Arduino Gyroscope Driver

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Contents

1	Class	s Index		1			
	1.1	Class I	_ist	1			
2	File I	e Index					
	2.1	File Lis	t	2			
3	Class	Class Documentation					
	3.1	PwmR	Pi Class Reference	2			
		3.1.1	Detailed Description	2			
		3.1.2	Constructor & Destructor Documentation	2			
		3.1.3	Member Function Documentation	2			
		3.1.4	Member Data Documentation	3			
4	File I	File Documentation					
	4.1	Arduin	p.h File Reference	3			
		4.1.1	Macro Definition Documentation	3			
	4.2	Arduin	o.h	3			
	4.3	Pwm.c	pp File Reference	2			
		4.3.1	Variable Documentation	2			
	4.4	Pwm.c	pp	2			
	4.5 Pwm.h File Reference		File Reference	2			
		4.5.1	Macro Definition Documentation	6			
		4.5.2	Variable Documentation	ç			
	4.6	Pwm.h		ç			
	4.7	simple	_read.c File Reference	10			
		4.7.1	Function Documentation	10			
	4.8	simple	_read.c	10			
	4.9	using_	external_eeprom.c File Reference	11			
		4.9.1	Function Documentation	11			
	4.10	using_	external_eeprom.c	11			
Ind	ex			13			
1 Class Index							
1.1 Class List							
Her	e are	the clas	sses, structs, unions and interfaces with brief descriptions:				
PwmRPi							

2 File Index

2.1 File List

Here is a list of all files with brief descriptions:

Arduino.h	3
Pwm.cpp	4
Pwm.h	4
simple_read.c	10
using external eeprom.c	11

3 Class Documentation

3.1 PwmRPi Class Reference

```
#include <Pwm.h>
```

Public Member Functions

- PwmRPi (unsigned char channel)
- void begin ()
- void stop ()
- void analogWrite (unsigned char value)

Private Attributes

- Bcm2835::Peripheral pwm
- unsigned char channel

3.1.1 Detailed Description

Definition at line 73 of file Pwm.h.

3.1.2 Constructor & Destructor Documentation

3.1.2.1 PwmRPi::PwmRPi (unsigned char channel)

Definition at line 4 of file Pwm.cpp.

3.1.3 Member Function Documentation

3.1.3.1 void PwmRPi::analogWrite (unsigned char value)

3.1.3.2 void PwmRPi::begin ()

Definition at line 8 of file Pwm.cpp.

4 File Documentation 3

3.1.3.3 void PwmRPi::stop ()

Definition at line 13 of file Pwm.cpp.

3.1.4 Member Data Documentation

3.1.4.1 unsigned char PwmRPi::channel [private]

PWM pin.

Definition at line 83 of file Pwm.h.

3.1.4.2 Bcm2835::Peripheral PwmRPi::pwm [private]

Peripheral.

Definition at line 78 of file Pwm.h.

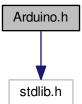
The documentation for this class was generated from the following files:

- Pwm.h
- Pwm.cpp

4 File Documentation

4.1 Arduino.h File Reference

#include <stdlib.h>
Include dependency graph for Arduino.h:



Macros

• #define delay(n) usleep(1000 * n)

4.1.1 Macro Definition Documentation

4.1.1.1 #define delay(n) usleep(1000 * n)

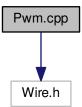
Definition at line 3 of file Arduino.h.

4.2 Arduino.h

```
00001 #include <stdlib.h>
00002
00003 #define delay(n) usleep(1000 * n)
```

4.3 Pwm.cpp File Reference

```
#include "Wire.h"
Include dependency graph for Pwm.cpp:
```



Variables

- PwmRPi Pwm0 (0)
- PwmRPi Pwm1 (1)

4.3.1 Variable Documentation

4.3.1.1 PwmRPi Pwm0(0)

4.3.1.2 PwmRPi Pwm1(1)

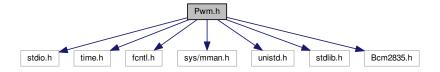
4.4 Pwm.cpp

4.5 Pwm.h File Reference 5

4.5 Pwm.h File Reference

```
#include <stdio.h>
#include <time.h>
#include <fcntl.h>
#include <sys/mman.h>
#include <unistd.h>
#include <stdlib.h>
#include <Bcm2835.h>
```

