

MiniPCIeCAN-2E-U

MiniPCle Interface CAN Card

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Product User Manual

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MiniPCIeCAN-2E-U MiniPCIe Interface CAN Card User Manual

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1. Functions

MiniPCIeCAN-2E-U is a high-performance MiniPCIe interface CAN card launched by ZLG Electronics, which can connect the CAN network to a computer equipped with a MiniPCIe card slot. MiniPCIeCAN-2E-U adopts the MiniPCIe board in standard dimensions and can be easily installed on laptop or industrial computer with MiniPCIe interface, making it a powerful CAN analyzer. See the figure.

MiniPCIeCAN-2E-U integrates two CAN interfaces. In addition, to facilitate expansion, the second function pin of the CAN signal can be switched to the reserved IO port of the MiniPCIe interface by using the resistor R24, which helps the user design the CAN transceiver circuit on the backplane.

The MiniPCIeCAN-2E-U high-performance CAN interface card can be used to connect the PC to the CAN-bus network through USB bus, which constitutes a CAN-bus network control node for data processing and data acquisition in CAN-bus network fields such as fieldbus laboratories, industrial control, high-performance residential areas, and automotive electronic networks.

The MiniPCleCAN-2E-U high-performance CAN interface card is a powerful tool for CAN-bus product development and CAN-bus data analysis; moreover, it features small size, plug and play, etc. It is ideal for portable system users.

The MiniPCIeCAN-2E-U high-performance CAN interface card supports Windows 2000/XP/7/8/10 and other operating systems. MiniPCIeCAN-2E-U provides a unified application programming interface and complete application demonstration codes, including VC, VB, Delphi and C++ development routine demonstrations, which helps users develop application programs.

The MiniPCIeCAN-2E-U interface card supports the CANTest general test software, which can perform functions such as sending, receiving and monitoring CAN-bus messages.

The MiniPCEeCAN card uses the USB D+ and USB D- signal cable in the MiniPCIe slot. Before purchasing and using the product, check whether the MiniPCIe slot on the motherboard provides USB D+ and USB D- signal pins. See Table 2.3 for pin numbers. This CAN card cannot be used if the USB signal pin is missing from the motherboard slot.





Figure 1.1 Product functions

- Adopt the standard MiniPCIe interface;
- Support CAN2.0A and CAN2.0B protocols, in line with ISO/DIS11898 specification;
- Integrated two CAN-bus interfaces;
- The CAN TTL signal can be switched to the second function IO, which helps design the CAN transceiver circuit by yourself;
- The CAN-bus communication baud rate can be arbitrarily programmable between 5 Kbps and 1 Mbps;
- Powered by the MiniPCIe interface;
- The CAN-bus interface is electrically isolated. The insulation voltage of the isolation module is 2,500 V DC;
- Support Windows 2000, Windows XP, Windows 7, Windows 8, Windows 10 operating systems;
- Support the CANtest test software;
- Compact, plug and play;
- Operating temperature: -40°C to 85°C;
- Standard MiniPCIe card dimensions: 30 mm (width) x 50.95 mm (length).

1.1 Typical application

- CAN-bus network diagnosis and test;
- Automotive electronics applications;
- Electrical communication;
- Network industrial control equipment;
- High-speed, large data volume communication.



2. Equipment Installation

2.1 Power Supply

MiniPCIeCAN-2E-U uses the MiniPCIe interface 3.3V power supply. The SYS indicator is on, and it turns red first, indicating that the device has power supply. It then flashes a few times and turns green, indicating communication with the PC.

2.2 Signal Indicators

The MiniPCIeCAN-2E-U interface card has one dual-color SYS indicator, one dual-color CAN0 indicator, and one dual-color CAN1 indicator, which indicate the running status of the device. Table 2.1 lists the functions of the indicators. When the indicators are in various states, the status of the CAN bus is shown in Table 2.2.

Indicator	STATUS	Indication status
eve	Red	Device initialization status indication
515	Green	MiniPCIe interface signal indication
CANI	Green	The CAN interface is working properly
CANT	Red	The CAN interface is faulty
CANO	Green	The CAN interface is working properly
GANZ	Red	The CAN interface is faulty

Table 2.1	Indicator	functions

After the MiniPCIeCAN-2E-U interface card is powered on, the system initialization status indicator SYS is red, indicating that the device has been powered and the system is initializing; If the system initialization status indicator SYS is off, a system power fault or serious system error occurs.

After normal connection to the PC, the SYS indicator is green. When data is being transmitted on the USB interface, the USB signal indicator SYS flashes in green.

When CAN1 and CAN21 indicators are green, the CAN controller has been initialized and is working properly.

When the CAN controller has an error, the CAN1 and CAN2 indicators are red; when the error of the CAN controller is cleared, the CAN1 and CAN2 indicators are green.

