VME bus in the ATLAS Halle

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What is VME?

VMEbus

14 languages

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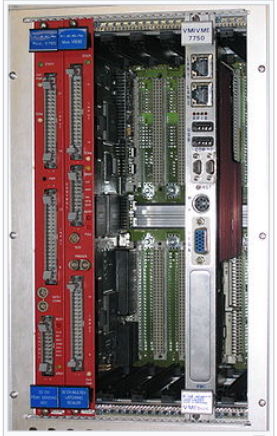
> This article includes a list of general references, but **it lacks sufficient corresponding inline citations**. Please help to improve this article by introducing more precise citations. *(April 2009)* (*Learn how and when to remove this message*)

VMEbus (**Versa Module Eurocard**[1] bus) is a computer bus standard physically based on Eurocard sizes.



VME64 crate with, from left, an ADC module, a scaler module and a processor module

History [edit]

In 1979, during development of the Motorola 68000 CPU, one of their engineers, Jack Kister, decided to set about creating a standardized bus system for 68000-based systems.[2] The Motorola team brainstormed for days to select the name VERSAbus. VERSAbus cards were large, 370 by 230 mm (14½ by 9¼ in), and used edge connectors.[3] Only a few products adopted it, including the IBM System 9000 instrument controller and the Automatix robot and machine vision systems.

VERSAbus memory card

Kister was later joined by John Black, who refined the specifications and created the *VERSAmodule* product concept. A young engineer working for Black, Julie Keahey designed the first VERSAmodule card, the VERSAbus Adaptor Module, used to run existing cards on the new VERSAbus. Sven Rau and Max Loesel of Motorola-Europe added a mechanical specification to the system, basing it on the Eurocard standard that was then late in the standardization process. The result was first known as VERSAbus-E but was later renamed to *VMEbus*, for *VERSAmodule Eurocard bus* (although some refer to it as *Versa Module Europa*).[3]

VME is a bus

- like PCIE on your PC's motherboard

Like your PC it needs a CPU in order to operate

- Either embedded in the slots or
- Extending the PC CPU

x86 doesn't speak natively vmebus, it needs a translation chip

- You need drivers matching the OS to speak to vme
- There is no standard for this API of the driver

