)            |
| 2 | GND  | GROUND (C)            |
| 3 | Y    | INTENSITY (LUMINANCE) |
| 4 | C    | COLOR (CHROMINANCE)   |



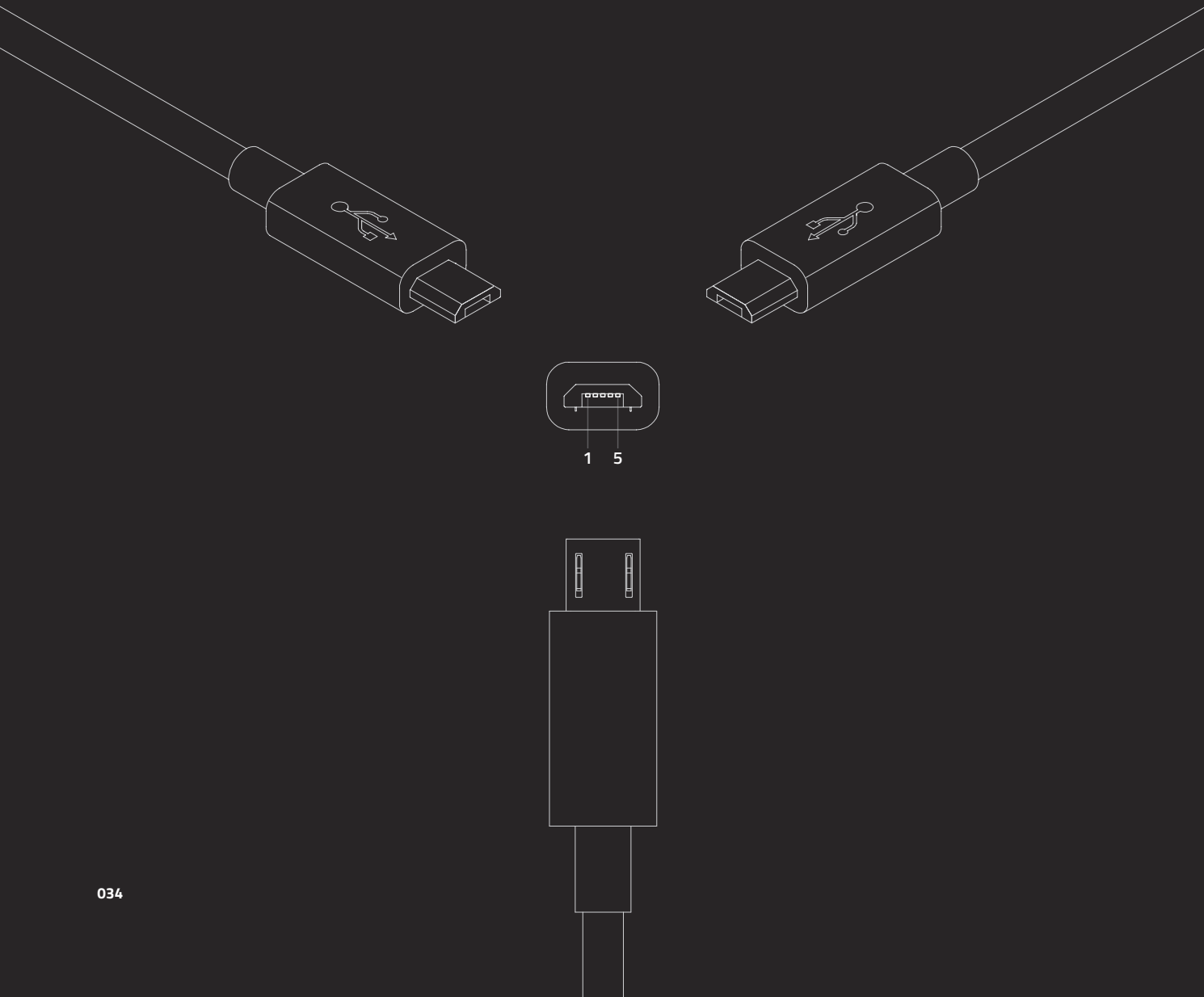
| #  | NAME      | NOTES                 |
|----|-----------|-----------------------|
| 1  | RED       | RED VIDEO             |
| 2  | GREEN     | GREEN VIDEO           |
| 3  | BLUE      | BLUE VIDEO            |
| 4  | RES       | RESERVED              |
| 5  | GND       | GROUND (HSYNC)        |
| 6  | RED_RTN   | RED RETURN            |
| 7  | GREEN_RTN | GREEN RETURN          |
| 8  | BLUE_RTN  | BLUE RETURN           |
| 9  | KEY/PWR   | +5V POWER (50mA - 1A) |
| 10 | GND       | GROUND (VSYNC)        |
| 11 | RES       | RESERVED              |
| 12 | SDA       | I2C DATA              |
| 13 | HSYNC     | HORIZONTAL SYNC       |
| 14 | VSYNC     | VERTICAL SYNC         |
| 15 | SCL       | I2C CLOCK             |





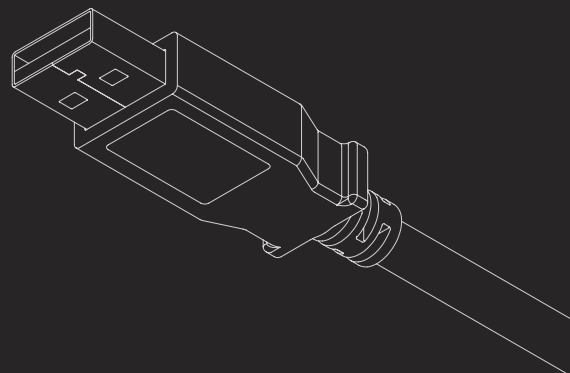
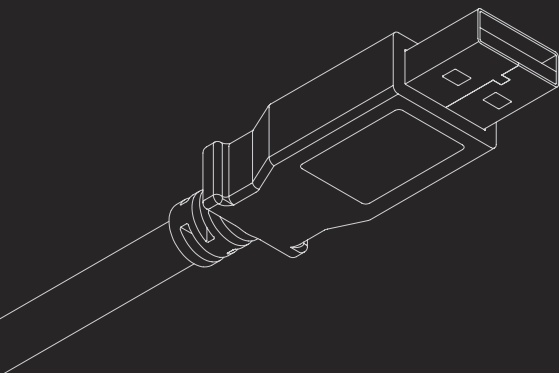
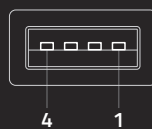
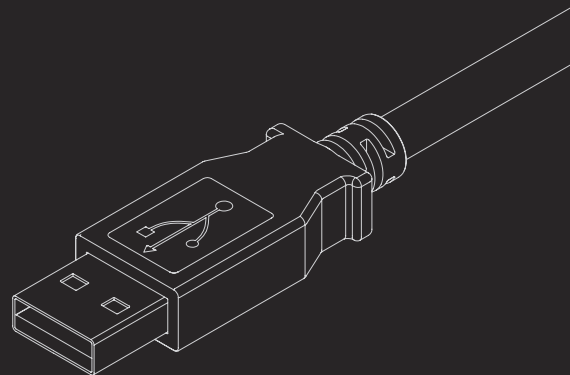
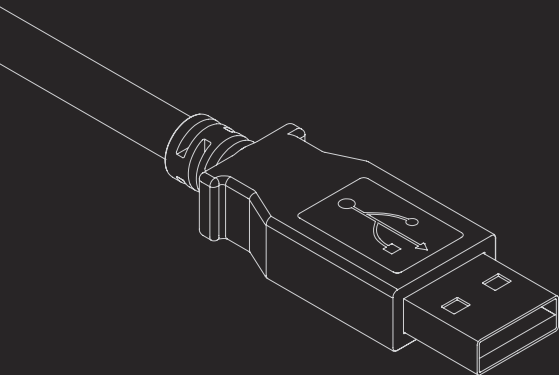
| #  | NAME       | NOTES                               | WIRE COLOR |
|----|------------|-------------------------------------|------------|
| 1  | VBUS       | 5V POWER                            | RED        |
| 2  | D-         | USB 2.0 DIFFERENTIAL PAIR           | WHITE      |
| 3  | D+         | USB 2.0 DIFFERENTIAL PAIR           | GREEN      |
| 4  | ID         | OTG IDENTIFICATION                  | -          |
| 5  | GND        | GROUND FOR POWER RETURN             | BLACK      |
| 6  | MICB_SSTX- | SUPERSPEED TX DIFFERENTIAL PAIR     | BLUE       |
| 7  | MICB_SSTX+ | SUPERSPEED TX DIFFERENTIAL PAIR     | YELLOW     |
| 8  | GND_DRAIN  | GROUND FOR SUPERSPEED SIGNAL RETURN | GREY       |
| 9  | MICB_SSRX- | SUPERSPEED RX DIFFERENTIAL PAIR     | PURPLE     |
| 10 | MICB_SSRX+ | SUPERSPEED RX DIFFERENTIAL PAIR     | ORANGE     |

*Note: TX and RS are defined from the device perspective*

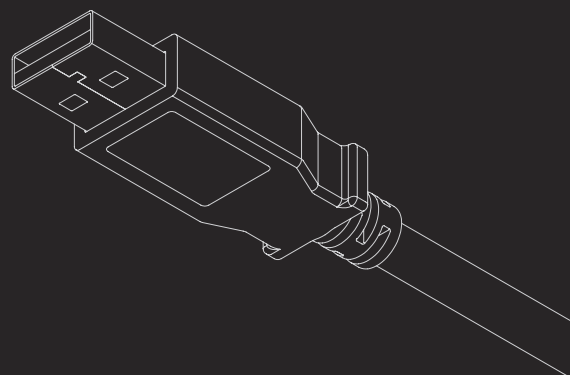
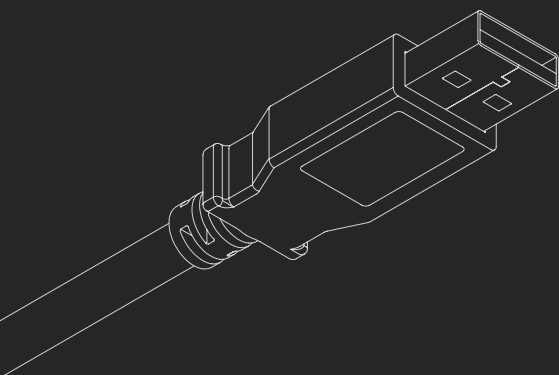
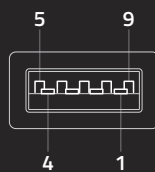
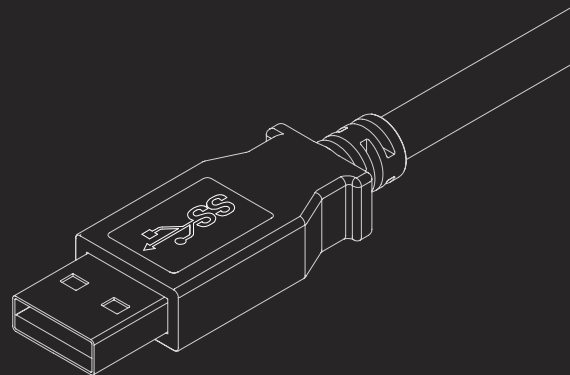
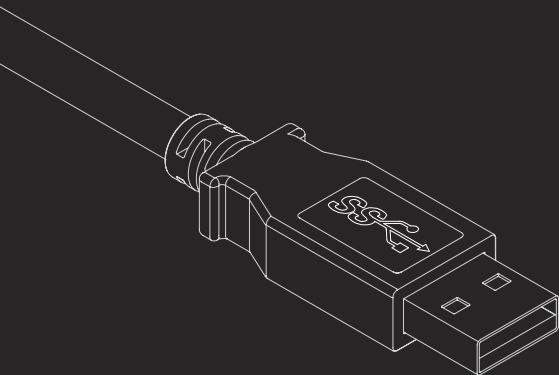


| # | NAME | NOTES              | WIRE COLOR |
|---|------|--------------------|------------|
| 1 | VBUS | 5V POWER           | RED        |
| 2 | D-   | DATA -             | WHITE      |
| 3 | D+   | DATA +             | GREEN      |
| 4 | ID   | OTG IDENTIFICATION | -          |
| 5 | GND  | GROUND             | BLACK      |

*Note: The less common Micro-A 2.0 has the same pinout config*



| # | NAME | NOTES    | WIRE COLOR |
|---|------|----------|------------|
| 1 | VBUS | 5V POWER | RED        |
| 2 | D-   | DATA -   | WHITE      |
| 3 | D+   | DATA +   | GREEN      |
| 4 | GND  | GROUND   | BLACK      |



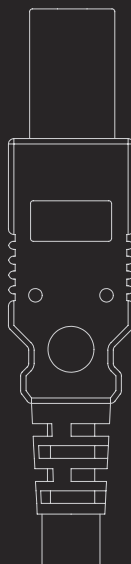
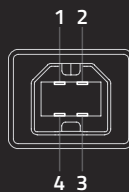
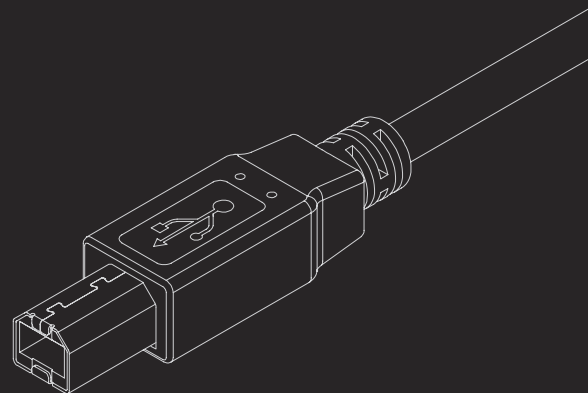
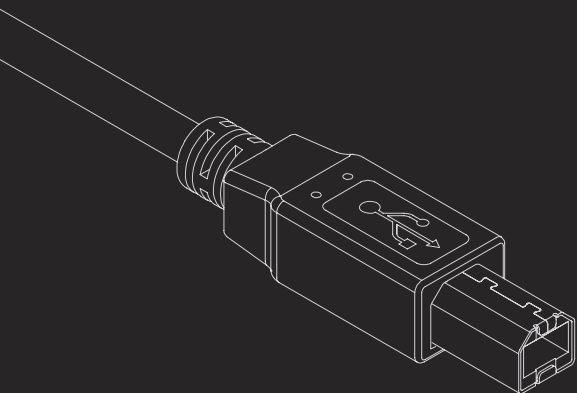
| # | NAME       | NOTES                               | WIRE COLOR |
|---|------------|-------------------------------------|------------|
| 1 | VBUS       | 5V POWER                            | RED        |
| 2 | D-         | USB 2.0 DIFFERENTIAL PAIR           | WHITE      |
| 3 | D+         | USB 2.0 DIFFERENTIAL PAIR           | GREEN      |
| 4 | GND        | GROUND FOR POWER RETURN             | BLACK      |
| 5 | STDA_SSRX- | SUPERSPEED RX DIFFERENTIAL PAIR     | BLUE       |
| 6 | STDA_SSRX+ | SUPERSPEED RX DIFFERENTIAL PAIR     | YELLOW     |
| 7 | GND_DRAIN  | GROUND FOR SUPERSPEED SIGNAL RETURN | GREY       |
| 8 | STDA_SSTX- | SUPERSPEED TX DIFFERENTIAL PAIR     | PURPLE     |
| 9 | STDA_SSTX+ | SUPERSPEED TX DIFFERENTIAL PAIR     | ORANGE     |

*Note: TX and RS are defined from the host perspective*



CONNECTORS / USB / USB TYPE-B 2.0

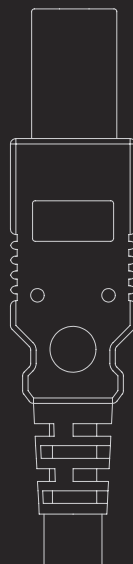
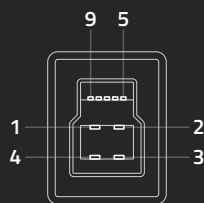
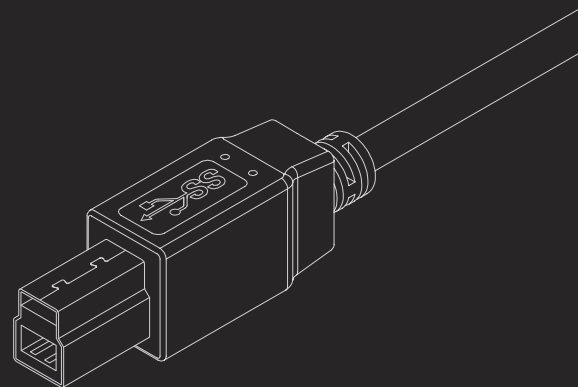
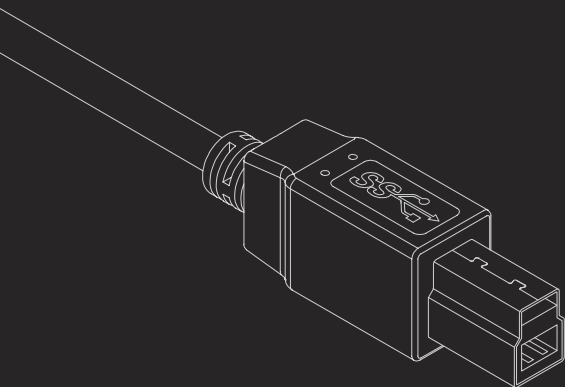
*PINOUTS.ORG/B05*



| # | NAME | NOTES    | WIRE COLOR |
|---|------|----------|------------|
| 1 | VBUS | 5V POWER | RED        |
| 2 | D-   | DATA -   | WHITE      |
| 3 | D+   | DATA +   | GREEN      |
| 4 | GND  | GROUND   | BLACK      |

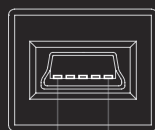
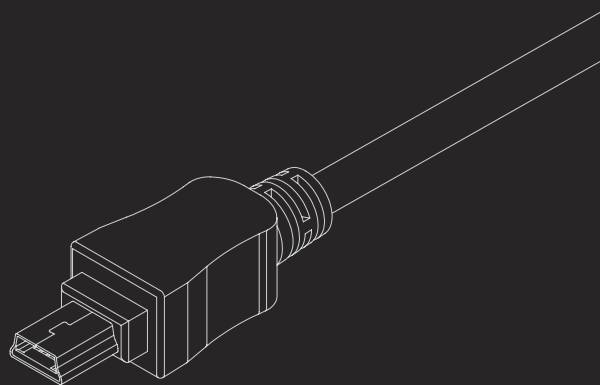
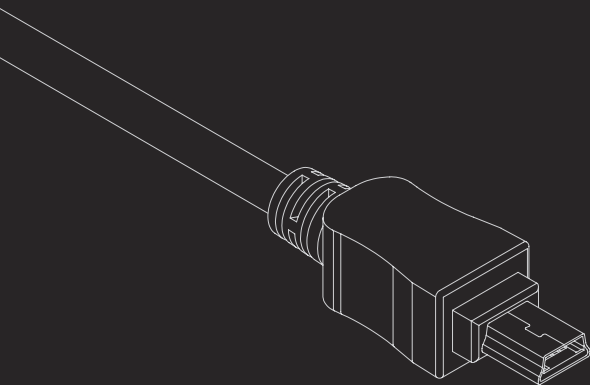
CONNECTORS / USB / USB TYPE-B 3.0

*PINOUTS.ORG/B06*

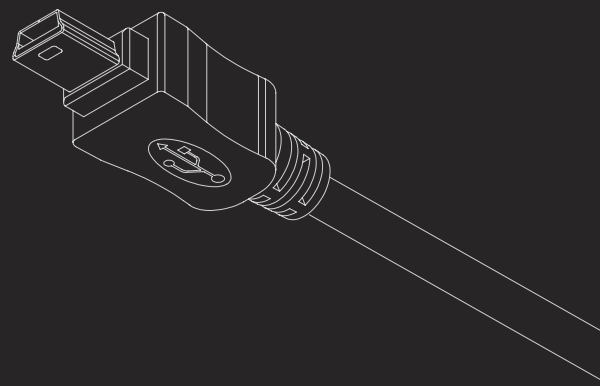
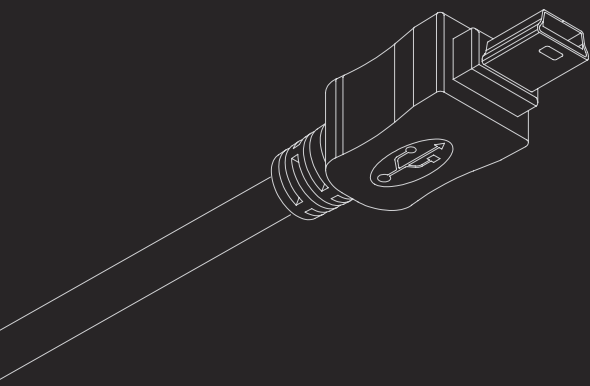


| # | NAME       | NOTES                               | WIRE COLOR |
|---|------------|-------------------------------------|------------|
| 1 | VBUS       | 5V POWER                            | RED        |
| 2 | D-         | USB 2.0 DIFFERENTIAL PAIR           | WHITE      |
| 3 | D+         | USB 2.0 DIFFERENTIAL PAIR           | GREEN      |
| 4 | GND        | GROUND FOR POWER RETURN             | BLACK      |
| 5 | STDB_SSTX- | SUPERSPEED TX DIFFERENTIAL PAIR     | BLUE       |
| 6 | STDB_SSTX+ | SUPERSPEED TX DIFFERENTIAL PAIR     | YELLOW     |
| 7 | GND_DRAIN  | GROUND FOR SUPERSPEED SIGNAL RETURN | GREY       |
| 8 | STDB_SSRX- | SUPERSPEED RX DIFFERENTIAL PAIR     | PURPLE     |
| 9 | STDB_SSRX+ | SUPERSPEED RX DIFFERENTIAL PAIR     | ORANGE     |

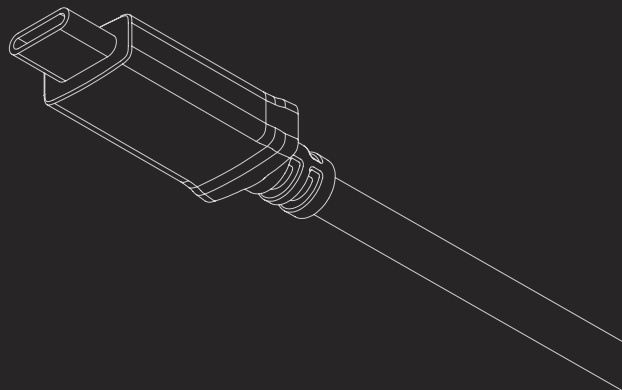
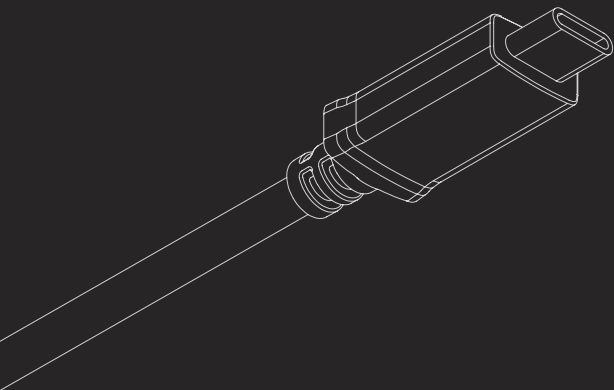
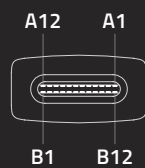
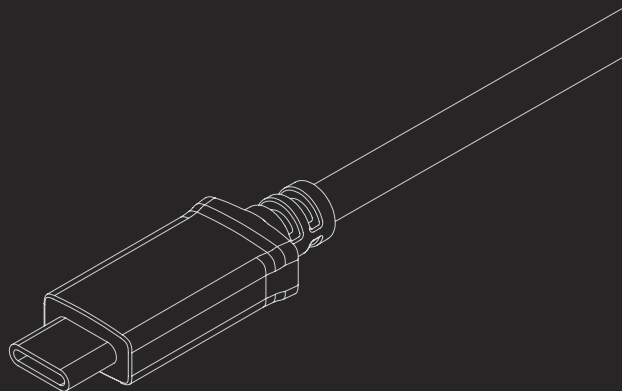
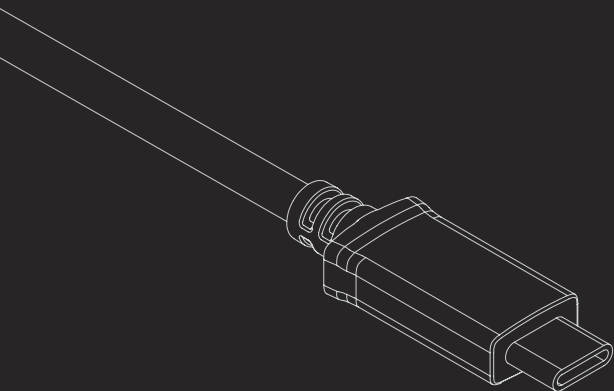
*Note: TX and RS are defined from the device perspective*



1 5



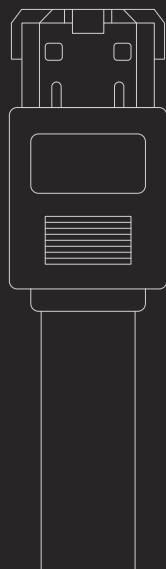
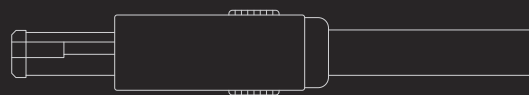
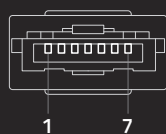
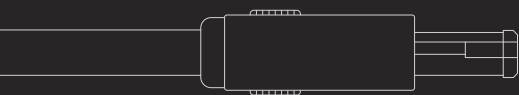
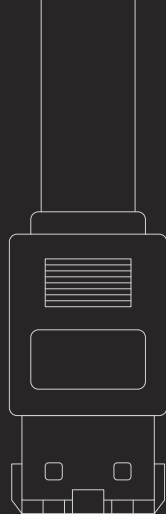
| # | NAME | NOTES              | WIRE COLOR |
|---|------|--------------------|------------|
| 1 | VBUS | 5V POWER           | RED        |
| 2 | D-   | DATA -             | WHITE      |
| 3 | D+   | DATA +             | GREEN      |
| 4 | ID   | OTG IDENTIFICATION | -          |
| 5 | GND  | GROUND             | BLACK      |



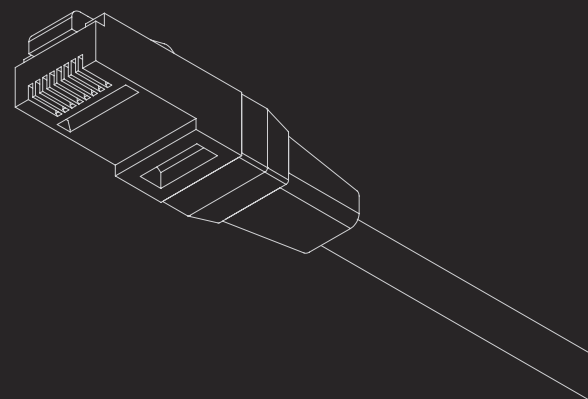
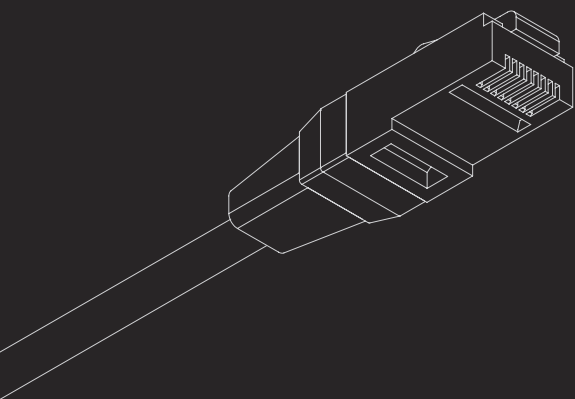
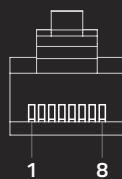
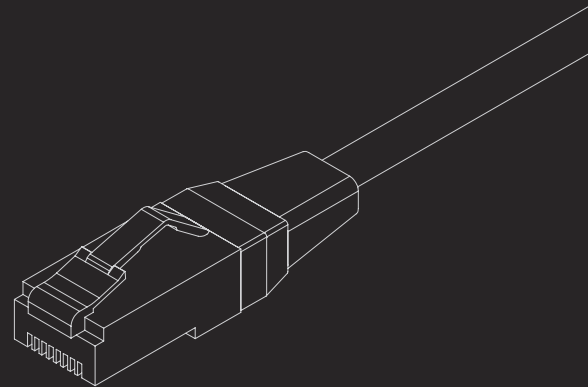
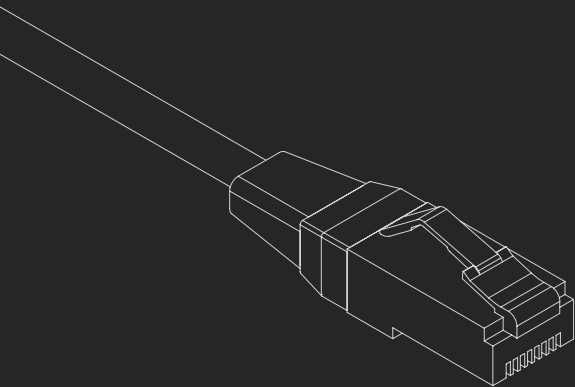
| #   | NAME | NOTES                    | #   | NAME | NOTES                    |
|-----|------|--------------------------|-----|------|--------------------------|
| A1  | GND  | GROUND*                  | B1  | GND  | GROUND*                  |
| A2  | TX1+ | USB3.1 OR ALTERNATE MODE | B2  | TX2+ | USB3.1 OR ALTERNATE MODE |
| A3  | TX1- | USB3.1 OR ALTERNATE MODE | B3  | TX2- | USB3.1 OR ALTERNATE MODE |
| A4  | VBUS | POWER*                   | B4  | VBUS | POWER*                   |
| A5  | CC1  | CC OR VCONN              | B5  | CC2  | CC OR VCONN              |
| A6  | D+   | DATA+ (USB 2.0)          | B6  | D+   | DATA+ (USB 2.0)          |
| A7  | D-   | DATA- (USB 2.0)          | B7  | D-   | DATA- (USB 2.0)          |
| A8  | SBU1 | ALTERNATE MODE           | B8  | SBU2 | ALTERNATE MODE           |
| A9  | VBUS | POWER*                   | B9  | VBUS | POWER*                   |
| A10 | RX2- | USB3.1 OR ALTERNATE MODE | B10 | RX1- | USB3.1 OR ALTERNATE MODE |
| A11 | RX2+ | USB3.1 OR ALTERNATE MODE | B11 | RX1+ | USB3.1 OR ALTERNATE MODE |
| A12 | GND  | GROUND*                  | B12 | GND  | GROUND*                  |

*\*Support for 60W minimum (combined with all VBUS pins)  
Power Supply Options: USB 2.0 Nom Voltage 5V, Max 500mA | USB 3.0 / 3.1 Nom Voltage 5V, Max 900mA  
USB BC1.2 Nom Voltage 5V, Max 1.5A | USB Type-C Current @ 1.5A Nom Voltage 5V, Max 1.5A  
USB Type-C Current @ 2.0A Nom Voltage 5V, Max 3.0A | USB Power Delivery Nom Voltage Up to 20V, Up to 5A*



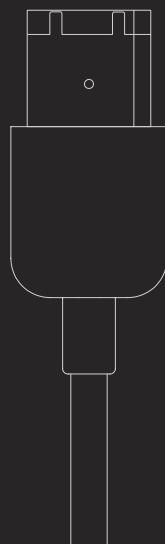
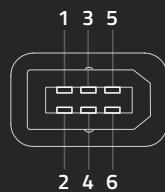
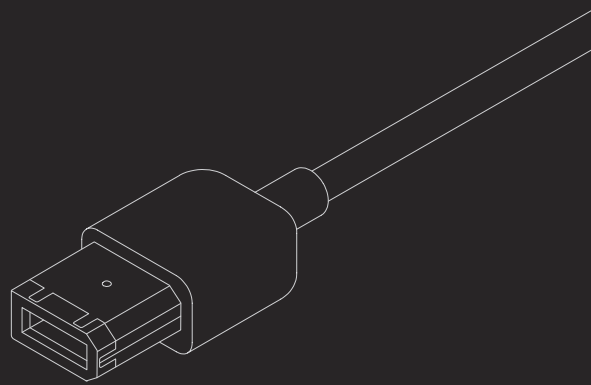
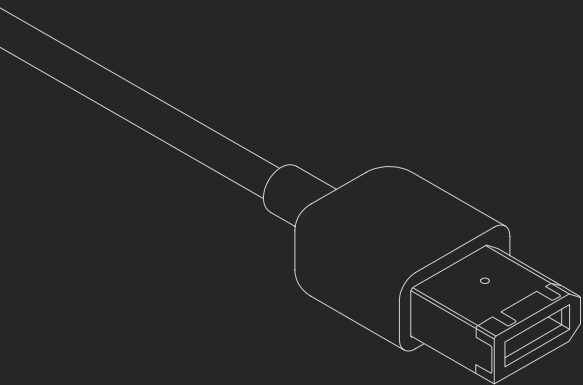


| # | NAME | NOTES      |
|---|------|------------|
| 1 | GND  | GROUND     |
| 2 | A+   | TRANSMIT + |
| 3 | A-   | TRANSMIT - |
| 4 | GND  | GROUND     |
| 5 | B-   | RECEIVE -  |
| 6 | B+   | RECEIVE +  |
| 7 | GND  | GROUND     |

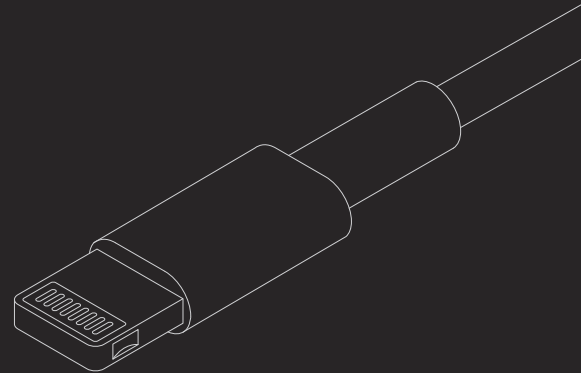
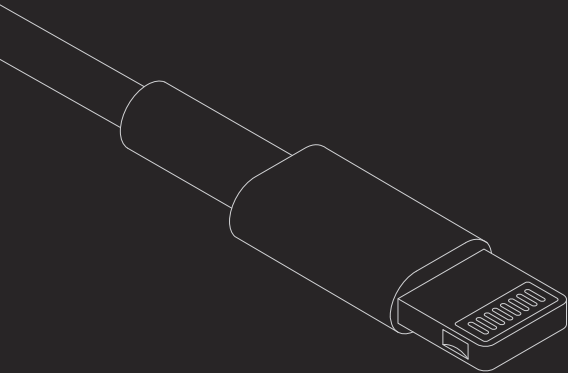


| T568A STANDARD |          |           |            |                        |
|----------------|----------|-----------|------------|------------------------|
| #              | 10BASE-T | 100BASE-T | 1000BASE-T | WIRE COLOR             |
| 1              | TX+      | TX+       | BI_DA+     | WHITE W/ GREEN STRIPE  |
| 2              | TX-      | TX-       | BI_DA-     | SOLID GREEN            |
| 3              | RX+      | RX+       | BI_DB+     | WHITE W/ ORANGE STRIPE |
| 4              | UNUSED   | UNUSED    | BI_DC+     | SOLID BLUE             |
| 5              | UNUSED   | UNUSED    | BI_DC-     | WHITE W/ BLUE STRIPE   |
| 6              | RX-      | RX-       | BI_DB-     | SOLID ORANGE           |
| 7              | UNUSED   | UNUSED    | BI_DD+     | WHITE W/ BROWN STRIPE  |
| 8              | UNUSED   | UNUSED    | BI_DD-     | SOLID BROWN            |

| T568B STANDARD |          |           |            |                        |
|----------------|----------|-----------|------------|------------------------|
| #              | 10BASE-T | 100BASE-T | 1000BASE-T | WIRE COLOR             |
| 1              | TX+      | TX+       | BI_DA+     | WHITE W/ ORANGE STRIPE |
| 2              | TX-      | TX-       | BI_DA-     | SOLID ORANGE           |
| 3              | RX+      | RX+       | BI_DB+     | WHITE W/ GREEN STRIPE  |
| 4              | UNUSED   | UNUSED    | BI_DC+     | SOLID BLUE             |
| 5              | UNUSED   | UNUSED    | BI_DC-     | WHITE W/ BLUE STRIPE   |
| 6              | RX-      | RX-       | BI_DB-     | SOLID GREEN            |
| 7              | UNUSED   | UNUSED    | BI_DD+     | WHITE W/ BROWN STRIPE  |
| 8              | UNUSED   | UNUSED    | BI_DD-     | SOLID BROWN            |

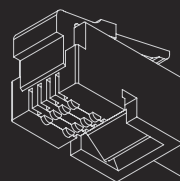
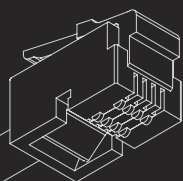
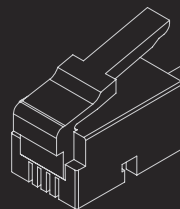
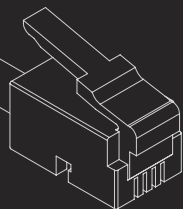


| # | NAME | NOTES          | WIRE COLOR |
|---|------|----------------|------------|
| 1 | PWR  | 30V POWER      | WHITE      |
| 2 | GND  | GROUND         | BLACK      |
| 3 | TPB- | TWISTED PAIR B | ORANGE     |
| 4 | TPB+ | TWISTED PAIR B | BLUE       |
| 5 | TPA- | TWISTED PAIR A | RED        |
| 6 | TPA+ | TWISTED PAIR A | GREEN      |

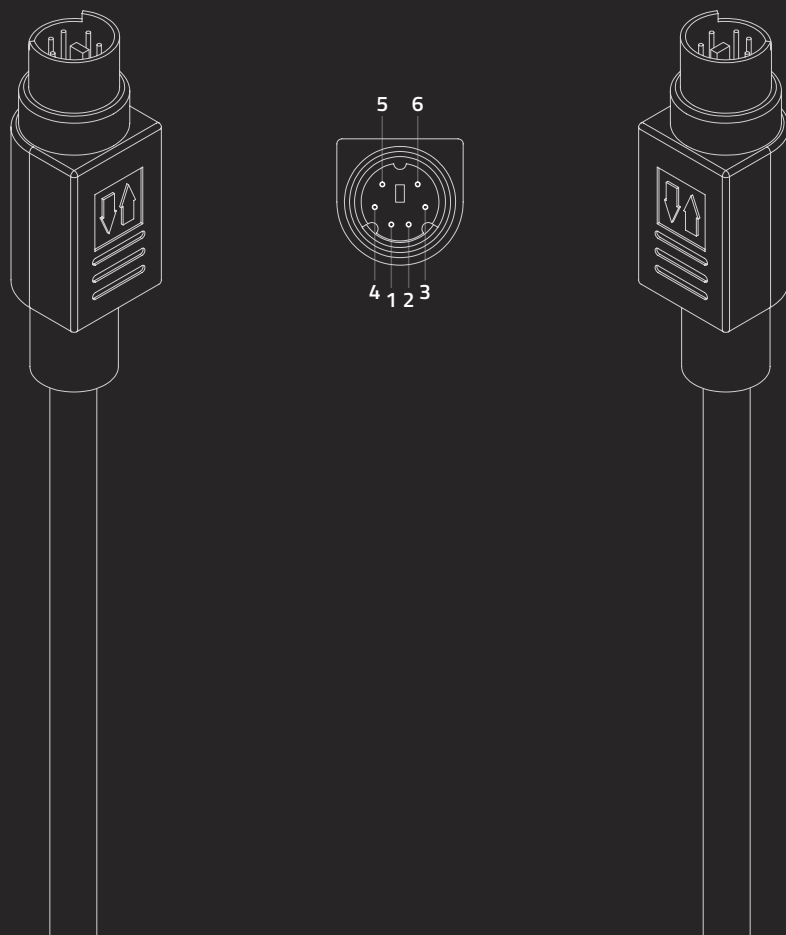


| # | NAME | NOTES                      |
|---|------|----------------------------|
| 1 | GND  | GROUND                     |
| 2 | LOP  | LANE 0 +                   |
| 3 | LON  | LANE 0 -                   |
| 4 | ID0  | IDENTIFICATION/CONTROL 0   |
| 5 | PWR  | POWER (CHARGER OR BATTERY) |
| 6 | L1N  | LANE 1 -                   |
| 7 | L1P  | LANE 1 +                   |
| 8 | ID1  | IDENTIFICATION/CONTROL 1   |





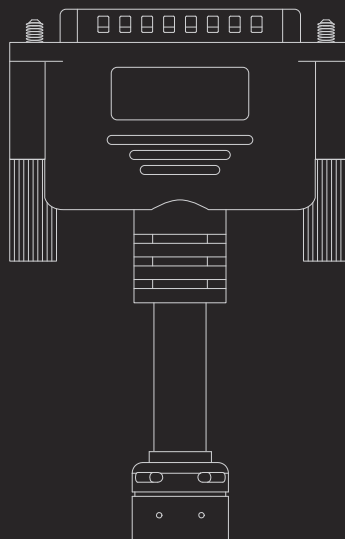
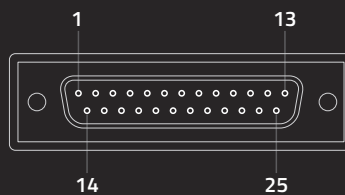
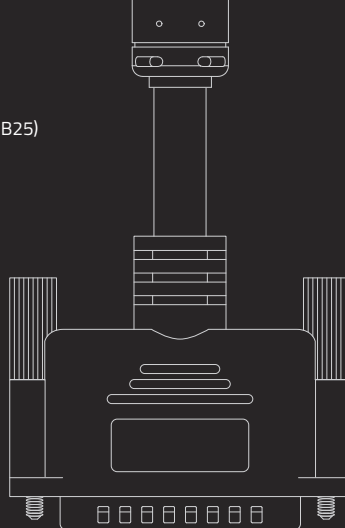
| # | PAIR | RJ11 | RJ14 | WIRE COLOR             | WIRE COLOR (OLD) |
|---|------|------|------|------------------------|------------------|
| 1 | B    |      | TX+  | WHITE W/ ORANGE STRIPE | BLACK            |
| 2 | A    | RX-  | RX-  | BLUE W/ WHITE STRIPE   | RED              |
| 3 | A    | TX+  | TX+  | WHITE W/ BLUE STRIPE   | GREEN            |
| 4 | B    |      | RX-  | ORANGE W/ WHITE STRIPE | YELLOW           |



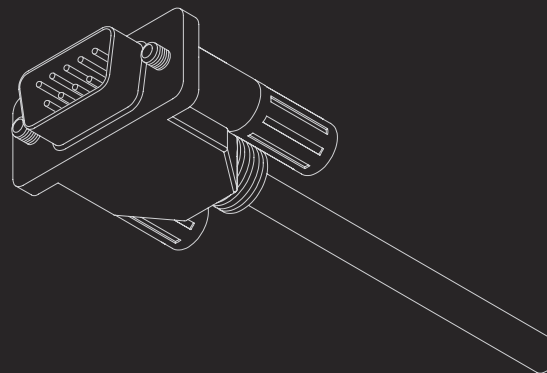
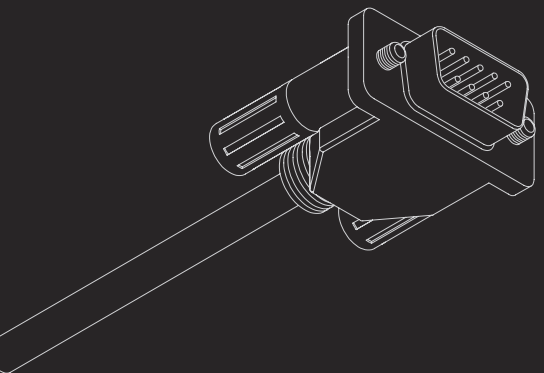
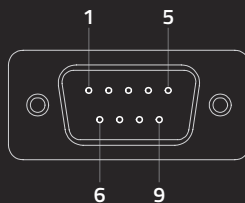
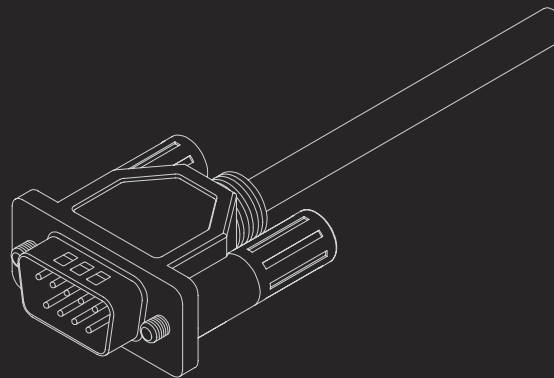
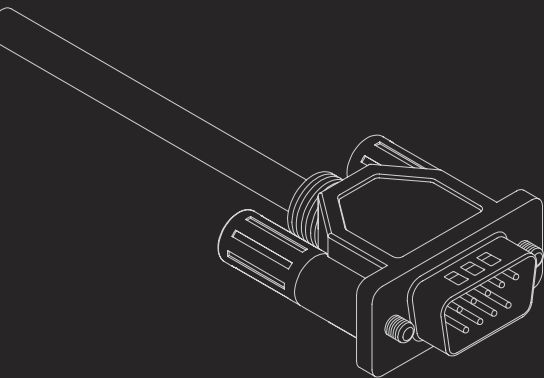
| # | NAME | NOTES         |
|---|------|---------------|
| 1 | DATA | KEY DATA      |
| 2 | NC   | NOT CONNECTED |
| 3 | GND  | GROUND        |
| 4 | VCC  | +5V POWER     |
| 5 | CLK  | CLOCK         |
| 6 | NC   | NOT CONNECTED |

CONNECTORS / MISCELLANEOUS / RS-232 SERIAL (DB25)

*PINOUTS.ORG/C07*

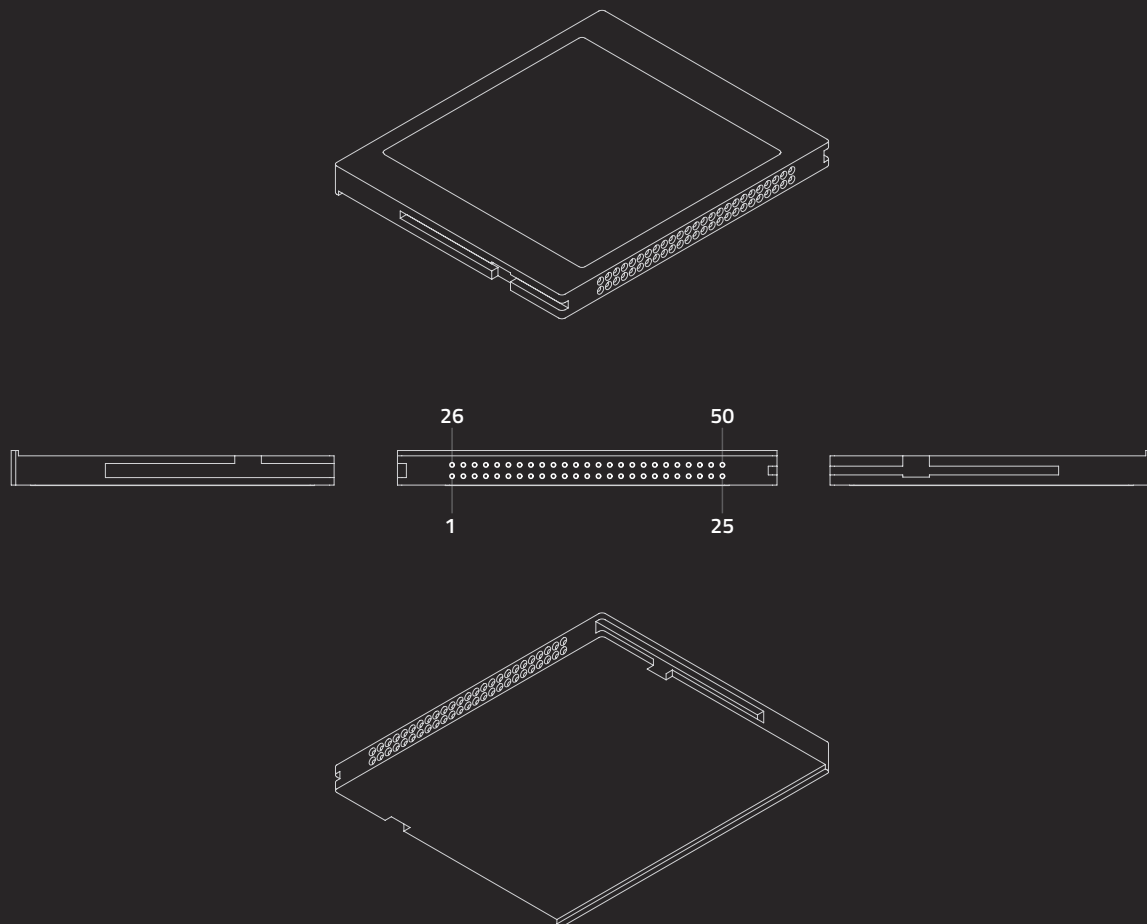


| #  | NAME  | NOTES                    | #  | NAME  | NOTES                          |
|----|-------|--------------------------|----|-------|--------------------------------|
| 1  | GND   | SHIELD GROUND            | 14 | S.TXD | SECONDARY TRANSMIT DATA        |
| 2  | TXD   | TRANSMIT DATA            | 15 | TCK   | TX SIGNAL ELEMENT TIMING       |
| 3  | RXD   | RECEIVE DATA             | 16 | S.RXD | SECONDARY RECEIVE DATA         |
| 4  | RTS   | REQUEST TO SEND          | 17 | RCK   | RX SIGNAL ELEMENT TIMING       |
| 5  | CTS   | CLEAR TO SEND            | 18 | LL    | LOCAL LOOP CONTROL             |
| 6  | DSR   | DATA SET READY           | 19 | S.RTS | SECONDARY REQUEST TO SEND      |
| 7  | GND   | SYSTEM GROUND            | 20 | DTR   | DATA TERMINAL READY            |
| 8  | CD    | CARRIER DETECT           | 21 | RL    | REMOTE LOOP CONTROL            |
| 9  | -     | RESERVED                 | 22 | RI    | RING INDICATOR                 |
| 10 | -     | RESERVED                 | 23 | DSR   | DATA SIGNAL RATE SELECTOR      |
| 11 | STF   | SELECT TRANSMIT CHANNEL  | 24 | XCK   | TRANSMIT SIGNAL ELEMENT TIMING |
| 12 | S.CD  | SECONDARY CARRIER DETECT | 25 | TI    | TEST INDICATOR                 |
| 13 | S.CTS | SECONDARY CLEAR TO SEND  |    |       |                                |



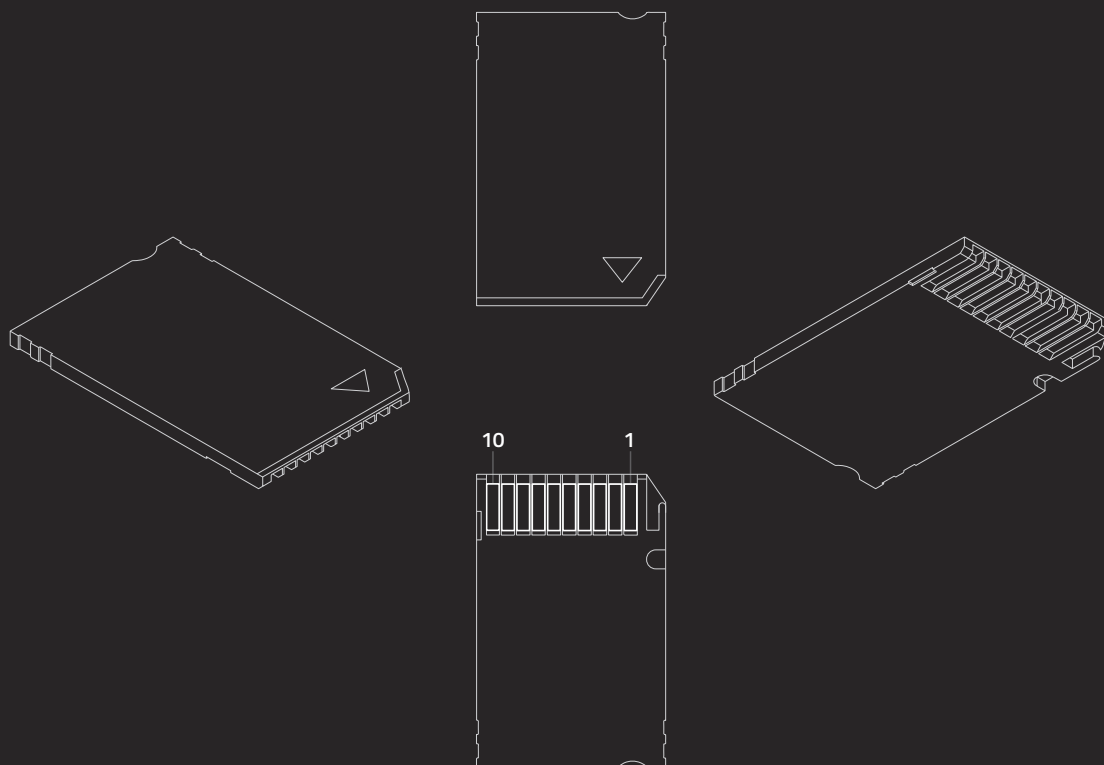
| # | NAME | I/O | NOTES               |
|---|------|-----|---------------------|
| 1 | DCD  | IN  | DATA CARRIER DETECT |
| 2 | RXD  | IN  | RECEIVE DATA        |
| 3 | TXD  | OUT | TRANSMIT DATA       |
| 4 | DTR  | OUT | DATA TERMINAL READY |
| 5 | GND  | -   | GROUND              |
| 6 | DSR  | IN  | DATA SET READY      |
| 7 | RTS  | OUT | READY TO SEND       |
| 8 | CTS  | IN  | CLEAR TO SEND       |
| 9 | RI   | IN  | RING INDICATOR      |





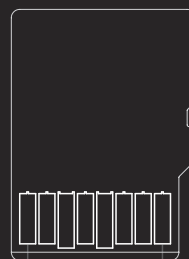
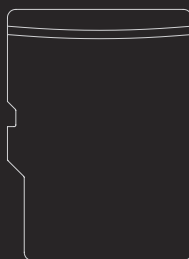
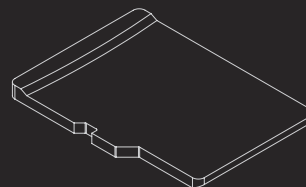
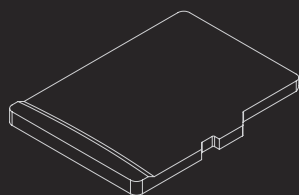
| #  | NAME     | PIN TYPE | I/O TYPE |
|----|----------|----------|----------|
| 1  | GND      | -        | GROUND   |
| 2  | D03      | I/O      | I1Z, OZ3 |
| 3  | D04      | I/O      | I1Z, OZ3 |
| 4  | D05      | I/O      | I1Z, OZ3 |
| 5  | D06      | I/O      | I1Z, OZ3 |
| 6  | D07      | I/O      | I1Z, OZ3 |
| 7  | -CS0     | I        | I3U      |
| 8  | A10      | I        | I1Z      |
| 9  | -ATA SEL | I        | I3U      |
| 10 | A09      | I        | I1Z      |
| 11 | A08      | I        | I1Z      |
| 12 | A07      | I        | I1Z      |
| 13 | VCC      | -        | POWER    |
| 14 | A06      | I        | I1Z      |
| 15 | A05      | I        | I1Z      |
| 16 | A04      | I        | I1Z      |
| 17 | A03      | I        | I1Z      |
| 18 | A02      | I        | I1Z      |
| 19 | A01      | I        | I1Z      |
| 20 | A00      | I        | I1Z      |
| 21 | D00      | I/O      | I1Z, OZ3 |
| 22 | D01      | I/O      | I1Z, OZ3 |
| 23 | D02      | I/O      | I1Z, OZ3 |
| 24 | WP       | O        | OT3      |
| 25 | -CD2     | O        | GROUND   |

| #  | NAME    | PIN TYPE | I/O TYPE |
|----|---------|----------|----------|
| 26 | -CD1    | O        | GROUND   |
| 27 | D11     | I/O      | I1Z, OZ3 |
| 28 | D12     | I/O      | I1Z, OZ3 |
| 29 | D13     | I/O      | I1Z, OZ3 |
| 30 | D14     | I/O      | I1Z, OZ3 |
| 31 | D15     | I/O      | I1Z, OZ3 |
| 32 | -CE2    | I        | I3U      |
| 33 | -VS1    | O        | GROUND   |
| 34 | -IORD   | I        | I3U      |
| 35 | -IOWR   | I        | I3U      |
| 36 | -WE     | I        | I3U      |
| 37 | READY   | O        | OT1      |
| 38 | VCC     | -        | POWER    |
| 39 | -CSEL   | I        | I2Z      |
| 40 | -VS2    | O        | OPEN     |
| 41 | RESET   | I        | I2Z      |
| 42 | -WAIT   | O        | OT1      |
| 43 | -INPACK | O        | OT1      |
| 44 | -REG    | I        | I3U      |
| 45 | BVD2    | O        | OT1      |
| 46 | BVD1    | O        | OT1      |
| 47 | D08     | I/O      | I1Z, OZ3 |
| 48 | D09     | I/O      | I1Z, OZ3 |
| 49 | D10     | I/O      | I1Z, OZ3 |
| 50 | GND     | -        | GROUND   |



