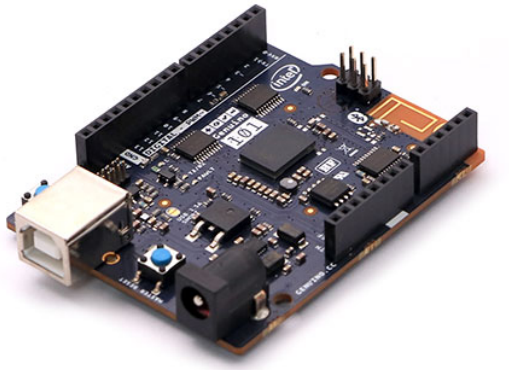
Arduino 101
User Manual



Programming:

The 101 can be programmed with the Arduino Software (IDE). Select "Arduino/Genuino 101" from the Tools > Board menu. For details, see the reference and tutorials.
The board comes preprogrammed with an RTOS that handles USB connection and allows you to upload new code without the use of an external hardware programmer. It communicates using the DFU protocol (reference).

Differences with other boards:

The 101 has some features in common with both UNO (connectors, available peripherals) and Zero (32bit microcontroller, 3.3V IO) but the low power Intel microcontroller, on-board BLE and motion sensors make it unique.

Firmware:

Your 101 board might receive an update of the firmware from time to time. The Arduino Software (IDE) will incorporate the latest Firmware and an automated update procedure from the "Burn Bootloader" menu item.
For people interested in compiling their own firmware, the source code and full details on how to use it are made available on the dedicated Intel's Download Page.

Power:

The 101 board can be powered via the USB connection or with an external power supply. The power source is selected automatically.
External (non-USB) power can come either from an AC-to-DC adapter (wall-wart) or battery. The adapter can be connected by plugging a 2.1mm center-positive plug into the board's power jack. Leads from a battery can be inserted in the GND and Vin pin headers of the POWER connector.
The power pins are as follows:

- VIN. The input voltage to the Arduino board when it's using an external power source (as opposed to 5 volts from the USB connection or other regulated power source). You can supply voltage through this pin, or if supplying voltage via the power jack, access it through this pin.
- 5V. This pin outputs a regulated 5V from the regulator on the board. The board can be supplied with power either from the DC power jack (7 - 12V), the USB connector (5V), or the VIN pin of the board (7-12V). Supplying voltage via the 5V or 3.3V pins bypasses the regulator, and can damage your board if it is not sufficiently regulated. We don't advise it.
- 3.3V. A 3.3 volt supply generated by the on-board regulator. Maximum current draw is 1500 mA. This regulator also provides power to the Curie microcontroller.
- GND. Ground pins.
- IOREF. This pin on the Arduino board provides the voltage reference with which the microcontroller operates. A properly configured shield can read the IOREF pin voltage and select the appropriate power source or enable voltage translators on the outputs for working with the 5V or 3.3V.