VME hardware controllers

Close ×

VP E2x/msd - VME Processor

Where mt-online runs on?

```
etpdaq@etpsc05 etpsc05]$ /sbin/lspci
0:00.0 Host bridge: Intel Corp. e7500 [Plumas] DRAM Controller (rev 03)
0:02.0 PCI bridge: Intel Corp. e7500 [Plumas] HI_B Virtual PCI Bridge (F0) (rev 03)
0:1d.0 USB Controller: Intel Corp. 82801CA/CAM USB (Hub #1) (rev 02)
0:1e.0 PCI bridge: Intel Corp. 82801BA/CA/DB PCI Bridge (rev 42)
0:1f.0 ISA bridge: Intel Corp. 82801CA ISA Bridge (LPC) (rev 02)
0:1f.1 IDE interface: Intel Corp. 82801CA IDE U100 (rev 02)
0:1f.3 SMBus: Intel Corp. 82801CA/CAM SMBus (rev 02)
1:01.0 Ethernet controller: Intel Corp. 82557/8/9 [Ethernet Pro 100] (rev 10)
1:02.0 VGA compatible controller: ATI Technologies Inc Rage XL (rev 27)
1:03.0 Bridge: SBS Technologies VME Bridge Model 618 (rev 45)
2:1c.0 PIC: Intel Corp. 82870P2 P64H2 I/OxAPIC (rev 03)
2:1d.0 PCI bridge: Intel Corp. 82870P2 P64H2 Hub PCI Bridge (rev 03)
2:1e.0 PIC: Intel Corp. 82870P2 P64H2 I/OxAPIC (rev 03)
2:1f.0 PCI bridge: Intel Corp. 82870P2 P64H2 Hub PCI Bridge (rev 03)
3:06.0 Network controller: CERN/ECP/EDU: Unknown device 0014 (rev 47)
4:01.0 Ethernet controller: Intel Corp. 82545EM Gigabit Ethernet Controller (Copper) (rev 01)
etpdaq@etpsc05 etpsc05]$ cat /pro
```

```
[etpdaq@etpsc05 etpsc05]$ uname -a
Linux etpsc05 2.4.20-37.9.mll.2 #1 Fri Oct 29 13:00:14 CEST 2004 i686 i686 i386 GNU/Linux
[etpdaq@etpsc05 etpsc05]$ more /pro
```

```
[etpdaq@etpsc05 etpsc05]$ /sbin/lsmod
Module                  Size  Used by    Tainted: PF
btp                   211252   6
filar-2.4.20-37.9.mll.2   97838   0
io_rcc-2.4.20-37.9.mll.2    9454   0
cmem_rcc-2.4.20-37.9.mll.2   13902   0
iptable_filter          2444   0 (autoclean) (unused)
ip_tables              15096   1 [iptable_filter]
parport_pc             19076   1 (autoclean)
lp                      8996   0 (autoclean)
parport                37056   1 (autoclean) [parport_pc lp]
nfs                    81336   4 (autoclean)
lockd                  59344   1 (autoclean) [nfs]
sunrpc                 81564   1 (autoclean) [nfs lockd]
e1000                  60608   1
ide-scsi               12208   0
scsi_mod              107576   1 [ide-scsi]
ide-cd                 35712   0
cdrom                  33728   0 [ide-cd]
loop                   12152   0 (autoclean)
keybdev                 2976   0 (unused)
mousedev                5556   1
hid                    22244   0 (unused)
input                   5888   0 [keybdev mousedev hid]
usb-uhci               26412   0 (unused)
usbcore                79072   1 [hid usb-uhci]
ext3                   70784   2
jbd                    51988   2 [ext3]
raid1                  14924   3
lvm-mod                64032   3
```

Availability of sbs 618

Model 618 will be available for shipment October 30, 1998 and is priced at $4,350.00. The adapter includes one short form factor PCI card, one 6U VMEbus card, support software, and a manual. Fiber-optic cable to connect the two adapter cards is required but is ordered separately. **Features**

https://www.abaco.com/news/sbs-bit-3-operations-unveils-high-performance-fiber-optic-bus-adapter-for-pci-to-vmebus-connectivity/n101
https://www.abaco.com/products/618-3

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This product entered a Restricted Production Phase (RPP) on March 31, 2011

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810

The VME64 to PCI bus adapter directly connects two buses. The virtual bus created allows the two systems to operate as one, enabling seamless operation and superior performance. Supports Controller Mode DMA transfer rates of 70 MB/s. 2usec latency.

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Availability of sbs 618 software

					that were postponed for 8.0.
7.3	stable	Valhalla	6 May 2002	2.4.18–3	KDE updated to 3.0.0. Last release with the Netscape browser.
7.3.29	beta	Limbo	4 July 2002	?	700 MB ISO images were tested, but they proved problematic.
					gcc 3.2, glibc 2.3 RC, OpenOffice

SBS has officially released a driver version v2p3p0 which has been desinged for linux kernels 2.4.x. (Can be obtained from http://www.sbs.com).

This driver compiles and installs without problems on a CERN-Linux-Redhat-7.3.4 machine **which has the kernel sources installed**. (A small bug in the mkbtp script has been removed for the CMS version below). It also compiles and installs on CERN Linux SLC302 and SLC303 machines. **HOWEVER**there is an issue for SLC303 machines (kernel 2.4.21-20.EL.cern and the corresponding smp version). On these kernels BusErrors get losts (the software continues as if the access with the BusError was successfull. In case of a read access arbitrary data is delivered to the user.) The reason for this behaviour and a work around has been found by **Evgueni Vlassov**:

