Arduino Driver - Device

Generated by Doxygen 1.8.9.1

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Contents

1 Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

2 Class Index

2.1 Class List

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

3 File Index

3.1 File List

Here is a list of all files with brief descriptions:

4 Class Documentation

4.1 Device Class Reference

`#include <Device.h>`

Public Member Functions

- Device ()

4.1.1 Detailed Description

Arduino - Device.

Device.cpp

Author

Dalmir da Silva dalmirdasilva@gmail.com

Definition at line 12 of file Device.h.

4.1.2 Constructor & Destructor Documentation

4.1.2.1 Device::Device ( )

Public constructor.

Parameters

address	The wire address.

Definition at line 3 of file Device.cpp.

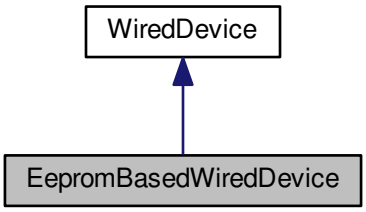
The documentation for this class was generated from the following files:

- Device.h
- Device.cpp

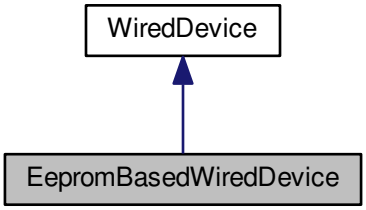
4.2 EepromBasedWiredDevice Class Reference

`#include <EepromBasedWiredDevice.h>`

Inheritance diagram for EepromBasedWiredDevice:



Collaboration diagram for EepromBasedWiredDevice:



Public Member Functions

- EepromBasedWiredDevice (unsigned char deviceAddress, unsigned char addressSize)
- void writeBlock (unsigned int address, unsigned char *buf, int len)
- void readBlock (unsigned int address, unsigned char *buf, int len)

Private Attributes

- unsigned char addressSize

4.2.1 Detailed Description

Arduino - Register Based Wire Device.

RegisterBasedWireDevice.cpp

Author

Dalmir da Silva dalmirdasilva@gmail.com

Definition at line 14 of file EepromBasedWiredDevice.h.

4.2.2 Constructor & Destructor Documentation

4.2.2.1 EepromBasedWiredDevice::EepromBasedWiredDevice (unsigned char *deviceAddress,* unsigned char *addressSize*)

Public constructor.

Parameters

address	The wire address.

Definition at line 5 of file EepromBasedWiredDevice.cpp.

4.2.3 Member Function Documentation

4.2.3.1 void EepromBasedWiredDevice::readBlock (unsigned int *address*, unsigned char * *buf*, int *len*)

Reads a block of bytes from the device.

Parameters

address	
buf	
len	

Definition at line 22 of file EepromBasedWiredDevice.cpp.

4.2.3.2 void EepromBasedWiredDevice::writeBlock (unsigned int *address*, unsigned char * *buf*, int *len*)

Writes a block of bytes separately by pages to the device.

Parameters

address	
buf	
len	

Definition at line 9 of file EepromBasedWiredDevice.cpp.

4.2.4 Member Data Documentation

4.2.4.1 unsigned char EepromBasedWiredDevice::addressSize [private]

Definition at line 16 of file EepromBasedWiredDevice.h.

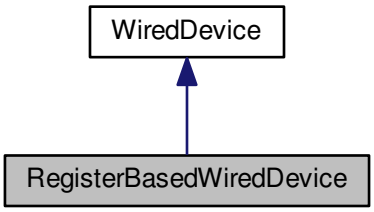
The documentation for this class was generated from the following files:

- EepromBasedWiredDevice.h
- EepromBasedWiredDevice.cpp

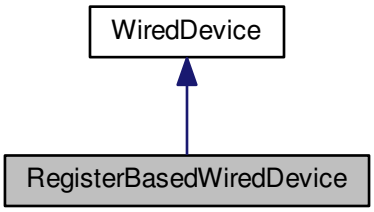
4.3 RegisterBasedWiredDevice Class Reference

```
#include <RegisterBasedWiredDevice.h>
```

Inheritance diagram for RegisterBasedWiredDevice:



Collaboration diagram for RegisterBasedWiredDevice:



Public Member Functions

- RegisterBasedWiredDevice (unsigned char address)
- void configureRegisterBits (unsigned char reg, unsigned char mask, unsigned char d)
- unsigned char writeRegister (unsigned char reg, unsigned char d)
- int readRegister (unsigned char reg)

Static Private Attributes

- static const unsigned char MAX_RETRIES_ON_READING = 10

4.3.1 Detailed Description

Arduino - Register Based Wire Device.