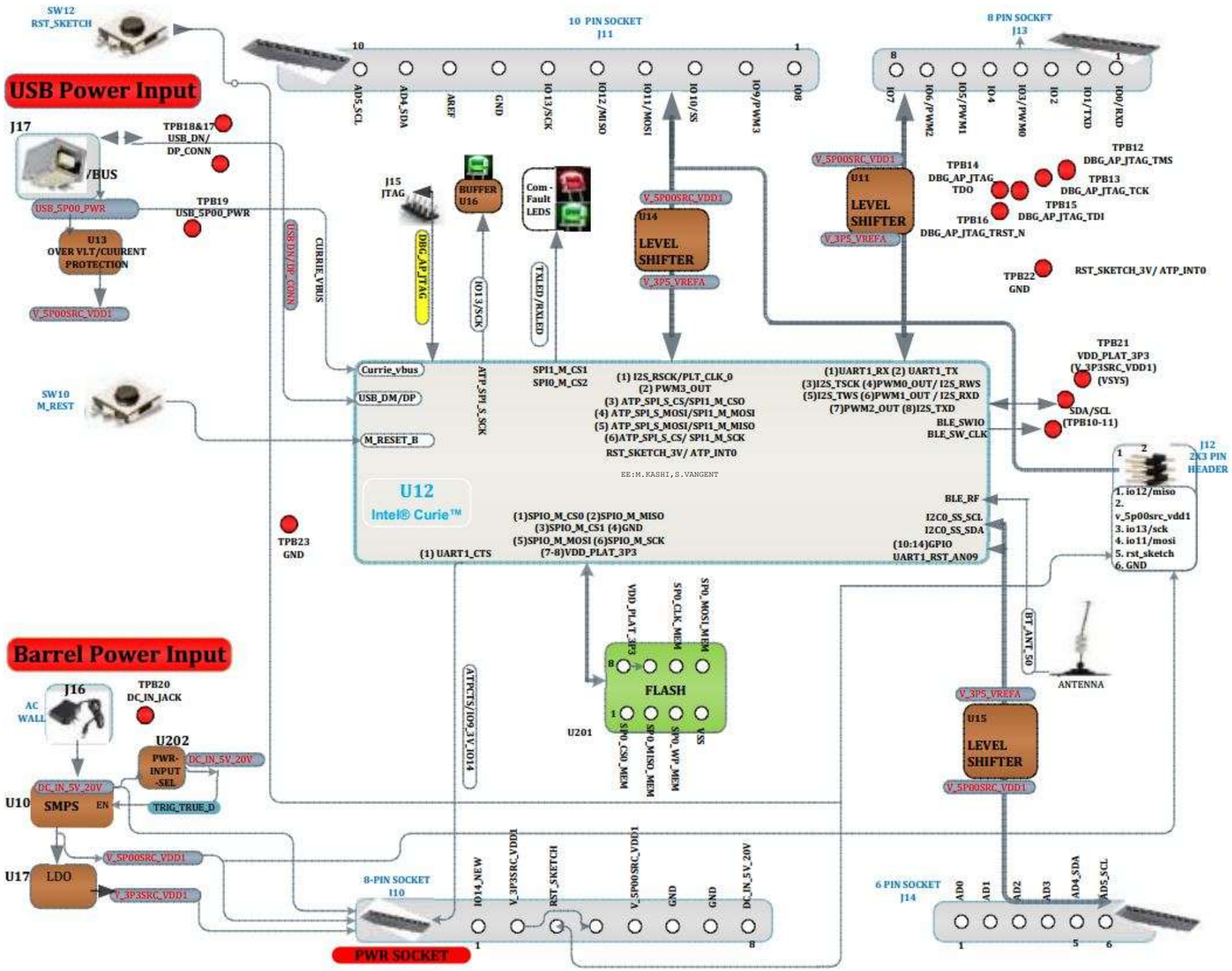
Memory:

The Intel Curie module memory is shared between the two microcontrollers, so your sketch can use 196 kB out of 384 kB (flash memory) and 24 kB out of 80 kB (SRAM)

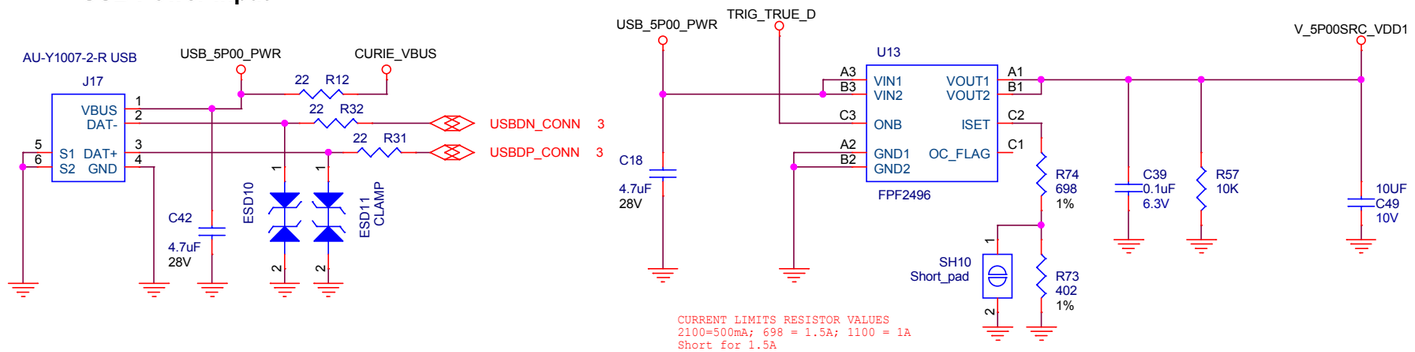
Input and Output:
Each of the 20 general purpose I/O pins on the 101 can be used for digital input or digital output using pinMode(), digitalWrite(), and digitalRead() functions. Pins that can be used for PWM output are: 3, 5, 6, 9 using analogWrite() function. All pins operate at 3.3 volts and can be used as interrupt source. See the attachInterrupt() function for details. Each pin can source or sink a maximum of 20 mA.