- The driver of SBS is not running correctly on SMP (multi-processor) machines. Since the newer kernel versions have been released various kernel tasks are distributed on the different processors of the system (on older kernel versions all kernel tasks including the interrupt service routines where running on the same processor). Due to this (and a bug in the SBS driver) the synchronization of a Interrupt service routine and some other driver code gets lost. As a consequence the Bus Errors get lost.
- A possible workaround for this problem (which only seems to appear on multi-processor machines) is to either load the single processor version of the kernel (in this case you do not exploit more than one processor of your machine) or to downgrade to an old kernel version (It seems that kernel version 2.4.20-30.7.cernsmp works.) We have not tried yet to downgrade a SLC303/304 system to such an old kernel version and verified that all drivers used in the DAQ environment compile and run correctly. It must be tried out.

Thanks a lot to Evgueni who spent quite some time to find out the details of this problem. Please contact Evgueni for further details.

This Section deals only with the drivers for SLC4 kernels (2.6.x). Many issues of the driver of the 2.4.x kernel might still be existent. The driver has not been tested. It is only given here for people who have SBS modules in the labs and would like to try to continue to use them. Please also refer to the old documentation and the described problems therein.

SBS has been bought by another company and since then the source code of the driver is only distributed with a non disclosure agreement. Therefore only binary RPMs can be distributed here. The binaries are available for kernel 2.6.9-55.0.6.EL.cernsmp here: btp-2.6.9-55.EL.cernsmp-3.1.C.i586.rpm
btp-devel-2.6.9-55.EL.cernsmp-3.1.C.i586.rpm
btp-debuginfo-2.6.9-55.EL.cernsmp-3.1.C.i586.rpm

https://cmsdoc.cern.ch/~cschwick/VME/VMEBridges_SBS_Drivers.html
https://cmsdoc.cern.ch/~cschwick/VME/VMEBridges_SBS_Drivers_SLC3.html

Availability of sbs 618 software

SBS (Bit-3) Model 616/617/618/620 PCI to VME

Device Information

Family:	**interface** [other interface devices]
Interface:	**pci**
Vendor:	**SBS Connectivity Products** [vendor info]
More info:	spec help: vme Vendor: www.sbs.com
Platform:	intel, hp, sun

Notes:

spec provides built-in user level support on Linux platforms. Support through SBS kernel drivers also available on Linux with the SBS model 1003 v1.0 driver, on Solaris platforms with the SBS model 945 driver and on HP platforms with the SBS model 934 driver.

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Maybe a 64bit version working with an PCI/PCIE adaptor does exist?

Where does ALTI runs on?

Close ×

VP E2x/msd - VME Processor

	Intel Atom E3845 @ 1.91GHz	Intel Xeon 2.40GHz
Price	Search Online	Search Online
Socket Type	FCBGA1170	NA [2]
CPU Class	Desktop	Server
Clockspeed	1.9 GHz	2.4 GHz
Turbo Speed	Not Supported	Not Supported
# of Physical Cores	4 (Threads: 4)	1 (Threads: 2)
Cache	L1: 448KB, L2: 2.0MB, L3: 0MB	L1: 2KB, L2: 0.0MB, L3: 0MB
TDP	10W	NA [2]
Yearly Running Cost	$1.83	NA
Other		
First Seen on Chart	Q2 2014	Q1 2009
# of Samples	39	3
CPU Value	0.0	19.7
Single Thread Rating (% diff. to max in group)	536 *(0.0%)*	387 [3] *(-27.8%)*
CPU Mark (% diff. to max in group)	**1052** *(0.0%)*	**180** *(-82.9%)*

The OS is AlmaLinux9

What is the API to the 618?