RegisterBasedWireDevice.cpp

Author

Dalmir da Silva dalmirdasilva@gmail.com

Definition at line 14 of file RegisterBasedWiredDevice.h.

4.3.2 Constructor & Destructor Documentation

4.3.2.1 RegisterBasedWiredDevice::RegisterBasedWiredDevice (unsigned char *address*)

Public constructor.

Parameters

address	The wire address.

Definition at line 5 of file RegisterBasedWiredDevice.cpp.

4.3.3 Member Function Documentation

4.3.3.1 void RegisterBasedWiredDevice::configureRegisterBits (unsigned char *reg*, unsigned char *mask*, unsigned char *d*)

Configures a register.

Parameters

reg	The register number.
mask	The mask to be used.
d	The value to be used.

Definition at line 10 of file RegisterBasedWiredDevice.cpp.

4.3.3.2 int RegisterBasedWiredDevice::readRegister (unsigned char *reg*)

Reades a value from a register.

Parameters

reg	The register number.

Returns

The register value.

Definition at line 27 of file RegisterBasedWiredDevice.cpp.

4.3.3.3 unsigned char RegisterBasedWiredDevice::writeRegister (unsigned char *reg*, unsigned char *d*)

Writes a value to a register.

Parameters

reg	The register number.
d	The value to be used.

Definition at line 19 of file RegisterBasedWiredDevice.cpp.

4.3.4 Member Data Documentation

4.3.4.1 const unsigned char RegisterBasedWiredDevice::MAX_RETRIES_ON_READING = 10 [static], [private]

Definition at line 16 of file RegisterBasedWiredDevice.h.

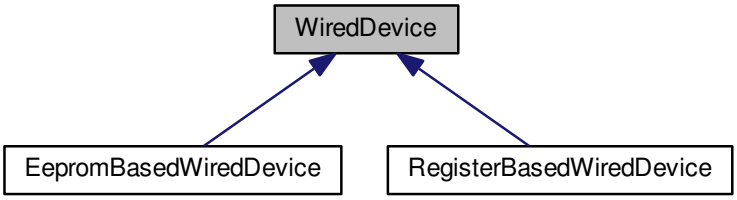
The documentation for this class was generated from the following files:

- RegisterBasedWiredDevice.h
- RegisterBasedWiredDevice.cpp

4.4 WiredDevice Class Reference

`#include <WiredDevice.h>`

Inheritance diagram for WiredDevice:



Public Member Functions

- WiredDevice (unsigned char deviceAddress)
- unsigned char getDeviceAddress ()
- void setDeviceAddress (unsigned char deviceAddress)

Private Attributes

- unsigned char deviceAddress

4.4.1 Detailed Description

Arduino - Wired Device.

WiredDevice.cpp

Author

Dalmir da Silva dalmirdasilva@gmail.com

Definition at line 12 of file WiredDevice.h.

4.4.2 Constructor & Destructor Documentation

4.4.2.1 WiredDevice::WiredDevice (unsigned char *deviceAddress*)

Public constructor.

Parameters

address	The wire address.

Definition at line 3 of file WiredDevice.cpp.

4.4.3 Member Function Documentation

4.4.3.1 unsigned char WiredDevice::getDeviceAddress ( )

Gets the device address.

Returns

address

Definition at line 7 of file WiredDevice.cpp.

4.4.3.2 void WiredDevice::setDeviceAddress (unsigned char *deviceAddress*)

Sets the device address.

Parameters

address	The device address.

Definition at line 11 of file WiredDevice.cpp.

4.4.4 Member Data Documentation

4.4.4.1 unsigned char WiredDevice::deviceAddress [private]

Definition at line 14 of file WiredDevice.h.