CAN indicator status	CAN bus status
CAN1, CAN2 are all off	The CAN controller is disconnected from the bus
CAN1 and CAN2 flash alternately in	The CAN controller is not started, and the user is prompted to
red and green	start the CAN controller
CAN1 and CAN2 indicators are	
always green	The CAN bus is operating propeny
CAN1, CAN2	The CAN-bus bus has an error or data overflow, and it may lose
The red indicator flashes	frames

Table 2.2 CAN bus status



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2.3 MiniPCle Interface Definitions



Figure 2.1 MiniPCIe pin sequence

Table 2.3 MiniPCIe interface definition

Signal Name	Pin No.	Description
nWAKE	1	nWAKE signal/default pull-up
nRESET	22	nRESET signal/not used
TD0_REV	17	CAN0 TD second function IO
RD0_REV	19	CAN0 RD second function IO
TD1_REV	37	CAN1 TD second function IO
RD1_REV	39	CAN1 RD second function IO
USB_D-	36	USB_D-
USB_D+	38	USB_D+
3.3V	2, 24, 52	Power supply
GND	9, 15, 18, 21, 26, 27, 29, 34, 35,	Ground
	40, 50	

2.4 CAN Second Function Pin Switch

When designing the CAN transceiver circuit or improving the protection level of the CAN signal cable, consider connecting the second function pin of the CAN signal to the backplane through the MiniPCIe reserved pin. Design the CAN transceiver circuit by yourself to improve the system flexibility.



Figure 2.2 CAN signal secondary function selection resistor

The second function pin of the CAN signal is switched by using R24 (this resistor can be found on the rear of the board, as shown in Figure 2.2). R24 is welded by default. The system uses the default on-board CAN transceiver ADM3053. When R24 is removed, the second function pin of the CAN signal is automatically enabled when the system is powered on. Table 2.3 lists the pin sequence. At this time, R29 and R30 need to weld 0 ohm resistors to enable CAN0, while R31 and R32 respectively weld 0 ohm resistors to enable CAN1.



3. Driver Installation

The following uses a PC running WinXP as an example to illustrate how to install a MiniPCIeCAN-2E-U series industrial-grade high-performance CAN interface card device correctly.

3.1 Driver Installation

Windows XP can automatically detect new devices (as shown in Figure 3.1) and activate the "Found New Hardware Wizard" program to install plug-and-play device drivers (as shown in Figure 3.2). If the system does not prompt to discover a new device at this time, check whether the hardware is installed properly.



Figure 3.1 Discovering new hardware on Windows XP

找到新的硬件向导	
	欢迎使用找到新硬件向导
	这个向导帮助您安装软件:
	USB Device
	● 如果您的硬件带有安装 CD 或软盘,请现在将 其插入。
	您期望向导做什么?
	 ○ 自动安装软件(推荐)(L) ● 川列東或指定位置安装(高级)(S)
	要继续,请单击"下一步"。
	< 上一步 (B) 下一步 (Q) > 取消

Figure 3.2 New Hardware Driver Installation Wizard

Select "Install from a list or specified location", and click "Next". See Figure 3.3.



硬件更新向导
诸选择您的 搜索和安装 造项。
 ● 在这些位置上搜索最佳驱动程序 ②)。 使用下列的复志症限制或扩展默认搜索,包括本机路径和可移动媒体。会安装找到的最佳驱动程序。 ■ 搜索可移动媒体(软盘、CD-ROM)(例) ● 在搜索中包括这个位置(0): ● 医颈指括 NUBBAUGERAUGERAUGERAUGERAUGERAUGERAUGERAUGER
< <u> < 上→步(10) 下→步(10) > 取消</u>

Figure 3.3 Getting the driver file directory

Mark "Include this location in search" and click the "Browse" button. In the displayed folder browsing dialog box, specify the location of the driver installation file (the location of the driver in the product CD-ROM is MiniPCIeCAN-2E-U\drivers\XP driver, and MiniPCIeCAN-2E-U is the USBCAN-2E-U Derivatives, therefore sharing a single driver). Click Next. See Figure 3.4.

找到新的硬件向导	
向导正在安装软件,请稍候	
USECAN_2E_U	
wdfcoinstallerUlUU9.dll 到 C:\WINDOWS\system32	۵
	< 上一步 (2)) 下一步 (2) > □ 取消 □

Figure 3.4 Installing the driver

Wait until the installation wizard installs the driver. The next window shows the installed devices. If the "Found New Hardware Wizard" message appears, the driver has been installed. Click the "Finish" button to complete the installation. See Figure 3.5





Figure 3.5 Driver installation complete

Check the device installation in "Start > Control Panel > System". Click the "Hardware" tab, and click the "Device Manager" button. See Figure 3.6 and Figure 3.7.