Chapter 6: API Reference

6.0 Introduction

Chapter 6 documents the following functions provided by the Mirror API:

- bt_str2dev()
- bt_gen_name()
- bt_open()
- bt_close()
- bt_chkerr()
- bt_clrerr()
- bt_perror()
- bt_strerror()
- bt_init()
- bt_read()
- bt_write()
- bt_get_info()
- bt_set_info()
- bt_icbr_install()
- bt_icbr_remove()
- bt_lock()
- bt_unlock()
- bt_mmap()
- bt_unmmap()
- bt_dev2str()
- bt_ctrl()
- bt_bind()
- bt_unbind()

The following routines are NanoBus specific:

- bt_reg2str()
- bt_cas()
- bt_tas()
- bt_get_io()
- bt_put_io()
- bt_or_io()
- bt_reset()
- bt_send_irq()
- bt_status()

```
ch.valderanis@gar-ws-etp100:/project/etp6/atlas/rauscher/mt-online$ grep -rnw . -e 'bt_open'
./src/MT_SBS_Crate.C:26:        status = bt_open(&_A24_handle, bt_gen_name(0, BT_DEV_A24, devname,
./src/MT_SBS_Crate.C:43:        status = bt_open(&_A32_handle, bt_gen_name(0, BT_DEV_A32, devname,
./src/MT_SBS_Crate.C:58:        status = bt_open(&_A16_handle, bt_gen_name(0, BT_DEV_A16, devname,
Binary file ./src/MT_SBS_Crate.o matches
Binary file ./src/libMT-Online.a matches
Binary file ./bin/testTTCvi matches
Binary file ./bin/MT-Online matches
Binary file ./bin/test_SBS matches
Binary file ./bin/hvconsole matches
Binary file ./bin/C-RAMS_pedestal matches
ch.valderanis@gar-ws-etp100:/project/etp6/atlas/rauscher/mt-online$ grep -rnw . -e 'bt_read'
Binary file ./src/MT_SBS_Crate.o matches
Binary file ./src/libMT-Online.a matches
Binary file ./bin/testTTCvi matches
Binary file ./bin/MT-Online matches
Binary file ./bin/test_SBS matches
Binary file ./bin/hvconsole matches
Binary file ./bin/C-RAMS_pedestal matches
./include/MT_SBS_Crate.I:34:            status=bt_read(_A24_handle, &data, _base_adresses[module_number]
./include/MT_SBS_Crate.I:49:            status=bt_read(_A32_handle, &data, _base_adresses[module_number]
./include/MT_SBS_Crate.I:64:            status=bt_read(_A16_handle, &data, _base_adresses[module_number]
./include/MT_SBS_Crate.I:178:           status=bt_read(_A24_handle, _blt_buffer, _blt_base_adresses[blt_module_number]
./include/MT_SBS_Crate.I:192:           status=bt_read(_A32_handle, _blt_buffer,
./include/MT_SBS_Crate.I:207:           status=bt_read(_A16_handle, _blt_buffer, _blt_base_adresses[
ch.valderanis@gar-ws-etp100:/project/etp6/atlas/rauscher/mt-online$ grep -rnw . -e 'bt_write'
Binary file ./src/MT_SBS_Crate.o matches
Binary file ./src/libMT-Online.a matches
Binary file ./bin/testTTCvi matches
Binary file ./bin/MT-Online matches
Binary file ./bin/test_SBS matches
Binary file ./bin/hvconsole matches
Binary file ./bin/C-RAMS_pedestal matches