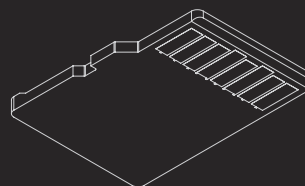
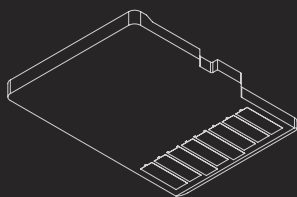
| #  | NAME       | NOTES                           | TYPE |
|----|------------|---------------------------------|------|
| 1  | VSS        | GROUND                          | -    |
| 2  | BS         | BUS STATE SIGNAL                | I    |
| 3  | DATA1      | DATA1 PARALLEL / NC SERIAL      | I/O  |
| 4  | SDIO/DATA0 | DATA0 PARALLEL / DATA SERIAL    | I/O  |
| 5  | DATA2      | DATA2 PARALLEL / NC SERIAL      | I/O  |
| 6  | INS        | STICK DETECT (CONNECTED TO VSS) | O    |
| 7  | DATA3      | DATA3 PARALLEL / NC SERIAL      | I/O  |
| 8  | SCLK       | CLOCK SIGNAL                    | I    |
| 9  | VCC        | POWER SUPPLY (2.7V - 3.6V)      | -    |
| 10 | VSS        | GROUND                          | -    |

*I: Input to Card, O: Output from Card, I/O: Bi-directional*



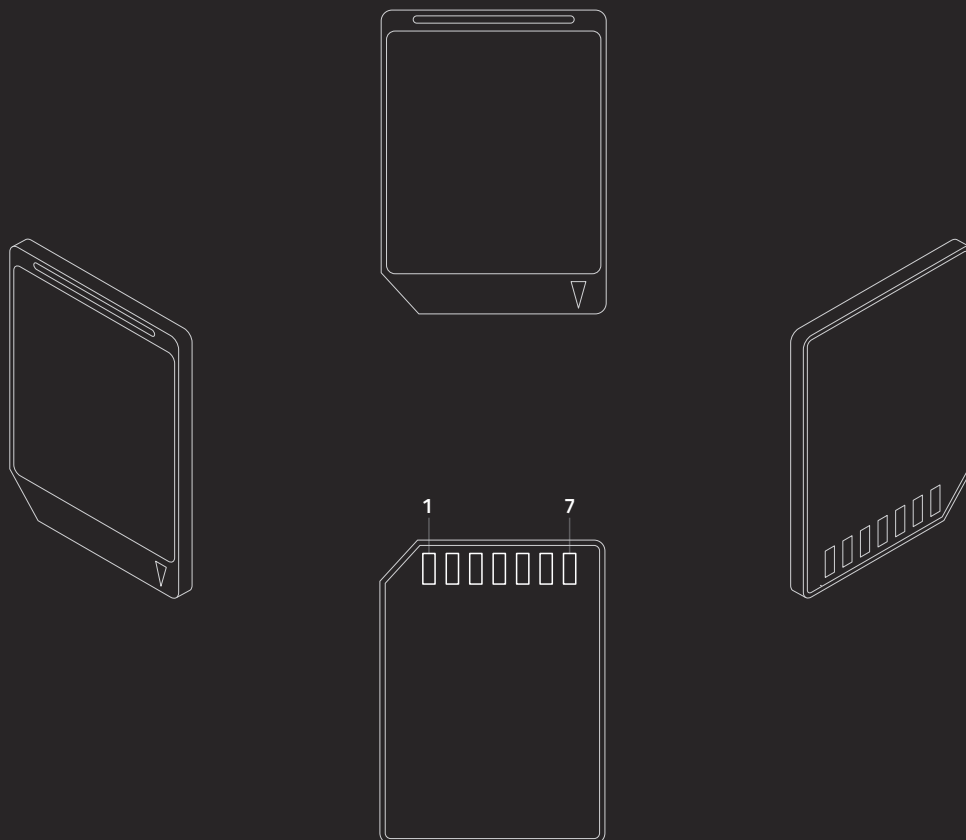
8

1



| SD MODE |      |                      | SPI MODE |      |                      |
|---------|------|----------------------|----------|------|----------------------|
| #       | NAME | NOTES                | #        | NAME | NOTES                |
| 1       | DAT2 | DATA LINE (BIT 2)    | 1        | NC   | NOT CONNECTED        |
| 2       | DAT3 | CARD DETECT          | 2        | CS   | CHIP SELECT          |
| 3       | CMD  | COMMAND/RESPONSE     | 3        | DI   | DATA INPUT           |
| 4       | VDD  | POWER SUPPLY (3.3V*) | 4        | VDD  | POWER SUPPLY (3.3V*) |
| 5       | CLK  | CLOCK                | 5        | SCLK | SERIAL CLOCK         |
| 6       | VSS  | GROUND               | 6        | VSS  | GROUND               |
| 7       | DAT0 | DATA LINE (BIT 0)    | 7        | DO   | DATA OUT             |
| 8       | DAT1 | DATA LINE (BIT 1)    | 8        | RSV  | RESERVED             |

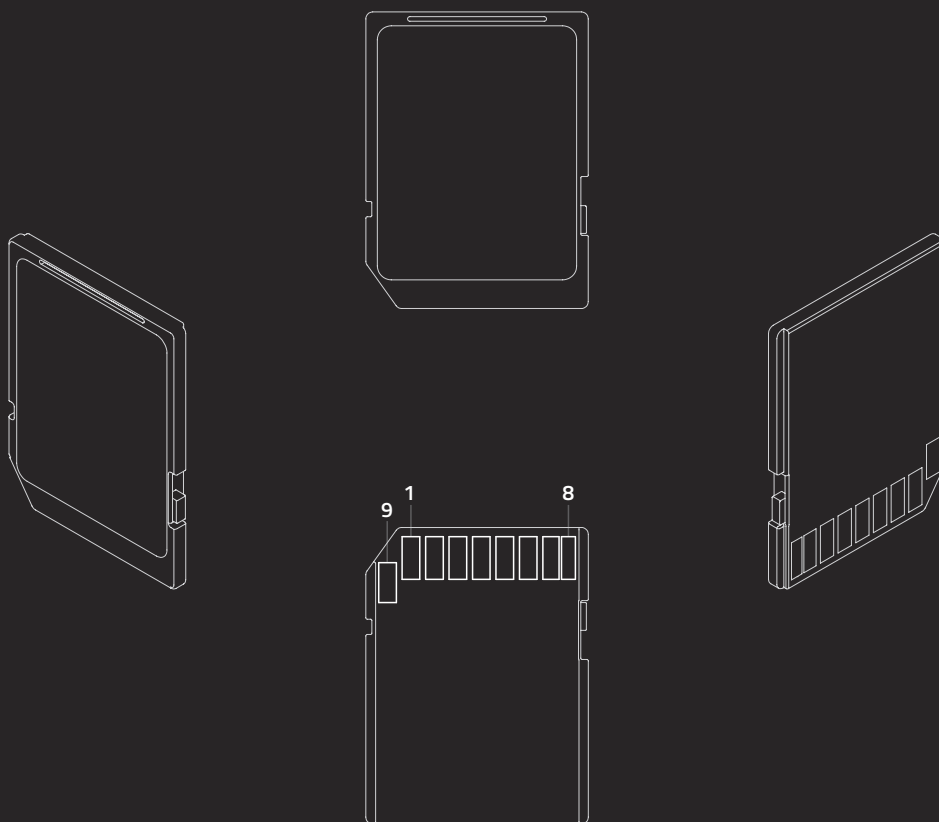
*\* Some cards have an operating voltage range of 2.7V - 3.6V*



| MULTIMEDIA CARD MODE |      |                  |
|----------------------|------|------------------|
| #                    | NAME | NOTES            |
| 1                    | RSV  | RESERVED         |
| 2                    | CMD  | COMMAND/RESPONSE |
| 3                    | VSS1 | GROUND           |
| 4                    | VCC  | POWER SUPPLY     |
| 5                    | CLK  | CLOCK            |
| 6                    | VSS2 | GROUND           |
| 7                    | DAT  | DATA LINE        |

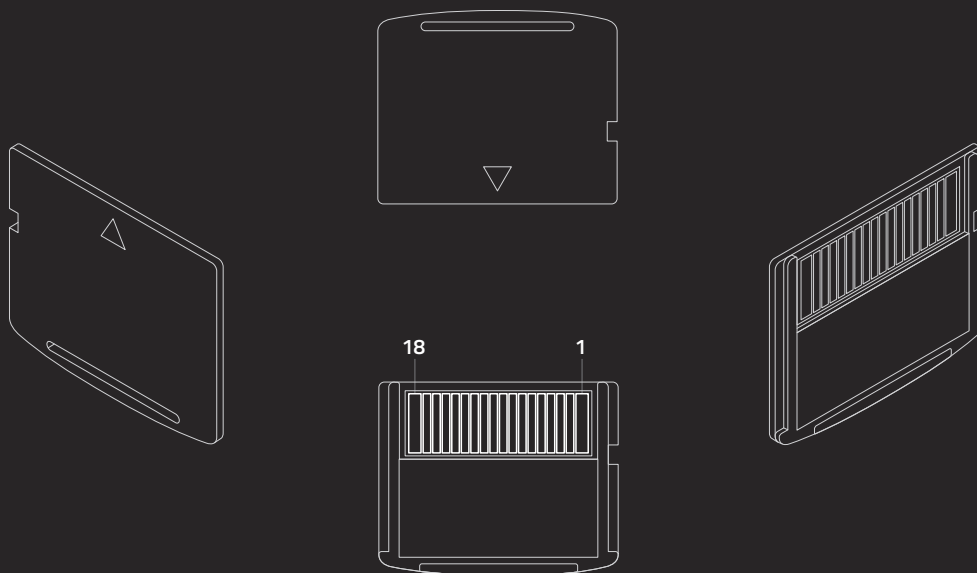
| SPI MODE |      |              |
|----------|------|--------------|
| #        | NAME | NOTES        |
| 1        | CS   | CHIP SELECT  |
| 2        | DI   | DATA IN      |
| 3        | VSS1 | GROUND       |
| 4        | VCC  | POWER SUPPLY |
| 5        | SCLK | SERIAL CLOCK |
| 6        | VSS2 | GROUND       |
| 7        | DO   | DATA OUT     |





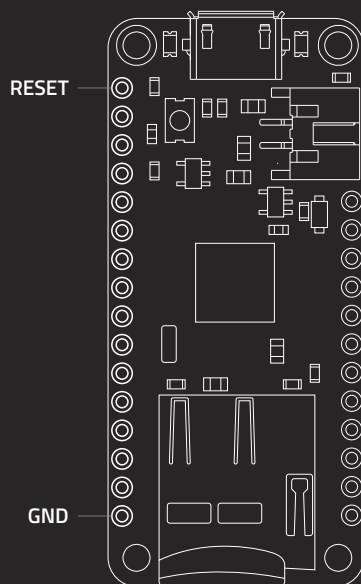
| SD MODE |      |                     |
|---------|------|---------------------|
| #       | NAME | NOTES               |
| 1       | DAT3 | DATA LINE (BIT 3)   |
| 2       | CMD  | COMMAND/RESPONSE    |
| 3       | VSS1 | GROUND              |
| 4       | VDD  | POWER SUPPLY (3.3V) |
| 5       | CLK  | CLOCK               |
| 6       | VSS  | GROUND              |
| 7       | DAT0 | DATA LINE (BIT 0)   |
| 8       | DAT1 | DATA LINE (BIT 1)   |
| 9       | DAT2 | DATA LINE (BIT 2)   |

| SPI MODE |      |                     |
|----------|------|---------------------|
| #        | NAME | NOTES               |
| 1        | CS   | CHIP SELECT         |
| 2        | DI   | DATA IN             |
| 3        | VSS1 | GROUND              |
| 4        | VDD  | POWER SUPPLY (3.3V) |
| 5        | CLK  | CLOCK               |
| 6        | VSS  | GROUND              |
| 7        | DO   | DATA OUT            |
| 8        | NC   | NOT CONNECTED       |
| 9        | NC   | NOT CONNECTED       |



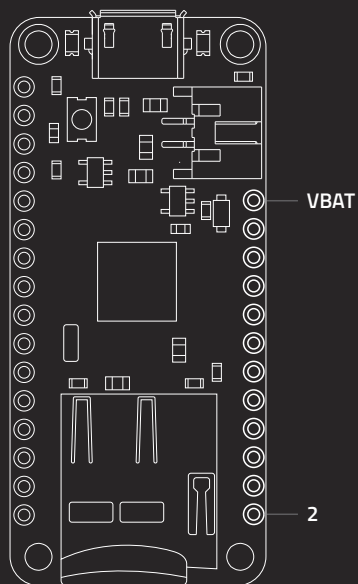
| #  | NAME | NOTES                | TYPE   | PULL UP/DOWN |
|----|------|----------------------|--------|--------------|
| 1  | GND  | GROUND/(CARD DETECT) | (O)    | -            |
| 2  | R/-B | READY/BUSY           | O (OD) | -            |
| 3  | -RE  | READ ENABLE          | I      | UP           |
| 4  | -CE  | CARD ENABLE          | I      | UP           |
| 5  | CLE  | COMMAND LATCH ENABLE | I      | DOWN         |
| 6  | ALE  | ADDRESS LATCH ENABLE | I      | DOWN         |
| 7  | -WE  | WRITE ENABLE         | I      | UP           |
| 8  | -WP  | WRITE PROTECT        | I      | DOWN         |
| 9  | GND  | GROUND               | -      | -            |
| 10 | D0   | DATA0                | I/O    | DOWN         |
| 11 | D1   | DATA1                | I/O    | DOWN         |
| 12 | D2   | DATA2                | I/O    | DOWN         |
| 13 | D3   | DATA3                | I/O    | DOWN         |
| 14 | D4   | DATA4                | I/O    | DOWN         |
| 15 | D5   | DATA5                | I/O    | DOWN         |
| 16 | D6   | DATA6                | I/O    | DOWN         |
| 17 | D7   | DATA7                | I/O    | DOWN         |
| 18 | VCC  | POWER SUPPLY         | -      | -            |

*I: Input to Card, O: Output from Card, I/O: Bi-directional, OD: Open drain*



|   | NAME  | PHYSICAL | PORT | SERIAL   | ANALOG | INTERRUPT | IDE     | SD CARD |
|---|-------|----------|------|----------|--------|-----------|---------|---------|
| ⊙ | RST   | 13       |      |          |        |           |         |         |
| ⊙ | 3.3V  |          |      |          |        |           |         |         |
| ⊙ | AREF* | 42       |      |          |        |           |         |         |
| ⊙ | GND   |          |      |          |        |           |         |         |
| ⊙ | A0    | 36       | PF7  | TDI      | ADC7   |           | 18 / A0 |         |
| ⊙ | A1    | 37       | PF6  | TDO      | ADC6   |           | 19 / A1 |         |
| ⊙ | A2    | 38       | PF5  | TMS      | ADC5   |           | 20 / A2 |         |
| ⊙ | A3    | 39       | PF4  | TCK      | ADC4   |           | 21 / A3 |         |
| ⊙ | A4    | 40       | PF1  |          | ADC1   |           | 22 / A4 |         |
| ⊙ | A5    | 41       | PF0  |          | ADC0   |           | 23 / A5 |         |
| ⊙ | SCK   | 9        | PB1  | SCLK     |        | PCINT1    | 15      | YES**   |
| ⊙ | MOSI  | 10       | PB2  | MOSI/PDI |        | PCINT2    | 16      | YES**   |
| ⊙ | MISO  | 11       | PB3  | MISO/PDO |        | PCINT3    | 14      | YES**   |
| ⊙ | RX0   | 20       | PD2  | RXD1     |        | INT2      | 0       |         |
| ⊙ | TX1   | 21       | PD3  | TXD1     |        | INT3      | 1       |         |
| ⊙ | GND   |          |      |          |        |           |         |         |

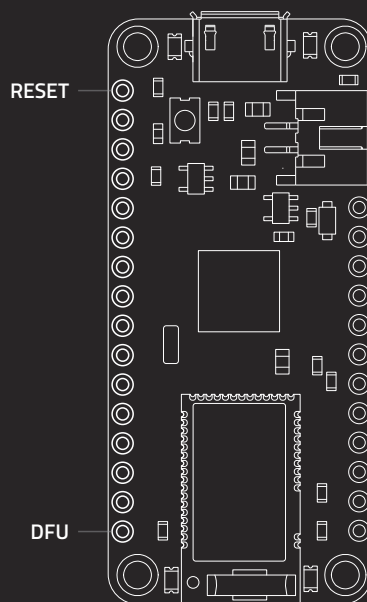
Power: The total current of each port power group should not exceed 100mA. Absolute max per pin 20mA, 10mA recommended. Absolute max 200mA for the entire package.  
\*AREF can't go higher than 3.3V. \*\*Pins also used by the SD Card. Refer to the datasheet for more information.



|   | NAME   | PORT | PHYSICAL | PIN FUNCTION       | INTERRUPT | SERIAL | ANALOG | IDE      |
|---|--------|------|----------|--------------------|-----------|--------|--------|----------|
| ⦿ | VBAT*  |      |          |                    |           |        |        |          |
| ⦿ | EN     |      |          |                    |           |        |        |          |
| ⦿ | VBUS** |      |          |                    |           |        |        |          |
| ⦿ | 13     | PC7  | 32       | CLK0 / OC4A / ICP3 |           |        |        | 13       |
| ⦿ | 12     | PD6  | 26       | T1 / OC4D          |           |        | ADC9   | 12 / A11 |
| ⦿ | 11     | PB7  | 12       | OC1C / OC0A        | PCINT7    | RTS    |        | 11       |
| ⦿ | 10     | PB6  | 30       | OC1B / OC4B        | PCINT6    |        | ADC13  | 10 / A10 |
| ⦿ | 9      | PB5  | 29       | OC1A / OC4B        | PCINT5    |        | ADC12  | 9 / A9   |
| ⦿ | 6      | PD7  | 27       | T0 / OC4D          |           |        | ADC10  | 6 / A7   |
| ⦿ | 5      | PC6  | 31       | OC3A / OC4A        |           |        |        | 5        |
| ⦿ | 3      | PD0  | 18       | OC0B               | INT0      | SCL    |        | 3        |
| ⦿ | 2      | PD1  | 19       |                    | INT1      | SDA    |        | 2        |

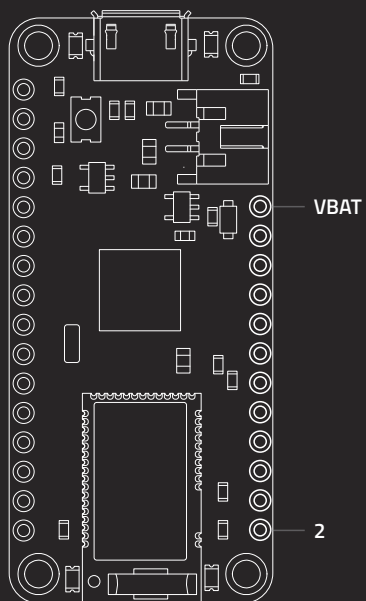
Power: \*VBAT is the positive voltage from JST battery jack. \*\*VBUS connected to 5V USB port. Absolute max 500mA.  
The total current of each port power group should not exceed 100mA. Absolute max per pin 20mA, 10mA recommended. Absolute max 200mA for the entire package. 3V3 output from regulator max 400mA.





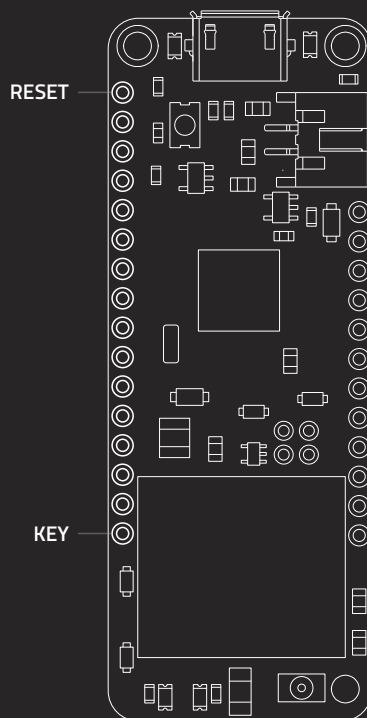
|   | NAME  | PHYSICAL | PORT | SERIAL   | ANALOG | INTERRUPT | IDE     | BLE MODULE |
|---|-------|----------|------|----------|--------|-----------|---------|------------|
| ⊙ | RST   | 13       |      |          |        |           |         |            |
| ⊙ | 3.3V  |          |      |          |        |           |         |            |
| ⊙ | AREF* | 42       |      |          |        |           |         |            |
| ⊙ | GND   |          |      |          |        |           |         |            |
| ⊙ | A0    | 36       | PF7  | TDI      | ADC7   |           | 18 / A0 |            |
| ⊙ | A1    | 37       | PF6  | TDO      | ADC6   |           | 19 / A1 |            |
| ⊙ | A2    | 38       | PF5  | TMS      | ADC5   |           | 20 / A2 |            |
| ⊙ | A3    | 39       | PF4  | TCK      | ADC4   |           | 21 / A3 |            |
| ⊙ | A4    | 40       | PF1  |          | ADC1   |           | 22 / A4 |            |
| ⊙ | A5    | 41       | PF0  |          | ADC0   |           | 23 / A5 |            |
| ⊙ | SCK   | 9        | PB1  | SCLK     |        | PCINT1    | 15      | YES***     |
| ⊙ | MOSI  | 10       | PB2  | MOSI/PDI |        | PCINT2    | 16      | YES***     |
| ⊙ | MISO  | 11       | PB3  | MISO/PDO |        | PCINT3    | 14      | YES***     |
| ⊙ | RX0   | 20       | PD2  | RXD1     |        | INT2      | 0       |            |
| ⊙ | TX1   | 21       | PD3  | TXD1     |        | INT3      | 1       |            |
| ⊙ | DFU** |          |      |          |        |           |         |            |

Power: The total current of each port power group should not exceed 100mA. Absolute max per pin 20mA, 10mA recommended. Absolute max 200mA for the entire package.  
\*AREF can't go higher than 3.3V. \*\*Used for BLE firmware update. Usually keep it disconnected. \*\*\*Pins also used by the BLE module. For more information refer to the datasheet.



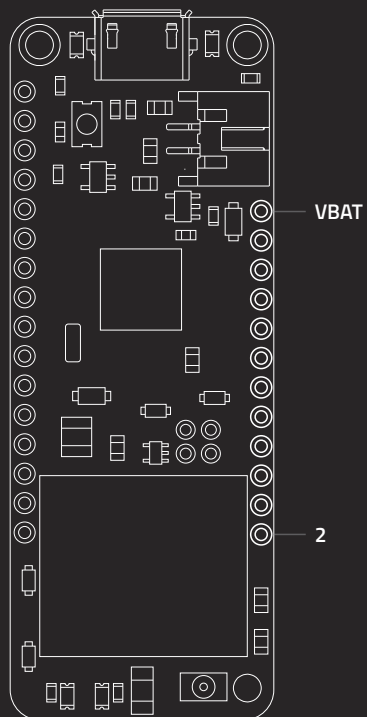
|   | NAME   | PORT | PHYSICAL | PIN FUNCTION       | INTERRUPT | SERIAL | ANALOG | IDE      |
|---|--------|------|----------|--------------------|-----------|--------|--------|----------|
| ⦿ | VBAT*  |      |          |                    |           |        |        |          |
| ⦿ | EN     |      |          |                    |           |        |        |          |
| ⦿ | VBUS** |      |          |                    |           |        |        |          |
| ⦿ | 13     | PC7  | 32       | CLK0 / OC4A / ICP3 |           |        |        | 13       |
| ⦿ | 12     | PD6  | 26       | T1 / OC4D          |           |        | ADC9   | 12 / A11 |
| ⦿ | 11     | PB7  | 12       | OC1C / OC0A        | PCINT7    | RTS    |        | 11       |
| ⦿ | 10     | PB6  | 30       | OC1B / OC4B        | PCINT6    |        | ADC13  | 10 / A10 |
| ⦿ | 9      | PB5  | 29       | OC1A / OC4B        | PCINT5    |        | ADC12  | 9 / A9   |
| ⦿ | 6      | PD7  | 27       | T0 / OC4D          |           |        | ADC10  | 6 / A7   |
| ⦿ | 5      | PC6  | 31       | OC3A / OC4A        |           |        |        | 5        |
| ⦿ | 3      | PD0  | 18       | OC0B               | INT0      | SCL    |        | 3        |
| ⦿ | 2      | PD1  | 19       |                    | INT1      | SDA    |        | 2        |

Power: \*VBAT is the positive voltage from JST battery jack. \*\*VBUS connected to 5V USB port. Absolute max 500mA.  
The total current of each port power group should not exceed 100mA. Absolute max per pin 20mA, 10mA recommended. Absolute max 200mA for the entire package. 3V3 output from regulator max 400mA.



|   | NAME  | PHYSICAL | PORT | SERIAL   | ANALOG | INTERRUPT | IDE     |
|---|-------|----------|------|----------|--------|-----------|---------|
| ⊙ | RST   | 13       |      |          |        |           |         |
| ⊙ | 3.3V  |          |      |          |        |           |         |
| ⊙ | AREF* | 42       |      |          |        |           |         |
| ⊙ | GND   |          |      |          |        |           |         |
| ⊙ | A0    | 36       | PF7  | TDI      | ADC7   |           | 18 / A0 |
| ⊙ | A1    | 37       | PF6  | TDO      | ADC6   |           | 19 / A1 |
| ⊙ | A2    | 38       | PF5  | TMS      | ADC5   |           | 20 / A2 |
| ⊙ | A3    | 39       | PF4  | TCK      | ADC4   |           | 21 / A3 |
| ⊙ | A4    | 40       | PF1  |          | ADC1   |           | 22 / A4 |
| ⊙ | A5    | 41       | PF0  |          | ADC0   |           | 23 / A5 |
| ⊙ | SCK   | 9        | PB1  | SCLK     |        | PCINT1    | 15      |
| ⊙ | MOSI  | 10       | PB2  | MOSI/PDI |        | PCINT2    | 16      |
| ⊙ | MISO  | 11       | PB3  | MISO/PDO |        | PCINT3    | 14      |
| ⊙ | RX0   | 20       | PD2  | RXD1     |        | INT2      | 0       |
| ⊙ | TX1   | 21       | PD3  | TXD1     |        | INT3      | 1       |
| ⊙ | KEY** |          |      |          |        |           |         |

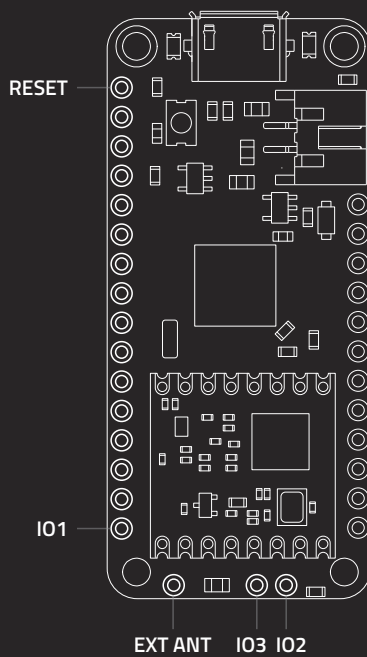
Power: The total current of each port power group should not exceed 100mA. Absolute max per pin 20mA, 10mA recommended. Absolute max 200mA for the entire package.  
\*AREF can't go higher than 3.3V. \*\*Manual module power control (cut the trace on bottom before).



|   | NAME   | PORT | PHYSICAL | PIN FUNCTION       | INTERRUPT | SERIAL | ANALOG | IDE      |
|---|--------|------|----------|--------------------|-----------|--------|--------|----------|
| ⦿ | VBAT*  |      |          |                    |           |        |        |          |
| ⦿ | EN     |      |          |                    |           |        |        |          |
| ⦿ | VBUS** |      |          |                    |           |        |        |          |
| ⦿ | 13     | PC7  | 32       | CLK0 / OC4A / ICP3 |           |        |        | 13       |
| ⦿ | 12     | PD6  | 26       | T1 / OC4D          |           |        | ADC9   | 12 / A11 |
| ⦿ | 11     | PB7  | 12       | OC1C / OC0A        | PCINT7    | RTS    |        | 11       |
| ⦿ | 10     | PB6  | 30       | OC1B / OC4B        | PCINT6    |        | ADC13  | 10 / A10 |
| ⦿ | 9      | PB5  | 29       | OC1A / OC4B        | PCINT5    |        | ADC12  | 9 / A9   |
| ⦿ | 6      | PD7  | 27       | T0 / OC4D          |           |        | ADC10  | 6 / A7   |
| ⦿ | 5      | PC6  | 31       | OC3A / OC4A        |           |        |        | 5        |
| ⦿ | 3      | PD0  | 18       | OC0B               | INT0      | SCL    |        | 3        |
| ⦿ | 2      | PD1  | 19       |                    | INT1      | SDA    |        | 2        |

Power: \*VBAT is the positive voltage from JST battery jack. \*\*VBUS connected to 5V USB port. Absolute max 500mA.  
The total current of each port power group should not exceed 100mA. Absolute max per pin 20mA, 10mA recommended. Absolute max 200mA for the entire package. 3V3 output from regulator max 400mA.

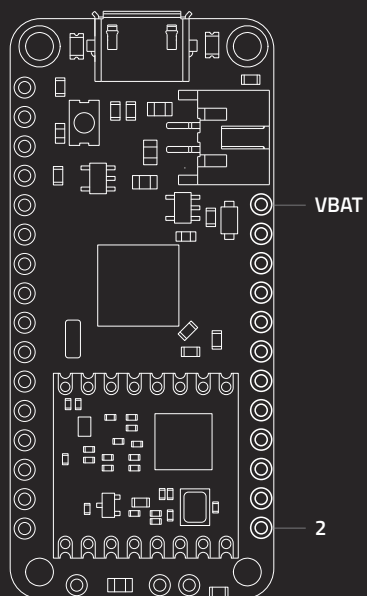




|   | NAME  | PHYSICAL | PORT | SERIAL   | ANALOG | INTERRUPT | IDE     | RFM RADIO |
|---|-------|----------|------|----------|--------|-----------|---------|-----------|
| ⊙ | RST   | 13       |      |          |        |           |         |           |
| ⊙ | 3.3V  |          |      |          |        |           |         |           |
| ⊙ | AREF* | 42       |      |          |        |           |         |           |
| ⊙ | GND   |          |      |          |        |           |         |           |
| ⊙ | A0    | 36       | PF7  | TDI      | ADC7   |           | 18 / A0 |           |
| ⊙ | A1    | 37       | PF6  | TDO      | ADC6   |           | 19 / A1 |           |
| ⊙ | A2    | 38       | PF5  | TMS      | ADC5   |           | 20 / A2 |           |
| ⊙ | A3    | 39       | PF4  | TCK      | ADC4   |           | 21 / A3 |           |
| ⊙ | A4    | 40       | PF1  |          | ADC1   |           | 22 / A4 |           |
| ⊙ | A5    | 41       | PF0  |          | ADC0   |           | 23 / A5 |           |
| ⊙ | SCK   | 9        | PB1  | SCLK     |        | PCINT1    | 15      | YES**     |
| ⊙ | MOSI  | 10       | PB2  | MOSI/PDI |        | PCINT2    | 16      | YES**     |
| ⊙ | MISO  | 11       | PB3  | MISO/PDO |        | PCINT3    | 14      | YES**     |
| ⊙ | RX0   | 20       | PD2  | RXD1     |        | INT2      | 0       |           |
| ⊙ | TX1   | 21       | PD3  | TXD1     |        | INT3      | 1       |           |
| ⊙ | IO1   |          |      |          |        |           |         |           |

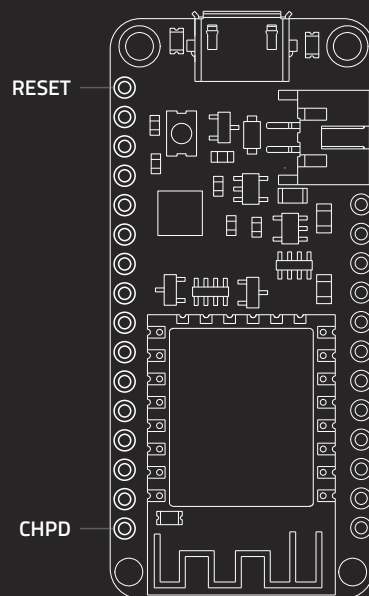
*Power: The total current of each port power group should not exceed 100mA. Absolute max per pin 20mA, 10mA recommended. Absolute max 200mA for the entire package.*

*\*AREF can't go higher than 3.3V. \*\*These pins are also used by the radio module. Refer to the datasheet for more information.*



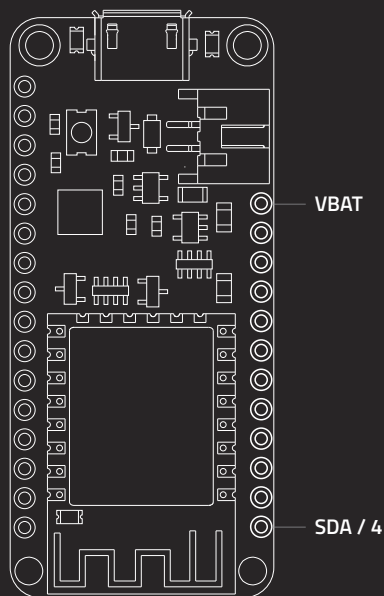
|   | NAME   | PORT | PHYSICAL | PIN FUNCTION       | INTERRUPT | SERIAL | ANALOG | IDE      |
|---|--------|------|----------|--------------------|-----------|--------|--------|----------|
| ⊙ | VBAT*  |      |          |                    |           |        |        |          |
| ⊙ | EN     |      |          |                    |           |        |        |          |
| ⊙ | VBUS** |      |          |                    |           |        |        |          |
| ⊙ | 13     | PC7  | 32       | CLK0 / OC4A / ICP3 |           |        |        | 13       |
| ⊙ | 12     | PD6  | 26       | T1 / OC4D          |           |        | ADC9   | 12 / A11 |
| ⊙ | 11     | PB7  | 12       | OC1C / OC0A        | PCINT7    | RTS    |        | 11       |
| ⊙ | 10     | PB6  | 30       | OC1B / OC4B        | PCINT6    |        | ADC13  | 10 / A10 |
| ⊙ | 9      | PB5  | 29       | OC1A / OC4B        | PCINT5    |        | ADC12  | 9 / A9   |
| ⊙ | 6      | PD7  | 27       | T0 / OC4D          |           |        | ADC10  | 6 / A7   |
| ⊙ | 5      | PC6  | 31       | OC3A / OC4A        |           |        |        | 5        |
| ⊙ | 3      | PD0  | 18       | OC0B               | INT0      | SCL    |        | 3        |
| ⊙ | 2      | PD1  | 19       |                    | INT1      | SDA    |        | 2        |

Power: The total current of each port power group should not exceed 100mA. Absolute max per pin 20mA, 10mA recommended.  
Absolute max 200mA for the entire package. 3V3 output from regulator max 400mA.  
\*VBAT is the positive voltage from JST battery jack. \*\*VBUS connected to 5V USB port. Absolute max 500mA.



|   | NAME | PHYSICAL | PORT | PIN  | SERIAL                        | ANALOG | IDE     |
|---|------|----------|------|------|-------------------------------|--------|---------|
| ⊙ | RST  | 1        |      |      |                               |        |         |
| ⊙ | 3.3V |          |      |      |                               |        |         |
| ⊙ | NC   |          |      |      |                               |        |         |
| ⊙ | GND  |          |      |      |                               |        |         |
| ⊙ | ADC  | 2        | ADC  | TOUT |                               | ADC    | 17 / A0 |
| ⊙ | NC   |          |      |      |                               |        |         |
| ⊙ | NC   |          |      |      |                               |        |         |
| ⊙ | NC   |          |      |      |                               |        |         |
| ⊙ | NC   |          |      |      |                               |        |         |
| ⊙ | NC   |          |      |      |                               |        |         |
| ⊙ | SCK  | 5        | IO14 |      | SCLK / HSPI (CLK)             |        | 14      |
| ⊙ | MOSI | 7        | IO13 |      | MOSI / CTS0 / HSPI (D) / RXD2 |        | 13      |
| ⊙ | MISO | 6        | IO12 |      | MISO / HSPI(Q)                |        | 12      |
| ⊙ | RX   | 15       | IO3  |      | RX / RXD0                     |        | 3       |
| ⊙ | TX   | 16       | IO1  |      | TX / CS1 / TXD0               |        | 1       |
| ⊙ | CHPD | 3        |      |      |                               |        |         |

Power: Absolute maximum current per pin 12mA, 6mA recommended. Absolute maximum 85mA for the entire package

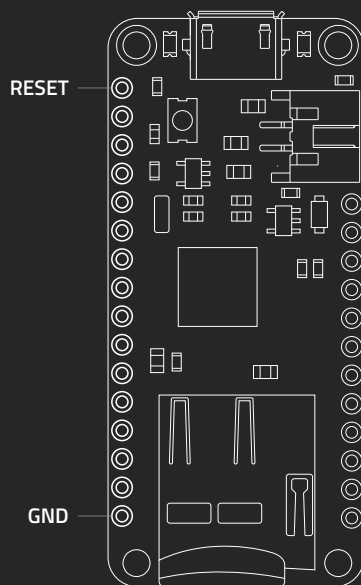


|   | NAME    | PHYSICAL | PORT | PIN  | SERIAL                  | IDE |
|---|---------|----------|------|------|-------------------------|-----|
| ⊙ | VBAT*   |          |      |      |                         |     |
| ⊙ | EN      |          |      |      |                         |     |
| ⊙ | VBUS**  |          |      |      |                         |     |
| ⊙ | 14      | 5        | IO14 |      | HSPI (CLK) / SCK        | 14  |
| ⊙ | 12      | 6        | IO12 |      | HSPI (Q) / MISO         | 12  |
| ⊙ | 13      | 7        | IO13 |      | RXD2 / HSPI (D) / MOSI  | 13  |
| ⊙ | 15      | 10       | IO15 |      | TXD2 / HSPI (CS) / RTS0 | 15  |
| ⊙ | 0       | 12       | IO0  |      | CS2                     | 0   |
| ⊙ | 16      | 4        | IO16 | WAKE |                         | 16  |
| ⊙ | 2       | 11       | IO2  |      | TXD1                    | 2   |
| ⊙ | SCL / 5 | 14       | IO5  |      | SCL                     | 5   |
| ⊙ | SDA / 4 | 13       | IO4  |      | SDA                     | 4   |

Power: Absolute maximum current per pin 12mA, 6mA recommended. Absolute maximum 85mA for the entire package. 3V3 output from regulator (max 400mA).

\*VBAT is the positive voltage from the JST battery jack. \*\*VBUS is connected to the 5V USB port. Absolute maximum current 500mA.

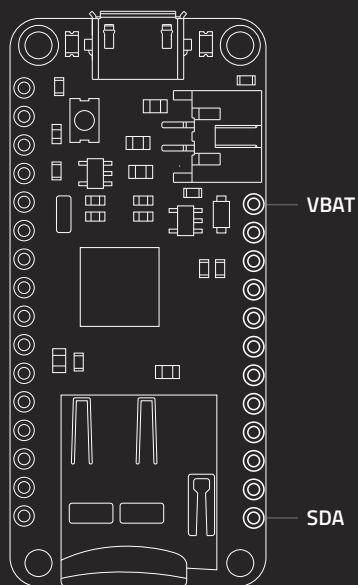




|   | NAME  | PHYSICAL | PORT | INTERRUPT | SERIAL               | ANALOG        | IDE     | SD CARD |
|---|-------|----------|------|-----------|----------------------|---------------|---------|---------|
| ⊙ | RESET | 40       |      |           |                      |               |         |         |
| ⊙ | 3.3V  |          |      |           |                      |               |         |         |
| ⊙ | AREF* | 4        | PA03 | EINT3     |                      | AIN1 / VREF A |         |         |
| ⊙ | GND   |          |      |           |                      |               |         |         |
| ⊙ | A0    | 3        | PA02 | EINT2     |                      | AIN0 / DAC    | 14 / A0 |         |
| ⊙ | A1    | 7        | PB08 | EINT8     | S 4:0                | AIN2          | 15 / A1 |         |
| ⊙ | A2    | 8        | PB09 | EINT9     | S 4:1                | AIN3          | 16 / A2 |         |
| ⊙ | A3    | 9        | PA04 | EINT4     | S 0:0                | AIN4 / VREF B | 17 / A3 |         |
| ⊙ | A4    | 10       | PA05 | EINT5     | S 0:1                | AIN5          | 18 / A4 |         |
| ⊙ | A5    | 47       | PB02 | EINT2     | S 5:0                | AIN10         | 19 / A5 |         |
| ⊙ | SCK   | 20       | PB11 | EINT11    | SCK / S 4:3 / I2SCL  |               | 24      | YES**   |
| ⊙ | MOSI  | 19       | PB10 | EINT10    | MOSI / S 4:2 / I2SMC |               | 23      | YES**   |
| ⊙ | MISO  | 21       | PA12 |           | MISO / S2 4:0 / I2C  |               | 22      | YES**   |
| ⊙ | RX0   | 16       | PA11 | EINT11    | RX / S 02:3 / I2SF0  |               | 0       |         |
| ⊙ | TX1   | 15       | PA10 | EINT10    | TX / S 02:2 / I2SCK  |               | 1       |         |
| ⊙ | GND   |          |      |           |                      |               |         |         |

*Power: The total current of each port power group should not exceed 65mA. Absolute maximum current per pin 10mA, 7mA recommended. Absolute maximum 130mA for the entire package.*

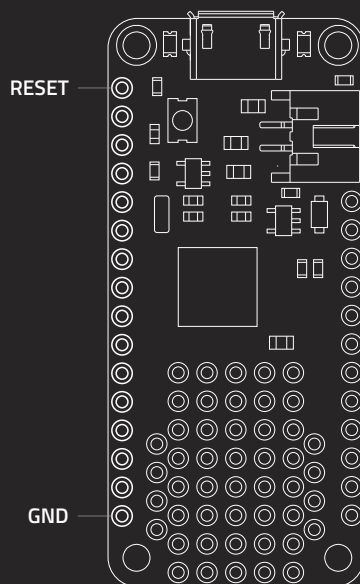
*\*AREF can't go higher than 3.3V \*\*Pins also used by SD card module. Refer to datasheet for more information.*



|   | NAME   | PHYSICAL | PORT | INTERRUPT | SERIAL             | ANALOG | IDE    |
|---|--------|----------|------|-----------|--------------------|--------|--------|
| ⦿ | VBAT*  |          |      |           |                    |        |        |
| ⦿ | EN     |          |      |           |                    |        |        |
| ⦿ | VBUS** |          |      |           |                    |        |        |
| ⦿ | 13     | 26       | PA17 | EINT1     | I2C / S1 3:1       |        | 13     |
| ⦿ | 12     | 28       | PA19 | EINT3     | I2SD0 / S1 3:3     |        | 12     |
| ⦿ | 11     | 25       | PA16 | EINT0     | I2C / S1 3:0       |        | 11     |
| ⦿ | 10     | 27       | PA18 | EINT2     | S1 3:2             |        | 10     |
| ⦿ | 9      | 12       | PA07 | EINT7     | I2SD0 / S 0:3      | AIN7   | 9 / A7 |
| ⦿ | 6      | 29       | PA20 | EINT4     | I2SSC / S3 5:2     |        | 6      |
| ⦿ | 5      | 24       | PA15 | EINT15    | S2 4:3             |        | 5      |
| ⦿ | SCL    | 32       | PA23 | EINT7     | I2C / S3 5:1 / SCL |        | 21     |
| ⦿ | SDA    | 31       | PA22 | EINT6     | I2C / S3 5:0 / SDA |        | 20     |

Power: The total current of each port power group should not exceed 65mA. Absolute maximum current per pin 10mA, 7mA recommended. Absolute maximum 130mA for the entire package.

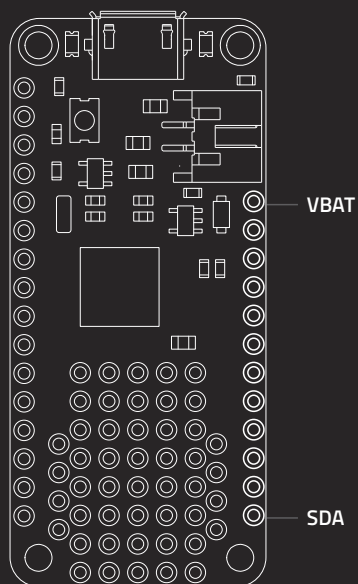
\*VBAT is the positive voltage from the JST battery jack. \*\*VBUS is connected to the 5V USB port. Absolute maximum current 500mA.



|   | NAME  | PHYSICAL | PORT | INTERRUPT | SERIAL               | ANALOG        | IDE     |
|---|-------|----------|------|-----------|----------------------|---------------|---------|
| ⊙ | RESET | 40       |      |           |                      |               |         |
| ⊙ | 3.3V  |          |      |           |                      |               |         |
| ⊙ | AREF* | 4        | PA03 | EINT3     |                      | AIN1 / VREF A |         |
| ⊙ | GND   |          |      |           |                      |               |         |
| ⊙ | A0    | 3        | PA02 | EINT2     |                      | AIN0 / DAC    | 14 / A0 |
| ⊙ | A1    | 7        | PB08 | EINT8     | S 4:0                | AIN2          | 15 / A1 |
| ⊙ | A2    | 8        | PB09 | EINT9     | S 4:1                | AIN3          | 16 / A2 |
| ⊙ | A3    | 9        | PA04 | EINT4     | S 0:0                | AIN4 / VREF B | 17 / A3 |
| ⊙ | A4    | 10       | PA05 | EINT5     | S 0:1                | AIN5          | 18 / A4 |
| ⊙ | A5    | 47       | PB02 | EINT2     | S 5:0                | AIN10         | 19 / A5 |
| ⊙ | SCK   | 20       | PB11 | EINT11    | SCK / S 4:3 / I2SCL  |               | 24      |
| ⊙ | MOSI  | 19       | PB10 | EINT10    | MOSI / S 4:2 / I2SMC |               | 23      |
| ⊙ | MISO  | 21       | PA12 |           | MISO / S2 4:0 / I2C  |               | 22      |
| ⊙ | RX0   | 16       | PA11 | EINT11    | RX / S 02:3 / I2SF0  |               | 0       |
| ⊙ | TX1   | 15       | PA10 | EINT10    | TX / S 02:2 / I2SCK  |               | 1       |
| ⊙ | GND   |          |      |           |                      |               |         |

*Power: The total current of each port power group should not exceed 65mA. Absolute maximum current per pin 10mA, 7mA recommended. Absolute maximum 130mA for the entire package.*

*\*AREF can't go higher than 3.3V*

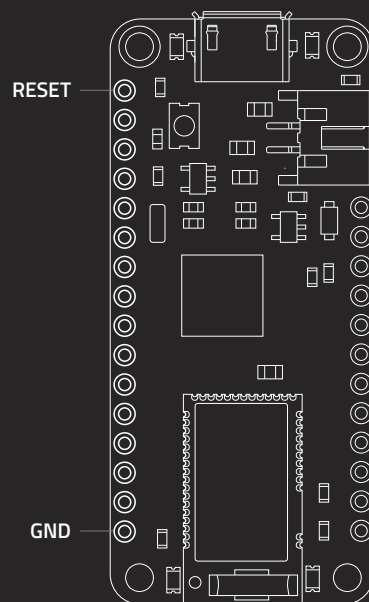


|   | NAME   | PHYSICAL | PORT | INTERRUPT | SERIAL             | ANALOG | IDE    |
|---|--------|----------|------|-----------|--------------------|--------|--------|
| ⊙ | VBAT*  |          |      |           |                    |        |        |
| ⊙ | EN     |          |      |           |                    |        |        |
| ⊙ | VBUS** |          |      |           |                    |        |        |
| ⊙ | 13     | 26       | PA17 | EINT1     | I2C / S1 3:1       |        | 13     |
| ⊙ | 12     | 28       | PA19 | EINT3     | I2SD0 / S1 3:3     |        | 12     |
| ⊙ | 11     | 25       | PA16 | EINT0     | I2C / S1 3:0       |        | 11     |
| ⊙ | 10     | 27       | PA18 | EINT2     | S1 3:2             |        | 10     |
| ⊙ | 9      | 12       | PA07 | EINT7     | I2SD0 / S0 3       | AIN7   | 9 / A7 |
| ⊙ | 6      | 29       | PA20 | EINT4     | I2SSC / S3 5:2     |        | 6      |
| ⊙ | 5      | 24       | PA15 | EINT15    | S2 4:3             |        | 5      |
| ⊙ | SCL    | 32       | PA23 | EINT7     | I2C / S3 5:1 / SCL |        | 21     |
| ⊙ | SDA    | 31       | PA22 | EINT6     | I2C / S3 5:0 / SDA |        | 20     |

*Power: The total current of each port power group should not exceed 65mA. Absolute maximum current per pin 10mA, 7mA recommended. Absolute maximum 130mA for the entire package.*

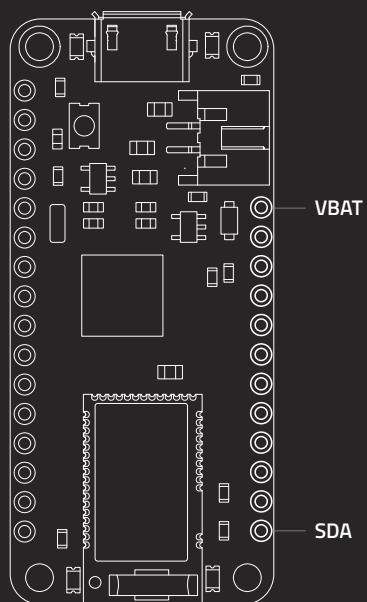
*\*VBAT is the positive voltage from the JST battery jack. \*\*VBUS is connected to the 5V USB port. Absolute maximum current 500mA.*





|   | NAME  | PHYSICAL | PORT | INTERRUPT | SERIAL               | ANALOG        | IDE     | BLE   |
|---|-------|----------|------|-----------|----------------------|---------------|---------|-------|
| ⊙ | RESET | 40       |      |           |                      |               |         |       |
| ⊙ | 3.3V  |          |      |           |                      |               |         |       |
| ⊙ | AREF* | 4        | PA03 | EINT3     |                      | AIN1 / VREF A |         |       |
| ⊙ | GND   |          |      |           |                      |               |         |       |
| ⊙ | A0    | 3        | PA02 | EINT2     |                      | AIN0 / DAC    | 14 / A0 |       |
| ⊙ | A1    | 7        | PB08 | EINT8     | S 4:0                | AIN2          | 15 / A1 |       |
| ⊙ | A2    | 8        | PB09 | EINT9     | S 4:1                | AIN3          | 16 / A2 |       |
| ⊙ | A3    | 9        | PA04 | EINT4     | S 0:0                | AIN4 / VREF B | 17 / A3 |       |
| ⊙ | A4    | 10       | PA05 | EINT5     | S 0:1                | AIN5          | 18 / A4 |       |
| ⊙ | A5    | 47       | PB02 | EINT2     | S 5:0                | AIN10         | 19 / A5 |       |
| ⊙ | SCK   | 20       | PB11 | EINT11    | SCK / S 4:3 / I2SCL  |               | 24      | YES** |
| ⊙ | MOSI  | 19       | PB10 | EINT10    | MOSI / S 4:2 / I2SMC |               | 23      | YES** |
| ⊙ | MISO  | 21       | PA12 |           | MISO / S2 4:0 / I2C  |               | 22      | YES** |
| ⊙ | RX0   | 16       | PA11 | EINT11    | RX / S 02:3 / I2SF0  |               | 0       |       |
| ⊙ | TX1   | 15       | PA10 | EINT10    | TX / S 02:2 / I2SCK  |               | 1       |       |
| ⊙ | GND   |          |      |           |                      |               |         |       |

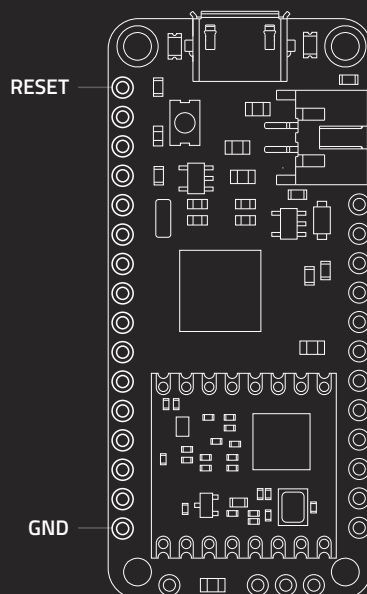
Power: The total current of each port power group should not exceed 65mA. Absolute maximum current per pin 10mA, 7mA recommended. Absolute maximum 130mA for the entire package.  
\*AREF can't go higher than 3.3V \*\*Pins also used by BLE radio module. Refer to datasheet for more information.



|   | NAME   | PHYSICAL | PORT | INTERRUPT | SERIAL             | ANALOG | IDE    |
|---|--------|----------|------|-----------|--------------------|--------|--------|
| ⦿ | VBAT*  |          |      |           |                    |        |        |
| ⦿ | EN     |          |      |           |                    |        |        |
| ⦿ | VBUS** |          |      |           |                    |        |        |
| ⦿ | 13     | 26       | PA17 | EINT1     | I2C / S1 3:1       |        | 13     |
| ⦿ | 12     | 28       | PA19 | EINT3     | I2SD0 / S1 3:3     |        | 12     |
| ⦿ | 11     | 25       | PA16 | EINT0     | I2C / S1 3:0       |        | 11     |
| ⦿ | 10     | 27       | PA18 | EINT2     | S1 3:2             |        | 10     |
| ⦿ | 9      | 12       | PA07 | EINT7     | I2SD0 / S0:3       | AIN7   | 9 / A7 |
| ⦿ | 6      | 29       | PA20 | EINT4     | I2SSC / S3 5:2     |        | 6      |
| ⦿ | 5      | 24       | PA15 | EINT15    | S2 4:3             |        | 5      |
| ⦿ | SCL    | 32       | PA23 | EINT7     | I2C / S3 5:1 / SCL |        | 21     |
| ⦿ | SDA    | 31       | PA22 | EINT6     | I2C / S3 5:0 / SDA |        | 20     |

Power: The total current of each port power group should not exceed 65mA. Absolute maximum current per pin 10mA, 7mA recommended. Absolute maximum 130mA for the entire package.

