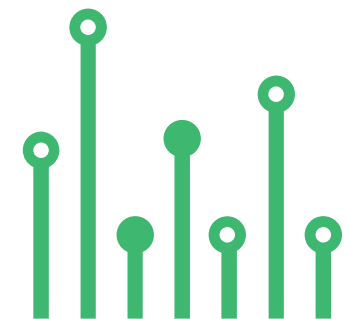


THE
electronics-lab
.com
from ideas to
boards

[electronics-lab - Projects](#) | [Embedded News](#) | [Online Community](#) | [e-Shop](#)

Open Source Hardware Electronics Projects

[electronics-lab.com /projects](https://electronics-lab.com/projects)





16 Channel RC Servo Driver with I2C Interface



SKU: EL1140867

16 Channel RC Servo Driver with I2C Interface

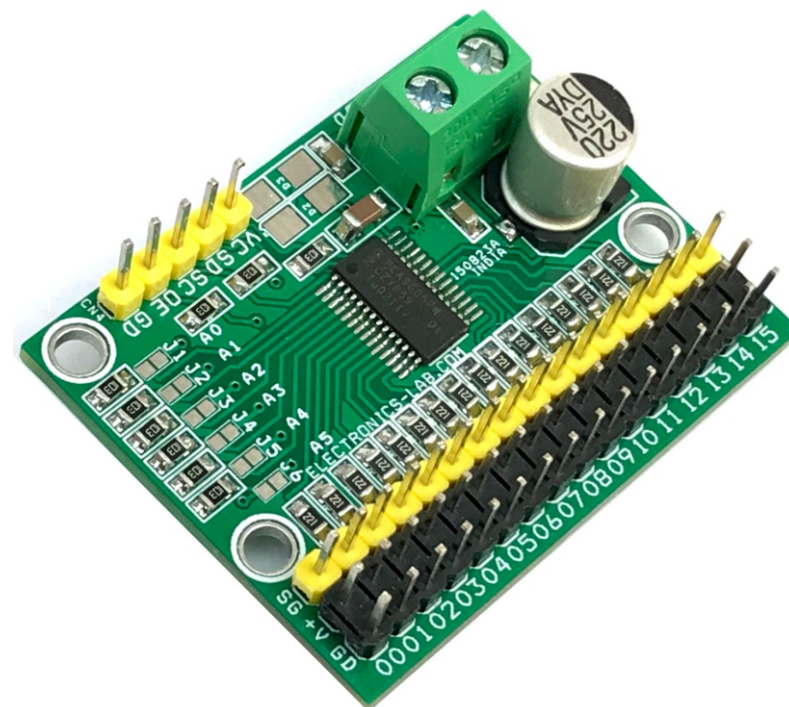


This is a 16-channel servo driver that can drive 16 x RC servos over I2C interface. The project is built using PCA9685 chip, a 16-channel PWM generator that can drive 16-channel servos simultaneously. The board can be connected to Arduino or another microcontroller. Driving robots, and animatronics puppets is easy with this board. The board works with 5VDC and a separate power supply connector is provided to power the RC servo with 6VDC. 6 x address Solder jumper is provided to set the board address, and this helps users to wire up 62 board on a single I2C line and drive up to 992 servos. The board also can be used for other applications that require 16-channel PWM signals. The frequency can be adjusted between 24 Hz to 1526 Hz and the duty cycle ranges from 0 to 100%.

It is important to use a high current power supply that should be able to power the total load of 16 servos and use a C4 = 1000uF/10V capacitor. You can also download the Arduino code to test the board. The test is done with Arduino UNO. The following Arduino pins are used to perform the test, refer to the connection diagram for the connection between Arduino Uno and the PWM board.

