

# SIS3153ETH

## UDP Windows Programmers Guide

SIS GmbH  
Harksheider Str. 102A  
22399 Hamburg  
Germany

Phone: ++49 (0) 40 60 87 305 0  
Fax: ++49 (0) 40 60 87 305 20

email: [info@struck.de](mailto:info@struck.de)  
<http://www.struck.de>

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of 04.08.2017

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## Revision Table:

Revision	Date	Modification
1.00	04.08.2017	First official release

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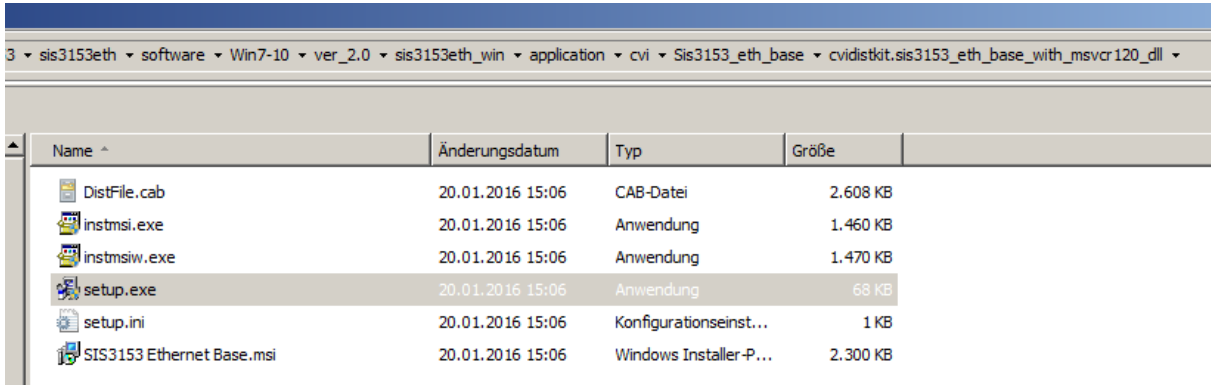
## 1 Table of contents

1	Table of contents .....	3
2	CVI SIS3153 ETH base program.....	4
3	Visual Studio C/C++ Source code examples .....	8
3.1	Executables .....	11
3.1.1	Example "vme_A16D16_read" .....	11
3.1.2	Example "vme_A16D16_write" .....	12
4	Index .....	13

## 2 CVI SIS3153 ETH base program

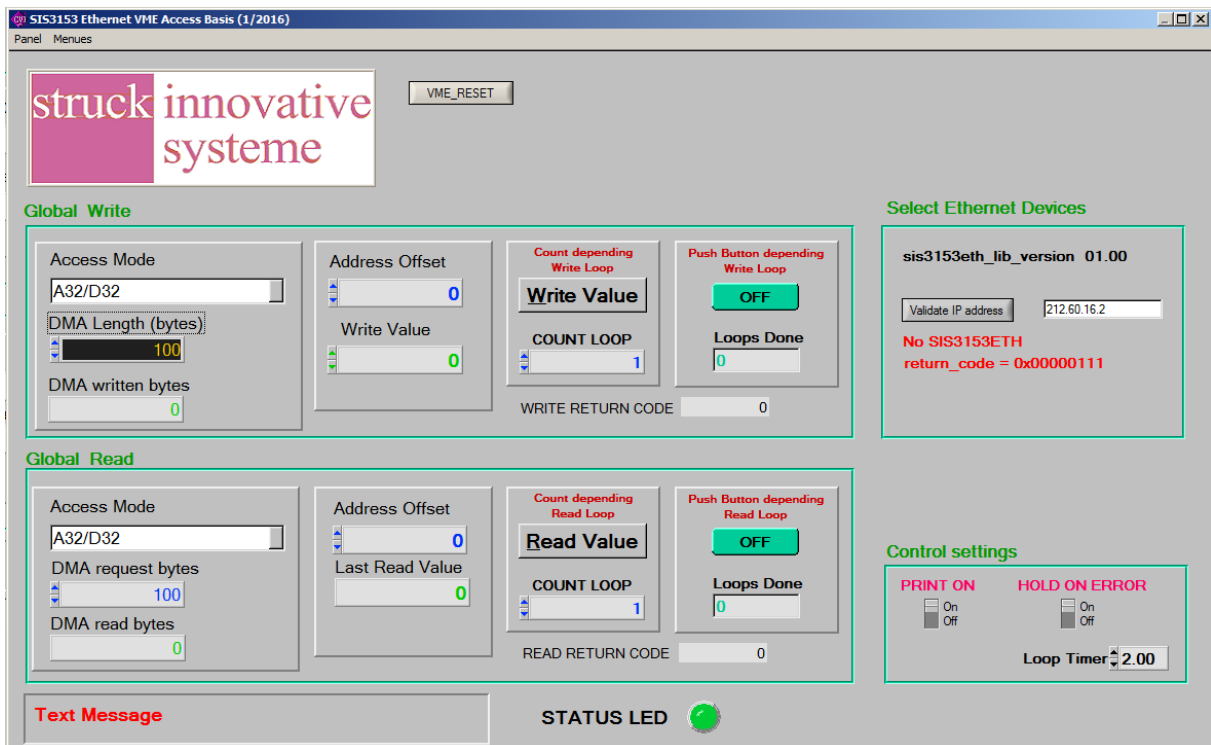
The SIS3153 ETH base program is a convenient tool to execute VME read/write cycles and internal Register read/write cycles.