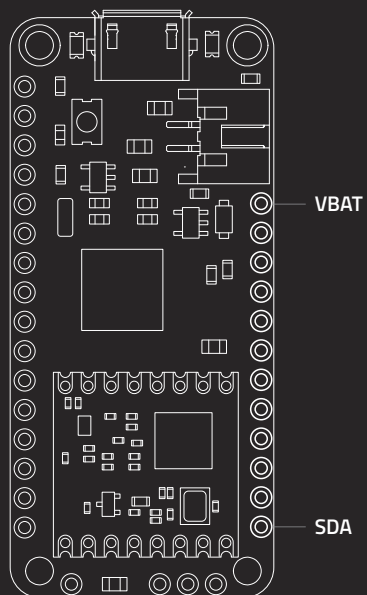
\*VBAT is the positive voltage from the JST battery jack. \*\*VBUS is connected to the 5V USB port. Absolute maximum current 500mA.



|   | NAME  | PHYSICAL | PORT | INTERRUPT | SERIAL               | ANALOG        | IDE     | RFM   |
|---|-------|----------|------|-----------|----------------------|---------------|---------|-------|
| ⊙ | RESET | 40       |      |           |                      |               |         |       |
| ⊙ | 3.3V  |          |      |           |                      |               |         |       |
| ⊙ | AREF* | 4        | PA03 | EINT3     |                      | AIN1 / VREF A |         |       |
| ⊙ | GND   |          |      |           |                      |               |         |       |
| ⊙ | A0    | 3        | PA02 | EINT2     |                      | AIN0 / DAC    | 14 / A0 |       |
| ⊙ | A1    | 7        | PB08 | EINT8     | S 4:0                | AIN2          | 15 / A1 |       |
| ⊙ | A2    | 8        | PB09 | EINT9     | S 4:1                | AIN3          | 16 / A2 |       |
| ⊙ | A3    | 9        | PA04 | EINT4     | S 0:0                | AIN4 / VREF B | 17 / A3 |       |
| ⊙ | A4    | 10       | PA05 | EINT5     | S 0:1                | AIN5          | 18 / A4 |       |
| ⊙ | A5    | 47       | PB02 | EINT2     | S 5:0                | AIN10         | 19 / A5 |       |
| ⊙ | SCK   | 20       | PB11 | EINT11    | SCK / S 4:3 / I2SCL  |               | 24      | YES** |
| ⊙ | MOSI  | 19       | PB10 | EINT10    | MOSI / S 4:2 / I2SMC |               | 23      | YES** |
| ⊙ | MISO  | 21       | PA12 |           | MISO / S2 4:0 / I2C  |               | 22      | YES** |
| ⊙ | RX0   | 16       | PA11 | EINT11    | RX / S 02:3 / I2SF0  |               | 0       |       |
| ⊙ | TX1   | 15       | PA10 | EINT10    | TX / S 02:2 / I2SCK  |               | 1       |       |
| ⊙ | GND   |          |      |           |                      |               |         |       |

Power: The total current of each port power group should not exceed 65mA. Absolute maximum current per pin 10mA, 7mA recommended. Absolute maximum 130mA for the entire package.

\*AREF can't go higher than 3.3V \*\*Pins also used by RFM radio module. Refer to datasheet for more information.

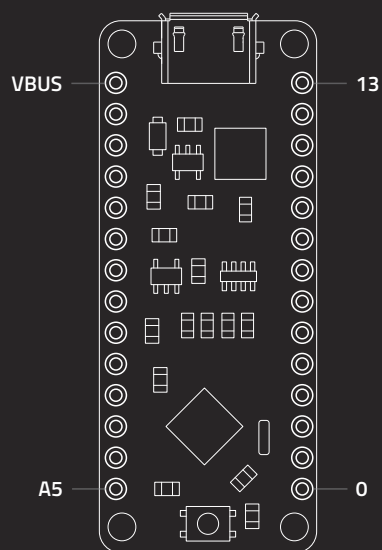


|   | NAME   | PHYSICAL | PORT | INTERRUPT | SERIAL             | ANALOG | IDE    |
|---|--------|----------|------|-----------|--------------------|--------|--------|
| ⊙ | VBAT*  |          |      |           |                    |        |        |
| ⊙ | EN     |          |      |           |                    |        |        |
| ⊙ | VBUS** |          |      |           |                    |        |        |
| ⊙ | 13     | 26       | PA17 | EINT1     | I2C / S1 3:1       |        | 13     |
| ⊙ | 12     | 28       | PA19 | EINT3     | I2SD0 / S1 3:3     |        | 12     |
| ⊙ | 11     | 25       | PA16 | EINT0     | I2C / S1 3:0       |        | 11     |
| ⊙ | 10     | 27       | PA18 | EINT2     | S1 3:2             |        | 10     |
| ⊙ | 9      | 12       | PA07 | EINT7     | I2SD0 / S0:3       | AIN7   | 9 / A7 |
| ⊙ | 6      | 29       | PA20 | EINT4     | I2SSC / S3 5:2     |        | 6      |
| ⊙ | 5      | 24       | PA15 | EINT15    | S2 4:3             |        | 5      |
| ⊙ | SCL    | 32       | PA23 | EINT7     | I2C / S3 5:1 / SCL |        | 21     |
| ⊙ | SDA    | 31       | PA22 | EINT6     | I2C / S3 5:0 / SDA |        | 20     |

Power: The total current of each port power group should not exceed 65mA. Absolute maximum current per pin 10mA, 7mA recommended. Absolute maximum 130mA for the entire package.

\*VBAT is the positive voltage from the JST battery jack. \*\*VBUS is connected to the 5V USB port. Absolute maximum current 500mA.

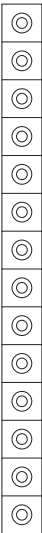


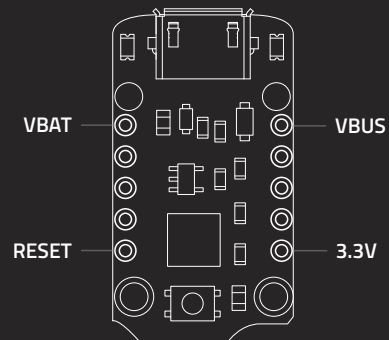




| NAME  | ARDUINO | GPIO | CIRCUITPYTHON | OTHER |
|-------|---------|------|---------------|-------|
| VBUS  |         |      |               |       |
| RESET |         |      |               |       |
| 3.3V  |         |      |               |       |
| 5V    |         |      |               |       |
| GND   |         |      |               |       |
| GND   |         |      |               |       |
| VIN   |         |      |               |       |
| AREF  |         |      | AREF          |       |
| A0    | 14      | PC0  | AD0           |       |
| A1    | 15      | PC1  | AD1           |       |
| A2    | 16      | PC2  | AD2           |       |
| A3    | 17      | PC3  | AD3           |       |
| A4    | 18      | PC4  | AD4           | SDA   |
| A5    | 19      | PC5  | AD5           | SCL   |

| OTHER       | CIRCUITPYTHON | GPIO | ARDUINO | NAME |
|-------------|---------------|------|---------|------|
| SCK         | D13           | PB5  | 13      | 13   |
| MISO        | D12           | PB4  | 12      | 12   |
| MOSI / OC2A | D11           | PB3  | 11      | 11   |
| SS / OC1B   | D10           | PB2  | 10      | 10   |
| OC1A        | D9            | PB1  | 9       | 9    |
|             | D8            | PB0  | 8       | 8    |
|             | D7            | PD7  | 7       | 7    |
| OC0A        | D6            | PD6  | 6       | 6    |
| OC0B        | D5            | PD5  | 5       | 5    |
|             | D4            | PD4  | 4       | 4    |
| INT1 / OC2B | D3            | PD3  | 3       | 3    |
| INT0        | D2            | PD2  | 2       | 2    |
| TX          | D1            | PD1  | 1       | 1    |
| RX          | D0            | PD0  | 0       | 0    |

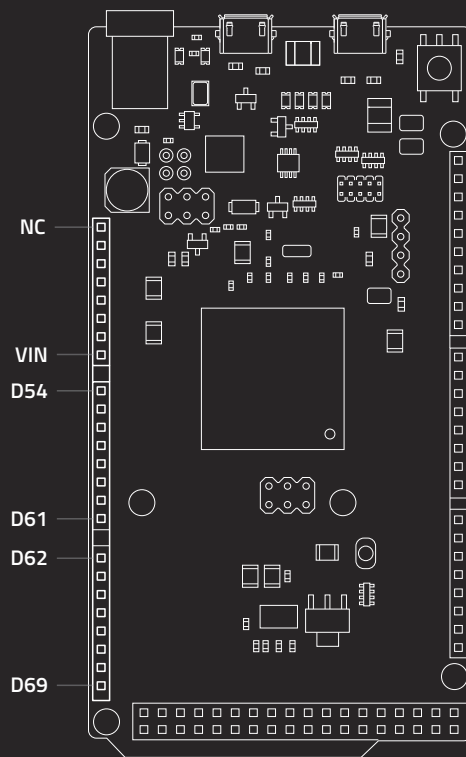




|   | NAME  | GPIO | INT    | PWM   | ADC | SPECIAL |
|---|-------|------|--------|-------|-----|---------|
| ⊙ | VBAT* |      |        |       |     |         |
| ⊙ | GND   |      |        |       |     |         |
| ⊙ | 4     | PB4  | PCINT4 | OC1B  | A2  | USB     |
| ⊙ | 3     | PB3  | PCINT3 | !OC1B | !A3 | USB     |
| ⊙ | RESET |      |        |       |     |         |

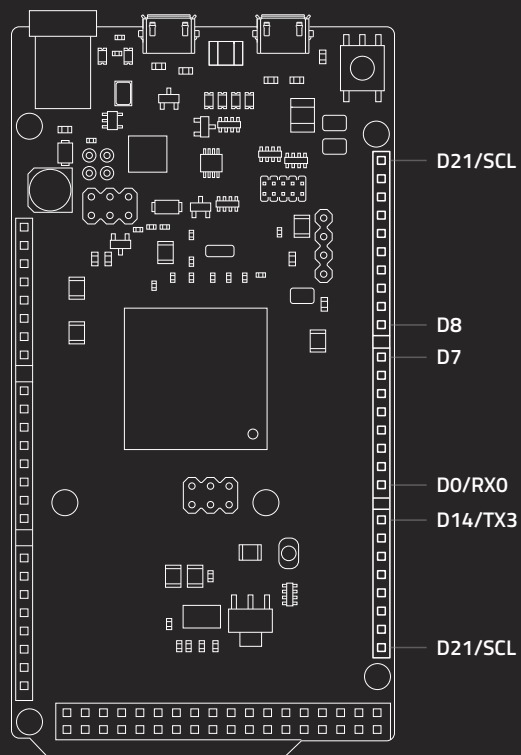
|   | NAME    | GPIO | INT           | PWM          | SPI  | ADC | SPECIAL |
|---|---------|------|---------------|--------------|------|-----|---------|
| ⊙ | VBUS**  |      |               |              |      |     |         |
| ⊙ | 0       | PB0  | PCINT0        | OC0A / !OC1A | MOSI |     |         |
| ⊙ | 1       | PB1  | PCINT1        | OC0B / OC1A  | MISO |     | LED     |
| ⊙ | 2       | PB2  | INT0 / PCINT2 |              | SCK  | A1  |         |
| ⊙ | 3.3V*** |      |               |              |      |     |         |

\*VBAT 4.3-16V Battery \*\*VBUS +USB (+5V 500mA) \*\*\*+3.3V (150mA) regulated from BAT



|                          | NAME        | MAIN FUNCTIONS |         | ANALOG | PWM   | COMMS             | CAN    | TIMER | INTERRUPT |
|--------------------------|-------------|----------------|---------|--------|-------|-------------------|--------|-------|-----------|
| <input type="checkbox"/> | NC          |                |         |        |       |                   |        |       |           |
| <input type="checkbox"/> | IOREF       |                |         |        |       |                   |        |       |           |
| <input type="checkbox"/> | RESET       |                |         |        |       |                   |        |       |           |
| <input type="checkbox"/> | 3.3V        |                |         |        |       |                   |        |       |           |
| <input type="checkbox"/> | 5V          |                |         |        |       |                   |        |       |           |
| <input type="checkbox"/> | GND         |                |         |        |       |                   |        |       |           |
| <input type="checkbox"/> | GND         |                |         |        |       |                   |        |       |           |
| <input type="checkbox"/> | VIN         |                |         |        |       |                   |        |       |           |
|                          |             |                |         |        |       |                   |        |       |           |
| <input type="checkbox"/> | D54 / A0    | PA16           | ADC[0]  | AD[7]  |       | SPCK1             |        |       |           |
| <input type="checkbox"/> | D55 / A1    | PA24           | ADC[1]  | AD[6]  |       |                   |        | PCK1  |           |
| <input type="checkbox"/> | D56 / A2    | PA23           | ADC[2]  | AD[5]  |       |                   |        | TCLK4 |           |
| <input type="checkbox"/> | D57 / A3    | PA22           | ADC[3]  | AD[4]  |       |                   |        | TCLK3 |           |
| <input type="checkbox"/> | D58 / A4    | PA6            | ADC[4]  | AD[3]  |       |                   |        | TIOB2 |           |
| <input type="checkbox"/> | D59 / A5    | PA4            | ADC[5]  | AD[2]  |       |                   |        | TCLK1 |           |
| <input type="checkbox"/> | D60 / A6    | PA3            | ADC[6]  | AD[1]  | PWMF1 |                   |        | TIOB1 | WKUP[1]   |
| <input type="checkbox"/> | D61 / A7    | PA2            | ADC[7]  | AD[0]  |       |                   |        | TIOA1 |           |
|                          |             |                |         |        |       |                   |        |       |           |
| <input type="checkbox"/> | D62 / A8    | PB17           | ADC[8]  | AD[10] | PWML1 |                   |        |       |           |
| <input type="checkbox"/> | D63 / A9    | PB18           | ADC[9]  | AD[11] | PWML2 |                   |        |       |           |
| <input type="checkbox"/> | D64 / A10   | PB19           | ADC[10] | AD[12] | PWML3 |                   |        |       |           |
| <input type="checkbox"/> | D65 / A11   | PB20           | ADC[11] | AD[13] |       | TXD2 / SPI0_NPCS1 |        |       |           |
| <input type="checkbox"/> | D66 / DAC2  | PB15           | DAC[0]  | DAC[0] | PWMH3 |                   | CANRX1 |       | WKUP[12]  |
| <input type="checkbox"/> | D67 / DAC1  | PB16           | DAC[1]  | DAC[1] | PWML0 |                   |        | TCLK5 |           |
| <input type="checkbox"/> | D68 / CANRX | PA1            | CANRX0  |        |       |                   | CANRX0 | PCK0  | WKUP[0]   |
| <input type="checkbox"/> | D69 / CANTX | PA0            | CANTX0  |        | PWML3 |                   | CANTX0 |       |           |

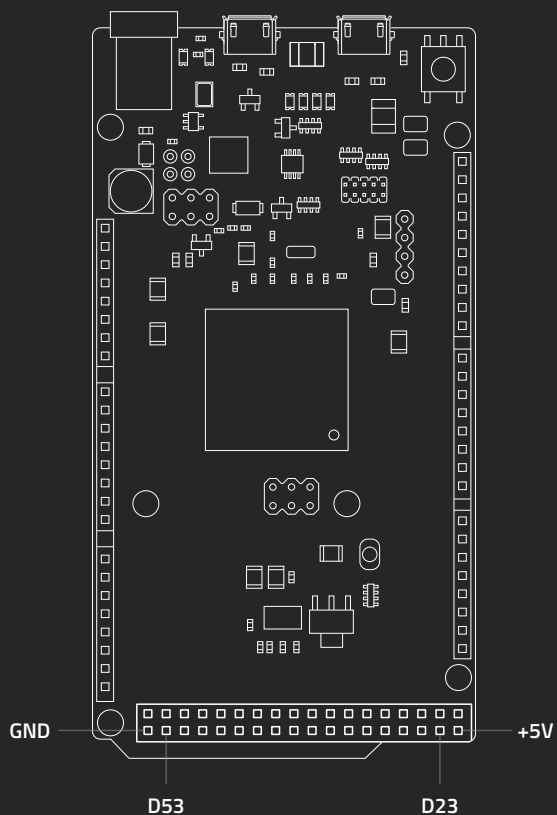
Power: VIN 6-20V input to the board. Total DC output current per I/O lines is 130mA. Extra pinout functions are available in the official documentation.



| NAME                               | MAIN |     | ANALOG | PWM   | COMM       | TIMER | INTERRUPT       |
|------------------------------------|------|-----|--------|-------|------------|-------|-----------------|
| <input type="checkbox"/> D21 / SCL | PA18 | SCL |        |       | TWCK0      |       | WKUP[9]         |
| <input type="checkbox"/> D20 / SDA | PA17 | SDA |        |       | SPCK0/TWDO |       |                 |
| <input type="checkbox"/> AREF      | AREF |     |        |       | AREF       |       |                 |
| <input type="checkbox"/> GND       |      |     |        |       |            |       |                 |
| <input type="checkbox"/> D13       | PB27 |     | AD[10] | PWML1 |            |       |                 |
| <input type="checkbox"/> D12       | PD8  |     |        |       |            | TIOB8 |                 |
| <input type="checkbox"/> D11       | PD7  |     |        |       |            | TIOA8 |                 |
| <input type="checkbox"/> D10       | PA28 |     |        |       | SPI0_NPCS0 | PCK2  | WKUP[11]        |
| <input type="checkbox"/> D9        | PC21 |     |        | PWML4 |            |       |                 |
| <input type="checkbox"/> D8        | PC22 |     |        | PWML5 |            |       |                 |
| <input type="checkbox"/>           |      |     |        |       |            |       |                 |
| <input type="checkbox"/> D7        | PC23 |     |        | PWML6 |            |       |                 |
| <input type="checkbox"/> D6        | PC24 |     |        | PWML7 |            |       |                 |
| <input type="checkbox"/> D5        | PC25 |     |        |       |            | TIOA6 |                 |
| <input type="checkbox"/> D4        | PA29 |     |        |       | SPI0_NPCS1 |       |                 |
| <input type="checkbox"/> D3        | PC28 |     |        |       |            | TIOA7 |                 |
| <input type="checkbox"/> D2        | PB25 |     |        |       | RTS0       | TIOA0 |                 |
| <input type="checkbox"/> D1 / TX0  | PA9  |     |        | PWMH3 | UTXD       |       |                 |
| <input type="checkbox"/> D0 / RX0  | PA8  |     |        | PWMH0 | URXD       |       | WKUP[4]         |
| <input type="checkbox"/>           |      |     |        |       |            |       |                 |
| <input type="checkbox"/> D14 / TX3 | PD4  |     |        |       | TXD3       |       |                 |
| <input type="checkbox"/> D15 / RX3 | PD5  |     |        |       | RXD3       |       |                 |
| <input type="checkbox"/> D16 / TX2 | PA13 |     |        | PWMH2 | TXD1       |       |                 |
| <input type="checkbox"/> D17 / TX2 | PA12 |     |        | PWML1 | RXD1       |       | WKUP[7]         |
| <input type="checkbox"/> D18 / TX1 | PA11 |     |        |       | TXD0       |       | ADTRG / WKUP[6] |
| <input type="checkbox"/> D19 / RX1 | PA10 |     |        |       | RXD0       |       | DATRG / WKUP[5] |
| <input type="checkbox"/> D20 / SDA | PB12 |     | AD[8]  | PWMH0 | TWD1       |       |                 |
| <input type="checkbox"/> D21 / SCL | PB13 |     | AD[9]  | PWMH1 | TWCK1      |       |                 |

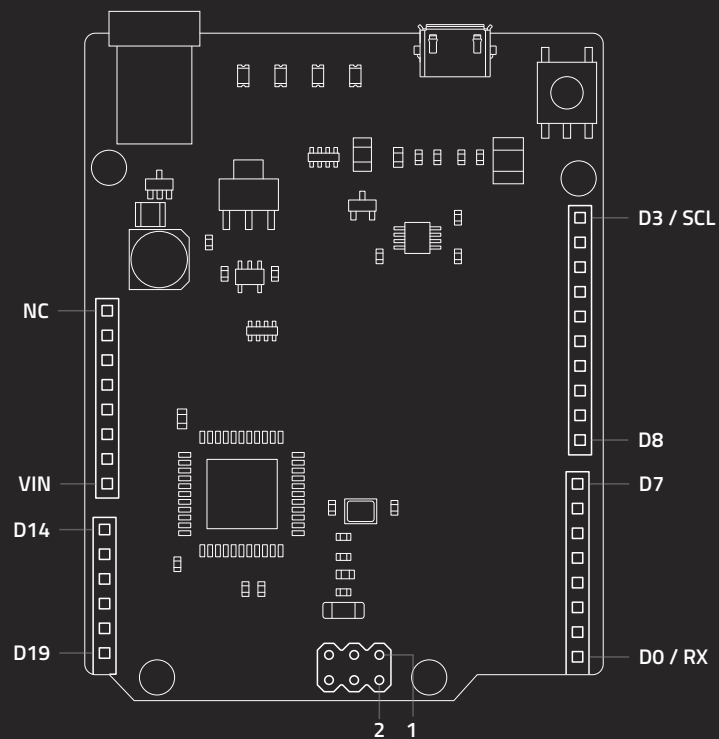
Power: VIN 6-20V input to the board. Total DC output current per I/O lines is 130mA. Extra pinout functions are available in the official documentation.





| ETH   | COMM | PWM   | ANALOG | NAME       |                          |                          | NAME       | PWM    | COMM | CAN    | ETH   |
|-------|------|-------|--------|------------|--------------------------|--------------------------|------------|--------|------|--------|-------|
|       | CTS0 |       |        | +5V        | <input type="checkbox"/> | <input type="checkbox"/> | +5V        |        | RTS1 | +5V    |       |
|       | CTS1 |       |        | PB26 / D22 | <input type="checkbox"/> | <input type="checkbox"/> | D23 / PA14 |        |      |        | MCDA4 |
| MCDA5 |      |       |        | PA15 / D24 | <input type="checkbox"/> | <input type="checkbox"/> | D25 / PD0  |        |      |        | MCDA6 |
| MCDA7 |      |       |        | PD1 / D26  | <input type="checkbox"/> | <input type="checkbox"/> | D27 / PD2  |        |      |        |       |
|       |      |       |        | PD3 / D28  | <input type="checkbox"/> | <input type="checkbox"/> | D29 / PD6  | PWMF12 |      |        |       |
|       |      |       |        | PD9 / D30  | <input type="checkbox"/> | <input type="checkbox"/> | D31 / PA7  |        |      |        |       |
|       |      |       |        | PD10 / D32 | <input type="checkbox"/> | <input type="checkbox"/> | D33 / PC1  |        |      |        |       |
|       |      | PWML0 |        | PC2 / D34  | <input type="checkbox"/> | <input type="checkbox"/> | D35 / PC3  | PWMH0  |      |        |       |
|       |      | PWML1 |        | PC4 / D36  | <input type="checkbox"/> | <input type="checkbox"/> | D37 / PC5  | PWMH1  |      |        |       |
|       |      | PWML2 |        | PC6 / D38  | <input type="checkbox"/> | <input type="checkbox"/> | D39 / PC7  | PWMH2  |      |        |       |
|       |      | PWML3 |        | PC8 / D40  | <input type="checkbox"/> | <input type="checkbox"/> | D41 / PC9  | PWMH3  |      |        |       |
|       |      | PWMH1 |        | PA19 / D42 | <input type="checkbox"/> | <input type="checkbox"/> | D43 / PA20 | PWML2  |      |        |       |
|       |      | PWMH5 |        | PC19 / D44 | <input type="checkbox"/> | <input type="checkbox"/> | D45 / PC18 | PWMH6  |      |        |       |
| ETXER |      |       |        | PC17 / D46 | <input type="checkbox"/> | <input type="checkbox"/> | D47 / PC16 |        |      |        | ETX3  |
| EXT2  |      |       |        | PC15 / D48 | <input type="checkbox"/> | <input type="checkbox"/> | D49 / PC14 |        |      |        | ERXCK |
| ECOL  |      |       |        | PC13 / D50 | <input type="checkbox"/> | <input type="checkbox"/> | D51 / PC12 |        |      |        | ERX3  |
|       |      |       | AD[14] | PB21 / D52 | <input type="checkbox"/> | <input type="checkbox"/> | D53 / PB14 | PWMH2  |      | CANTX1 |       |
|       |      |       |        | GND        | <input type="checkbox"/> | <input type="checkbox"/> | GND        |        |      |        |       |

Power: VIN 6-20V input to the board. Total DC output current per I/O lines is 130mA. Extra pinout functions are available in the official documentation.



| FUNCTIONS |  |
|-----------|--|
| NC        |  |
| IOREF     |  |
| RESET     |  |
| +3V3      |  |
| +5V       |  |
| GND       |  |
| GND       |  |
| VIN       |  |

|          |     |        |                          |
|----------|-----|--------|--------------------------|
| D14 / A0 | PF7 | ADC[7] | TDI JTAG DATA INPUT      |
| D15 / A1 | PF6 | ADC[6] | TDO JTAG DATA OUTPUT     |
| D16 / A2 | PF5 | ADC[5] | TMS JTAG TEST MODE SLECT |
| D17 / A3 | PF4 | ADC[4] | TCK JTAG TEST CLOCK      |
| D18 / A4 | PF1 | ADC[1] |                          |
| D19 / A5 | PF0 | ADC[0] |                          |

| FUNCTIONS |     |         |      |          |
|-----------|-----|---------|------|----------|
|           |     |         | SCL  | D3 / SCL |
|           |     |         | SDA  | D2 / SDA |
|           |     |         | AREF | AREF     |
|           |     |         |      | GND      |
| CLK0/OC4A |     |         | PC7  | D13      |
| T1/OC4D   |     | ADC[9]  | PD6  | D12      |
| OC1C/OC0A | RTS |         | PB7  | D11      |
| OC4B/OC1B |     | ADC[13] | PB6  | D10      |
| OC1A/OC4B |     | ADC[12] | PB5  | D9       |
|           |     | ADC[11] | PB4  | D8       |

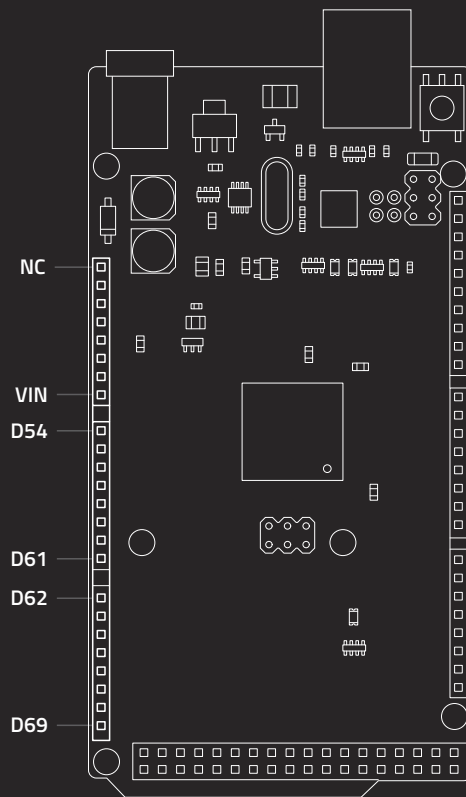
|                |      |         |     |         |
|----------------|------|---------|-----|---------|
|                |      | AIN[0]  | PE6 | D7      |
| T0/OC4D        |      | ADC[10] | PD7 | D6      |
| ICP3/OC3A/OC4A |      |         | PC6 | D5      |
| ICP1           |      | ADC[8]  | PD4 | D4      |
| OC0B           | SCL  |         | PD0 | D3      |
|                | SDA  |         | PD1 | D2      |
|                | TXD1 |         | PD3 | D1 / TX |
|                | RXD1 |         | PD2 | D0 / RX |

| FUNCTIONS |      |       |      | # |
|-----------|------|-------|------|---|
| PCINT[3]  | CIPO | PB3   | CIPO | 1 |
| PCINT[1]  | SCLK | PB1   | SCK  | 3 |
|           |      | RESET |      | 5 |



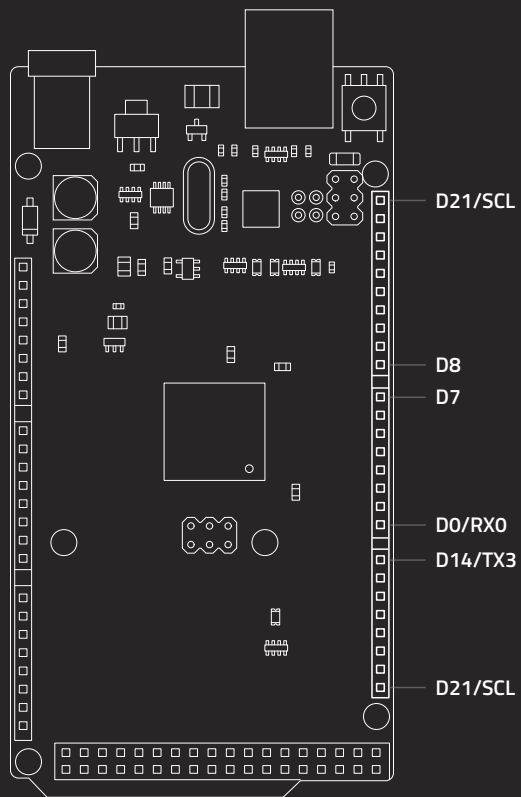
| # | FUNCTIONS |     |      |          |
|---|-----------|-----|------|----------|
| 2 | +5V       |     |      |          |
| 4 | COPI      | PB2 | COPI | PCINT[2] |
| 6 | GND       |     |      |          |

Power: VIN is 6-20V input to the board. Maximum current per I/O pin is 20mA. Maximum current per +3.3V pin is 50mA.



|                          | NAME      | FUNCTIONS |         |                          |           |
|--------------------------|-----------|-----------|---------|--------------------------|-----------|
| <input type="checkbox"/> | NC        |           |         |                          |           |
| <input type="checkbox"/> | IOREF     |           |         |                          |           |
| <input type="checkbox"/> | RESET     |           |         |                          |           |
| <input type="checkbox"/> | +3V3      |           |         |                          |           |
| <input type="checkbox"/> | +5V       |           |         |                          |           |
| <input type="checkbox"/> | GND       |           |         |                          |           |
| <input type="checkbox"/> | GND       |           |         |                          |           |
| <input type="checkbox"/> | VIN       |           |         |                          |           |
|                          |           |           |         |                          |           |
| <input type="checkbox"/> | D54 / A0  | PF0       | ADC[0]  |                          |           |
| <input type="checkbox"/> | D55 / A1  | PF1       | ADC[1]  |                          |           |
| <input type="checkbox"/> | D56 / A2  | PF2       | ADC[2]  |                          |           |
| <input type="checkbox"/> | D57 / A3  | PF3       | ADC[3]  |                          |           |
| <input type="checkbox"/> | D58 / A4  | PF4       | ADC[4]  | TCK JTAG TEST CLOCK      |           |
| <input type="checkbox"/> | D59 / A5  | PF5       | ADC[5]  | TMS JTAG TEST MODE SLECT |           |
| <input type="checkbox"/> | D60 / A6  | PF6       | ADC[6]  | TDO JTAG DATA OUTPUT     |           |
| <input type="checkbox"/> | D61 / A7  | PF7       | ADC[7]  | TDI JTAG DATA INPUT      |           |
|                          |           |           |         |                          |           |
| <input type="checkbox"/> | D62 / A8  | PK0       | ADC[8]  |                          | PCINT[16] |
| <input type="checkbox"/> | D63 / A9  | PK1       | ADC[9]  |                          | PCINT[17] |
| <input type="checkbox"/> | D64 / A10 | PK2       | ADC[10] |                          | PCINT[18] |
| <input type="checkbox"/> | D65 / A11 | PK3       | ADC[11] |                          | PCINT[19] |
| <input type="checkbox"/> | D66 / A12 | PK4       | ADC[12] |                          | PCINT[20] |
| <input type="checkbox"/> | D67 / A13 | PK5       | ADC[13] |                          | PCINT[21] |
| <input type="checkbox"/> | D68 / A14 | PK6       | ADC[14] |                          | PCINT[22] |
| <input type="checkbox"/> | D69 / A15 | PK7       | ADC[15] |                          | PCINT[23] |

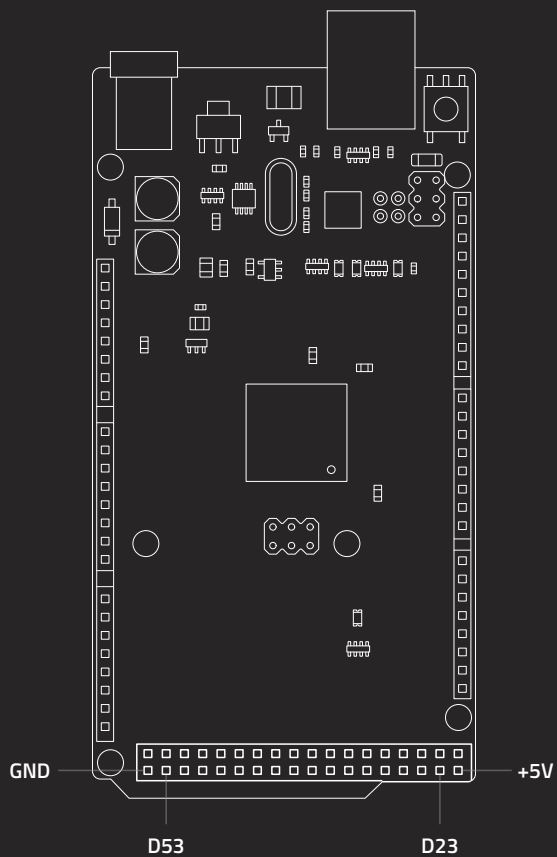
Power: VIN 6-20V input to the board. Maximum current per I/O pin is 20mA. Maximum current per +3.3V pin is 50mA. Extended pinout functions are available in the official documentation.



| NAME                     |           | FUNCTIONS |        |      |           |           |
|--------------------------|-----------|-----------|--------|------|-----------|-----------|
| <input type="checkbox"/> | D21 / SCL | PD0       |        | SCL  |           | INT[0]    |
| <input type="checkbox"/> | D20 / SDA | PD1       |        | SDA  |           | INT[1]    |
| <input type="checkbox"/> | AREF      | AREF      |        |      |           |           |
| <input type="checkbox"/> | GND       |           |        |      |           |           |
| <input type="checkbox"/> | D13       | PB7       |        |      | OC0A/OC1C | PCINT[7]  |
| <input type="checkbox"/> | D12       | PB6       |        |      | OC1B      | PCINT[6]  |
| <input type="checkbox"/> | D11       | PB5       |        |      | OC1A      | PCINT[5]  |
| <input type="checkbox"/> | D10       | PB4       |        |      | OC2A      | PCINT[4]  |
| <input type="checkbox"/> | D9        | PH6       |        |      | OC2B      |           |
| <input type="checkbox"/> | D8        | PH5       |        |      | OC4C      |           |
| <input type="checkbox"/> | D7        | PH4       |        |      | OC4B      |           |
| <input type="checkbox"/> | D6        | PH3       |        |      | OC4A      |           |
| <input type="checkbox"/> | D5        | PE3       | AIN[1] |      | OC3A      |           |
| <input type="checkbox"/> | D4        | PG5       |        |      | OC0B      |           |
| <input type="checkbox"/> | D3        | PE5       |        |      | OC3C      | INT[5]    |
| <input type="checkbox"/> | D2        | PE4       |        |      | OC3B      | INT[4]    |
| <input type="checkbox"/> | D1 / TX0  | PE1       |        | TXD0 |           |           |
| <input type="checkbox"/> | D0 / RX0  | PE0       |        | RXD0 |           | PCINT[8]  |
| <input type="checkbox"/> | D14 / TX3 | PJ1       |        | TXD3 |           | PCINT[10] |
| <input type="checkbox"/> | D15 / RX3 | PJ0       |        | RXD3 |           | PCINT[9]  |
| <input type="checkbox"/> | D16 / TX2 | PH1       |        | TXD2 |           |           |
| <input type="checkbox"/> | D17 / TX2 | PH0       |        | RXD3 |           |           |
| <input type="checkbox"/> | D18 / TX1 | PD3       |        | TXD1 |           | INT[3]    |
| <input type="checkbox"/> | D19 / RX1 | PD2       |        | RXD1 |           | INT[2]    |
| <input type="checkbox"/> | D20 / SDA | PD1       |        | SDA  |           | INT[1]    |
| <input type="checkbox"/> | D21 / SCL | PD0       |        | SCL  |           | INT[0]    |

Power: VIN 6-20V input to the board. Maximum current per I/O pin is 20mA. Maximum current per +3.3V pin is 50mA. Extended pinout functions are available in the official documentation.



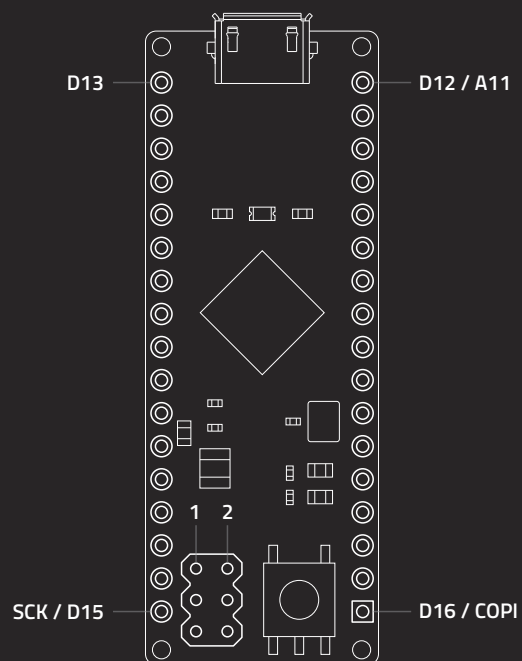


| FUNCTIONS |    |            |     | NAME |
|-----------|----|------------|-----|------|
|           |    |            |     | +5V  |
|           |    | AD0        | PA0 | D22  |
|           |    | AD2        | PA2 | D24  |
|           |    | AD4        | PA4 | D26  |
|           |    | AD6        | PA6 | D28  |
|           |    | A15        | PC7 | D30  |
|           |    | A13        | PC5 | D32  |
|           |    | A11        | PC3 | D34  |
|           |    | A9         | PC1 | D36  |
|           | TO |            | PD7 | D38  |
|           |    | RD         | PG1 | D40  |
|           |    |            | PL7 | D42  |
|           |    |            | PL5 | D44  |
|           |    |            | PL3 | D46  |
|           |    |            | PL1 | D48  |
| PCINT[3]  |    | CPIO (SPI) | PB3 | D50  |
| PCINT[1]  |    | SCL (SPI)  | PB1 | D52  |
|           |    |            |     | GND  |


|                          |                          |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
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| <input type="checkbox"/> | <input type="checkbox"/> |

| NAME | FUNCTIONS |            |          |
|------|-----------|------------|----------|
| +5V  |           |            |          |
| D23  | PA1       | AD1        |          |
| D25  | PA3       | AD3        |          |
| D27  | PA5       | AD5        |          |
| D29  | PC7       | AD7        |          |
| D31  | PC6       | A14        |          |
| D33  | PC4       | A12        |          |
| D35  | PC2       | A10        |          |
| D37  | PC0       | A8         |          |
| D39  | PG2       | ALE        |          |
| D41  | PG0       | WR         |          |
| D43  | PL6       |            |          |
| D45  | PL4       |            |          |
| D47  | PL2       |            |          |
| D49  | PL0       |            |          |
| D51  | PB2       | COPI (SPI) | PCINT[2] |
| D53  | PB0       | SS (SPI)   | PCINT[0] |
| GND  |           |            |          |

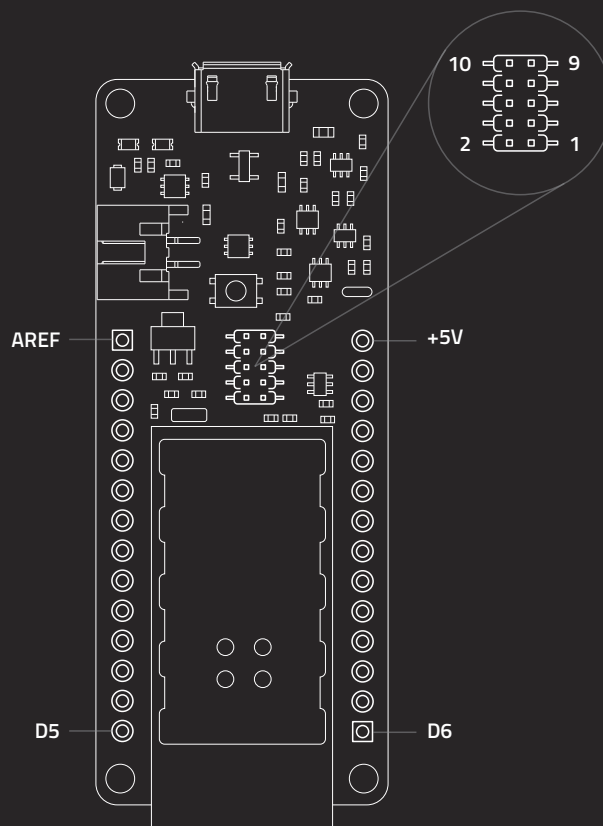
Power: VIN 6-20V input to the board. Maximum current per I/O pin is 20mA. Maximum current per +3.3V pin is 50mA. Extended pinout functions are available in the official documentation.



|   | NAME       | FUNCTIONS |        |  | FUNCTIONS |     | NAME       |   |
|---|------------|-----------|--------|--|-----------|-----|------------|---|
| ○ | D13        | PC7       |        |  |           | PD6 | A11 / D12  | ○ |
| ○ | +3V3       |           |        |  |           | PB7 | D11        | ○ |
| ○ | AREF       | AREF      |        |  |           | PB6 | A10 / D10  | ○ |
| ○ | A0 / D18   | PF7       | ADC[7] |  |           | PB5 | A9 / D9    | ○ |
| ○ | A1 / D19   | PF6       | ADC[6] |  |           | PB4 | A8 / D8    | ○ |
| ○ | A2 / D20   | PF5       | ADC[5] |  |           | PE6 | D7         | ○ |
| ○ | A3 / D21   | PF4       | ADC[4] |  |           | PD7 | A7 / D6    | ○ |
| ○ | A4 / D22   | PF1       | ADC[1] |  |           | PC6 | D5         | ○ |
| ○ | A5 / D23   | PF0       | ADC[0] |  |           | PD4 | A6 / D4    | ○ |
| ○ | NC         |           |        |  |           | PD0 | SCL / D3   | ○ |
| ○ | NC         |           |        |  |           | PD1 | SDA / D2   | ○ |
| ○ | +5V        |           |        |  |           |     | GND        | ○ |
| ○ | RESET      |           |        |  |           |     | RESET      | ○ |
| ○ | GND        |           |        |  |           | PD2 | RX / D0    | ○ |
| ○ | VIN        |           |        |  |           | PD3 | TX / D1    | ○ |
| ○ | CIPO / D14 | PB3       | CIPO   |  | SS        | PB0 | SS / D17   | ○ |
| ○ | SCK / D15  | PB1       | SCK    |  | COPI      | PB2 | COPI / D16 | ⊠ |

| FUNCTIONS |      |     |       | # |   | # | FUNCTIONS |     |      |          |
|-----------|------|-----|-------|---|---|---|-----------|-----|------|----------|
| PCINT[3]  | CIPO | PB3 | CIPO  | 1 |  | 2 | +5V       |     |      |          |
| PCINT[1]  | SCLK | PB1 | SCK   | 3 |   | 4 | COPI      | PB2 | COPI | PCINT[2] |
|           |      |     | RESET | 5 |   | 6 | GND       |     |      |          |

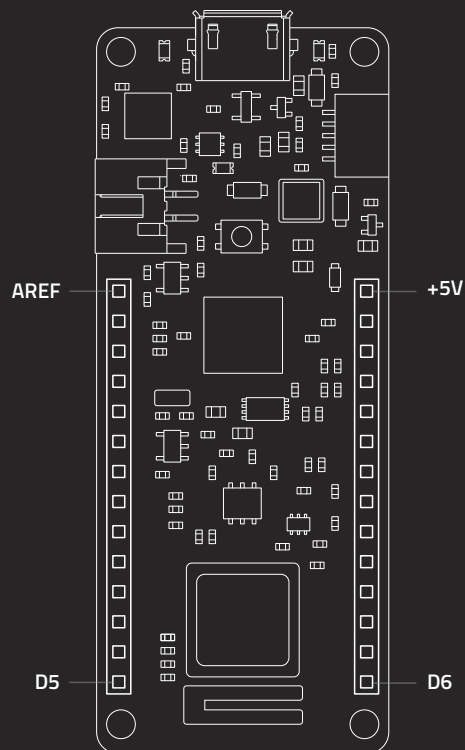
Power: VIN 6-9V input to the board. Maximum current per I/O pin is 40mA. Maximum current per +3.3V pin is 50mA



|   | NAME     | FUNCTIONS |               |  | FUNCTIONS  |      | NAME  |   |
|---|----------|-----------|---------------|--|------------|------|-------|---|
| □ | AREF     | PA03      | AREF / AIN[1] |  |            |      | +5V   | ○ |
| ○ | D15 / A0 | PA02      | DAC0 / AIN[0] |  |            |      | VIN   | ○ |
| ○ | D16 / A1 | PB02      | AIN[10]       |  |            |      | +3V3  | ○ |
| ○ | D17 / A2 | PB03      | AIN[11]       |  |            |      | GND   | ○ |
| ○ | D18 / A3 | PA04      | AIN[4]        |  |            |      | RESET | ○ |
| ○ | D19 / A4 | PA05      | AIN[5]        |  | TX (SC5)   | PB22 | D14   | ○ |
| ○ | D20 / A5 | PA06      | AIN[6]        |  | RX (SC5)   | PB23 | D13   | ○ |
| ○ | D21 / A6 | PA07      | AIN[7]        |  | SCL (SC2)  | PA09 | D12   | ○ |
| ○ | D0       | PA22      |               |  | SDA (SC2)  | PA08 | D11   | ○ |
| ○ | D1       | PA23      |               |  | CIPO (SC1) | PA19 | D10   | ○ |
| ○ | D2       | PA10      |               |  | SCK (SC1)  | PA17 | D9    | ○ |
| ○ | D3       | PA11      |               |  | COP1 (SC1) | PA16 | D8    | ○ |
| ○ | D4       | PB10      |               |  |            | PA21 | D7    | ○ |
| ○ | D5       | PB11      |               |  |            | PA20 | D6    | □ |

| FUNCTIONS    |      |       | #  |     | # | FUNCTIONS |  |
|--------------|------|-------|----|-----|---|-----------|--|
| RESET_N      |      |       | 10 | ○ ○ | 9 | GND       |  |
|              |      |       | 8  | ○ ○ | 7 |           |  |
|              |      |       | 6  | ○ ○ | 5 | GND       |  |
| TCC1 / WO[0] | PA30 | SWCLK | 4  | ○ ○ | 3 | GND       |  |
| TCC1 / WO[1] | PA31 | SWDIO | 2  | ○ ○ | 1 | +3V3      |  |

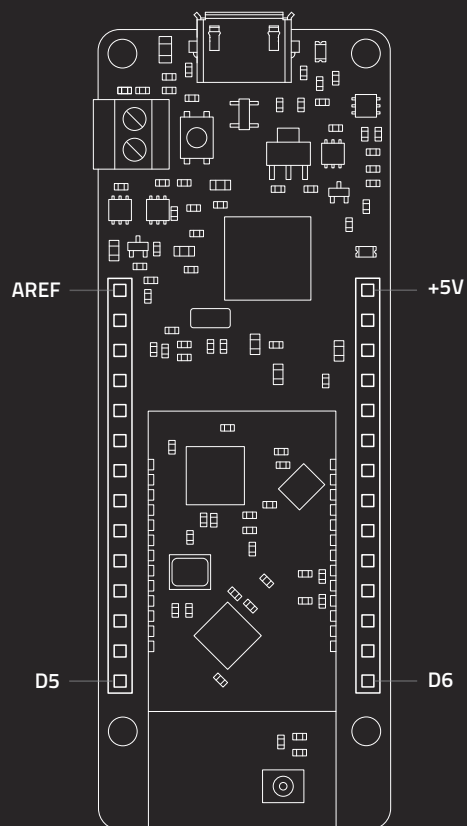
Power: Maximum current per pin is 7mA. Maximum source current is 46mA. Maximum sink current is 65mA per pin group. Further pinout functions are also available in official datasheet.



|   | NAME     | FUNCTIONS |               | FUNCTIONS  |      | NAME  |   |
|---|----------|-----------|---------------|------------|------|-------|---|
| ⊠ | AREF     | PA03      | AREF / AIN[1] |            |      | +5V   | ○ |
| ○ | D15 / A0 | PA02      | DAC0 / AIN[0] |            |      | VIN   | ○ |
| ○ | D16 / A1 | PB02      | AIN[10]       |            |      | +3V3  | ○ |
| ○ | D17 / A2 | PB03      | AIN[11]       |            |      | GND   | ○ |
| ○ | D18 / A3 | PA04      | AIN[4]        |            |      | RESET | ○ |
| ○ | D19 / A4 | PA05      | AIN[5]        | TX (SC5)   | PB22 | D14   | ○ |
| ○ | D20 / A5 | PA06      | AIN[6]        | RX (SC5)   | PB23 | D13   | ○ |
| ○ | D21 / A6 | PA07      | AIN[7]        | SCL (SC2)  | PA09 | D12   | ○ |
| ○ | D0       | PA22      |               | SDA (SC2)  | PA08 | D11   | ○ |
| ○ | D1       | PA23      |               | CIPO (SC1) | PA19 | D10   | ○ |
| ○ | D2       | PA10      |               | SCK (SC1)  | PA17 | D9    | ○ |
| ○ | D3       | PA11      |               | COPI (SC1) | PA16 | D8    | ○ |
| ○ | D4       | PB10      |               |            | PA21 | D7    | ○ |
| ○ | D5       | PB11      |               |            | PA20 | D6    | ⊠ |

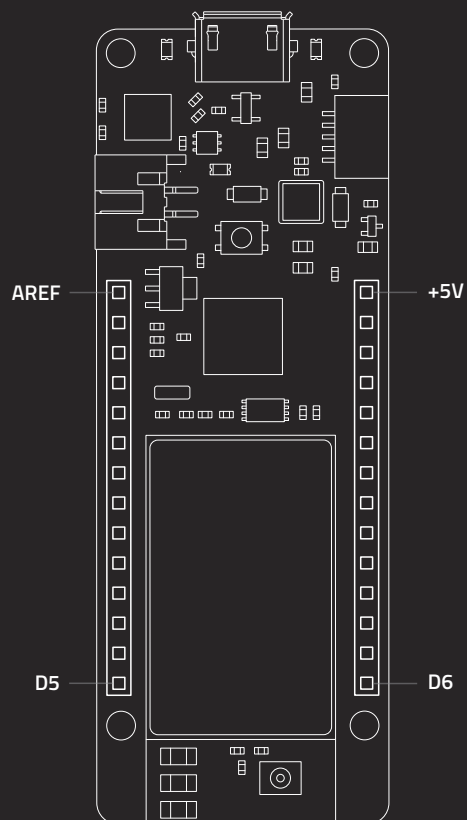
Power: Maximum current per pin is 7mA. Maximum source current is 46mA. Maximum sink current is 65mA per pin group.  
Further pinout functions are also available in official datasheet.





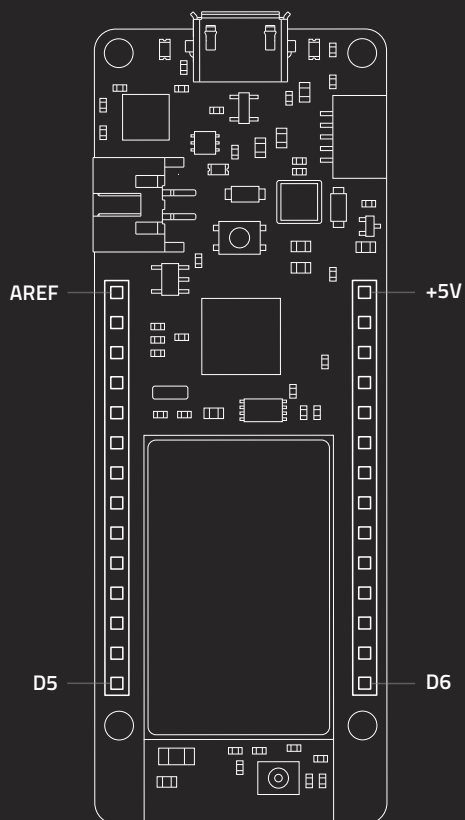
|   | NAME     | FUNCTIONS |               | FUNCTIONS  |      | NAME  |   |
|---|----------|-----------|---------------|------------|------|-------|---|
| ⊠ | AREF     | PA03      | AREF / AIN[1] |            |      | +5V   | ○ |
| ○ | D15 / A0 | PA02      | DAC0 / AIN[0] |            |      | VIN   | ○ |
| ○ | D16 / A1 | PB02      | AIN[10]       |            |      | +3V3  | ○ |
| ○ | D17 / A2 | PB03      | AIN[11]       |            |      | GND   | ○ |
| ○ | D18 / A3 | PA04      | AIN[4]        |            |      | RESET | ○ |
| ○ | D19 / A4 | PA05      | AIN[5]        | TX (SC5)   | PB22 | D14   | ○ |
| ○ | D20 / A5 | PA06      | AIN[6]        | RX (SC5)   | PB23 | D13   | ○ |
| ○ | D21 / A6 | PA07      | AIN[7]        | SCL (SC2)  | PA09 | D12   | ○ |
| ○ | D0       | PA22      |               | SDA (SC2)  | PA08 | D11   | ○ |
| ○ | D1       | PA23      |               | CIPO (SC1) | PA19 | D10   | ○ |
| ○ | D2       | PA10      |               | SCK (SC1)  | PA17 | D9    | ○ |
| ○ | D3       | PA11      |               | COPI (SC1) | PA16 | D8    | ○ |
| ○ | D4       | PB10      |               |            | PA21 | D7    | ○ |
| ○ | D5       | PB11      |               |            | PA20 | D6    | ⊠ |

Power: Maximum current per pin is 7mA. Maximum source current is 46mA. Maximum sink current is 65mA per pin group.  
Further pinout functions are also available in official datasheet.