FEATURES

- Power Supply RC Servo 6V DC (VDD)
- Power Supply Chip/Logic 5V DC (VCC)
- 3 Pin X 16 Header Connector for 16 RC Servo
- Screw Terminals for RC Servo (6V DC) RC Servo Power Supply
- 5 Pin Header Connector for I2C Interface and VCC Power
- On Board Power LED
- 6 Solder Jumper to Set the I2C Address
- 66 Board can run over single I2C Bus which can output 992 Channels
- Adjustable Frequency 24 Hz to 1526 Hz
- Adjustable Duty Cycle 0 to 100%
- Configurable Push-pull or Open-drain Output
- Output Enable Pin to Disable All the Outputs
- 4 X 3MM Mounting Holes
- PCB Dimensions 44.13 x 34.45mm



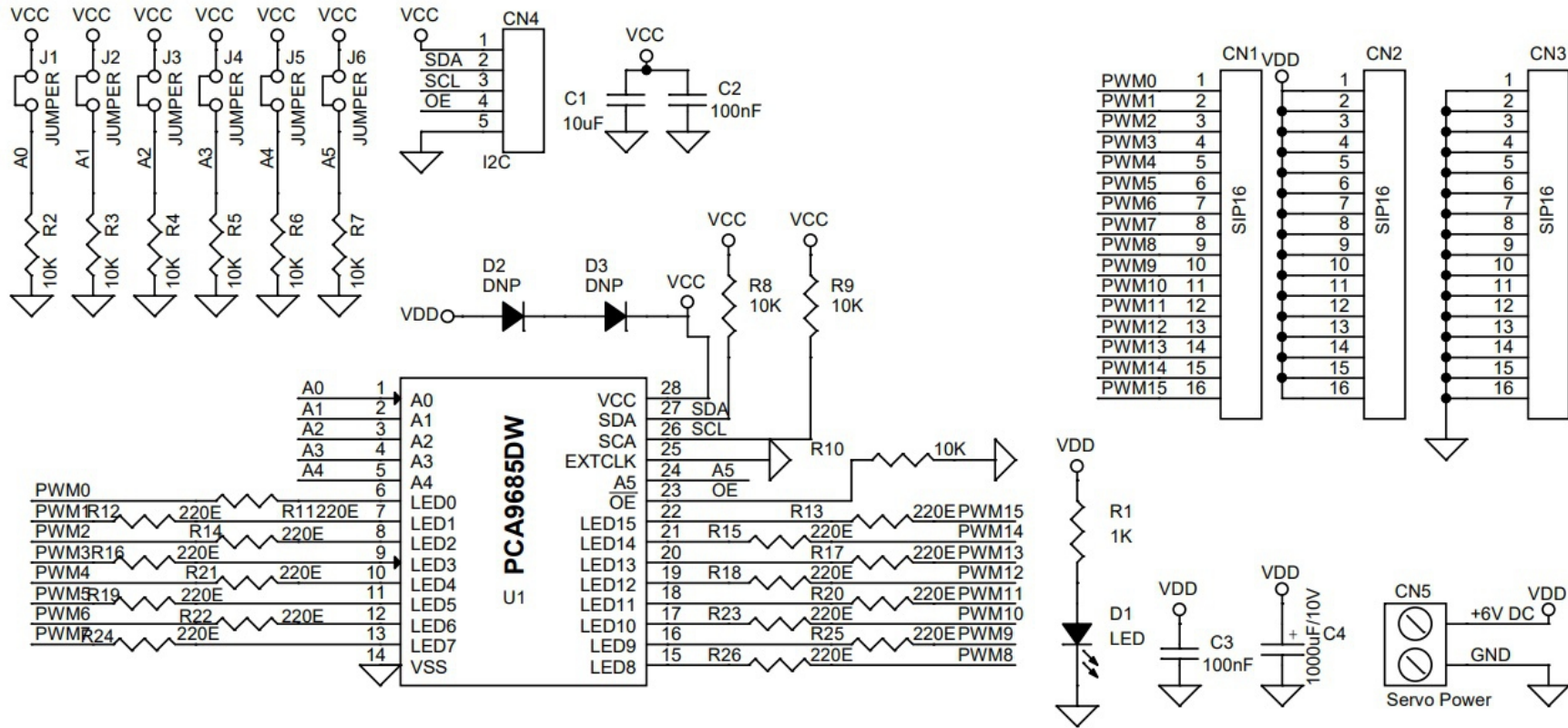
Arduino Uno Connections

- Pin 1 VCC = 5V DC
- Pin 2 SDA = Arduino Uno Analog A4
- Pin 3 SCL = Arduino Uno Analog A5
- Pin 4 OE (Output Enable), OE=High All outputs are Disabled, OE=Low = All outputs are Enabled