./include/MT_SBS_Crate.I:107:           status=bt_write(_A24_handle, &data, _base_adresses[module_number]
./include/MT_SBS_Crate.I:123:           status=bt_write(_A32_handle, &data, _base_adresses[module_number]
./include/MT_SBS_Crate.I:139:           status=bt_write(_A16_handle, &data, _base_adresses[module_number]
ch.valderanis@gar-ws-etp100:/project/etp6/atlas/rauscher/mt-online$ grep -rnw . -e 'bt_reset'
./src/MT_Run_Control.C~:438:                        execlp("bt_reset","bt_reset",NULL);
./src/MT_Run_Control.C:438:                         execlp("bt_reset","bt_reset",NULL);
Binary file ./src/MT_Run_Control.o matches
Binary file ./src/libMT-Online.a matches
Binary file ./bin/MT-Online matches
ch.valderanis@gar-ws-etp100:/project/etp6/atlas/rauscher/mt-online$ grep -rnw . -e 'bt_set_info'
./src/MT_SBS_Crate.C:34:        bt_set_info(_A24_handle, BT_INFO_PIO_AMOD, 0x39);
./src/MT_SBS_Crate.C:35:        bt_set_info(_A24_handle, BT_INFO_DMA_AMOD, 0x3B);
./src/MT_SBS_Crate.C:36:        bt_set_info(_A24_handle, BT_INFO_SWAP, FALSE);
./src/MT_SBS_Crate.C:38:        bt_set_info(_A24_handle, BT_INFO_BLOCK, FALSE);
./src/MT_SBS_Crate.C:39://      bt_set_info(_A24_handle, BT_INFO_INC_INHIBIT, TRUE);
./src/MT_SBS_Crate.C:51:        bt_set_info(_A32_handle, BT_INFO_PIO_AMOD, 0x9);
./src/MT_SBS_Crate.C:52:        bt_set_info(_A32_handle, BT_INFO_DMA_AMOD, 0xB);
./src/MT_SBS_Crate.C:53:        bt_set_info(_A32_handle, BT_INFO_SWAP, FALSE);
./src/MT_SBS_Crate.C:55:        bt_set_info(_A32_handle, BT_INFO_BLOCK, FALSE);
./src/MT_SBS_Crate.C:66:        bt_set_info(_A16_handle, BT_INFO_PIO_AMOD, 0x29);
./src/MT_SBS_Crate.C:67:        bt_set_info(_A16_handle, BT_INFO_DMA_AMOD, 0x2B);
./src/MT_SBS_Crate.C:68:        bt_set_info(_A16_handle, BT_INFO_SWAP, FALSE);
./src/MT_SBS_Crate.C:70:        bt_set_info(_A16_handle, BT_INFO_BLOCK, FALSE);
Binary file ./src/MT_SBS_Crate.o matches
Binary file ./src/libMT-Online.a matches
Binary file ./bin/testTTCvi matches
Binary file ./bin/MT-Online matches
Binary file ./bin/test_SBS matches
Binary file ./bin/hvconsole matches
Binary file ./bin/C-RAMS_pedestal matches
./include/MT_SBS_Crate.I:236:   bt_set_info(handle, BT_INFO_DATAWIDTH, length);
./include/MT_SBS_Crate.I:243:           bt_set_info(handle, BT_INFO_BLOCK, TRUE);
./include/MT_SBS_Crate.I:244:           bt_set_info(handle, BT_INFO_DMA_THRESHOLD, 0);
./include/MT_SBS_Crate.I:248:           bt_set_info(handle, BT_INFO_DMA_THRESHOLD, 255);
./include/MT_SBS_Crate.I:249:           bt_set_info(handle, BT_INFO_BLOCK, FALSE);
ch.valderanis@gar-ws-etp100:/project/etp6/atlas/rauscher/mt-online$
```