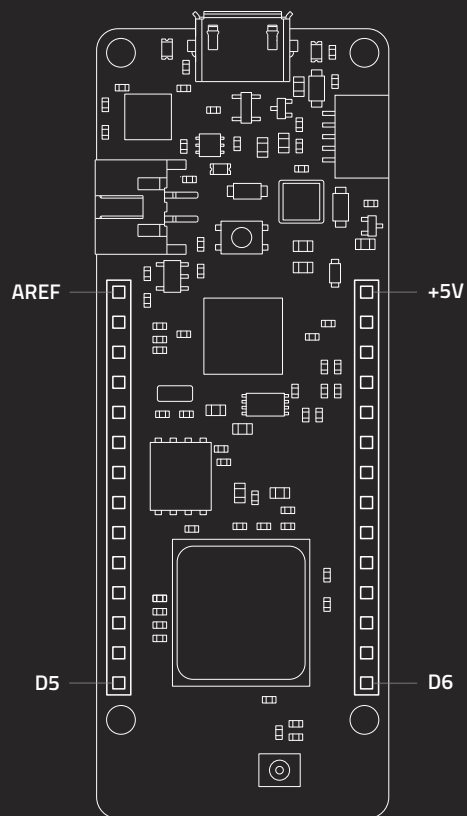
|   | NAME     | FUNCTIONS |               | FUNCTIONS  |      | NAME  |   |
|---|----------|-----------|---------------|------------|------|-------|---|
| ⊠ | AREF     | PA03      | AREF / AIN[1] |            |      | +5V   | ○ |
| ○ | D15 / A0 | PA02      | DAC0 / AIN[0] |            |      | VIN   | ○ |
| ○ | D16 / A1 | PB02      | AIN[10]       |            |      | +3V3  | ○ |
| ○ | D17 / A2 | PB03      | AIN[11]       |            |      | GND   | ○ |
| ○ | D18 / A3 | PA04      | AIN[4]        |            |      | RESET | ○ |
| ○ | D19 / A4 | PA05      | AIN[5]        | TX (SC5)   | PB22 | D14   | ○ |
| ○ | D20 / A5 | PA06      | AIN[6]        | RX (SC5)   | PB23 | D13   | ○ |
| ○ | D21 / A6 | PA07      | AIN[7]        | SCL (SC2)  | PA09 | D12   | ○ |
| ○ | D0       | PA22      |               | SDA (SC2)  | PA08 | D11   | ○ |
| ○ | D1       | PA23      |               | CIPO (SC1) | PA19 | D10   | ○ |
| ○ | D2       | PA10      |               | SCK (SC1)  | PA17 | D9    | ○ |
| ○ | D3       | PA11      |               | COPI (SC1) | PA16 | D8    | ○ |
| ○ | D4       | PB10      |               |            | PA21 | D7    | ○ |
| ○ | D5       | PB11      |               |            | PA20 | D6    | ⊠ |

Power: Maximum current per pin is 7mA. Maximum source current is 46mA. Maximum sink current is 65mA per pin group.  
Further pinout functions are also available in official datasheet.



|   | NAME     | FUNCTIONS |               | FUNCTIONS  |      | NAME  |   |
|---|----------|-----------|---------------|------------|------|-------|---|
| ⊠ | AREF     | PA03      | AREF / AIN[1] |            |      | +5V   | ○ |
| ○ | D15 / A0 | PA02      | DAC0 / AIN[0] |            |      | VIN   | ○ |
| ○ | D16 / A1 | PB02      | AIN[10]       |            |      | +3V3  | ○ |
| ○ | D17 / A2 | PB03      | AIN[11]       |            |      | GND   | ○ |
| ○ | D18 / A3 | PA04      | AIN[4]        |            |      | RESET | ○ |
| ○ | D19 / A4 | PA05      | AIN[5]        | TX (SC5)   | PB22 | D14   | ○ |
| ○ | D20 / A5 | PA06      | AIN[6]        | RX (SC5)   | PB23 | D13   | ○ |
| ○ | D21 / A6 | PA07      | AIN[7]        | SCL (SC2)  | PA09 | D12   | ○ |
| ○ | D0       | PA22      |               | SDA (SC2)  | PA08 | D11   | ○ |
| ○ | D1       | PA23      |               | CIPO (SC1) | PA19 | D10   | ○ |
| ○ | D2       | PA10      |               | SCK (SC1)  | PA17 | D9    | ○ |
| ○ | D3       | PA11      |               | COPI (SC1) | PA16 | D8    | ○ |
| ○ | D4       | PB10      |               |            | PA21 | D7    | ○ |
| ○ | D5       | PB11      |               |            | PA20 | D6    | ⊠ |

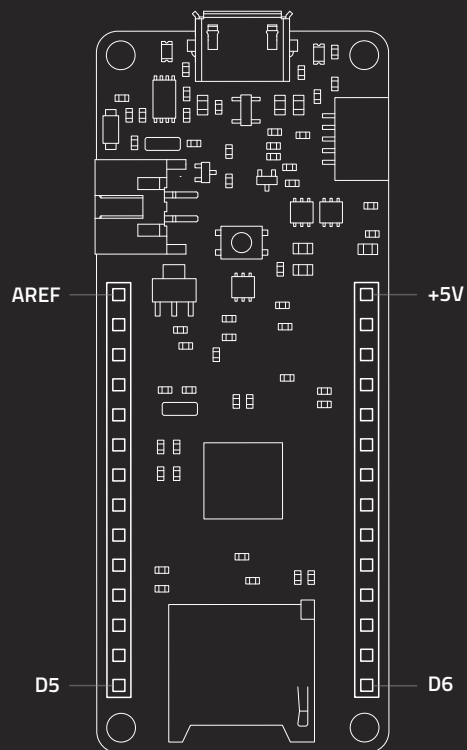
Power: Maximum current per pin is 7mA. Maximum source current is 46mA. Maximum sink current is 65mA per pin group.  
Further pinout functions are also available in official datasheet.



|   | NAME     | FUNCTIONS |               | FUNCTIONS  |      | NAME  |   |
|---|----------|-----------|---------------|------------|------|-------|---|
| ⊠ | AREF     | PA03      | AREF / AIN[1] |            |      | +5V   | ○ |
| ○ | D15 / A0 | PA02      | DAC0 / AIN[0] |            |      | VIN   | ○ |
| ○ | D16 / A1 | PB02      | AIN[10]       |            |      | +3V3  | ○ |
| ○ | D17 / A2 | PB03      | AIN[11]       |            |      | GND   | ○ |
| ○ | D18 / A3 | PA04      | AIN[4]        |            |      | RESET | ○ |
| ○ | D19 / A4 | PA05      | AIN[5]        | TX (SC5)   | PB22 | D14   | ○ |
| ○ | D20 / A5 | PA06      | AIN[6]        | RX (SC5)   | PB23 | D13   | ○ |
| ○ | D21 / A6 | PA07      | AIN[7]        | SCL (SC2)  | PA09 | D12   | ○ |
| ○ | D0       | PA22      |               | SDA (SC2)  | PA08 | D11   | ○ |
| ○ | D1       | PA23      |               | CIPO (SC1) | PA19 | D10   | ○ |
| ○ | D2       | PA10      |               | SCK (SC1)  | PA17 | D9    | ○ |
| ○ | D3       | PA11      |               | COPI (SC1) | PA16 | D8    | ○ |
| ○ | D4       | PB10      |               |            | PA21 | D7    | ○ |
| ○ | D5       | PB11      |               |            | PA20 | D6    | ⊠ |

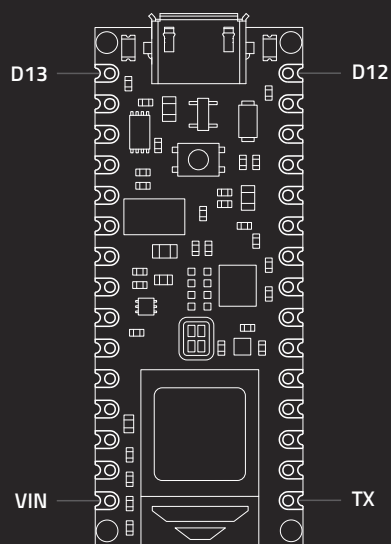
Power: Maximum current per pin is 7mA. Maximum source current is 46mA. Maximum sink current is 65mA per pin group.  
Further pinout functions are also available in official datasheet.





|   | NAME     | FUNCTIONS |               | FUNCTIONS  |      | NAME  |   |
|---|----------|-----------|---------------|------------|------|-------|---|
| ⊠ | AREF     | PA03      | AREF / AIN[1] |            |      | +5V   | ○ |
| ○ | D15 / A0 | PA02      | DAC0 / AIN[0] |            |      | VIN   | ○ |
| ○ | D16 / A1 | PB02      | AIN[10]       |            |      | +3V3  | ○ |
| ○ | D17 / A2 | PB03      | AIN[11]       |            |      | GND   | ○ |
| ○ | D18 / A3 | PA04      | AIN[4]        |            |      | RESET | ○ |
| ○ | D19 / A4 | PA05      | AIN[5]        | TX (SC5)   | PB22 | D14   | ○ |
| ○ | D20 / A5 | PA06      | AIN[6]        | RX (SC5)   | PB23 | D13   | ○ |
| ○ | D21 / A6 | PA07      | AIN[7]        | SCL (SC2)  | PA09 | D12   | ○ |
| ○ | D0       | PA22      |               | SDA (SC2)  | PA08 | D11   | ○ |
| ○ | D1       | PA23      |               | CIPO (SC1) | PA19 | D10   | ○ |
| ○ | D2       | PA10      |               | SCK (SC1)  | PA17 | D9    | ○ |
| ○ | D3       | PA11      |               | COPI (SC1) | PA16 | D8    | ○ |
| ○ | D4       | PB10      |               |            | PA21 | D7    | ○ |
| ○ | D5       | PB11      |               |            | PA20 | D6    | ⊠ |

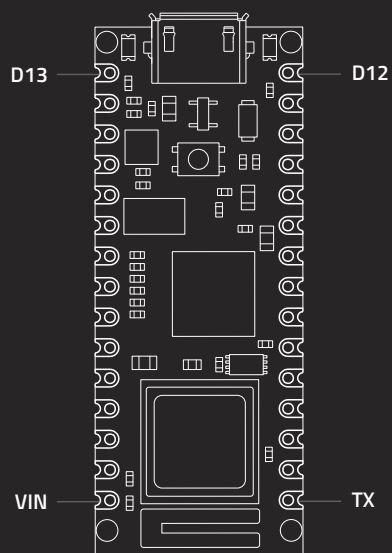
Power: Maximum current per pin is 7mA. Maximum source current is 46mA. Maximum sink current is 65mA per pin group.  
Further pinout functions are also available in official datasheet.



| NAME  | FUNCTIONS |     |
|-------|-----------|-----|
| D13   | P0.13     | SCK |
| +3V3  |           |     |
| AREF  |           |     |
| A0    | P0.04     |     |
| A1    | P0.05     |     |
| A2    | P0.30     |     |
| A3    | P0.29     |     |
| A4    | P0.31     | SDA |
| A5    | P0.02     | SCL |
| A6    | P0.28     |     |
| A7    | P0.03     |     |
| +5V   |           |     |
| RESET |           |     |
| GND   |           |     |
| VIN   |           |     |

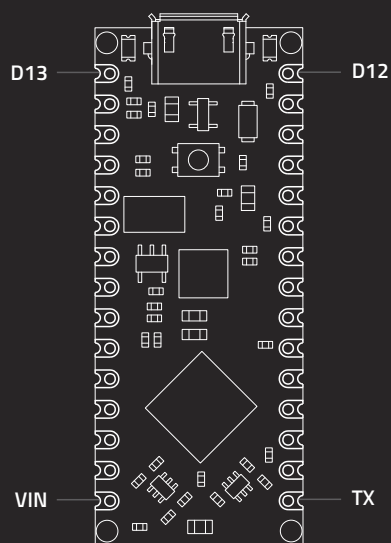
| FUNCTIONS |       | NAME  |
|-----------|-------|-------|
| CIPO      | P1.08 | D12   |
| COPI      | P1.01 | D11   |
|           | P1.02 | D10   |
|           | P0.27 | D9    |
|           | P0.21 | D8    |
|           | P0.23 | D7    |
|           | P1.14 | D6    |
|           | P1.13 | D5    |
|           | P1.15 | D4    |
|           | P1.12 | D3    |
|           | P1.11 | D2    |
|           |       | GND   |
|           |       | RESET |
|           | P1.10 | RX    |
|           | P1.03 | TX    |

Power: 5-21V input to the board. Maximum output current per pin is 15mA. Maximum input current per pin is 5mA.  
 Maximum external current is 25mA for the sum of all GPIO current and the current being drawn from VDD.  
 Extra pin functions are listed in the official datasheet.



| NAMEFUNCTIONS |      |               | FUNCTIONSNAME |      |       |
|---------------|------|---------------|---------------|------|-------|
| D13           | PA17 | SCK (SC1)     | CIPO (SC1)    | PA19 | D12   |
| +3V3          |      |               | COPI (SC1)    | PA16 | D11   |
| AREF          | PA03 |               |               | PA21 | D10   |
| D14 / A0      | PA02 | DACO / AIN[0] |               | PA20 | D9    |
| D15 / A1      | PB02 | AIN[10]       |               | PA18 | D8    |
| D16 / A2      | PA11 | AIN[19]       |               | PA06 | D7    |
| D17 / A3      | PA10 | AIN[18]       |               | PA04 | D6    |
| D18 / A4      | PB08 | SDA (SC4)     |               | PA05 | D5    |
| D19 / A5      | PB09 | SCL (SC4)     |               | PA07 | D4    |
| D20 / A6      | PA09 | AIN[17]       |               | PB11 | D3    |
| D21 / A7      | PB03 | AIN[11]       |               | PB10 | D2    |
| +5V           |      |               |               |      | GND   |
| RESET         |      |               |               |      | RESET |
| GND           |      |               |               | PB23 | RX    |
| VIN           |      |               |               | PB22 | TX    |

Power: 5-21V input to the board. Maximum current per pin is 7mA. Maximum source current is 46mA. Maximum sink current is 65mA per pin group. Extra pin functions are listed in the official datasheet.

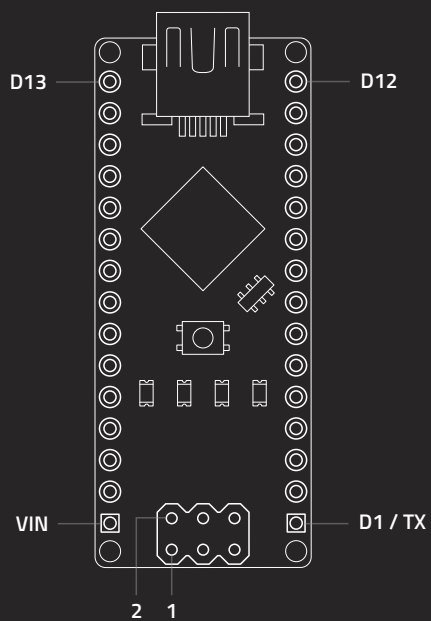


| NAME     |     |        | FUNCTIONS |  |  |
|----------|-----|--------|-----------|--|--|
| D13      | PE2 | SCK    |           |  |  |
| +3V3     |     |        |           |  |  |
| AREF     | PD7 |        |           |  |  |
| D14 / A0 | PD3 | AIN[3] |           |  |  |
| D15 / A1 | PD2 | AIN[2] |           |  |  |
| D16 / A2 | PD1 | AIN[1] |           |  |  |
| D17 / A3 | PD0 | AIN[0] |           |  |  |
| D18 / A4 | PA2 | SDA    |           |  |  |
| D19 / A5 | PA3 | SCL    |           |  |  |
| D20 / A6 | PD4 | AIN[4] |           |  |  |
| D21 / A7 | PD5 | AIN[5] |           |  |  |
| +5V      |     |        |           |  |  |
| RESET    |     |        |           |  |  |
| GND      |     |        |           |  |  |
| VIN      |     |        |           |  |  |

| FUNCTIONS  |     | NAME  |
|------------|-----|-------|
| CIPO (SC1) | PE1 | D12   |
| COPI (SC1) | PE0 | D11   |
|            | PB1 | D10   |
|            | PB0 | D9    |
|            | PE3 | D8    |
|            | PA1 | D7    |
|            | PF4 | D6    |
|            | PB2 | D5    |
|            | PC6 | D4    |
|            | PF5 | D3    |
|            | PA0 | D2    |
|            |     | GND   |
|            |     | RESET |
|            | PC5 | RX    |
|            | PC5 | TX    |

Power: 7-21V input to the board. Maximum current per pin 40mA, 20mA recommended. Maximum current 200mA for the entire package. The total current of each port power group should not exceed 100mA. Extra pin functions are listed in the official datasheet.





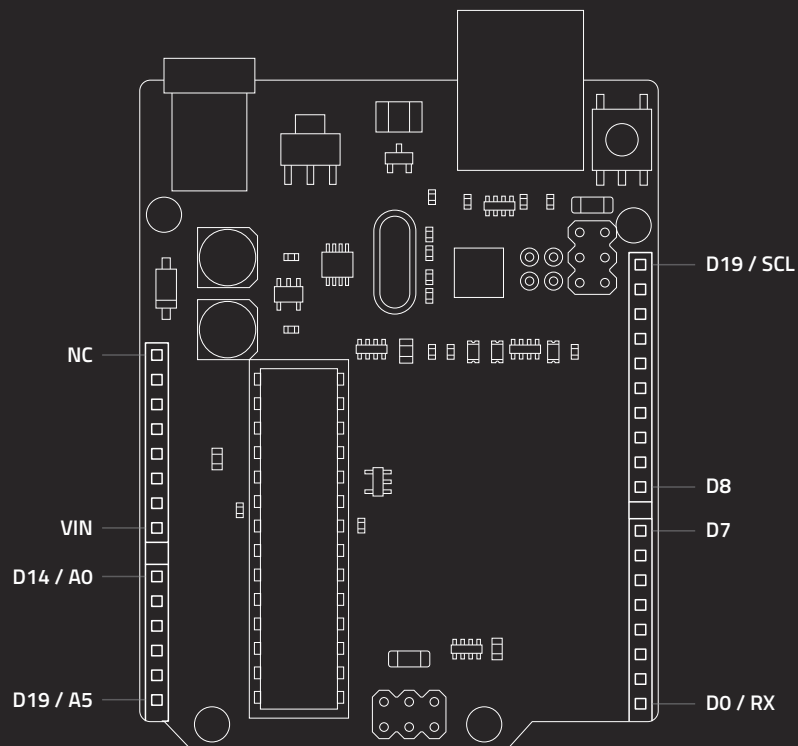
</

| FUNCTIONS |      |       |      | # |
|-----------|------|-------|------|---|
| PCINT[4]  | CIPO | PB4   | CIPO | 1 |
| PCINT[5]  | SCK  | PB5   | SCK  | 3 |
|           |      | RESET |      | 5 |

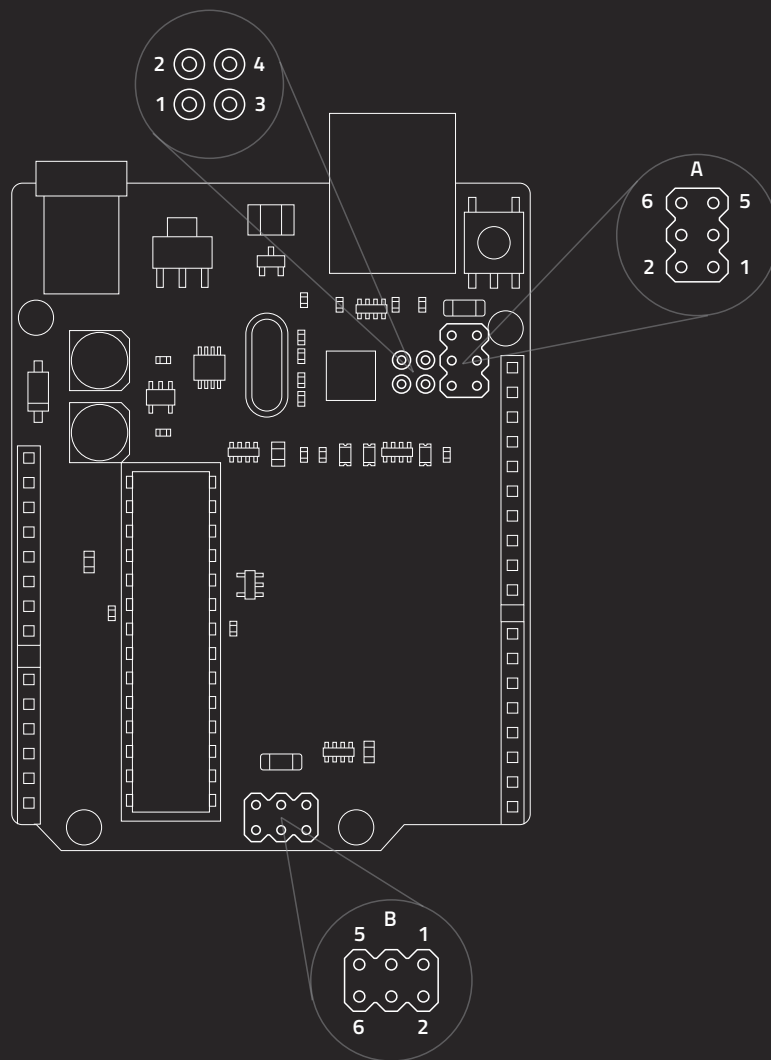


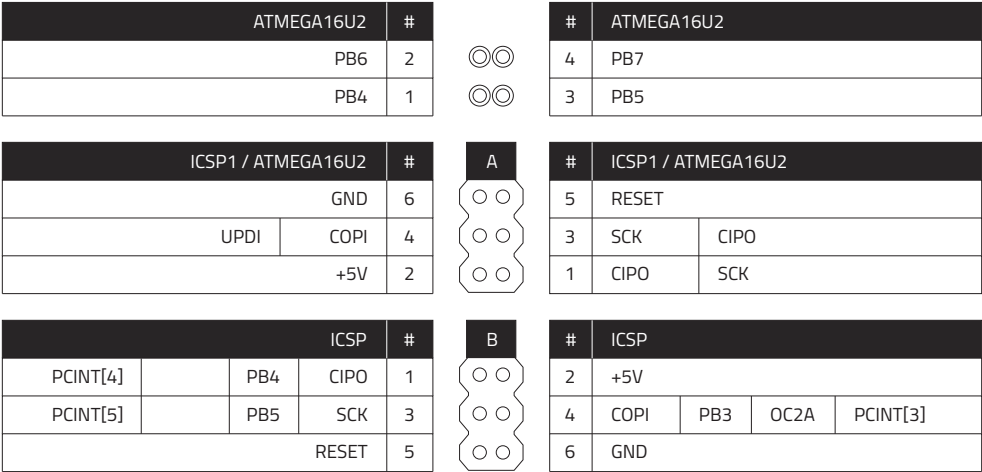
| # | FUNCTIONS |     |      |          |
|---|-----------|-----|------|----------|
| 2 | +5V       |     |      |          |
| 4 | COPI      | PB3 | COPI | PCINT[3] |
| 6 | GND       |     |      |          |

Power: 7-12V input to the board. Maximum current per I/O pin is 20mA. Maximum current per +3.3V pin is 50mA.  
Extra pin functions are listed in the official datasheet.

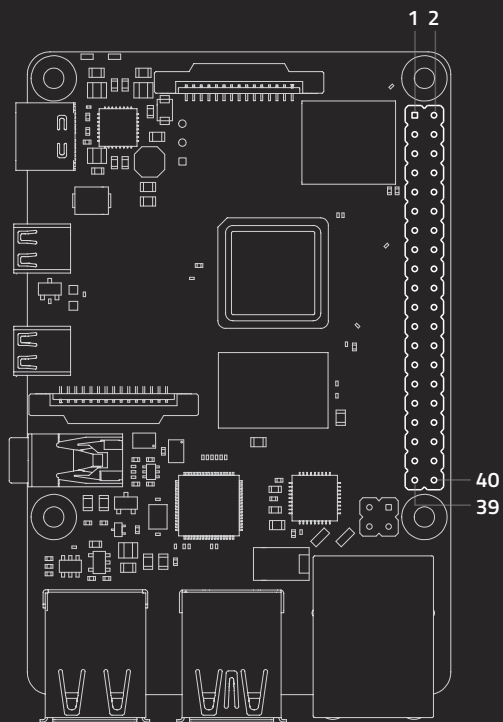


Power: 6-20V input to the board. Maximum current per I/O pin is 20mA. Maximum current per +3.3V pin is 50mA. Extra pin functions are listed in the official datasheet.





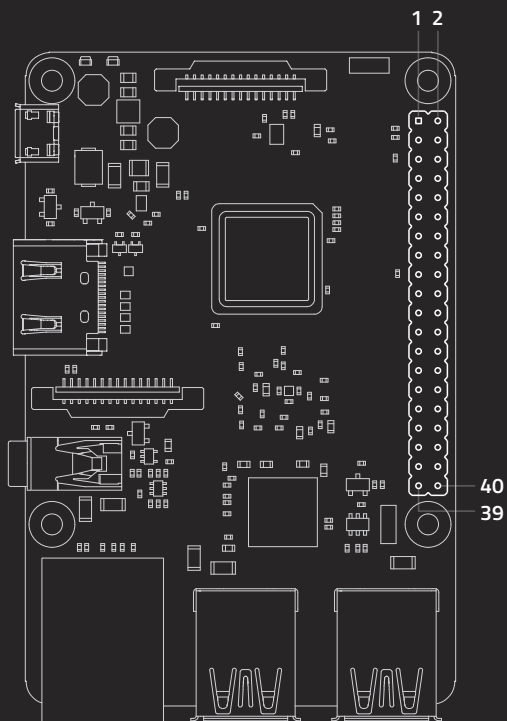
Power: 6-20V input to the board. Maximum current per I/O pin is 20mA. Maximum current per +3.3V pin is 50mA.  
Extra pin functions are listed in the official datasheet.



| WIRING PI # | MAIN FUNCTIONS      | #  |   |   | #  | MAIN FUNCTIONS      | WIRING PI # |
|-------------|---------------------|----|---|---|----|---------------------|-------------|
|             | 3V3 POWER           | 1  | □ | ○ | 2  | 5V POWER            |             |
| 8           | GPIO 2 (I2C1 SDA)   | 3  | ○ | ○ | 4  | 5V POWER            |             |
| 9           | GPIO 3 (I2C1 SCL)   | 5  | ○ | ○ | 6  | GROUND              |             |
| 7           | GPIO 4 (GPCLK0)     | 7  | ○ | ○ | 8  | GPIO 14 (UART TX)   | 15          |
|             | GROUND              | 9  | ○ | ○ | 10 | GPIO 15 (UART RX)   | 16          |
| 0           | GPIO 17             | 11 | ○ | ○ | 12 | GPIO 18 (PCM CLK)   | 1           |
| 2           | GPIO 27             | 13 | ○ | ○ | 14 | GROUND              |             |
| 3           | GPIO 22             | 15 | ○ | ○ | 16 | GPIO 23             | 4           |
|             | 3V3 POWER           | 17 | ○ | ○ | 18 | GPIO 24             | 5           |
| 12          | GPIO 10 (SPI0 MOSI) | 19 | ○ | ○ | 20 | GROUND              |             |
| 13          | GPIO 9 (SPI0 MISO)  | 21 | ○ | ○ | 22 | GPIO 25             | 6           |
| 14          | GPIO 11 (SPI0 SCLK) | 23 | ○ | ○ | 24 | GPIO 8 (SPI0 CE0)   | 10          |
|             | GROUND              | 25 | ○ | ○ | 26 | GPIO 7 (SPI0 CE1)   | 11          |
| 30          | GPIO 0 (EEPROM SDA) | 27 | ○ | ○ | 28 | GPIO 1 (EEPROM SCL) | 31          |
| 21          | BCM 5               | 29 | ○ | ○ | 30 | GROUND              |             |
| 22          | BCM 6               | 31 | ○ | ○ | 32 | GPIO 12 (PWM0)      | 26          |
| 23          | GPIO 13 (PWM1)      | 33 | ○ | ○ | 34 | GROUND              |             |
| 24          | GPIO 19 (PCM FS)    | 35 | ○ | ○ | 36 | GPIO 16             | 27          |
| 25          | GPIO 26             | 37 | ○ | ○ | 38 | GPIO 20 (PCM DIN)   | 28          |
|             | GROUND              | 39 | ○ | ○ | 40 | GPIO 21 (PCM DOUT)  | 29          |

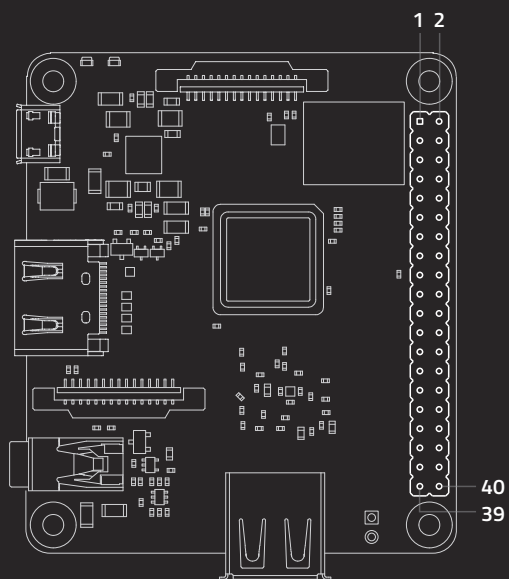
NOTE: Alternate pin functions are also available. Check the datasheet for more information.





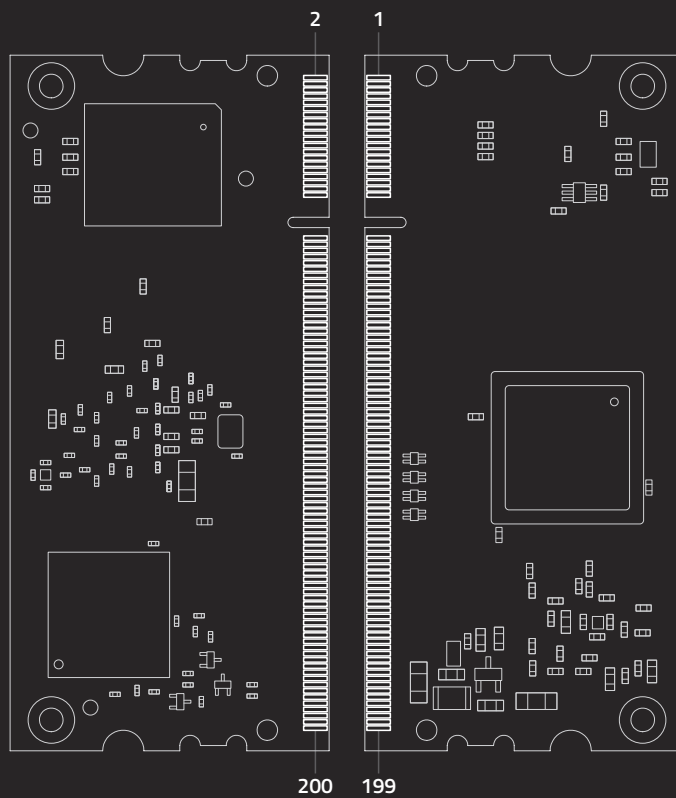
| WIRING PI # | MAIN FUNCTIONS      | #  |   |   | #  | MAIN FUNCTIONS      | WIRING PI # |
|-------------|---------------------|----|---|---|----|---------------------|-------------|
|             | 3V3 POWER           | 1  | □ | ○ | 2  | 5V POWER            |             |
| 8           | GPIO 2 (I2C1 SDA)   | 3  | ○ | ○ | 4  | 5V POWER            |             |
| 9           | GPIO 3 (I2C1 SCL)   | 5  | ○ | ○ | 6  | GROUND              |             |
| 7           | GPIO 4 (GPCLK0)     | 7  | ○ | ○ | 8  | GPIO 14 (UART TX)   | 15          |
|             | GROUND              | 9  | ○ | ○ | 10 | GPIO 15 (UART RX)   | 16          |
| 0           | GPIO 17             | 11 | ○ | ○ | 12 | GPIO 18 (PCM CLK)   | 1           |
| 2           | GPIO 27             | 13 | ○ | ○ | 14 | GROUND              |             |
| 3           | GPIO 22             | 15 | ○ | ○ | 16 | GPIO 23             | 4           |
|             | 3V3 POWER           | 17 | ○ | ○ | 18 | GPIO 24             | 5           |
| 12          | GPIO 10 (SPI0 MOSI) | 19 | ○ | ○ | 20 | GROUND              |             |
| 13          | GPIO 9 (SPI0 MISO)  | 21 | ○ | ○ | 22 | GPIO 25             | 6           |
| 14          | GPIO 11 (SPI0 SCLK) | 23 | ○ | ○ | 24 | GPIO 8 (SPI0 CE0)   | 10          |
|             | GROUND              | 25 | ○ | ○ | 26 | GPIO 7 (SPI0 CE1)   | 11          |
| 30          | GPIO 0 (EEPROM SDA) | 27 | ○ | ○ | 28 | GPIO 1 (EEPROM SCL) | 31          |
| 21          | BCM 5               | 29 | ○ | ○ | 30 | GROUND              |             |
| 22          | BCM 6               | 31 | ○ | ○ | 32 | GPIO 12 (PWM0)      | 26          |
| 23          | GPIO 13 (PWM1)      | 33 | ○ | ○ | 34 | GROUND              |             |
| 24          | GPIO 19 (PCM FS)    | 35 | ○ | ○ | 36 | GPIO 16             | 27          |
| 25          | GPIO 26             | 37 | ○ | ○ | 38 | GPIO 20 (PCM DIN)   | 28          |
|             | GROUND              | 39 | ○ | ○ | 40 | GPIO 21 (PCM DOUT)  | 29          |

NOTE: Alternate pin functions are also available. Check the datasheet for more information.

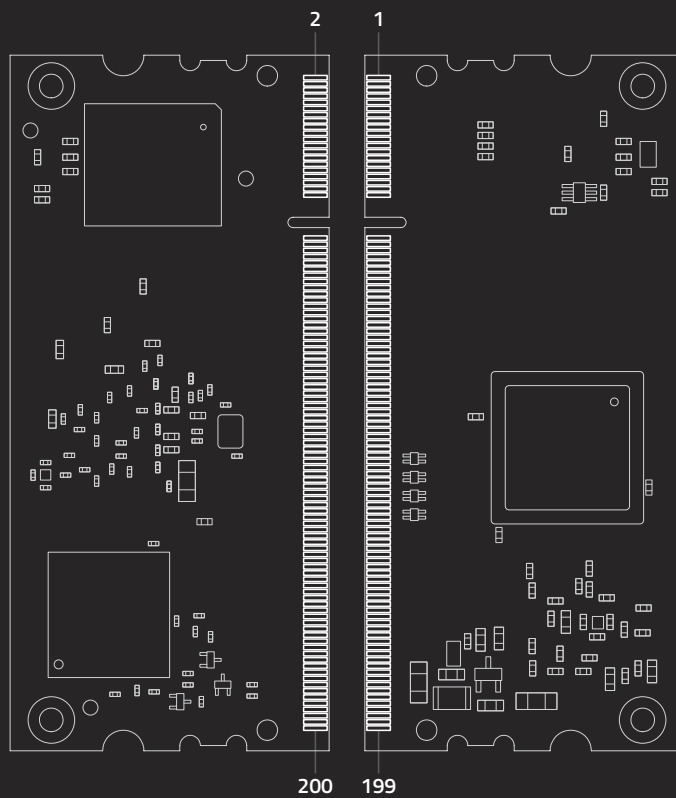


| WIRING PI # | MAIN FUNCTIONS      | #  |   |   | #  | MAIN FUNCTIONS      | WIRING PI # |
|-------------|---------------------|----|---|---|----|---------------------|-------------|
|             | 3V3 POWER           | 1  | □ | ○ | 2  | 5V POWER            |             |
| 8           | GPIO 2 (I2C1 SDA)   | 3  | ○ | ○ | 4  | 5V POWER            |             |
| 9           | GPIO 3 (I2C1 SCL)   | 5  | ○ | ○ | 6  | GROUND              |             |
| 7           | GPIO 4 (GPCLK0)     | 7  | ○ | ○ | 8  | GPIO 14 (UART TX)   | 15          |
|             | GROUND              | 9  | ○ | ○ | 10 | GPIO 15 (UART RX)   | 16          |
| 0           | GPIO 17             | 11 | ○ | ○ | 12 | GPIO 18 (PCM CLK)   | 1           |
| 2           | GPIO 27             | 13 | ○ | ○ | 14 | GROUND              |             |
| 3           | GPIO 22             | 15 | ○ | ○ | 16 | GPIO 23             | 4           |
|             | 3V3 POWER           | 17 | ○ | ○ | 18 | GPIO 24             | 5           |
| 12          | GPIO 10 (SPI0 MOSI) | 19 | ○ | ○ | 20 | GROUND              |             |
| 13          | GPIO 9 (SPI0 MISO)  | 21 | ○ | ○ | 22 | GPIO 25             | 6           |
| 14          | GPIO 11 (SPI0 SCLK) | 23 | ○ | ○ | 24 | GPIO 8 (SPI0 CE0)   | 10          |
|             | GROUND              | 25 | ○ | ○ | 26 | GPIO 7 (SPI0 CE1)   | 11          |
| 30          | GPIO 0 (EEPROM SDA) | 27 | ○ | ○ | 28 | GPIO 1 (EEPROM SCL) | 31          |
| 21          | BCM 5               | 29 | ○ | ○ | 30 | GROUND              |             |
| 22          | BCM 6               | 31 | ○ | ○ | 32 | GPIO 12 (PWM0)      | 26          |
| 23          | GPIO 13 (PWM1)      | 33 | ○ | ○ | 34 | GROUND              |             |
| 24          | GPIO 19 (PCM FS)    | 35 | ○ | ○ | 36 | GPIO 16             | 27          |
| 25          | GPIO 26             | 37 | ○ | ○ | 38 | GPIO 20 (PCM DIN)   | 28          |
|             | GROUND              | 39 | ○ | ○ | 40 | GPIO 21 (PCM DOUT)  | 29          |

NOTE: Alternate pin functions are also available. Check the datasheet for more information.



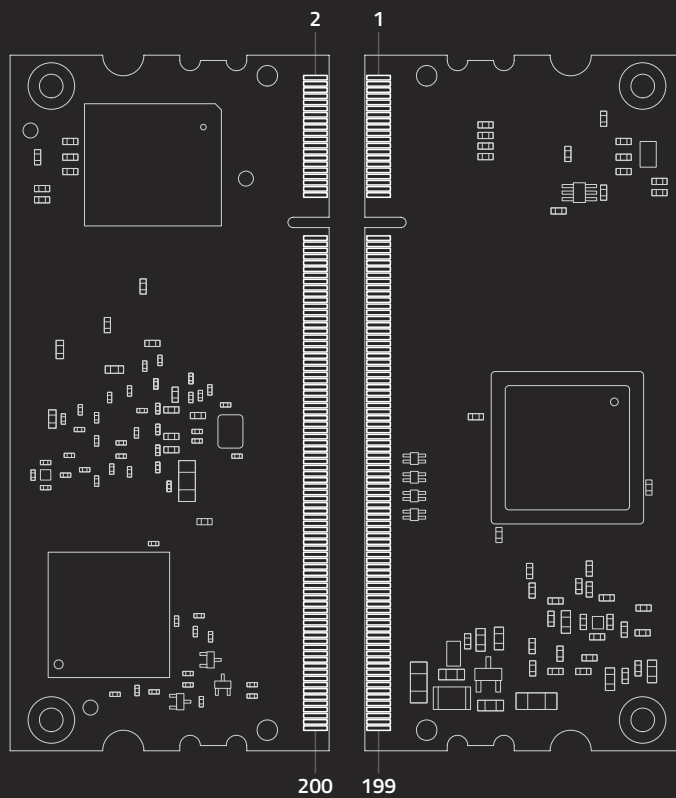
| #  | NAME           | #  | NAME          | #  | NAME   | #   | NAME           |
|----|----------------|----|---------------|----|--------|-----|----------------|
| 1  | GND            | 26 | GND           | 51 | GPIO14 | 76  | GPIO42         |
| 2  | EMMC_DISABLE_N | 27 | GPIO8         | 52 | GPIO34 | 77  | GPIO23         |
| 3  | GPIO0          | 28 | GPIO28        | 53 | GPIO15 | 78  | GPIO43         |
| 4  | NC             | 29 | GPIO9         | 54 | GPIO35 | 79  | GND            |
| 5  | GPIO1          | 30 | GPIO29        | 55 | GND    | 80  | GND            |
| 6  | NC             | 31 | GND           | 56 | GND    | 81  | GPIO24         |
| 7  | GND            | 32 | GND           | 57 | GPIO16 | 82  | GPIO44         |
| 8  | GND            | 33 | GPIO10        | 58 | GPIO36 | 83  | GPIO25         |
| 9  | GPIO2          | 34 | GPIO30        | 59 | GPIO17 | 84  | GPIO45         |
| 10 | NC             | 35 | GPIO11        | 60 | GPIO37 | 85  | GND            |
| 11 | GPIO3          | 36 | GPIO31        | 61 | GND    | 86  | GND            |
| 12 | NC             | 37 | GND           | 62 | GND    | 87  | GPIO26         |
| 13 | GND            | 38 | GND           | 63 | GPIO18 | 88  | HDMI_HPD_N_1V8 |
| 14 | GND            | 39 | GPIO0-27_VDD  | 64 | GPIO38 | 89  | GPIO27         |
| 15 | GPIO4          | 40 | GPIO0-27_VDD  | 65 | GPIO19 | 90  | EMMC_EN_N_1V8  |
| 16 | NC             | 41 | GPIO28-45_VDD | 66 | GPIO39 | 91  | GND            |
| 17 | GPIO5          | 42 | GPIO28-45_VDD | 67 | GND    | 92  | GND            |
| 18 | NC             | 43 | GND           | 68 | GND    | 93  | DSIO_DN1       |
| 19 | GND            | 44 | GND           | 69 | GPIO20 | 94  | DSI1_DP0       |
| 20 | GND            | 45 | GPIO12        | 70 | GPIO40 | 95  | DSIO_DP1       |
| 21 | GPIO6          | 46 | GPIO32        | 71 | GPIO21 | 96  | DSI1_DN0       |
| 22 | NC             | 47 | GPIO13        | 72 | GPIO41 | 97  | GND            |
| 23 | GPIO7          | 48 | GPIO33        | 73 | GND    | 98  | GND            |
| 24 | NC             | 49 | GND           | 74 | GND    | 99  | DSIO_DN0       |
| 25 | GND            | 50 | GND           | 75 | GPIO22 | 100 | DSI1_CP        |



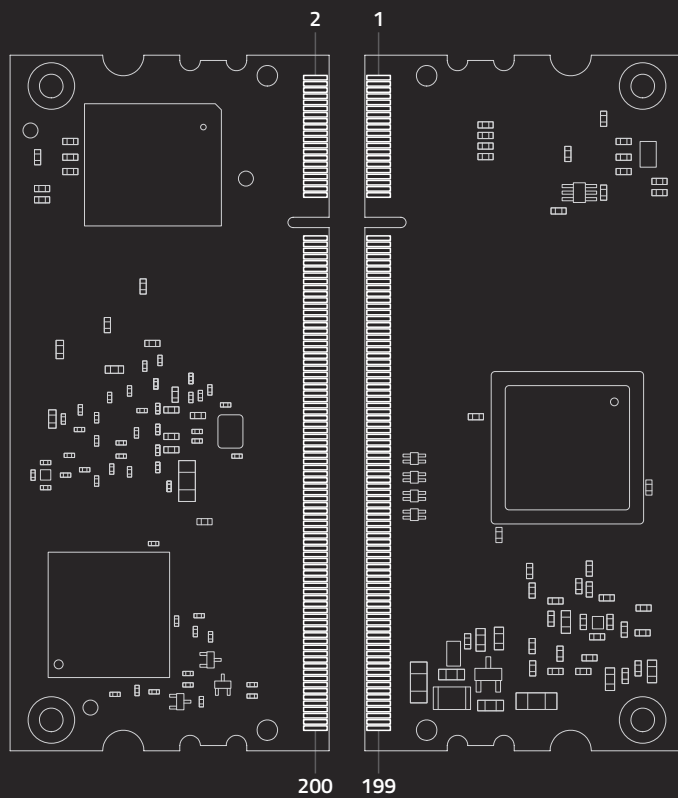
| #   | NAME       | #   | NAME      | #   | NAME      | #   | NAME      |
|-----|------------|-----|-----------|-----|-----------|-----|-----------|
| 101 | DSIO_DPO   | 126 | NC        | 151 | GND       | 176 | VC_TMS    |
| 102 | DSI1_CN    | 127 | GND       | 152 | GND       | 177 | RUN       |
| 103 | GND        | 128 | NC        | 153 | CAM1_DP1  | 178 | VC_TDO    |
| 104 | GND        | 129 | HDMI_D2_N | 154 | NC        | 179 | VDD_CORE* |
| 105 | DSIO_CN    | 130 | NC        | 155 | CAM1_DN1  | 180 | VC_TCK    |
| 106 | DSI1_DP3   | 131 | HDMI_D2_P | 156 | NC        | 181 | GND       |
| 107 | DSIO_CP    | 132 | NC        | 157 | GND       | 182 | GND       |
| 108 | DSI1_DN3   | 133 | GND       | 158 | NC        | 183 | 1V8       |
| 109 | GND        | 134 | GND       | 159 | CAM1_DPO  | 184 | 1V8       |
| 110 | GND        | 135 | CAM1_DP3  | 160 | NC        | 185 | 1V8       |
| 111 | HDMI_CLK_N | 136 | CAM0_DPO  | 161 | CAM1_DN0  | 186 | 1V8       |
| 112 | DSI1_DP2   | 137 | CAM1_DN3  | 162 | NC        | 187 | GND       |
| 113 | HDMI_CLK_P | 138 | CAM0_DN0  | 163 | GND       | 188 | GND       |
| 114 | DSI1_DN2   | 139 | GND       | 164 | GND       | 189 | VDAC      |
| 115 | GND        | 140 | GND       | 165 | USB_DP    | 190 | VDAC      |
| 116 | GND        | 141 | CAM1_DP2  | 166 | TVDAC     | 191 | 3V3       |
| 117 | HDMI_DO_N  | 142 | CAM0_CP   | 167 | USB_DM    | 192 | 3V3       |
| 118 | DSI1_DP1   | 143 | CAM1_DN2  | 168 | USB_OTGID | 193 | 3V3       |
| 119 | HDMI_DO_P  | 144 | CAM0_CN   | 169 | GND       | 194 | 3V3       |
| 120 | DSI1_DN1   | 145 | GND       | 170 | GND       | 195 | GND       |
| 121 | GND        | 146 | GND       | 171 | HDMI_CEC  | 196 | GND       |
| 122 | GND        | 147 | CAM1_CP   | 172 | VC_TRST_N | 197 | VBAT      |
| 123 | HDMI_D1_N  | 148 | CAM0_DP1  | 173 | HDMI_SDA  | 198 | VBAT      |
| 124 | NC         | 149 | CAM1_CN   | 174 | VC_TDI    | 199 | VBAT      |
| 125 | HDMI_D1_P  | 150 | CAM0_DN1  | 175 | HDMI_SCL  | 200 | VBAT      |

\* Do not connect



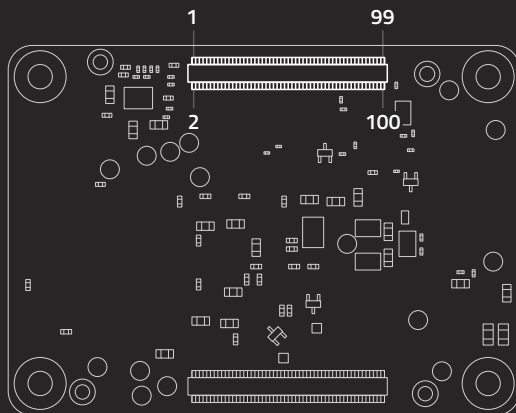
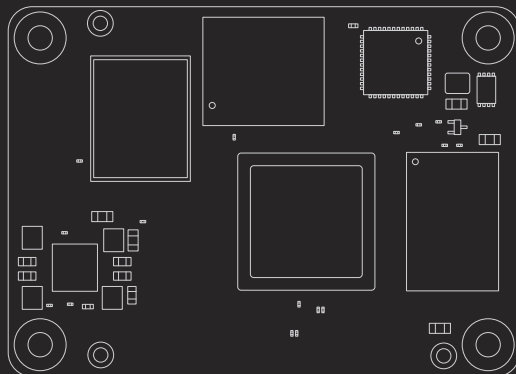


| #  | NAME           | #  | NAME          | #  | NAME   | #   | NAME           |
|----|----------------|----|---------------|----|--------|-----|----------------|
| 1  | GND            | 26 | GND           | 51 | GPIO14 | 76  | GPIO42         |
| 2  | EMMC_DISABLE_N | 27 | GPIO8         | 52 | GPIO34 | 77  | GPIO23         |
| 3  | GPIO0          | 28 | GPIO28        | 53 | GPIO15 | 78  | GPIO43         |
| 4  | SDX_VDD        | 29 | GPIO9         | 54 | GPIO35 | 79  | GND            |
| 5  | GPIO1          | 30 | GPIO29        | 55 | GND    | 80  | GND            |
| 6  | SDX_VDD        | 31 | GND           | 56 | GND    | 81  | GPIO24         |
| 7  | GND            | 32 | GND           | 57 | GPIO16 | 82  | GPIO44         |
| 8  | GND            | 33 | GPIO10        | 58 | GPIO36 | 83  | GPIO25         |
| 9  | GPIO2          | 34 | GPIO30        | 59 | GPIO17 | 84  | GPIO45         |
| 10 | SDX_CLK        | 35 | GPIO11        | 60 | GPIO37 | 85  | GND            |
| 11 | GPIO3          | 36 | GPIO31        | 61 | GND    | 86  | GND            |
| 12 | SDX_CMD        | 37 | GND           | 62 | GND    | 87  | GPIO26         |
| 13 | GND            | 38 | GND           | 63 | GPIO18 | 88  | HDMI_HPD_N_1V8 |
| 14 | GND            | 39 | GPIO0-27_VDD  | 64 | GPIO38 | 89  | GPIO27         |
| 15 | GPIO4          | 40 | GPIO0-27_VDD  | 65 | GPIO19 | 90  | EMMC_EN_N_1V8  |
| 16 | SDX_D0         | 41 | GPIO28-45_VDD | 66 | GPIO39 | 91  | GND            |
| 17 | GPIO5          | 42 | GPIO28-45_VDD | 67 | GND    | 92  | GND            |
| 18 | SDX_D1         | 43 | GND           | 68 | GND    | 93  | DSIO_DN1       |
| 19 | GND            | 44 | GND           | 69 | GPIO20 | 94  | DSI1_DP0       |
| 20 | GND            | 45 | GPIO12        | 70 | GPIO40 | 95  | DSIO_DP1       |
| 21 | GPIO6          | 46 | GPIO32        | 71 | GPIO21 | 96  | DSI1_DN0       |
| 22 | SDX_D2         | 47 | GPIO13        | 72 | GPIO41 | 97  | GND            |
| 23 | GPIO7          | 48 | GPIO33        | 73 | GND    | 98  | GND            |
| 24 | SDX_D3         | 49 | GND           | 74 | GND    | 99  | DSIO_DN0       |
| 25 | GND            | 50 | GND           | 75 | GPIO22 | 100 | DSI1_CP        |

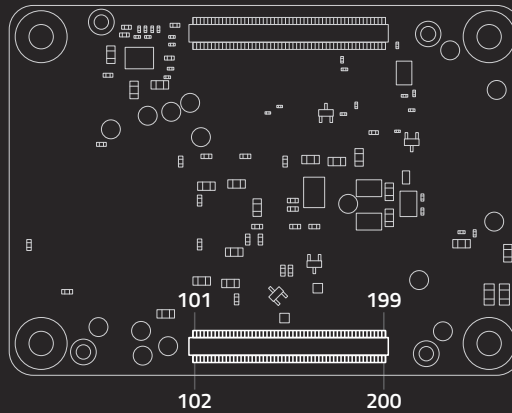
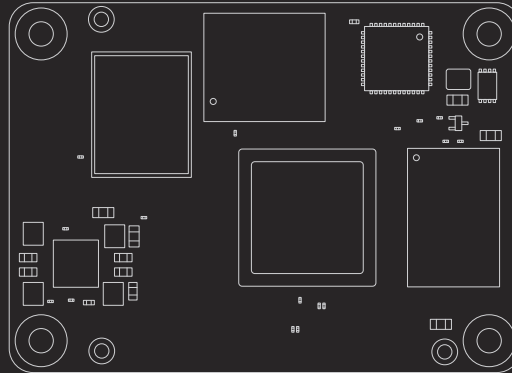


| #   | NAME       | #   | NAME      | #   | NAME      | #   | NAME      |
|-----|------------|-----|-----------|-----|-----------|-----|-----------|
| 101 | DSIO_DPO   | 126 | NC        | 151 | GND       | 176 | VC_TMS    |
| 102 | DSI1_CN    | 127 | GND       | 152 | GND       | 177 | RUN       |
| 103 | GND        | 128 | NC        | 153 | CAM1_DP1  | 178 | VC_TDO    |
| 104 | GND        | 129 | HDMI_D2_N | 154 | NC        | 179 | VDD_CORE* |
| 105 | DSIO_CN    | 130 | NC        | 155 | CAM1_DN1  | 180 | VC_TCK    |
| 106 | DSI1_DP3   | 131 | HDMI_D2_P | 156 | NC        | 181 | GND       |
| 107 | DSIO_CP    | 132 | NC        | 157 | GND       | 182 | GND       |
| 108 | DSI1_DN3   | 133 | GND       | 158 | NC        | 183 | 1V8       |
| 109 | GND        | 134 | GND       | 159 | CAM1_DPO  | 184 | 1V8       |
| 110 | GND        | 135 | CAM1_DP3  | 160 | NC        | 185 | 1V8       |
| 111 | HDMI_CLK_N | 136 | CAM0_DPO  | 161 | CAM1_DN0  | 186 | 1V8       |
| 112 | DSI1_DP2   | 137 | CAM1_DN3  | 162 | NC        | 187 | GND       |
| 113 | HDMI_CLK_P | 138 | CAM0_DN0  | 163 | GND       | 188 | GND       |
| 114 | DSI1_DN2   | 139 | GND       | 164 | GND       | 189 | VDAC      |
| 115 | GND        | 140 | GND       | 165 | USB_DP    | 190 | VDAC      |
| 116 | GND        | 141 | CAM1_DP2  | 166 | TVDAC     | 191 | 3V3       |
| 117 | HDMI_DO_N  | 142 | CAM0_CP   | 167 | USB_DM    | 192 | 3V3       |
| 118 | DSI1_DP1   | 143 | CAM1_DN2  | 168 | USB_OTGID | 193 | 3V3       |
| 119 | HDMI_DO_P  | 144 | CAM0_CN   | 169 | GND       | 194 | 3V3       |
| 120 | DSI1_DN1   | 145 | GND       | 170 | GND       | 195 | GND       |
| 121 | GND        | 146 | GND       | 171 | HDMI_CEC  | 196 | GND       |
| 122 | GND        | 147 | CAM1_CP   | 172 | VC_TRST_N | 197 | VBAT      |
| 123 | HDMI_D1_N  | 148 | CAM0_DP1  | 173 | HDMI_SDA  | 198 | VBAT      |
| 124 | NC         | 149 | CAM1_CN   | 174 | VC_TDI    | 199 | VBAT      |
| 125 | HDMI_D1_P  | 150 | CAM0_DN1  | 175 | HDMI_SCL  | 200 | VBAT      |

\* Do not connect

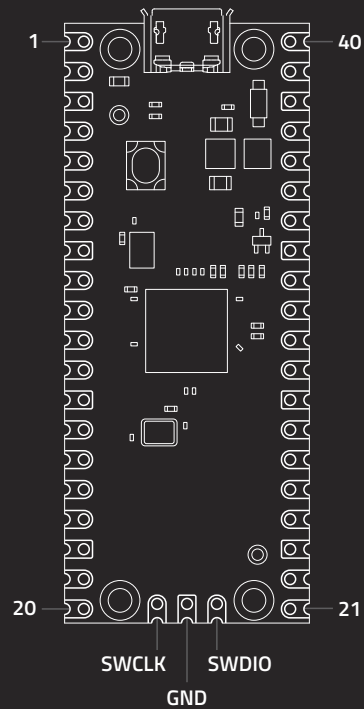


| #  | NAME              | #  | NAME   | #  | NAME            | #   | NAME              |
|----|-------------------|----|--------|----|-----------------|-----|-------------------|
| 1  | GND               | 26 | GPIO19 | 51 | GPIO15          | 76  | RESERVED          |
| 2  | GND               | 27 | GPIO20 | 52 | GND             | 77  | +5V (INPUT)       |
| 3  | ETHERNET_PAIR3_P  | 28 | GPIO13 | 53 | GND             | 78  | GPIO_VREF         |
| 4  | ETHERNET_PAIR1_P  | 29 | GPIO16 | 54 | GPIO4           | 79  | +5V (INPUT)       |
| 5  | ETHERNET_PAIR3_N  | 30 | GPIO6  | 55 | GPIO14          | 80  | SCL0              |
| 6  | ETHERNET_PAIR1_N  | 31 | GPIO12 | 56 | GPIO3           | 81  | +5V (INPUT)       |
| 7  | GND               | 32 | GND    | 57 | SD_CLK          | 82  | SDA0              |
| 8  | GND               | 33 | GND    | 58 | GPIO2           | 83  | +5V (INPUT)       |
| 9  | ETHERNET_PAIR2_N  | 34 | GPIO5  | 59 | GND             | 84  | CM4_3.3V (OUTPUT) |
| 10 | ETHERNET_PAIR0_N  | 35 | ID_SC  | 60 | GND             | 85  | +5V (INPUT)       |
| 11 | ETHERNET_PAIR2_P  | 36 | ID_SD  | 61 | SD_DAT3         | 86  | CM4_3.3V (OUTPUT) |
| 12 | ETHERNET_PAIR0_P  | 37 | GPIO7  | 62 | SD_CMD          | 87  | +5V (INPUT)       |
| 13 | GND               | 38 | GPIO11 | 63 | SD_DAT0         | 88  | CM4_1.8V (OUTPUT) |
| 14 | GND               | 39 | GPIO8  | 64 | SD_DAT5         | 89  | WL_NDISABLE       |
| 15 | ETHERNET_NLED3    | 40 | GPIO9  | 65 | GND             | 90  | CM4_1.8V (OUTPUT) |
| 16 | ETHERNET_SYNC_IN  | 41 | GPIO25 | 66 | GND             | 91  | BT_NDISABLE       |
| 17 | ETHERNET_NLED2    | 42 | GND    | 67 | SD_DAT1         | 92  | RUN_PG            |
| 18 | ETHERNET_SYNC_OUT | 43 | GND    | 68 | SD_DAT4         | 93  | NRPIBOOT          |
| 19 | ETHERNET_NLED1    | 44 | GPIO10 | 69 | SD_DAT2         | 94  | ANALOGIP1         |
| 20 | EEPROM_NWP        | 45 | GPIO24 | 70 | SD_DAT7         | 95  | PI_LED_NPWR       |
| 21 | PI_NLED_ACTIVITY  | 46 | GPIO22 | 71 | GND             | 96  | ANALOGIP0         |
| 22 | GND               | 47 | GPIO23 | 72 | SD_DAT6         | 97  | CAMERA_GPIO       |
| 23 | GND               | 48 | GPIO27 | 73 | SD_VDD_OVERRIDE | 98  | GND               |
| 24 | GPIO26            | 49 | GPIO18 | 74 | GND             | 99  | GLOBAL_EN         |
| 25 | GPIO21            | 50 | GPIO17 | 75 | SD_PWR_ON       | 100 | NEXTRST           |

