Arduino Gyroscope Driver

Generated by Doxygen 1.8.9.1

Tue Aug 18 2015 22:51:55

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1.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

2 File Index

2.1 File List

Here is a list of all files with brief descriptions:

3 Class Documentation

3.1 MAX7219Driver Class Reference

```
#include <MAX7219Driver.h>
```

Public Types

- enum Registers {
NOOP = 0x00, DIGIT0 = 0x01, DIGIT1 = 0x02, DIGIT2 = 0x03,
DIGIT3 = 0x04, DIGIT4 = 0x05, DIGIT5 = 0x06, DIGIT6 = 0x07,
DIGIT7 = 0x08, DECODE_MODE = 0x09, INTENSITY = 0x0a, SCAN_LIMIT = 0x0b,
SHUTDOWN = 0x0c, DISPLAY_TEST = 0x0f }
- enum ScanLimit {
DIGIT_UPTO_0 = 0x00, DIGIT_UPTO_1 = 0x01, DIGIT_UPTO_2 = 0x02, DIGIT_UPTO_3 = 0x03,
DIGIT_UPTO_4 = 0x04, DIGIT_UPTO_5 = 0x05, DIGIT_UPTO_6 = 0x06, DIGIT_UPTO_7 = 0x07 }
- enum ShutdownMode { SHUTDOWN_MODE = 0x00, NORMAL_MODE = 0x01 }
- enum DecodeMode { NO_DECODE = 0x00, DECODE_0 = 0x01, DECODE_0_TO_3 = 0x0f, DECODE_0_TO_7 = 0xff }
- enum TestMode { TEST_MODE_OFF = 0x00, TEST_MODE_ON = 0x01 }

Public Member Functions

- MAX7219Driver (unsigned char dataPin, unsigned char clockPin, unsigned char loadPin)
- void setShutdown (unsigned char value)
- void setDecodeMode (unsigned char mode)
- void setDisplayIntensity (unsigned char intensity)
- void setScanLimit (unsigned char limit)
- void setTestMode (unsigned char mode)
- void fill (unsigned char patern)
- void writeRegister (unsigned char reg, unsigned char value)

- void sendPackage (unsigned int package)
- unsigned int createPackage (unsigned char reg, unsigned char payload)

Private Attributes

- unsigned char dataPin
- unsigned char clockPin
- unsigned char loadPin

3.1.1 Detailed Description

Definition at line 30 of file MAX7219Driver.h.

3.1.2 Member Enumeration Documentation

3.1.2.1 enum MAX7219Driver::DecodeMode

Enumerator

NO_DECODE

DECODE_0

DECODE_0_TO_3

DECODE_0_TO_7

Definition at line 70 of file MAX7219Driver.h.

3.1.2.2 enum MAX7219Driver::Registers

Enumerator

NOOP

DIGIT0

DIGIT1

DIGIT2

DIGIT3

DIGIT4

DIGIT5

DIGIT6

DIGIT7

DECODE_MODE

INTENSITY

SCAN_LIMIT

SHUTDOWN

DISPLAY_TEST

Definition at line 38 of file MAX7219Driver.h.

3.1.2.3 enum MAX7219Driver::ScanLimit

Enumerator

DIGIT_UPTO_0

DIGIT_UPTO_1

DIGIT_UPTO_2

DIGIT_UPTO_3

DIGIT_UPTO_4

DIGIT_UPTO_5

DIGIT_UPTO_6

DIGIT_UPTO_7

Definition at line 55 of file MAX7219Driver.h.

3.1.2.4 enum MAX7219Driver::ShutdownMode

Enumerator

SHUTDOWN_MODE

NORMAL_MODE

Definition at line 66 of file MAX7219Driver.h.

3.1.2.5 enum MAX7219Driver::TestMode

Enumerator

TEST_MODE_OFF

TEST_MODE_ON

Definition at line 77 of file MAX7219Driver.h.

3.1.3 Constructor & Destructor Documentation

3.1.3.1 MAX7219Driver::MAX7219Driver (unsigned char *dataPin,* unsigned char *clockPin,* unsigned char *loadPin*)

Definition at line 16 of file MAX7219Driver.cpp.

3.1.4 Member Function Documentation

3.1.4.1 unsigned int MAX7219Driver::createPackage (unsigned char *reg,* unsigned char *payload*)

Definition at line 71 of file MAX7219Driver.cpp.

3.1.4.2 void MAX7219Driver::fill (unsigned char *patern*)

Definition at line 46 of file MAX7219Driver.cpp.

3.1.4.3 void MAX7219Driver::sendPackage (unsigned int *package*)

Definition at line 59 of file MAX7219Driver.cpp.

3.1.4.4 void MAX7219Driver::setDecodeMode (unsigned char *mode*)

Definition at line 30 of file MAX7219Driver.cpp.

3.1.4.5 void MAX7219Driver::setDisplayIntensity (unsigned char *intensity*)

Definition at line 34 of file MAX7219Driver.cpp.