Include dependency graph for Pwm.h:



Classes

class PwmRPi

Macros

- #define PWM_ADDRESS 0x20c000
- #define PWM_CTL *((unsigned int *)(pwm.mem) + 0x00)
- #define PWM_STA *((unsigned int *)(pwm.mem) + 0x01)
- #define PWM_DMAC *((unsigned int *)(pwm.mem) + 0x02)
- #define PWM RNG1 *((unsigned int *)(pwm.mem) + 0x03)
- #define PWM_DAT1 *((unsigned int *)(pwm.mem) + 0x04)
- #define PWM_DAT1 *((unsigned int *)(pwm.mem) + 0x05)
- #define PWM FIF1 *((unsigned int *)(pwm.mem) + 0x06)
- #define PWM_RNG2 *((unsigned int *)(pwm.mem) + 0x07)
- #define PWM_DAT2 *((unsigned int *)(pwm.mem) + 0x08)
- #define PWM_CTL_PWEN1 (0x01 << 0)
- #define PWM_CTL_MODE1 (0x01 << 1)
- #define PWM_CTL_RPTL1 (0x01 << 2)
- #define PWM CTL SBIT1 (0x01 << 3)
- #define PWM CTL POLA1 (0x01 << 4)
- #define PWM_CTL_USEF1 (0x01 << 5)
- #define PWM_CTL_CLRF1 (0x01 << 6)
- #define PWM_CTL_MSEN1 (0x01 << 7)
- #define PWM CTL PWEN2 (0x01 << 8)
- #define PWM CTL MODE2 (0x01 << 9)
- #define T VVIII_OTE_INODE2 (0x01 < 5)
- #define PWM_CTL_RPTL2 (0x01 << 10)
- #define PWM_CTL_SBIT2 (0x01 << 11)
- #define PWM_CTL_POLA2 (0x01 << 12)
- #define PWM_CTL_USEF2 (0x01 << 13)
- #define PWM_CTL_MSEN2 (0x01 << 15)
- #define PWM_STA_FULL1 (0x01 << 0)
- #define PWM_STA_EMPT1 (0x01 << 1)
- #define PWM_STA_WERR1 (0x01 << 2)

```
    #define PWM_STA_RERR1 (0x01 << 3)</li>
```

- #define PWM_STA_GAPO1 (0x01 << 4)
- #define PWM STA GAPO2 (0x01 << 5)
- #define PWM STA GAPO3 (0x01 << 6)
- #define PWM STA GAPO4 (0x01 << 7)
- #define PWM_STA_BERR (0x01 << 8)
- #define PWM_STA_STA1 (0x01 << 9)
- #define PWM_STA_STA2 (0x01 << 10)
- #define PWM_STA_STA3 (0x01 << 11)
- #define PWM_STA_STA4 (0x01 << 12)
- #define PWM_DMAC_DREQ (0xff << 0)
- #define PWM_DMAC_PANIC (0xff << 8)
- #define PWM DMAC ENAB (0x01 << 31)

Variables

- PwmRPi Pwm0
- PwmRPi Pwm1

4.5.1 Macro Definition Documentation

4.5.1.1 #define PWM ADDRESS 0x20c000

This is a siple Wire library to Raspberry.

It doesn't use the specific i2c module (i2c_dev or i2c_bcm2708) it maps the memory (the BSC0 chunk) into the virtual memory space and handles directly the register.

Thanks to this blog: http://www.susa.net/wordpress/2012/06/raspberry-pi-pcf8563-real-time-clock-

Definition at line 23 of file Pwm.h.

4.5.1.2 #define PWM_CTL *((unsigned int *)(pwm.mem) + 0x00)

Definition at line 25 of file Pwm.h.

4.5.1.3 #define PWM_CTL_CLRF1 (0x01 << 6)

Definition at line 42 of file Pwm.h.

