MegaServo Hardware Servo library

This library allows an Arduino board to control one to twelve RC (hobby) ser
motors on a standard Arduino board or up to 48 servos on an Arduino Mega.
Each servo can be attached to any unused digital pin.

The library (renamed to Servo) is distributed with Arduino
releases from 0017, see the Arduino servo library reference for details.
You already have this code if you are using the servo library from release 0(
or later.

The library has the following features:

  Controls up to 48 servos (Arduino Mega only, other boards support up to 12 servos)
  Any digital pin can be used with any servo
  Pulse widths can be written and read in degrees or microseconds.

This library uses a 16 bit timer for each group of 12 servos so PWM output w
analogWrite() for pins associated with these timers are disabled when the fir
servo is attached to the timer. For example on a standard Arduino board,
Timer1 is used, so once you attach a servo, analogWrite on pins 9 and 10 ar
disabled.

Here is a table of PWM pin usage on the Mega board:

Servos	analogWrite Pins	Timers used
1 - 12	not pins 44,45,46	Timer 5
13 - 24	not pins 11,12,44,45,46	Timers 1 & 5
24 - 36	not pins 6,7,8,11,12,44,45,46	Timers 1,4 & 5
37 - 48	not pins 2,3,5,6,7,8,11,12,44,45,46	Timers 1,3,4 & 5

Download the MegaServo Library

New version updated 8 Jun:

- supports boards with 8MHz clock.
- read_us() renamed to readMicroseconds()
- writeMicroseconds() method added

Circuit

Servo motors have three wires: power, ground, and signal. The power wire typically red, and can be connected to the 5V pin on the Arduino board. The ground wire is typically black or brown and should be connected to a ground pin on the Arduino board. The signal pin is typically yellow, orange or white and should be connected to the pins attached in your sketch. You probably need to use an external power supply for more than one or two servos, don forget to connect the ground of the power supply to Arduino and servo grounds.

Functions

    attach()
    write()
    writeMicroseconds() - new function takes parameters in Microseconds
    read() - returns the angle in degrees)
    readMicroseconds() - returns angle in uS, renamed from read_us
    attached()
    detach()

Note that write() expects parameters as an angle from 0 to 180

writeMicroseconds() expects values as microseconds.

Example

The standard Arduino servo examples will work unchanged with this library.

voltage on potPin:

```
#include <MegaServo.h>
#define NBR_SERVOS 12  // the number of servos, up to 48 for Mega, 12 for other boards
#define FIRST_SERVO_PIN 2

MegaServo Servos[NBR_SERVOS] ; // max servos is 48 for mega, 12 for other boards

int pos = 0;      // variable to store the servo position
int potPin = 0;   // connect a pot to this pin.

void setup()
{
  for( int i =0; i < NBR_SERVOS; i++)
    Servos[i].attach( FIRST_SERVO_PIN +i, 800, 2200);
}
void loop()
{
  pos = analogRead(potPin);   // read a value from 0 to 1023
  for( int i =0; i <NBR_SERVOS; i++)
    Servos[i].write( map(pos, 0,1023,0,180));
  delay(15);
}
```