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

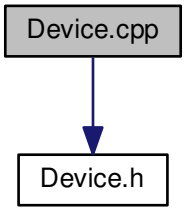
- WiredDevice.h
- WiredDevice.cpp

5 File Documentation

5.1 Device.cpp File Reference

```
#include "Device.h"
```

Include dependency graph for Device.cpp:



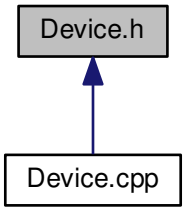
5.2 Device.cpp

```
00001 #include "Device.h"
```

```
00002
00003 Device::Device() {
00004 }
```

5.3 Device.h File Reference

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



Classes

- class Device

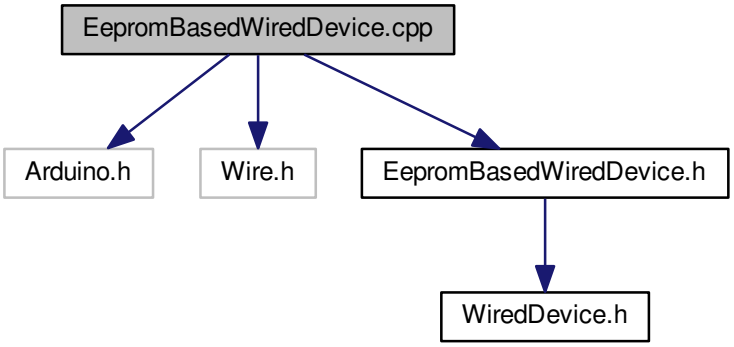
5.4 Device.h

```
00001
00009 #ifndef __ARDUINO_DRIVER_DEVICE_H__
00010 #define __ARDUINO_DRIVER_DEVICE_H__ 1
00011
00012 class Device {
00013
00014 public:
00015
00021     Device();
00022 };
00023
00024 #endif /* __ARDUINO_DRIVER_DEVICE_H__ */
```

5.5 EepromBasedWiredDevice.cpp File Reference

```
#include <Arduino.h>
#include <Wire.h>
#include "EepromBasedWiredDevice.h"
```

Include dependency graph for EepromBasedWiredDevice.cpp:

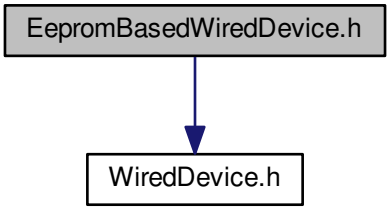


5.6 EepromBasedWiredDevice.cpp

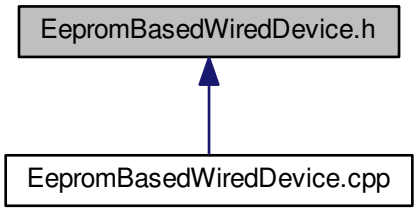
```
00001 #include <Arduino.h>
00002 #include <Wire.h>
00003 #include "EepromBasedWiredDevice.h"
00004
00005 EepromBasedWiredDevice::EepromBasedWiredDevice(unsigned char
      deviceAddress, unsigned char addressSize)
00006         : WiredDevice(deviceAddress), addressSize(addressSize) {
00007 }
00008
00009 void EepromBasedWiredDevice::writeBlock(unsigned int address, unsigned
      char* buf,
00010         int len) {
00011     Wire.beginTransmission(getDeviceAddress());
00012     for (unsigned char i = addressSize - 1; i >= 0; i--) {
00013         Wire.write((unsigned char) (address >> (i * 8)) & 0xff);
00014     }
00015     for (int i = 0; i < len; i++) {
00016         Wire.write(buf[i]);
00017     }
00018     Wire.endTransmission();
00019     delay(5);
00020 }
00021
00022 void EepromBasedWiredDevice::readBlock(unsigned int address, unsigned char
      * buf,
00023         int len) {
00024     Wire.beginTransmission(getDeviceAddress());
00025     for (unsigned char i = addressSize - 1; i >= 0; i--) {
00026         Wire.write((unsigned char) (address >> (i * 8)) & 0xff);
00027     }
00028     Wire.endTransmission();
00029     Wire.requestFrom((int) getDeviceAddress(), len);
00030     for (int i = 0; i < len; i++) {
00031         while (!Wire.available())
00032             ;
00033         buf[i] = Wire.read();
00034     }
00035 }
```