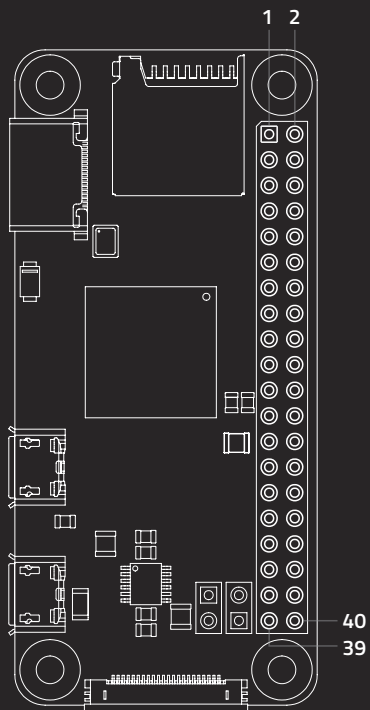


| #   | NAME          | #   | NAME          | #   | NAME          | #   | NAME        |
|-----|---------------|-----|---------------|-----|---------------|-----|-------------|
| 101 | USB_OTG_ID    | 126 | GND           | 151 | HDMI0_CEC     | 176 | HDMI0_TX1_P |
| 102 | PCIE_CLK_NREQ | 127 | CAM1_C_N      | 152 | HDMI1_TX1_P   | 177 | DSI1_D0_P   |
| 103 | USB_N         | 128 | CAM0_D0_N     | 153 | HDMI0_HOTPLUT | 178 | HDMI0_TX1_N |
| 104 | RESERVED      | 129 | CAM1_C_P      | 154 | HDMI1_TX1_N   | 179 | GND         |
| 105 | USB_P         | 130 | CAM0_D0_P     | 155 | GND           | 180 | GND         |
| 106 | RESERVED      | 131 | GND           | 156 | GND           | 181 | DSI1_D1_N   |
| 107 | GND           | 132 | GND           | 157 | DSIO_D0_N     | 182 | HDMI0_TX0_P |
| 108 | GND           | 133 | CAM1_D2_N     | 158 | HDMI1_TX0_P   | 183 | DSI1_D1_P   |
| 109 | PCIE_Nrst     | 134 | CAM0_D1_N     | 159 | DSIO_D0_P     | 184 | HDMI0_TX0_N |
| 110 | PCIE_CLK_P    | 135 | CAM1_D2_P     | 160 | HDMI1_TX0_N   | 185 | GND         |
| 111 | VDAC_COMP     | 136 | CAM0_D1_P     | 161 | GND           | 186 | GND         |
| 112 | PCIE_CLK_N    | 137 | GND           | 162 | GND           | 187 | DSI1_C_N    |
| 113 | GND           | 138 | GND           | 163 | DSIO_D1_N     | 188 | HDMI0_CLK_P |
| 114 | GND           | 139 | CAM1_D3_N     | 164 | HDMI1_CLK_P   | 189 | DSI1_C_P    |
| 115 | CAM1_D0_N     | 140 | CAM0_C_N      | 165 | DSIO_D1_P     | 190 | HDMI0_CLK_N |
| 116 | PCIE_RX_P     | 141 | CAM1_D3_P     | 166 | HDMI1_CLK_N   | 191 | GND         |
| 117 | CAM1_D0_P     | 142 | CAM0_C_P      | 167 | GND           | 192 | GND         |
| 118 | PCIE_RX_N     | 143 | HDMI1_HOTPLUT | 168 | GND           | 193 | DSI1_D2_N   |
| 119 | GND           | 144 | GND           | 169 | DSIO_C_N      | 194 | DSI1_D3_N   |
| 120 | GND           | 145 | HDMI1_SDA     | 170 | HDMI0_TX2_P   | 195 | DSI1_D2_P   |
| 121 | CAM1_D1_N     | 146 | HDMI1_TX2_P   | 171 | DSIO_C_P      | 196 | DSI1_D3_P   |
| 122 | PCIE_TX_P     | 147 | HDMI1_SCL     | 172 | HDMI0_TX2_N   | 197 | GND         |
| 123 | CAM1_D1_P     | 148 | HDMI1_TX2_N   | 173 | GND           | 198 | GND         |
| 124 | PCIE_TX_N     | 149 | HDMI1_CEC     | 174 | GND           | 199 | HDMI0_SDA   |
| 125 | GND           | 150 | GND           | 175 | DSI1_D0_N     | 200 | HDMI0_SCL   |



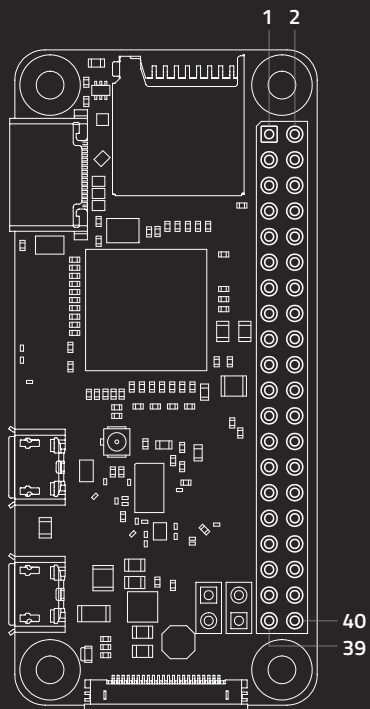


| #  | MAIN   | SPI      | I2C      | UART     | #  | MAIN      | SPI / ADC | I2C      | UART     |
|----|--------|----------|----------|----------|----|-----------|-----------|----------|----------|
| 1  | GP0    | SPI0 RX  | I2C0 SDA | UART0 TX | 21 | GP16      | SPI0 RX   | I2C0 SDA | UART0 TX |
| 2  | GP1    | SPI0 CSN | I2C0 SCL | UART0 RX | 22 | GP17      | SPI0 CSN  | I2C0 SCL | UART0 RX |
| 3  | GROUND |          |          |          | 23 | GROUND    |           |          |          |
| 4  | GP2    | SPI0 SCK | I2C1 SDA |          | 24 | GP18      | SPI0 SCK  | I2C1 SDA |          |
| 5  | GP3    | SPI0 TX  | I2C1 SCL |          | 25 | GP19      | SPI0 TX   | I2C1 SCL |          |
| 6  | GP4    | SPI0 RX  | I2C0 SDA | UART1 TX | 26 | GP20      |           | I2C0 SDA |          |
| 7  | GP5    | SPI0 CSN | I2C0 SCL | UART1 RX | 27 | GP21      |           | I2C0 SCL |          |
| 8  | GROUND |          |          |          | 28 | GROUND    |           |          |          |
| 9  | GP6    | SPI0 SCK | I2C1 SDA |          | 29 | GP22      |           |          |          |
| 10 | GP7    | SPI0 TX  | I2C1 SCL |          | 30 | RUN       |           |          |          |
| 11 | GP8    | SPI1 RX  | I2C0 SDA | UART1 TX | 31 | GP26      | ADC0      | I2C1 SDA |          |
| 12 | GP9    | SPI1 CSN | I2C0 SCL | UART1 RX | 32 | GP27      | ADC1      | I2C1 SCL |          |
| 13 | GROUND |          |          |          | 33 | GROUND    | AGROUND   |          |          |
| 14 | GP10   | SPI1 SCK | I2C1 SDA |          | 34 | GP28      | ADC2      |          |          |
| 15 | GP11   | SPI1 TX  | I2C1 SCL |          | 35 |           | ADC_VREF  |          |          |
| 16 | GP12   | SPI1 RX  | I2C0 SDA | UART0 TX | 36 | 3V3 (OUT) |           |          |          |
| 17 | GP13   | SPI1 CSN | I2C0 SCL | UART0 RX | 37 | 3V3_EN    |           |          |          |
| 18 | GROUND |          |          |          | 38 | GROUND    |           |          |          |
| 19 | GP14   | SPI1 SCK | I2C1 SDA |          | 39 | VSYS      |           |          |          |
| 20 | GP15   | SPI1 TX  | I2C1 SCL |          | 40 | VBUS      |           |          |          |



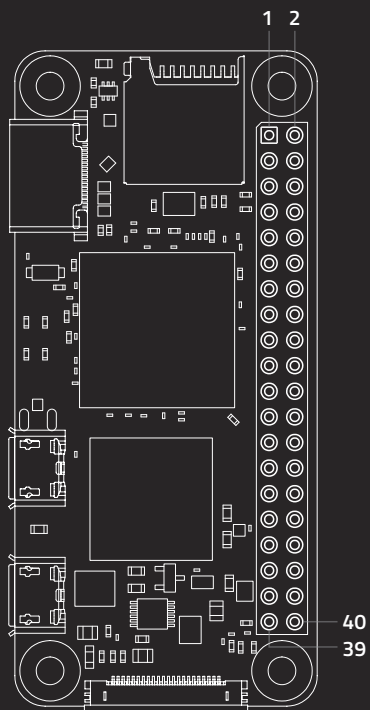
| WIRING PI # | MAIN FUNCTIONS      | #  |   |   | #  | MAIN FUNCTIONS      | WIRING PI # |
|-------------|---------------------|----|---|---|----|---------------------|-------------|
|             | 3V3 POWER           | 1  | □ | ○ | 2  | 5V POWER            |             |
| 8           | GPIO 2 (I2C1 SDA)   | 3  | ○ | ○ | 4  | 5V POWER            |             |
| 9           | GPIO 3 (I2C1 SCL)   | 5  | ○ | ○ | 6  | GROUND              |             |
| 7           | GPIO 4 (GPCLK0)     | 7  | ○ | ○ | 8  | GPIO 14 (UART TX)   | 15          |
|             | GROUND              | 9  | ○ | ○ | 10 | GPIO 15 (UART RX)   | 16          |
| 0           | GPIO 17             | 11 | ○ | ○ | 12 | GPIO 18 (PCM CLK)   | 1           |
| 2           | GPIO 27             | 13 | ○ | ○ | 14 | GROUND              |             |
| 3           | GPIO 22             | 15 | ○ | ○ | 16 | GPIO 23             | 4           |
|             | 3V3 POWER           | 17 | ○ | ○ | 18 | GPIO 24             | 5           |
| 12          | GPIO 10 (SPI0 MOSI) | 19 | ○ | ○ | 20 | GROUND              |             |
| 13          | GPIO 9 (SPI0 MISO)  | 21 | ○ | ○ | 22 | GPIO 25             | 6           |
| 14          | GPIO 11 (SPI0 SCLK) | 23 | ○ | ○ | 24 | GPIO 8 (SPI0 CE0)   | 10          |
|             | GROUND              | 25 | ○ | ○ | 26 | GPIO 7 (SPI0 CE1)   | 11          |
| 30          | GPIO 0 (EEPROM SDA) | 27 | ○ | ○ | 28 | GPIO 1 (EEPROM SCL) | 31          |
| 21          | BCM 5               | 29 | ○ | ○ | 30 | GROUND              |             |
| 22          | BCM 6               | 31 | ○ | ○ | 32 | GPIO 12 (PWM0)      | 26          |
| 23          | GPIO 13 (PWM1)      | 33 | ○ | ○ | 34 | GROUND              |             |
| 24          | GPIO 19 (PCM FS)    | 35 | ○ | ○ | 36 | GPIO 16             | 27          |
| 25          | GPIO 26             | 37 | ○ | ○ | 38 | GPIO 20 (PCM DIN)   | 28          |
|             | GROUND              | 39 | ○ | ○ | 40 | GPIO 21 (PCM DOUT)  | 29          |

NOTE: Alternate pin functions are also available. Check the datasheet for more information.



| WIRING PI # | MAIN FUNCTIONS      | #  |   |   | #  | MAIN FUNCTIONS      | WIRING PI # |
|-------------|---------------------|----|---|---|----|---------------------|-------------|
|             | 3V3 POWER           | 1  | □ | ○ | 2  | 5V POWER            |             |
| 8           | GPIO 2 (I2C1 SDA)   | 3  | ○ | ○ | 4  | 5V POWER            |             |
| 9           | GPIO 3 (I2C1 SCL)   | 5  | ○ | ○ | 6  | GROUND              |             |
| 7           | GPIO 4 (GPCLK0)     | 7  | ○ | ○ | 8  | GPIO 14 (UART TX)   | 15          |
|             | GROUND              | 9  | ○ | ○ | 10 | GPIO 15 (UART RX)   | 16          |
| 0           | GPIO 17             | 11 | ○ | ○ | 12 | GPIO 18 (PCM CLK)   | 1           |
| 2           | GPIO 27             | 13 | ○ | ○ | 14 | GROUND              |             |
| 3           | GPIO 22             | 15 | ○ | ○ | 16 | GPIO 23             | 4           |
|             | 3V3 POWER           | 17 | ○ | ○ | 18 | GPIO 24             | 5           |
| 12          | GPIO 10 (SPI0 MOSI) | 19 | ○ | ○ | 20 | GROUND              |             |
| 13          | GPIO 9 (SPI0 MISO)  | 21 | ○ | ○ | 22 | GPIO 25             | 6           |
| 14          | GPIO 11 (SPI0 SCLK) | 23 | ○ | ○ | 24 | GPIO 8 (SPI0 CE0)   | 10          |
|             | GROUND              | 25 | ○ | ○ | 26 | GPIO 7 (SPI0 CE1)   | 11          |
| 30          | GPIO 0 (EEPROM SDA) | 27 | ○ | ○ | 28 | GPIO 1 (EEPROM SCL) | 31          |
| 21          | BCM 5               | 29 | ○ | ○ | 30 | GROUND              |             |
| 22          | BCM 6               | 31 | ○ | ○ | 32 | GPIO 12 (PWM0)      | 26          |
| 23          | GPIO 13 (PWM1)      | 33 | ○ | ○ | 34 | GROUND              |             |
| 24          | GPIO 19 (PCM FS)    | 35 | ○ | ○ | 36 | GPIO 16             | 27          |
| 25          | GPIO 26             | 37 | ○ | ○ | 38 | GPIO 20 (PCM DIN)   | 28          |
|             | GROUND              | 39 | ○ | ○ | 40 | GPIO 21 (PCM DOUT)  | 29          |

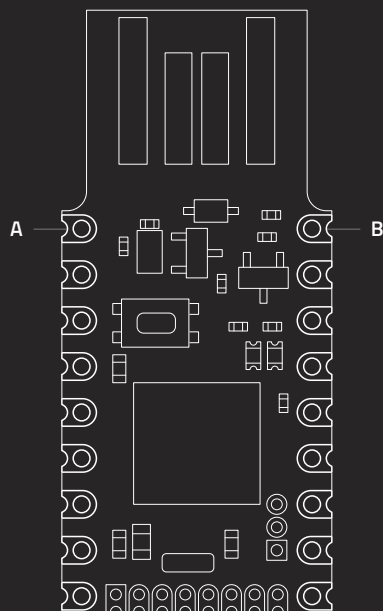
NOTE: Alternate pin functions are also available. Check the datasheet for more information.



| WIRING PI # | MAIN FUNCTIONS      | #  |   |   | #  | MAIN FUNCTIONS      | WIRING PI # |
|-------------|---------------------|----|---|---|----|---------------------|-------------|
|             | 3V3 POWER           | 1  | □ | ○ | 2  | 5V POWER            |             |
| 8           | GPIO 2 (I2C1 SDA)   | 3  | ○ | ○ | 4  | 5V POWER            |             |
| 9           | GPIO 3 (I2C1 SCL)   | 5  | ○ | ○ | 6  | GROUND              |             |
| 7           | GPIO 4 (GPCLK0)     | 7  | ○ | ○ | 8  | GPIO 14 (UART TX)   | 15          |
|             | GROUND              | 9  | ○ | ○ | 10 | GPIO 15 (UART RX)   | 16          |
| 0           | GPIO 17             | 11 | ○ | ○ | 12 | GPIO 18 (PCM CLK)   | 1           |
| 2           | GPIO 27             | 13 | ○ | ○ | 14 | GROUND              |             |
| 3           | GPIO 22             | 15 | ○ | ○ | 16 | GPIO 23             | 4           |
|             | 3V3 POWER           | 17 | ○ | ○ | 18 | GPIO 24             | 5           |
| 12          | GPIO 10 (SPI0 MOSI) | 19 | ○ | ○ | 20 | GROUND              |             |
| 13          | GPIO 9 (SPI0 MISO)  | 21 | ○ | ○ | 22 | GPIO 25             | 6           |
| 14          | GPIO 11 (SPI0 SCLK) | 23 | ○ | ○ | 24 | GPIO 8 (SPI0 CE0)   | 10          |
|             | GROUND              | 25 | ○ | ○ | 26 | GPIO 7 (SPI0 CE1)   | 11          |
| 30          | GPIO 0 (EEPROM SDA) | 27 | ○ | ○ | 28 | GPIO 1 (EEPROM SCL) | 31          |
| 21          | BCM 5               | 29 | ○ | ○ | 30 | GROUND              |             |
| 22          | BCM 6               | 31 | ○ | ○ | 32 | GPIO 12 (PWM0)      | 26          |
| 23          | GPIO 13 (PWM1)      | 33 | ○ | ○ | 34 | GROUND              |             |
| 24          | GPIO 19 (PCM FS)    | 35 | ○ | ○ | 36 | GPIO 16             | 27          |
| 25          | GPIO 26             | 37 | ○ | ○ | 38 | GPIO 20 (PCM DIN)   | 28          |
|             | GROUND              | 39 | ○ | ○ | 40 | GPIO 21 (PCM DOUT)  | 29          |

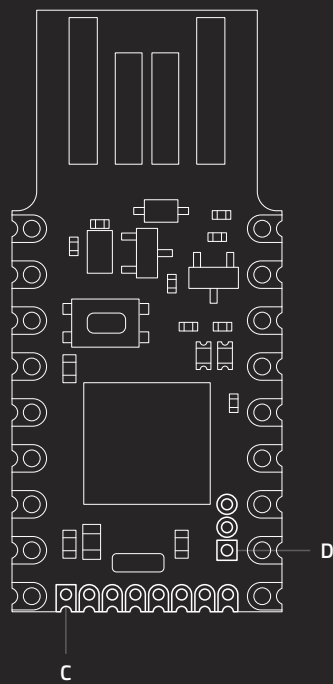
NOTE: Alternate pin functions are also available. Check the datasheet for more information.
















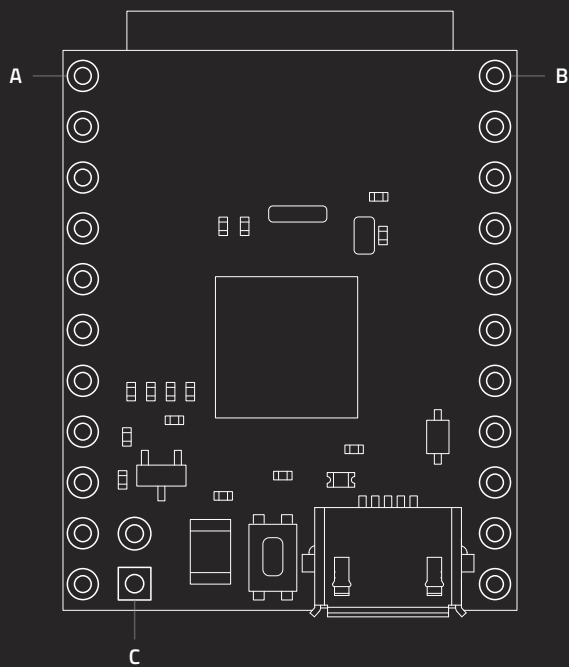
| A | NAME |                |                |           |           |
|---|------|----------------|----------------|-----------|-----------|
|   | GND  |                |                |           |           |
|   | VBAT |                |                |           |           |
|   | 3.3  |                |                |           |           |
|   | B3   | I2C2_SDA       | PWM (TIM2_CH2) | SPI3_SCK  | SPI1_SCK  |
|   | B4   | I2C3_SDA       | PWM (TIM3_CH1) | SPI1_MISO | SPI3_MISO |
|   | B5   | PWM (TIM3_CH2) | SPI1_MOSI      | SPI3_MOSI |           |
|   | B6   | I2C1_SCL       | PWM (TIM4_CH1) | USART1_TX |           |
|   | B7   | I2C1_SDA       | PWM (TIM4_CH2) | USART1_RX |           |
|   | A8   | I2C3_SCL       | PWM (TIM1_CH1) | USART1_CK |           |

| B | NAME   |                 |                           |           |
|---|--------|-----------------|---------------------------|-----------|
|   | BAT_IN |                 |                           |           |
|   | B15    | PWM (TIM1_CH3N) | SPI2_MOSI                 |           |
|   | B14    | PWM (TIM1_CH2N) | SPI2_MISO                 |           |
|   | B13    | PWM (TIM1_CH1N) | SPI2_SCK                  |           |
|   | B10    | I2C2_SCL        | PWM (TIM2_CH3)            | SPI2_SCK  |
|   | B1     | ADC1_IN9        | PWM (TIM1_CH3N, TIM3_CH4) |           |
|   | A7     | ADC1_IN7        | PWM (TIM1_CH1N, TIM3_CH2) | SPI1_MOSI |
|   | A6     | ADC1_IN6        | PWM (TIM3_CH1)            | SPI1_MISO |
|   | A5     | ADC1_IN5        | PWM (TIM2_CH1)            | SPI1_SCK  |



| C   | NAME |                |                                   |
|---|------|----------------|-----------------------------------|
|  | B8   | I2C1_SCL       | PWM (TIM10_CH1, TIM4_CH3)         |
|  | B9   | I2C1_SDA       | PWM (TIM11_CH1, TIM4_CH4)         |
|  | A10  | PWM (TIM1_CH3) | USART1_RX                         |
|  | A0   | ADC1_IN0       | PWM (TIM2_CH1)                    |
|  | A1   | ADC1_IN1       | PWM (TIM2_CH2)                    |
|  | A2   | ADC1_IN2       | PWM (TIM2_CH3, TIM9_CH1)USART2_TX |
|  | A3   | ADC1_IN3       | PWM (TIM2_CH4, TIM9_CH2)USART2_RX |
|  | A4   | ADC1_IN4       | USART2_CK                         |

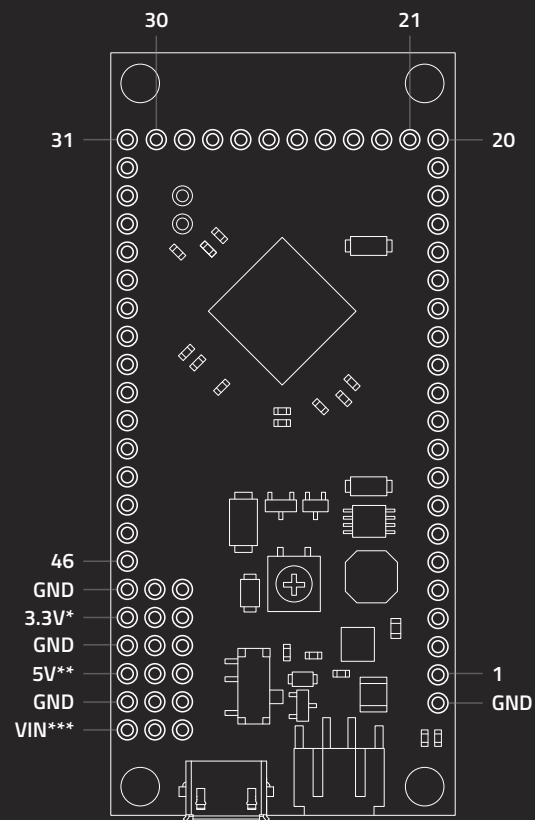
| D  | NAME |
|--|------|
|   | GND  |
|   | 3.3V |
|  | VBAT |



| A | NAME |                           |                           |          |
|---|------|---------------------------|---------------------------|----------|
| ○ | A0   | PWM (TIM2_CH1)            | ADC1_IN0                  |          |
| ○ | A1   | PWM (TIM2_CH2)            | ADC1_IN1                  |          |
| ○ | A4   | USART2_CK                 | ADC1_IN4                  |          |
| ○ | A5   | SPI1_SCK                  | PWM (TIM2_CH1)            | ADC1_IN5 |
| ○ | A6   | SPI1_MISO                 | PWM (TIM3_CH1)            | ADC1_IN6 |
| ○ | A7   | SPI1_MOSI                 | PWM (TIM1_CH1N, TIM3_CH2) | ADC1_IN7 |
| ○ | B1   | PWM (TIM1_CH3N, TIM3_CH4) | ADC1_IN9                  |          |
| ○ | B10  | SPI2_SCK                  | PWM (TIM2_CH3)            | I2C2_SCL |
| ○ | B13  | SPI2_SCK                  | PWM (TIM1_CH1N)           |          |
| ○ | B14  | SPI2_MISO                 | PWM (TIM1_CH2N)           |          |
| ○ | B15  | SPI2_MOSI                 | PWM (TIM1_CH3N)           |          |

| B | NAME   |                |                           |           |           |
|---|--|----------------|---------------------------|-----------|-----------|
| ○ | B0   | ADC1_IN8       | PWM (TIM1_CH2N, TIM3_CH3) |           |           |
| ○ | B9   | I2C1_SDA       | PWM (TIM11_CH1, TIM4_CH4) |           |           |
| ○ | B8   | I2C1_SCL       | PWM (TIM10_CH1, TIM4_CH3) |           |           |
| ○ | B7   | I2C1_SDA       | PWM (TIM4_CH2)            | USART1_RX |           |
| ○ | B6   | I2C1_SCL       | PWM (TIM4_CH1)            | USART1_TX |           |
| ○ | B5   | PWM (TIM3_CH2) | SPI1_MOSI                 | SPI3_MOSI |           |
| ○ | B4   | I2C3_SDA       | PWM (TIM3_CH1)            | SPI1_MISO | SPI3_MISO |
| ○ | B3   | I2C2_SDA       | PWM (TIM2_CH2)            | SPI3_SCK  | SPI1_SCK  |
| ○ | 3.3 <i>(3.3v output from the on-board voltage regulator)</i>   |                |                           |           |           |
| ○ | VUSB <i>(This pin is connected directly to USB 5V. Only use to power the Espruino if micro USB is unplugged)</i> |                |                           |           |           |
| ○ | GND  |                |                           |           |           |

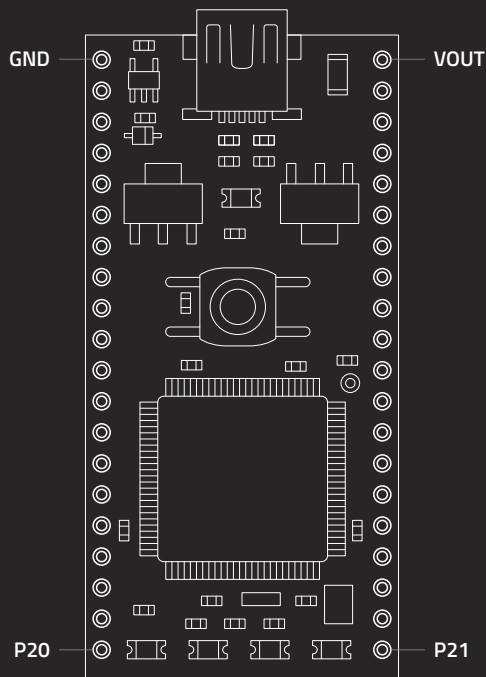
| C | NAME |                |                |           |
|---|------|----------------|----------------|-----------|
| ○ | A10  | PWN (TIM1_CH3) | USART1_RX      |           |
| □ | A8   | I2C3_SCL       | PWM (TIM1_CH1) | USART1_CK |



| #  | PIC | FUNCTIONS                            | #  | PIC | FUNCTIONS                           |
|----|-----|--------------------------------------|----|-----|-------------------------------------|
| 1  | 31  | SDA2/RP10/GD4/CN17/RF4               | 24 | 1   | VSNC/CN63/RE5                       |
| 2  | 32  | SCL2/RP17/GD5/CN18/RF5               | 25 | 2   | GD12/SCL3/CN64/RE6                  |
| 3  | 42  | RTCC/DMLN/RP2/CN53/RD8               | 26 | 3   | GD13/SDA3/CN65/RE7                  |
| 4  | 43  | DPLN/SDA1/RP4/GD8/CN54/RD9           | 27 | 4   | C1IND/RP21/CN8/RG6                  |
| 5  | 44  | SCL1/RP3/GD6/CN55/RD10               | 28 | 5   | C1INC/RP26/CN9/RG7                  |
| 6  | 45  | RP12/GD7/CN56/RD11                   | 29 | 6   | C2IND/RP19/GD14/CN10/RG8            |
| 7  | 46  | DMH/RP11/INT0/CN49/RD0               | 30 | 8   | C2INC/RP27/GD15/CN11/RG9            |
| 8  | 47  | SOSCI/C3IND/CN1/RC13                 | 31 | 11  | PGEC3/AN5/C1INA/VBUSON/RP18/CN7/RB5 |
| 9  | 48  | SOSCO/SCLK/T1CK/C3INC/RPI37/CN0/RC14 | 32 | 12  | PGED3/AN4/C1INB/USBOEN/RP28/CN6/RB4 |
| 10 | 49  | VCPCON/RP24/GD9/VBUSCHG/CN50/RD1     | 33 | 13  | AN3/C2INA/VPIO/CN5/RB3              |
| 11 | 50  | DPH/RP23/CN51/RD2                    | 34 | 14  | AN2/C2INB/VMIO/RP13/CN4/RB2         |
| 12 | 51  | RP22/GEN/CN52/RD3                    | 35 | 15  | PGEC1/AN1/VREF-/RP1/CN3/RB1         |
| 13 | 52  | RP25/GCLK/CN13/RD4                   | 36 | 16  | PGED1/AN0/VREF+/RP0/CN2/RB0         |
| 14 | 53  | RP20/GPWR/CN14/RD5                   | 37 | 17  | PGEC2/AN6/RP6/CN24/RB6              |
| 15 | 54  | C3INB/CN15/RD6                       | 38 | 18  | PGED2/AN7/RP7/RCV/CN25/RB7          |
| 16 | 55  | C3INA/SESSEND/CN16/RD7               | 39 | 21  | AN8/RP8/CN26/RB8                    |
| 17 | 58  | GD10/VBUSST/VCMPST1/VBUSVLD/CN68/RF0 | 40 | 22  | AN9/RP9/CN27/RB9                    |
| 18 | 59  | GD11/VCMPST2/SESSVLD/CN69/RF1        | 41 | 23  | TMS/CVREF/AN10/CN28/RB10            |
| 19 | 60  | GD0/CN58/RE0                         | 42 | 24  | TDO/AN11/CN29/RB11                  |
| 20 | 61  | GD1/CN59/RE1                         | 43 | 27  | TCK/AN12/CTEDG2/CN30/RB12           |
| 21 | 62  | GD2/CN60/RE2                         | 44 | 28  | TDI/AN13/CTEDG1/CN31/RB13           |
| 22 | 63  | GD3/CN61/RE3                         | 45 | 29  | AN14/CTPLS/RP14/CN32/RB14           |
| 23 | 64  | HSYNC/CN62/RE4                       | 46 | 30  | AN15/RP29/REF0/CN12/RB15            |

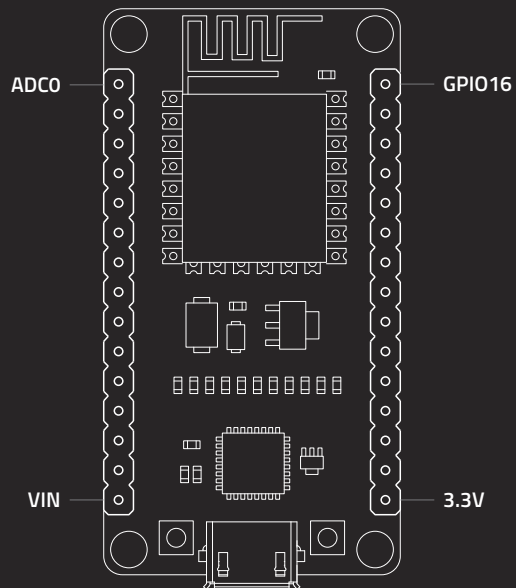
\*3.3V output from the on-board regulator. \*\*5V output from the on-board regulator. \*\*\*Used for outputting the supply voltage to your circuit, or as an alternative input to the power jack.





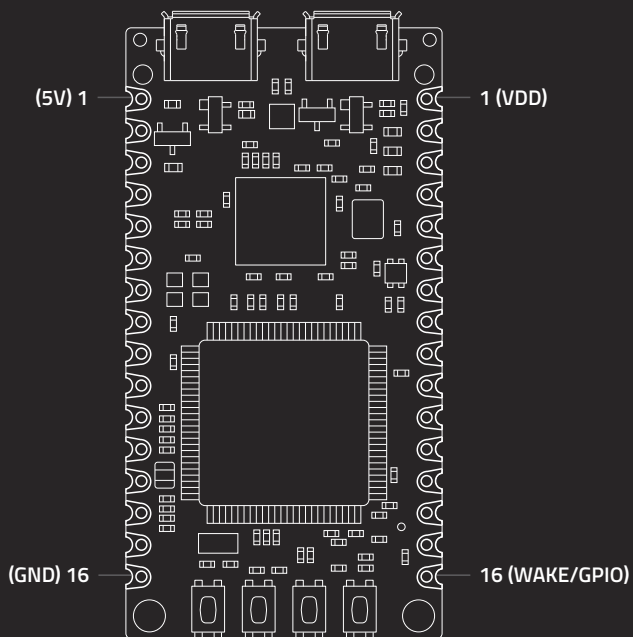
|   | NAME |                |            |
|---|------|----------------|------------|
| ○ | GND  | 0V             |            |
| ○ | VIN  | 4.5V - 9.0V IN |            |
| ○ | VB   |                |            |
| ○ | NR   |                |            |
| ○ | P5   | SPI (MOSI)     |            |
| ○ | P6   | SPI (MISO)     |            |
| ○ | P7   | SPI (SCK)      |            |
| ○ | P8   |                |            |
| ○ | P9   | SERIAL (TX)    | I2C (SDA)  |
| ○ | P10  | SERIAL (RX)    | I2C (SCL)  |
| ○ | P11  |                | SPI (MOSI) |
| ○ | P12  |                | SPI (MISO) |
| ○ | P13  | SERIAL (TX)    | SPI (SCK)  |
| ○ | P14  | SERIAL (RX)    |            |
| ○ | P15  | ANALOGIN       |            |
| ○ | P16  | ANALOGIN       |            |
| ○ | P17  | ANALOGIN       |            |
| ○ | P18  | ANALOGIN       | ANALOGOUT  |
| ○ | P19  | ANALOGIN       |            |
| ○ | P20  | ANALOGIN       |            |

|   | NAME |                    |           |
|---|------|--------------------|-----------|
| ○ | VOUT | 3.3V REGULATED OUT |           |
| ○ | VU   | 5.0V USB OUT       |           |
| ○ | IF-  |                    |           |
| ○ | IF+  |                    |           |
| ○ | RD-  | ETHERNET           |           |
| ○ | RD+  | ETHERNET           |           |
| ○ | TD-  | ETHERNET           |           |
| ○ | TD+  | ETHERNET           |           |
| ○ | D-   | USB                |           |
| ○ | D+   | USB                |           |
| ○ | P30  | CAN (RD)           |           |
| ○ | P29  | CAN (TD)           |           |
| ○ | P28  | SERIAL (TX)        | I2C (SDA) |
| ○ | P27  | SERIAL (RX)        | I2C (SCL) |
| ○ | P26  | PWMOUT             |           |
| ○ | P25  | PWMOUT             |           |
| ○ | P24  | PWMOUT             |           |
| ○ | P23  | PWMOUT             |           |
| ○ | P22  | PWMOUT             |           |
| ○ | P21  | PWMOUT             |           |



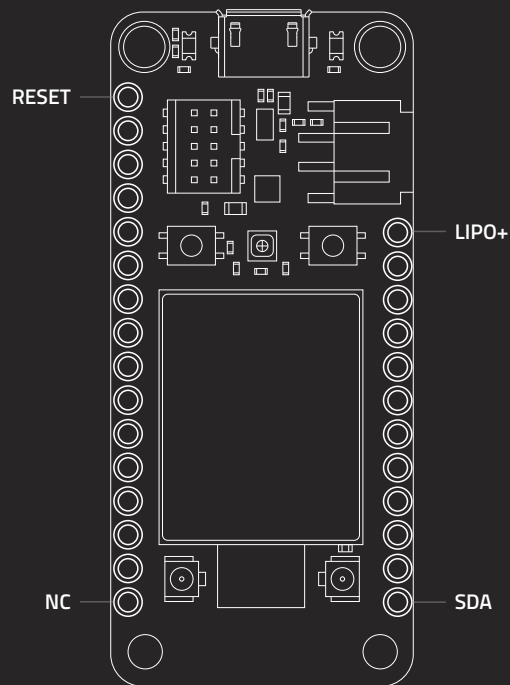
|          | NAME   |   |
|----------|--------|---|
| TOUT     | ADC0   | ○ |
| RESERVED |        | ○ |
| RESERVED |        | ○ |
| SDD3     | GPIO10 | ○ |
| SDD2     | GPIO9  | ○ |
| SDD1     | MOSI   | ○ |
| SDCMD    | CS     | ○ |
| SDD0     | MISO   | ○ |
| SDCLK    | SCLK   | ○ |
| GND      |        | ○ |
| 3.3V     |        | ○ |
| EN       |        | ○ |
| RST      |        | ○ |
| GND      |        | ○ |
| VIN      |        | ○ |

| NAME   |       |       |
|--------|-------|-------|
| GPIO16 | USER  | WAKE  |
| GPIO5  |       |       |
| GPIO4  |       |       |
| GPIO0  | FLASH |       |
| GPIO2  | TXD1  |       |
| 3.3V   |       |       |
| GND    |       |       |
| GPIO14 |       | HSCLK |
| GPIO12 |       | HMISO |
| GPIO13 | RXD2  | HMOSI |
| GPIO15 | TXD2  | HCS   |
| GPIO3  | RXD0  |       |
| GPIO1  | TXD0  |       |
| GND    |       |       |
| 3.3V   |       |       |



|         | NAME      | #  |   |
|---------|-----------|----|---|
|         | 5V        | 1  | ○ |
| PIO0_16 | ADCO_N    | 2  | ○ |
| PIO0_23 | ADCO_P    | 3  | ○ |
| PIO0_15 | GPIO      | 4  | ○ |
| PIO1_5  | GPIO      | 5  | ○ |
| PIO1_8  | GPIO      | 6  | ○ |
| PIO1_9  | GPIO      | 7  | ○ |
| PIO1_10 | GPIO      | 8  | ○ |
| PIO0_14 | FC1_SCL   | 9  | ○ |
| PIO0_13 | FC1_SDA   | 10 | ○ |
| PIO0_27 | FC2_TXD   | 11 | ○ |
| PIO1_24 | FC2_RXD   | 12 | ○ |
| PIO1_31 | PLU_INO   | 13 | ○ |
| PIO0_0  | COMP      | 14 | ○ |
|         | RESET ULP | 15 | ○ |
|         | GND       | 16 | ○ |

| #  | NAME      |         |
|----|-----------|---------|
| 1  | VDD       |         |
| 2  | LED R     | PIO_4   |
| 3  | LED G     | PIO1_7  |
| 4  | LED B     | PIO1_6  |
| 5  | FC4_SCL   | PIO1_20 |
| 6  | FC4_SDA   | PIO1_21 |
| 7  | GPIO      | PIO1_7  |
| 8  | GPIO      | PIO1_0  |
| 9  | GPIO      | PIO0_31 |
| 10 | SSEL1     | PIO1_1  |
| 11 | SCK       | PIO1_2  |
| 12 | MISO      | PIO1_3  |
| 13 | MOSI      | PIO0_26 |
| 14 | GPIO      | PIO1_27 |
| 15 | GPIO      | PIO1_26 |
| 16 | WAKE/GPIO |         |



|       |       |          |          | NAME  |
|-------|-------|----------|----------|-------|
| P0.18 |       |          |          | RESET |
|       |       |          |          | 3.3V* |
| P0.11 |       |          |          | MODE  |
|       |       |          |          | GND   |
| P0.03 | PWM 2 |          |          | ADC0  |
| P0.04 | PWM 2 |          |          | ADC1  |
| P0.28 | PWM 2 |          |          | ADC2  |
| P0.29 | PWM 2 |          |          | ADC3  |
| P0.30 | PWM 3 |          |          | ADC4  |
| P0.31 | PWM 3 | SPI_SS   |          | ADC5  |
| P1.15 |       | SPI_SCK  |          |       |
| P1.13 |       | SPI_MOSI |          |       |
| P1.14 |       | SPI_MISO |          |       |
| P0.08 |       |          | UART1_RX |       |
| P0.06 |       |          | UART1_TX |       |
|       |       |          |          | NC    |

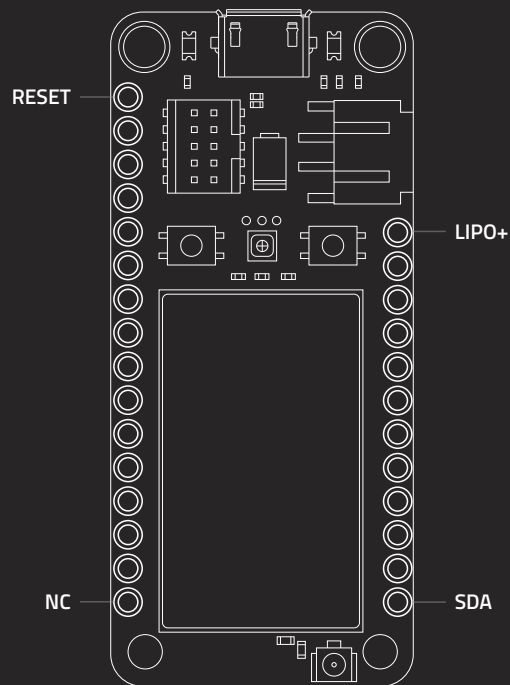
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| NAME      |           |           |       |       |
|-----------|-----------|-----------|-------|-------|
| LIPO+**   |           |           |       |       |
| ENABLE*** |           |           |       |       |
| VBUS****  |           |           |       |       |
|           |           |           | PWM 1 | P1.03 |
|           |           |           | PWM 0 | P1.12 |
|           |           |           | PWM 1 | P1.11 |
|           |           |           | PWM 1 | P1.10 |
|           |           | SPI1_MISO | PWM 1 | P1.08 |
| SCL1      | UART1_CTS | SPI1_MOSI | PWM 3 | P1.02 |
| SDA1      | UART1_RTS | SPI1_SCK  | PWM 3 | P1.01 |
| SCL       |           |           |       | P0.27 |
| SDA       |           |           |       | P0.26 |

\*3.3VDC / 1000mA Max Output. \*\*Connected to + pin of LiPo connector. \*\*\*Connect to GND to disable device. \*\*\*\*Connected to USB power pin (5VDC typical)





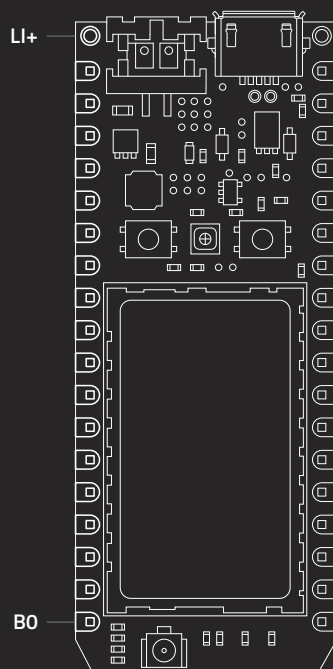
|       |       |          |          | NAME  |
|-------|-------|----------|----------|-------|
| P0.18 |       |          |          | RESET |
|       |       |          |          | 3.3V* |
| P0.11 |       |          |          | MODE  |
|       |       |          |          | GND   |
| P0.03 | PWM 2 |          |          | ADC0  |
| P0.04 | PWM 2 |          |          | ADC1  |
| P0.28 | PWM 2 |          |          | ADC2  |
| P0.29 | PWM 2 |          |          | ADC3  |
| P0.30 | PWM 3 |          |          | ADC4  |
| P0.31 | PWM 3 | SPI_SS   |          | ADC5  |
| P1.15 |       | SPI_SCK  |          |       |
| P1.13 |       | SPI_MOSI |          |       |
| P1.14 |       | SPI_MISO |          |       |
| P0.08 |       |          | UART1_RX |       |
| P0.06 |       |          | UART1_TX |       |
|       |       |          |          | NC    |

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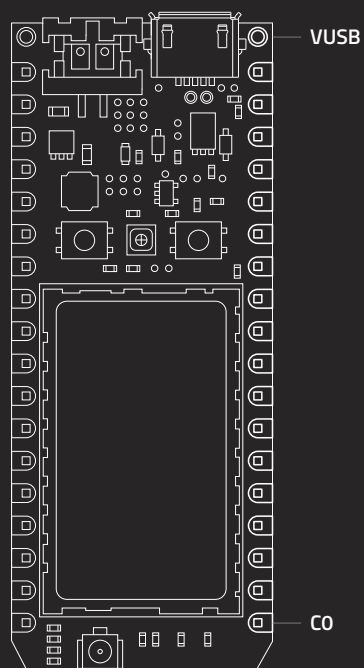
| NAME      |           |           |       |       |
|-----------|-----------|-----------|-------|-------|
| LIPO+**   |           |           |       |       |
| ENABLE*** |           |           |       |       |
| VBUS****  |           |           |       |       |
|           |           |           | PWM 1 | P1.03 |
|           |           |           | PWM 0 | P1.12 |
|           |           |           | PWM 1 | P1.11 |
|           |           |           | PWM 1 | P1.10 |
|           |           | SPI1_MISO | PWM 1 | P1.08 |
|           | UART1_CTS | SPI1_MOSI | PWM 3 | P1.02 |
|           | UART1_RTS | SPI1_SCK  | PWM 3 | P1.01 |
| SCL       |           |           |       | P0.27 |
| SDA       |           |           |       | P0.26 |

\*3.3VDC / 1000mA Max Output. \*\*Connected to + pin of LiPo connector. \*\*\*Connect to GND to disable device. \*\*\*\*Connected to USB power pin (5VDC typical)



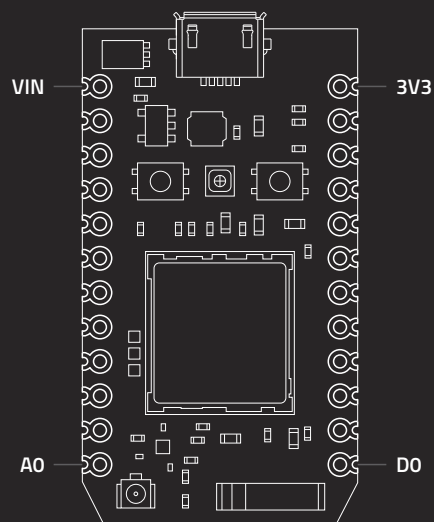
|   | NAME |           |            |                |      |
|---|------|-----------|------------|----------------|------|
| ⊙ | LI+  | LIPO+*    |            |                |      |
| □ | VIN  | VIN**     |            |                |      |
| □ | GND  |           |            |                |      |
| □ | TX   | USART1_TX |            | PWM (TIM1_CH2) | PA9  |
| □ | RX   | USART1_RX |            | PWM (TIM1_CH3) | PA10 |
| □ | A7   | ADC0      |            | PWM (TIM5_CH1) | PA0  |
| □ | A6   | ADC4      |            | DAC1           | PA4  |
| □ | A5   | ADC7      | SPI (MOSI) | PWM (TIM3_CH2) | PA7  |
| □ | A4   | ADC6      | SPI (MISO) | PWM (TIM3_CH1) | PA6  |
| □ | A3   | ADC5      | SPI (SCK)  | DAC2           | PA5  |
| □ | A2   | ADC12     | SPI (SS)   |                | PC2  |
| □ | A1   | ADC13     |            |                | PC3  |
| □ | A0   | ADC15     |            |                | PC5  |
| □ | B5   | ADC11     |            |                | PC1  |
| □ | B4   | ADC10     |            |                | PC0  |
| □ | B3   | ADC9      |            | PWM (TIM3_CH4) | PB1  |
| □ | B2   | ADC8      |            | PWM (TIM3_CH3) | PB0  |
| □ | B1   |           |            | PWM (TIM8_CH1) | PC6  |
| □ | B0   |           |            | PWM (TIM8_CH3) | PC8  |

\*Connected to the positive terminal of the LiPo battery \*\*3.9VDC to 12VDC Input



|   | NAME |           |                  |         |                |      |
|---|------|-----------|------------------|---------|----------------|------|
| ⊙ | VUSB | VUSB*     |                  |         |                |      |
| □ | 3V3  | 3V3**     |                  |         |                |      |
| □ | RST  | RESET     |                  |         |                | NRST |
| □ | VBAT | VBAT***   |                  |         |                | VBAT |
| □ | GND  |           |                  |         |                |      |
| □ | D7   | JTAG_TMS  |                  |         |                | PA13 |
| □ | D6   | JTAG_TCK  |                  |         |                | PA14 |
| □ | D5   | JTAG_TDI  | SPI1 / SPI2 (SS) |         | I2S3_WS        | PA15 |
| □ | D4   | JTAG_TDO  | SPI1 (SCK)       |         | I2S3_SCK       | PB3  |
| □ | D3   | JTAG_TRST | SPI1 (MISO)      |         | PWM (TIM3_CH1) | PB4  |
| □ | D2   |           | SPI1 (MOSI)      | CAN2_RX | PWM (TIM3_CH2) | PB5  |
| □ | D1   | SCL       |                  | CAN2_TX | PWM (TIM4_CH1) | PB6  |
| □ | D0   | SDA       |                  |         | PWM (TIM4_CH2) | PB7  |
| □ | C5   | SCL       |                  | CAN1_RX | PWM (TIM4_CH3) | PB8  |
| □ | C4   | SDA       |                  | CAN1_TX | PWM (TIM4_CH4) | PB9  |
| □ | C3   | UART4_TX  | SPI2 (SCK)       |         |                | PC10 |
| □ | C2   | UART4_RX  | SPI2 (MISO)      |         |                | PC11 |
| □ | C1   | UART5_TX  | SPI2 (MOSI)      |         |                | PC12 |
| □ | C0   | UART5_RX  |                  |         |                | PD2  |

\*Connected to USB VCC (+5v Typical) \*\*3v3DC/800mA max output \*\*\*Internally jumpered to 3V3

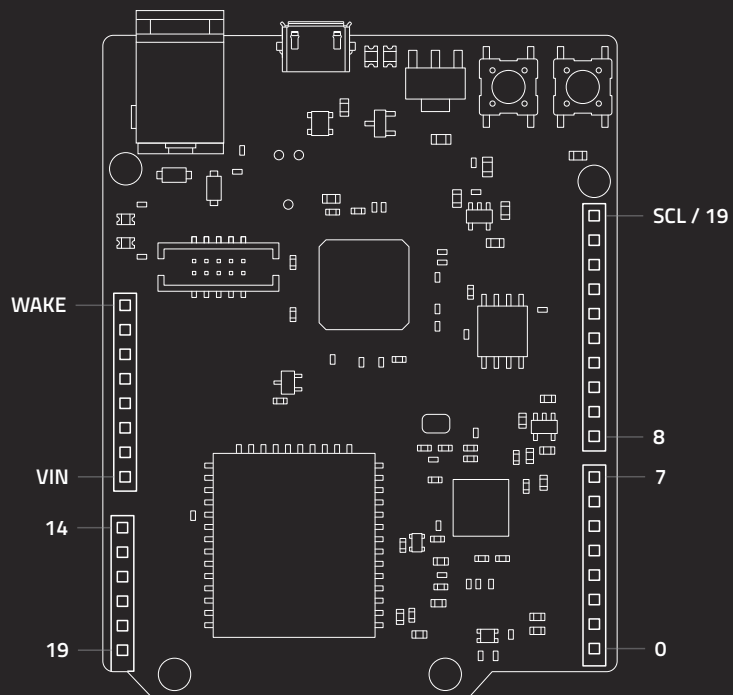


| NAME | FUNCTIONS |            |                |                | STM32 |     |
|------|-----------|------------|----------------|----------------|-------|-----|
| VIN  | VIN*      |            |                |                |       |     |
| GND  | GND       |            |                |                |       |     |
| TX   |           | USART1_TX  | PWM (TIM1_CH2) | PA9            |       |     |
| RX   |           | USART1_RX  | PWM (TIM1_CH3) | PA10           |       |     |
| WKP  | ADC0      |            | PWM (TIM5_CH1) | PA0            |       |     |
| DAC  | ADC4      |            |                | DAC1           | PA4   |     |
| A5   | ADC7      | SPI (MOSI) |                | PWM (TIM3_CH2) | PA7   |     |
| A4   | ADC6      | SPI (MISO) |                | PWM (TIM3_CH1) | PA6   |     |
| A3   | ADC5      | SPI (SCK)  |                |                | DAC2  | PA5 |
| A2   | ADC12     | SPI (SS)   |                |                | PC2   |     |
| A1   | ADC13     |            |                |                | PC3   |     |
| A0   | ADC15     |            |                |                | PC5   |     |

|    | NAME | FUNCTIONS |             |         |                | STM32   |     |
|----|------|-----------|-------------|---------|----------------|---------|-----|
| ②② | 3V3  | 3V3**     |             |         |                |         |     |
| ②② | RST  | RESET     |             |         |                | E8      |     |
| ②② | VBAT | VBAT***   |             |         |                | A9      |     |
| ②② | GND  | GND       |             |         |                |         |     |
| ②② | D7   | JTAG_TMS  |             |         |                | PA13    |     |
| ②② | D6   | JTAG_TCK  |             |         |                | PA14    |     |
| ②② | D5   | JTAG_TDI  | SPI1 (SS)   |         | I2S3_WS        | PA15    |     |
| ②② | D4   | JTAG_TDO  | SPI1 (SCK)  |         | I2S3_SCK       | PB3     |     |
| ②② | D3   | JTAG_TRST | SPI1 (MISO) |         | PWM (TIM3_CH1) |         | PB4 |
| ②② | D2   |           | SPI1 (MOSI) | CAN2_RX | PWM (TIM3_CH2) | I2S3_SD | PB5 |
| ②② | D1   | SCL       |             | CAN2_TX | PWM (TIM4_CH1) |         | PB6 |
| ②② | D0   | SDA       |             |         | PWM (TIM4_CH2) |         | PB7 |

\*Pin can be used as input or output. As input, supply 3.6 - 5.5VDC. When the Photon is powered by USB, this pin outputs ~4.8VDC at max 1A load. \*\*3.3VDC regulated output at max 100mA load. Can also be used to power the Photon instead of VIN / USB. \*\*\*Supply to the internal RTC, backup registers and SRAM when 3V3 is not present (1.65 to 3.6VDC).