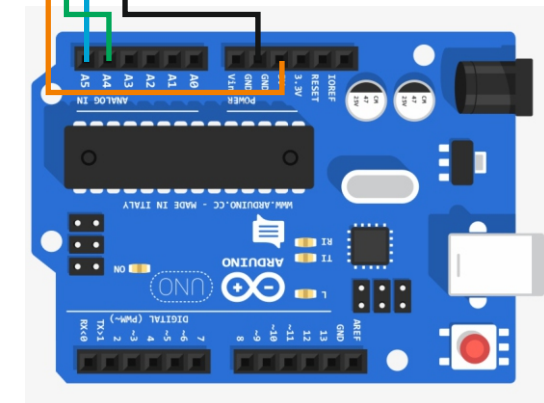
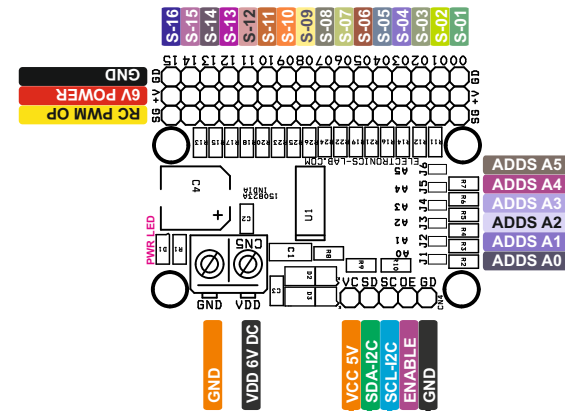
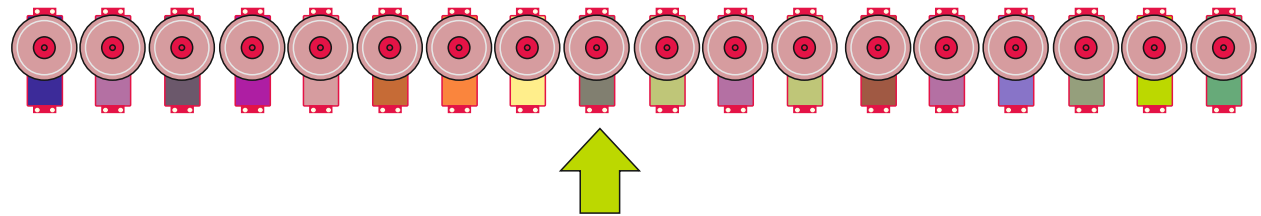
Applications

- Animatronics
- Puppetry
- Multi-Servo Based Robots
- Hexapod Robot
- Servo Based Robotics Arm
- Automation

