WireUtility Library

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- int scanNext10bits (HardwareSerial &MySerial, TwoWire &ScanWire)
- int WireTest (TwoWire &ScanWire, int address)
- int scanNext (HardwareSerial &MySerial, TwoWire &ScanWire)
- void wireResetAllDevices (TwoWire &MyWire)
- uint8_t wireRead8 (TwoWire &MyWire, uint8_t _i2caddr, uint8_t addr)
- uint16_t wireRead16 (TwoWire &MyWire, uint8_t _i2caddr, uint8_t addr)
- uint32_t wireRead32 (TwoWire &MyWire, uint8_t _i2caddr, uint8_t addr)
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- int readMem2 (HardwareSerial &MySerial, TwoWire &ScanWire, int adddev, int addreg)
- int readMem3 (HardwareSerial &MySerial, TwoWire &ScanWire, int adddev, int addreg)
- void dump (HardwareSerial &MySerial, TwoWire &ScanWire, int adddev, int addreg, int size)

2.1.1 Detailed Description

description

This library offers utility function for I2c protocol,like :

- scan of device on the line,
- Wiretest to check if the line is alive.
- any read/read of register inside component, evenif no standard exist, several component use the same way to do the thing.
- dump of memory map.
- Reset All Devices on the wire

Any thing usefull to do debug on I2c protocol with wire object.

Author

inspired from : i2c_scanner

Version 1 This program (or code that looks like it) can be found in many places. For example on the Arduino.cc forum. The original author is not known. Version 2, Juni 2012, Using Arduino 1.0.1 Adapted to be as simple as possible by Arduino.cc user Krodal Version 3, Feb 26 2013 V3 by louarnold Version 4, March 3, 2013, Using Arduino 1.0.3 by Arduino.cc user Krodal. Changes by louarnold removed. Scanning WireUtility_addresses changed from 0...127 to 1...119, according to the i2c scanner by Nick Gammon http://www.gammon.com.au/forum/?id=10896 Version 5, March 28, 2013 As version 4, but WireUtility_address scans now to 127. A sensor seems to use Wire↩ Utility_address 120.

version 6, based on previous job create library WireUtility (c) zoubata This sketch tests the standard 7-bit Wire↩ Utility_addresses Devices with higher bit WireUtility_address might not be seen properly.

https://www.i2c-bus.org/WireUtility_addressing/

#include <Wire.h> #include <WireUtility.h>

int WireUtility_address; int scan(HardwareSerial &MySerial,TwoWire &ScanWire) { ScanWire.begin(123); Scan↩ Wire.begin();

WireUtility_address = 0x1;// scan special address return scanNext(MySerial,ScanWire); }

/** Adresse d'appel général : 0000 0000

Après l'émission d'un appel général, les circuits ayant la capacité de traiter ce genre de demande d'appel émettent un acquitement.

Le deuxième octet permet de définir le contenu de l'appel :

0000 0100 Les circuits définissant leur adresse de façon matérielle réinitialisent leur adresse esclave. Cela ne réinitialise pas les circuits.

2.1.2 Function Documentation

2.1.2.1 dump()

```
void dump (
             HardwareSerial & MySerial,
             TwoWire & ScanWire,
             int adddev,
             int addreg,
             int size )
```

dump a 8 bit address data memory map from addreg up to (addreg+size)

Definition at line 340 of file WireUtility.cpp.

2.1.2.2 general_call_init_address()

```
int general_call_init_address (
             TwoWire & ScanWire )
```

Definition at line 70 of file WireUtility.cpp.

2.1.2.3 readMem2()

```
int readMem2 (
             HardwareSerial & MySerial,
             TwoWire & ScanWire,
             int adddev,
             int addreg )
```

Definition at line 282 of file WireUtility.cpp.

2.1.2.4 readMem3()

```
int readMem3 (
             HardwareSerial & MySerial,
             TwoWire & ScanWire,
             int adddev,
             int addreg )
```

Definition at line 311 of file WireUtility.cpp.

2.1.2.5 readRegister()

```
int readRegister (
             HardwareSerial & MySerial,
             TwoWire & ScanWire,
             int adddev,
             int addreg )
```

read a 8 bit address data(addreg)

Definition at line 255 of file WireUtility.cpp.

2.1.2.6 scanNext()

```
int scanNext (
             HardwareSerial & MySerial,
             TwoWire & ScanWire )
```

scan next 7 bit device address. if a 10bit device is found it can scanNext10bits

Definition at line 127 of file WireUtility.cpp.

2.1.2.7 scanNext10bits()

```
int scanNext10bits (
             HardwareSerial & MySerial,
             TwoWire & ScanWire )
```

scan next 10 bit device address.

Definition at line 78 of file WireUtility.cpp.

2.1.2.8 wireRead16()

```
uint16_t wireRead16 (
             TwoWire & MyWire,
             uint8_t _i2caddr,
             uint8_t addr )
```

read 16 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 205 of file WireUtility.cpp.

2.1.2.9 wireRead32()

```
uint32_t wireRead32 (
             TwoWire & MyWire,
             uint8_t _i2caddr,
             uint8_t addr )
```

read 32 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 216 of file WireUtility.cpp.

2.1.2.10 wireRead8()

```
uint8_t wireRead8 (
            TwoWire & MyWire,
            uint8_t _i2caddr,
            uint8_t addr )
```

read 8 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 194 of file WireUtility.cpp.

2.1.2.11 wireResetAllDevices()

```
void wireResetAllDevices (
            TwoWire & MyWire )
```

perform a reset of all device on the line that manage Software Reset Call

The Software Reset address (SWRST Call) must be used with R/W = logic 0. so do a frame with address : 0x0 and write 0b00000110

Definition at line 186 of file WireUtility.cpp.

