# Arduino Driver - Device

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

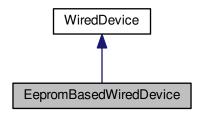
The documentation for this class was generated from the following files:

- Device.h
- Device.cpp

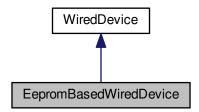
## 4.2 EepromBasedWiredDevice Class Reference

#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	<b>Documentation</b>

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.

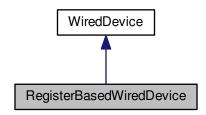
The documentation for this class was generated from the following files:

- EepromBasedWiredDevice.h
- EepromBasedWiredDevice.cpp

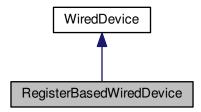
## 4.3 RegisterBasedWiredDevice Class Reference

#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.

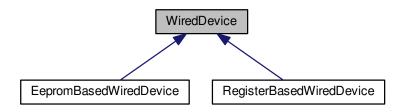
The documentation for this class was generated from the following files:

- · 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.

5 File Documentation 9

#### 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:

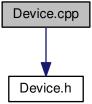
- WiredDevice.h
- WiredDevice.cpp

## 5 File Documentation

## 5.1 Device.cpp File Reference

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

Include dependency graph for Device.cpp:



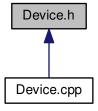
## 5.2 Device.cpp

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

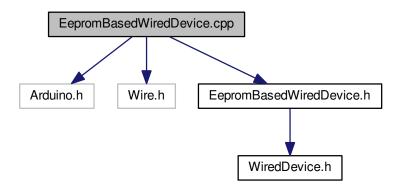
· class Device

## 5.4 Device.h

## 5.5 EepromBasedWiredDevice.cpp File Reference

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

Include dependency graph for EepromBasedWiredDevice.cpp:

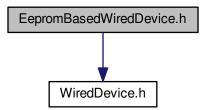


#### 5.6 EepromBasedWiredDevice.cpp

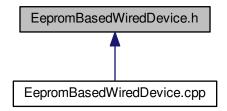
```
00001 #include <Arduino.h>
00002 #include <Wire.h>
00003 #include "EepromBasedWiredDevice.h"
{\tt 00005\ EepromBasedWiredDevice::} {\tt EepromBasedWiredDevice(unsigned\ character}
      deviceAddress, unsigned char addressSize)
    : WiredDevice(deviceAddress), addressSize(addressSize) {
00006
00007 }
00009 void EepromBasedWiredDevice::writeBlock(unsigned int address, unsigned
      char* buf,
00010
               int len) {
00011
           Wire.beginTransmission(getDeviceAddress());
           for (unsigned char i = addressSize - 1; i >= 0; i--) {
00012
00013
               Wire.write((unsigned char) (address >> (i * 8)) & 0xff);
00014
           for (int i = 0; i < len; i++) {
    Wire.write(buf[i]);</pre>
00015
00016
00017
00018
           Wire.endTransmission();
00019
           delay(5);
00020 }
00021
00022 void EepromBasedWiredDevice::readBlock(unsigned int address, unsigned char
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();
           wire.requestFrom((int) getDeviceAddress(), len);
for (int i = 0; i < len; i++) {</pre>
00029
00030
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

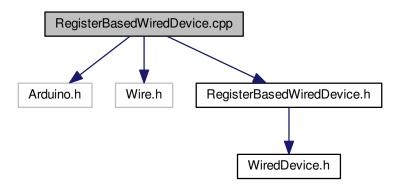
• class EepromBasedWiredDevice

## 5.8 EepromBasedWiredDevice.h

```
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
           unsigned char addressSize;
00017
00018 public:
00019
           EepromBasedWiredDevice(unsigned char deviceAddress, unsigned char
00025
      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 };
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

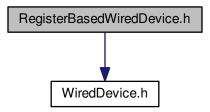
```
00001 #include <Arduino.h>
00002 #include <Wire.h>
00003 #include "RegisterBasedWiredDevice.h"
00004
00005 RegisterBasedWiredDevice::RegisterBasedWiredDevice(
00006
             unsigned char address) :
00007
              WiredDevice(address) {
00008 }
00009
00010 void RegisterBasedWiredDevice::configureRegisterBits(
     unsigned char reg,
             unsigned char mask, unsigned char d) {
00012
          unsigned char n;
00013
          n = readRegister(reg);
00014
          n &= \sim (mask);
          n |= d & mask;
00015
00016
          writeRegister(reg, n);
00017 }
00018
00019 unsigned char RegisterBasedWiredDevice::writeRegister(unsigned char
00020
              unsigned char d) {
00021
          Wire.beginTransmission(getDeviceAddress());
00022
          Wire.write(reg);
          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);
          char status = Wire.endTransmission(false);
if (status != 0) {
00031
00032
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
          }
          return Wire.read();
```

```
00043 }
```

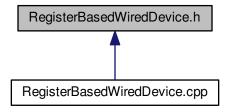
## 5.11 RegisterBasedWiredDevice.h File Reference

```
#include <WiredDevice.h>
```

Include dependency graph for RegisterBasedWiredDevice.h:



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



#### Classes

• class RegisterBasedWiredDevice

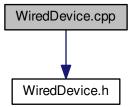
## 5.12 RegisterBasedWiredDevice.h

```
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
           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:
```

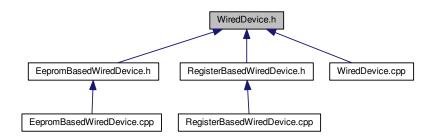


## 5.14 WiredDevice.cpp

```
00001 #include "WiredDevice.h"
00002
00003 WiredDevice::WiredDevice(unsigned char address)
00004
             : deviceAddress(deviceAddress) {
00005 }
00006
00007 unsigned char WiredDevice::getDeviceAddress() {
80000
         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

```
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 };
00040 #endif /* __ARDUINO_DRIVER_WIRED_DEVICE_H_ */
```

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