In addition, some pins have specialized functions:

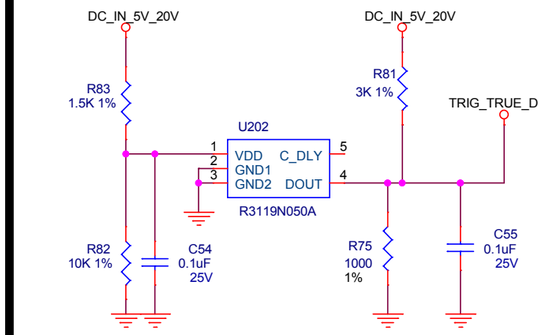
- Serial: 0 (RX) and 1 (TX). Used to receive (RX) and transmit (TX) TTL serial data. These pins are connected to the Serial1 class.
- External Interrupts on all pins. Can trigger an interrupt on a low value, high value, a rising or falling edge, or a change in value (change is only supported by pins 2, 5, 7, 8, 10, 11, 12, 13). See the attachInterrupt() function for details.
- SPI: SS, MOSI, MISO, SCK. Located on the SPI header support SPI communication using the SPI library.
- LED: 13. There is a built-in LED driven by digital pin 13. When the pin is HIGH value, the LED is on, when the pin is LOW, it's off.
- Analog Inputs. Six of the 20 general purpose I/O pins on the 101 provide analog input. These are labeled A0 through A5, and each provide 10 bits of resolution (i.e. 1024 different values). They measure from ground to 3.3 volts
- TWI: SDA pin and SCL pin. Support TWI communication using the Wire library.