3.1.4.6 void MAX7219Driver::setScanLimit (unsigned char *limit*)

Definition at line 38 of file MAX7219Driver.cpp.

3.1.4.7 void MAX7219Driver::setShutdown (unsigned char *value*)

Definition at line 26 of file MAX7219Driver.cpp.

3.1.4.8 void MAX7219Driver::setTestMode (unsigned char *mode*)

Definition at line 42 of file MAX7219Driver.cpp.

3.1.4.9 void MAX7219Driver::writeRegister (unsigned char *reg,* unsigned char *value*)

Definition at line 54 of file MAX7219Driver.cpp.

3.1.5 Member Data Documentation

3.1.5.1 unsigned char MAX7219Driver::clockPin `[private]`

Definition at line 33 of file MAX7219Driver.h.

3.1.5.2 unsigned char MAX7219Driver::dataPin `[private]`

Definition at line 32 of file MAX7219Driver.h.

3.1.5.3 unsigned char MAX7219Driver::loadPin `[private]`

Definition at line 34 of file MAX7219Driver.h.

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

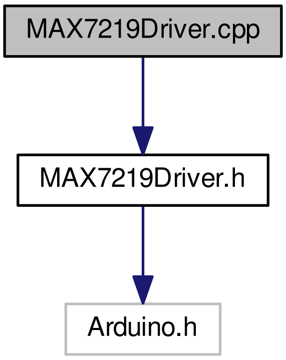
- MAX7219Driver.h
- MAX7219Driver.cpp

4 File Documentation

4.1 MAX7219Driver.cpp File Reference

```
#include "MAX7219Driver.h"
```

Include dependency graph for MAX7219Driver.cpp:



Macros

- #define __ARDUINO_DRIVER_MAX7219_CPP__ 1

4.1.1 Macro Definition Documentation

4.1.1.1 #define __ARDUINO_DRIVER_MAX7219_CPP__ 1

Arduino - MAX7219 driver.

MAX7219Driver.cpp

MAX7219 driver.

Author

Dalmir da Silva dalmirdasilva@gmail.com

Definition at line 12 of file MAX7219Driver.cpp.

4.2 MAX7219Driver.cpp

```
00001
00011 #ifndef __ARDUINO_DRIVER_MAX7219_CPP__
00012 #define __ARDUINO_DRIVER_MAX7219_CPP__ 1
00013
00014 #include "MAX7219Driver.h"
00015
00016 MAX7219Driver::MAX7219Driver(unsigned char dataPin, unsigned char clockPin,
00017         unsigned char loadPin) {
00018     this->dataPin = dataPin;
00019     this->clockPin = clockPin;
00020     this->loadPin = loadPin;
00021     pinMode(dataPin, OUTPUT);
00022     pinMode(clockPin, OUTPUT);
00023     pinMode(loadPin, OUTPUT);
00024 }
00025
00026 void MAX7219Driver::setShutdown(unsigned char value) {
00027     writeRegister(SHUTDOWN, value);
00028 }
00029
00030 void MAX7219Driver::setDecodeMode(unsigned char mode) {
    writeRegister(DECODE_MODE, mode);
}

void MAX7219Driver::setDisplayIntensity(unsigned char intensity) {
    writeRegister(INTENSITY, intensity);
}

void MAX7219Driver::setScanLimit(unsigned char limit) {
    writeRegister(SCAN_LIMIT, limit);
}

void MAX7219Driver::setTestMode(unsigned char mode) {
    writeRegister(DISPLAY_TEST, mode);
}

void MAX7219Driver::fill(unsigned char patern) {
    unsigned char digitMap[MAX7219_WIDTH] = {DIGIT0, DIGIT1, DIGIT2, DIGIT3,
            DIGIT4, DIGIT5, DIGIT6, DIGIT7};
    for (unsigned char i = 0; i < MAX7219_WIDTH; i++) {
        writeRegister(digitMap[i], patern);
    }
}

void MAX7219Driver::writeRegister(unsigned char reg, unsigned char value) {
    unsigned int package = createPackage(reg, value);
    sendPackage(package);
}

void MAX7219Driver::sendPackage(unsigned int package) {
    unsigned char reg = (unsigned char) ((package >> 8) & 0xff);
    unsigned char order = MSBFIRST;
    if (reg >= DIGIT0 && reg <= DIGIT7) {
        order = MAX7219_DIGIR_ORDER;
    }
    digitalWrite(loadPin, LOW);
    shiftOut(dataPin, clockPin, MSBFIRST, reg);
    shiftOut(dataPin, clockPin, order, (unsigned char) (package & 0xff));
    digitalWrite(loadPin, HIGH);
}

unsigned int MAX7219Driver::createPackage(unsigned char reg,
        unsigned char payload) {
    unsigned int package;
    package = (0x000f & reg);
    package <<= 8;
    package |= (0x00ff & payload);
    return package;
}

#endif /* __ARDUINO_DRIVER_MAX7219_CPP__ */
```

4.3 MAX7219Driver.h File Reference

`#include <Arduino.h>`

Include dependency graph for MAX7219Driver.h: