User Manual

MiniPCIeCAN-II

MiniPCIe Interface CAN Card

UM01010101 V1.06 Date: 2021/04/21

Product User Manual

Category	Contents
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Description	MiniPCIe interface CAN card

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V0.00	July 1, 2015	Created
V1.01	September 30, 2015	Added the Linux driver installation method, quick instructions and dynamic library usage
V1.02	August 9, 2017	Changed the company name, sales and service network
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Contents

1. Functions 1
Functions 2
1.1 Typical Applications 2
2. Equipment Installation..3
2.1 Power Supply..3
2.2 Signal Indicators 3
2.3 MiniPCIe Interface Definition 4
2.4 CAN Second Function Pin Switch 5
3. Driver Installation 6
3.1 Installing the Driver for the First Time on Windows.............................6
3.2 Checking That the Device Is Installed Successfully.............................7
3.2.1 Opening Windows Device Manager...7
3.2.2 Checking That the New Device Has Been Successfully Installed 8
3.3 Driver Installation on Linux 8
4. Quick Instructions 9
4.1 CANTest Basic Operations..9
4.1.1 Device Type Selection...9
4.1.2 Filter Settings 11
4.1.3 Starting the CAN 12
4.1.4 Getting Device Information...12
4.2 Sending and Receiving Test..12
4.2.1 Establishing a Test Environment..12
4.2.2 Starting the Device 14
4.2.3 Sending Data..15
4.2.4 Real-time Saving and Stopping Saving 17
4.2.5 DBC Decoding and Display by ID 18
4.2.6 Bus Utilization...18
4.2.7 Error Message Display...20
5. Method of Using the Interface Library Functions....................................21
5.1 Methods of Calling the Dynamic Library on Windows..........................21
5.1.1 Method of VC Calling the Dynamic Library.....................................21
5.1.2 Method of VB Calling the Dynamic Library 21
5.2 Interface Library Function Usage Process 23
6. Electrical Characteristics...24
7. Structure and Dimensions..25
8. Inspection and Maintenance 27
9. Disclaimer 30
Appendix A SJA1000 standard baud rate 31

1. Functions

MiniPCIeCAN-II 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-II 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.

MiniPCIeCAN-II 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-II 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 MiniPCIeCAN-II 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-II high-performance CAN interface card supports Windows 2000/XP/7/8/10 and other operating systems and Linux operating systems. MiniPCIeCAN-II 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-II interface card supports the CANTest general test software, which can perform functions such as sending, receiving and monitoring CAN-bus messages. Figure 1.1 shows the product.

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.

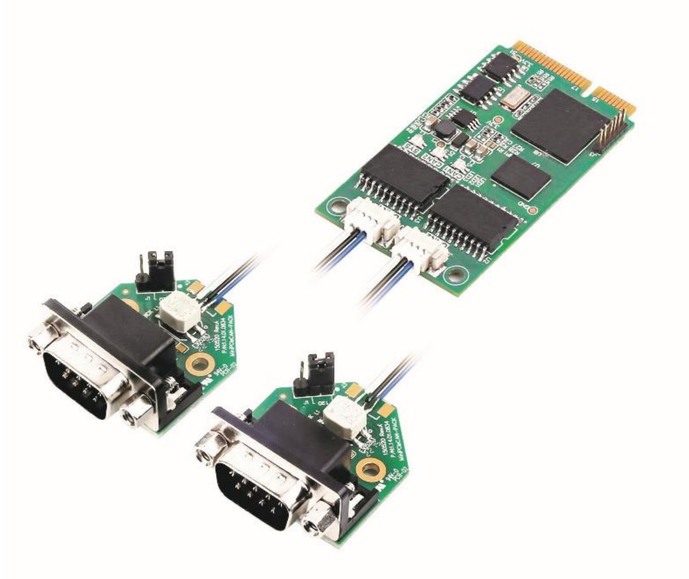


Figure 1.1 Product appearance

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/XP/7/8/10 and Linux;
- 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 Applications

- 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-II 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-II 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.

Table 2.1 Indicator functions

Indicator	STATUS	Indication status
SYS	Red	Device initialization status indication
	Green	MiniPCIe interface signal indication
CAN1	Green	The CAN interface is working properly
	Red	The CAN interface is faulty
CAN2	Green	The CAN interface is working properly
	Red	The CAN interface is faulty

After the MiniPCIeCAN-II 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 (driver installed), 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.

Table 2.2 CAN bus status

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 red and green	The CAN controller is not started, and the user is prompted to start the CAN controller
CAN1 and CAN2 indicators are always green	The CAN bus is operating properly
CAN1 and CAN2 indicators	The CAN-bus bus has an error or data overflow, and it may

flash in read	lose frames

2.3 MiniPCIe Interface Definition

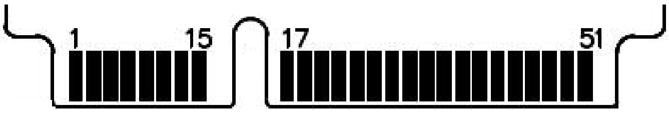


Figure 2.1 MiniPCIe pin sequence

Table 2.3 lists the MiniPCIe interface definitions. The pins 17, 19, 37, 39 are the second function pins of CAN. 36 and 38 are USB pins.

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 TXD second function IO
RD0_REV	19	CAN0 RXD second function IO
TD1_REV	37	CAN1 TXD second function IO
RD1_REV	39	CAN1 RXD 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, 40, 50	Ground

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.

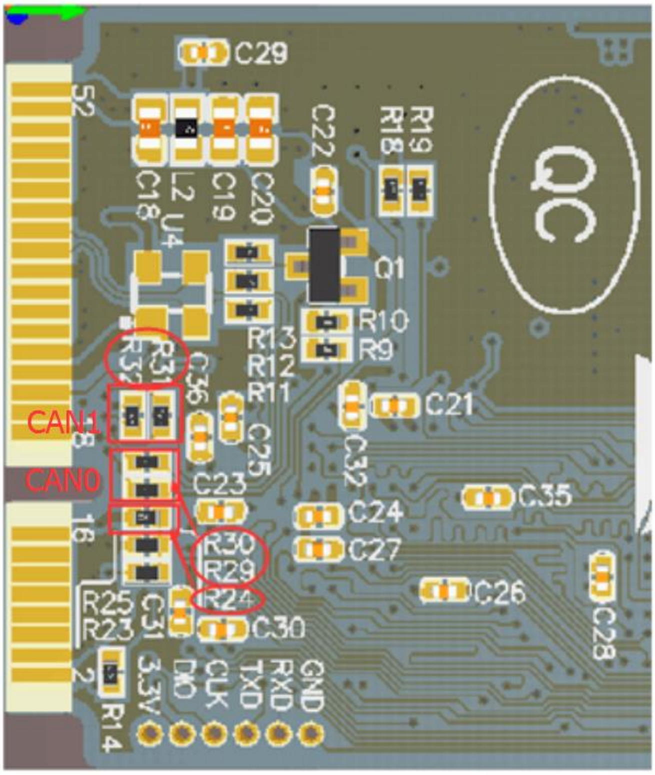


Figure 2.2 CAN signal secondary function selection resistor

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. The following table lists the pin sequence. 错误!未找到引用源。 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.

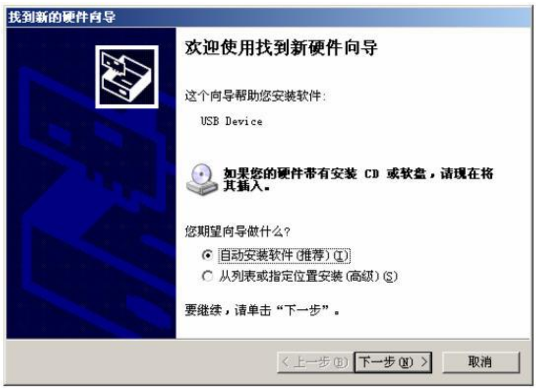
3. Driver Installation

3.1 Installing the Driver for the First Time on Windows

A. In the "\USBCAN\Driver" directory, find the usbcan.inf file, copy it to the windows\inf directory of the system, find usbcan.sys, and copy it to windows\system32\driver.

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

B. After the file is copied, connect the MiniPCIeCAN-II intelligent MiniPCIe interface CAN card to the PC correctly; Window will detect the new hardware and automatically start the "Found New Hardware" wizard. Click "Next". See Figure 3.1.



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？

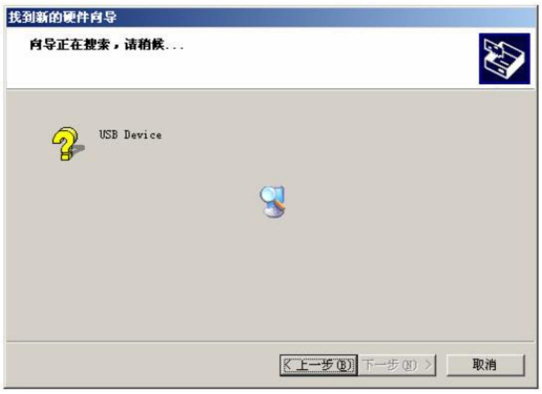
● 自动安装软件（推荐）(I)

○ 从列表或指定位置安装（高级）(S)

要继续，请单击“下一步”。

Figure 3.1 New Hardware Driver Installation Wizard

C. The wizard starts searching for new hardware drivers. See Figure 3.2.



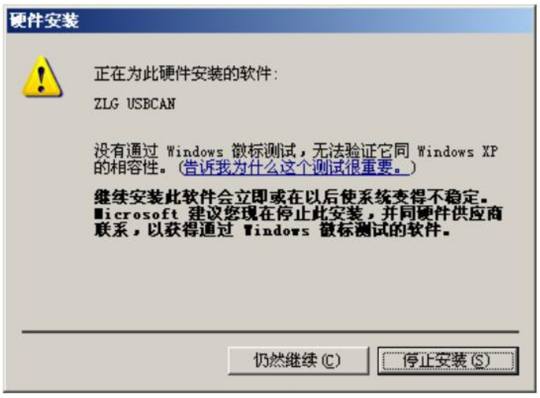
找到新的硬件向导

向导正在搜索，请稍候...

USB Device

Figure 3.2 Searching the driver

D. Wait for a while. On Windows XP/Windows 2000, a warning about compatibility with the operating system may be generated. In this case, just click the "Continue Anyway" button. See Figure 3.3.



硬件安装

正在为此硬件安装的软件：

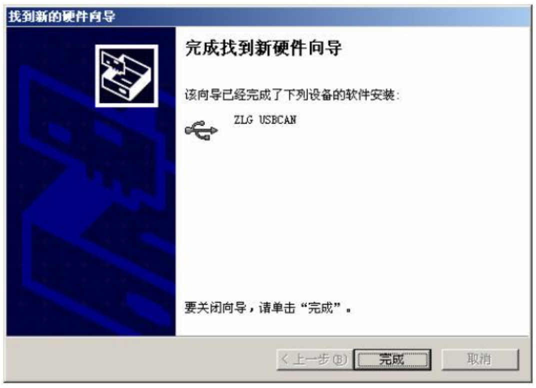
ZLG USBCAN

没有通过 Windows 徽标测试，无法验证它同 Windows XP 的相容性。(告诉我为什么这个测试很重要。)

继续安装此软件会立即或在以后使系统变得不稳定。Microsoft 建议您现在停止此安装，并同硬件供应商联系，以获得通过 Windows 徽标测试的软件。

Figure 3.3 Driver Installation

E. After continuing the installation, you will be prompted that new hardware is found. Finish installation. See Figure 3.4.



找到新的硬件向导

完成找到新硬件向导

该向导已经完成了下列设备的软件安装：

ZLG USBCAN

要关闭向导，请单击“完成”。

Figure 3.4 Driver installation completed

F. Click "Finish". MiniPCIeCAN-II Intelligent MiniPCIe interface CAN card initialization indicator SYS is red and off, and the SYS indicator is on in green, indicating that the hardware driver is installed successfully and can be used.

3.2 Checking That the Device Is Installed Successfully

3.2.1 Opening Windows Device Manager

A. Right-click the My Computer icon on the desktop;

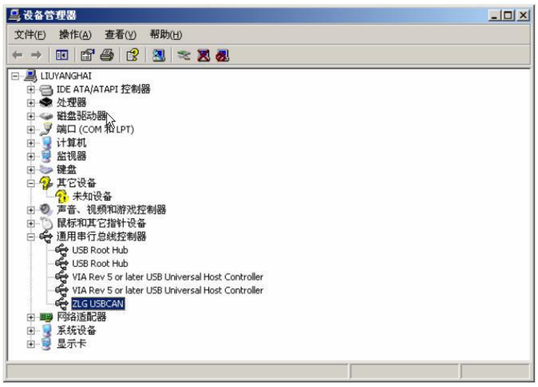
B. Select the "Properties" option from the drop-down menu;

C. Select the "Hardware" tab;

D. Click the Device Manager button to open the current hardware device list.

3.2.2 Checking That the New Device Has Been Successfully Installed

Check if the "USBCAN" device is already in the current hardware list in the "Universal Serial Bus Device" device class. After successful installation, you can see the "USBCAN" device under the "Universal Serial Bus Device" device class in the "Device Manager" interface. The following figure shows the normal installation of the "ZLG USBCAN series intelligent CAN interface card" on the computer. See Figure 3.5.



```
LIUYANGHAI
  IDE ATA/ATAPI 控制器
  处理器
  磁盘驱动器
  端口 (COM 和 LPT)
  计算机
  监视器
  键盘
  其它设备
    未知设备
  声音、视频和游戏控制器
  鼠标和其它指针设备
  通用串行总线控制器
    USB Root Hub
    USB Root Hub
    VIA Rev 5 or later USB Universal Host Controller
    VIA Rev 5 or later USB Universal Host Controller
    ZLG USBCAN
  网络适配器
  系统设备
  显示卡
```

Figure 3.5 Installation completed

When the USBCAN mini intelligent CAN interface card and the PC are in data transmission, the SYS indicator on the interface card flashes in green.

3.3 Driver Installation on Linux

A. The usbcan driver is implemented based on libusb. First, install the dependent library with the following command:

   #apt-get install libusb-1.0-0

B. Copy "usbcan.so, libusbcan.so.1" to the "/lib" directory, and run make in the test directory for compilation.

Note: Ask the R&D department for usbcan.ko and libusbcan.so.1 files.

C. In the "./test" in the test directory, view the parameter calling example as reference for the test.

D. test will test each channel in a self-send and self-receive manner. If the card is normal, the number of frames sent and received and the sending speed will be displayed in the end

Note: The USB driver delivered with Linux is used. The old way of publishing was not open source. Therefore, customers need to apply for a custom driver to the R&D department each time the kernel is replaced.

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.

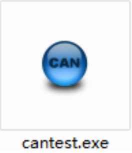


Figure 4.1 CANTest software icon

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 USBCAN2 from the "Select Device" menu, as shown in Figure 4.2.

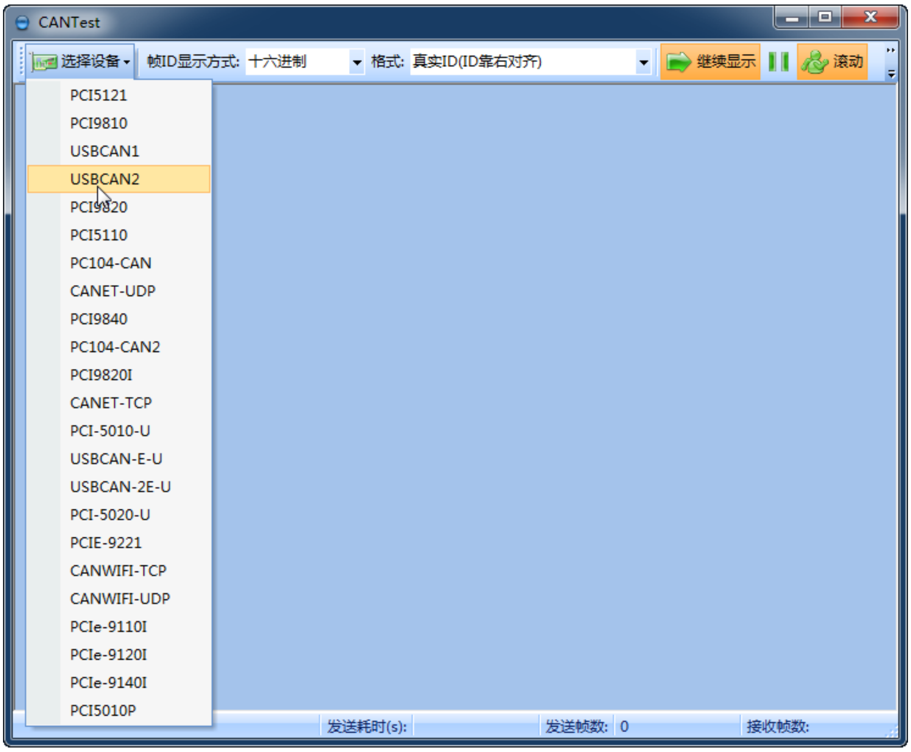
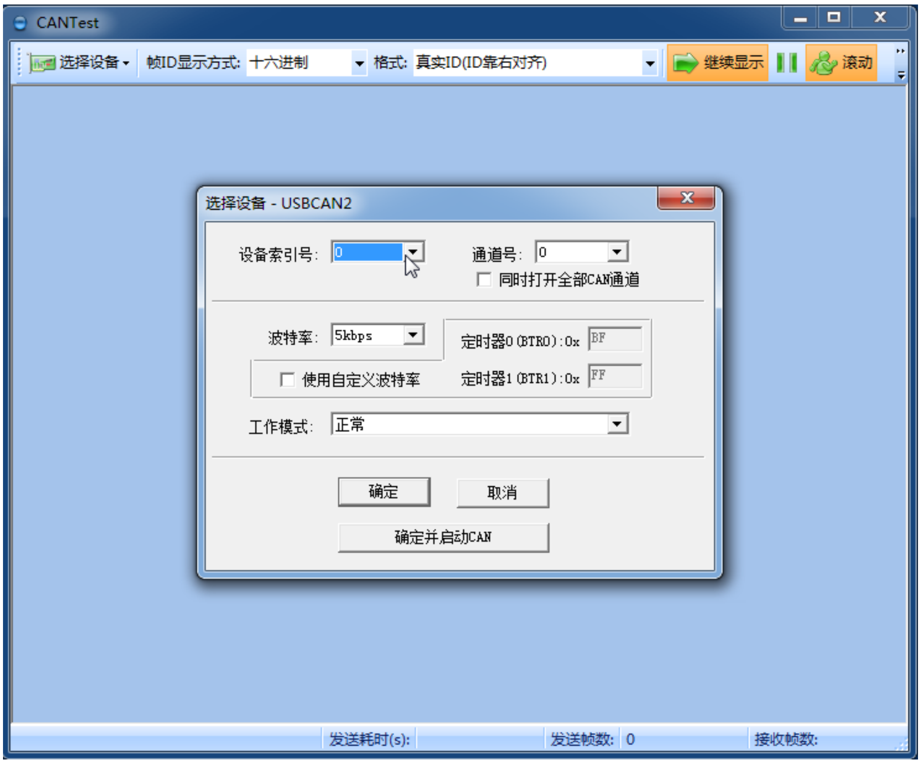


Figure 4.2 Selecting a device

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



设备索引号: 0

通道号: 0

□ 同时打开全部CAN通道

波特率: 5kbps

□ 使用自定义波特率

定时器0 (BTR0):0x BF

定时器1 (BTR1):0x FF

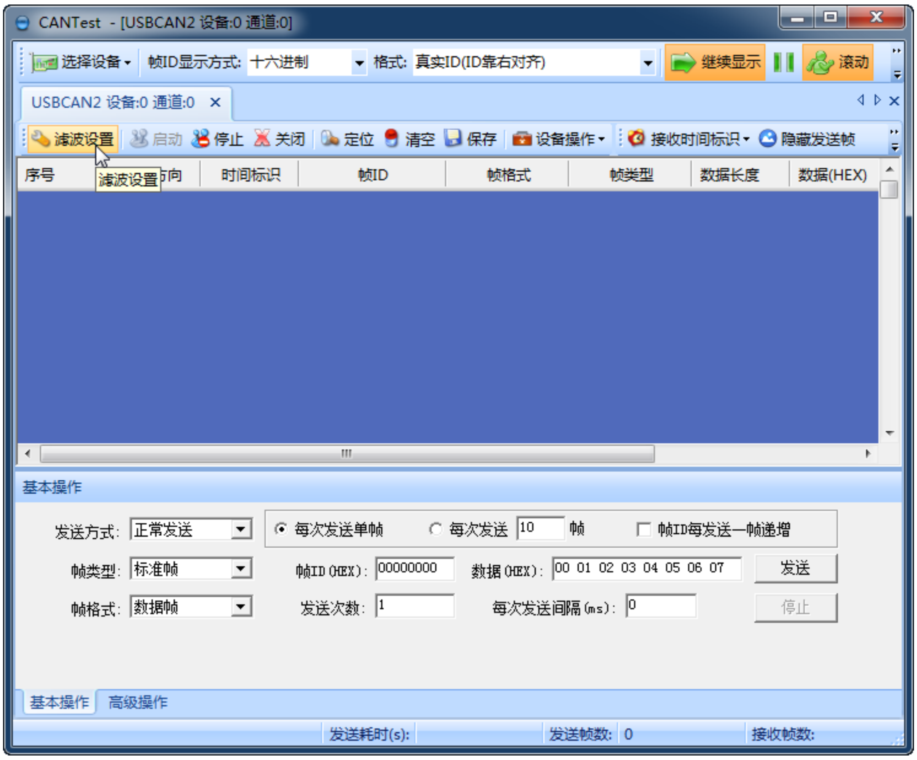
工作模式: 正常

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

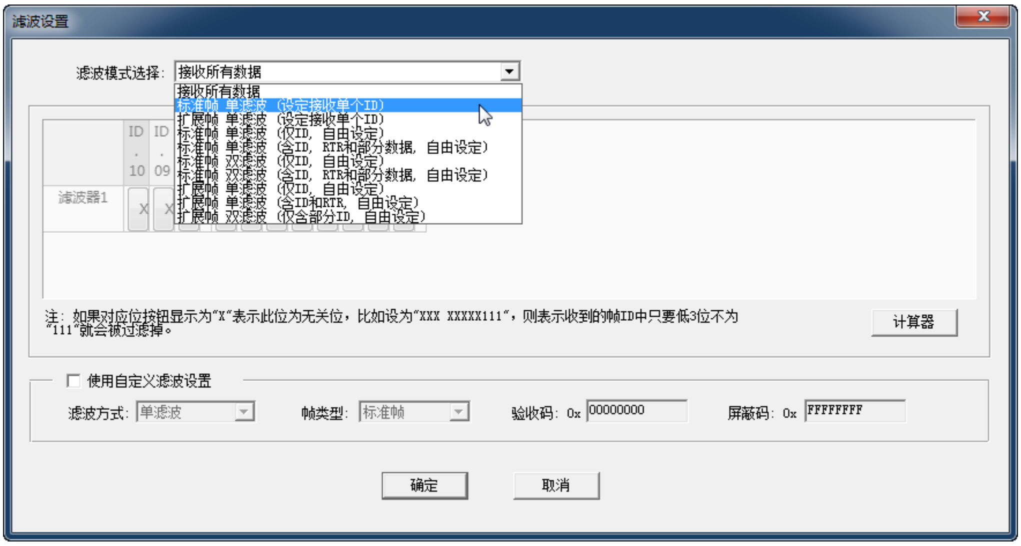
In the device operation window, click the "Filter Settings" button to set the filter (if you do not need to set the filter, you can skip this step), as shown in Figure 4.4.



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 (HEX): 00 01 02 03 04 05 06 07
帧格式: 数据帧
发送次数: 1
每次发送间隔 (ms): 0

Figure 4.4 Filter Setting 1

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



滤波模式选择: 接收所有数据

接收所有数据
标准帧 单滤波 (设定接收单个ID)
扩展帧 单滤波 (设定接收单个ID)
标准帧 单滤波 (仅ID, 自由设定)
标准帧 单滤波 (含ID, RTR和部分数据, 自由设定)
标准帧 双滤波 (仅ID, 自由设定)
标准帧 双滤波 (含ID, RTR和部分数据, 自由设定)
扩展帧 单滤波 (仅ID, 自由设定)
扩展帧 单滤波 (含ID和RTR, 自由设定)
扩展帧 双滤波 (仅含部分ID, 自由设定)

注: 如果对应位按钮显示为"X"表示此位为无关位，比如设为"XXX XXXXX111"，则表示收到的帧ID中只要低3位不为"111"就会被过滤掉。

□ 使用自定义滤波设置
滤波方式: 单滤波
帧类型: 标准帧
验收码: 0x 00000000
屏蔽码: 0x FFFFFFFF

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.

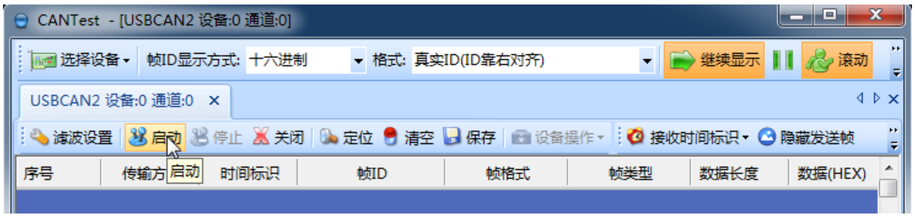


Figure 4.6 Startup

4.1.4 Getting Device Information

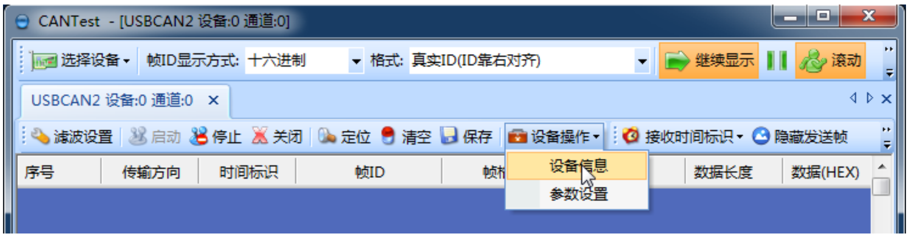


Figure 4.7 Device information

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-Ⅱ.

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.

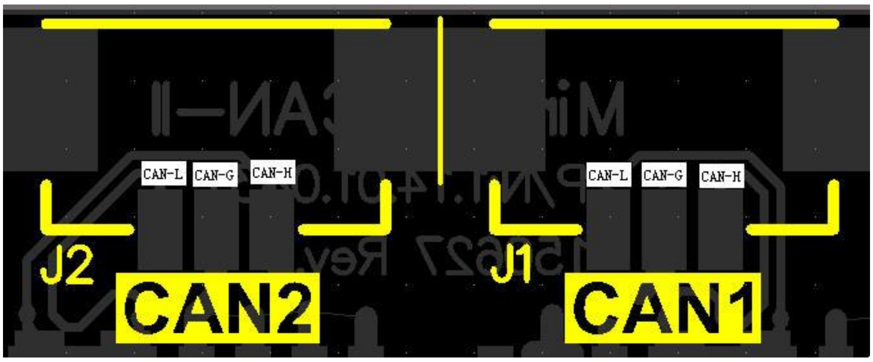


Figure 4.8 Interface definition

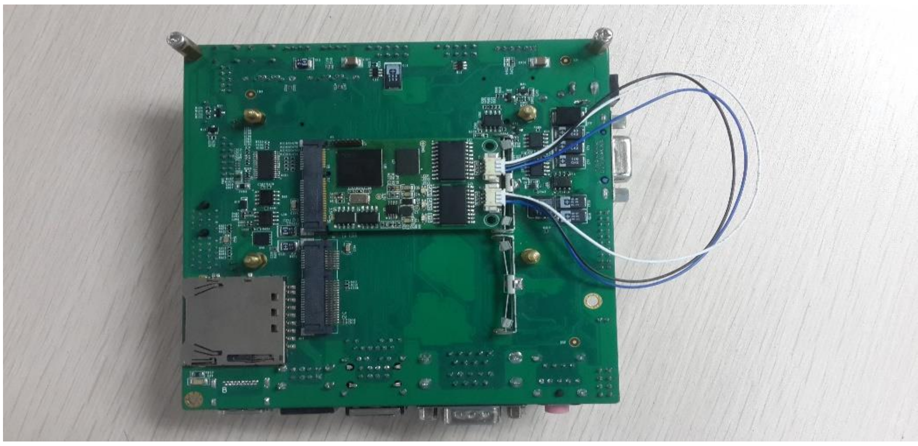


Figure 4.9 Wiring diagram 1

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.

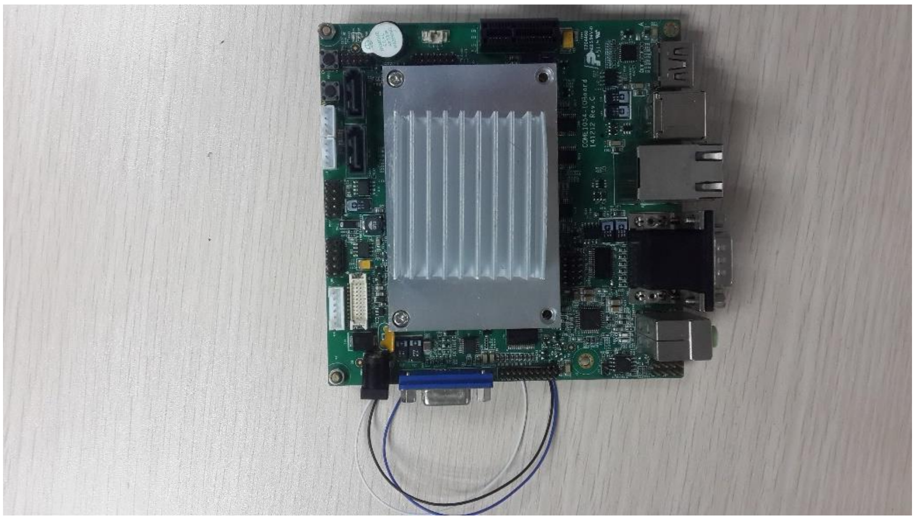


Figure 4.10 Wiring diagram 2

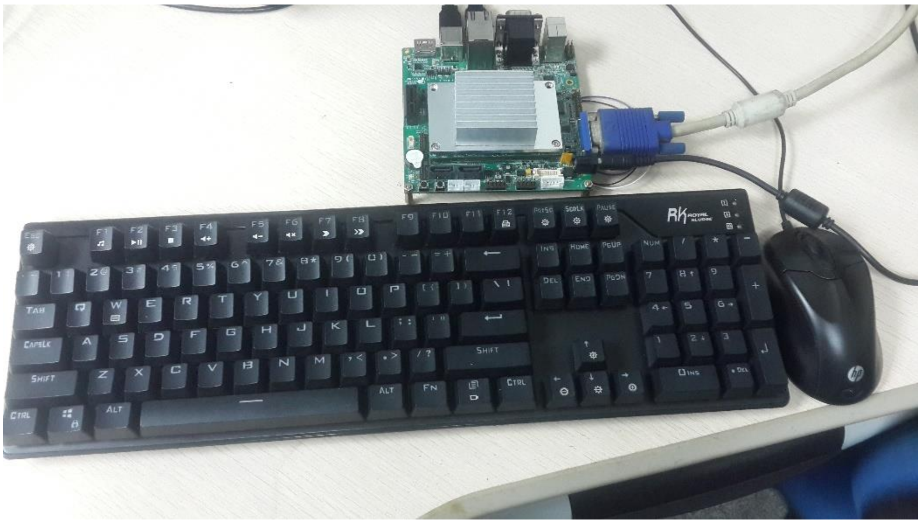
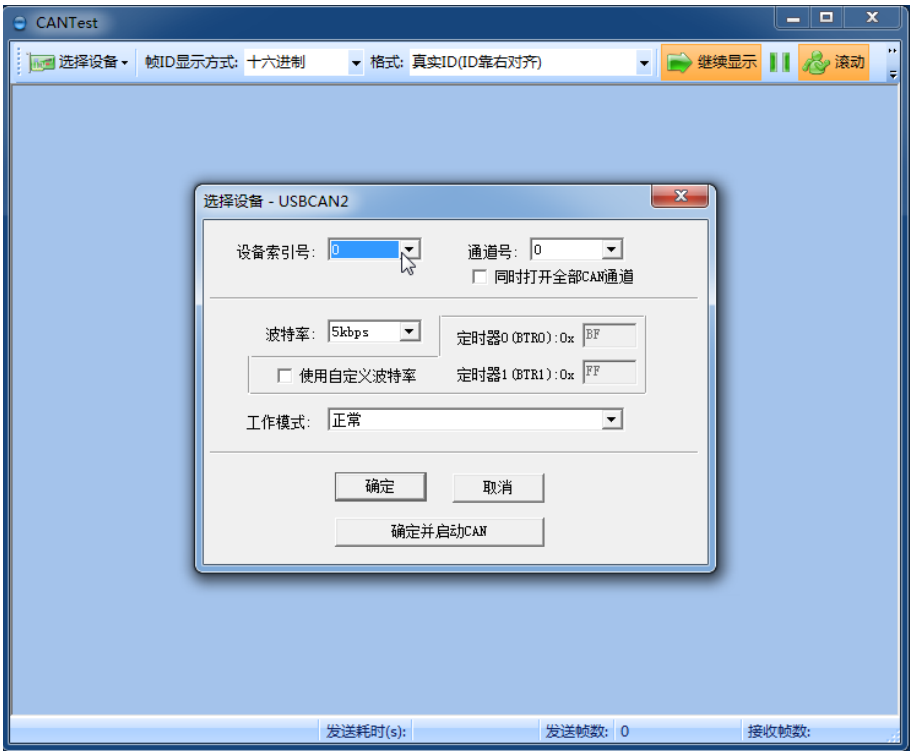


Figure 4.11 Wiring diagram 3

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.



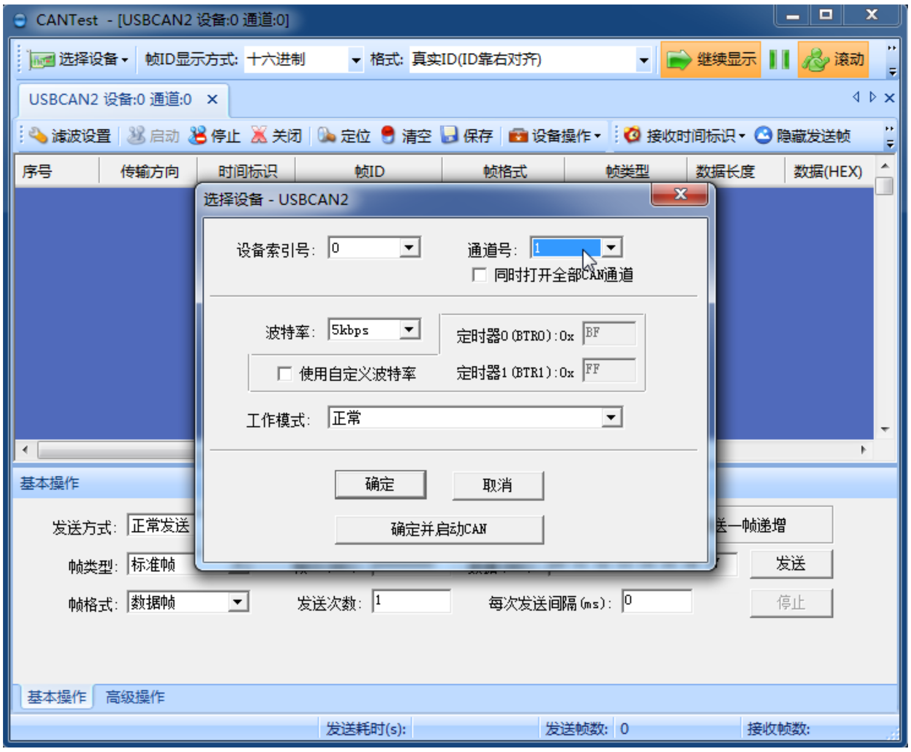
帧ID显示方式: 十六进制
格式: 真实ID(ID靠右对齐)

选择设备 - USBCAN2

设备索引号: 0
通道号: 0
□ 同时打开全部CAN通道
波特率: 5kbps
定时器0 (BTR0) : 0x BF
□ 使用自定义波特率
定时器1 (BTR1) : 0x FF
工作模式: 正常

发送耗时(s):
发送帧数: 0
接收帧数:

Figure 4.12 No. 1 CAN



CANTest - [USBCAN2 设备:0 通道:0]

帧ID显示方式: 十六进制
格式: 真实ID(ID靠右对齐)

选择设备 - USBCAN2

设备索引号: 0
通道号: 1
□ 同时打开全部CAN通道
波特率: 5kbps
定时器0 (BTR0) : 0x BF
□ 使用自定义波特率
定时器1 (BTR1) : 0x FF
工作模式: 正常

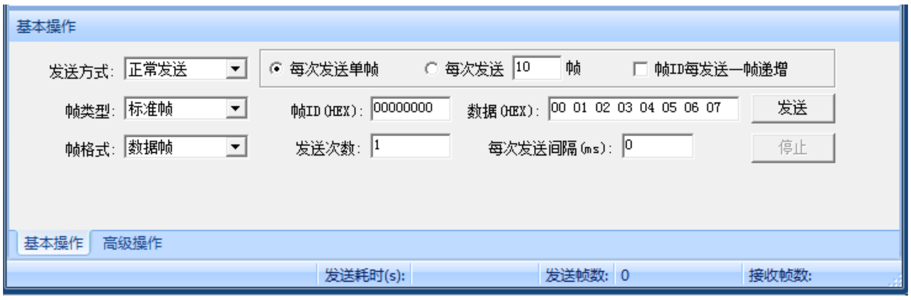
发送方式: 正常发送
帧类型: 标准帧
帧格式: 数据帧
发送次数: 1
每次发送间隔 (ms): 0

发送耗时(s):
发送帧数: 0
接收帧数:

Figure 4.13 No. 2 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

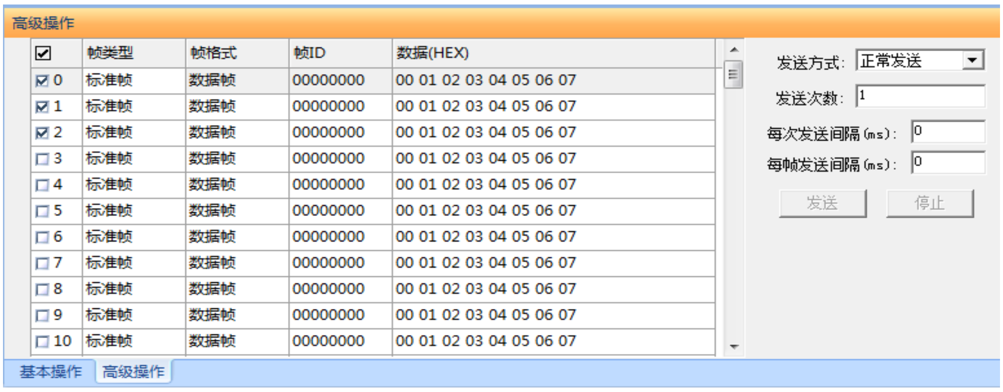
帧类型: 标准帧 帧ID(HEX): 00000000 数据(HEX): 00 01 02 03 04 05 06 07

帧格式: 数据帧 发送次数: 1 每次发送间隔(ms): 0

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.


高级操作

☑	帧类型	帧格式	帧ID	数据(HEX)
☑ 0	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07
☑ 1	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07
☑ 2	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07
□ 3	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07
□ 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
□ 6	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07
□ 7	标准帧	数据帧	00000000	00 01 02 03 04 05 06 07
□ 8	标准帧	数据帧	00000000	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

发送方式: 正常发送

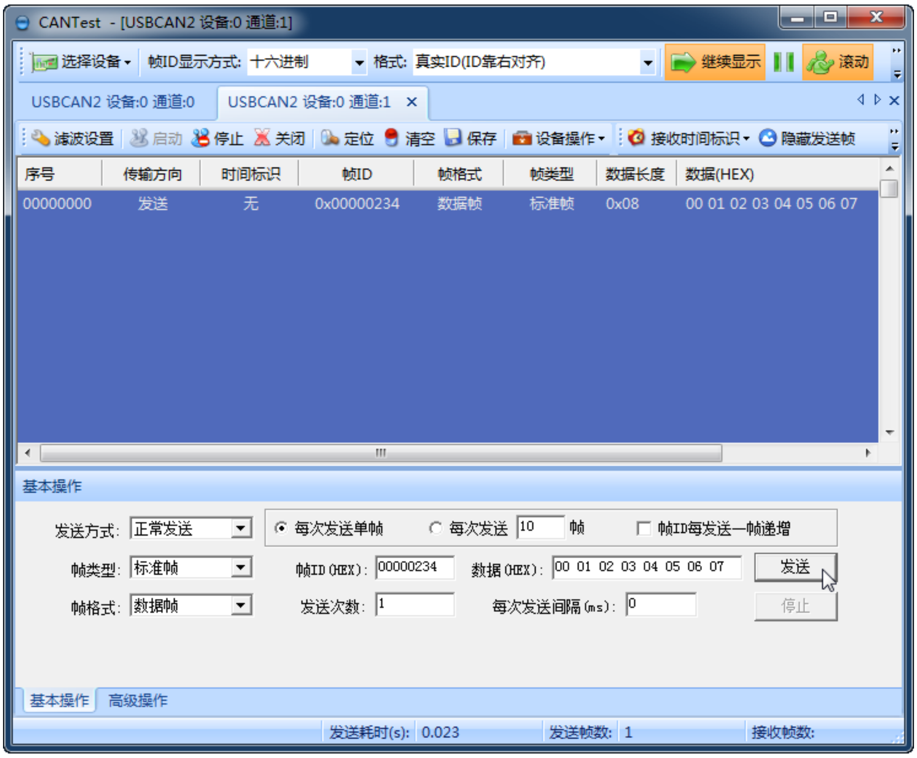
发送次数: 1

每次发送间隔(ms): 0

每帧发送间隔(ms): 0

Figure 4.15 Advanced settings for sending data

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

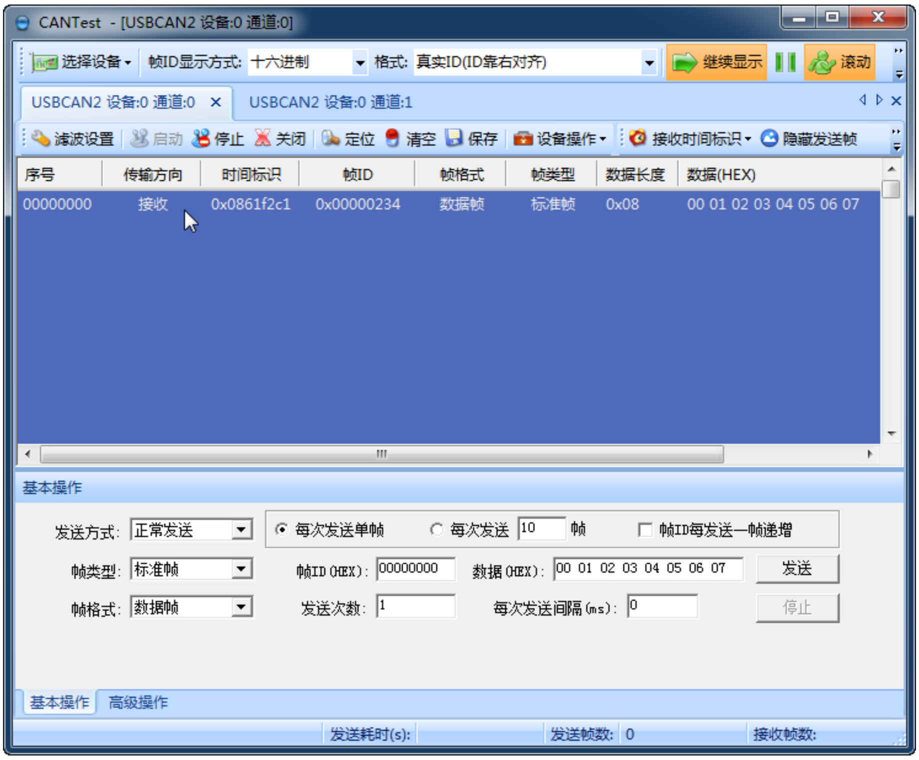


序号	传输方向	时间标识	帧ID	帧格式	帧类型	数据长度	数据(HEX)
00000000	发送	无	0x00000234	数据帧	标准帧	0x08	00 01 02 03 04 05 06 07

发送方式: 正常发送
帧类型: 标准帧
帧格式: 数据帧
● 每次发送单帧 ○ 每次发送 10 帧 □ 帧ID每发送一帧递增
帧ID (HEX): 00000234
数据 (HEX): 00 01 02 03 04 05 06 07
发送次数: 1
每次发送间隔 (ms): 0

发送耗时(s): 0.023 发送帧数: 1 接收帧数:

Figure 4.16 Sending



序号	传输方向	时间标识	帧ID	帧格式	帧类型	数据长度	数据(HEX)
00000000	接收	0x0861f2c1	0x00000234	数据帧	标准帧	0x08	00 01 02 03 04 05 06 07

发送方式: 正常发送
帧类型: 标准帧
帧格式: 数据帧
● 每次发送单帧 ○ 每次发送 10 帧 □ 帧ID每发送一帧递增
帧ID (HEX): 00000000
数据 (HEX): 00 01 02 03 04 05 06 07
发送次数: 1
每次发送间隔 (ms): 0

发送耗时(s): 发送帧数: 0 接收帧数:

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.

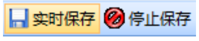
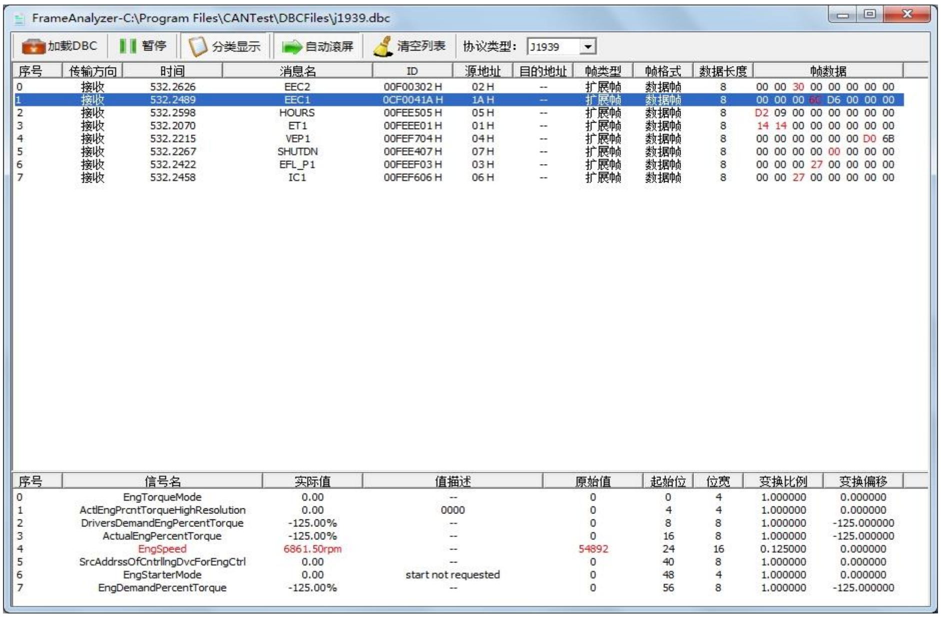


Figure 4.18 Saving

4.2.5 DBC Decoding and Display by ID

If you click , 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.



协议类型: J1939

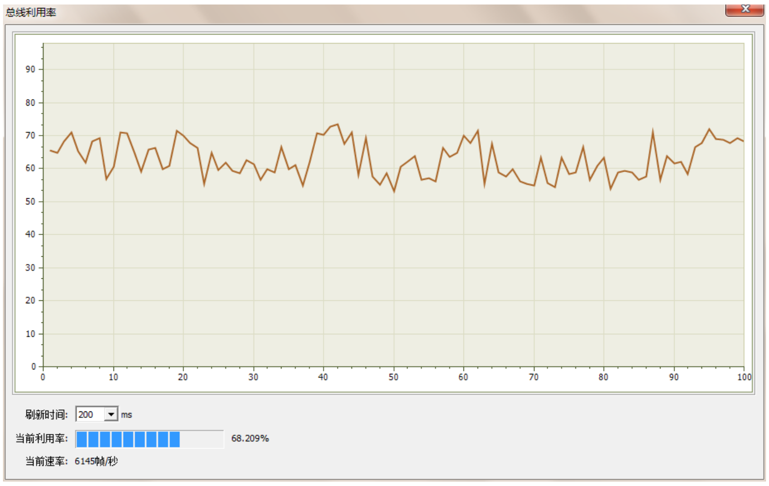
序号	传输方向	时间	消息名	ID	源地址	目的地址	帧类型	帧格式	数据长度	帧数据
0	接收	532.2626	EEC2	00F00302 H	02 H	--	扩展帧	数据帧	8	00 00 30 00 00 00 00 00
1	接收	532.2489	EEC1	0CF0041A H	1A H	--	扩展帧	数据帧	8	00 00 00 6C D6 00 00 00
2	接收	532.2598	HOURS	00FEE505 H	05 H	--	扩展帧	数据帧	8	D2 09 00 00 00 00 00 00
3	接收	532.2070	ET1	00FEEE01 H	01 H	--	扩展帧	数据帧	8	14 14 00 00 00 00 00 00
4	接收	532.2215	VEP1	00FEF704 H	04 H	--	扩展帧	数据帧	8	00 00 00 00 00 00 D0 6B
5	接收	532.2267	SHUTDN	00FEE407 H	07 H	--	扩展帧	数据帧	8	00 00 00 00 00 00 00 00
6	接收	532.2422	EFL_P1	00FEEF03 H	03 H	--	扩展帧	数据帧	8	00 00 00 27 00 00 00 00
7	接收	532.2458	IC1	00FEF606 H	06 H	--	扩展帧	数据帧	8	00 00 27 00 00 00 00 00

序号	信号名	实际值	值描述	原始值	起始位	位宽	变换比例	变换偏移
0	EngTorqueMode	0.00	--	0	0	4	1.000000	0.000000
1	ActlEngPrcntTorqueHighResolution	0.00	0000	0	4	4	1.000000	0.000000
2	DriversDemandEngPercentTorque	-125.00%	--	0	8	8	1.000000	-125.000000
3	ActualEngPercentTorque	-125.00%	--	0	16	8	1.000000	-125.000000
4	EngSpeed	6861.50rpm	--	54892	24	16	0.125000	0.000000
5	SrcAddrssOfCntrllngDvcForEngCtrl	0.00	--	0	40	8	1.000000	0.000000
6	EngStarterMode	0.00	start not requested	0	48	4	1.000000	0.000000
7	EngDemandPercentTorque	-125.00%	--	0	56	8	1.000000	-125.000000

Figure 4.19 DBC protocol analysis

4.2.6 Bus Utilization

Click 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.



刷新时间: 200 ms

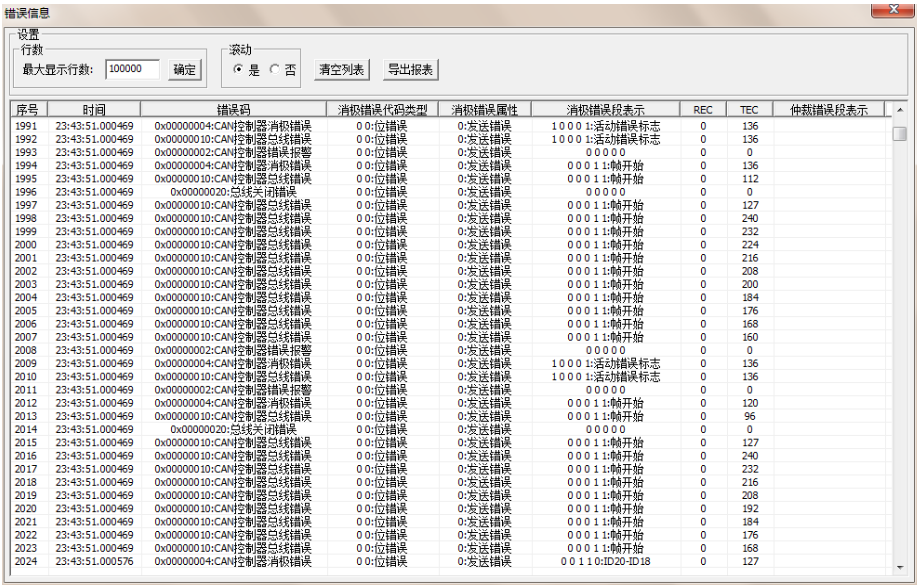
当前利用率: 68.209%

当前速率: 6145帧/秒

Figure 4.20 Bus utilization

4.2.7 Error Message Display

Click 错误信息 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.