4.5.1.4 #define PWM_CTL_MODE1 (0x01 << 1)

Definition at line 37 of file Pwm.h.

4.5.1.5 #define PWM_CTL_MODE2 (0x01 << 9)

Definition at line 46 of file Pwm.h.

4.5.1.6 #define PWM_CTL_MSEN1 (0x01 << 7)

Definition at line 43 of file Pwm.h.

4.5.1.7 #define PWM_CTL_MSEN2 (0x01 << 15)

Definition at line 51 of file Pwm.h.

4.5.1.8 #define PWM_CTL_POLA1 (0x01 << 4)

Definition at line 40 of file Pwm.h.

4.5 Pwm.h File Reference

```
4.5.1.9 #define PWM_CTL_POLA2 (0x01 << 12)
Definition at line 49 of file Pwm.h.
4.5.1.10 #define PWM_CTL_PWEN1 (0x01 << 0)
Definition at line 36 of file Pwm.h.
4.5.1.11 #define PWM_CTL_PWEN2 (0x01 << 8)
Definition at line 45 of file Pwm.h.
4.5.1.12 #define PWM_CTL_RPTL1 (0x01 << 2)
Definition at line 38 of file Pwm.h.
4.5.1.13 #define PWM_CTL_RPTL2 (0x01 << 10)
Definition at line 47 of file Pwm.h.
4.5.1.14 #define PWM_CTL_SBIT1 (0x01 << 3)
Definition at line 39 of file Pwm.h.
4.5.1.15 #define PWM_CTL_SBIT2 (0x01 << 11)
Definition at line 48 of file Pwm.h.
4.5.1.16 #define PWM_CTL_USEF1 (0x01 << 5)
Definition at line 41 of file Pwm.h.
4.5.1.17 #define PWM_CTL_USEF2 (0x01 << 13)
Definition at line 50 of file Pwm.h.
4.5.1.18 #define PWM_DAT1 *((unsigned int *)(pwm.mem) + 0x04)
Definition at line 30 of file Pwm.h.
4.5.1.19 #define PWM_DAT1 *((unsigned int *)(pwm.mem) + 0x05)
Definition at line 30 of file Pwm.h.
4.5.1.20 #define PWM_DAT2 *((unsigned int *)(pwm.mem) + 0x08)
Definition at line 33 of file Pwm.h.
4.5.1.21 #define PWM_DMAC *((unsigned int *)(pwm.mem) + 0x02)
Definition at line 27 of file Pwm.h.
4.5.1.22 #define PWM_DMAC_DREQ (0xff << 0)
Definition at line 69 of file Pwm.h.
4.5.1.23 #define PWM_DMAC_ENAB (0x01 << 31)
Definition at line 71 of file Pwm.h.
```

```
4.5.1.24 #define PWM_DMAC_PANIC (0xff << 8)
Definition at line 70 of file Pwm.h.
4.5.1.25 #define PWM_FIF1 *((unsigned int *)(pwm.mem) + 0x06)
Definition at line 31 of file Pwm.h.
4.5.1.26 #define PWM_RNG1 *((unsigned int *)(pwm.mem) + 0x03)
Definition at line 28 of file Pwm.h.
4.5.1.27 #define PWM_RNG2 *((unsigned int *)(pwm.mem) + 0x07)
Definition at line 32 of file Pwm.h.
4.5.1.28 #define PWM_STA *((unsigned int *)(pwm.mem) + 0x01)
Definition at line 26 of file Pwm.h.
4.5.1.29 #define PWM_STA_BERR (0x01 << 8)
Definition at line 62 of file Pwm.h.
4.5.1.30 #define PWM_STA_EMPT1 (0x01 << 1)
Definition at line 55 of file Pwm.h.
4.5.1.31 #define PWM STA FULL1 (0x01 << 0)
Definition at line 54 of file Pwm.h.
4.5.1.32 #define PWM_STA_GAPO1 (0x01 << 4)
Definition at line 58 of file Pwm.h.
4.5.1.33 #define PWM_STA_GAPO2 (0x01 << 5)
Definition at line 59 of file Pwm.h.
4.5.1.34 #define PWM_STA_GAPO3 (0x01 << 6)
Definition at line 60 of file Pwm.h.
4.5.1.35 #define PWM_STA_GAPO4 (0x01 << 7)
Definition at line 61 of file Pwm.h.
4.5.1.36 #define PWM_STA_RERR1 (0x01 << 3)
Definition at line 57 of file Pwm.h.
4.5.1.37 #define PWM_STA_STA1 (0x01 << 9)
Definition at line 63 of file Pwm.h.
4.5.1.38 #define PWM_STA_STA2 (0x01 << 10)
Definition at line 64 of file Pwm.h.
```