系统特性 ? ×
常規 网络标识 硬件 用户配置文件 高级
硬件向导 硬件向导会帮助您安装、卸载、修复、拔出、弹出和配 置硬件。
设备管理器
设备管理器列出所有安装在计算机上的硬件设备。请使用设备管理器来更改设备的原性。
签署驱动程序 (S) 设备管理器 (D)
硬件配置文件 硬件配置文件向您提供建立和保存不同硬件配置的方法。
硬件配置文件 (2)
确定 取消 应用 (g)

Figure 3.6 Hardware Wizard



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文件(E)操作(A) 查看(V) 帮助(H)	
□ 2THANGZIHAO □ IDE ATA/ATAFI 控制器 □ IDE ATA/ATAFI 控制器 □ 2IGCAN □ IDE ATA/ATAFI 控制器 □ 2IGCAN □ IDE ATA/ATAFI 控制器 □ IDE ATA/ATAFI PEA/ATAFI	

Figure 3.7 Checking device driver installation



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3.2 Uninstalling the Device Driver

You can uninstall the device driver in "Start > Control Panel > System". Click the "Hardware" tab, and click the "Device Manager" button. See Figure 3.8.

系统特性 <u>?</u> 」
常规 网络标识 硬件 用户配置文件 高级
硬件向导 硬件向导会帮助您安装、卸载、修复、拔出、弹出和配 重硬件。
设备管理器 设备管理器 设备管理器列出所有安装在计算机上的硬件设备。请使 则研
签署驱动程序 (S) 设备管理器 (D)
·硬件配置文件 硬件配置文件向您提供建立和保存不同硬件配置的方法。
硬件配置文件 (2)
确定 取消 应用 (<u>A</u>)

Figure 3.8 Hardware wizard

Right-click "USBCAN-2E-U" and choose "Uninstall". See Figure 3.9.

乌 设备管理器
文件 ② 操作 ④ 查看 ② 帮助 ④
□ □ ILTE ATA/ATAPI 控制器 □ □ ILTE ATA/ATAPI 控制器 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □<
为所选设备卸载该驱动程序。

Figure 3.9 Unloading the device driver

In the Confirm Device Removal dialog box, click OK. The driver for USBCAN-2E-U will be uninstalled. Device Manager will be automatically refreshed and show that the device has been removed. See Figure 3.10.

确认设	計劃除			?
	USBCAN_E_U			
警告:)	8正准备要从系	统上卸载这个	-设备。	
		۵Ì		取消

Figure 3.10 Confirming device driver uninstallation



4. Quick Instructions

4.1 CANTest Basic Operations

The CANtest test software can be found in the supporting CD-ROM (need to be installed). See Figure 4.1.



Figure 4.1 CANTest software icon

Note: The download address of CANTest software is http://www.zlg.cn/canbus/product_detail.php?id=4.

4.1.1 Device Type Selection

Before operation, select USBCAN-2E-U from the "Select Device" menu, as shown in

CANTest	广州致远电于	千度份有限公司	版权所	有				
🌆 选择设备·	• 帧ID显示方式:	十六进制	• 格式:	真实ID (ID靠右对齐)	•	📄 继续显示	ri 📔 💑 🛪	动 -
PCI5121								
PCI9810								
USBCANI								
USBCAN2								
PCI9820								
PCI5110								
ISA9620								
ISA5420								
PC104-CA								
CANET-UDI								
DNP9810								
PCI9840								
PC104-CA	2							
PC198201								
CANET-TCI								
PEC-9920								
PCI-5010-	V							
USBCAN-E-	V							
USBCAN-21	-v							
PCI-5020-	U · V							
Intel IO	EG2OT CAN	发送	耗时(s)		发送帧数:		接收帧数:	

Figure 4.2.

Figure 4.2 Device type selection



The "Open Device" dialog box is displayed, as shown in Figure 4.3.

⊖ CANTest 广州致远电	子腰份有限公司 版权所有		
▶ ● 选择设备 • 帧ID显示方式	· 十六进制 → 格式: 真实ID 0	四靠右对齐文 💽 📷 继续	温示 📗 💩 滚动 💡
	打井设名 - USBCAM-2E 设备参数 设备参数 设备索引号: □ - 初始化参数 波特率: 100K • 自定义波特率寄存器:0x 1000 確定 确定并J	 第几路CAN: ・ ・ ・ 法择所有CAN 復式: 正常模式 ・ ・ 自定义法特率 取消 品助CAN 	
	发送耗时(s):	发送帧数:	接收帧数:

Figure 4.3 Open Device dialog box

In this dialog box, select the device index number and CAN channel to be opened, and set the CAN initialization parameters, click "OK" to open the device operation window (or you can click the "OK and start CAN" button to open the device operation window and automatically start the device and start the CAN channel).

4.1.2 Filter Settings

In the device operation window, click the "Filter Settings" button to set the filter (if you do not need to set the filter, you can skip this step), as shown in Figure 4.4.



Figure 4.4 Filter Setting 1

The Filter Settings dialog box is displayed, as shown in Figure 4.5.



滤波设置			×
通道	过滤格式	起始ID	结束ID
<			
模式	标准帧明确ID格式 🔄	」 起始帧ID: 0x	0
通道	标准帧明确ID格式 标准帧组ID格式	结束帧ID: Ox	0
□ 开启滤れ	p,處火的編出增武, 扩展帧組ID格式 版	添加	删除
	确定	取消	

Figure 4.5 Filter Setting 2

Select the filter mode. Set the CAN frame to be filtered by setting the filter.

