**Orion Servo Shield
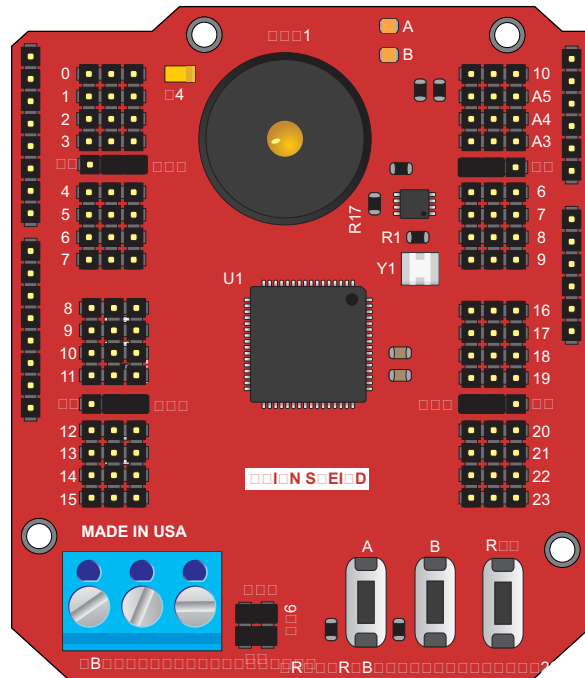Data Sheet**

Feature Overview:

- 32 Channel Servo Controller
- 100% Arduino Compatible
- On Board EEPROM
- Programmable
- Speaker
- 2 LEDS
- 2 Buttons
- Reset Button

The Orion Servo Shield

The new Orion Shield is a 100% Arduino compatible board. It was designed to drive 24 servos directly using only the Arduino SPI port. With an additional 8 headers as pass through from the Arudino, the Orion Shield can control up to a total of 32 servos. The Orion Shield includes 2 user controlled buttons, 2 leds and 1 speaker.

Documentation

Arduino is an open hardware and software platform. All programming documentation is supplied by the Arduino community. The Arduino IDE and programming guides can be downloaded from http://www.arduino.cc

Arduino Libraries

An Arduino Library is available for download from the product description page. The Library demonstrates the control and features of the Orion Servo Shield.
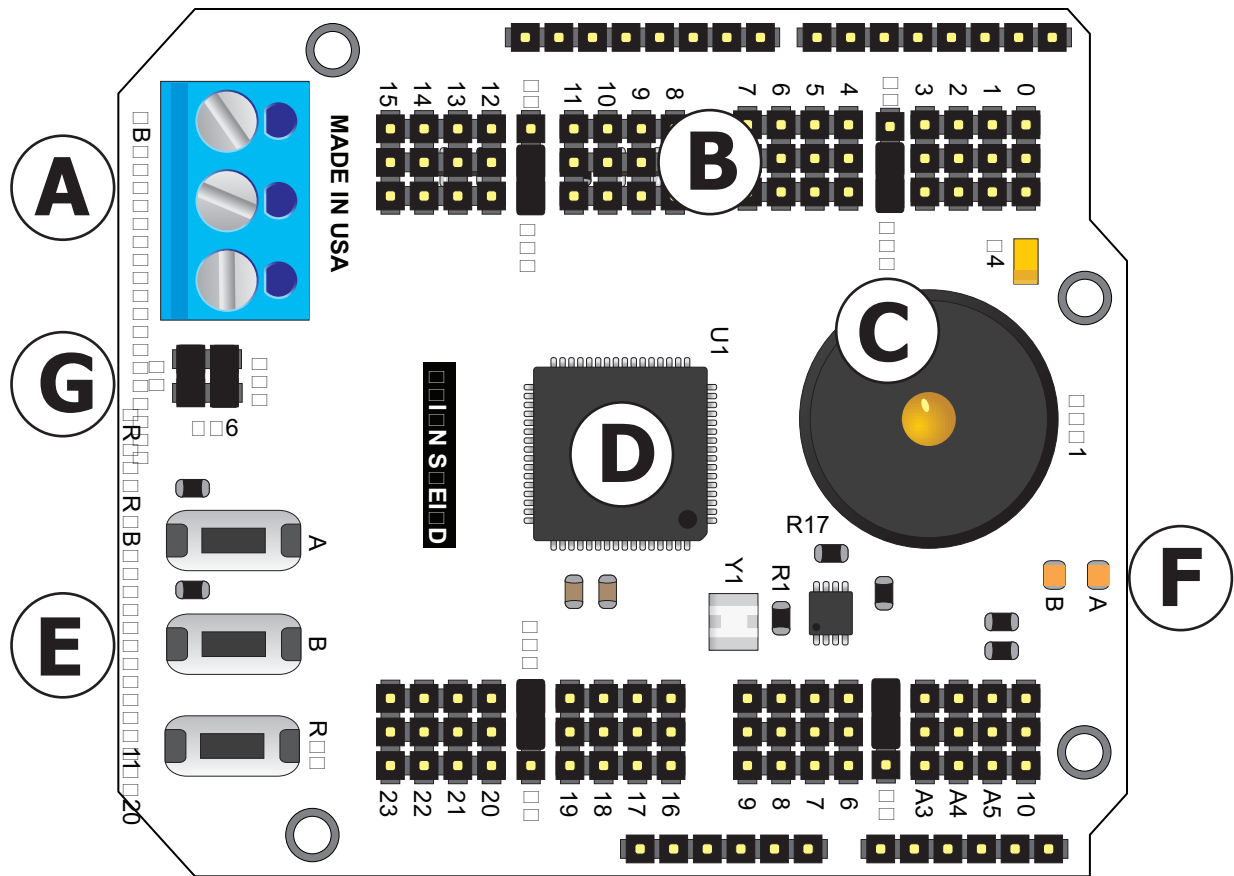
Board Overview:

A - Power Screw Terminals
B - Servo Headers
C - Speakers
D - MCU
E - User Controllable Buttons
F - User Controllable LEDs
G - Servo Power Selector

Screw Terminals

The screw terminals are used to power the Arduino and the Orion Servo Shield. GND is the power ground. LB+ is the positive (+) terminal for the logic battery. VS is the positive (+) terminal for the servo battery. The logic battery should not exceed 12V with the servo battery not exceeding the maximum rated voltage of the servo used.

Battery Level

The main logic battery voltage level can be read from the Arduino analog pin A2. This feature can be used to protect a LiPo battery. The divider ratio is 4:1. The Orion Servo Shield monitors the servo battery voltage level independent if one is used. The level can be queried by the Arduino using the provided library function.

Input Voltage	Divider	Analog Value
12V	3.02V	604
7.4V	1.86V	370
6V	1.51V	308

Servo Headers

There are servo headers are in groups of 8. Each group has a jumper to set the supply voltage to VCC or VIN. The jumper is marked with VCC and VS. When VCC is selected the center pins power will be supplied from the Arduino on board regulator. When VS is selected direct unregulated battery voltage is supplied to the center pins. One group of 8 is controlled by the Arduino and labeled with the corresponding Arduino pin.

LEDs, Buttons and Speaker

The LED will light when the corresponding pin is set HIGH:

Feature	Pin
LEDA	A0
LEDB	A1

The buttons are pulled up with a 10K resistor to VCC. The corresponding pin will be read LOW when the button has been activated:

Feature	Pin
ButtonA	P2
ButtonB	P4

The speaker is controlled by P3 which is controlled by a standard Arduino Library command. The following is an example:

```
tone(3,1000,100); //plays 1000hz tone on speaker for 100ms
```

Electrical Characteristics

Characteristic	Value (Units)
Main Battery (min - max)	6V - 14VDC
Servo Power (VS)	0V - 14VDC
I/O Voltages (Low / High)	0.0 V / 5.0V
I/O Logic	TTL
I/O Maximum Current	25 mA sink, 25 mA source Note: Total current for all pins should not exceed 90 mA sink and 90 mA source
Temperature Range	-40 to +125 C

Warranty

Orion Robotics Inc warranties its products against defects in material and workmanship for a period of 90 days. If a defect is discovered, Orion Robotics will, at our discretion, repair, replace, or refund the purchase price of the product in question. Contact us at support@orionrobotics.com. No returns will be accepted without the proper authorization.

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Discussion List

A web based discussion board is maintained at http://www.orionrobotics.com.

Technical Support

Technical support is made available by sending an email to support@orionrobotics.com. All email will be answered within 48 hours. Support is also available at our online discussion board http://www.orionrobotics.com. We are also available by phone.