It has a graphical user interface and is based on National Instruments Labwindows CVI development environment. The program with the CVI runtime engine (RTE) can be installed on a WIN7-PC by running the setup executable in the cvidistkit directory.



Name ^	Änderungsdatum	Typ	Größe
DistFile.cab	20.01.2016 15:06	CAB-Datei	2.608 KB
instmsi.exe	20.01.2016 15:06	Anwendung	1.460 KB
instmsiw.exe	20.01.2016 15:06	Anwendung	1.470 KB
setup.exe	20.01.2016 15:06	Anwendung	68 KB
setup.ini	20.01.2016 15:06	Konfigurationseinst...	1 KB
SIS3153 Ethernet Base.msi	20.01.2016 15:06	Windows Installer-P...	2.300 KB

The user interface of the program is shown below.



**SIS3153 Ethernet VME Access Basis (1/2016)**

Panel Menues

**Global Write**

Access Mode: A32/D32

DMA Length (bytes): 100

DMA written bytes: 0

Address Offset: 0

Write Value: 0

Count depending Write Loop: **Write Value**

COUNT LOOP: 1

Push Button depending Write Loop: **OFF**

Loops Done: 0

WRITE RETURN CODE: 0

**Select Ethernet Devices**

sis3153eth\_lib\_version 01.00

Validate IP address: 212.60.16.2

No SIS3153ETH

return\_code = 0x00000111

**Global Read**

Access Mode: A32/D32

DMA request bytes: 100

DMA read bytes: 0

Address Offset: 0

Last Read Value: 0

Count depending Read Loop: **Read Value**

COUNT LOOP: 1

Push Button depending Read Loop: **OFF**

Loops Done: 0

READ RETURN CODE: 0


**Control settings**

PRINT ON: On Off

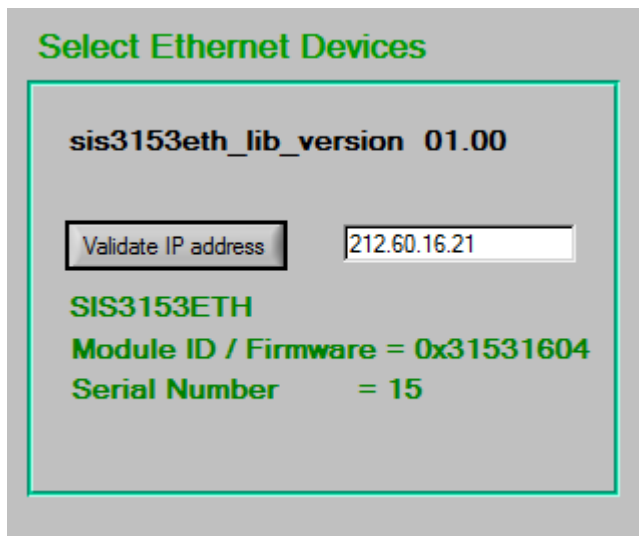
HOLD ON ERROR: On Off

Loop Timer: 2.00

**Text Message**

**STATUS LED** 

First enter the IP-address and then click on “Validate IP address”:

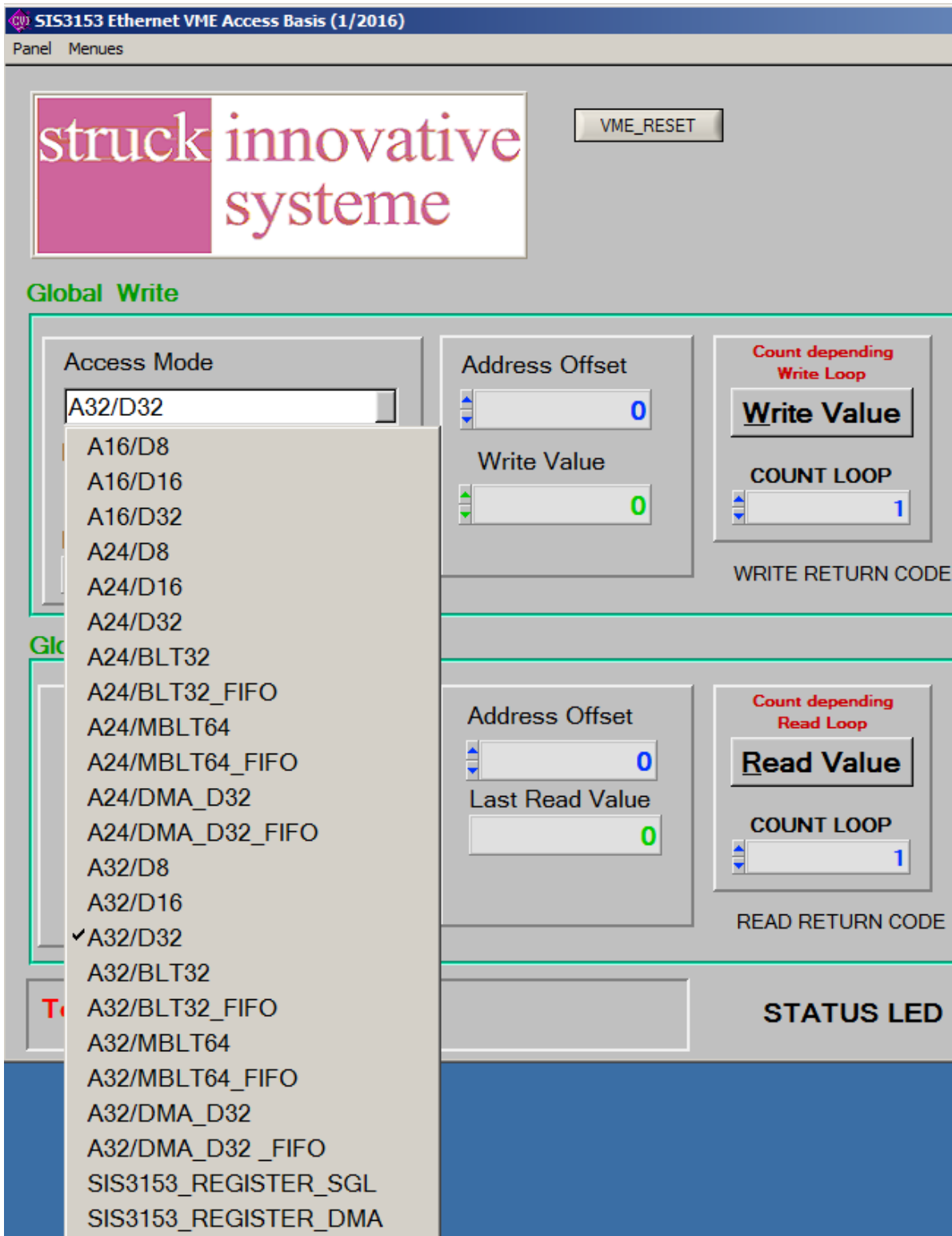


If the IP-address is valid the colour of the message will be changed to green and the message will show the FPGA Firmware version and the Serial Number.

If the following message appears then you have to check the network connection/ IP-address (use ping, arp -s, ..).



The GUI offers a lot of Read/Write cycles. Click in the “Access Mode” box and a selection table appears.



**SIS3153 Ethernet VME Access Basis (1/2016)**

Panel Menues

**struck innovative systeme**

VME\_RESET

**Global Write**

Access Mode

A32/D32

- A16/D8
- A16/D16
- A16/D32
- A24/D8
- A24/D16
- A24/D32
- A24/BLT32
- A24/BLT32\_FIFO
- A24/MBLT64
- A24/MBLT64\_FIFO
- A24/DMA\_D32
- A24/DMA\_D32\_FIFO
- A32/D8
- A32/D16
- ✓ A32/D32
- A32/BLT32
- A32/BLT32\_FIFO
- A32/MBLT64
- A32/MBLT64\_FIFO
- A32/DMA\_D32
- A32/DMA\_D32\_FIFO
- SIS3153\_REGISTER\_SGL
- SIS3153\_REGISTER\_DMA

Address Offset 0

Write Value 0

Count depending Write Loop

**Write Value**

COUNT LOOP 1

WRITE RETURN CODE

Address Offset 0

Last Read Value 0

Count depending Read Loop

**Read Value**

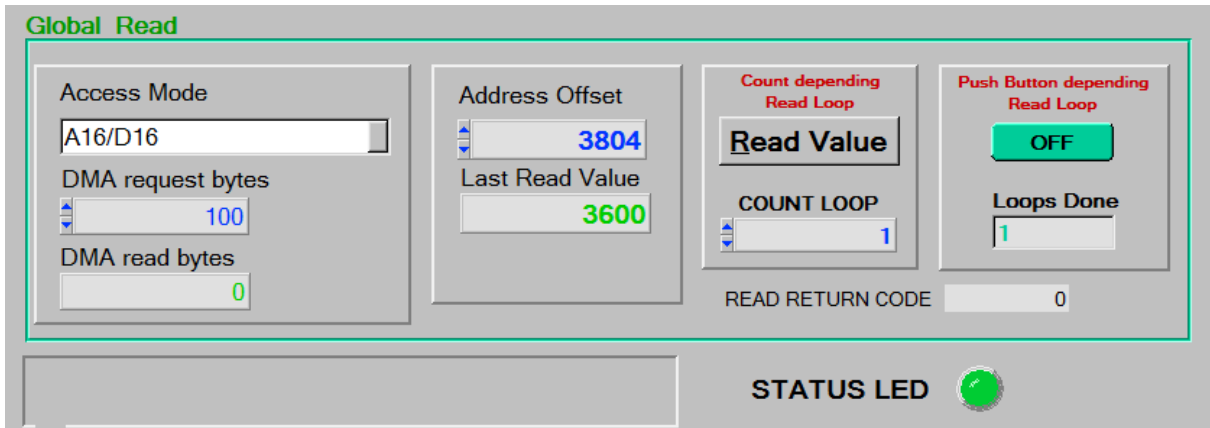
COUNT LOOP 1

READ RETURN CODE

**STATUS LED**

Select for example A16/D16 in the Read “Access Mode” box and enter a valid address. Click on “Read Value” and the read data will be displayed in “Last Read Value” box.

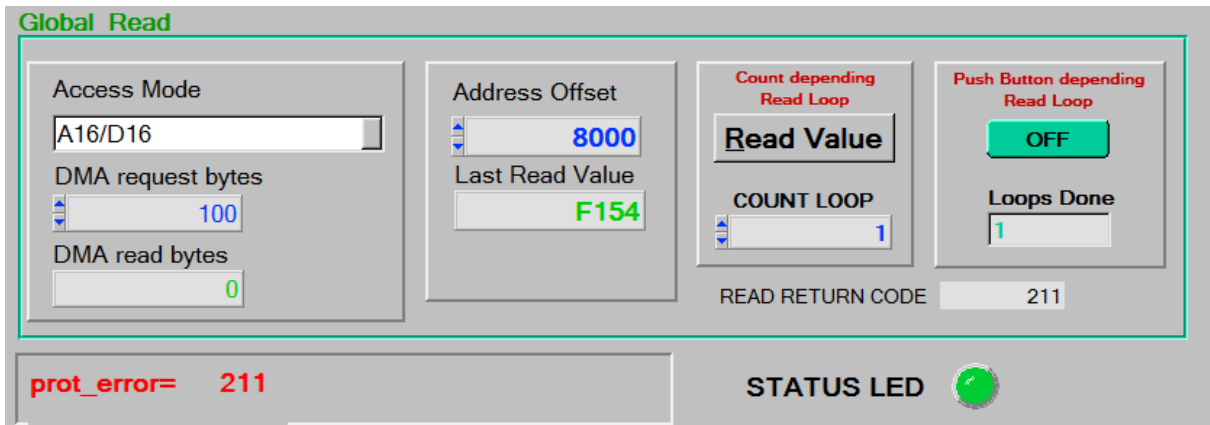
For example: read from a VME module SIS3600 with the address 0x3804.  
This register holds the version register and its value is 0x3600.



The screenshot shows the 'Global Read' window. The 'Access Mode' is set to 'A16/D16'. The 'DMA request bytes' is 100 and 'DMA read bytes' is 0. The 'Address Offset' is 3804. The 'Last Read Value' is 3600. The 'Count depending Read Loop' is selected, and the 'Read Value' button has been clicked. The 'COUNT LOOP' is 1. The 'Push Button depending Read Loop' is OFF. The 'Loops Done' is 1. The 'READ RETURN CODE' is 0. The 'STATUS LED' is green.

No Error-Text message appears.

For example: read from a not valid address.



The screenshot shows the 'Global Read' window with an error. The 'Access Mode' is 'A16/D16', 'DMA request bytes' is 100, and 'DMA read bytes' is 0. The 'Address Offset' is 8000. The 'Last Read Value' is F154. The 'Count depending Read Loop' is selected, and the 'Read Value' button has been clicked. The 'COUNT LOOP' is 1. The 'Push Button depending Read Loop' is OFF. The 'Loops Done' is 1. The 'READ RETURN CODE' is 211. The 'STATUS LED' is green. An error message 'prot\_error= 211' is displayed in the bottom left.

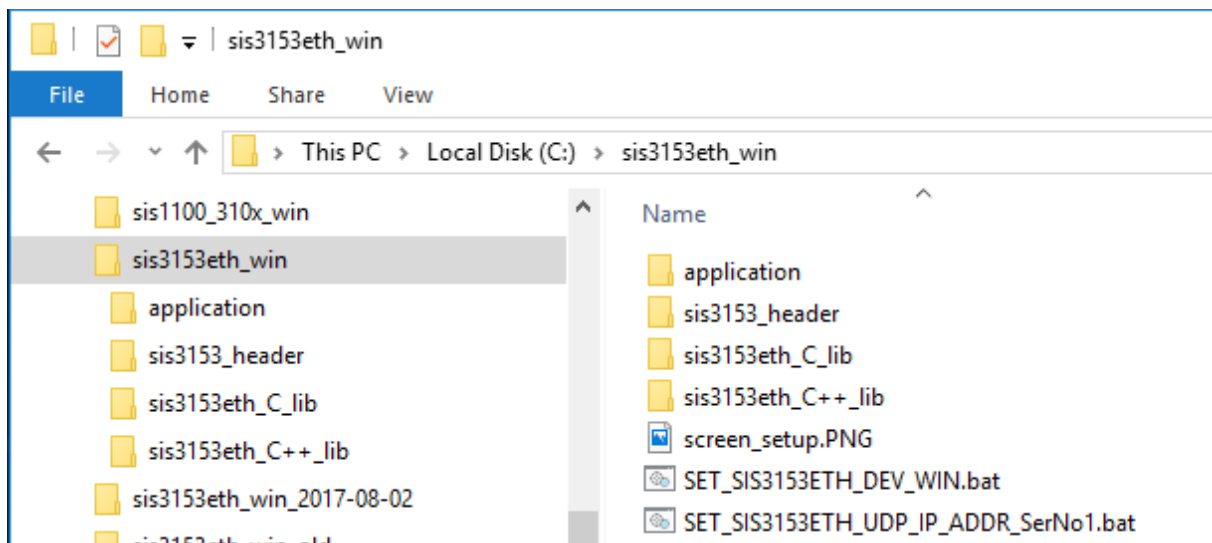
A Error-Text message appears: prot\_error = 211 → VME Bus Error

### 3 Visual Studio C/C++ Source code examples

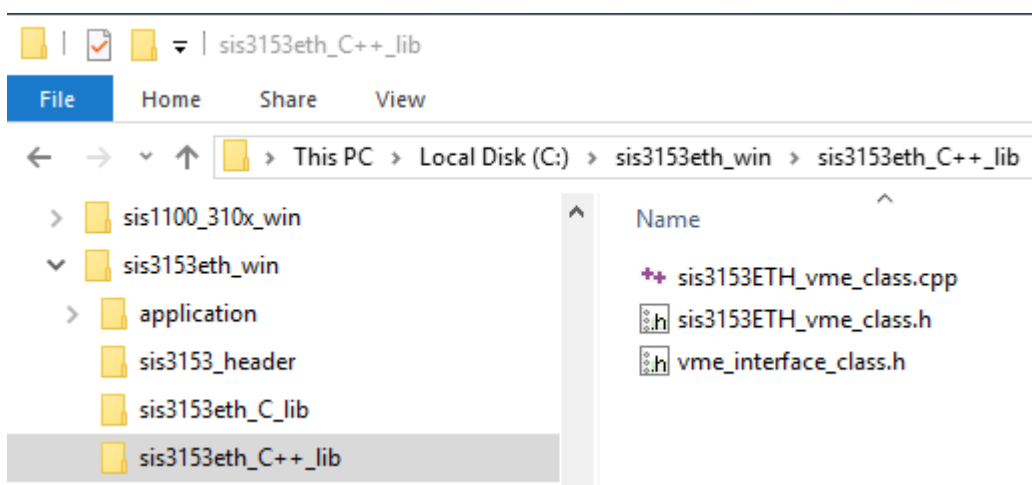
Some VC++2015 (Visual Studio 2015 C++ application), VC2015 and VC10 example projects demonstrate the use of the SIS3153ETH-VME interface module.

Copy the directory “sis3153eth\_win” to your local c:\ disk. In principle it is possible to copy this director to any place.

The directory “sis3153eth\_win” has four subdirectories, see below:



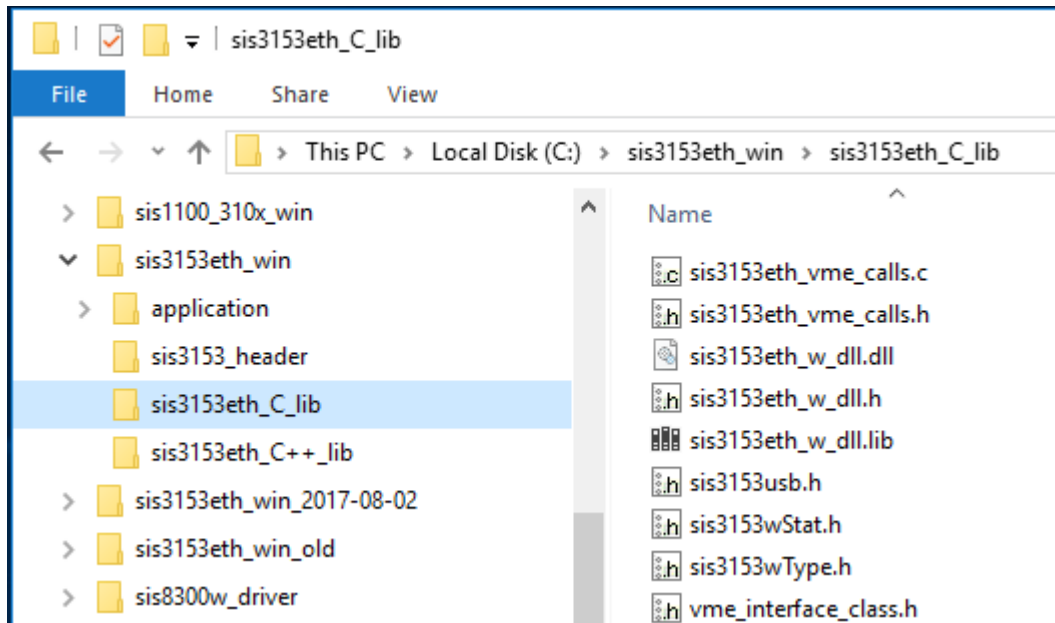
The directory “sis3153eth\_C++\_lib” contains the C++ library files, see below:





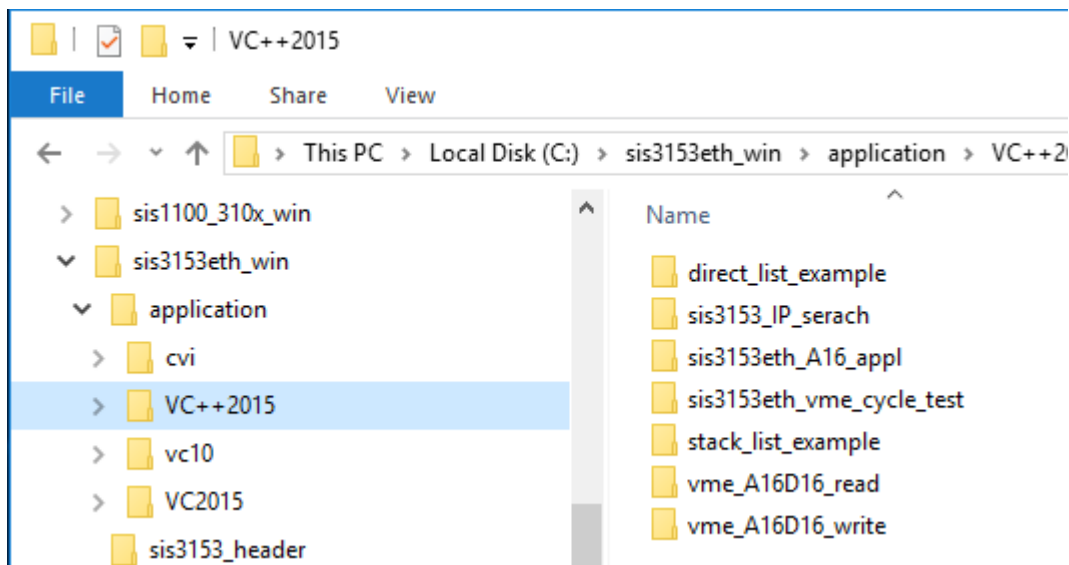
The directory “sis3153eth\_C\_lib” contains the C library files.

The C++ library files (sis3153ETH\_vme\_class.cpp and sis3153ETH\_vme\_class.h) are used to generate the files, see below.

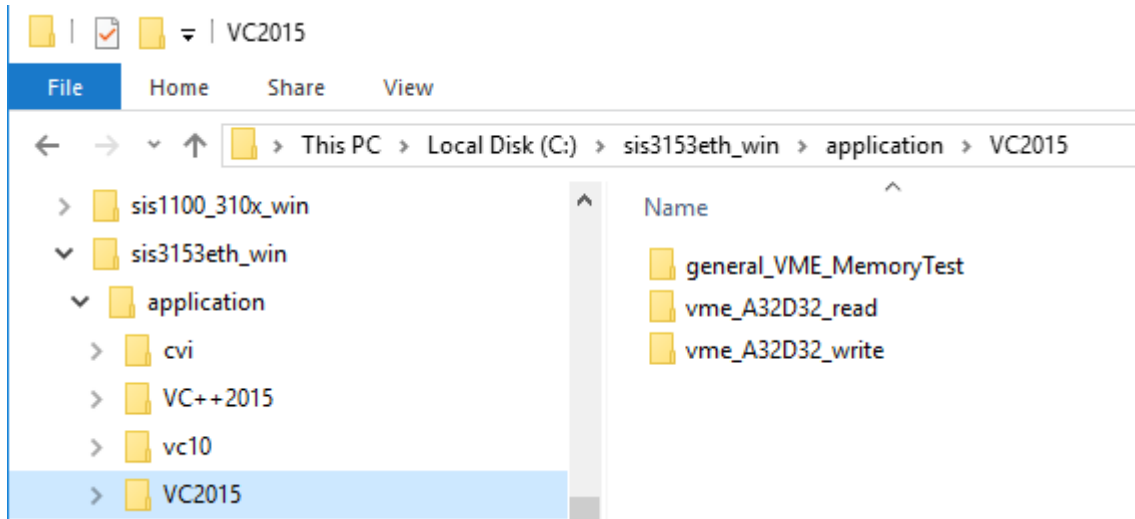


The directory “application/VC++2015” contains some C++-code application examples.

These applications are compiled with the C++ library files (sis3153ETH\_vme\_class.cpp and sis3153ETH\_vme\_class.h).



The directory “application/VC2015” contains some C-code application examples. These applications are compiled/linked with the C library files (sis3153eth\_w\_dll.dll, sis3153eth\_w\_dll.lib, ..).

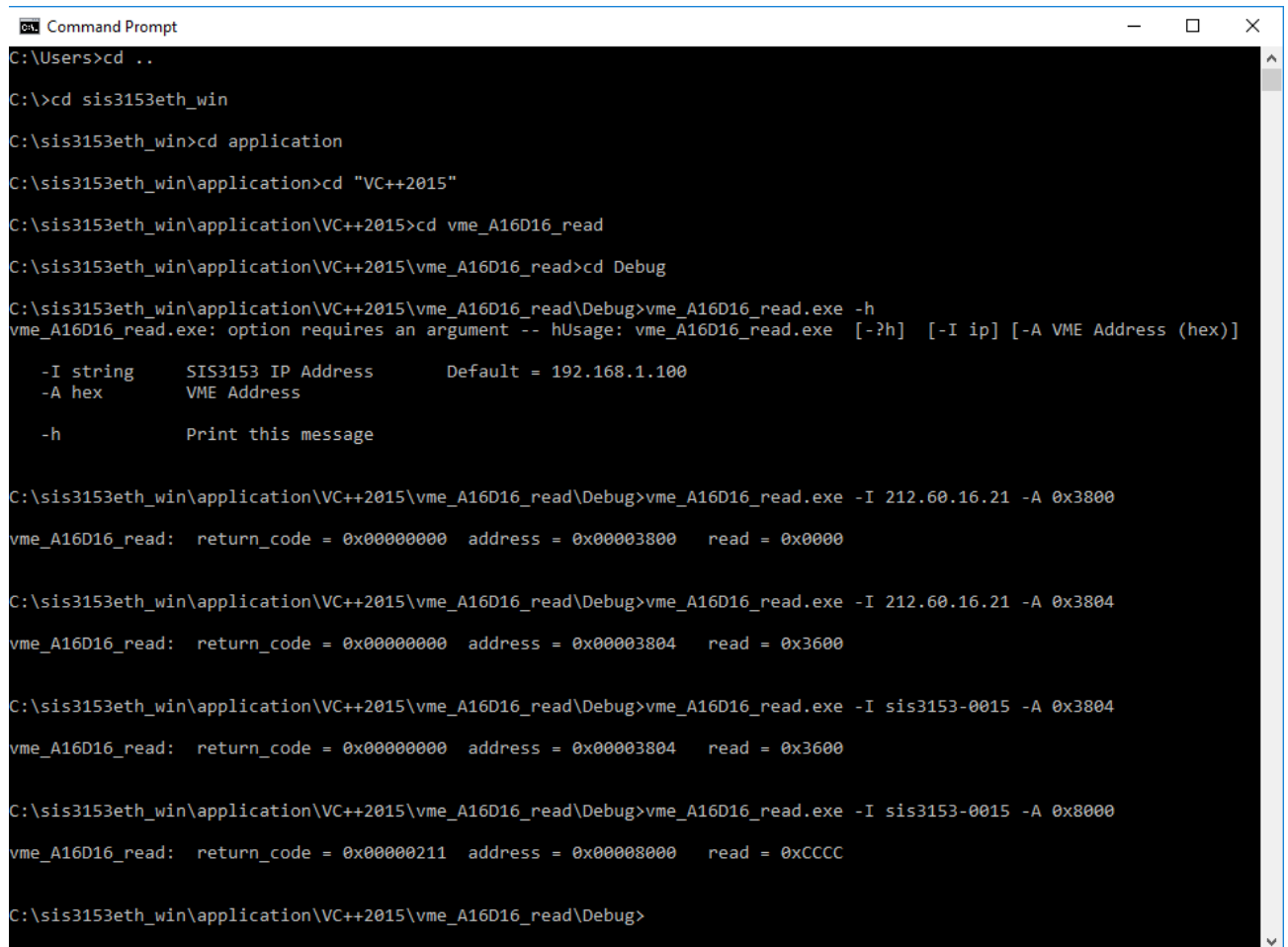


### 3.1 Executables

The user can start the executables direct from the ...\\Debug directories.

#### 3.1.1 Example “vme\_A16D16\_read”

Start the program from the directory ...\\application\\VC++2015\\vme\_A16D16\_read\\Debug.



```
Command Prompt
C:\Users>cd ..
C:\>cd sis3153eth_win
C:\sis3153eth_win>cd application
C:\sis3153eth_win\application>cd "VC++2015"
C:\sis3153eth_win\application\VC++2015>cd vme_A16D16_read
C:\sis3153eth_win\application\VC++2015\vme_A16D16_read>cd Debug
C:\sis3153eth_win\application\VC++2015\vme_A16D16_read\Debug>vme_A16D16_read.exe -h
vme_A16D16_read.exe: option requires an argument -- hUsage: vme_A16D16_read.exe [-?h] [-I ip] [-A VME Address (hex)]

-I string    SIS3153 IP Address      Default = 192.168.1.100
-A hex       VME Address
-h           Print this message

C:\sis3153eth_win\application\VC++2015\vme_A16D16_read\Debug>vme_A16D16_read.exe -I 212.60.16.21 -A 0x3800
vme_A16D16_read:  return_code = 0x00000000  address = 0x00003800  read = 0x0000

C:\sis3153eth_win\application\VC++2015\vme_A16D16_read\Debug>vme_A16D16_read.exe -I 212.60.16.21 -A 0x3804
vme_A16D16_read:  return_code = 0x00000000  address = 0x00003804  read = 0x3600

C:\sis3153eth_win\application\VC++2015\vme_A16D16_read\Debug>vme_A16D16_read.exe -I sis3153-0015 -A 0x3804
vme_A16D16_read:  return_code = 0x00000000  address = 0x00003804  read = 0x3600

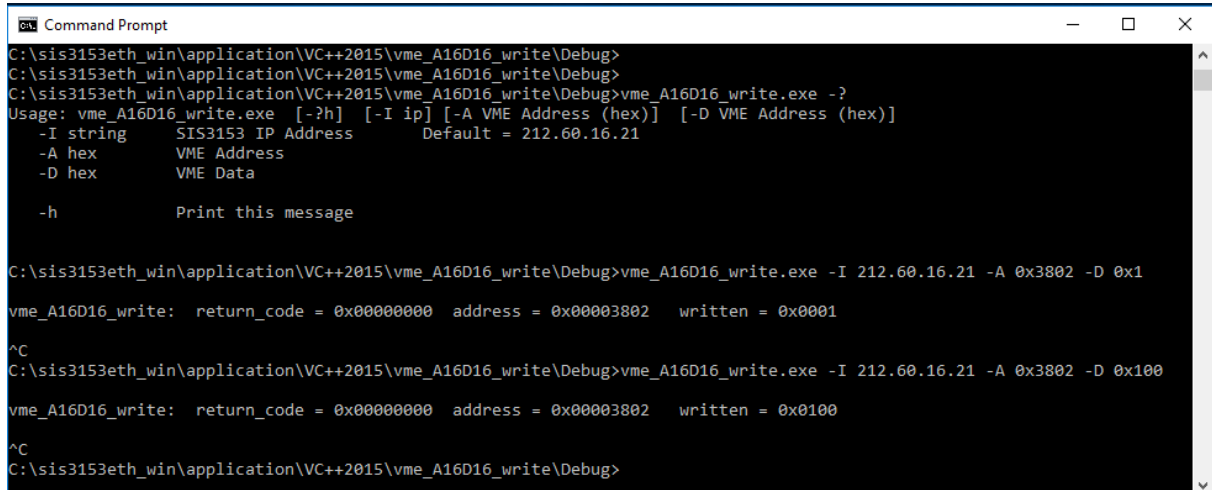
C:\sis3153eth_win\application\VC++2015\vme_A16D16_read\Debug>vme_A16D16_read.exe -I sis3153-0015 -A 0x8000
vme_A16D16_read:  return_code = 0x00000211  address = 0x00008000  read = 0xCCCC

C:\sis3153eth_win\application\VC++2015\vme_A16D16_read\Debug>
```

The last read cycle demonstrates a read from a not valid address (not existing).

### 3.1.2 Example “vme\_A16D16\_write”

Start the program from the directory ...\\application\\VC++2015\\vme\_A16D16\_write\\Debug.



```
Command Prompt
C:\sis3153eth_win\application\VC++2015\vme_A16D16_write\Debug>
C:\sis3153eth_win\application\VC++2015\vme_A16D16_write\Debug>
C:\sis3153eth_win\application\VC++2015\vme_A16D16_write\Debug>vme_A16D16_write.exe -?
Usage: vme_A16D16_write.exe [-?h] [-I ip] [-A VME Address (hex)] [-D VME Address (hex)]
-I string    SIS3153 IP Address      Default = 212.60.16.21
-A hex       VME Address
-D hex       VME Data
-h           Print this message

C:\sis3153eth_win\application\VC++2015\vme_A16D16_write\Debug>vme_A16D16_write.exe -I 212.60.16.21 -A 0x3802 -D 0x1
vme_A16D16_write: return_code = 0x00000000 address = 0x00003802 written = 0x0001
^C
C:\sis3153eth_win\application\VC++2015\vme_A16D16_write\Debug>vme_A16D16_write.exe -I 212.60.16.21 -A 0x3802 -D 0x100
vme_A16D16_write: return_code = 0x00000000 address = 0x00003802 written = 0x0100
^C
C:\sis3153eth_win\application\VC++2015\vme_A16D16_write\Debug>
```

These write cycles set (write 0x1) and clear (0x100) a user Led on the SIS3600.

## 4 Index

CVI.....	4	SIS3153 ETH base .....	4
RTE.....	4		