4.1.3 Starting the CAN

Click the "Start" button to start the CAN channel. The received CAN data is automatically displayed in the data list, as shown in Figure 4.6.

● CANTest - [USBCAN-2E-U 设备:0 通道:0]	
📷 选择设备 - 帧四显示方式: 十六进制 - 格式: 真实ID (ID靠右对齐) - 📦 继续显示 📗 💋 液动	·· 7
USBCAN-2E-U 设备:0 通道:0 ×	₫ Þ 🗙
🔍 滤波设置 🔡 启动 🙁 停止 义 关闭 👒 定位 🌻 诸空 🚽 保存 📾 设备操作 🚽 🧔 接收时间标识 - 😋 隐藏发送帧	;;
序号 传输方向 时间标识 帧ID 帧格式 帧类型 数据长度 数据 OHEX)	_

Figure 4.6 Startup

4.1.4 Getting Device Information

● CANTest - [USBCAN-2E-U 设备:0 通道:0]	
▶ ▶ ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	显示 🔢 💩 滚动 💡
USBCAN-2E-U 设备:0 通道:0 ×	4 ▷ ×
🗄 🔌 滤波设置 🔡 启动 😕 停止 뚪 关闭 🐁 定位 🌻 诸空 🔒 保存 💼 设备操作 📢 🙋 接收时间标识	R 🔹 🔁 隐藏发送帧 💡 💡
序号 传输方向 时间标识 帧ID 帧 <mark>设备信息</mark> 数据	长度 数据(HEX) 🔼
置货楼参	



After starting the CAN channel, select the "Device Information" option in the "Device Operation" menu to obtain the details of the current device, as shown in Figure 4.7.

4.2 Sending and Receiving Test

This section describes the simple transmit-receive test, DBC decoding, and bus utilization of MiniPCIeCAN-2E-U.

4.2.1 Establishing a Test Environment

Ensure that the wiring is correct. Figure 4.8 shows the interface definition, and Figure 4.9 shows the wiring effect.





Figure 4.8 Interface definition



Figure 4.9 Wiring diagram

In this document, it is built based on our company's core board and backplane. In fact, the driver can be installed as long as the device connected to the MiniPCIe interface is installed. Figure 4.10 and Figure 4.11 show the overall effect.



Figure 4.10 Wiring diagram





Figure 4.11 Wiring diagram

4.2.2 Starting the Device

Run the CANTest software and select the device type. See 4.1.1 Summary. Configure the device, as shown in Figure 4.12 and Figure 4.13. Pay attention to the selection of CAN channels. The device index number is a code that identifies the device. The same device index number should be selected for different CAN interfaces of the same device. Different device index numbers are selected for different devices select . Generally, device index numbers start from 0. The number of CAN channels is used to distinguish different CAN channels under the same device index number. This device has two CAN channels. Therefore, there are two options (0 and 1) in the first few CAN options. The baud rate is 100K. Since there is no terminal resistor installed for this test, the baud rate should not exceed 100K. If you really use it, you must add a terminal resistor of the corresponding resistance value.

⊖ CANTest 广州致远电	子服份有限公司 版权所有		
▶ ● 「「」」「「」」「「」」「」」「「」」「」」「」」「」」「」」「」」「」」「」	· 十六进制 → 格式: 真实ID(I	1章右对齐公 💽 📄 🕯	继续显示 📗 💩 滚动 🍟
	打井设名 - USBCAN-2E 设备参数 设备参数 设备来引号: 0 ・ 初始化参数 波特率: 100K ・ 自定义波特率寄存器: 0x 1600 確定 確定并和	 第几路CAN: 0 ▼ 法探所有CAN 模式: 正常模式 ▼ 23 「 自定义波特率 取消 B誌pCAN 	
	发送耗时(s):	发送帧数:	接收帧数:

Figure 4.12 Parameter setting of the first channel CAN



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A CANTANA - INCREAR O	р. п. 没久. o. 通送. o1	
CANTEST - LUSDCAN-2		
▶ ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	: 十六进制 🔹 格式: 真实ID (ID靠右对齐) 🔹 📄 继续显示 💵 🖧 滚动	÷
USBCAN-2E-V 设备:0 通道:0 >	<	4 ▷ ×
! 🐴 滤波设置 🛛 送 启动 迷 停止	打开设备 - USBCAR-2E 🛛 🔀 识 - C3 隐藏发送帧	;; ,
序号 传输方向 时	B长度 数据 OHEX)	^
	设备参数	
	设备索引号: 0 ▼ 第几路CAN: 1 ▼	
	厂 选择所有CAN	
	初始化参数	
	被特率: 100K ▼ 模式: 正常模式 ▼	
<	自定义波特率寄存器: Ox 160023	>
基本操作		
发送方式:正常发送	确定 取消 美一帧递增	
	确定并启动CAN	
帧格式: 数据帧	停止	
基本操作 高级操作		
	发送耗时(s): 发送帧数: 0 接收帧数:	

Figure 4.13 Parameter setting of the second channel CAN



4.2.3 Sending Data

When you start the CAN successfully, set the parameters of the CAN frame you want to send, as shown in Figure 4.14. Click the "Send" button to send the data(The self-sent and self-receive option in the Sending Format drop-down box indicates that the sent CAN frame can also be received by itself. This option is only needed during testing; select normal transmission in practical applications).