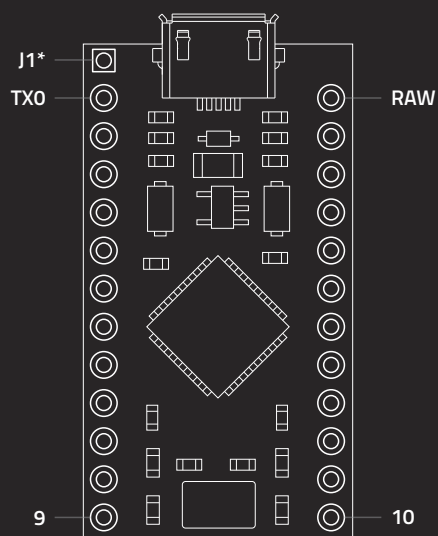


| NAME         |
|--------------|
| DIGITAL WAKE |
| IOREF = 3.3V |
| RESET        |
| 3.3V OUT     |
| 5V OUT       |
| GND          |
| GND          |
| VIN (7-12V)  |

| NAME | FUNCTIONS  |        |     |     |     |
|------|------------|--------|-----|-----|-----|
| 14   | NO CONNECT |        |     |     |     |
| 15   | GPIO 9     | INT 9  |     |     | SPI |
| 16   | GPIO 10    | INT 10 | PWM |     | SPI |
| 17   | GPIO 11    | INT 11 | PWM |     |     |
| 18   | GPIO 12    | INT 12 | PWM | I2C |     |
| 19   | GPIO 13    | INT 13 | PWM | I2C |     |

| FUNCTIONS  |     |     |        |         | NAME     |
|------------|-----|-----|--------|---------|----------|
|            | I2C | PWM | INT 21 | GPIO 13 | SCL / 19 |
|            | I2C | PWM | INT 20 | GPIO 12 | SDA / 18 |
| NO CONNECT |     |     |        |         | AREF     |
| GROUND     |     |     |        |         | GND      |
| SPI        |     |     | INT 13 | GPIO 5  | 13       |
| SPI        |     |     | INT 12 | GPIO 4  | 12       |
| SPI        |     | PWM | INT 11 | GPIO 3  | 11       |
| SPI        |     | PWM | INT 10 | GPIO 2  | 10       |
|            |     | PWM | INT 9  | GPIO 1  | 9        |
|            |     | PWM |        |         | 8        |

| FUNCTIONS |     |        |         |       | NAME |
|-----------|-----|--------|---------|-------|------|
| SERIAL    |     | INT 31 | GPIO 23 |       | 7    |
|           | PWM | INT 30 | GPIO 22 |       | 6    |
|           | PWM | INT 29 | GPIO 21 |       | 5    |
|           | PWM | INT 28 | GPIO 20 |       | 4    |
|           | PWM | INT 27 | GPIO 19 |       | 3    |
| SERIAL    |     | INT 26 | GPIO 18 |       | 2    |
| SERIAL    |     | INT 25 | GPIO 17 | TX0>1 |      |
| SERIAL    |     | INT 24 | GPIO 16 | RX<0  |      |

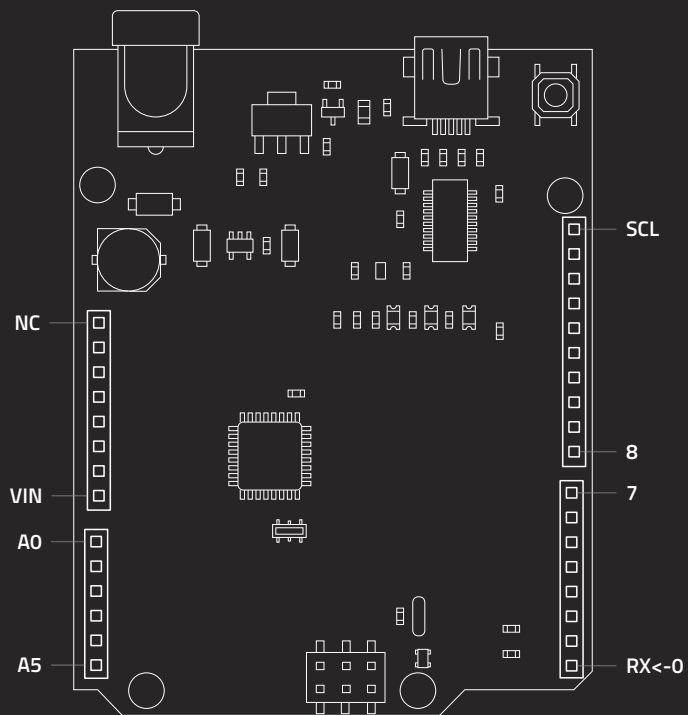


| NAME | FUNCTIONS |     |        |        |        |      |      |
|------|-----------|-----|--------|--------|--------|------|------|
| TX0  | D1        | PD3 | TX1    | INT3   |        |      |      |
| RXI  | D0        | PD2 | RX1    | INT2   |        |      |      |
| GND  | GND       |     |        |        |        |      |      |
| GND  | GND       |     |        |        |        |      |      |
| 2    | D2        | PD1 | SDA    | INT1   |        |      |      |
| 3    | D3        | PD0 | 8-BIT  | SCL    | INT0   | OC0B |      |
| 4    | D4/A6     | PD4 | ADC8   | ICP1   |        |      |      |
| 5    | D5        | PC6 | 10-BIT | OC3A   | OCA4   |      |      |
| 6    | D6/A7     | PD7 | ADC10  | 10-BIT | OC4D   | TO   |      |
| 7    | D7        | PE6 | INT6   | AIN0   |        |      |      |
| 8    | D8/A8     | PB4 | ADC11  | PCINT4 |        |      |      |
| 9    | D9/A9     | PB5 | ADC12  | 16-BIT | PCINT5 | OC1A | OC4B |

| NAME | FUNCTIONS |     |       |        |        |      |      |
|------|-----------|-----|-------|--------|--------|------|------|
| RAW  | RAW       |     |       |        |        |      |      |
| GND  | GND       |     |       |        |        |      |      |
| RST  | RESET     |     |       |        |        |      |      |
| VCC  | VCC       |     |       |        |        |      |      |
| A3   | A3        | PF4 | ADC4  | TCK    |        |      |      |
| A2   | A2        | PF5 | ADC5  | TMS    |        |      |      |
| A1   | A1        | PF6 | ADC6  | TDO    |        |      |      |
| A0   | A0        | PF7 | ADC7  | TDI    |        |      |      |
| 15   | D15       | PB1 | SCK   | PCINT1 |        |      |      |
| 14   | D14       | PB3 | MISO  | PCINT3 | PD0    |      |      |
| 16   | D16       | PB2 | MOSI  | PCINT2 | PDI    |      |      |
| 10   | D10/A10   | PB6 | ADC13 | 16-BIT | PCINT6 | OC1B | OC4B |

\*J1 Connects to VCC to USB (bypassing the regulator)

Power: Raw: 6-16V. VCC: 5V at 500mA



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- ☐

| NAME  | FUNCTIONS |     |         |  |
|-------|-----------|-----|---------|--|
| NC    | NC        |     |         |  |
| IOREF | IOREF     |     |         |  |
| RST   | RESET     | PC6 | PCINT14 |  |
| 3.3V  | 3.3V      |     |         |  |
| 5V    | 5V        |     |         |  |
| GND   | GND       |     |         |  |
| GND   | GND       |     |         |  |
| VIN   | VIN       |     |         |  |

- ☐
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| NAME | FUNCTIONS |     |      |         |         |  |
|------|-----------|-----|------|---------|---------|--|
| A0   | A0/D14    | PC0 | ADC0 | PCINT8  |         |  |
| A1   | A1/D15    | PC1 | ADC1 | PCINT9  |         |  |
| A2   | A2/D16    | PC2 | ADC2 | PCINT10 |         |  |
| A3   | A3/D17    | PC3 | ADC3 | PCINT11 |         |  |
| A4   | A4/D18    | PC4 | ADC4 | SDA     | PCINT12 |  |
| A5   | A5/D19    | PC5 | ADC5 | SCL     | PCINT13 |  |

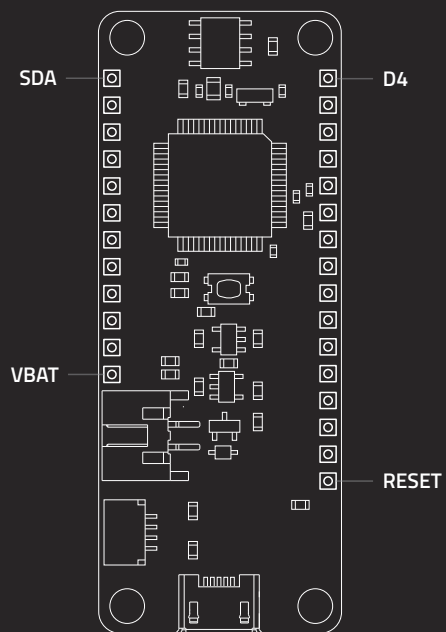
Power: VIN: 7-15V. VCC: 5V. Max Current: 800mA on 5V, 150mA on 3.3v

| FUNCTIONS |         |        |        |     |        | NAME |
|-----------|---------|--------|--------|-----|--------|------|
|           | PCINT13 | SCL    | ADC5   | PC5 | A5/D19 | SCL  |
|           | PCINT12 | SDA    | ADC4   | PC4 | A4/D18 | SDA  |
|           |         |        |        |     | AREF   | AREF |
|           |         |        |        |     | GND    | GND  |
|           | LED     | PCINT5 | SCK    | PB5 | D13    | 13   |
|           |         | PCINT4 | MISO   | PB4 | D12    | 12   |
| OC2A      | PCINT3  | MOSI   | 8-BIT  | PB3 | D11    | 11   |
| OC1B      | PCINT2  | SS     | 8-BIT  | PB2 | D10    | 10   |
|           | OC1A    | PCINT1 | 8-BIT  | PB1 | D9     | 9    |
|           | CLKO    | ICP1   | PCINT0 | PB0 | D8     | 8    |

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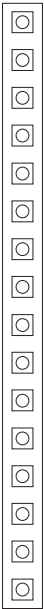
| FUNCTIONS |         |         |         |     |    | NAME  |
|-----------|---------|---------|---------|-----|----|-------|
|           |         | IN1     | PCINT23 | PD7 | D7 | 7     |
| AIN0      | OC0A    | PCINT22 | 8-BIT   | PD6 | D6 | 6     |
| T1        | OC0B    | PCINT21 | 8-BIT   | PD5 | D5 | 5     |
|           | XCK     | T0      | PCINT20 | PD4 | D4 | 4     |
| OC2B      | PCINT19 | INT1    | 8-BIT   | PD3 | D3 | 3     |
|           |         | PCINT18 | INT0    | PD2 | D2 | 2     |
|           |         | PCINT17 | TXD     | PD1 | D1 | TX0>1 |
|           |         | PCINT16 | RXD     | PD0 | D0 | RX<0  |

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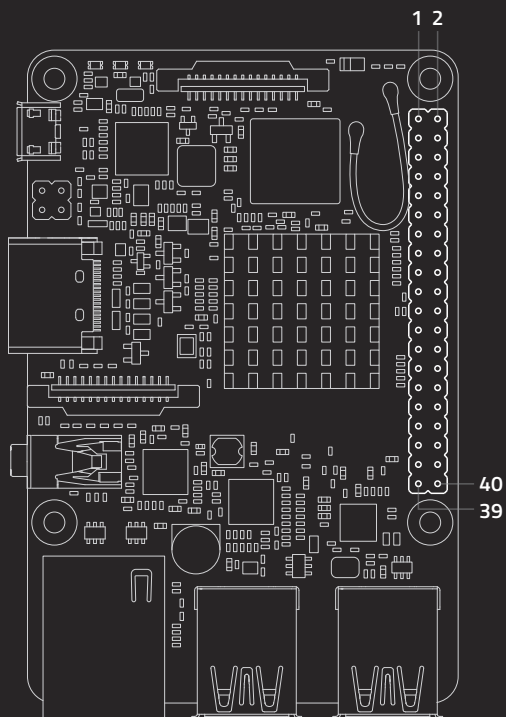
| FUNCTIONS |         |       |      |      | NAME |
|-----------|---------|-------|------|------|------|
| 3:0/5:1   | SDA     | INT6  | PA22 | D20  | SDA  |
| 3:1/5:0   | SCL     | INT7  | PA23 | D21  | SCL  |
|           | 2:3/4:3 | INT15 | PA15 | D5   | D5   |
|           | 5:2/3:2 | INT4  | PA20 | D6   | D6   |
| 0:3       | INT7    | AIN7  | PA07 | D9   | D9   |
|           | 1:2/3:2 | INT2  | PA18 | D10  | D10  |
|           | 1:0/3:1 | INT0  | PA16 | D11  | D11  |
|           | 1:3/3:3 | INT3  | PA19 | D12  | D12  |
| LED       | 1:1/3:0 | INT1  | PA17 | D13  | D13  |
|           |         |       |      | VUSB | VUSB |
|           |         |       |      | VREG | EN   |
|           |         |       |      | VBAT | VBAT |

Power. Vin: 2.5 - 6V. VCC: 3.3V @ 600mA. JST: Single Cell LiPo  
Battery charging via USB.

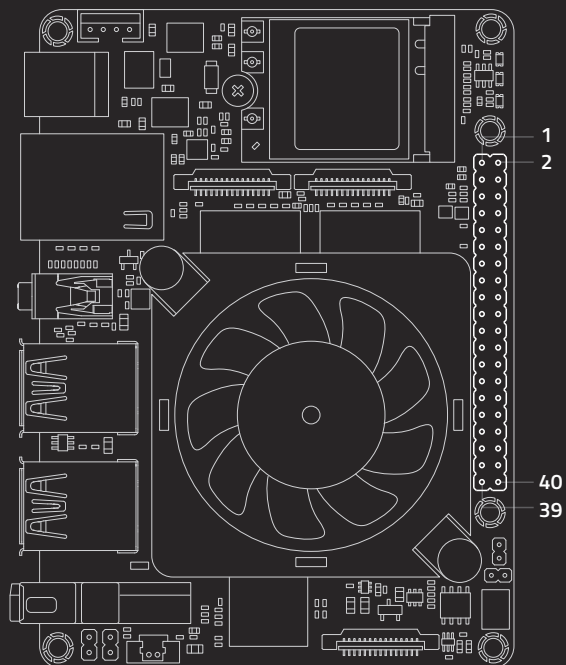


| NAME  | FUNCTIONS |      |       |      |         |       |
|-------|-----------|------|-------|------|---------|-------|
| D4    | D4        | PA06 | AIN6  | INT6 | 0:2     | VREFC |
| D1    | D1        | PA12 | INT12 | RX   | 2:0/4:1 |       |
| D0    | D0        | PA13 | INT13 | TX   | 2:1/4:0 |       |
| MISO  | D22       | PA11 | INT11 | MISO | 4:3     |       |
| MOSI  | D23       | PB12 | INT12 | MOSI | 4:0     |       |
| SCK   | D24       | PB13 | INT13 | SCK  | 4:1     |       |
| A5    | A5        | PB02 | AIN14 | INT2 | 5:0     |       |
| A4    | A4        | PA05 | AIN5  | INT5 | 0:1     | DAC1  |
| A3    | A3        | PA04 | AIN4  | INT4 | 0:0     | VREFB |
| A2    | A2        | PB09 | AIN3  | INT9 | 4:1     |       |
| A1    | A1        | PB08 | AIN2  | INT8 | 4:0     |       |
| A0    | A0        | PA02 | AIN0  | INT2 | DAC0    |       |
| GND   | GND       |      |       |      |         |       |
| NC    | NC        |      |       |      |         |       |
| 3.3V  | 3.3V      |      |       |      |         |       |
| RESET | RST       |      |       |      |         |       |



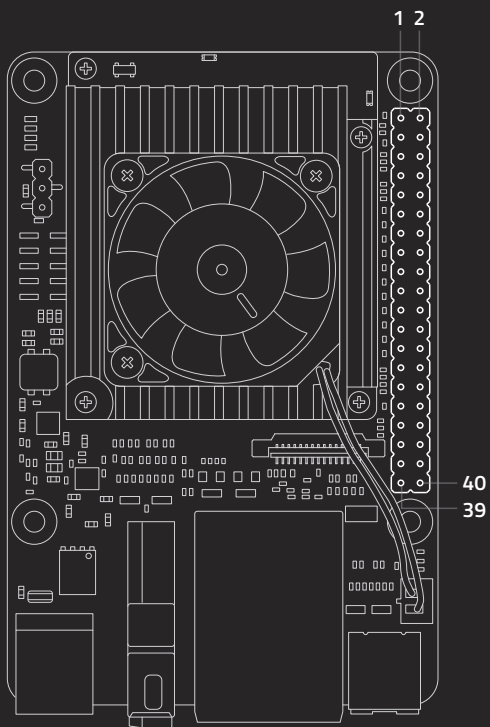


| WPI | GPIO.ASUS | NAME                     | #  |                          |                       | #  | NAME               | GPIO.ASUS | WPI |
|-----|-----------|--------------------------|----|--------------------------|-----------------------|----|--------------------|-----------|-----|
|     |           | VCC3.3V_IO               | 1  | <input type="checkbox"/> | <input type="radio"/> | 2  | VCC5V_SYS          |           |     |
| 8   | 252       | GP8A4_I2C1_SDA           | 3  | <input type="radio"/>    | <input type="radio"/> | 4  | VCC5V_SYS          |           |     |
| 9   | 253       | GP8A5_I2C1_SCL           | 5  | <input type="radio"/>    | <input type="radio"/> | 6  | GROUND             |           |     |
| 7   | 17        | GP0C1_CLKOUT             | 7  | <input type="radio"/>    | <input type="radio"/> | 8  | GP5B1_UART1TX      | 161       | 15  |
|     |           | GROUND                   | 9  | <input type="radio"/>    | <input type="radio"/> | 10 | GP5B0_UART1RX      | 160       | 16  |
| 0   | 164       | GP5B4_SPIO_TXD_UART4TX   | 11 | <input type="radio"/>    | <input type="radio"/> | 12 | GP6A0_PCM/I2S_CLK  | 184       | 1   |
| 2   | 166       | GP5B6_SPIO_TXD_UART4TX   | 13 | <input type="radio"/>    | <input type="radio"/> | 14 | GROUND             |           |     |
| 3   | 167       | GP5B7_SPIO_RXD_UART4RX   | 15 | <input type="radio"/>    | <input type="radio"/> | 16 | GP5B2_UART1CTSN    | 162       | 4   |
|     |           | VCC33_IO                 | 17 | <input type="radio"/>    | <input type="radio"/> | 18 | GP5B3_UART1RTSN    | 163       | 5   |
| 12  | 257       | GP8B1_SPI2TXD            | 19 | <input type="radio"/>    | <input type="radio"/> | 20 | GROUND             |           |     |
| 13  | 256       | GP8B0_SPI2RXD            | 21 | <input type="radio"/>    | <input type="radio"/> | 22 | GP5C3              | 171       | 6   |
| 14  | 254       | GP8A6_SPI2CLK            | 23 | <input type="radio"/>    | <input type="radio"/> | 24 | GP8A7_SPI2CSN0     | 255       | 10  |
|     |           | GROUND                   | 25 | <input type="radio"/>    | <input type="radio"/> | 26 | GP8AS_SPI2CSN1     | 251       | 11  |
| 30  | 233       | GP7C1_I2C4_SDA           | 27 | <input type="radio"/>    | <input type="radio"/> | 28 | GP7C2_I2C4_SCL     | 234       | 31  |
| 21  | 165       | GP5B5_SPIOCSN0+UART4RTSN | 29 | <input type="radio"/>    | <input type="radio"/> | 30 | GROUND             |           |     |
| 22  | 168       | GP5C0_SPIOCSN1           | 31 | <input type="radio"/>    | <input type="radio"/> | 32 | GP7C7_UART2TX_PWM3 | 239       | 26  |
| 23  | 238       | GP7C6_UART2RX_PWM2       | 33 | <input type="radio"/>    | <input type="radio"/> | 34 | GROUND             |           |     |
| 24  | 185       | GP6A1_PCM/I2S_FS         | 35 | <input type="radio"/>    | <input type="radio"/> | 36 | GP7A7_UART3RX      | 223       | 27  |
| 25  | 224       | GP7B0_UART3TX            | 37 | <input type="radio"/>    | <input type="radio"/> | 38 | GP6A3_PCM/I2S_SDI  | 187       | 28  |
|     |           | GROUND                   | 39 | <input type="radio"/>    | <input type="radio"/> | 40 | GP6A4_PCM/I2S_SDO  | 188       | 29  |



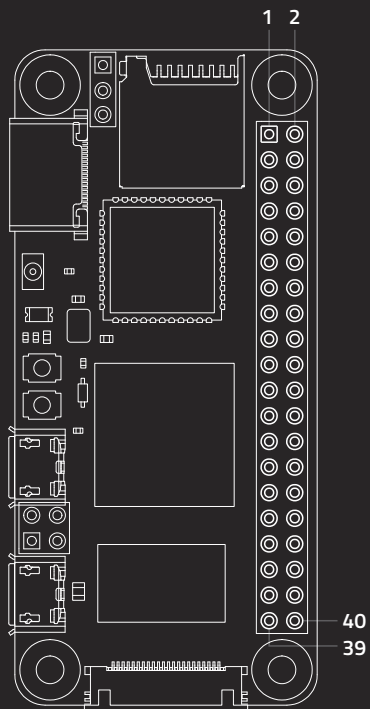
| NAME                       | #  |   |   | #  | NAME                   |
|----------------------------|----|---|---|----|------------------------|
| VCC3.3V_IO                 | 1  | □ | ○ | 2  | VCC5V                  |
| GPIO2_B1/I2C6_SDA          | 3  | ○ | ○ | 4  | VCC5V                  |
| GPIO2_B2/I2C6_SCL          | 5  | ○ | ○ | 6  | GND                    |
| GPIO2_D1_CLKOUT            | 7  | ○ | ○ | 8  | GPIO2_C1/UART0_TX      |
| GND                        | 9  | ○ | ○ | 10 | GPIO2_C0/UART0_RX      |
| GPIO2_C3/UART0_RTSN        | 11 | ○ | ○ | 12 | GPIO3_D0/I2S0_SCLK     |
| GPIO2_C5/SPI5_TXD          | 13 | ○ | ○ | 14 | GND                    |
| GPIO2_C4/SPI5_RXD          | 15 | ○ | ○ | 16 | GPIO2_C6/SPI5_CLK      |
| VCC3.3_IO                  | 17 | ○ | ○ | 18 | GPIO2_C7/SPI5_CSN0     |
| GPIO1_B0/SPI1_TXD/UART4_TX | 19 | ○ | ○ | 20 | GND                    |
| GPIO1_A7/SPI1_RXD/UART4_RX | 21 | ○ | ○ | 22 | GPIO3_D4/I2S0_SDI2SDO3 |
| GPIO1_B1/SPI1_CLK          | 23 | ○ | ○ | 24 | GPIO1_B2/SPI1_CSN0     |
| GND                        | 25 | ○ | ○ | 26 | GPIO0_A6/PWM3A_IR      |
| GPIO2_A7/I2C7_SDA          | 27 | ○ | ○ | 28 | GPIO2_B0/I2C7_SCL      |
| GPIO3_D6/I2S0_SDI3SDO1     | 29 | ○ | ○ | 30 | GND                    |
| GPIO3_D5/I2S0_SDI2SDO2     | 31 | ○ | ○ | 32 | GPIO4_C2/PWM0          |
| GPIO4_C6/PWM1              | 33 | ○ | ○ | 34 | GND                    |
| GPIO3_D1/1S20_LRCK         | 35 | ○ | ○ | 36 | GPIO2_C2/UART0_CTSN    |
| GPIO4_C5/SPDIF_TX          | 37 | ○ | ○ | 38 | GPIO3_D3/I2S0_SDIO     |
| GND                        | 39 | ○ | ○ | 40 | GPIO3_D7/I2S0_SD00     |

NOTE: In addition to no. 32, 33, 37 pins, all the others are +3.3V level, 5K~10K Ohm internal pull-up resistors, 50mA drive current capacity.



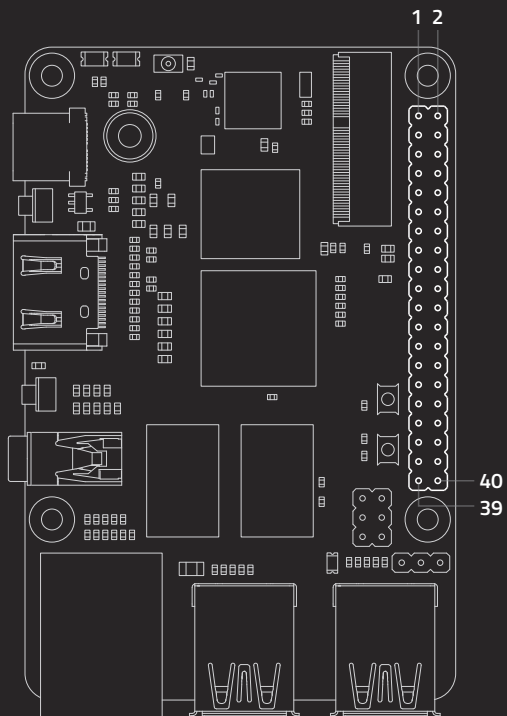
| SYSFS PATH                   | NAME                | #  |   |   | #  | NAME               | SYSFS PATH                   |
|------------------------------|---------------------|----|---|---|----|--------------------|------------------------------|
|                              | VCC3.3V_IO          | 1  | □ | ○ | 2  | VCC5V              |                              |
| /dev/i2c-1                   | GPIO145_I2C2_SDA    | 3  | ○ | ○ | 4  | VCC5V              |                              |
| /dev/i2c-1                   | GPIO144_I2C2_SCL    | 5  | ○ | ○ | 6  | GND                |                              |
| /dev/ttymx2                  | GPIO155_UART3_TXD   | 7  | ○ | ○ | 8  | GPIO151_UART1_TXD  | /dev/ttymx0                  |
|                              | GND                 | 9  | ○ | ○ | 10 | GPIO150_UART1_RXD  | /dev/ttymx0                  |
| /dev/ttymx2                  | GPIO154_UART3_RXD   | 11 | ○ | ○ | 12 | GPIO107_SAI1_TXC   |                              |
| /sys/class/gpio/gpio6        | GPIO6               | 13 | ○ | ○ | 14 | GND                |                              |
| /sys/class/pwm/pwmchip2/pwm0 | GPIO130_PWM4        | 15 | ○ | ○ | 16 | GPIO73             | /sys/class/gpio/gpio73       |
|                              | VCC3.3V_IO          | 17 | ○ | ○ | 18 | GPIO138            | /sys/class/gpio/gpio138      |
| /dev/spidev32766             | GPIO135_ECSP11_MOSI | 19 | ○ | ○ | 20 | GND                |                              |
| /dev/spidev32766             | GPIO136_ECSP11_MISO | 21 | ○ | ○ | 22 | GPIO140            | /sys/class/gpio/gpio140      |
| /dev/spidev32766             | GPIO134_ECSP11_SCLK | 23 | ○ | ○ | 24 | GPIO137_ECSP11_SS0 | /dev/spidev32766.0           |
|                              | GND                 | 25 | ○ | ○ | 26 | GPIO66_ECSP11_SS1  | /dev/spidev32766.1           |
| /dev/i2c-2                   | GPIO147_I2C3_SDA    | 27 | ○ | ○ | 28 | GPIO146_I2C3_SCL   | /dev/i2c-2                   |
| /sys/class/gpio/gpio7        | GPIO7               | 29 | ○ | ○ | 30 | GND                |                              |
| /sys/class/gpio/gpio8        | GPIO8               | 31 | ○ | ○ | 32 | GPIO1_PWM1         | /sys/class/pwm/pwmchip0/pwm0 |
| /sys/class/pwm/pwmchip1/pwm0 | GPIO13_PWM2         | 33 | ○ | ○ | 34 | GND                |                              |
|                              | GPIO106_SAI1_TXFS   | 35 | ○ | ○ | 36 | GPIO141            | /sys/class/gpio/gpio141      |
| /sys/class/gpio/gpio77       | GPIO77              | 37 | ○ | ○ | 38 | GPIO98_SAI1_RXD0   |                              |
|                              | GND                 | 39 | ○ | ○ | 40 | GPIO108_SAI_TXD0   |                              |

NOTE: All I/O pins have a 90k pull-down resistor inside the iMX8M SoC that is used by default during bootup, except for the I2C pins, which instead have a pull-up to 3.3V on the SoM. Do not connect a device that draws more than ~ 82 mA of power or you will brownout the system.

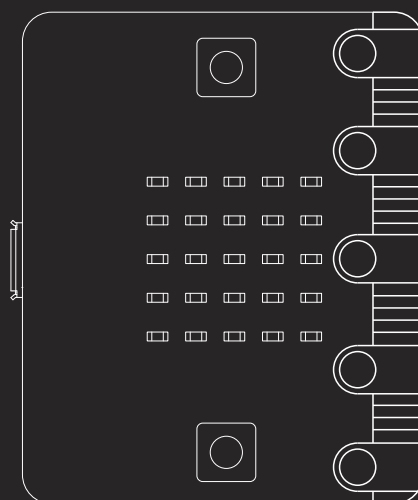


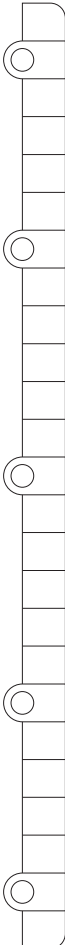
| WIRING PI # | MAIN FUNCTIONS     | #  |   |   | #  | MAIN FUNCTIONS     | WIRING PI # |
|-------------|--------------------|----|---|---|----|--------------------|-------------|
|             | 3V3 POWER          | 1  | □ | ○ | 2  | 5V POWER           |             |
| 8           | GPIO2 (I2C1 SDA)   | 3  | ○ | ○ | 4  | 5V POWER           |             |
| 9           | GPIO3 (I2C1 SCL)   | 5  | ○ | ○ | 6  | GROUND             |             |
| 7           | GPIO4 (GPCLK0)     | 7  | ○ | ○ | 8  | GPIO14 (UART TX)   | 15          |
|             | GROUND             | 9  | ○ | ○ | 10 | GPIO15 (UART RX)   | 16          |
| 0           | GPIO17             | 11 | ○ | ○ | 12 | GPIO18 (PCM CLK)   | 1           |
| 2           | GPIO27             | 13 | ○ | ○ | 14 | GROUND             |             |
| 3           | GPIO22             | 15 | ○ | ○ | 16 | GPIO23             | 4           |
|             | 3V3 POWER          | 17 | ○ | ○ | 18 | GPIO24             | 5           |
| 12          | GPIO10 (SPI0 MOSI) | 19 | ○ | ○ | 20 | GROUND             |             |
| 13          | GPIO9 (SPI0 MISO)  | 21 | ○ | ○ | 22 | GPIO25             | 6           |
| 14          | GPIO11 (SPI0 SCLK) | 23 | ○ | ○ | 24 | GPIO8 (SPI0 CE0)   | 10          |
|             | GROUND             | 25 | ○ | ○ | 26 | GPIO7 (SPI0 CE1)   | 11          |
| 30          | GPIO0 (EEPROM SDA) | 27 | ○ | ○ | 28 | GPIO1 (EEPROM SCL) | 31          |
| 21          | BCM 5              | 29 | ○ | ○ | 30 | GROUND             |             |
| 22          | BCM 6              | 31 | ○ | ○ | 32 | GPIO12 (PWM0)      | 26          |
| 23          | GPIO13 (PWM1)      | 33 | ○ | ○ | 34 | GROUND             |             |
| 24          | GPIO19 (PCM FS)    | 35 | ○ | ○ | 36 | GPIO16             | 27          |
| 25          | GPIO26             | 37 | ○ | ○ | 38 | GPIO20 (PCM DIN)   | 28          |
|             | GROUND             | 39 | ○ | ○ | 40 | GPIO21 (PCM DOUT)  | 29          |



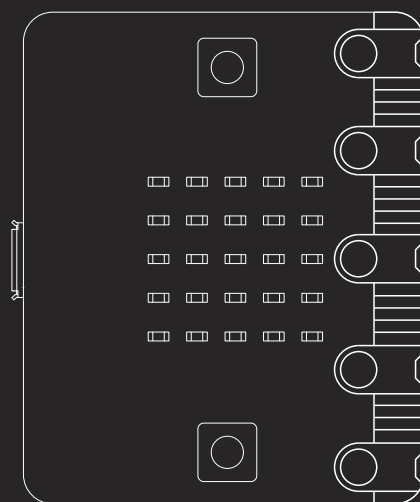



| ALT    | FUNCTION  | NAME     | #  |   |   | #  | NAME     | FUNCTION | ALT    |
|--------|-----------|----------|----|---|---|----|----------|----------|--------|
|        | VCC-3V3   | CON1-P01 | 1  | □ | ○ | 2  | CON1-P02 | DCIN     |        |
| GPIO17 | I2C1_SDA  | CON1-P03 | 3  | ○ | ○ | 4  | CON1-P04 | DCIN     |        |
| GPIO16 | I2C1_SCL  | CON1-P05 | 5  | ○ | ○ | 6  | CON1-P06 | GND      |        |
| GPIO21 | PWM1      | CON1-P07 | 7  | ○ | ○ | 8  | CON1-P08 | UR1_TX   | GPIO9  |
|        | GND       | CON1-P09 | 9  | ○ | ○ | 10 | CON1-P10 | UR1_RX   | GPIO8  |
| GPIO42 | SDIO-D0   | CON1-P11 | 11 | ○ | ○ | 12 | CON1-P12 | AIO_BCK  | GPIO3  |
| GPIO43 | SDIO-D1   | CON1-P13 | 13 | ○ | ○ | 14 | CON1-P14 | GND      |        |
| GPIO44 | SDIO-D2   | CON1-P15 | 15 | ○ | ○ | 16 | CON1-P16 | UR1_RTS  | GPIO11 |
|        | VCC-3V3   | CON1-P17 | 17 | ○ | ○ | 18 | CON1-P18 | UR1_CTS  | GPIO10 |
| GPIO31 | GSPI-MOSI | CON1-P19 | 19 | ○ | ○ | 20 | CON1-P20 | GND      |        |
| GPIO18 | GSPI-MISO | CON1-P21 | 21 | ○ | ○ | 22 | CON1-P22 | GPIO47   | GPIO47 |
| GPIO19 | GSPI-SCK  | CON1-P23 | 23 | ○ | ○ | 24 | CON1-P24 | GSPI-CS  | GPIO20 |
|        | GND       | CON1-P25 | 25 | ○ | ○ | 26 | CON1-P26 | PWM2     | GPIO22 |
| GPIO45 | SDIO-D3   | CON1-P27 | 27 | ○ | ○ | 28 | CON1-P28 | PWM3     | GPIO23 |
| GPIO41 | SDIO-CLK  | CON1-P29 | 29 | ○ | ○ | 30 | CON1-P30 | GND      |        |
| GPIO40 | SDIO-CMD  | CON1-P31 | 31 | ○ | ○ | 32 | CON1-P32 | SPDIF    | GPIO50 |
| GPIO4  | AIO_CK    | CON1-P33 | 33 | ○ | ○ | 34 | CON1-P34 | GND      |        |
| GPIO2  | AIO_LRCK  | CON1-P35 | 35 | ○ | ○ | 36 | CON1-P36 | GPIO53   | GPIO53 |
| GPIO34 | GPIO34    | CON1-P37 | 37 | ○ | ○ | 38 | CON1-P38 | AI_SD    | GPIO5  |
|        | GND       | CON1-P39 | 39 | ○ | ○ | 40 | CON1-P40 | AO_SD    | GPIO6  |



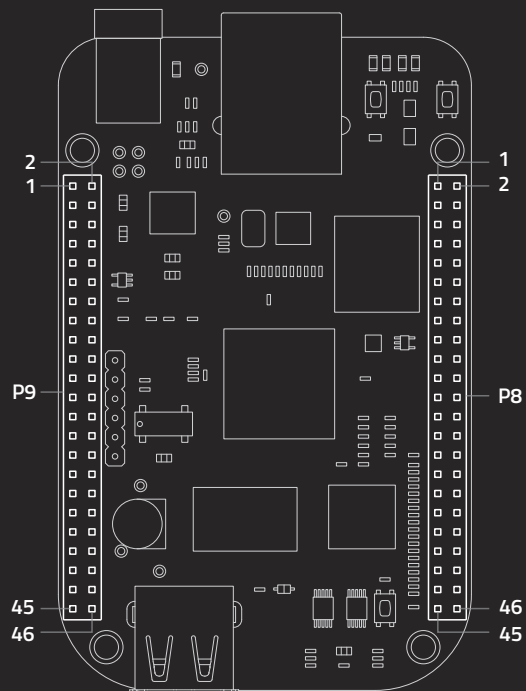


| NAME | MAIN FUNCTION               | ALT FUNCTIONS            |
|------|-----------------------------|--------------------------|
| GND  | GROUND                      |                          |
| GND  | GROUND                      |                          |
| GND  | GROUND                      |                          |
| P20  | I2C (SDA)                   | GPIO, PWM, UART          |
| P19  | I2C (SCL)                   | GPIO, PWM, UART          |
| +3V3 | 3V POWER SUPPLY (MAX 90mA). |                          |
| +3V3 | 3V POWER SUPPLY (MAX 90mA). |                          |
| +3V3 | 3V POWER SUPPLY (MAX 90mA). |                          |
| P16  | GPIO                        | PWM, UART                |
| P15  | GPIO                        | SPI (MOSI), PWM, UART    |
| P14  | GPIO                        | SPI (MISO), PWM, UART    |
| P13  | GPIO                        | SPI (SCLK), PWM, UART    |
| P2   | GPIO                        | ANALOG, TOUCH, PWM, UART |
| P12  | RESERVED FOR ACCESSIBILITY  | GPIO, PWM, UART          |
| P11  | BUTTON (B)                  | GPIO, PWM, UART          |
| P10  | LED MATRIX COLUMN 3         | GPIO, ANALOG, PWM, UART  |
| P9   | LED MATRIX COLUMN 7         | GPIO, PWM, UART          |
| P8   | GPIO                        | PWM, UART                |
| P1   | GPIO                        | ANALOG, TOUCH, PWM, UART |
| P7   | LED MATRIX COLUMN 8         | GPIO, PWM, UART          |
| P6   | LED MATRIX COLUMN 9         | GPIO, PWM, UART          |
| P5   | BUTTON (A)                  | GPIO, PWM, UART          |
| P4   | LED MATRIX COLUMN 2         | GPIO, ANALOG, PWM, UART  |
| P0   | GPIO                        | ANALOG, TOUCH, PWM, UART |
| P3   | LED MATRIX COLUMN 1         | GPIO, ANALOG, PWM, UART  |





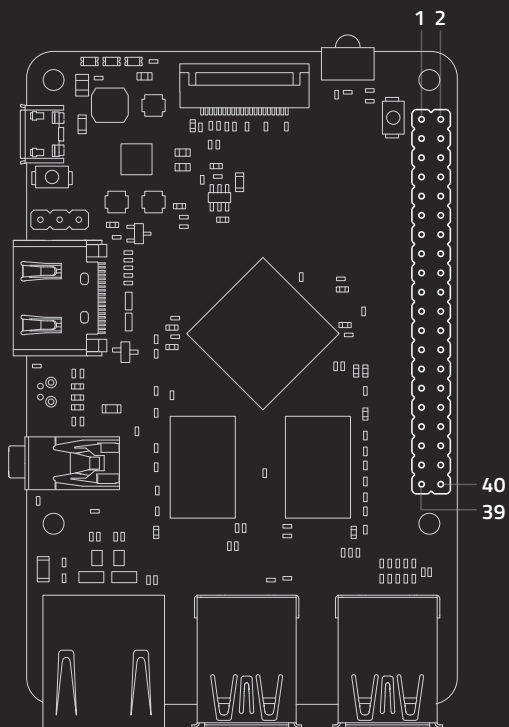
| NAME | MAIN FUNCTION               | ALT FUNCTIONS            |
|------|-----------------------------|--------------------------|
| GND  | GROUND                      |                          |
| GND  | GROUND                      |                          |
| GND  | GROUND                      |                          |
| P20  | I2C (SDA)                   | GPIO, PWM, UART          |
| P19  | I2C (SCL)                   | GPIO, PWM, UART          |
| +3V3 | 3V POWER SUPPLY (MAX 90mA). |                          |
| +3V3 | 3V POWER SUPPLY (MAX 90mA). |                          |
| +3V3 | 3V POWER SUPPLY (MAX 90mA). |                          |
| P16  | GPIO                        | PWM, UART                |
| P15  | GPIO                        | SPI (MOSI), PWM, UART    |
| P14  | GPIO                        | SPI (MISO), PWM, UART    |
| P13  | GPIO                        | SPI (SCLK), PWM, UART    |
| P2   | GPIO                        | ANALOG, TOUCH, PWM, UART |
| P12  | RESERVED FOR ACCESSIBILITY  | GPIO, PWM, UART          |
| P11  | BUTTON (B)                  | GPIO, PWM, UART          |
| P10  | LED MATRIX COLUMN 5         | GPIO, ANALOG, PWM, UART  |
| P9   |                             | GPIO, PWM, UART, NFC1    |
| P8   | GPIO                        | PWM, UART, NFC2          |
| P1   | GPIO                        | ANALOG, TOUCH, PWM, UART |
| P7   | LED MATRIX COLUMN 2         | GPIO, PWM, UART          |
| P6   | LED MATRIX COLUMN 4         | GPIO, PWM, UART          |
| P5   | BUTTON (A)                  | GPIO, PWM, UART          |
| P4   | LED MATRIX COLUMN 1         | GPIO, ANALOG, PWM, UART  |
| P0   | GPIO                        | ANALOG, TOUCH, PWM, UART |
| P3   | LED MATRIX COLUMN 3         | GPIO, ANALOG, PWM, UART  |



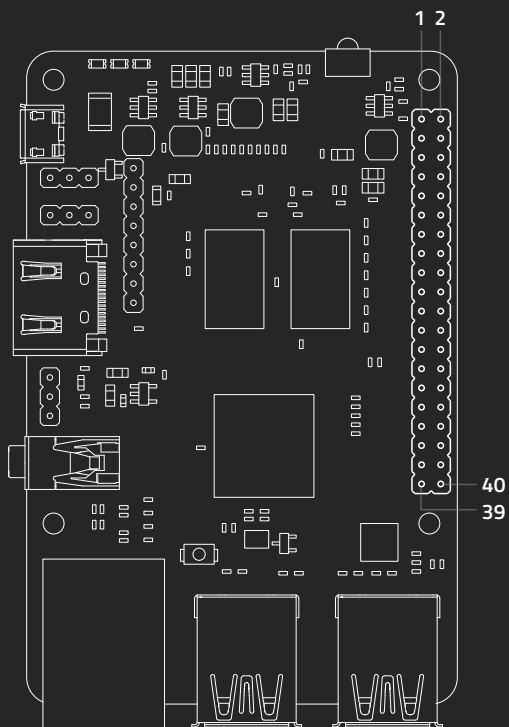
| NAME      | #  | P9                       |                          | #  | NAME       | NAME       | #  | P8                       |                          | #  | NAME       |
|-----------|----|--------------------------|--------------------------|----|------------|------------|----|--------------------------|--------------------------|----|------------|
| GND       | 1  | <input type="checkbox"/> | <input type="checkbox"/> | 2  | GND        | GND        | 1  | <input type="checkbox"/> | <input type="checkbox"/> | 2  | GND        |
| DC_3.3V   | 3  | <input type="checkbox"/> | <input type="checkbox"/> | 4  | DC_3.3V    | GPIO1_6    | 3  | <input type="checkbox"/> | <input type="checkbox"/> | 4  | GPIO1_7    |
| VDD_5V    | 5  | <input type="checkbox"/> | <input type="checkbox"/> | 6  | VDD_5V     | GPIO1_2    | 5  | <input type="checkbox"/> | <input type="checkbox"/> | 6  | GPIO1_3    |
| SYS_5V    | 7  | <input type="checkbox"/> | <input type="checkbox"/> | 8  | SYS_5V     | TIMER4     | 7  | <input type="checkbox"/> | <input type="checkbox"/> | 8  | TIMER7     |
| PWR_BUT   | 9  | <input type="checkbox"/> | <input type="checkbox"/> | 10 | SYS_RESETN | TIMER5     | 9  | <input type="checkbox"/> | <input type="checkbox"/> | 10 | TIMER6     |
| UART4_RXD | 11 | <input type="checkbox"/> | <input type="checkbox"/> | 12 | GPIO1_28   | GPIO1_13   | 11 | <input type="checkbox"/> | <input type="checkbox"/> | 12 | GPIO1_12   |
| UART4_TXD | 13 | <input type="checkbox"/> | <input type="checkbox"/> | 14 | EHRPWM1A   | EHRPWM2B   | 13 | <input type="checkbox"/> | <input type="checkbox"/> | 14 | GPIO0_26   |
| GPIO1_16  | 15 | <input type="checkbox"/> | <input type="checkbox"/> | 16 | EHRPWM1B   | GPIO1_15   | 15 | <input type="checkbox"/> | <input type="checkbox"/> | 16 | GPIO1_14   |
| I2C1_SCL  | 17 | <input type="checkbox"/> | <input type="checkbox"/> | 18 | I2C1_SDA   | GPIO0_27   | 17 | <input type="checkbox"/> | <input type="checkbox"/> | 18 | GPIO2_1    |
| I2C2_SCL  | 19 | <input type="checkbox"/> | <input type="checkbox"/> | 20 | I2C2_SDA   | EHRPWM2A   | 19 | <input type="checkbox"/> | <input type="checkbox"/> | 20 | GPIO1_31   |
| UART2_TXD | 21 | <input type="checkbox"/> | <input type="checkbox"/> | 22 | UART2_RXD  | GPIO1_30   | 21 | <input type="checkbox"/> | <input type="checkbox"/> | 22 | GPIO1_5    |
| GPIO1_17  | 23 | <input type="checkbox"/> | <input type="checkbox"/> | 24 | UART1_TXD  | GPIO1_4    | 23 | <input type="checkbox"/> | <input type="checkbox"/> | 24 | GPIO1_1    |
| GPIO3_21  | 25 | <input type="checkbox"/> | <input type="checkbox"/> | 26 | UART1_RXD  | GPIO1_0    | 25 | <input type="checkbox"/> | <input type="checkbox"/> | 26 | GPIO1_29   |
| GPIO3_19  | 27 | <input type="checkbox"/> | <input type="checkbox"/> | 28 | SPI1_CS0   | GPIO2_22   | 27 | <input type="checkbox"/> | <input type="checkbox"/> | 28 | GPIO2_24   |
| SPI1_D0   | 29 | <input type="checkbox"/> | <input type="checkbox"/> | 30 | SPI1_D1    | GPIO2_23   | 29 | <input type="checkbox"/> | <input type="checkbox"/> | 30 | GPIO2_25   |
| SPI1_SCLK | 31 | <input type="checkbox"/> | <input type="checkbox"/> | 32 | VADC       | UART5_CTSN | 31 | <input type="checkbox"/> | <input type="checkbox"/> | 32 | UART5_RTSN |
| AIN4      | 33 | <input type="checkbox"/> | <input type="checkbox"/> | 34 | AGND       | UART4_RTSN | 33 | <input type="checkbox"/> | <input type="checkbox"/> | 34 | UART3_RTSN |
| AIN6      | 35 | <input type="checkbox"/> | <input type="checkbox"/> | 36 | AIN5       | UART4_CTSN | 35 | <input type="checkbox"/> | <input type="checkbox"/> | 36 | UART3_CTSN |
| AIN2      | 37 | <input type="checkbox"/> | <input type="checkbox"/> | 38 | AIN3       | UART5_TXD  | 37 | <input type="checkbox"/> | <input type="checkbox"/> | 38 | UART5_RXD  |
| AIN0      | 39 | <input type="checkbox"/> | <input type="checkbox"/> | 40 | AIN1       | GPIO2_12   | 39 | <input type="checkbox"/> | <input type="checkbox"/> | 40 | GPIO2_13   |
| CLKOUT2   | 41 | <input type="checkbox"/> | <input type="checkbox"/> | 42 | GPIO0_7    | GPIO2_10   | 41 | <input type="checkbox"/> | <input type="checkbox"/> | 42 | GPIO2_11   |
| GND       | 43 | <input type="checkbox"/> | <input type="checkbox"/> | 44 | GND        | GPIO2_8    | 43 | <input type="checkbox"/> | <input type="checkbox"/> | 44 | GPIO2_9    |
| GND       | 45 | <input type="checkbox"/> | <input type="checkbox"/> | 46 | GND        | GPIO2_6    | 45 | <input type="checkbox"/> | <input type="checkbox"/> | 46 | GPIO2_7    |

NOTE: More pin modes are available in the datasheet





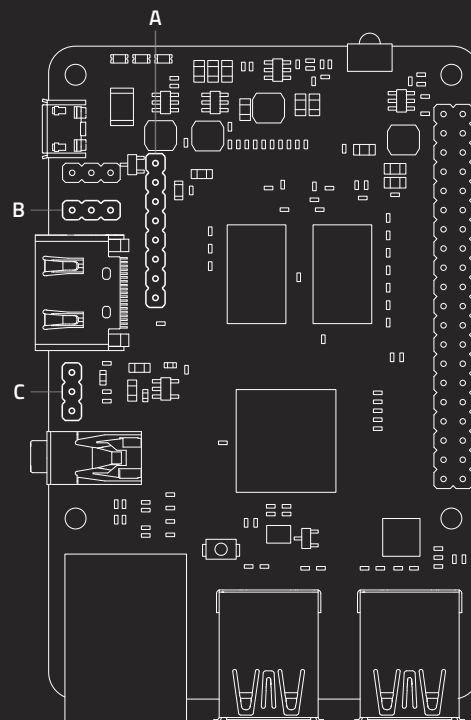
| LINUX # | NAME        | #  |   |   | #  | NAME         | LINUX # |
|---------|-------------|----|---|---|----|--------------|---------|
|         | VCC3V3-OUT  | 1  | □ | ○ | 2  | VCC5V        |         |
| 12      | TWI0-SDA    | 3  | ○ | ○ | 4  | VCC5V        |         |
| 11      | TWI0-SCK    | 5  | ○ | ○ | 6  | GND          |         |
| 2       | CPUX-TDO    | 7  | ○ | ○ | 8  | AP-UART1-TX  | 198     |
|         | GND         | 9  | ○ | ○ | 10 | AP-UART1-RX  | 199     |
| 1       | CPUX-TCK    | 11 | ○ | ○ | 12 | BB-PCM-CLK   | 203     |
| 0       | CPUX-TMS    | 13 | ○ | ○ | 14 | GND          |         |
| 3       | CPUX-TDI    | 15 | ○ | ○ | 16 | AP-UART1-CTS | 201     |
|         | VCC3V3-OUT  | 17 | ○ | ○ | 18 | AP-UART1-RTS | 200     |
| 64      | SPI0-MOSI   | 19 | ○ | ○ | 20 | GND          |         |
| 65      | SPI0-MISO   | 21 | ○ | ○ | 22 | UART3-RX     | 14      |
| 66      | SPI0-CLK    | 23 | ○ | ○ | 24 | SPI0-CS      | 67      |
|         | GND         | 25 | ○ | ○ | 26 | SPDIF        | 17      |
| 19      | I2S0-SCLK   | 27 | ○ | ○ | 28 | I2S0-LRCK    | 18      |
| 20      | I2S0-SDO    | 29 | ○ | ○ | 30 | GND          |         |
| 21      | I2S0-SDI    | 31 | ○ | ○ | 32 | UART3-TX     | 13      |
| 6       | PWM1        | 33 | ○ | ○ | 34 | GND          | 15      |
| 202     | BB-PCM-SYNC | 35 | ○ | ○ | 36 | UART3-RTS    |         |
| 16      | UART3-CTS   | 37 | ○ | ○ | 38 | BB-PCM-DIN   | 205     |
|         | GND         | 39 | ○ | ○ | 40 | BB-PCM-DOUT  | 204     |



| SYSFS | LINUX # | NAME           | #  |                          |                       | #  | NAME         | LINUX # | SYSFS |
|-------|---------|----------------|----|--------------------------|-----------------------|----|--------------|---------|-------|
|       |         | VCC3.3V        | 1  | <input type="checkbox"/> | <input type="radio"/> | 2  | VCC5V        |         |       |
| 5     | 5       | I2C_SDA_AO     | 3  | <input type="radio"/>    | <input type="radio"/> | 4  | VCC5V        |         |       |
| 4     | 4       | I2C_SCK_AO     | 5  | <input type="radio"/>    | <input type="radio"/> | 6  | GND          |         |       |
| 2     | 98      | GPIOCLK_0      | 7  | <input type="radio"/>    | <input type="radio"/> | 8  | UART_A_TX    | 91      | 101   |
|       |         | GND            | 9  | <input type="radio"/>    | <input type="radio"/> | 10 | UART_A_RX    | 92      | 102   |
| 8     | 8*      | I2SOUT-CH23    | 11 | <input type="radio"/>    | <input type="radio"/> | 12 | PWM_F        | 6       | 6     |
| 9     | 9       | I2SOUT-CH45    | 13 | <input type="radio"/>    | <input type="radio"/> | 14 | GND          |         |       |
| 10    | 10*     | I2SOUT-CH67    | 15 | <input type="radio"/>    | <input type="radio"/> | 16 | UART_A_CTS_N | 93      | 103   |
|       |         | VCC3.3V        | 17 | <input type="radio"/>    | <input type="radio"/> | 18 | UART_A_RTS_N | 94      | 104   |
| 97    | 87      | BTPCM_DOUT     | 19 | <input type="radio"/>    | <input type="radio"/> | 20 | GND          |         |       |
| 98    | 88      | BTPCM_DIN      | 21 | <input type="radio"/>    | <input type="radio"/> | 22 | WIFI_SD_D0   | 79      | 89    |
| 100   | 90      | BTPCM_CLK      | 23 | <input type="radio"/>    | <input type="radio"/> | 24 | BTPCM_SYNC   | 89      | 99    |
|       |         | GND            | 25 | <input type="radio"/>    | <input type="radio"/> | 26 | WIFI_SD_D1   | 80      | 90    |
| 85    | 75      | I2C_SDA_A      | 27 | <input type="radio"/>    | <input type="radio"/> | 28 | I2C_SCK_A    | 76      | 86    |
| 106   | 96      | BT_EN          | 29 | <input type="radio"/>    | <input type="radio"/> | 30 | GND          |         |       |
| 107   | 97      | BT_WAKE_HOST   | 31 | <input type="radio"/>    | <input type="radio"/> | 32 | WIFI_32K     | 95      | 105   |
| 95    | 85      | WIFI_PWREN     | 33 | <input type="radio"/>    | <input type="radio"/> | 34 | GND          |         |       |
| 96    | 86      | WIFI_WAKE_HOST | 35 | <input type="radio"/>    | <input type="radio"/> | 36 | WIFI_SD_D2   | 81      | 91    |
| 94    | 94      | WIFI_SD_CMD    | 37 | <input type="radio"/>    | <input type="radio"/> | 38 | WIFI_SD_D3   | 82      | 92    |
|       |         | GND            | 39 | <input type="radio"/>    | <input type="radio"/> | 40 | WIFI_SD_CLK  | 83      | 93    |

\* Requires 2J1 jumper to be positioned to pass GPIOAO\_8 to 40 pin header

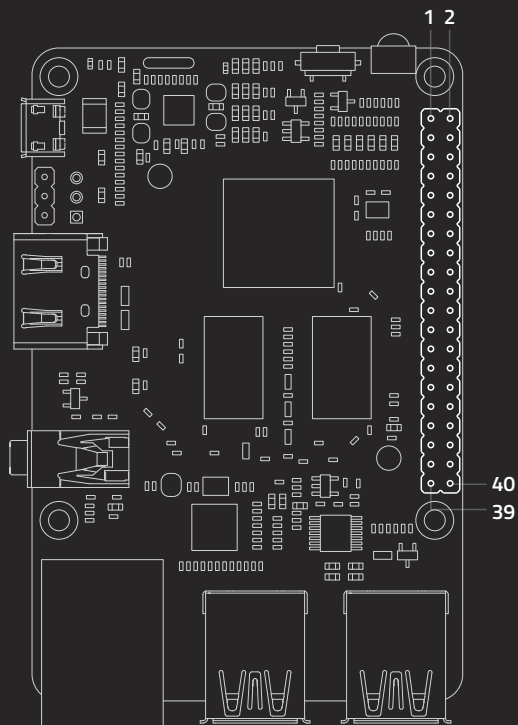
\*\* Requires Linux kernel 4.19+ to set direction to output



| A                        | # | NAME         | LINUX # | SYSFS |
|--------------------------|---|--------------|---------|-------|
| <input type="checkbox"/> | 1 | ADC0         |         |       |
| <input type="radio"/>    | 2 | ADC2         |         |       |
| <input type="radio"/>    | 3 | I2SOUT-CH01  | 25      | 35    |
| <input type="radio"/>    | 4 | I2S-LR-CLK   | 24      | 34    |
| <input type="radio"/>    | 5 | I2S-AO-CLK   | 23      | 33    |
| <input type="radio"/>    | 6 | I2S-AM-CLK   | 22      | 32    |
| <input type="radio"/>    | 7 | GND          |         |       |
| <input type="radio"/>    | 8 | VDDIO_A03.3V |         |       |

| B                        | # | NAME     | LINUX # | SYSFS |
|--------------------------|---|----------|---------|-------|
| <input type="checkbox"/> | 1 | GND      |         |       |
| <input type="radio"/>    | 2 | LINUX_TX | 0       | 0     |
| <input type="radio"/>    | 3 | LINUX_RX | 1       | 1     |

| C                        | # | NAME      | LINUX # | SYSFS |
|--------------------------|---|-----------|---------|-------|
| <input type="checkbox"/> | 1 | GND       |         |       |
| <input type="radio"/>    | 2 | SPDIF_OUT | 20      | 30    |
| <input type="radio"/>    | 3 | VCC5V     |         |       |

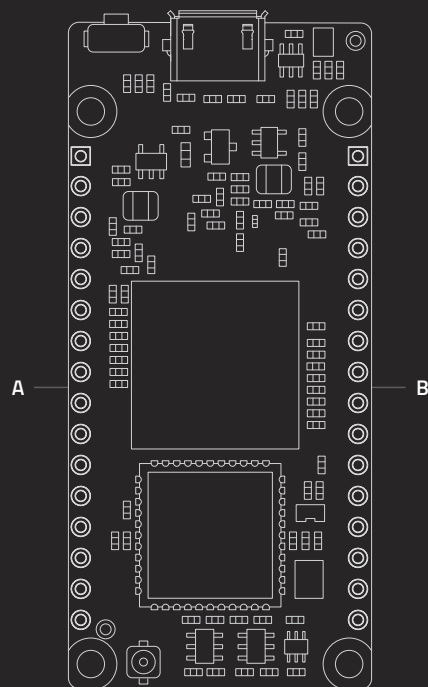


| NOTES                   | NAME     | #  |
|-------------------------|----------|----|
| 3.3V OUTPUT             | VCC_IO   | 1  |
| GPIO2_D1_U/I2C0_SDA     | I2C0_SDA | 3  |
| GPIO2_D0_U/I2C0_SCL     | I2C0_SCL | 5  |
| GPIO1_D4_D/CLKOUT       | CLK      | 7  |
| GROUND                  | GND      | 9  |
| GPIO2_C4_U/I2S1_SDO1    | SDO1     | 11 |
| GPIO2_C5_U/I2S1_SDO2    | SDO2     | 13 |
| GPIO2_C6_U/I2S1_SDO3    | SDO3     | 15 |
| 3.3V                    | VCC_IO   | 17 |
| GPIO3_A1_U/SPI_TXD      | STX      | 19 |
| GPIO3_A2_D/SPI_RXD      | SRX      | 21 |
| GPIO3_A0_U/SPI_CLK      | CLK      | 23 |
| GROUND                  | GND      | 25 |
| GPIO2_A4_U/I2C1_SDA     | SDA1     | 27 |
| GPIO2_C3_U/I2S1_SDI     | SDI      | 29 |
| GPIO2_C7_U/I2S1_SDO     | SDO      | 31 |
| GPIO2_C0_U/I2S1_LRCK_RX | LRCK     | 33 |
| GPIO2_C2_D/I2S1_SCLK    | LCLK     | 35 |
| GPIO2_B7_D/I2S1_MCLK    | MCLK     | 37 |
| GROUND                  | GND      | 39 |

[illegible]

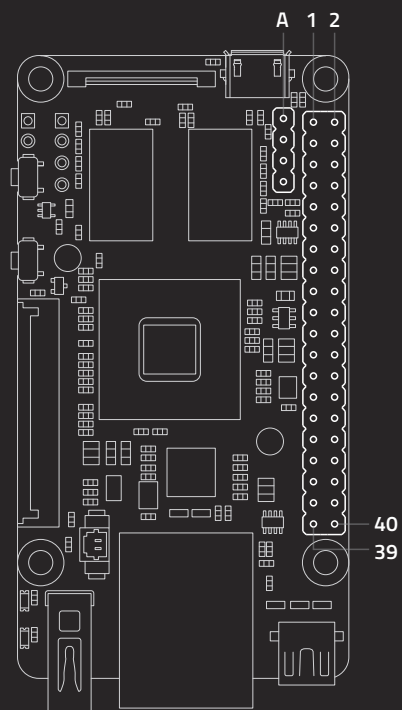
| #  | NAME    | NOTES                       |
|----|---------|-----------------------------|
| 2  | VCC_SYS | 5V OUTPUT                   |
| 4  | VCC_SYS | 5V OUTPUT                   |
| 6  | GND     | GROUND                      |
| 8  | TX1     | GPIO3_A4_U/UART1_TXD        |
| 10 | RX1     | GPIO3_A6_U/UART1_RXD        |
| 12 | PWM     | GPIO2_A6_U/PWM2             |
| 14 | GND     | GROUND                      |
| 16 | CTS     | GPIO3_A7_U/UART1_CTSN       |
| 18 | RTS     | GPIO3_A5_U/UART1_RTSN       |
| 20 | GND     | GROUND                      |
| 22 | CLK0    | GPIOA2_D/CLKOUT/SPDIF_TX_M2 |
| 24 | CSN0    | GPIO3_B0_D/SPI_CSN0_M2      |
| 26 | CSN1    | GPIO2_B4_U/SPI_CSN1_M0      |
| 28 | SCL1    | GPIO2_A5_U/ I2C1_SCL        |
| 30 | GND     | GROUND                      |
| 32 | GPIO    | GPIO0_A0_D/CLKOUT_WIFI_M0   |
| 34 | GND     | GROUND                      |
| 36 | TX2     | GPIO2_A0_D/UART2_TX         |
| 38 | RX2     | GPIO2_A1_U/UART2_RX         |
| 40 | SPDIF1  | GPIO0_D3_D/SPDIF_TX_M0      |





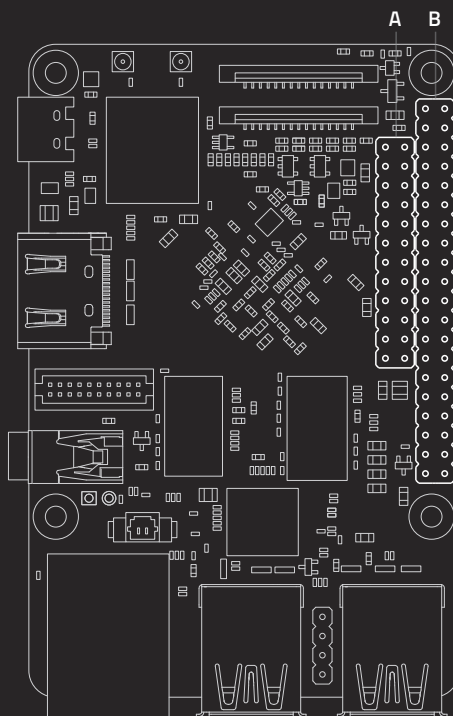
| ALT      | ALT  | MAIN | #  | A |
|----------|------|------|----|---|
| IN/OUT   |      | 5V   | 1  | □ |
| IN/OUT   |      | 5V   | 2  | ○ |
| OUT      |      | 3V3  | 3  | ○ |
| GND      |      | GND  | 4  | ○ |
| PL11     |      | IRRX | 5  | ○ |
| PG11     |      | PG11 | 6  | ○ |
| D-       | USB3 | DM3  | 7  | ○ |
| D+       | USB3 | DP3  | 8  | ○ |
| D-       | USB2 | DM2  | 9  | ○ |
| D+       | USB2 | DP2  | 10 | ○ |
| RXN      | EPHY | RD-  | 11 | ○ |
| RXP      | EPHY | RD+  | 12 | ○ |
| TXN      | EPHY | TD-  | 13 | ○ |
| TXP      | EPHY | TD+  | 14 | ○ |
| LED-LINK | EPHY | LNK  | 15 | ○ |
| LED-SPD  | EPHY | SPD  | 16 | ○ |

| #  | MAIN | ALT     | ALT  | ALT  |
|----|------|---------|------|------|
| 1  | RXD  | DEBUG   | RX   | PA5  |
| 2  | TXD  | UART0   | TX   | PA4  |
| 3  | GND  |         |      | GND  |
| 4  | SCL  | I2C0    | SCL  | PA11 |
| 5  | SDA  | I2C0    | SDA  | PA12 |
| 6  | CS   | SPI1    | CS   | PA13 |
| 7  | CLK  | SPI1    | CLK  | PA14 |
| 8  | MISO | SPI1    | MISO | PA16 |
| 9  | MOSI | SPI1    | MOSI | PA15 |
| 10 | RX1  | UART1   | RX   | PG7  |
| 11 | TX1  | UART1   | TX   | PG6  |
| 12 | CVBS | CVBS    |      | CVBS |
| 13 | LL   | LINEOUT |      | L    |
| 14 | LR   | LINEOUT |      | R    |
| 15 | MP   | MIC     |      | P    |
| 16 | MN   | MIC     |      | N    |



| NAME              | #  |                          |                       | #  | NAME              |
|-------------------|----|--------------------------|-----------------------|----|-------------------|
| SYS_3.3V          | 1  | <input type="checkbox"/> | <input type="radio"/> | 2  | VDD_5V            |
| I2CO_SDA          | 3  | <input type="radio"/>    | <input type="radio"/> | 4  | VDD_5V            |
| I2CO_SCL          | 5  | <input type="radio"/>    | <input type="radio"/> | 6  | DGND              |
| GPIOD8/PPM        | 7  | <input type="radio"/>    | <input type="radio"/> | 8  | UART3_TXD/GPIOD21 |
| DGND              | 9  | <input type="radio"/>    | <input type="radio"/> | 10 | UART3_RXD/GPIOD17 |
| UART4_TX/GPIOB29  | 11 | <input type="radio"/>    | <input type="radio"/> | 12 | GPIOD1/PWM0       |
| GPIOB30           | 13 | <input type="radio"/>    | <input type="radio"/> | 14 | DGND              |
| GPIOB31           | 15 | <input type="radio"/>    | <input type="radio"/> | 16 | GPIOC14/PWM2      |
| SYS_3.3V          | 17 | <input type="radio"/>    | <input type="radio"/> | 18 | GPIOB27           |
| SPIO_MOSI/GPIOC31 | 19 | <input type="radio"/>    | <input type="radio"/> | 20 | DGND              |
| SPIO_MISO/GPIOD0  | 21 | <input type="radio"/>    | <input type="radio"/> | 22 | UART4_RX/GPIOB28  |
| SPIO_CLK/GPIOC29  | 23 | <input type="radio"/>    | <input type="radio"/> | 24 | SPIO_CS/GPIOC30   |
| DGND              | 25 | <input type="radio"/>    | <input type="radio"/> | 26 | GPIOB26           |
| I2C1_SDA          | 27 | <input type="radio"/>    | <input type="radio"/> | 28 | I2C1_SCL          |
| GPIOC8            | 29 | <input type="radio"/>    | <input type="radio"/> | 30 | DGND              |
| GPIOC7            | 31 | <input type="radio"/>    | <input type="radio"/> | 32 | GPIOC28           |
| GPIOC13/PWM1      | 33 | <input type="radio"/>    | <input type="radio"/> | 34 | DGND              |
| SPI2_MISO/GPIOC11 | 35 | <input type="radio"/>    | <input type="radio"/> | 36 | SPI2_CS/GPIOC10   |
| ALIVEGPIO3        | 37 | <input type="radio"/>    | <input type="radio"/> | 38 | SPI2_MOSI/GPIOC12 |
| DGND              | 39 | <input type="radio"/>    | <input type="radio"/> | 40 | SPI2_CLK/GPIOC9   |

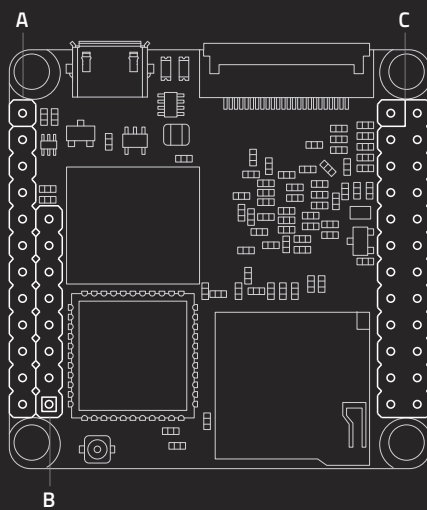
| A                        | # | NAME      |
|--------------------------|---|-----------|
| <input type="checkbox"/> | 1 | DGND      |
| <input type="radio"/>    | 2 | VDD_5V    |
| <input type="radio"/>    | 3 | UART_TXD0 |
| <input type="radio"/>    | 4 | UART_RXD0 |



| NAME           | #  | A |   | #  | NAME       | NAME               | #  | B |   | #  | NAME               |
|----------------|----|---|---|----|------------|--------------------|----|---|---|----|--------------------|
| VCC5V0_SYS     | 1  | □ | ○ | 2  | VCC5V0_SYS | VCC3V3_SYS         | 1  | □ | ○ | 2  | VDD_5V             |
| PCIE_RX1_P     | 3  | ○ | ○ | 4  | PCIE_TX1P  | I2C2_SDA*          | 3  | ○ | ○ | 4  | VDD_5V             |
| PCIE_RX1_N     | 5  | ○ | ○ | 6  | PCIE_TX1N  | I2C2_SCL*          | 5  | ○ | ○ | 6  | GND                |
| GND            | 7  | ○ | ○ | 8  | GND        | GPIO1_A0*          | 7  | ○ | ○ | 8  | GPIO4_C1/I2C3_SCL* |
| PCIE_RX0_P     | 9  | ○ | ○ | 10 | PCIE_TX0P  | GND                | 9  | ○ | ○ | 10 | GPIO4_C0/I2C3_SDA* |
| PCIE_RX0_N     | 11 | ○ | ○ | 12 | PCIE_TX0N  | GPIO1_A1*          | 11 | ○ | ○ | 12 | GPIO1_C2*          |
| GND            | 13 | ○ | ○ | 14 | GND        | GPIO1_A3*          | 13 | ○ | ○ | 14 | GND                |
| PCIE_REF_CLKP  | 15 | ○ | ○ | 16 | HOST0_DM   | GPIO1_A4*          | 15 | ○ | ○ | 16 | GPIO1_C6*          |
| PCIE_REF_CLKN  | 17 | ○ | ○ | 18 | HOST0_DP   | VCC3V3_SYS         | 17 | ○ | ○ | 18 | GPIO1_C7*          |
| GND            | 19 | ○ | ○ | 20 | GND        | SPI1_TXD/UART4_TX* | 19 | ○ | ○ | 20 | GND                |
| PWR_KEY        | 21 | ○ | ○ | 22 | HOST1_DM   | SPI1_RXD/UART4_RX* | 21 | ○ | ○ | 22 | GPIO1_D0*          |
| GPIO4_C6/PWM1* | 23 | ○ | ○ | 24 | HOST1_DP   | SPI1_CLK*          | 23 | ○ | ○ | 24 | SPI1_CSNO*         |
|                |    |   |   |    |            | GND                | 25 | ○ | ○ | 26 | GPIO4_C5/SPDIF_TX* |
|                |    |   |   |    |            | I2C2_SDA**         | 27 | ○ | ○ | 28 | I2C2_SCL**         |
|                |    |   |   |    |            | I2S0_LRCK_RX**     | 29 | ○ | ○ | 30 | GND                |
|                |    |   |   |    |            | I2S0_LRCK_TX**     | 31 | ○ | ○ | 32 | I2S_CLK**          |
|                |    |   |   |    |            | I2S0_SCLK**        | 33 | ○ | ○ | 34 | GND                |
|                |    |   |   |    |            | I2S0_SDIO**        | 35 | ○ | ○ | 36 | I2S0_SD00**        |
|                |    |   |   |    |            | I2S0_SDI1SD03**    | 37 | ○ | ○ | 38 | I2S0_SDI2SD02**    |
|                |    |   |   |    |            | GND                | 39 | ○ | ○ | 40 | I2S0_SDI3SD01**    |

\* 3V

\* 3V \*\*1.8V



| NAME     |     |       | #  |
|----------|-----|-------|----|
| 5V (OUT) |     |       | 1  |
| D+       |     | USB2  | 2  |
| D-       |     | USB2  | 3  |
| D+       |     | USB3  | 4  |
| D-       |     | USB3  | 5  |
| PL11     | RX  | IR    | 6  |
| PA17     | OUT | SPDIF | 7  |
| LRCK     |     | 12S0  | 8  |
| BCK      |     | 12S0  | 9  |
| DOUT     |     | 12S0  | 10 |
| DIN      |     | 12S0  | 11 |
| GND      |     |       | 12 |

| A                        | B                        |
|--------------------------|--------------------------|
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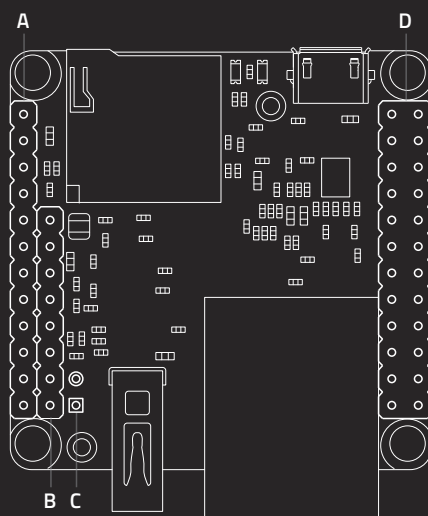
| # | NAME     |    |
|---|----------|----|
| 1 | GND      |    |
| 2 | 5V (OUT) |    |
| 3 | UART0    | TX |
| 4 | UART0    | RX |
| 5 | LINEOUT  | LL |
| 6 | LINEOUT  | LR |
| 7 | LINEIN   | MN |
| 8 | LINEIN   | MP |

| NAME       |      |       | #  |
|------------|------|-------|----|
| 3.3V (OUT) |      |       | 1  |
| SDA        |      | I2C0  | 3  |
| SCL        |      | I2C0  | 5  |
| PG11       |      |       | 7  |
| GND        |      |       | 9  |
| PA0        | TX   | UART2 | 11 |
| PA2        | RTS  | UART2 | 13 |
| PA3        | CTS  | UART2 | 15 |
| 3.3V (OUT) |      |       | 17 |
| PC0        | MOSI | SPIO  | 19 |
| PC1        | MISO | SPIO  | 21 |
| PC2        | CLK  | SPIO  | 23 |

| C  |
|--|
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| #  | NAME        |     |     |
|----|-------------|-----|-----|
| 2  | 5V (IN/OUT) |     |     |
| 4  | 5V (IN/OUT) |     |     |
| 6  | GND         |     |     |
| 8  | UART1       | TX  | PG6 |
| 10 | UART1       | RX  | PG7 |
| 12 | PA6         |     |     |
| 14 | GND         |     |     |
| 16 | UART1       | RTS | PG8 |
| 18 | UART1       | CTS | PG9 |
| 20 | GND         |     |     |
| 22 | UART2       | RX  | PA1 |
| 24 | SPIO        | CS  | PC3 |





| NAME     |     |       | #  |
|----------|-----|-------|----|
| 5V (OUT) |     |       | 1  |
| D+       |     | USB1  | 2  |
| D-       |     | USB1  | 3  |
| D+       |     | USB2  | 4  |
| D-       |     | USB2  | 5  |
| PL11     | RX  | IR    | 6  |
| PA17     | OUT | SPDIF | 7  |
| LRCK     |     | 12S0  | 8  |
| BCK      |     | 12S0  | 9  |
| DOUT     |     | 12S0  | 10 |
| DIN      |     | 12S0  | 11 |
| GND      |     |       | 12 |

| A                        | B                        |
|--------------------------|--------------------------|
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| # | NAME     |    |
|---|----------|----|
| 1 | GND      |    |
| 2 | 5V (OUT) |    |
| 3 | UART0    | TX |
| 4 | UART0    | RX |
| 5 | LINEOUT  | LL |
| 6 | LINEOUT  | LR |
| 7 | LINEIN   | MN |
| 8 | LINEIN   | MP |

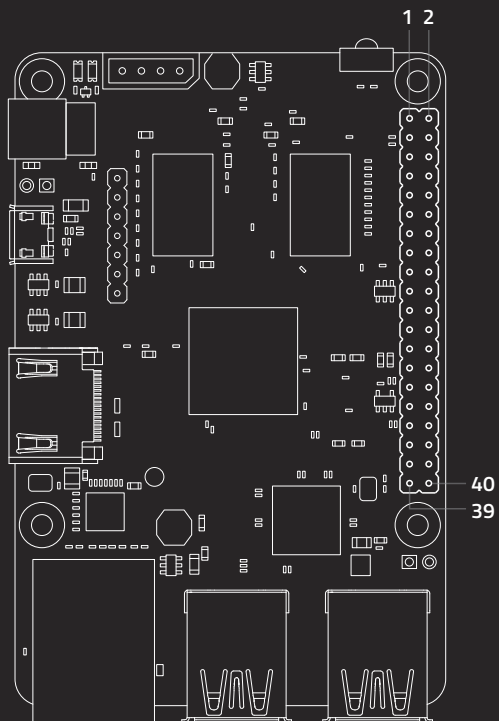
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| # | NAME |  |
|---|------|--|
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| 2 | CVBS |  |

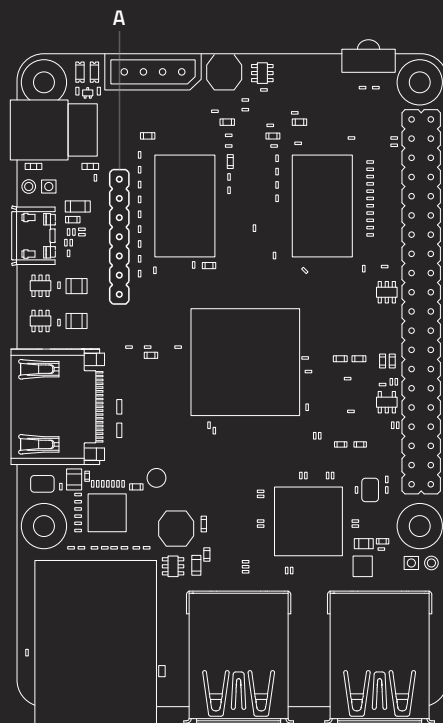
| NAME       |      |       | #  |
|------------|------|-------|----|
| 3.3V (OUT) |      |       | 1  |
| SDA        |      | I2C0  | 3  |
| SCL        |      | I2C0  | 5  |
| PG11       |      |       | 7  |
| GND        |      |       | 9  |
| PA0        | TX   | UART2 | 11 |
| PA2        | RTS  | UART2 | 13 |
| PA3        | CTS  | UART2 | 15 |
| 3.3V (OUT) |      |       | 17 |
| PC0        | MOSI | SPIO  | 19 |
| PC1        | MISO | SPIO  | 21 |
| PC2        | CLK  | SPIO  | 23 |

| D  |
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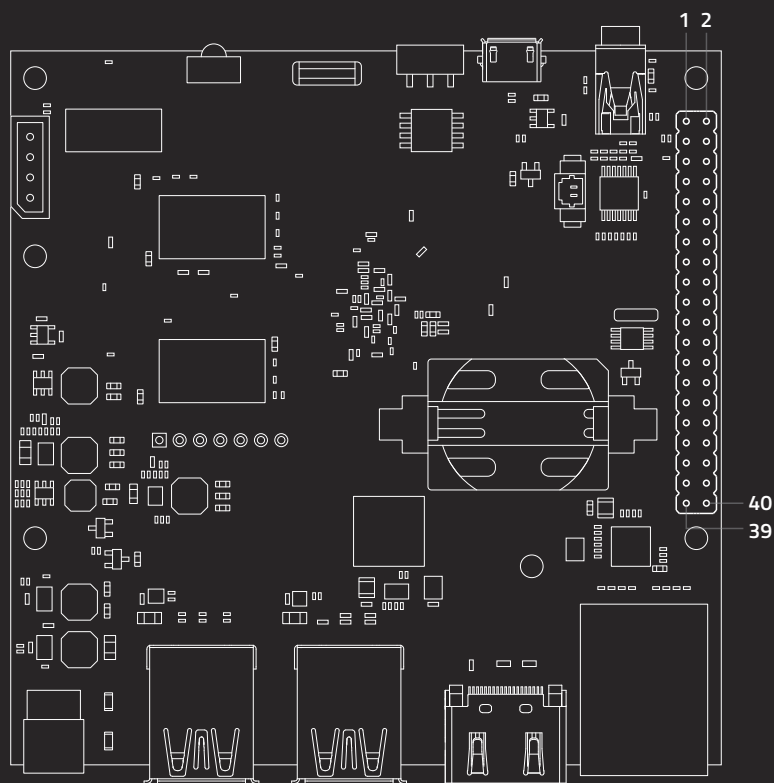
| #  | NAME        |     |     |
|----|-------------|-----|-----|
| 2  | 5V (IN/OUT) |     |     |
| 4  | 5V (IN/OUT) |     |     |
| 6  | GND         |     |     |
| 8  | UART1       | TX  | PG6 |
| 10 | UART1       | RX  | PG7 |
| 12 | PA6         |     |     |
| 14 | GND         |     |     |
| 16 | UART1       | RTS | PG8 |
| 18 | UART1       | CTS | PG9 |
| 20 | GND         |     |     |
| 22 | UART2       | RX  | PA1 |
| 24 | SPIO        | CS  | PC3 |



| GPIO # | MAIN FUNCTIONS         | #  |   |   | #  | MAIN FUNCTIONS         | GPIO # |
|--------|------------------------|----|---|---|----|------------------------|--------|
|        | 3.3V POWER             | 1  | □ | ○ | 2  | 5.0V POWER             |        |
| 493    | I2C_EE_M2_SDA/GPIOX_17 | 3  | ○ | ○ | 4  | 5.0V POWER             |        |
| 494    | I2C_EE_M2_SCL/GPIOX_18 | 5  | ○ | ○ | 6  | GROUND                 |        |
| 481    | PWM_C/GPIOX_5          | 7  | ○ | ○ | 8  | GPXIO_12/UART_EE_A_TX  | 488    |
|        | GROUND                 | 9  | ○ | ○ | 10 | GPIOX_13/UART_EE_A_RX  | 489    |
| 479    | PWM_D/GPIOX_3          | 11 | ○ | ○ | 12 | GPXIO_16/PWM_E         | 492    |
| 480    | GPIOX_4                | 13 | ○ | ○ | 14 | GROUND                 |        |
| 483    | GPIOX_7/PWM_F          | 15 | ○ | ○ | 16 | GPIOX_0                | 476    |
|        | 3.3V POWER             | 17 | ○ | ○ | 18 | GPIOX_1                | 477    |
| 484    | SPI_A_MOSI/GPIOX_8     | 19 | ○ | ○ | 20 | GROUND                 |        |
| 485    | SPI_A_MISO/GPIOX_9     | 21 | ○ | ○ | 22 | GPIOX_2                | 478    |
| 487    | SPI_A_SCLK/GPIOX_11    | 23 | ○ | ○ | 24 | GPIOX_10/SPI_A_SS0     | 486    |
|        | GROUND                 | 25 | ○ | ○ | 26 | GPIOH_6                | 433    |
| 474    | I2C_EE_M3_SDA/GPIOA_14 | 27 | ○ | ○ | 28 | GPIOA_15/I2C_EE_M3_SCL | 475    |
| 490    | UART_EE_A_CTS/GPIOX_14 | 29 | ○ | ○ | 30 | GROUND                 |        |
| 491    | UART_EE_A_RTS/GPIOX_15 | 31 | ○ | ○ | 32 | GPIOH_7                | 434    |
| 482    | PWM_A/GPIOX_6          | 33 | ○ | ○ | 34 | GROUND                 |        |
| 492    | PWM_B/GPIOX_19         | 35 | ○ | ○ | 36 | GPIOH_5/PWM_F          | 432    |
|        | ADC.AIN2               | 37 | ○ | ○ | 38 | VDDIO_A01V8            |        |
|        | GROUND                 | 39 | ○ | ○ | 40 | ADC.AIN0               |        |

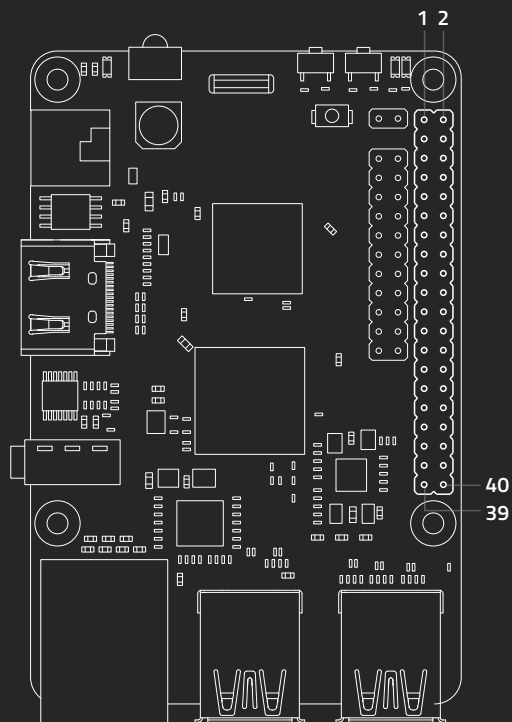


| A | # | NAME      | ALT             | GPIO # |
|---|---|-----------|-----------------|--------|
| □ | 1 | GND       |                 |        |
| ○ | 2 | GPIOA0.10 | SPDIF OUTPUT    | 506    |
| ○ | 3 | 5.0V      |                 |        |
| ○ | 4 | GPIOA0.9  | I2S MCLK        | 505    |
| ○ | 5 | GPIOA0.7  | I2S LRCLK       | 503    |
| ○ | 6 | GPIOA0.8  | I2S SCLK        | 504    |
| ○ | 7 | GPIOA0.4  | I2S DATA OUTPUT | 500    |

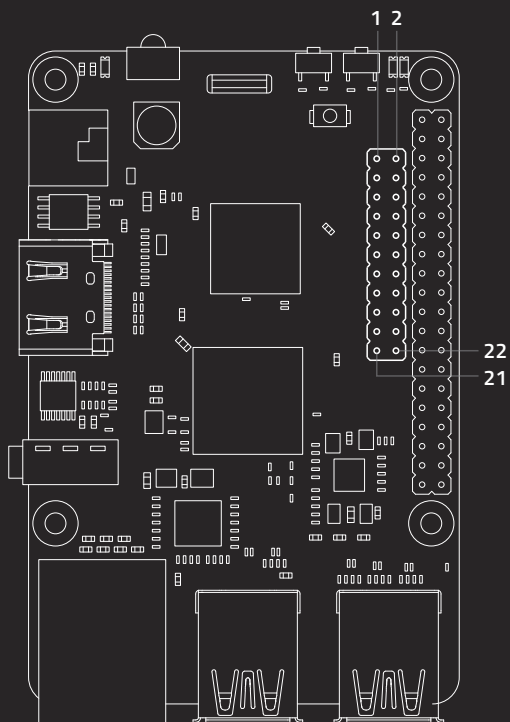


| GPIO # | MAIN FUNCTIONS         | #  |                          |                       | #  | MAIN FUNCTIONS         | GPIO # |
|--------|------------------------|----|--------------------------|-----------------------|----|------------------------|--------|
|        | 3.3V POWER             | 1  | <input type="checkbox"/> | <input type="radio"/> | 2  | 5.0V POWER             |        |
| 493    | I2C_EE_M2_SDA/GPIOX_17 | 3  | <input type="radio"/>    | <input type="radio"/> | 4  | 5.0V POWER             |        |
| 494    | I2C_EE_M2_SCL/GPIOX_18 | 5  | <input type="radio"/>    | <input type="radio"/> | 6  | GROUND                 |        |
| 473    | SPDIF_OUT_GPIOA_13     | 7  | <input type="radio"/>    | <input type="radio"/> | 8  | GPXIO_12/UART_EE_A_TX  | 488    |
|        | GROUND                 | 9  | <input type="radio"/>    | <input type="radio"/> | 10 | GPIOX_13/UART_EE_A_RX  | 489    |
| 479    | PWM_D/GPIOX_3          | 11 | <input type="radio"/>    | <input type="radio"/> | 12 | GPXIO_16/PWM_E         | 492    |
| 480    | GPIOX_4                | 13 | <input type="radio"/>    | <input type="radio"/> | 14 | GROUND                 |        |
| 483    | PWM_B/PWM_F/GPIOX_7    | 15 | <input type="radio"/>    | <input type="radio"/> | 16 | GPIOX_0                | 476    |
|        | 3.3V POWER             | 17 | <input type="radio"/>    | <input type="radio"/> | 18 | GPIOX_1                | 477    |
| 484    | SPI_A_MOSI/GPIOX_8     | 19 | <input type="radio"/>    | <input type="radio"/> | 20 | GROUND                 |        |
| 485    | SPI_A_MISO/GPIOX_9     | 21 | <input type="radio"/>    | <input type="radio"/> | 22 | GPIOX_2                | 478    |
| 487    | SPI_A_SCLK/GPIOX_11    | 23 | <input type="radio"/>    | <input type="radio"/> | 24 | GPIOX_10/SPI_A_SS0     | 486    |
|        | GROUND                 | 25 | <input type="radio"/>    | <input type="radio"/> | 26 | GPIOA_4                | 464    |
| 474    | I2C_EE_M3_SDA/GPIOA_14 | 27 | <input type="radio"/>    | <input type="radio"/> | 28 | GPIOA_15/I2C_EE_M3_SCL | 475    |
| 490    | UART_EE_A_CTS/GPIOX_14 | 29 | <input type="radio"/>    | <input type="radio"/> | 30 | GROUND                 |        |
| 491    | UART_EE_A_RTS/GPIOX_15 | 31 | <input type="radio"/>    | <input type="radio"/> | 32 | GPIOH_12               | 472    |
| 481    | PWM_C/GPIOX_5          | 33 | <input type="radio"/>    | <input type="radio"/> | 34 | GROUND                 |        |
| 482    | PWM_D/GPIOX_6          | 35 | <input type="radio"/>    | <input type="radio"/> | 36 | PWM_B/GPIOX_19         | 495    |
|        | ADC.AIN3               | 37 | <input type="radio"/>    | <input type="radio"/> | 38 | VDDIO_A01V8            |        |
|        | GROUND                 | 39 | <input type="radio"/>    | <input type="radio"/> | 40 | ADC.AIN2               |        |

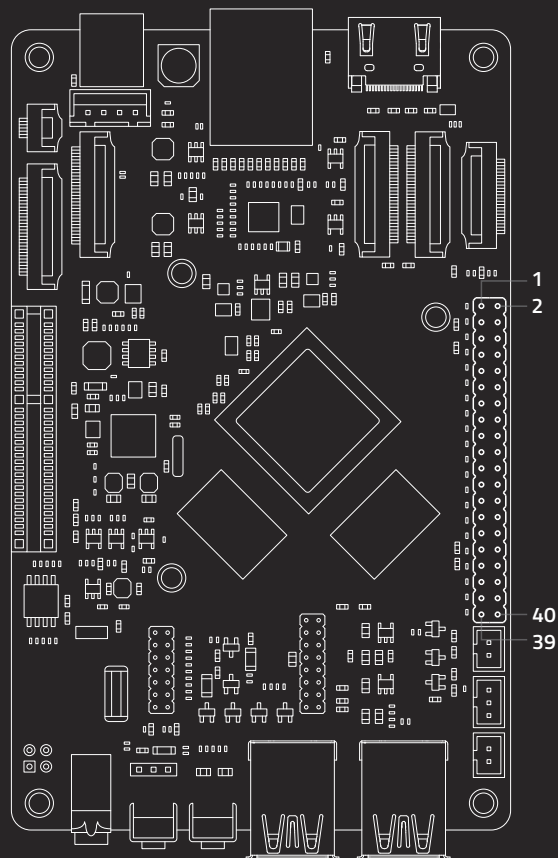




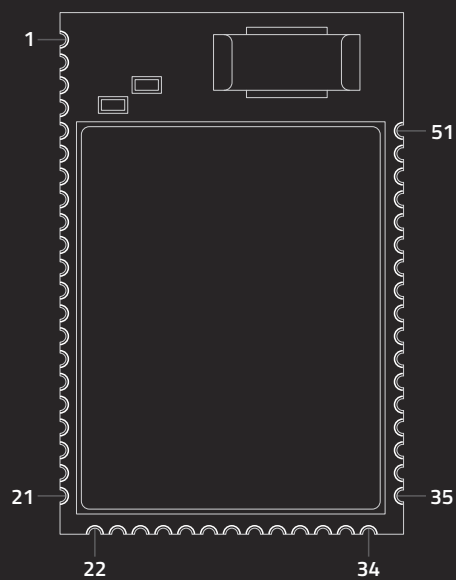
| GPIO # | MAIN FUNCTIONS          | #  |   |   | #  | MAIN FUNCTIONS         | GPIO # |
|--------|-------------------------|----|---|---|----|------------------------|--------|
|        | 3.3V                    | 1  | □ | ○ | 2  | 5V                     |        |
| 89     | GPIO2_D1 (I2C0_SDA)     | 3  | ○ | ○ | 4  | 5V                     |        |
| 88     | GPIO2_D0 (I2C0_SCL)     | 5  | ○ | ○ | 6  | GROUND                 |        |
|        | GPIO1_D4 (CLK32KOUT_M1) | 7  | ○ | ○ | 8  | GPIO2_A0 (UART2_TX_M1) | 64     |
|        | GROUND                  | 9  | ○ | ○ | 10 | GPIO2_A1 (UART2_RX_M1) | 65     |
|        | NC                      | 11 | ○ | ○ | 12 | GPIO2_A3               | 67     |
|        | GPIO0_A0                | 13 | ○ | ○ | 14 | GROUND                 |        |
| 100    | GPIO3_A4                | 15 | ○ | ○ | 16 | GPIO3_A5               | 101    |
|        | 3.3V                    | 17 | ○ | ○ | 18 | GPIO3_A6               | 102    |
| 97     | GPIO3_A1 (SPI_TXD_M2)   | 19 | ○ | ○ | 20 | GROUND                 |        |
| 98     | GPIO3_A2 (SPI_RXD_M2)   | 21 | ○ | ○ | 22 | GPIO3_A7               | 103    |
| 96     | GPIO3_A0 (SPI_CLK_M2)   | 23 | ○ | ○ | 24 | GPIO3_B0 (SPI_CSNO_M2) | 104    |
|        | GROUND                  | 25 | ○ | ○ | 26 | GPIO2_B4 (SPI_CSN1_M0) | 76     |
| 68     | GPIO2_A4 (I2C1_SDA)     | 27 | ○ | ○ | 28 | GPIO2_A5 (I2C1_SCL)    | 69     |
|        | NC                      | 29 | ○ | ○ | 30 | GROUND                 |        |
|        | NC                      | 31 | ○ | ○ | 32 | GPIO1_A6               | 38     |
| 32     | GPIO1_A0                | 33 | ○ | ○ | 34 | GROUND                 |        |
| 33     | GPIO1_A1                | 35 | ○ | ○ | 36 | GPIO1_A5               | 37     |
| 34     | GPIO1_A2                | 37 | ○ | ○ | 38 | GPIO1_A4               | 36     |
|        | GROUND                  | 39 | ○ | ○ | 40 | GPIO1_A3V              | 35     |



| GPIO # | MAIN FUNCTIONS            | #  |   |   | #  | MAIN FUNCTIONS           | GPIO # |
|--------|---------------------------|----|---|---|----|--------------------------|--------|
|        | 3.3V                      | 1  | □ | ○ | 2  | 5V                       |        |
| 81     | GPIO2_C1 (I2S1_LRCKTX)    | 3  | ○ | ○ | 4  | GPIO2_C2 (I2S1_SCLK)     | 82     |
| 87     | GPIO2_C7 (I2S1_SDO)       | 5  | ○ | ○ | 6  | GPIO2_C3 (I2S1_SDI)      | 83     |
|        | GROUND                    | 7  | ○ | ○ | 8  | GROUND                   |        |
| 80     | GPIO2_C0 (I2S1_LRCKRX)    | 9  | ○ | ○ | 10 | GPIO2_B7 (I2S1_MCLK)     | 79     |
| 85     | GPIO2_C5 (I2S1_SDIO2)     | 11 | ○ | ○ | 12 | GPIO2_C4 (I2S1_SDIO1)    | 84     |
| 27     | GPIO0_D3 (SPDIF_TX_M0)    | 13 | ○ | ○ | 14 | GPIO2_C6 (I2S1_SDIO3)    | 86     |
|        | GROUND                    | 15 | ○ | ○ | 16 | GROUND                   |        |
|        | ETHERNET RD+              | 17 | ○ | ○ | 18 | ETHERNET RD-             |        |
|        | ETHERNET TX+              | 19 | ○ | ○ | 20 | ETHERNET TX-             |        |
| 89     | GPIO2_D1 (ETHERNET SPEED) | 21 | ○ | ○ | 22 | GPIO2_D0 (ETHERNET LINK) | 88     |



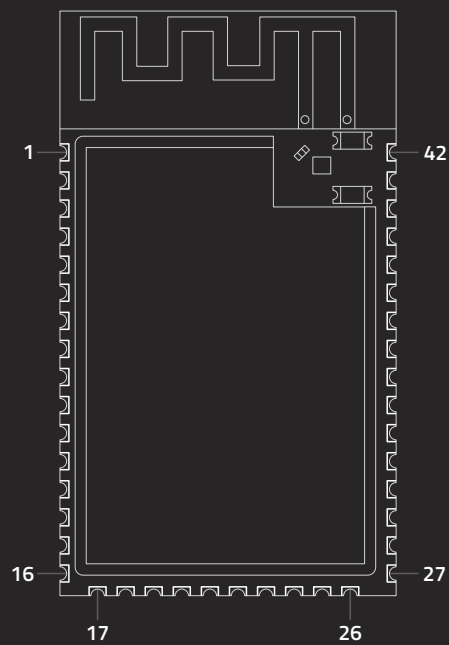
| MAIN FUNCTIONS                 | #  |   |   | #  | MAIN FUNCTIONS           |
|--------------------------------|----|---|---|----|--------------------------|
| 3.3V                           | 1  | □ | ○ | 2  | 5V                       |
| GPIO1_C4 (I2C8_SDA)            | 3  | ○ | ○ | 4  | 5V                       |
| GPIO1_C5 (I2C8_SCL)            | 5  | ○ | ○ | 6  | GROUND                   |
| GPIO4_D0 (CPU_GPClk)           | 7  | ○ | ○ | 8  | GPIO4_C4 (UART2_TX)      |
| GROUND                         | 9  | ○ | ○ | 10 | GPIO4_C3 (UART2_RX)      |
| GPIO1_C6                       | 11 | ○ | ○ | 12 | GPIO3_D0 (I2S0_CLK)      |
| GPIO1_C2                       | 13 | ○ | ○ | 14 | GROUND                   |
| GPIO1_A1                       | 15 | ○ | ○ | 16 | GPIO1_A4                 |
| 3.3V                           | 17 | ○ | ○ | 18 | GPIO4_C5 [SPDIF]         |
| [UART4_TX] GPIO1_B0 (SPI1_TXD) | 19 | ○ | ○ | 20 | GROUND                   |
| [UART4_RX] GPIO1_A7 (SPI1_RXD) | 21 | ○ | ○ | 22 | GPIO4_D1                 |
| GPIO1_B1 (SPI1_CLK)            | 23 | ○ | ○ | 24 | GPIO1_B2 (SPI1_CSN0)     |
| GROUND                         | 25 | ○ | ○ | 26 | GPIO1_B5                 |
| GPIO1_B3 (I2C4_SDA)            | 27 | ○ | ○ | 28 | GPIO1_B4 (I2C4_SCL)      |
| GPIO4_D3                       | 29 | ○ | ○ | 30 | GROUND                   |
| GPIO4_D4                       | 31 | ○ | ○ | 32 | GPIO3_D4 (I2S0_SDI1SDO3) |
| GPIO3_D5 (I2S0_SDI2SDO2)       | 33 | ○ | ○ | 34 | GROUND                   |
| GPIO3_D2 (I2S0_LRCKTX)         | 35 | ○ | ○ | 36 | GPIO3_D6 (I2S0_SDI3SDO1) |
| GPIO3_D1 (I2S0_LRCKRX)         | 37 | ○ | ○ | 38 | GPIO3_D3 (I2S0_SDI0)     |
| GROUND                         | 39 | ○ | ○ | 40 | GPIO3_D7 (I2S0_SDO0)     |



| #  | NAME        | NOTES                        | #  | NAME       | NOTES                                 |
|----|-------------|------------------------------|----|------------|---------------------------------------|
| 1  | GND         | COMMON GROUND                | 26 | PIO_4      | PROGRAMMABLE I/O                      |
| 2  | GND         | COMMON GROUND                | 27 | GND        | COMMON GROUND                         |
| 3  | GND         | COMMON GROUND                | 28 | VREGEN     | SEE NOTE*                             |
| 4  | GND         | COMMON GROUND                | 29 | CHG_EXT    | BATTERY CHARGER CTRL                  |
| 5  | PIO_6       | PROGRAMMABLE I/O             | 30 | VCHG       | BATTERY INPUT                         |
| 6  | PIO_7       | PROGRAMMABLE I/O             | 31 | VBAT_SENSE | BATTERY SENSE                         |
| 7  | CAP_SENSE_1 | TOUCH SENSE INPUT (ANALOG)   | 32 | VBAT       | BATTERY (+)                           |
| 8  | CAP_SENSE_4 | TOUCH SENSE INPUT (ANALOG)   | 33 | VDD_PADS   | POSITIVE SUPPLY INPUT (3.3V - 4.7V)** |
| 9  | CAP_SENSE_3 | TOUCH SENSE INPUT (ANALOG)   | 34 | 3V3_USB    | POSITIVE SUPPLY INPUT (3.3V - 4.7V)** |
| 10 | CAP_SENSE_2 | TOUCH SENSE INPUT (ANALOG)   | 35 | USB_N      | USB DATA (-)                          |
| 11 | GND         | COMMON GROUND                | 36 | USB_P      | USB DATA (+)                          |
| 12 | AIO_1       | ANALOG PROGRAMMABLE I/O      | 37 | LED_0      | LED DRIVER (OPEN DRAIN OUTPUT)        |
| 13 | SPKR_LN     | SPEAKER OUTPUT (-) LEFT      | 38 | LED_1      | LED DRIVER (OPEN DRAIN OUTPUT)        |
| 14 | SPKR_LP     | SPEAKER OUTPUT (+) LEFT      | 39 | LED_2      | LED DRIVER (OPEN DRAIN OUTPUT)        |
| 15 | SPKR_RN     | SPEAKER OUTPUT (-) RIGHT     | 40 | UART_CTS   | UART CLEAR TO SEND                    |
| 16 | SPKR_RP     | SPEAKER OUTPUT (+) RIGHT     | 41 | UART_TX    | UART TX DATA                          |
| 17 | MIC_BIAS_A  | MIC BIAS                     | 42 | UART_RX    | UART RX DATA                          |
| 18 | MIC_RN      | MIC INPUT (-) RIGHT (ANALOG) | 43 | UART_RTS   | UART REQUEST TO SEND                  |
| 19 | MIC_RP      | MIC INPUT (+) RIGHT (ANALOG) | 44 | RST#       | RESET INPUT                           |
| 20 | MIC_LN      | MIC INPUT (-) LEFT (ANALOG)  | 45 | SPI_PCM#   | SELECT PCM/SPI                        |
| 21 | MIC_LP      | MIC INPUT (+) LEFT (ANALOG)  | 46 | PCM_SYNC   | SYNCHRONOUS DATA SYNC                 |
| 22 | GND         | COMMON GROUND                | 47 | PCM_CLK    | SYNCHRONOUS DATA CLOCK                |
| 23 | PIO_0       | PROGRAMMABLE I/O             | 48 | PCM_OUT    | SYNCHRONOUS DATA OUTPUT (CMOS)        |
| 24 | PIO_1       | PROGRAMMABLE I/O             | 49 | PCM_IN     | SYNCHRONOUS DATA INPUT (CMOS)         |
| 25 | PIO_5       | PROGRAMMABLE I/O             | 50 | PIO_2      | PROGRAMMABLE I/O                      |
|    |             |                              | 51 | PIO_3      | PROGRAMMABLE I/O                      |

\*Take High to Enable Switch-Mode Regulator \*\*Typical Current 15mA (Music Streaming), Typical Current Idle <1mA (Connectable)

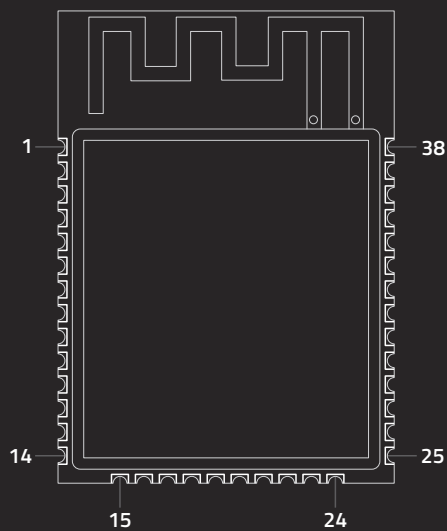




| #  | NAME | NOTES  | #  | NAME | NOTES  |
|----|------|--|----|------|--|
| 1  | GND  | GROUND   | 22 | IO19 | RTC19, IO19, U1RTS, ADC2_CH8, CLK_OUT2, USB_D- |
| 2  | 3V3  | POWER SUPPLY (OPERATING VOLTAGE 3.0 ~ 3.6 V)     | 23 | IO20 | RTC20, IO20, U1CTS, ADC2_CH9, CLK_OUT1, USB_D+ |
| 3  | IO0  | RTC0, IO0  | 24 | IO21 | RTC21, IO21                                    |
| 4  | IO1  | RTC1, IO1, TOUCH1, ADC1_CH0                      | 25 | IO26 | SPICS1, IO26*                                  |
| 5  | IO2  | RTC2, IO2, TOUCH2, ADC1_CH1                      | 26 | GND  | GROUND   |
| 6  | IO3  | RTC3, IO3, TOUCH3, ADC1_CH2                      | 27 | IO33 | SPIIO4, IO33, FSPIHD                           |
| 7  | IO4  | RTC4, IO4, TOUCH4, ADC1_CH3                      | 28 | IO34 | SPIIO5, IO34, FSPIC50                          |
| 8  | IO5  | RTC5, IO5, TOUCH5, ADC1_CH4                      | 29 | IO35 | SPIIO6, IO35, FSPID                            |
| 9  | IO6  | RTC6, IO6, TOUCH6, ADC1_CH5                      | 30 | IO36 | SPIIO7, IO36, FSPICLK                          |
| 10 | IO7  | RTC7, IO7, TOUCH7, ADC1_CH6                      | 31 | IO37 | SPIDQS, IO37, FSPIQ                            |
| 11 | IO8  | RTC8, IO8, TOUCH8, ADC1_CH7                      | 32 | IO38 | IO38, FSPIWP                                   |
| 12 | IO9  | RTC9, IO9, TOUCH9, ADC1_CH8, FSPIHD              | 33 | IO39 | MTCK, IO39, CLK_OUT3                           |
| 13 | IO10 | RTC10, IO10, TOUCH10, ADC1_CH9, FSPIC50, FSPIIO4 | 34 | IO40 | MTDO, IO40, CLK_OUT2                           |
| 14 | IO11 | RTC11, IO11, TOUCH11, ADC2_CH0, FSPID, FSPIIO5   | 35 | IO41 | MTDI, IO41, CLK_OUT1                           |
| 15 | IO12 | RTC12, IO12, TOUCH12, ADC2_CH1, FSPICLK, FSPIIO6 | 36 | IO42 | MTMS, IO42                                     |
| 16 | IO13 | RTC13, IO13, TOUCH13, ADC2_CH2, FSPIQ, FSPIIO7   | 37 | TXD0 | U0TXD, IO43, CLK_OUT1                          |
| 17 | IO14 | RTC14, IO14, TOUCH14, ADC2_CH3, FSPIWP, FSPIDQS  | 38 | RXD0 | U0RXD, IO44, CLK_OUT2                          |
| 18 | IO15 | RTC15, IO15, U0RTS, ADC2_CH4, XTAL_32K_P         | 39 | IO45 | IO45   |
| 19 | IO16 | RTC16, IO16, U0CTS, ADC2_CH5, XTAL_32K_N         | 40 | IO46 | IO46   |
| 20 | IO17 | RTC17, IO17, U1TXD, ADC2_CH6, DAC_1              | 41 | EN   | SEE NOTE**                                     |
| 21 | IO18 | RTC18, IO18, U1RXD, ADC2_CH7, DAC_2, CLK_OUT3    | 42 | GND  | GROUND   |

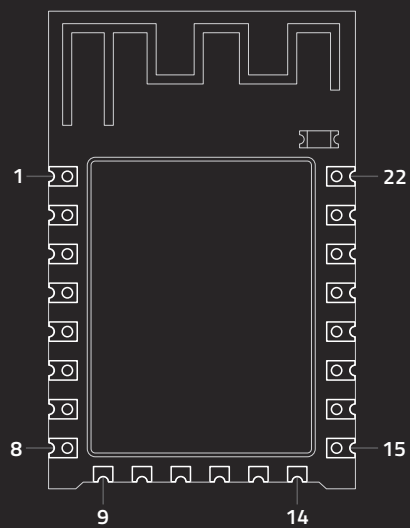
\*By default, IO26 is connected to the CS pin of the PSRAM and cannot be used for other functions

\*\*High: on, enables the chip. Low: off, the chip powers off. Note: Do not leave the EN pin floating.

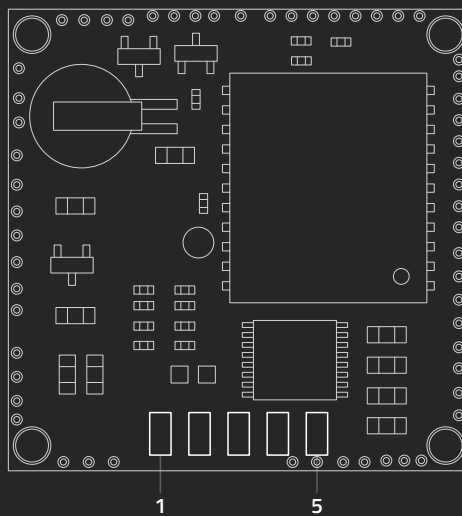


| #  | NAME      | NOTES   | #  | NAME     | NOTES  |
|----|-----------|---|----|----------|--|
| 1  | GND       | GROUND  | 20 | SCK/CLK* | IO6, SD_CLK, SPICLK, HS1_CLK, U1CTS                                      |
| 2  | 3V3       | POWER (OPERATING VOLTAGE 3.0 ~ 3.6 V)                                       | 21 | SDO/SD0* | IO7, SD_DATA0, SPIQ, HS1_DATA0, U2RTS                                    |
| 3  | EN        | MODULE-ENABLE SIGNAL. ACTIVE HIGH   | 22 | SDI/SD1* | IO8, SD_DATA1, SPID, HS1_DATA1, U2CTS                                    |
| 4  | SENSOR_VP | IO36, ADC1_CH0, RTC0  | 23 | IO15     | IO15, ADC2_CH3, TOUCH3, MTDO, HSPICSO, RTC13, HS2_CMD, SD_CMD, EMAC_RXD3 |
| 5  | SENSOR_VN | IO39, ADC1_CH3, RTC3  | 24 | IO2      | IO2, ADC2_CH2, TOUCH2, RTC12, HSPiWP, HS2_DATA0, SD_DATA0                |
| 6  | IO34      | IO34, ADC1_CH6, RTC4  | 25 | IO0      | IO0, ADC2_CH1, TOUCH1, RTC11, CLK_OUT1, EMAC_TX_CLK                      |
| 7  | IO35      | IO35, ADC1_CH7, RTC5  | 26 | IO4      | IO4, ADC2_CH0, TOUCH0, RTC10, HSPiHD, HS2_DATA1, SD_DATA1, EMAC_TX_ER    |
| 8  | IO32      | IO32, XTAL_32K_P, ADC1_CH4, TOUCH9, RTC9                                    | 27 | IO16     | IO16, HS1_DATA4, U2RXD, EMAC_CLK_OUT                                     |
| 9  | IO33      | IO33, XTAL_32K_N, ADC1_CH5, TOUCH8, RTC8                                    | 28 | IO17     | IO17, HS1_DATA5, U2TXD, EMAC_CLK_OUT_180                                 |
| 10 | IO25      | IO25, DAC_1, ADC2_CH8, RTC6, EMAC_RXD0                                      | 29 | IO5      | IO5, VSPICSO, HS1_DATA6, EMAC_RX_CLK                                     |
| 11 | IO26      | IO26, DAC_2, ADC2_CH9, RTC7, EMAC_RXD1                                      | 30 | IO18     | IO18, VSPICLK, HS1_DATA7   |
| 12 | IO27      | IO27, ADC2_CH7, TOUCH7, RTC17, EMAC_RX_DV                                   | 31 | IO19     | IO19, VSPIQ, U0CTS, EMAC_TXD0  |
| 13 | IO14      | IO14, ADC2_CH6, TOUCH6, RTC16, MTMS, HSPICLK, HS2_CLK, SD_CLK, EMAC_TXD2    | 32 | NC       | -  |
| 14 | IO12      | IO12, ADC2_CH5, TOUCH5, RTC15, MTDI, HSPiQ, HS2_DATA2, SD_DATA2, EMAC_TXD3  | 33 | IO21     | IO21, VSPIHD, EMAC_TX_EN   |
| 15 | GND       | GROUND  | 34 | RXD0     | IO3, U0RXD, CLK_OUT2   |
| 16 | IO13      | IO13, ADC2_CH4, TOUCH4, RTC14, MTCK, HSPID, HS2_DATA3, SD_DATA3, EMAC_RX_ER | 35 | TXD0     | IO1, U0TXD, CLK_OUT3, EMAC_RXD2  |
| 17 | SHD/SD2*  | IO9, SD_DATA2, SPiHD, HS1_DATA2, U1RXD                                      | 36 | IO22     | IO22, VSPiWP, U0RTS, EMAC_TXD1   |
| 18 | SWP/SD3*  | IO10, SD_DATA3, SPiWP, HS1_DATA3, U1TXD                                     | 37 | IO23     | IO23, VSPID, HS1_STROBE  |
| 19 | SCS/CMD*  | IO11, SD_CMD, SPICSO, HS1_CMD, U1RTS  | 38 | GND      | GROUND   |

\* Pins SCK/CLK, SDO/SD0, SDI/SD1, SHD/SD2, SWP/SD3 and SCS/CMD, namely, GPIO6 to GPIO11 are connected to the integrated SPI flash integrated on the module and are not recommended for other uses.