Comparing ATLAS vs 618 APIs

Chapter 6: API Reference

6.0 Introduction

Chapter 6 documents the following functions provided by the Mirror API:

- bt_str2dev()
- bt_close()
- bt_perror()
- bt_read()
- bt_set_info()
- bt_lock()
- bt_unmmap()
- bt_bind()
- bt_gen_name()
- bt_chkerr()
- bt_strerror()
- bt_write()
- bt_icbr_install()
- bt_unlock()
- bt_dev2str()
- bt_unbind()
- bt_open()
- bt_clrerr()
- bt_init()
- bt_get_info()
- bt_icbr_remove()
- bt_mmap()
- bt_ctrl()

The following routines are NanoBus specific:

- bt_reg2str()
- bt_get_io()
- bt_reset()
- bt_cas()
- bt_put_io()
- bt_send_irq()
- bt_tas()
- bt_or_io()
- bt_status()

```
183 int VME_ErrorPrint(VME_ErrorCode_t error_code);
184 int VME_ErrorString(VME_ErrorCode_t error_code, char *error_string)
185 int VME_ErrorNumber(VME_ErrorCode_t error_code, int *error_number);
186 VME_ErrorCode_t VME_Open(void);
187 VME_ErrorCode_t VME_Close(void);
188 VME_ErrorCode_t VME_ReadCRCSR(int slot_number, u_int crcsr_identifi
189 VME_ErrorCode_t VME_WriteCRCSR(int slot_number, u_int crcsr_identif
190 VME_ErrorCode_t VME_MasterMap(VME_MasterMap_t *master_map, int *mas
191 VME_ErrorCode_t VME_MasterMapCRCSR(int *master_mapping);
192 VME_ErrorCode_t VME_MasterMapVirtualLongAddress(int master_mapping,
193 VME_ErrorCode_t VME_MasterMapVirtualAddress(int master_mapping, u_i
194 VME_ErrorCode_t VME_ReadSafeUInt(int master_mapping, u_int address_
195 VME_ErrorCode_t VME_ReadSafeUShort(int master_mapping, u_int addres
196 VME_ErrorCode_t VME_ReadSafeUChar(int master_mapping, u_int address
197 VME_ErrorCode_t VME_WriteSafeUInt(int master_mapping, u_int address
198 VME_ErrorCode_t VME_WriteSafeUShort(int master_mapping, u_int addre
199 VME_ErrorCode_t VME_WriteSafeUChar(int master_mapping, u_int addres
200 VME_ErrorCode_t VME_MasterUnmap(int master_mapping);
201 VME_ErrorCode_t VME_MasterMapDump(void);
202 VME_ErrorCode_t VME_BusErrorRegisterSignal(int signal_number);
203 VME_ErrorCode_t VME_BusErrorInfoGet(VME_BusErrorInfo_t *bus_error_i
204 VME_ErrorCode_t VME_SlaveMap(VME_SlaveMap_t *slave_map, int *slave_
205 VME_ErrorCode_t VME_SlaveMapVmebusAddress(int slave_mapping, u_int
206 VME_ErrorCode_t VME_SlaveUnmap(int slave_mapping);
207 VME_ErrorCode_t VME_SlaveMapDump(void);
208 VME_ErrorCode_t VME_BlockTransferInit(VME_BlockTransferList_t *bloc
209 VME_ErrorCode_t VME_BlockTransferStart(int block_transfer);
210 VME_ErrorCode_t VME_BlockTransferWait(int block_transfer, int time_
211 VME_ErrorCode_t VME_BlockTransferEnd(int block_transfer);
212 VME_ErrorCode_t VME_BlockTransfer(VME_BlockTransferList_t *block_tr
213 VME_ErrorCode_t VME_BlockTransferDump(void);
214 VME_ErrorCode_t VME_BlockTransferStatus(VME_BlockTransferList_t *bl
215 VME_ErrorCode_t VME_BlockTransferRemaining(VME_BlockTransferList_t
216 VME_ErrorCode_t VME_InterruptLink(VME_InterruptList_t* vmebus_inter
217 VME_ErrorCode_t VME_InterruptReenable(int interrupt);
218 VME_ErrorCode_t VME_InterruptWait(int interrupt, int time_out, VME_
219 VME_ErrorCode_t VME_InterruptRegisterSignal(int interrupt, int sign
220 VME_ErrorCode_t VME_InterruptInfoGet(int interrupt, VME_InterruptIn
221 VME_ErrorCode_t VME_InterruptUnlink(int interrupt);
222 VME_ErrorCode_t VME_InterruptGenerate(int level, u_char vector);
223 VME_ErrorCode_t VME_InterruptDump(void);
224 VME_ErrorCode_t VME_SysfailInterruptLink(void);
```