4.6 Pwm.h 9

```
4.5.1.39 #define PWM_STA_STA3 (0x01 << 11)
```

Definition at line 65 of file Pwm.h.

4.5.1.40 #define PWM_STA_STA4 (0x01 << 12)

Definition at line 66 of file Pwm.h.

4.5.1.41 #define PWM_STA_WERR1 (0x01 << 2)

Definition at line 56 of file Pwm.h.

4.5.2 Variable Documentation

4.5.2.1 PwmRPi Pwm0

4.5.2.2 PwmRPi Pwm1

4.6 Pwm.h

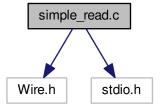
```
00011 #ifndef ___RASPBERRY_WIRE_H_
00012 #define ___RASPBERRY_WIRE_H__
00013
00014 #include <stdio.h>
00015 #include <time.h>
00016 #include <fcntl.h>
00017 #include <sys/mman.h>
00018 #include <unistd.h>
00019 #include <stdlib.h>
00020
00021 #include <Bcm2835.h>
00022
00023 #define PWM_ADDRESS
00024
00025 #define PWM_CTL
                               *((unsigned int *)(pwm.mem) + 0x00)
00026 #define PWM_STA
00027 #define PWM_DMAC
                               *((unsigned int *)(pwm.mem) + 0x01)
                               *((unsigned int *)(pwm.mem) + 0x02)
00028 #define PWM_RNG1
                               *((unsigned int *)(pwm.mem)
                                                             + 0x03)
00029 #define PWM_DAT1
                               *((unsigned int *)(pwm.mem)
                              *((unsigned int *)(pwm.mem)
00030 #define PWM_DAT1
00031 #define PWM_FIF1
                               *((unsigned int *)(pwm.mem) + 0x06)
00032 #define PWM_RNG2
00033 #define PWM_DAT2
                               *((unsigned int *)(pwm.mem) + 0x07)
                               *((unsigned int *)(pwm.mem) + 0x08)
00034
00035 // p142
                                (0x01 << 0)
00036 #define PWM_CTL_PWEN1
00037 #define PWM_CTL_MODE1
                                (0x01 << 1)
00038 #define PWM_CTL_RPTL1
                                (0x01 << 2)
00039 #define PWM_CTL_SBIT1
                                (0 \times 01 << 3)
00040 #define PWM_CTL_POLA1
                                (0x01 << 4)
00041 #define PWM_CTL_USEF1
                                (0x01 << 5)
00042 #define PWM_CTL_CLRF1
00043 #define PWM_CTL_MSEN1
                                (0x01 << 7)
00044
00045 #define PWM_CTL_PWEN2
                                (0 \times 01 << 8)
00046 #define PWM_CTL_MODE2
                                (0x01 << 9)
00047 #define PWM_CTL_RPTL2
                                (0x01 << 10)
00048 #define PWM_CTL_SBIT2
                                (0x01 << 11)
00049 #define PWM_CTL_POLA2
                                (0x01 << 12)
00050 #define PWM_CTL_USEF2
                                (0x01 << 13)
00051 #define PWM_CTL_MSEN2
                               (0x01 << 15)
00052
00053 // p144
00054 #define PWM_STA_FULL1
                                (0x01 << 0)
00055 #define PWM_STA_EMPT1
                                (0x01 << 1)
00056 #define PWM_STA_WERR1
                                (0x01 << 2)
00057 #define PWM_STA_RERR1
                                (0x01 << 3)
00058 #define PWM_STA_GAP01
                                (0x01 << 4)
00059 #define PWM STA GAPO2
                                (0x01 << 5)
00060 #define PWM_STA_GAP03
                                (0x01 << 6)
00061 #define PWM_STA_GAPO4
                                (0x01 << 7)
00062 #define PWM_STA_BERR
                                (0x01 << 8)
00063 #define PWM_STA_STA1
                                (0x01 << 9)
00064 #define PWM_STA_STA2
                                (0x01 << 10)
00065 #define PWM_STA_STA3
                                (0x01 << 11)
00066 #define PWM_STA_STA4
                                (0x01 << 12)
00067
```

```
00068 // p145
00069 #define PWM_DMAC_DREQ (0xff << 0)
00070 #define PWM_DMAC_PANIC (0xff << 8)
00071 #define PWM_DMAC_ENAB (0x01 << 31)
00072
00073 class PwmRPi {
00074
00078
            Bcm2835::Peripheral pwm;
00079
00083
            unsigned char channel;
00084
00085 public:
00086
00087
            PwmRPi(unsigned char channel);
88000
00091
            void begin();
00092
00095
           void stop();
00096
00099
            void analogWrite(unsigned char value);
00100
00101
00102 };
00103
00104 extern PwmRPi Pwm0;
00105 extern PwmRPi Pwml;
00106
00107 #endif /* ___RASPBERRY_PWM_H__ */
```