Schematic



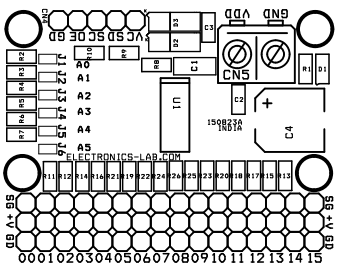
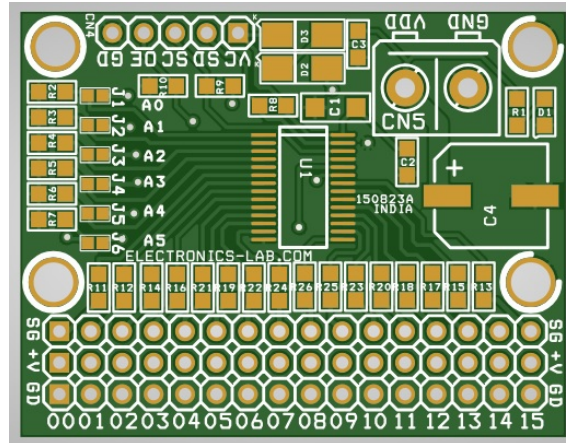
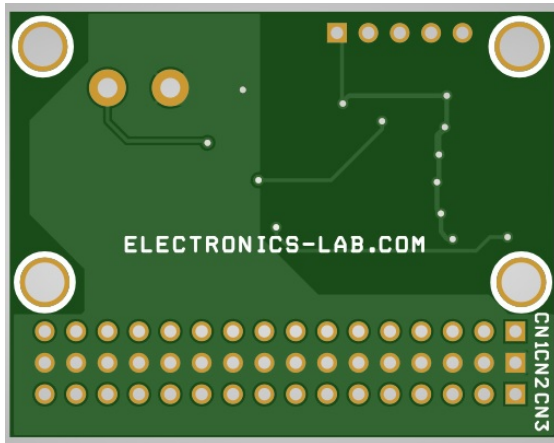
Connections



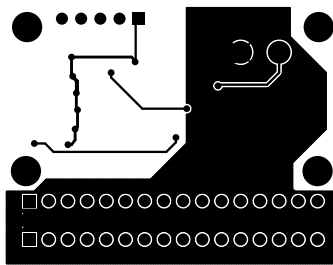
Connections and Other Details

- Jumper J1 = Address A0
- Jumper J1 = Address A1
- Jumper J1 = Address A2
- Jumper J1 = Address A3
- Jumper J1 = Address A4
- Jumper J1 = Address A5
- CN1 1X16Pin = PWM 0-15
- CN2 1X16Pin = VDD=6V
- CN3 1X16Pin = GND
- CN4: Pin 1 VCC(5VDC), Pin 2 = SDA, Pin 3 = SCL, Pin 4 = OE(Enable), Pin 5 = GND
- CN5: Pin 1 VDD(6VDC) for Servo, Pin 2 GND
- D1 Power LED

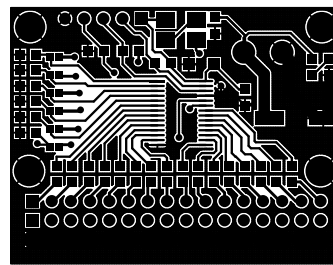
PCB



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS PCB Dimensions 44.13 X 34.45MM

Parts List

BOM						
NO	QNTY	REF	DESC	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	3	CN1,CN2,CN3	16 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5327-ND
2	1	CN4	5 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5318-ND
3	1	CN5	2 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1247-ND
4	1	C1	10uF/10V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	2	C2,C3	100nF/25V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	1	C4	1000uF/10V ELECTROLYTIC	PANASONIC	DIGIKEY	PCE3868CT-ND
7	1	D1	LED	OSRAM	DIGIKEY	475-1278-1-ND
8	2	D2,D3	DNP			
9	6	J1,J2,J3,J4,J5,J6	JUMPER			SOLDER JUMPER
10	1	R1	1K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
11	9	R2,R3,R4,R5,R6,R7,R8,R9,R10	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
12	16	R11 TO R26	220E 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
13	1	U1	PCA9685DW	NXP	DIGIKEY	568-11925-1-ND

Notes

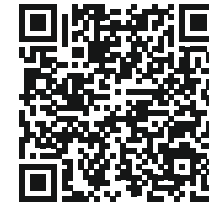


APP



Android App

DOWNLOAD



Android App launched in 2017 and has 100k+ downloads - rated with 4.5 stars.

SCAN QR CODE





Keep
In touch..

electronics-lab
.com

info@electronics-lab.com
www.electronics-lab.com

from ideas to **boards**