5.7 EepromBasedWiredDevice.h File Reference

`#include <WiredDevice.h>`
Include dependency graph for EepromBasedWiredDevice.h:



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



Classes

- class EepromBasedWiredDevice

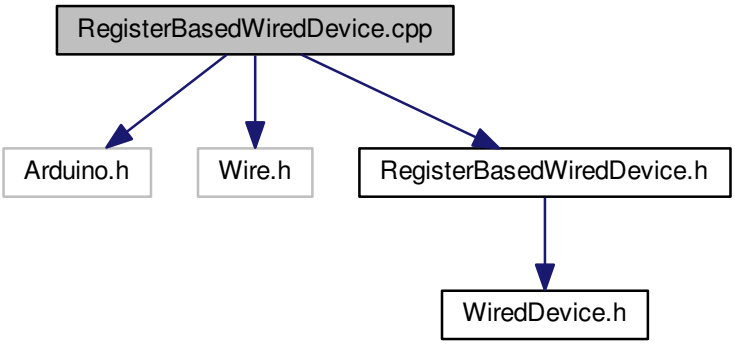
5.8 EepromBasedWiredDevice.h

```
00001
00009 #ifndef __ARDUINO_DRIVER_EEPROM_BASED_WIRED_DEVICE_H__
00010 #define __ARDUINO_DRIVER_EEPROM_BASED_WIRED_DEVICE_H__ 1
00011
00012 #include <WiredDevice.h>
00013
00014 class EepromBasedWiredDevice: public WiredDevice {
00015
00016     unsigned char addressSize;
00017
00018 public:
00019
00025     EepromBasedWiredDevice(unsigned char deviceAddress, unsigned char
      addressSize);
00026
00034     void writeBlock(unsigned int address, unsigned char* buf, int len);
00035
00043     void readBlock(unsigned int address, unsigned char* buf, int len);
00044 };
00045
00046 #endif /* __ARDUINO_DRIVER_EEPROM_BASED_WIRED_DEVICE_H__ */
```

5.9 RegisterBasedWiredDevice.cpp File Reference

```
#include <Arduino.h>
#include <Wire.h>
#include "RegisterBasedWiredDevice.h"
```

Include dependency graph for RegisterBasedWiredDevice.cpp:



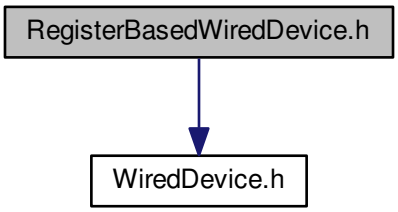
5.10 RegisterBasedWiredDevice.cpp

```
00001 #include <Arduino.h>
00002 #include <Wire.h>
00003 #include "RegisterBasedWiredDevice.h"
00004
00005 RegisterBasedWiredDevice::RegisterBasedWiredDevice(
00006         unsigned char address) :
00007         WiredDevice(address) {
00008 }
00009
00010 void RegisterBasedWiredDevice::configureRegisterBits(
      unsigned char reg,
00011         unsigned char mask, unsigned char d) {
00012     unsigned char n;
00013     n = readRegister(reg);
00014     n &= ~(mask);
00015     n |= d & mask;
00016     writeRegister(reg, n);
00017 }
00018
00019 unsigned char RegisterBasedWiredDevice::writeRegister(unsigned char
      reg,
00020         unsigned char d) {
00021     Wire.beginTransmission(getDeviceAddress());
00022     Wire.write(reg);
00023     Wire.write(d);
00024     return Wire.endTransmission();
00025 }
00026
00027 int RegisterBasedWiredDevice::readRegister(unsigned char reg) {
00028     char tries = MAX_RETRIES_ON_READING;
00029     Wire.beginTransmission(getDeviceAddress());
00030     Wire.write(reg);
00031     char status = Wire.endTransmission(false);
00032     if (status != 0) {
00033         return -(status);
00034     }
00035     Wire.requestFrom(getDeviceAddress(), (unsigned char) 1);
00036     while (!Wire.available() && --tries > 0) {
00037         delayMicroseconds(1);
00038     }
00039     if (tries == 0) {
00040         return -5;
00041     }
00042     return Wire.read();
```