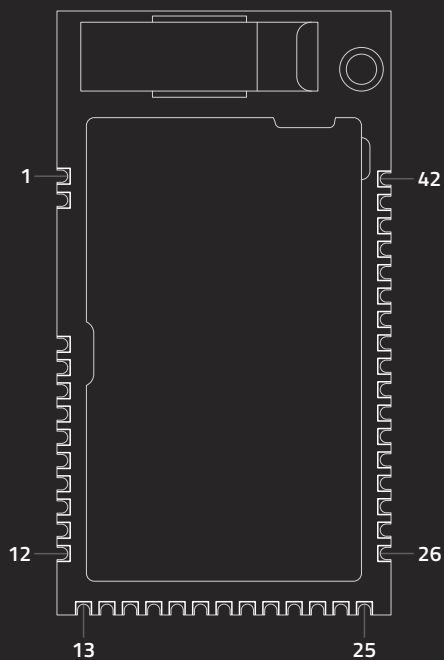


| #  | NAME | NOTES   |
|----|------|---|
| 1  | RST  | EXTERNAL RESET SIGNAL (LOW VOLTAGE LEVEL: ACTIVE)                   |
| 2  | ADC  | ANALOG-TO-DIGITAL CONVERTER   |
| 3  | EN   | CHIP ENABLE. HIGH: ON, CHIP WORKS PROPERLY; LOW: OFF, SMALL CURRENT |
| 4  | IO16 | GPIO16; DEEP-SLEEP WAKEUP   |
| 5  | IO14 | GPIO14; HSPI_CLK  |
| 6  | IO12 | GPIO12; HSPI_MISO   |
| 7  | IO13 | GPIO13; HSPI_MOSI; UART0_CTS  |
| 8  | VCC  | POWER SUPPLY 3.0 ~3.6V  |
| 9  | CS0  | GPIO11; CONNECT TO SD_CMD (SERIES R: 200Ω); SPI_CS0                 |
| 10 | MISO | GPIO7; CONNECT TO SD_D0 (SERIES R: 200Ω); SPI_MSIO                  |
| 11 | IO9  | GPIO9; CONNECT TO SD_D2 (SERIES R: 200Ω); SPIHD; HSPiHD             |
| 12 | IO10 | GPIO10; CONNECT TO SD_D3 (SERIES R: 200Ω); SPIWP; HSPiWP            |
| 13 | MOSI | GPIO8; CONNECT TO SD_D1 (SERIES R: 200Ω); SPI_MOSI                  |
| 14 | SCLK | GPIO6; CONNECT TO SD_CLK (SERIES R: 200Ω); SPI_CLK                  |
| 15 | GND  | GROUND  |
| 16 | IO15 | GPIO15; HSPI_CS; UART0_RTS  |
| 17 | IO2  | GPIO2; UART TX DURING FLASH PROGRAMMING                             |
| 18 | IO0  | GPIO0; SPI_CS2  |
| 19 | IO4  | GPIO4   |
| 20 | IO5  | GPIO5   |
| 21 | RXD0 | GPIO3; UART RX DURING FLASH PROGRAMMING                             |
| 22 | TXD0 | GPIO1; UART TX DURING FLASH PROGRAMMING; SPI_CS1                    |

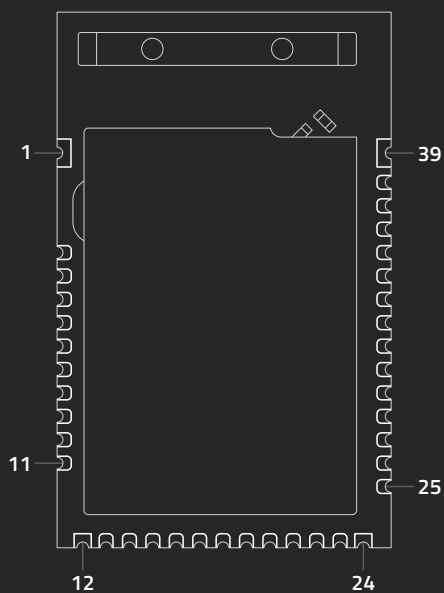


| # | NAME | NOTES                     |
|---|------|---------------------------|
| 1 | VCC  | POWER INPUT (4V ~ 6V)     |
| 2 | RX   | DATA INPUT (RS232 LEVEL)  |
| 3 | TX   | DATA OUTPUT (RS232 LEVEL) |
| 4 | GND  | GROUND                    |
| 5 | GND  | GROUND                    |

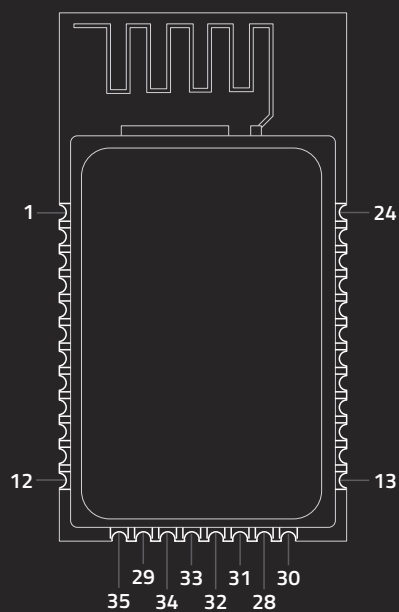




| #  | NAME  | NOTES   | #  | NAME  | NOTES   |
|----|-------|---|----|-------|---|
| 1  | GND   | GROUND  | 22 | P0.05 | GENERAL-PURPOSE DIGITAL I/O; ADC INPUT 6                        |
| 2  | GND   | GROUND  | 23 | P0.06 | GENERAL-PURPOSE DIGITAL I/O; ADC INPUT 7                        |
| 3  | AVDD  | ANALOG POWER SUPPLY   | 24 | P0.07 | GENERAL-PURPOSE DIGITAL I/O                                     |
| 4  | P0.21 | GENERAL-PURPOSE DIGITAL I/O   | 25 | GND   | GROUND  |
| 5  | P0.22 |   | 26 | P0.08 |   |
| 6  | P0.23 |   | 27 | P0.09 |   |
| 7  | P0.24 |   | 28 | P0.10 |   |
| 8  | P0.25 |   | 29 | P0.11 |   |
| 9  | XL2   | CONNECTOR FOR 32.768KHZ CRYSTAL; ADC INPUT 0<br>GENERAL-PURPOSE DIGITAL I/O (P0.27) | 30 | P0.12 |   |
| 10 | XL1   | CONNECTOR FOR 32.768KHZ CRYSTAL; ADC INPUT 1<br>GENERAL-PURPOSE DIGITAL I/O (P0.27) | 31 | P0.13 |   |
| 11 | P0.28 | GENERAL-PURPOSE DIGITAL I/O   | 32 | P0.14 |   |
| 12 | P0.29 |   | 33 | P0.15 |   |
| 13 | GND   | GROUND  | 34 | P0.16 |   |
| 14 | VDD   | POWER SUPPLY  | 35 | SWDIO | SYSTEM RESET(ACTIVE LOW).ALSO HW DEBUG AND<br>FLASH PROGRAMMING |
| 15 | DCC   | DC/DC OUTPUT VOLTAGE TO EXTERNAL LC FILTER  | 36 | SWCLK | HW DEBUG AND FLASH PROGRAMMING                                  |
| 16 | P0.30 | GENERAL-PURPOSE DIGITAL I/O   | 37 | P0.17 | GENERAL-PURPOSE DIGITAL I/O                                     |
| 17 | P0.00 | GENERAL-PURPOSE DIGITAL I/O; ADC REF VOLTAGE  | 38 | P0.18 |   |
| 18 | P0.01 | GENERAL-PURPOSE DIGITAL I/O; ADC INPUT 2  | 39 | P0.19 |   |
| 19 | P0.02 | GENERAL-PURPOSE DIGITAL I/O; ADC INPUT 3  | 40 | P0.20 |   |
| 20 | P0.03 | GENERAL-PURPOSE DIGITAL I/O; ADC INPUT 4  | 41 | DEC2  | POWER SUPPLY DECOUPLING   |
| 21 | P0.04 | GENERAL-PURPOSE DIGITAL I/O; ADC INPUT 5  | 42 | GND   | GROUND  |

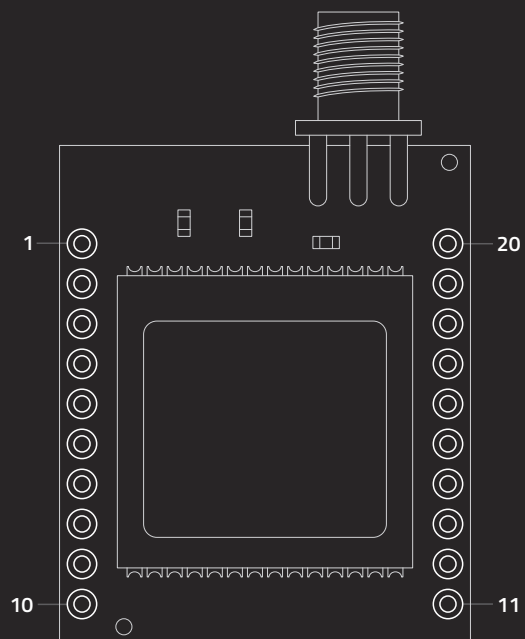


| #  | NAME      | NOTES   | #  | NAME      | NOTES  |
|----|-----------|---|----|-----------|--|
| 1  | GND       | GROUND  | 21 | P0.08     | GENERAL-PURPOSE DIGITAL I/O                            |
| 2  | P0.25     | GENERAL-PURPOSE DIGITAL I/O   | 22 | P0.09     | GENERAL-PURPOSE DIGITAL I/O<br>NFC ANTENNA CONNECTION  |
| 3  | P0.26     | GENERAL-PURPOSE DIGITAL I/O   | 23 | P0.10     |  |
| 4  | P0.27     | GENERAL-PURPOSE DIGITAL I/O   | 24 | GND       | GROUND   |
| 5  | P0.28     | GENERAL-PURPOSE DIGITAL I/O<br>SAADC/COMP/LPCOMP INPUT                              | 25 | P0.11     | GENERAL-PURPOSE DIGITAL I/O                            |
| 6  | P0.29     |   | 26 | P0.12     |  |
| 7  | P0.30     |   | 27 | P0.13     |  |
| 8  | P0.31     |   | 28 | P0.14     | GENERAL-PURPOSE DIGITAL I/O<br>TRACE PORT OUTPUT       |
| 9  | DEC4      | 1V3 REGULATOR SUPPLY DECOUPLING. INPUT<br>FROM DC/DC CONVERTER. OUTPUT FROM 1V3 LDO | 29 | P0.15     |  |
| 10 | DCC       | DC/DC CONVERTER OUTPUT PIN  | 30 | P0.16     |  |
| 11 | VDD       | POWER-SUPPLY PIN  | 31 | P0.17     | GENERAL-PURPOSE DIGITAL I/O                            |
| 12 | GND       | GROUND  | 32 | P0.18     | GENERAL-PURPOSE DIGITAL I/O<br>TRACE PORT OUTPUT       |
| 13 | P0.00/XL1 | GENERAL-PURPOSE DIGITAL I/O<br>CONNECTION TO 32.768KHZ CRYSTAL (LFXO)               | 33 | P0.19     | GENERAL-PURPOSE DIGITAL I/O                            |
| 14 | P0.01/XL2 |   | 34 | P0.20     | GENERAL-PURPOSE DIGITAL I/O<br>TRACE PORT CLOCK OUTPUT |
| 15 | P0.02     | GENERAL-PURPOSE DIGITAL I/O<br>SAADC/COMP/LPCOMP INPUT                              | 35 | P0.21/RST | GENERAL-PURPOSE DIGITAL I/O; RESET PIN                 |
| 16 | P0.03     |   | 36 | SWDCLK    | SERIAL WIRE DEBUG CLOCK INPUT                          |
| 17 | P0.04     |   | 37 | SWDIO     | SERIAL WIRE DEBUG I/O                                  |
| 18 | P0.05     |   | 38 | P0.22     | GENERAL-PURPOSE DIGITAL I/O                            |
| 19 | P0.06     | GENERAL-PURPOSE DIGITAL I/O   | 39 | GND       | GROUND   |
| 20 | P0.07     | GENERAL-PURPOSE DIGITAL I/O   |    |           |  |



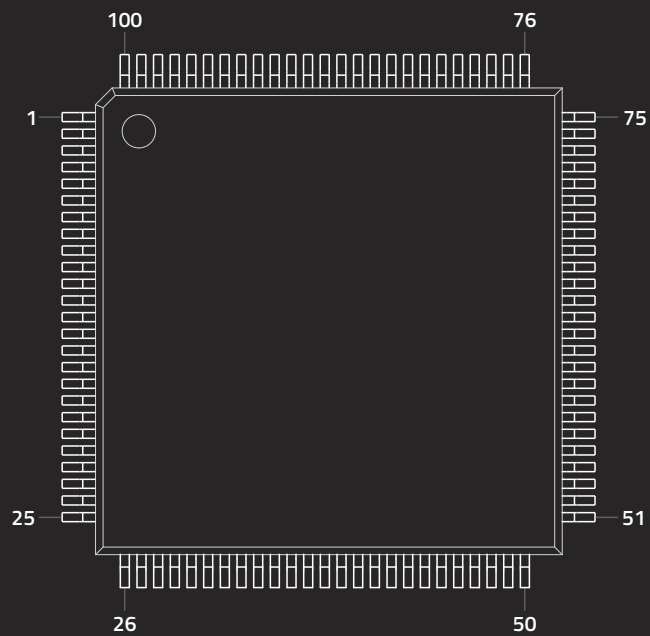
| #  | NAME       | NOTES                                       | #  | NAME     | NOTES                                  |
|----|------------|---|----|----------|--|
| 1  | GND        | GROUND                                      | 19 | PIO2**   | STATUS, HIGH WHEN CONNECTED, ELSE LOW  |
| 2  | SPI_MOSI*  | PROGRAMMING ONLY                            | 20 | PIO3**   | AUTO DISCOVERY = HIGH                  |
| 3  | PIO6**     | SET BT MASTER (HIGH=AUTO-MASTER MODE)       | 21 | PIO5**   | STATUS, BASED ON STATE, LOW ON CONNECT |
| 4  | PIO7**     | SET BAUD (HIGH = FORCE 9600, LOW = 115K)    | 22 | PIO4**   | SET FACTORY DEFAULTS                   |
| 5  | RESET      | ACTIVE LOW RESET                            | 23 | SPI_CSB  | PROGRAMMING ONLY                       |
| 6  | SPI_CLK    | PROGRAMMING ONLY                            | 24 | SPI_MISO | PROGRAMMING ONLY                       |
| 7  | PCM_CLK    | PCM INTERFACE                               | 25 | GND      | GROUND FOR RN42-N                      |
| 8  | PCM_SYNC   | PCM INTERFACE                               | 26 | RF PAD   | RF PAD FOR RN42-N                      |
| 9  | PCM_IN     | PCM INTERFACE                               | 27 | GND      | GROUND FOR RN42-N                      |
| 10 | PCM_OUT    | PCM INTERFACE                               | 28 | GND      | GROUND                                 |
| 11 | VDD        | 3.3V REGULATED POWER INPUT                  | 29 | GND      | GROUND                                 |
| 12 | GND        | GND   | 30 | AIO0     | OPTIONAL ANALOG INPUT                  |
| 13 | UART_RX**  | UART RECEIVE INPUT                          | 31 | PIO8**   | STATUS (RF DATA RX/TX)                 |
| 14 | UART_TX**  | UART TRANSMIT OUTPUT                        | 32 | PIO9**   | IO                                     |
| 15 | UART_RTS** | UART RTS, GOES HIGH TO DISABLE HOST TX      | 33 | PIO10**  | IO (REMOTE DTR SIGNAL)                 |
| 16 | UART_CTS** | UART CTS, IF SET HIGH, DISABLES TRANSMITTER | 34 | PIO11**  | IO (REMOTE RTS SIGNAL)                 |
| 17 | USB_D+**   | USB PORT                                    | 35 | AIO1     | OPTIONAL ANALOG INPUT                  |
| 18 | USB_D-**   | USB PORT                                    |    |          |  |

\*Pin Voltage: 3V \*\*Pin Voltage: 0V-3.3V

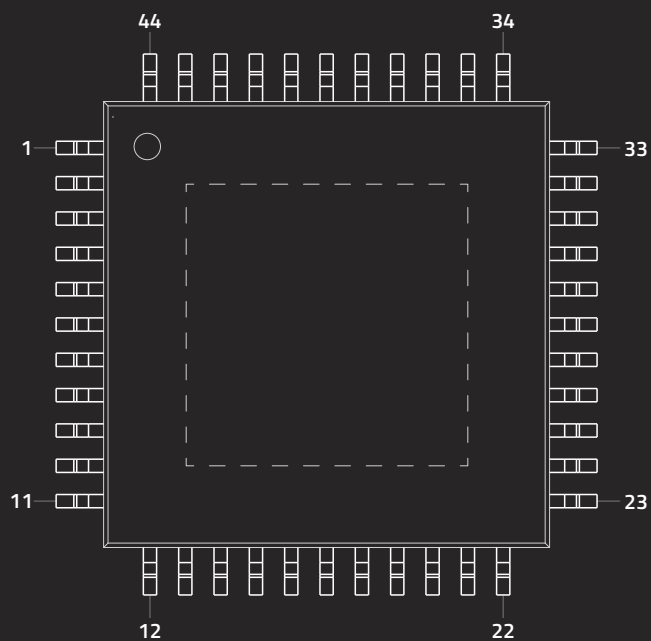


| #  | NAME  | NOTES  |
|----|-------|--|
| 1  | LNA   | LNA ENABLE. CAN BE USED WITH ACTIVE ANTENNAS ONLY. ACTIVE LOW LOGIC LEVEL SIGNAL TO CONTROL EXTERNAL LNA |
| 2  | VBAT  | VOLTAGE SUPPLY FOR BACKUP BATTERY 2.7 - 3.3V   |
| 3  | OPEN  | ANTENNA OPEN. LOGIC LEVEL FROM EXTERNAL ANTENNA DETECTION CIRCUIT  |
| 4  | SHORT | ANTENNA SHORT. LOGIC LEVEL FROM EXTERNAL ANTENNA DETECTION CIRCUIT                                       |
| 5  | R1    | RESERVED. DO NOT CONNECT   |
| 6  | R2    | RESERVED. DO NOT CONNECT   |
| 7  | XRST  | ACTIVE LOW LOGIC LEVEL RESET. DO NOT CONNECT IF NOT USED   |
| 8  | VCC   | MODULE POWER SUPPLY 2.7 - 3.3 VDC  |
| 9  | GND   | SIGNAL GROUND. CONNECT TO COMMON GROUND  |
| 10 | XSTBY | SELECTS "RUN" OR "STANDBY" MODE. CONNECT TO VCC IF NOT USED (RUN ONLY)                                   |
| 11 | R3    | RESERVED. DO NOT CONNECT   |
| 12 | R4    | RESERVED. DO NOT CONNECT   |
| 13 | PPS   | PULSE PER SECOND. LOGIC LEVEL TIMING SIGNAL AT 1 HZ. DO NOT CONNECT IF NOT USED                          |
| 14 | RX-B  | LOGIC LEVEL SECONDARY SERIAL PORT RECEIVE  |
| 15 | RX-A  | LOGIC LEVEL PRIMARY SERIAL PORT RECEIVE  |
| 16 | R5    | RESERVED. DO NOT CONNECT   |
| 17 | TX-A  | LOGIC LEVEL PRIMARY SERIAL PORT TRANSMIT   |
| 18 | TX-B  | LOGIC LEVEL SECONDARY SERIAL PORT TRANSMIT   |
| 19 | R6    | RESERVED. DO NOT CONNECT   |
| 20 | R7    | RESERVED. DO NOT CONNECT   |



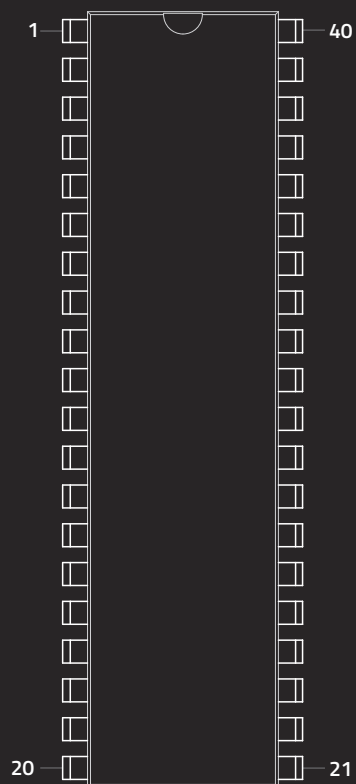


| #  | NAME                 | #  | NAME                   | #  | NAME               | #   | NAME                |
|----|----------------------|----|------------------------|----|--------------------|-----|---------------------|
| 1  | PG5 (OC0B)           | 26 | PB7 (OC0A/OC1C/PCINT7) | 51 | PG0 (WR)           | 76  | PA2 (AD2)           |
| 2  | PE0 (RXD0/PCINT8)    | 27 | PH7 (T4)               | 52 | PG1 (RD)           | 77  | PA1 (AD1)           |
| 3  | PE1 (TXD0)           | 28 | PG3 (TOSC2)            | 53 | PC0 (A8)           | 78  | PA0 (AD0)           |
| 4  | PE2 (XCK0/AIN0)      | 29 | PG4 (TOSC1)            | 54 | PC1 (A9)           | 79  | PJ7                 |
| 5  | PE3 (OC3A/AIN1)      | 30 | RESET                  | 55 | PC2 (A10)          | 80  | VCC (4.5V-5.5V)     |
| 6  | PE4 (OC3B/INT4)      | 31 | VCC (4.5V-5.5V)        | 56 | PC3 (A11)          | 81  | GND                 |
| 7  | PE5 (OC3C/INT5)      | 32 | GND                    | 57 | PC4 (A12)          | 82  | PK7 (ADC15/PCINT23) |
| 8  | PE6 (T3/INT6)        | 33 | XTAL2                  | 58 | PC5 (A13)          | 83  | PK6 (ADC14/PCINT22) |
| 9  | PE7 (CLK0/ICP3/INT7) | 34 | XTAL1                  | 59 | PC6 (A14)          | 84  | PK5 (ADC13/PCINT21) |
| 10 | VCC (4.5V-5.5V)      | 35 | PL0 (ICP4)             | 60 | PC7 (A15)          | 85  | PK4 (ADC12/PCINT20) |
| 11 | GND                  | 36 | PL1 (ICP5)             | 61 | VCC (4.5V-5.5V)    | 86  | PK3 (ADC11/PCINT19) |
| 12 | PH0 (RXD2)           | 37 | PL2 (T5)               | 62 | GND                | 87  | PK2 (ADC10/PCINT18) |
| 13 | PH1 (TXD2)           | 38 | PL3 (OC5A)             | 63 | PJ0 (RXD3/PCINT9)  | 88  | PK1 (ADC9/PCINT17)  |
| 14 | PH2 (XCK2)           | 39 | PL4 (OC5B)             | 64 | PJ1 (TXD3/PCINT10) | 89  | PK0 (ADC8/PCINT16)  |
| 15 | PH3 (OC4A)           | 40 | PL5 (OC5C)             | 65 | PJ2 (XCK3/PCINT11) | 90  | PF7 (ADC7/TDI)      |
| 16 | PH4 (OC4B)           | 41 | PL6                    | 66 | PJ3 (PCINT12)      | 91  | PF6 (ADC6/TDO)      |
| 17 | PH5 (OC4C)           | 42 | PL7                    | 67 | PJ4 (PCINT13)      | 92  | PF5 (ADC5/TMS)      |
| 18 | PH6 (OC2B)           | 43 | PD0 (SCL/INT0)         | 68 | PJ5 (PCINT14)      | 93  | PF4 (ADC4/TCK)      |
| 19 | PB0 (SS/PCINT0)      | 44 | PD1 (SDA/INT1)         | 69 | PJ6 (PCINT15)      | 94  | PF3 (ADC3)          |
| 20 | PB1 (SCK/PCINT1)     | 45 | PD2 (RXD1/INT2)        | 70 | PG2 (ALE)          | 95  | PF2 (ADC2)          |
| 21 | PB2 (MOSI/PCINT2)    | 46 | PD3 (TXD1/INT3)        | 71 | PA7 (AD7)          | 96  | PF1 (ADC1)          |
| 22 | PB3 (MISO/PCINT3)    | 47 | PD4 (ICP1)             | 72 | PA6 (AD6)          | 97  | PFO (ADC0)          |
| 23 | PB4 (OC2A/PCINT4)    | 48 | PD5 (XCK1)             | 73 | PA5 (AD5)          | 98  | AREF                |
| 24 | PB5 (OC1A/PCINT5)    | 49 | PD6 (T1)               | 74 | PA4 (AD4)          | 99  | GND                 |
| 25 | PB6 (OC1B/PCINT6)    | 50 | PD7 (T0)               | 75 | PA3 (AD3)          | 100 | AVCC                |



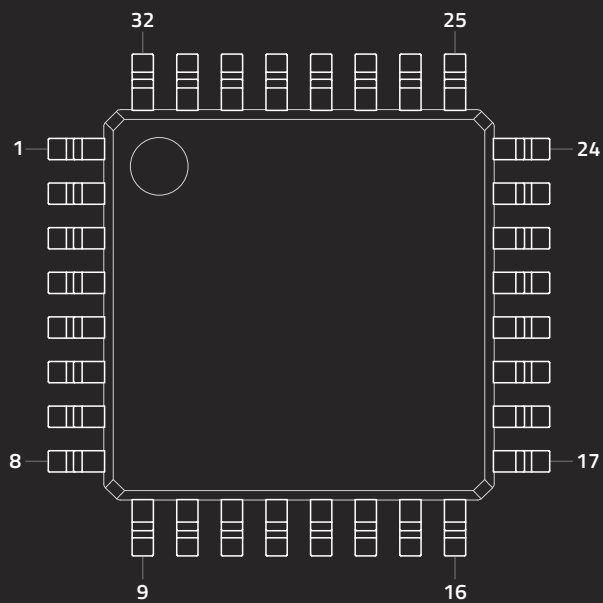
| #  | NAME       | NOTES  | #  | NAME            | NOTES  |
|----|------------|--|----|-----------------|--|
| 1  | PB5 (MOSI) | PORT B. AN 8-BIT I/O PORT WITH INTERNAL PULL-UP RESISTORS                                    | 23 | PC4 (TDO)       | PORT C. 8-BIT I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES JTAG INTERFACE FUNCTIONS |
| 2  | PB6 (MISO) |  | 24 | PC5 (TDI)       |  |
| 3  | PB7 (SCK)  |  | 25 | PC6 (TOSC1)     |  |
| 4  | RESET      | RESET INPUT  | 26 | PC7 (TOSC2)     |  |
| 5  | VCC        | SUPPLY VOLTAGE (4.5V-5.5V)   | 27 | AVCC            | SUPPLY VOLTAGE FOR PORT A*   |
| 6  | GND        | GROUND   | 28 | GND             | GROUND   |
| 7  | XTAL2      | OSCILLATOR INPUT   | 29 | AREF            | ANALOG REFERENCE PIN   |
| 8  | XTAL1      | OSCILLATOR OUTPUT  | 30 | PA7 (ADC7)      | PORT A. SERVES AS ANALOG INPUT TO A/D CONVERTER.<br><br>ALSO 8-BIT I/O PORT                  |
| 9  | PD0 (RXD)  | PORT D. 8-BIT I/O PORT WITH INTERNAL PULL-UP RESISTORS                                       | 31 | PA6 (ADC6)      |  |
| 10 | PD1 (TXD)  |  | 32 | PA5 (ADC5)      |  |
| 11 | PD2 (INT0) |  | 33 | PA4 (ADC4)      |  |
| 12 | PD3 (INT1) |  | 34 | PA3 (ADC3)      |  |
| 13 | PD4 (OC1B) |  | 35 | PA2 (ADC2)      |  |
| 14 | PD5 (OC1A) |  | 36 | PA1 (ADC1)      |  |
| 15 | PD6 (ICP1) |  | 37 | PA0 (ADC0)      |  |
| 16 | PD7 (OC2)  |  | 38 | VCC             | SUPPLY VOLTAGE (4.5V-5.5V)   |
| 17 | VCC        | SUPPLY VOLTAGE (4.5V-5.5V)   | 39 | GND             | GROUND   |
| 18 | GND        | GROUND   | 40 | PB0 (XCK/T0)    | PORT B. AN 8-BIT I/O PORT WITH INTERNAL PULL-UP RESISTORS                                    |
| 19 | PC0 (SCL)  | PORT C. 8-BIT I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES JTAG INTERFACE FUNCTIONS | 41 | PB1 (T1)        |  |
| 20 | PC1 (SDA)  |  | 42 | PB2 (AIN0/INT2) |  |
| 21 | PC2 (TCK)  |  | 43 | PB3 (AIN1/OC0)  |  |
| 22 | PC3 (TMS)  |  | 44 | PB4 (SS)        |  |

\* Also supply voltage for A/D Converter. Should be externally connected to VCC even if the ADC is not used. If the ADC is used, it should be connected to VCC through a low-pass filter.



| #  | NAME            | NOTES   | #  | NAME        | NOTES  |
|----|-----------------|---|----|-------------|--|
| 1  | PB0 (XCK/T0)    | PORT B. AN 8-BIT I/O PORT WITH INTERNAL PULL-UP RESISTORS   | 21 | PD7 (OC2)   | PORT C. 8-BIT I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES JTAG INTERFACE FUNCTIONS |
| 2  | PB1 (T1)        |   | 22 | PC0 (SCL)   |  |
| 3  | PB2 (INT2/AIN0) |   | 23 | PC1 (SDA)   |  |
| 4  | PB3 (OCO/AIN1)  |   | 24 | PC2 (TCK)   |  |
| 5  | PB4 (SS)        |   | 25 | PC3 (TMS)   |  |
| 6  | PB5 (MOSI)      |   | 26 | PC4 (TDO)   |  |
| 7  | PB6 (MISO)      |   | 27 | PC5 (TDI)   |  |
| 8  | PB7 (SCK)       |   | 28 | PC6 (TOSC1) |  |
| 9  | RESET           | RESET INPUT   | 29 | PC7 (TOSC2) | SUPPLY VOLTAGE FOR PORT A*   |
| 10 | VCC             | SUPPLY VOLTAGE (4.5V-5.5V)  | 30 | AVCC        |  |
| 11 | GND             | GROUND  | 31 | GND         | GROUND   |
| 12 | XTAL2           | OSCILLATOR OUTPUT   | 32 | AREF        | ANALOG REFERENCE PIN   |
| 13 | XTAL1           | OSCILLATOR INPUT  | 33 | PA7 (ADC7)  | PORT A. SERVES AS ANALOG INPUT TO A/D CONVERTER.<br><br>ALSO 8-BIT I/O PORT                  |
| 14 | PD0 (RXD)       | PORT D. AN 8-BIT I/O PORT WITH INTERNAL PULL-UP RESISTORS<br><br>ALSO SERVES FUNCTIONS OF VARIOUS SPECIAL ATMEGA32 FEATURES | 34 | PA6 (ADC6)  |  |
| 15 | PD1 (TXD)       |   | 35 | PA5 (ADC5)  |  |
| 16 | PD2 (INT0)      |   | 36 | PA4 (ADC4)  |  |
| 17 | PD3 (INT1)      |   | 37 | PA3 (ADC3)  |  |
| 18 | PD4 (OC1B)      |   | 38 | PA2 (ADC2)  |  |
| 19 | PD5 (OC1A)      |   | 39 | PA1 (ADC1)  |  |
| 20 | PD6 (ICP1)      |   | 40 | PA0 (ADC0)  |  |

\* Also supply voltage for A/D Converter. Should be externally connected to VCC even if the ADC is not used. If the ADC is used, it should be connected to VCC through a low-pass filter.



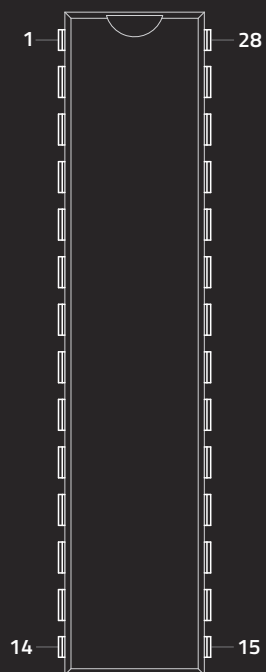
| #  | NAME                     | NOTES                      | #  | NAME                   | NOTES                |
|----|--------------------------|----------------------------|----|------------------------|----------------------|
| 1  | PD3 (PCINT19/OC2B/INT1)  | SEE NOTE 1                 | 17 | PB5 (SCK/PCINT5)       | SEE NOTE 1           |
| 2  | PD4 (PCINT20/XCK/T0)     | SEE NOTE 1                 | 18 | AVCC                   | SEE NOTE 3           |
| 3  | GND                      | GROUND                     | 19 | ADC6                   | A/D CONVERTER INPUT  |
| 4  | VCC                      | VOLTAGE SUPPLY (1.8V-5.5V) | 20 | AREF                   | ANALOG REFERENCE PIN |
| 5  | GND                      | GROUND                     | 21 | GND                    | GROUND               |
| 6  | VCC                      | VOLTAGE SUPPLY (1.8V-5.5V) | 22 | ADC7                   | A/D CONVERTER INPUT  |
| 7  | PB6 (PCINT6/XTAL1/TOSC1) | SEE NOTE 1                 | 23 | PC0 (ADC0/PCINT8)      | SEE NOTE 2           |
| 8  | PB7 (PCINT7/XTAL2/TOSC2) | SEE NOTE 1                 | 24 | PC1 (ADC1/PCINT9)      | SEE NOTE 2           |
| 9  | PD5 (PCINT21/OC0B/T1)    | SEE NOTE 1                 | 25 | PC2 (ADC2/PCINT10)     | SEE NOTE 2           |
| 10 | PD6 (PCINT22/OC0A/AIN0)  | SEE NOTE 1                 | 26 | PC3 (ADC3/PCINT11)     | SEE NOTE 2           |
| 11 | PD7 (PCINT23/AIN1)       | SEE NOTE 1                 | 27 | PC4 (ADC4/SDA/PCINT12) | SEE NOTE 2           |
| 12 | PB0 (PCINT0/CLKO/ICP1)   | SEE NOTE 1                 | 28 | PC5 (ADC5/SCL/PCINT13) | SEE NOTE 2           |
| 13 | PB1 (PCINT1/OC1A)        | SEE NOTE 1                 | 29 | PC6 (RESET/PCINT14)    | SEE NOTE 2           |
| 14 | PB2 (PCINT2/SS/OC1B)     | SEE NOTE 1                 | 30 | PD0 (RXD/PCINT16)      | SEE NOTE 1           |
| 15 | PB3 (PCINT3/OC2A/MOSI)   | SEE NOTE 1                 | 31 | PD1 (TXD/PCINT17)      | SEE NOTE 1           |
| 16 | PB4 (PCINT4/MISO)        | SEE NOTE 1                 | 32 | PD2 (INT0/PCINT18)     | SEE NOTE 1           |

NOTE 1: Ports B & D are 8-bit bi-directional I/O ports with internal pull-up resistors (selected for each bit). As inputs, Ports B & D pins that are externally pulled low will source current if the pull-up resistors are activated. Refer to the datasheet for alternate functions of Ports B & D.

NOTE 2: Port C is a 7-bit bi-directional I/O port with internal pull-up resistors (selected for each bit). As inputs, Port C pins that are externally pulled low will source current if the pull-up resistors are activated. Refer to the datasheet for alternate functions of Port C.

NOTE 3: AVCC is the supply voltage pin for the A/D Converter, PC3:0 and ADC7:6. It should be externally connected to VCC even if ADC is not used.



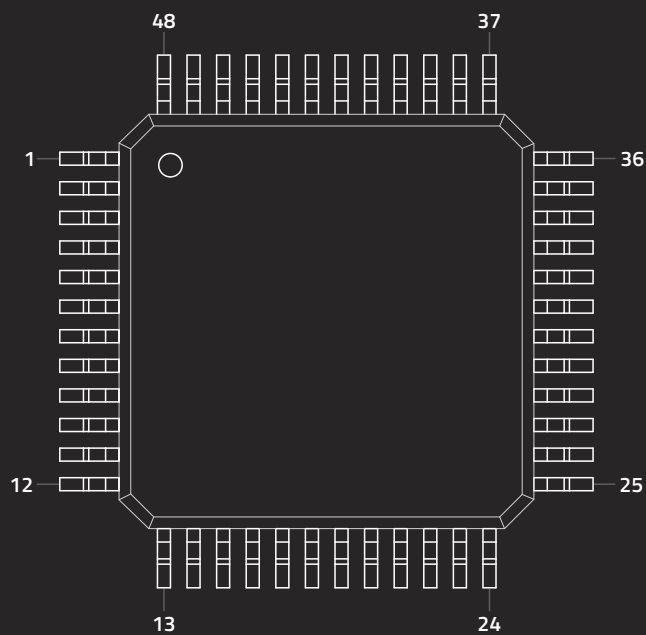


| #  | NAME                     | NOTES                     | #  | NAME                   | NOTES                |
|----|--------------------------|---------------------------|----|------------------------|----------------------|
| 1  | PC6 (PCINT14/RESET)      | SEE NOTE 2                | 15 | PB1 (OC1A/PCINT1)      | SEE NOTE 1           |
| 2  | PD0 (PCINT16/RXD)        | SEE NOTE 1                | 16 | PB2 (SS/OC1B/PCINT2)   | SEE NOTE 1           |
| 3  | PD1 (PCINT17/TXD)        | SEE NOTE 1                | 17 | PB3 (MOSI/OC2A/PCINT3) | SEE NOTE 1           |
| 4  | PD2 (PCINT18/INT0)       | SEE NOTE 1                | 18 | PB4 (MISO/PCINT4)      | SEE NOTE 1           |
| 5  | PD3 (PCINT19/OC2B/INT1)  | SEE NOTE 1                | 19 | PB5 (SCK/PCINT5)       | SEE NOTE 1           |
| 6  | PD4 (PCINT20/XCK/T0)     | SEE NOTE 1                | 20 | AVCC                   | SEE NOTE 3           |
| 7  | VCC                      | VOLTAGE SUPPLY (1.8-5.5V) | 21 | AREF                   | ANALOG REFERENCE PIN |
| 8  | GND                      | GROUND                    | 22 | GND                    | GROUND               |
| 9  | PB6 (PCINT6/XTAL1/TOSC1) | SEE NOTE 1                | 23 | PC0 (ADC0/PCINT8)      | SEE NOTE 2           |
| 10 | PB7 (PCINT7/XTAL2/TOSC2) | SEE NOTE 1                | 24 | PC1 (ADC1/PCINT9)      | SEE NOTE 2           |
| 11 | PD5 (PCINT21/OC0B/T1)    | SEE NOTE 1                | 25 | PC2 (ADC2/PCINT10)     | SEE NOTE 2           |
| 12 | PD6 (PCINT22/OC0A/AIN0)  | SEE NOTE 1                | 26 | PC3 (ADC3/PCINT11)     | SEE NOTE 2           |
| 13 | PD7 (PCINT23/AIN1)       | SEE NOTE 1                | 27 | PC4 (ADC4/SDA/PCINT12) | SEE NOTE 2           |
| 14 | PB0 (PCINT0/CLKO/ICP1)   | SEE NOTE 1                | 28 | PC5 (ADC5/SCL/PCINT13) | SEE NOTE 2           |

NOTE 1: Ports B & D are 8-bit bi-directional I/O ports with internal pull-up resistors (selected for each bit). As inputs, Ports B & D pins that are externally pulled low will source current if the pull-up resistors are activated. Refer to the datasheet for alternate functions of Ports B & D.

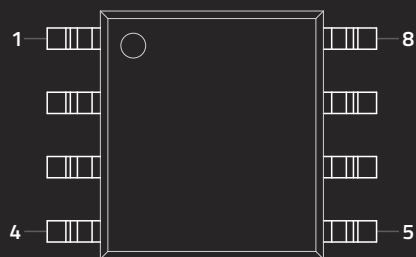
NOTE 2: Port C is a 7-bit bi-directional I/O port with internal pull-up resistors (selected for each bit). As inputs, Port C pins that are externally pulled low will source current if the pull-up resistors are activated. Refer to the datasheet for alternate functions of Port C.

NOTE 3: AVCC is the supply voltage pin for the A/D Converter, PC3:0 and ADC7:6. It should be externally connected to VCC even if ADC is not used.



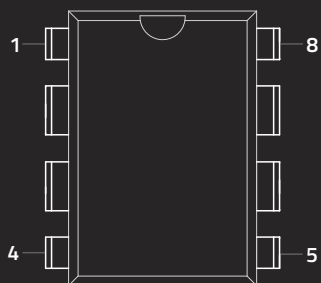
| #  | NAME   | #  | NAME  | #  | NAME  | #  | NAME    |
|----|--------|----|-------|----|-------|----|---------|
| 1  | PA00   | 13 | PA08  | 25 | PA16  | 37 | PB22    |
| 2  | PA01   | 14 | PA09  | 26 | PA17  | 38 | PB23    |
| 3  | PA02   | 15 | PA10  | 27 | PA18  | 39 | PA27    |
| 4  | PA03   | 16 | PA11  | 28 | PA19  | 40 | RESET   |
| 5  | GNDANA | 17 | VDDIO | 29 | PA20  | 41 | PA28    |
| 6  | VDDANA | 18 | GND   | 30 | PA21  | 42 | GND     |
| 7  | PB08   | 19 | PB10  | 31 | PA22  | 43 | VDDCORE |
| 8  | PB09   | 20 | PB11  | 32 | PA23  | 44 | VDDIN   |
| 9  | PA04   | 21 | PA12  | 33 | PA24  | 45 | PA30    |
| 10 | PA05   | 22 | PA13  | 34 | PA25  | 46 | PA31    |
| 11 | PA06   | 23 | PA14  | 35 | GND   | 47 | PB02    |
| 12 | PA07   | 24 | PA15  | 36 | VDDIO | 48 | PB03    |

*Operating voltage: 1.62V - 3.63V*



| # | NAME   | NOTES  |
|---|--|--|
| 1 | PB5 (PCINT5/RESET/ADC0/DW)                   | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS)* |
| 2 | PB3 (PCINT3/XTAL1/CLKI/OC1B/ADC3)            |  |
| 3 | PB4 (PCINT4/XTAL2/CLKO/OC1B/ADC2)            |  |
| 4 | GND  | GROUND   |
| 5 | PB0 (MOSI/DI/SDA/AINO/OC0A/OC1A/AREF/PCINT0) | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS)* |
| 6 | PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)          |  |
| 7 | PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)       |  |
| 8 | VCC  | SUPPLY VOLTAGE (2.7 - 5.5V)  |

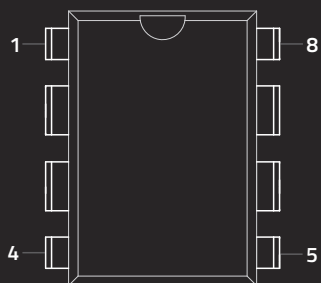
*\*On the ATtiny25, ports PB3 and PB4 are exchanged in ATtiny15 Compatibility Mode for backwards compatibility with ATtiny15.*



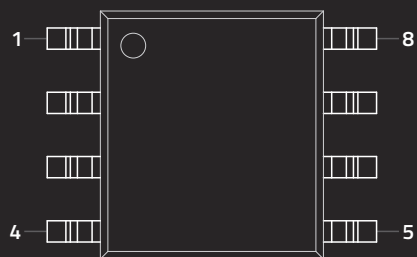
| # | NAME   | NOTES  |
|---|--|--|
| 1 | PB5 (PCINT5/RESET/ADC0/DW)                   | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS)* |
| 2 | PB3 (PCINT3/XTAL1/CLKI/OC1B/ADC3)            |  |
| 3 | PB4 (PCINT4/XTAL2/CLKO/OC1B/ADC2)            |  |
| 4 | GND  | GROUND   |
| 5 | PB0 (MOSI/DI/SDA/AINO/OC0A/OC1A/AREF/PCINT0) | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS)* |
| 6 | PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)          |  |
| 7 | PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)       |  |
| 8 | VCC  | SUPPLY VOLTAGE (2.7 - 5.5V)  |

*\*On the ATtiny25, ports PB3 and PB4 are exchanged in ATtiny15 Compatibility Mode for backwards compatibility with ATtiny15.*

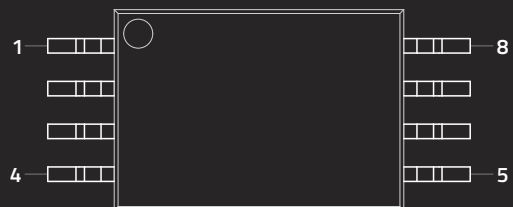




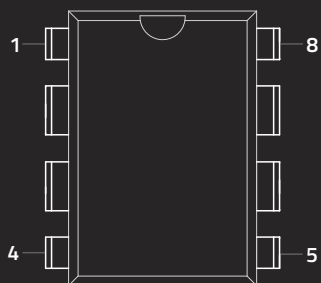
| # | NAME   | NOTES   |
|---|--|---|
| 1 | PB5 (PCINT5/RESET/ADCO/DW)                   | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 2 | PB3 (PCINT3/XTAL1/CLKI/OC1B/ADC3)            |   |
| 3 | PB4 (PCINT4/XTAL2/CLKO/OC1B/ADC2)            |   |
| 4 | GND  | GROUND  |
| 5 | PB0 (MOSI/DI/SDA/AIN0/OC0A/OC1A/AREF/PCINT0) | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 6 | PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)          |   |
| 7 | PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)       |   |
| 8 | VCC  | SUPPLY VOLTAGE (2.7 - 5.5V)   |



| # | NAME   | NOTES   |
|---|--|---|
| 1 | PB5 (PCINT5/RESET/ADCO/DW)                   | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 2 | PB3 (PCINT3/XTAL1/CLKI/OC1B/ADC3)            |   |
| 3 | PB4 (PCINT4/XTAL2/CLKO/OC1B/ADC2)            |   |
| 4 | GND  | GROUND  |
| 5 | PB0 (MOSI/DI/SDA/AINO/OC0A/OC1A/AREF/PCINT0) | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 6 | PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)          |   |
| 7 | PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)       |   |
| 8 | VCC  | SUPPLY VOLTAGE (2.7 - 5.5V)   |

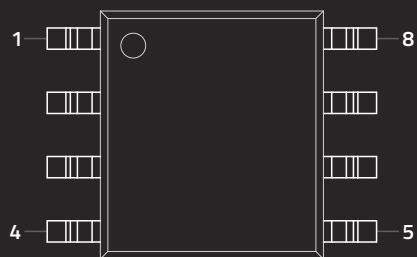


| # | NAME   | NOTES   |
|---|--|---|
| 1 | PB5 (PCINT5/RESET/ADCO/DW)                   | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 2 | PB3 (PCINT3/XTAL1/CLKI/OC1B/ADC3)            |   |
| 3 | PB4 (PCINT4/XTAL2/CLKO/OC1B/ADC2)            |   |
| 4 | GND  | GROUND  |
| 5 | PB0 (MOSI/DI/SDA/AINO/OC0A/OC1A/AREF/PCINT0) | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 6 | PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)          |   |
| 7 | PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)       |   |
| 8 | VCC  | SUPPLY VOLTAGE (2.7 - 5.5V)   |

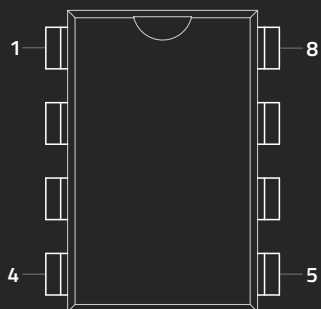


| # | NAME   | NOTES   |
|---|--|---|
| 1 | PB5 (PCINT5/RESET/ADCO/DW)                   | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 2 | PB3 (PCINT3/XTAL1/CLKI/OC1B/ADC3)            |   |
| 3 | PB4 (PCINT4/XTAL2/CLKO/OC1B/ADC2)            |   |
| 4 | GND  | GROUND  |
| 5 | PB0 (MOSI/DI/SDA/AINO/OC0A/OC1A/AREF/PCINT0) | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 6 | PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)          |   |
| 7 | PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)       |   |
| 8 | VCC  | SUPPLY VOLTAGE (2.7 - 5.5V)   |

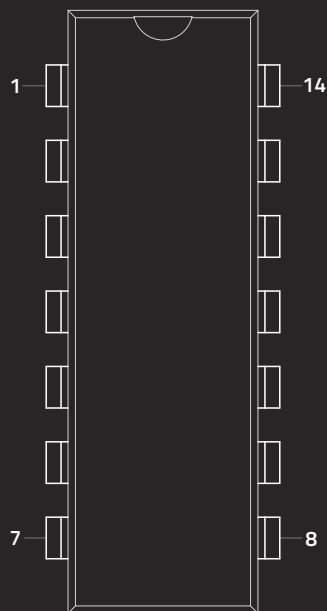




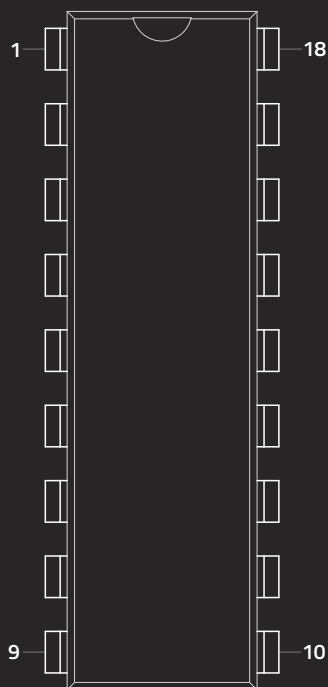
| # | NAME   | NOTES   |
|---|--|---|
| 1 | PB5 (PCINT5/RESET/ADCO/DW)                   | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 2 | PB3 (PCINT3/XTAL1/CLKI/OC1B/ADC3)            |   |
| 3 | PB4 (PCINT4/XTAL2/CLKO/OC1B/ADC2)            |   |
| 4 | GND  | GROUND  |
| 5 | PB0 (MOSI/DI/SDA/AINO/OC0A/OC1A/AREF/PCINT0) | PORT B. 6-BIT BI-DIRECTIONAL I/O PORT WITH INTERNAL PULL-UP RESISTORS. ALSO SERVES VARIOUS SPECIAL FEATURES (IN ROUND BRACKETS) |
| 6 | PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1)          |   |
| 7 | PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2)       |   |
| 8 | VCC  | SUPPLY VOLTAGE (2.7 - 5.5V)   |



| # | NAME | NOTES                                     | TYPE     |
|---|------|---|----------|
| 1 | +V   | SUPPLY VOLTAGE (4.5V OR 5V)               | -        |
| 2 | C.5  | SERIAL IN                                 | IN       |
| 3 | C.4  | TOUCH / ADC                               | IN / OUT |
| 4 | C.3  | -   | IN       |
| 5 | C.2  | ADC / TOUCH / PWM / TUNE / SRQ / HI2C SDA | IN / OUT |
| 6 | C.1  | ADC / TOUCH / HSERIN / SRI / HI2C SCL     | IN / OUT |
| 7 | C.0  | HSEROUT / DAC                             | OUT      |
| 8 | 0V   | -   | -        |



| #  | NAME | NOTES                        | TYPE     |
|----|------|------------------------------|----------|
| 1  | +V   | SUPPLY VOLTAGE (4.5V OR 5V)  | -        |
| 2  | C.5  | SERIAL IN                    | IN       |
| 3  | C.4  | TOUCH / ADC                  | IN / OUT |
| 4  | C.3  | -                            | IN       |
| 5  | C.2  | PWN / HPWN A / KB CLK        | IN / OUT |
| 6  | C.1  | HPWN B / KB DATA             | IN / OUT |
| 7  | C.0  | ADC / TOUCH / PWN / HPWN C   | IN / OUT |
| 8  | B.5  | ADC / TOUCH / HPWN D         | IN / OUT |
| 9  | B.4  | ADC / TOUCH / PWN / HI2C SDA | IN / OUT |
| 10 | B.3  | ADC / TOUCH / HI2C SCL       | IN / OUT |
| 11 | B.2  | ADC / TOUCH / PWN / SRQ      | IN / OUT |
| 12 | B.1  | ADC / TOUCH / SRI / HSERIN   | IN / OUT |
| 13 | B.0  | SERIAL OUT / HSEROUT / DAC   | OUT      |
| 14 | 0V   | -                            | -        |



| #  | NAME | NOTES                       | TYPE     |
|----|------|-----------------------------|----------|
| 1  | C.2  | ADC / TOUCH / DAC           | IN / OUT |
| 2  | C.3  | SERIAL OUT                  | OUT      |
| 3  | C.4  | SERIAL IN                   | IN       |
| 4  | C.5  | -                           | IN       |
| 5  | 0V   | -                           | -        |
| 6  | B.0  | SRI                         | IN / OUT |
| 7  | B.1  | ADC / TOUCH / I2C SDA       | IN / OUT |
| 8  | B.2  | ADC / TOUCH / HSERIN        | IN / OUT |
| 9  | B.3  | ADC / TOUCH / PWN           | IN / OUT |
| 10 | B.4  | ADC / TOUCH / I2C SCL       | IN / OUT |
| 11 | B.5  | ADC / TOUCH / PWN / HSEROUT | IN / OUT |
| 12 | B.6  | ADC / TOUCH / PWN           | IN / OUT |
| 13 | B.7  | ADC / TOUCH                 | IN / OUT |
| 14 | +V   | SUPPLY VOLTAGE (4.5V OR 5V) | -        |
| 15 | C.6  | {KB CLOCK}                  | IN / OUT |
| 16 | C.7  | {KB DATA}                   | IN / OUT |
| 17 | C.0  | ADC / TOUCH                 | IN / OUT |
| 18 | C.1  | ADC / TOUCH                 | IN / OUT |



**The Pinouts Book** was created for designers and engineers as a quick reference for remembering the functions of all the different pinouts in your electronics projects.

The book covers a range of commonly used components, such as connectors, single board computers, dev boards, microcontroller chips, modules and more.

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Happy building :)  
*NODE & Baptiste*