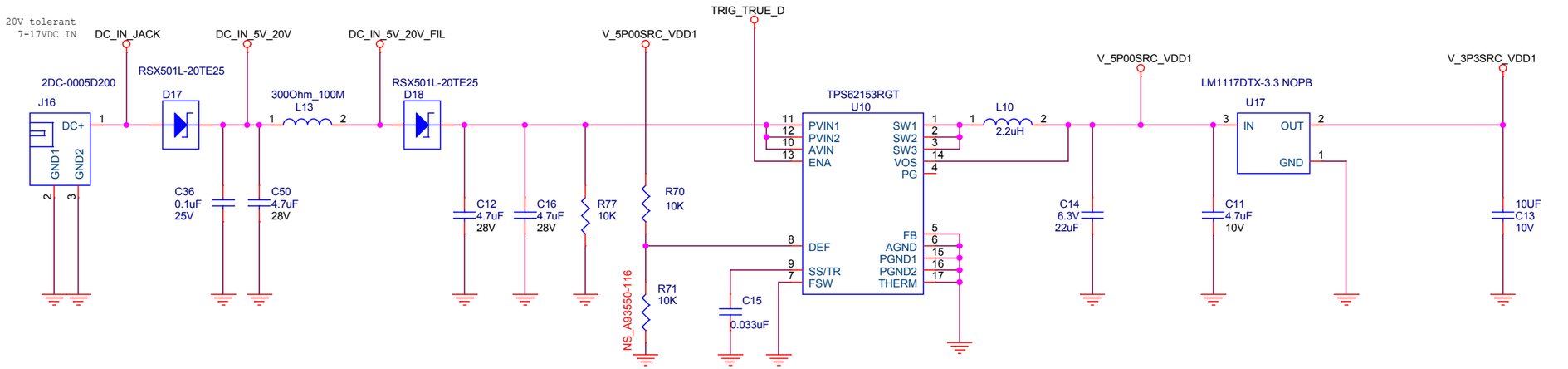
USB Power Input

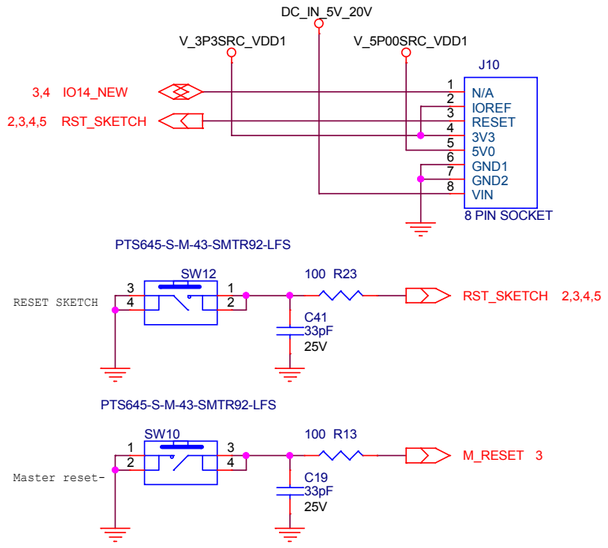


Power Input SEL

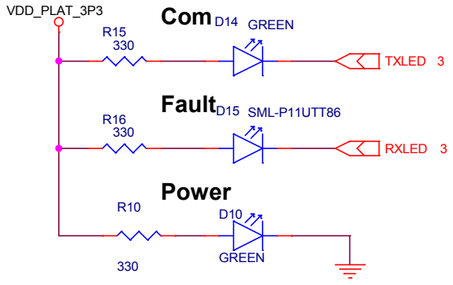


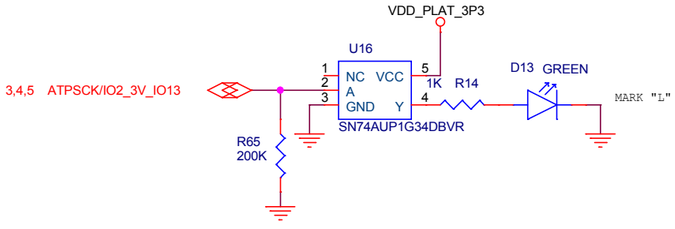
Barrel Power Input



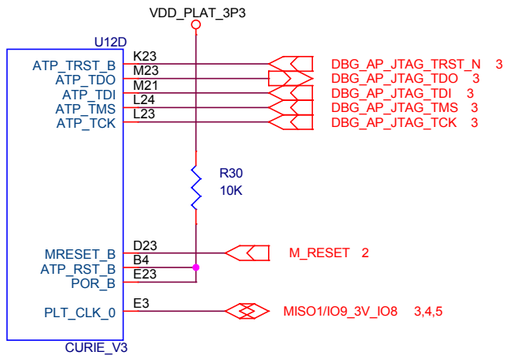


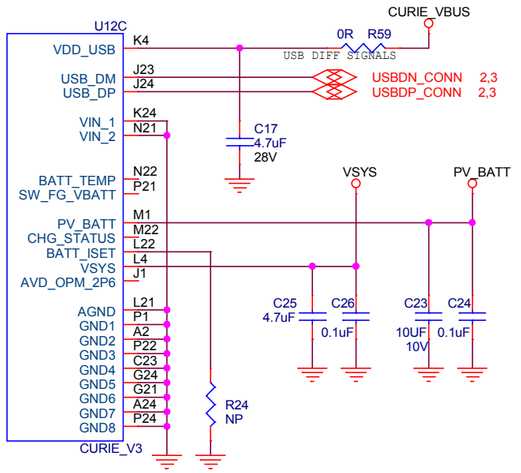
GENW BOARD SPECIFIC