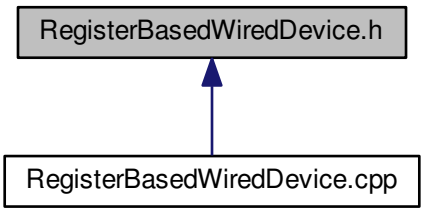
```
00043 }
```

5.11 RegisterBasedWiredDevice.h File Reference

`#include <WiredDevice.h>`
Include dependency graph for RegisterBasedWiredDevice.h:



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



Classes

- class RegisterBasedWiredDevice

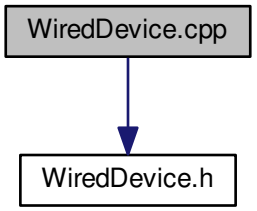
5.12 RegisterBasedWiredDevice.h

```
00001
00009 #ifndef __ARDUINO_DRIVER_REGISTER_BASED_WIRED_DEVICE_H__
00010 #define __ARDUINO_DRIVER_REGISTER_BASED_WIRED_DEVICE_H__ 1
00011
00012 #include <WiredDevice.h>
00013
00014 class RegisterBasedWiredDevice: public WiredDevice {
00015
00016     const static unsigned char MAX_RETRIES_ON_READING = 10;
00017
00018 public:
00019
00025     RegisterBasedWiredDevice(unsigned char address);
00026
00034     void configureRegisterBits(unsigned char reg, unsigned char mask,
00035             unsigned char d);
```

```
00036
00043     unsigned char writeRegister(unsigned char reg, unsigned char d);
00044
00051     int readRegister(unsigned char reg);
00052 };
00053
00054 #endif /* __ARDUINO_DRIVER_REGISTER_BASED_WIRED_DEVICE_H__ */
```

5.13 WiredDevice.cpp File Reference

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

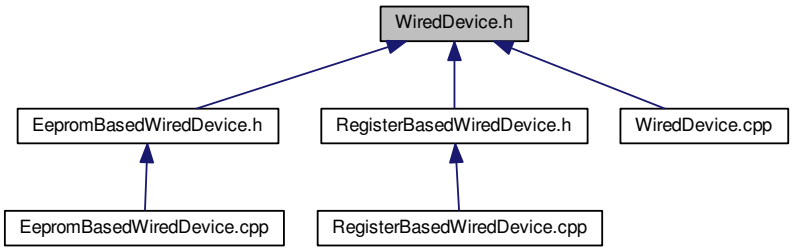


5.14 WiredDevice.cpp

```
00001 #include "WiredDevice.h"
00002
00003 WiredDevice::WiredDevice(unsigned char address)
00004         : deviceAddress(deviceAddress) {
00005 }
00006
00007 unsigned char WiredDevice::getDeviceAddress() {
00008     return deviceAddress;
00009 }
00010
00011 void WiredDevice::setDeviceAddress(unsigned char deviceAddress) {
00012     this->deviceAddress = deviceAddress;
00013 }
```

5.15 WiredDevice.h File Reference

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



Classes

- class WiredDevice

5.16 WiredDevice.h

```
00001
00009 #ifndef __ARDUINO_DRIVER_WIRED_DEVICE_H__
00010 #define __ARDUINO_DRIVER_WIRED_DEVICE_H__ 1
00011
00012 class WiredDevice {
00013
00014     unsigned char deviceAddress;
00015
00016 public:
00017
00023      WiredDevice(unsigned char deviceAddress);
00024
00030      unsigned char getDeviceAddress();
00031
00037      void setDeviceAddress(unsigned char deviceAddress);
00038 };
00039
00040 #endif /* __ARDUINO_DRIVER_WIRED_DEVICE_H__ */
```

Index