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Board Of Education USB, Rev A (#28850)

Development / Education Platform for BASIC and Javelin Stamps

The Board Of Education USB (BOE-USB) is a complete, low-cost development platform designed for those interested in learning and using Parallax's 24-pin BASIC Stamp® or Javelin Stamp modules. Its compact size, convenient features, and low price make it an ideal tool for the student and educator. The BOE-USB is a great tool with which to get started with Parallax Stamp-ICs. For educators, the BOE provides a clean, efficient platform to implementing your own BASIC Stamp-based curriculum.

Features

- 2.1 mm center-positive plug and 9-volt battery power supply connections (mechanically interlocked to prevent dual connection). Note: The USB-BOE is not powered from the USB connection.
- Three-position power switch allows Stamp-IC programming without providing power to servo connectors.
- Jumper selection of servo power: regulated (Vdd) or unregulated (Vin).
- Mini USB connector for Stamp-IC programming and serial communication during run-time.
- On-board regulator delivers up to 1 amp of power for larger projects.
- P0 - P15 I/O pins, Vdd, Vin, and Vss connections brought adjacent to 2" x 1 3/8" breadboard area.
- Female 10-pin dual row connector for optional AppMods.

Packing List

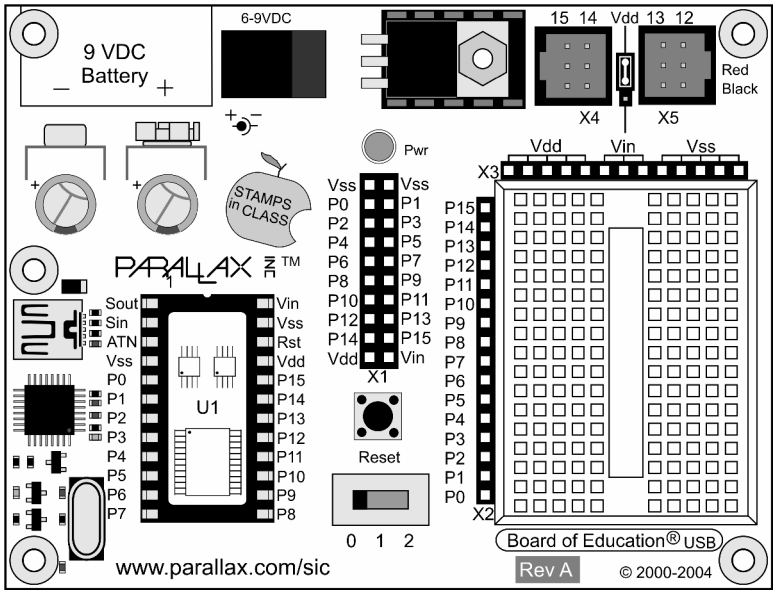
- BOE-USB #800-28850
- USB-B mini cable #805-00006
- Pack of 3" jumpers #800-00016
- Documentation

Note: Demonstration software and FTDI VCP drivers may be downloaded from www.parallax.com.

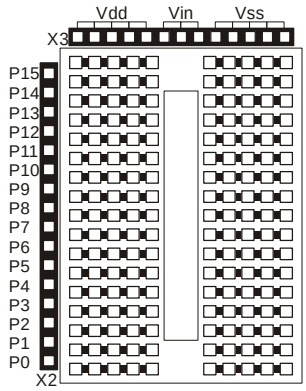
Mechanical Dimensions

- PCB 4.00" x 3.05" (102 mm x 77 mm)
- Mounting Holes 3.75" x 2.75" (95 mm x 70 mm)

Board of Education USB – Top View (without Stamp module)



Using the BOE-USB Breadboard



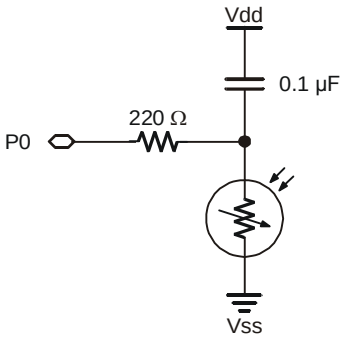
The breadboard has many strips of copper which run underneath the board in a horizontal fashion. These strips connect the sockets to each other. This makes it easy to connect components together to build circuits.

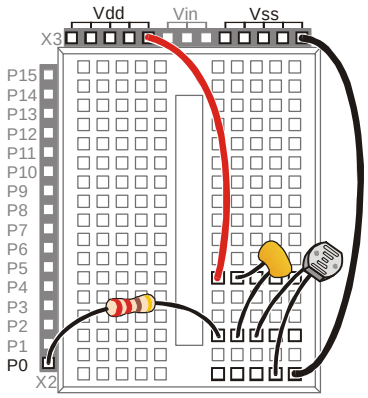
To use the breadboard, the legs of components or wires are placed in the sockets. The sockets are made so that they will hold the component in place. Each hole is connected to one of the metal strips running underneath the board. Each metal strip forms a node. A node is a point in a circuit where two components are connected. Connections between different components are formed by putting their legs in a common node. There are two columns of 17 nodes on the breadboard. Each node contains five holes.

For chips with many legs (ICs), place them in the middle of the board so that half of the legs are on the left side and half are on the right side. Nodes on the left side are not connected to nodes on the right side.

Example Circuit

On the left is a simple circuit used to monitor light levels. The illustration on the right shows how this circuit can be constructed on the BOE-USB breadboard.





Power Switch

The BOE-USB has a three-position power switch located at the bottom-center of the board. The leftmost position (0) is OFF – all power is disconnected. *Always place the switch in this position when adding or changing components on the breadboard.* The middle position (1) provides Vin to the regulator, the Stamp-IC socket, and to the connectors marked Vin. In this position, Vdd will also be available on the breadboard and AppMod (see below) connectors. The rightmost position (2) provides power to the servo connectors X4 and X5 (see servo power selection below).

The three-position position power switch is particularly convenient when using the BOE-USB on small robots, like the Parallax BOE-Bot. Use position 1 to edit and test code while power is removed from the servos. When ready for a full test, download your code, move the power switch to position 2, then reset and go!

Servo Power Selection

You can select the power provided to servo sockets X4 and X5 by a jumper that is located between these two sockets; the default position is Vdd (+5 regulated). When using a six-volt battery (as on a BOE-Bot, for example), you may wish to move this jumper to the Vin position to provide extra power to the servos. Do not use the Vin position for input voltages greater than 7.5 volts, otherwise servo damage may occur.

Reset Button

The reset button, located just above the power switch, can be used to restart your Stamp-IC without having to cycle the power. This saves wear-and-tear on the power switch for simple program restarts.

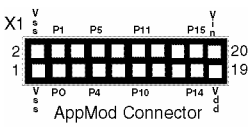
Stamp-IC I/O Access, Vdd, Vin, and Vss

The Stamp-IC's 16 I/O pins are brought to the X2 female socket left of the breadboard. I/O pins are accessed by plugging wires into the header, then into the breadboard sockets. The X3 socket provides four connection points for a +5V (Vdd) connection, unregulated input voltage (Vin), and ground (Vss).

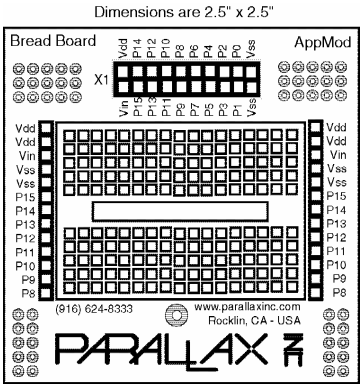
AppMod Header

The AppMod header provides a connection and signal routing for additional (stackable) modules. Some of the AppMods available from Parallax are:

- Secondary Breadboard
- Sound Module
- Audio Amplifier
- Compass Module
- LED Terminal
- LCD Terminal
- RS-232 DCE Module