4.7 simple_read.c File Reference

```
#include <Wire.h>
#include <stdio.h>
```

Include dependency graph for simple_read.c:



Functions

• int main ()

4.7.1 Function Documentation

4.7.1.1 int main ()

Definition at line 4 of file simple read.c.

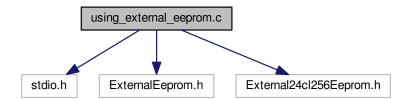
4.8 simple_read.c

```
00001 #include <Wire.h>
00002 #include <stdio.h>
00003
```

```
00004 int main() {
00005
          printf("Begining...");
00006
           Wire.begin();
00007
80000
           Wire.beginTransmission(0x21);
00009
           Wire.write(0x00);
00010
           Wire.write(0x00);
00011
           Wire.endTransmission();
00012
           Wire.requestFrom(0x21, 16);
00013
          while (Wire.available()) {
   printf("%d\n", Wire.read());
00014
00015
00016
00017
           Wire.dumpStatus();
00018
           Wire.stop();
00019
          printf("Stop.");
00020 }
```

4.9 using_external_eeprom.c File Reference

```
#include <stdio.h>
#include <ExternalEeprom.h>
#include <External24cl256Eeprom.h>
Include dependency graph for using_external_eeprom.c:
```



Functions

• int main ()

4.9.1 Function Documentation

4.9.1.1 int main ()

Definition at line 8 of file using_external_eeprom.c.

4.10 using_external_eeprom.c

```
00001
00002 // Yout will find ExternalEeprom here: https://github.com/dalmirdasilva/ArduinoMemoryDriver
00003
00004 #include <stdio.h>
00005 #include <ExternalEeprom.h>
00006 #include <External24cl256Eeprom.h>
00007
00008 int main() {
00009
00010
          External24c1256Eeprom eeprom(0x00);
00011
           for (i = 0; i < 16; i++) {
    printf("%d\n", eeprom.read(i));</pre>
00012
00013
00014
00015
```

```
00016 return 0;
00017 }
00018
00019
```

