Code

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/*************************************************
  This is an example for our Adafruit 16-channel PWM & Servo driver
  Servo test - this will drive 8 servos, one after the other on the
  first 8 pins of the PCA9685

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  ------> http://www.adafruit.com/products/815

  These drivers use I2C to communicate, 2 pins are required to
  interface.

  Adafruit invests time and resources providing this open source code,
  please support Adafruit and open-source hardware by purchasing
  products from Adafruit!

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 *************************************************/

#include <Wire.h>
#include <Adafruit_PWMServoDriver.h>

// called this way, it uses the default address 0x40
Adafruit_PWMServoDriver pwm = Adafruit_PWMServoDriver();
// you can also call it with a different address you want
//Adafruit_PWMServoDriver pwm = Adafruit_PWMServoDriver(0x41);
// you can also call it with a different address and I2C interface
//Adafruit_PWMServoDriver pwm = Adafruit_PWMServoDriver(&Wire, 0x40);

// Depending on your servo make, the pulse width min and max may vary, you
// want these to be as small/large as possible without hitting the hard stop
// for max range. You'll have to tweak them as necessary to match the servos you
// have!
#define SERVOMIN  170 // this is the 'minimum' pulse length count (out of 4096)
#define SERVOMAX  530 // this is the 'maximum' pulse length count (out of 4096)

// our servo # counter
uint8_t servonum = 0;

void setup() {
  Serial.begin(9600);
  Serial.println("8 channel Servo test!");

  pwm.begin();

  pwm.setPWMFreq(60);  // Analog servos run at ~60 Hz updates

  delay(20 );
}

// you can use this function if you'd like to set the pulse length in seconds
// e.g. setServoPulse(0, 0.001) is a ~1 millisecond pulse width. its not precise!
void setServoPulse(uint8_t n, double pulse) {
  double pulselength;

  pulselength = 1000000;   // 1,000,000 us per second
  pulselength /= 60;   // 60 Hz
  Serial.print(pulselength); Serial.println(" us per period");
```

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  pulselength /= 4096;  // 12 bits of resolution
  Serial.print(pulselength); Serial.println(" us per bit");
  pulse *= 1000000;  // convert to us
  pulse /= pulselength;
  Serial.println(pulse);
  pwm.setPWM(n, 0, pulse);
}

void loop() {
  // Drive each servo one at a time
  Serial.println(servonum);
  for (uint16_t pulselen = SERVOMIN; pulselen < SERVOMAX; pulselen++) {
    pwm.setPWM(servonum, 0, pulselen);
  delay(20);
  }

  delay(20);
  for (uint16_t pulselen = SERVOMAX; pulselen > SERVOMIN; pulselen--) {
    pwm.setPWM(servonum, 0, pulselen);
  delay(10);
  }



  delay(100);
}
```