AppMods may be stacked using this I/O bus

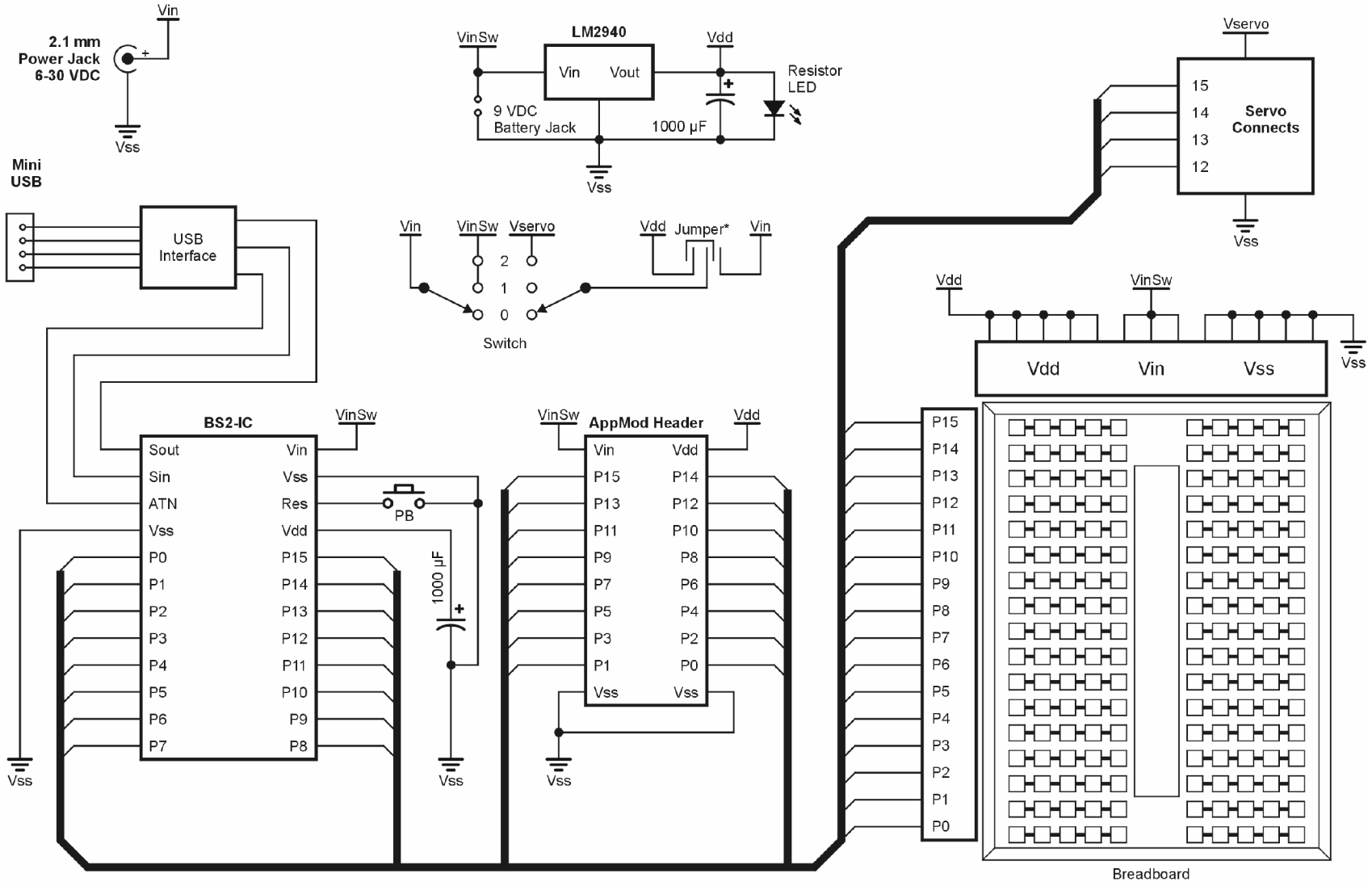


All I/O pins, Vdd, Vin, and Vss are routed through the AppMod connector.

USB Virtual Com Port (VCP) Driver Installation

Older operating systems may require installation of the FTDI VCP driver before using the BOE-USB. The latest VCP drivers and installation instructions are available separately at this URL:

http://www.parallax.com/detail.asp?product_id=28850



* When using servos do not exceed 6 VDC on Vin.
If Vin is greater than 6 VDC set jumper to Vdd.

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USB Board of Education, Rev. A

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