Index

analogWrite	PWM_DMAC
PwmRPi, 2	Pwm.h, 7
Arduino.h, 3	PWM_DMAC_DREQ
delay, 3	 Pwm.h, <mark>7</mark>
	PWM_DMAC_ENAB
begin	
-	Pwm.h, 7
PwmRPi, 2	PWM_DMAC_PANIC
	Pwm.h, 7
channel	PWM FIF1
PwmRPi, 3	 Pwm.h, 7
	PWM RNG1
delay	-
Arduino.h, 3	Pwm.h, 7
, additioning o	PWM_RNG2
main	Pwm.h, 8
	PWM STA
simple_read.c, 10	Pwm.h, 8
using_external_eeprom.c, 11	PWM STA BERR
PWM_ADDRESS	Pwm.h, 8
Pwm.h, 6	PWM_STA_EMPT1
PWM CTL	Pwm.h, 8
_	PWM STA FULL1
Pwm.h, 6	Pwm.h, 8
PWM_CTL_CLRF1	· ·
Pwm.h, 6	PWM_STA_GAPO1
PWM_CTL_MODE1	Pwm.h, 8
Pwm.h, 6	PWM_STA_GAPO2
PWM CTL MODE2	Pwm.h, 8
Pwm.h, 6	PWM STA GAPO3
	Pwm.h, 8
PWM_CTL_MSEN1	,
Pwm.h, 6	PWM_STA_GAPO4
PWM_CTL_MSEN2	Pwm.h, 8
Pwm.h, 6	PWM_STA_RERR1
PWM CTL POLA1	Pwm.h, 8
Pwm.h, 6	PWM_STA_STA1
	Pwm.h, 8
PWM_CTL_POLA2	PWM STA STA2
Pwm.h, 6	
PWM_CTL_PWEN1	Pwm.h, 8
Pwm.h, 6	PWM_STA_STA3
PWM CTL PWEN2	Pwm.h, 8
Pwm.h, 6	PWM_STA_STA4
PWM CTL RPTL1	Pwm.h, 8
Pwm.h, 7	PWM_STA_WERR1
•	Pwm.h, 8
PWM_CTL_RPTL2	
Pwm.h, 7	pwm
PWM_CTL_SBIT1	PwmRPi, 3
Pwm.h, 7	Pwm.cpp, 4
PWM CTL SBIT2	Pwm0, 4
Pwm.h, 7	Pwm1, 4
PWM CTL USEF1	Pwm.h, 4
Pwm.h, 7	PWM_ADDRESS, 6
PWM_CTL_USEF2	PWM_CTL, 6
Pwm.h, 7	PWM_CTL_CLRF1, 6
PWM_DAT1	PWM_CTL_MODE1, 6
	PWM_CTL_MODE2, 6
PWM DAT2	PWM CTL MSEN1, 6
Pwm.h, 7	PWM_CTL_MSEN1, 6
ı vv(II.II, /	F VVIVI_O I L_IVIOEINZ, 6

14 INDEX

```
PWM_CTL_POLA1, 6
    PWM CTL POLA2, 6
    PWM_CTL_PWEN1, 6
    PWM_CTL_PWEN2, 6
    PWM_CTL_RPTL1, 7
    PWM CTL RPTL2, 7
    PWM CTL SBIT1, 7
    PWM_CTL_SBIT2, 7
    PWM CTL USEF1, 7
    PWM_CTL_USEF2, 7
    PWM_DAT1, 7
    PWM_DAT2, 7
    PWM_DMAC, 7
    PWM_DMAC_DREQ, 7
    PWM_DMAC_ENAB, 7
    PWM_DMAC_PANIC, 7
    PWM FIF1, 7
    PWM RNG1, 7
    PWM_RNG2, 8
    PWM_STA, 8
    PWM STA BERR, 8
    PWM_STA_EMPT1, 8
    PWM_STA_FULL1, 8
    PWM_STA_GAPO1, 8
    PWM_STA_GAPO2, 8
    PWM_STA_GAPO3, 8
    PWM_STA_GAPO4, 8
    PWM STA RERR1, 8
    PWM STA STA1, 8
    PWM_STA_STA2, 8
    PWM_STA_STA3, 8
    PWM_STA_STA4, 8
    PWM_STA_WERR1, 8
    Pwm0, 9
    Pwm1, 9
Pwm0
    Pwm.cpp, 4
    Pwm.h, 9
Pwm1
    Pwm.cpp, 4
    Pwm.h, 9
PwmRPi, 2
    analogWrite, 2
    begin, 2
    channel, 3
    pwm, 3
    PwmRPi, 2
    stop, 2
simple_read.c, 10
    main, 10
stop
    PwmRPi, 2
using_external_eeprom.c, 11
    main, 11
```