ZSharpIR Library

Generated by Doxygen 1.8.14

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Arduino Servo Lib with ros.

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2.1 Data Structures

Here are the data structures with brief descriptions:

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3.1 File List

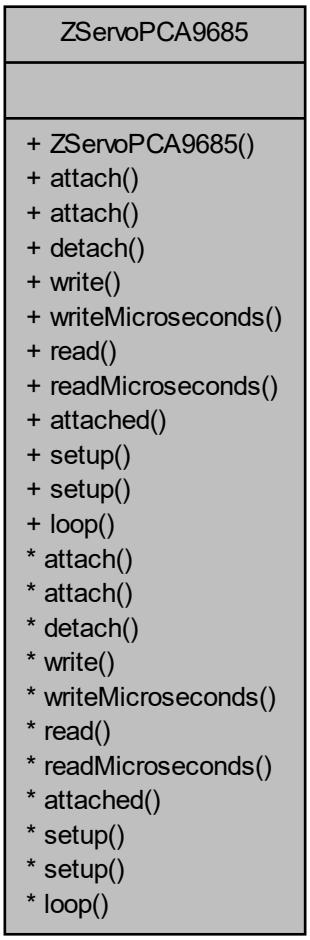
Here is a list of all files with brief descriptions:

4 Data Structure Documentation

4.1 ZServoPCA9685 Class Reference

```
#include <ZServoPCA9685.h>
```

Collaboration diagram for ZServoPCA9685:



Public Member Functions

- ZServoPCA9685 (ZPCA9685 *myZPCA9685)

API like Servo.h

- uint8_t attach (int pin)
- uint8_t attach (int pin, int min, int max)
- void detach ()
- void write (int value)
- void writeMicroseconds (int value)
- int read ()
- int readMicroseconds ()
- bool attached ()

API for ROS

- void setup (ros::NodeHandle *myNodeHandle, const char *topic, void callbackinstance(const std_msgs↩ ::UInt16 &cmd_msg), int pin)
- void setup (ros::NodeHandle *myNodeHandle, const char *topic, int pin)
- void loop ()

4.1.1 Detailed Description

Definition at line 34 of file ZServoPCA9685.h.

4.1.2 Constructor & Destructor Documentation

4.1.2.1 ZServoPCA9685()

```
ZServoPCA9685::ZServoPCA9685 (
            ZPCA9685 * myZPCA9685 )
```

constructor of the class

Parameters

myZPCA9685	the instance of ZPCA9685 driver associated to the board.

Definition at line 32 of file ZServoPCA9685.cpp.

4.1.3 Member Function Documentation

4.1.3.1 attach() [1/2]

```
uint8_t ZServoPCA9685::attach (
            int pin )
```

attach the given pin to the next free channel, sets pinMode, returns channel number or 0 if failure

Definition at line 41 of file ZServoPCA9685.cpp.

References DEBUG.

Referenced by setup().

Here is the caller graph for this function:

4.1.3.2 attach() [2/2]

```
uint8_t ZServoPCA9685::attach (
            int pin,
            int min,
            int max )
```

as above but also sets min and max values for writes.

Definition at line 51 of file ZServoPCA9685.cpp.

References DEBUG.

4.1.3.3 attached()

```
bool ZServoPCA9685::attached ( )
```

return true if this servo is attached, otherwise false

Definition at line 88 of file ZServoPCA9685.cpp.

4.1.3.4 detach()

```
void ZServoPCA9685::detach ( )
```

Definition at line 60 of file ZServoPCA9685.cpp.

References DEBUG.

4.1.3.5 loop()

```
void ZServoPCA9685::loop ( )
```

function to be called in your main loop.

loop : on loop before NodeHandle refresh(spinOnce), call this to update the topic

Definition at line 233 of file ZServoPCA9685.cpp.

4.1.3.6 read()

```
int ZServoPCA9685::read ( )
```

returns current pulse width as an angle between 0 and 180 degrees

Definition at line 78 of file ZServoPCA9685.cpp.

4.1.3.7 readMicroseconds()

```
int ZServoPCA9685::readMicroseconds ( )
```

returns current pulse width in microseconds for this servo (was read_us() in first release)

Definition at line 83 of file ZServoPCA9685.cpp.

4.1.3.8 setup() [1/2]

```
void ZServoPCA9685::setup (
            ros::NodeHandle * myNodeHandle,
            const char * topic,
            void  callbackinstanceconst std_msgs::UInt16 &cmd_msg,
            int pin )
```

the ros initialisation, it replace attach.

note the ZPCA9685 must be initialised before.

setup : At setup after NodeHandle setup, call this to initialise the topic

Parameters

myNodeHandle	the ROS node handler
topic	the topic displayed in ROS
callbackinstance	the callback executed when a topic is recivied
pin	the generic pin number associated to the topic

Definition at line 222 of file ZServoPCA9685.cpp.

References attach(), and DEBUG.

Here is the call graph for this function:

4.1.3.9 setup() [2/2]

```
void ZServoPCA9685::setup (
            ros::NodeHandle * myNodeHandle,
            const char * topic,
            int pin )
```

the ros initialisation, it replace attach .

note the ZPCA9685 must be initialised before.