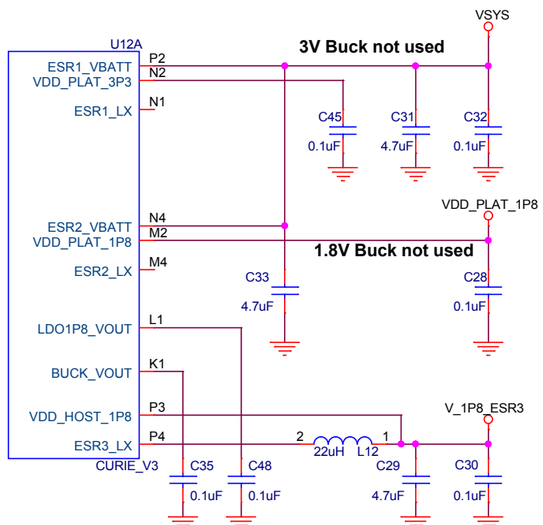




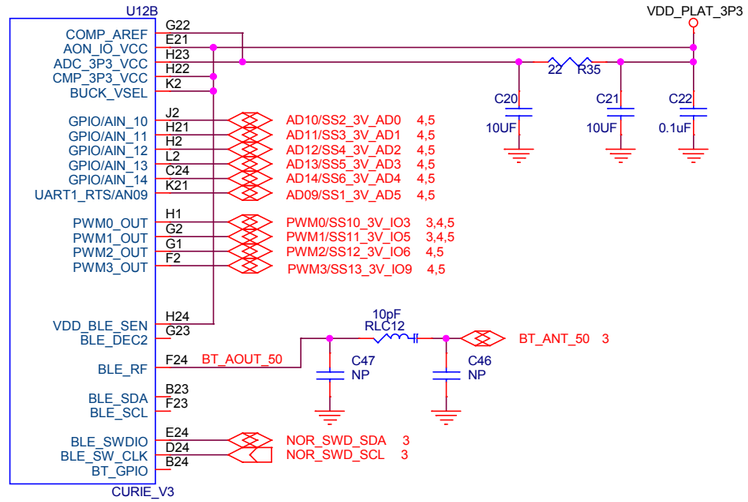
Power and reset

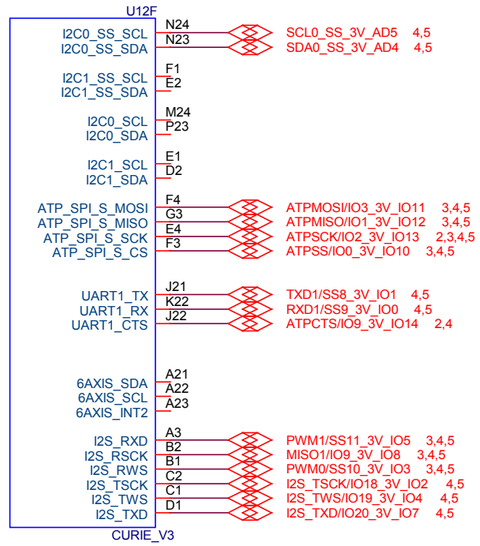


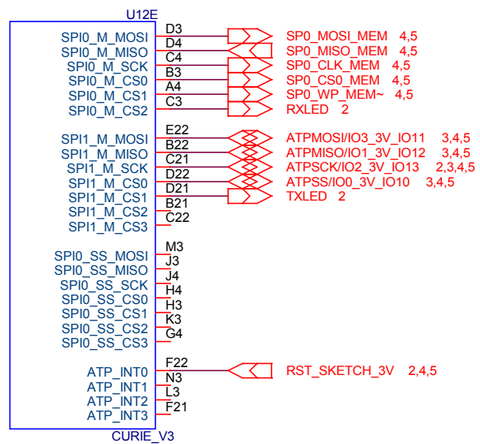




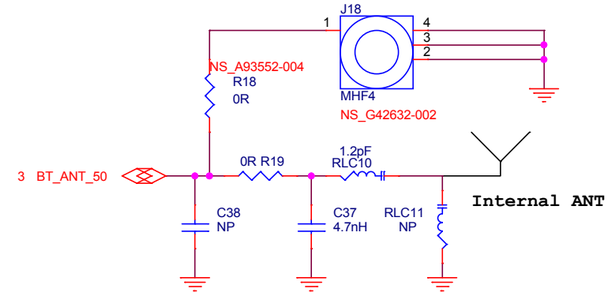
I/O



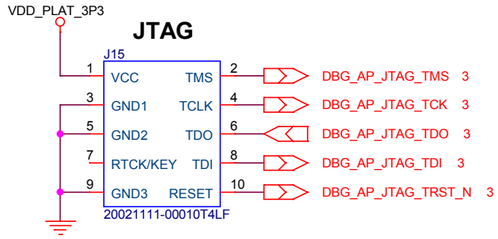


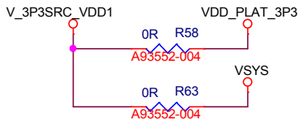


Antenna



JTAG





Test Points

Test JTAG