What about Struck drivers?

```
ch.valderanis@gar-ws-etp100:/project/etpdaq3/StruckDocumentation/sis3150usb/Driver_Software/linux$ more readme.txt
22.02.2013
readme.txt of sis3150usb/linux directory

sisusb-1.1-004.tar.gz LINUX support for SIS3150USB, tested on SUSE w. 2.6.25 kernel
sisusb-1_1-005.tgz    tested on 64-bit SUSE11.1 installation
sisusb-1_1-006.tgz    DMA fix for 64-bit installation
sisusb-1.2-001        including libusb for OpenSUSE 11.2 (64-bit DMA fix to be checked yet)
sisusb-1.2-003        DMA write fix (ulong 64-bit)
                      Note: issue make clean as the first step
sisusb-1.2-004        libusb search path on 64-bit systems

Please go to the SIS3153 directory for the latest revisions with SIS3150 and SIS3153 support




ch.valderanis@gar-ws-etp100:/project/etpdaq3/StruckDocumentation/sis3150usb/Driver_Software/linux$ cd ../../../sis3153/
Doc/         firmware/    sis3153eth/  sis3153usb3/
ch.valderanis@gar-ws-etp100:/project/etpdaq3/StruckDocumentation/sis3150usb/Driver_Software/linux$ cd ../../../sis3153/sis3153usb3/
Driver_Software/ FX3_firmware/
ch.valderanis@gar-ws-etp100:/project/etpdaq3/StruckDocumentation/sis3150usb/Driver_Software/linux$ cd ../../../sis3153/sis3153usb3/Driver
linux/                   Windows32-64_XP_7_Win10/
ch.valderanis@gar-ws-etp100:/project/etpdaq3/StruckDocumentation/sis3150usb/Driver_Software/linux$ cd ../../../sis3153/sis3153usb3/Driver
sis315xusb_open_test/  sis315xusb_vme_cycles/
ch.valderanis@gar-ws-etp100:/project/etpdaq3/StruckDocumentation/sis3150usb/Driver_Software/linux$ cd ../../../sis3153/sis3153usb3/Driver
ch.valderanis@gar-ws-etp100:/project/etpdaq3/StruckDocumentation/sis3153/sis3153usb3/Driver_Software/linux$ ls
readme.txt       SIS315xUSB_M_V004_Linux_Install_hint.txt  sis3316_access_test_usb.tar.gz  sisusb-1.2-006.tar.gz
sis315xusb_appl  sis315xusb_vme_cycle_A32D16_read.tar.gz   sis3316_root_gui.tar.gz         sisusb-1.2-007.tar.xz
ch.valderanis@gar-ws-etp100:/project/etpdaq3/StruckDocumentation/sis3153/sis3153usb3/Driver_Software/linux$ more readme.txt
08.09.2021
readme.txt of sis315xusb/linux directory

sisusb-1.1-004.tar.gz LINUX support for SIS3150USB, tested on SUSE w. 2.6.25 kernel
sisusb-1_1-005.tgz    tested on 64-bit SUSE11.1 installation
sisusb-1_1-006.tgz    DMA fix for 64-bit installation
sisusb-1.2-001        including libusb for OpenSUSE 11.2 (64-bit DMA fix to be checked yet)
sisusb-1.2-003        DMA write fix (ulong 64-bit)
                      Note: issue make clean as the first step
sisusb-1.2-004        libusb search path on 64-bit systems
sisusb-1.2-005        supports SIS3153 USB3.0 device and SIS3150 USB2.0 device
sisusb-1.2-006        supports SIS3153 USB3.0 device and SIS3150 USB2.0 device (D16 and D8 cycles modified)
                                  Note: use function Sis3150usb_OpenDriver_And_Download_FX2_Setup() to open SIS3150 and SIS3153
                      and NOT function Sis3150usb_OpenDriver() !!
sisusb-1.2-007        uses TCL version 8.6, tested on CentOS 8 with kernel 4.18.0
ch.valderanis@gar-ws-etp100:/project/etpdaq3/StruckDocumentation/sis3153/sis3153usb3/Driver_Software/linux$
```

```
Hello Makis,
you will be ok in 3.3 and 5V 32-bit PCI slots.
About 64-bit we have no informationyet , Thorsten will google it.
You may also want to get a SIS1100-eCMC PCI Express card instead...
Best regards
Matthias

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