基本操作			
发送方式: 正常发送 💌	 ● 每次发送单帧 ○ 每次发送 	10 帧 □ 帧ID每发	送一帧递增
帧类型:标准帧 _	帧ID (HEX): 00000000 数据 0	(EX): 00 01 02 03 04 05 06 0	7 发送
帧格式: 数据帧 💌	发送次数: 1 每次	欠发送间隔 (ms): 0	停止
其太揭作 高级揭作			
Sacrowite Handdelle	发送耗时(s):	发送帧数: 0	接收帧数:

Figure 4.14 Basic settings for sending data

Click the "Advanced Operation" tab to display the advanced operation page. On this page, you can set to send multiple different CAN frames each time (a maximum of 100 frames can be set), and the interval between each frame and between each batch, as shown in Figure 4.15.

高	級操作						
	2	帧类型	帧格式	帧ID	数据(HEX)	^	发送方式:正常发送 🔹
	M 0	标准帧	数据帧	0000000	00 01 02 03 04 05 06 07	=	
	₽1	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07		发送次数: 1
	₽2	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07		每次发送间隔(ms): 0
	🗖 3	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07		每帕发送间隔 (ns); 0
	□ 4	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07		
	🗖 5	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07		发送停止
	🗖 6	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07		
	□7	标准帧	数据帧	0000000	00 01 02 03 04 05 06 07		
	🗆 8	标准帧	数据帧	0000000	00 01 02 03 04 05 06 07		
	🗆 9	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07		
	🗖 10	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07	-	
ż	本操作	高级操作					

Figure 4.15 Advanced settings for sending data

Figure 4.16 and Figure 4.17 show the sending and receiving effect.



0		- 10.00 - 100.00	- 7				
CANTest	- [USBCAN-2E	-U 设备:0 迪道	:0]				
间 选择设备	▼ 帧ID显示方式:	十六进制 ・	格式: 真实ID(ID)	靠右对齐)	- 🖻	继续显示	💑 滚动
USBCAN-2E-U	设备:0 通道:0 ×	USBCAN-2E-U 设	备:0 通道:1				4 ⊳
🐴 滤波设置	😹 启动 送 停止	💢 关闭 🛯 🔈 定位	🌻 清空 딣 保存	序 💼 设备操作 🗸	🧑 接收时间	间标识 🗸 😋 隐藏	发送帧
传输方向	时间标识	帧ID	帧格式	帧类型	数据长度	数据(HEX)	2
发送	无	0x00000001	数据帧	标准帧	0x08	00 01 02 03	04 05 06 07
<							>
基本操作							
发送方式:	正常发送 💌	 每次发送单 	岐 〇 毎次发	送 10 帧	│ 「 帧ID毎	发送一帧递增	
帧类型:	标准帧 _	NEID (HEX) :	00000001 数:	瞎 (HEX): 00 01 02	2 03 04 05 06	5 07 发送	
帧格式:	数据帧 _	发送次数:	1	毎次发送间隔(ms)	: 0	停止	
基本操作高	級操作						
		安洋耗	Bt (=) 0,002	告送曲题	ά· 1	接收帖	浙.

Figure 4.16 Sending

CANTest	- [USBCAN-:	2E-U 设备:0 通道	:1]				
🌆 选择设备	▼ 帧ID显示方示	式:十六进制 🔹	格式: 真实ID (ID:	靠右对齐)	• 📄	继续显示 📗 🛛	💩 滚动
USBCAN-2E-U	设备:0 通道:0	USBCAN-2E-U 设备:()通道:1 ×				4 Þ >
🐴 滤波设置	🔏 启动 送 停	止 👗 关闭 🛯 🏊 定位	🎈 清空 😓 保存	序 💼 设备操作 🗸	🙆 接收时间	标识 🗸 🕑 隐藏ź	5送帧 。
传输方向	时间标识	响页ID	帧格式	帧类型	数据长度	数据(HEX)	^
接收	0x00266634	0x00000001	数据帧	标准帧	0x08	00 01 02 03 0	4 05 06 07
<			ш	_			×
基本操作							
发送方式:	正常发送	▼ ● 每次发送单帧	し 日本 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	送 10 帧	□ 帧ID毎岁	这送一帧递增	
帧类型:	标准帧	▼ 物版ID(HEX):	00000000 数:	唐(HEX): 00 01 02	03 04 05 06	07 发送	
帧格式:	数据帧	▼ 发送次数:	1	毎次发送间隔(ms)	0	停止	
17-14-18 /k (17	144442 144						
金4操作 尚	級操作	10.326.007		115 134 J. H.M.		446.14.4.6.14	L.
		友送耜	f] (s):	友送顿委	(; 0	接收帧数	X:

Figure 4.17 Receiving

4.2.4 Real-time Saving and Stopping Saving

When you need to record messages for a long time, use the real-time saving function. When the software buffer is full, transfer it to the file (CSV format) in the hard disk, and clear the software buffer. The message file names can be automatically numbered sequentially. Enable this function before starting. Note that the save location cannot be specified in the C drive. Otherwise, saving may fail. When you click Stop Saving, the transfer will not be performed, as shown in Figure 4.18.

📙 实时保存 🥝 停止保存

Figure 4.18 Saving

4.2.5 DBC Decoding and Display by ID



If you click ^{SDBC}, the DBC interface appears. You can import the required DBC file for frame decoding (the decoding is displayed at the bottom of the interface. **J1939 decoding is included by default**). Or, use this interface to display CAN frames by ID classification, that is, "**ID fixed, data changes**". Data segments with changes will be marked in red. See Figure 4.19.

rar	meAnalyzer-C:	\Program	n Files\CANTe	st\DBCFiles\j1939	9.dbc							
b	n载DBC	暂停	🚺 分类显示	📦 自动滚屏	🛃 清空列表	协议类型	: J1939	•				
	传输方向	时间	0	消息名	ID	源地址	目的地址	帧类型	帧格式	数据长度	1	帧数据
	接收	532.26	526	EEC2	00F00302 H	02 H		扩展帧	数据中市	8	00 00 30 0	00 00 00 00 00
	接收	532.24	189	EEC1	0CF0041A H	1A H		扩展帧	数据响	8	00 00 00 0	D6 00 00 00
	接收	532.25	598	HOURS	00FEE505 H	05 H		扩展帧	数据响	8	D2 09 00 0	00 00 00 00 00
	接收	532.20	70	ET1	00FEEE01 H	01H		扩展帧	数据帧	8	14 14 00 0	00 00 00 00 00
	接收	532.22	215	VEP 1	00FEF 704 H	04H		扩展帧	数据帧	8	00 00 00 0	DO 00 00 DO 6B
	接收	532.22	267	SHUTDN	00FEE407 H	07 H		扩展帧	数据帧	8	00 00 00 0	00 00 00 00 00
	接收	532.24	122	EFL_P1	00FEEF03 H	03 H		扩展帧	数据响	8	00 00 00 3	27 00 00 00 00
	接收	532.24	158	IC1	00FEF606 H	06 H		扩展帧	数据帧	8	00 00 27 0	00 00 00 00 00
	1	信号名		实际值	值指	勤述		原始值	起始位	位宽	变换比例	变换偏移
			lode	0.00	-	-		0	0	4	1.000000	0.000000
	En	ngTorqueM			00	00		0	4	4	1.000000	0.000000
	En ActlEngPrcn	ngTorqueM ntTorqueH	ighResolution	0.00	00	~~						
	En ActlEngPron DriversDem	ngTorqueM ntTorqueH nandEngPe	ighResolution ercentTorque	0.00	-	-		0	8	8	1.000000	-125.000000
	En ActlEngPron DriversDem Actual	ngTorqueM ntTorqueH nandEngPe EngPercen	ighResolution ercentTorque htTorque	0.00 -125.00% -125.00%	-	-		0	8 16	8	1.000000	-125.000000 -125.000000
	En ActlEngPrcn DriversDem Actual	ngTorqueM ntTorqueH nandEngPe EngPercen EngSpee	ighResolution ercentTorque htTorque d	0.00 -125.00% -125.00% 6861.50rpm	-	-		0 0 54892	8 16 24	8 8 16	1.000000 1.000000 0.125000	-125.000000 -125.000000 0.000000
	En ActlEngPron DriversDem Actual SrcAddrssO	ngTorqueM ntTorqueH nandEngPe EngPercen EngSpee ofCntrlIngD	ighResolution ercentTorque htTorque d ovcForEngCtrl	0.00 -125.00% -125.00% 6861.50rpm 0.00		-		0 0 54892 0	8 16 24 40	8 8 16 8	1.000000 1.000000 0.125000 1.000000	-125.000000 -125.000000 0.000000 0.000000
	En ActilEngPron DriversDem Actuali SrcAddrssO En	ngTorqueM ntTorqueH nandEngPe EngPercen EngSpee fCntrlingD ngStarterM	ighResolution ercentTorque htTorque d ovcForEngCtrl lode	0.00 -125.00% -125.00% 6861.50rpm 0.00 0.00	start not i	- - - requested		0 0 54892 0 0	8 16 24 40 48	8 16 8 4	1.000000 1.000000 0.125000 1.000000 1.000000	-125.000000 -125.000000 0.000000 0.000000 0.000000

Figure 4.19 DBC protocol analysis

4.2.6 Bus Utilization

Click BusFlow to display the bus utilization interface. The current bus utilization and frame traffic can be monitored in real time. The refresh time can be adjusted to adjust the display speed. See Figure 4.20.