2.1.2.12 WireTest()

```
int WireTest (
            TwoWire & ScanWire,
            int address )
```

test if a device is present and acknoledging.

Definition at line 115 of file WireUtility.cpp.

2.1.2.13 wireWrite16()

```
void wireWrite16 (
            TwoWire & MyWire,
            uint8_t _i2caddr,
            uint8_t addr,
            uint16_t d )
```

write 16 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 235 of file WireUtility.cpp.

2.1.2.14 wireWrite32()

```
void wireWrite32 (
             TwoWire & MyWire,
             uint8_t _i2caddr,
             uint8_t addr,
             uint32_t d )
```

write 32 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 244 of file WireUtility.cpp.

2.1.2.15 wireWrite8()

```
void wireWrite8 (
             TwoWire & MyWire,
             uint8_t _i2caddr,
             uint8_t addr,
             uint8_t d )
```

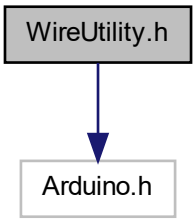
write 8 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 227 of file WireUtility.cpp.

2.2 WireUtility.h File Reference

```
#include "Arduino.h"
```

Include dependency graph for WireUtility.h:



Functions

- int WireTest (TwoWire &ScanWire, int address)
- void dump (HardwareSerial &MySerial, TwoWire &ScanWire, int adddev, int addreg, int size)
- int readRegister (HardwareSerial &MySerial, TwoWire &ScanWire, int adddev, int addreg)
- int readMem2 (TwoWire &ScanWire, int adddev, int addreg)
- int readMem3 (TwoWire &ScanWire, int adddev, int addreg)
- int scan (HardwareSerial &MySerial, TwoWire &ScanWire)
- int scanNext (HardwareSerial &MySerial, TwoWire &ScanWire)
- int scanNext10bits (HardwareSerial &MySerial, TwoWire &ScanWire)
- void wireResetAllDevices (TwoWire &MyWire)
- uint8_t wireRead8 (TwoWire &MyWire, uint8_t _i2caddr, uint8_t addr)
- uint16_t wireRead16 (TwoWire &MyWire, uint8_t _i2caddr, uint8_t addr)
- uint32_t wireRead32 (TwoWire &MyWire, uint8_t _i2caddr, uint8_t addr)
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- void wireWrite32 (TwoWire &MyWire, uint8_t _i2caddr, uint8_t addr, uint32_t d)

2.2.1 Detailed Description

This file content function to help to debug wire interface on component.

2.2.2 Function Documentation

2.2.2.1 dump()

```
void dump (
            HardwareSerial & MySerial,
            TwoWire & ScanWire,
            int adddev,
            int addreg,
            int size )
```

dump a 8 bit address data memory map from addreg up to (addreg+size)

Definition at line 340 of file WireUtility.cpp.

2.2.2.2 readMem2()

```
int readMem2 (
            TwoWire & ScanWire,
            int adddev,
            int addreg )
```

read a 16 bit address data(addreg)

2.2.2.3 readMem3()

```
int readMem3 (
             TwoWire & ScanWire,
             int adddev,
             int addreg )
```

read a 24 bit address data(addreg)

2.2.2.4 readRegister()

```
int readRegister (
             HardwareSerial & MySerial,
             TwoWire & ScanWire,
             int adddev,
             int addreg )
```

read a 8 bit address data(addreg)

Definition at line 255 of file WireUtility.cpp.

2.2.2.5 scan()

```
int scan (
             HardwareSerial & MySerial,
             TwoWire & ScanWire )
```

scan a 7 bit device address. and stop after 1st find, use scanNext to get next.

2.2.2.6 scanNext()

```
int scanNext (
             HardwareSerial & MySerial,
             TwoWire & ScanWire )
```

scan next 7 bit device address. if a 10bit device is found it can scanNext10bits

Definition at line 127 of file WireUtility.cpp.

2.2.2.7 scanNext10bits()

```
int scanNext10bits (
             HardwareSerial & MySerial,
             TwoWire & ScanWire )
```

scan next 10 bit device address.

Definition at line 78 of file WireUtility.cpp.

2.2.2.8 wireRead16()

```
uint16_t wireRead16 (
            TwoWire & MyWire,
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            uint8_t addr )
```

read 16 bits register at address addr on device from i2C called MyWire at address _i2caddr

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```
uint32_t wireRead32 (
            TwoWire & MyWire,
            uint8_t _i2caddr,
            uint8_t addr )
```

read 32 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 216 of file WireUtility.cpp.

2.2.2.10 wireRead8()

```
uint8_t wireRead8 (
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read 8 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 194 of file WireUtility.cpp.

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```
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```
int WireTest (
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             int address )
```

test if a device is present and acknoledging.

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2.2.2.13 wireWrite16()

```
void wireWrite16 (
             TwoWire & MyWire,
             uint8_t _i2caddr,
             uint8_t addr,
             uint16_t d )
```

write 16 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 235 of file WireUtility.cpp.

2.2.2.14 wireWrite32()

```
void wireWrite32 (
             TwoWire & MyWire,
             uint8_t _i2caddr,
             uint8_t addr,
             uint32_t d )
```

write 32 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 244 of file WireUtility.cpp.

2.2.2.15 wireWrite8()

```
void wireWrite8 (
             TwoWire & MyWire,
             uint8_t _i2caddr,
             uint8_t addr,
             uint8_t d )
```

write 8 bits register at address addr on device from i2C called MyWire at address _i2caddr

Definition at line 227 of file WireUtility.cpp.

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