Parameters

myNodeHandle	the ROS node handler
topic	the topic displayed in ROS
pin	the generic pin number associated to the topic

Definition at line 203 of file ZServoPCA9685.cpp.

References attach().

Here is the call graph for this function:

4.1.3.10 write()

```
void ZServoPCA9685::write (
            int value )
```

if value is $<$ 200 its treated as an angle, otherwise as pulse width in microseconds

Definition at line 66 of file ZServoPCA9685.cpp.

References DEBUG.

4.1.3.11 writeMicroseconds()

```
void ZServoPCA9685::writeMicroseconds (
            int value )
```

Write pulse width in microseconds

Definition at line 72 of file ZServoPCA9685.cpp.

References DEBUG.

The documentation for this class was generated from the following files:

- ZServoPCA9685.h
- ZServoPCA9685.cpp

5 File Documentation

5.1 README.md File Reference

5.2 ros.h File Reference

```
#include <ros.h>
```

Include dependency graph for ros.h:

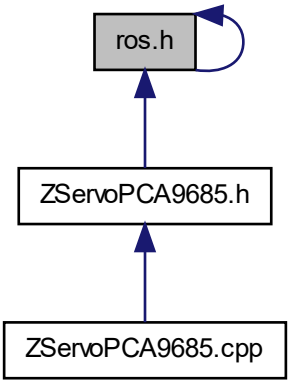
This graph shows which files directly or indirectly include this file:

5.3 ros.h File Reference

```
#include <ros.h>
```

Include dependency graph for ithROS/ros.h:

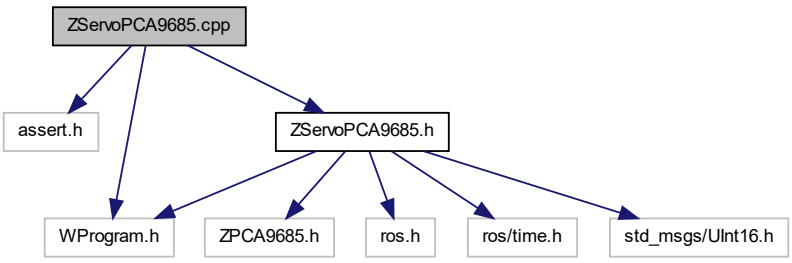
This graph shows which files directly or indirectly include this file:



5.4 ZServoPCA9685.cpp File Reference

```
#include <assert.h>
#include <WProgram.h>
#include "ZServoPCA9685.h"
```

Include dependency graph for ZServoPCA9685.cpp:



Macros

- #define DEBUG(a) {}
- #define ZSERVO_MAX 16

Variables

- ZServoPCA9685 * myservo [ZSERVO_MAX] ={0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0}

5.4.1 Detailed Description

ZServo

Arduino library for Servo Author : Pierre Valleau history : add ros supports

5.4.2 Macro Definition Documentation

5.4.2.1 DEBUG

```
#define DEBUG(
              a ) {}
```

Definition at line 15 of file ZServoPCA9685.cpp.

Referenced by ZServoPCA9685::attach(), ZServoPCA9685::detach(), ZServoPCA9685::setup(), ZServoPC↩A9685::write(), and ZServoPCA9685::writeMicroseconds().

5.4.2.2 ZSERVO_MAX

```
#define ZSERVO_MAX 16
```

Definition at line 27 of file ZServoPCA9685.cpp.

5.4.3 Variable Documentation

5.4.3.1 myservo

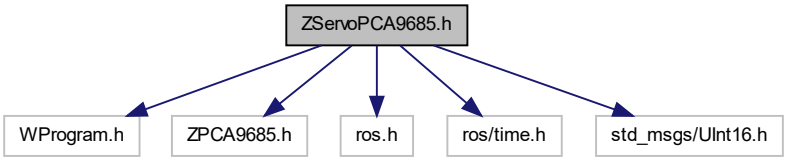
```
ZServoPCA9685* myservo[ZSERVO_MAX] ={0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0}
```

Definition at line 28 of file ZServoPCA9685.cpp.

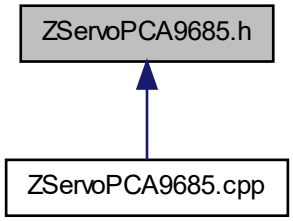
5.5 ZServoPCA9685.h File Reference

```
#include <WProgram.h>
#include <ZPCA9685.h>
#include <ros.h>
#include <ros/time.h>
#include <std_msgs/UInt16.h>
```

Include dependency graph for ZServoPCA9685.h:



This graph shows which files directly or indirectly include this file:



Data Structures

- class ZServoPCA9685

Macros

- #define ROS_USED

5.5.1 Detailed Description

ZServoPCA9685

dependency :

This library use the folowing ones : ZPCA9685, PinExtender,Rosserial_Arduino_Library you can find it on https://github.com/zoubworldArduino/

```
Library that manage servo with ros on a board with a PCA9685.
This library offer the same API as the arduino library Servo.
```

5.5.2 Macro Definition Documentation

5.5.2.1 ROS_USED

```
#define ROS_USED
```

Definition at line 17 of file ZServoPCA9685.h.

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