Figure 4.20 Bus utilization

4.2.7 Error Message Display



Click Reference to display the error information display interface. When an error occurs in the corresponding CAN circuit, the error message (error sending counter and error receiving counter values), and the time when the error occurred will be printed out. See Figure 4.21.

- 告受								
~		容計						
184			المحسوب المتحدجة					
殿大 3	显示行数: 100000	- 鋪定 (・是) 合	清空列表 导出报表					
;묵	时间	错误码	消极错误代码类型	消极错误属性	消极错误段表示	REC	TEC	仲裁错误段表示
91	23:43:51.000469	0x00000004:CAN控制器消极错误	00:位错误	0:发送错误	10001:活动错误标志	0	136	
92	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	10001:活动错误标志	0	136	
93	23:43:51.000469	0x0000002:CAN控制器错误报警	00:位错误	 2.发送错误 	00000	0	0	
94	23:43:51.000469	0x00000004:CAN控制器消极错误	00:位错误	 2:发送错误 	00011:帕开始	0	136	
95	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	112	
96	23:43:51.000469	0x00000020:总线关闭错误	00:位错误	0:发送错误	00000	0	0	
97	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	127	
98	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	240	
99	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:帕开始	0	232	
00	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:帕开始	0	224	
01	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	 2. 发送错误 	00011:帕开始	0	216	
12	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	 2. 发送错误 	00011:帕开始	0	208	
03	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	 2:发送错误 	00011:帕开始	0	200	
04	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	184	
05	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	176	
06	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	168	
07	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	160	
08	23:43:51.000469	0x0000002:CAN控制器错误报警	00:位错误	0:发送错误	00000	0	0	
09	23:43:51.000469	0x00000004:CAN控制器消极错误	00:位错误	0:发送错误	10001:活动错误标志	0	136	
10	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	 2. 发送错误 	10001:活动错误标志	0	136	
11	23:43:51.000469	0x0000002:CAN控制器错误报警	00:位错误	 2:发送错误 	00000	0	0	
12	23:43:51.000469	0x00000004:CAN控制器消极错误	00:位错误	0:发送错误	00011:幀开始	0	120	
13	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	96	
14	23:43:51.000469	0x00000020:总线关闭错误	00:位错误	0:发送错误	00000	0	0	
15	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	127	
16	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:帕开始	0	240	
17	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:帕开始	0	232	
18	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:帕开始	0	216	
19	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	 2:发送错误 	00011:帧开始	0	208	
20	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:帧开始	0	192	
21	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	184	
22	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	176	
23	23:43:51.000469	0x00000010:CAN控制器总线错误	00:位错误	0:发送错误	00011:幀开始	0	168	
24	23:43:51.000576	0x0000004:CAN控制器消极错误	00:位错误	0:发送错误	0 0 1 1 0:ID20-ID18	0	127	

Figure 4.21 Error message



5. Method of Using The Interface Library Functions

Efficient and easy-to-use secondary development functions, which support various development environments, such as VC, C#, and Labview.

5.1 Methods of Calling the Dynamic Library on Windows

First, put the library function files in the working directory. The library function file has three files ControlCAN.h, ControlCAN.lib, ControlCAN.dll and the kerneldlls folder in total.

5.1.1 Methods of VC Calling the Dynamic Library

(1) The ControlCAN.h header file is included in the .CPP file.

Such as: #include "ControlCAN.h"

(2) Connect to the ControlCAN.lib file in the connector settings of the project.

For example: in the VC7 environment, add ControlCAN.lib in the configuration properties \rightarrow connector \rightarrow input \rightarrow additional dependencies on the project property page

5.1.2 Method of VB Calling the Dynamic Library

It can be called after declaring it in the following method.

Syntax:

[Public | Private] Declare Function name Lib "libname" [Alias "aliasname"] [([arglist])] [As type]

The syntax of the Declare statement consists of the following parts:

Public (optional)

Used to declare functions available to all procedures in all modules.

Private (optional)

Used to declare a function that can only be used in the module that contains the declaration.

Name (mandatory)

Any valid function name. The entry points of a dynamic link library are case-sensitive.

Libname (mandatory)

Contains the declared function dynamic link library name or code resource name.

Alias (optional)

Indicates that the function to be called has another name in the dynamic link library (DLL). This parameter can be used when the external function name has the same name as a function. Alias can also be used when a dynamic link library function has the same name as a public variable, constant or any other procedure in the same scope. Alias can also be used if a character in the dynamic link library function does not conform to the naming convention of the dynamic link library.

Aliasname (optional)



Dynamic link library. If the first character is not a number sign (#), aliasname is the name at the entry point of the function in the dynamic link library. If the first character is (#), the following characters must specify the sequence number at the entry to the function.

Arglist (optional)

Indicates a variable table that needs to pass parameters when calling the function.

Type (optional)

Data type of the return value of Function; it can be Byte, Boolean, Integer, Long, Currency, Single, Double, Decimal (not supported currently), Date, String (variable-length only), or Variant, a user-defined type, or an object type.

The syntax of the arglist parameter is as follows:

[Optional] [ByVal | ByRef] [ParamArray] varname[()] [As type]

Partial description:

Optional

Indicates that the parameter is optional. If this option is used, subsequent arguments in arglist must be optional and must all be declared with the Optional keyword. If ParamArray is used, Optional cannot be used for any parameter.

ByVal (optional)

Indicates that the parameter is passed by value.

ByRef (optional)

Indicates that the parameter is passed by address.

For example:

Public Declare Function VCI_OpenDevice Lib "ControlCAN" (ByVal devicetype As Long, ByVal deviceind As Long, ByVal reserved As Long) As Long



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5.2 Interface Library Function Usage Process



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6. Electrical Characteristics

Unless otherwise specified, the parameters listed in the following table refer to the value at Tamb=25 $^{\circ}$ C. See Table 6.1.

Parameter Name	Typical Value	Remarks
Power voltage	3.3V	
Operating current	200 mA (+3.3V supply voltage)	
Static level	4 kV (contact)/8 kV (air)	
Range of temperature	-40~+85℃	

Table 6.1 Electrical characteristics



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7. Structure and Dimensions

Board dimensions: 30 mm (width) x 50.95 mm (length) x 7.35 mm (height). The following figure shows the detailed dimensions:

Unit: mm









Figure 7.2 PACK board dimensions



8. Inspection and Maintenance

The main electrical components of the MiniPCIe interface CAN card are semiconductor components. Although it has a long life, it may also age quickly under inappropriate conditions. Periodic inspections should be carried out to ensure that the required conditions are maintained. It is recommended to check at least once every 6 months to a year. Under unfavorable environmental conditions, more frequent inspections should be carried out.

If you encounter a problem during the maintenance, see Table 8.1 to identify the fault cause. If the fault persists, contact Guangzhou ZLG Electronics Co., Ltd.

No.	ltem	Inspection	Standard	Action
1	Power supply	Check for voltage fluctuations at the power supply side	MiniPCIe power supply +3.3 V DC	Check the supply voltage with a voltmeter.
2	Surrounding environment	Check the ambient temperature (including the internal temperature of the enclosed environment)	-40°C ~ +85°C	Use a thermometer to check the temperature and ensure that the ambient temperature is kept within the allowable range
		Check the ambient humidity (including the internal humidity of the enclosed environment)	The humidity must be between 10% and 90% RH when there is no air conditioner	Use a hygrometer to check the humidity and ensure that the ambient humidity is kept within the allowable range
		Check for dust, powder, salt, metal chips	No accumulation	Clean and protect the equipment

Table 8.1 Inspection and maintenance



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		Check that water, oil or chemical spray should not touch the equipment	No spray touches the device	To clean and protect the equipment
		Check for corrosive or flammable gases in the equipment area	No corrosive or flammable gas	Check by smelling or using a sensor
		Check vibration and shock levels	Vibration and shock are within the specified range	If necessary, install gaskets or other shock absorbers
		Check the noise source near the equipment	No significant noise signal source	Isolate the device from the noise source or protect the device
3	Installation and Wiring	Check that each unit is securely connected and has been safely locked with the next unit	No looseness	Press the connectors together completely and lock them with the slider



No.	ltem	Inspection	Standard	Action
3	Installation and Wiring	Check that the cable connector is fully inserted and locked	No looseness	Correct any incorrectly installed connectors
		Check for loose screws in external wiring	No looseness	Tighten the screws with a screwdriver
		Check crimp connectors in external wiring	Leave enough space between connectors	Visual inspection. Adjust if necessary
		Check for damage to external cables	No damage	Visual inspection. Replace the cable if necessary



9. Disclaimer

Based on the principle of providing better service for users, Guangzhou ZLG Electronics Co., Ltd. ("ZLG Electronics") will try to present detailed and accurate product information in this manual. However, due to the effectiveness of this manual within a particular period of time, ZLG Electronics does not guarantee the applicability of this document at any time. ZLG Electronics shall reserve the right to update this manual without prior notice. To get the latest version, please visit the official website of ZLG Electronics regularly or contact ZLG Electronics. Thank you!



No	Roudrote (Khao)	Crystal frequency = 36 MHz				
INO.	Baudrale (Kbps)	Custom baud rate register (bit timing)				
1	5	0x003AC1C1				
2	10*	0x003AC0E0				
3	20*	0x004DC059				
4	40	0x004DC02C				
5	50*	0x003AC02C				
6	80	0x003AC01B				
7	100*	0x004DC011				
8	125*	0x003AC011				
9	200	0x004DC008				
10	250*	0x003AC008				
11	400	0x0039C005				
12	500*	0x003CC003				
13	666	0x003CC002				
14	800*	0x0039C002				
15	1000*	0x003CC001				

Appendix A ARM standard baud rate

Note: The ones marked with * are the baud rates recommended by the CIA Association.



Stay Truthful for Win-win Results, Continuous Learning, Customer Oriented, Professional and Concentrated, Always be the No. 1