设置

行数

最大显示行数: 100000 确定

滚动

● 是 ○ 否

清空列表 导出报表

序号	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
1991	23:43:51.000469	0x00000004:CAN控制器消极错误	0 0:位错误	0:发送错误	1 0 0 0 1:活动错误标志	0	136	
1992	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	1 0 0 0 1:活动错误标志	0	136	
1993	23:43:51.000469	0x00000002:CAN控制器错误报警	0 0:位错误	0:发送错误	0 0 0 0 0	0	0	
1994	23:43:51.000469	0x00000004:CAN控制器消极错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	136	
1995	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	112	
1996	23:43:51.000469	0x00000020:总线关闭错误	0 0:位错误	0:发送错误	0 0 0 0 0	0	0	
1997	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	127	
1998	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	240	
1999	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	232	
2000	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	224	
2001	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	216	
2002	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	208	
2003	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	200	
2004	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	184	
2005	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	176	
2006	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	168	
2007	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	160	
2008	23:43:51.000469	0x00000002:CAN控制器错误报警	0 0:位错误	0:发送错误	0 0 0 0 0	0	0	
2009	23:43:51.000469	0x00000004:CAN控制器消极错误	0 0:位错误	0:发送错误	1 0 0 0 1:活动错误标志	0	136	
2010	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	1 0 0 0 1:活动错误标志	0	136	
2011	23:43:51.000469	0x00000002:CAN控制器错误报警	0 0:位错误	0:发送错误	0 0 0 0 0	0	0	
2012	23:43:51.000469	0x00000004:CAN控制器消极错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	120	
2013	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	96	
2014	23:43:51.000469	0x00000020:总线关闭错误	0 0:位错误	0:发送错误	0 0 0 0 0	0	0	
2015	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	127	
2016	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	240	
2017	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	232	
2018	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	216	
2019	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	208	
2020	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	192	
2021	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	184	
2022	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	176	
2023	23:43:51.000469	0x00000010:CAN控制器总线错误	0 0:位错误	0:发送错误	0 0 0 1 1:帧开始	0	168	
2024	23:43:51.000576	0x00000004:CAN控制器消极错误	0 0: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#, Labview, and Linux, as shown in Figure 5.1.

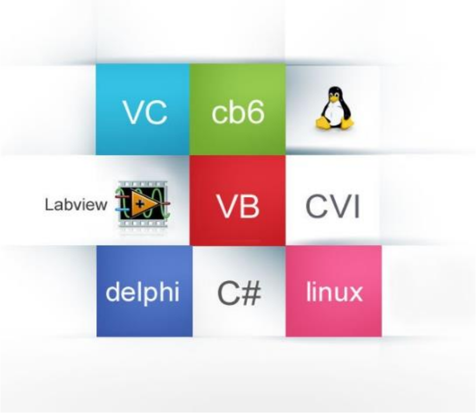


Figure 5.1 Supported development environments

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 Method 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 → connector → input → 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.

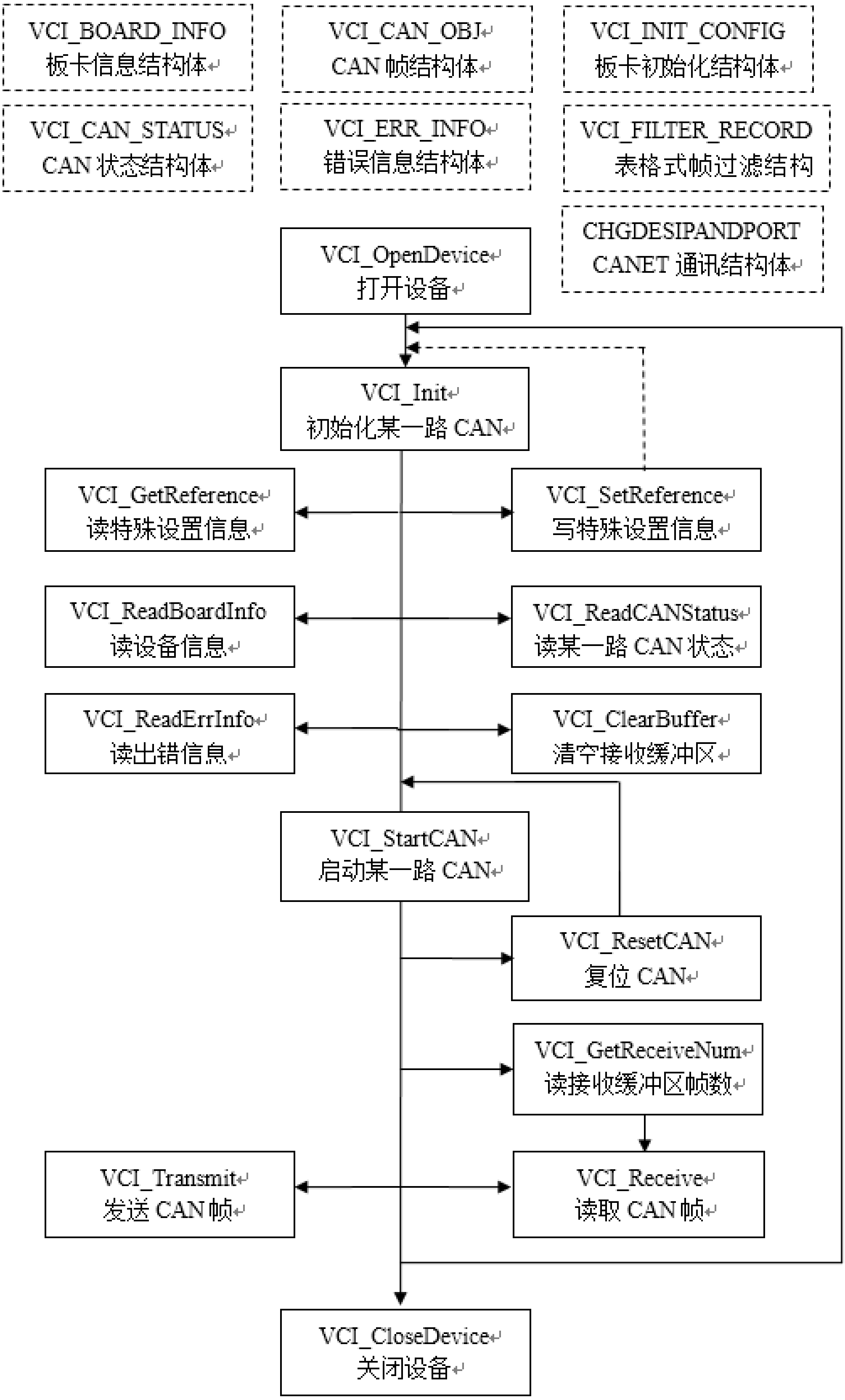
ByRef (optional)

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

5.2 Interface Library Function Usage Process



6. Electrical Characteristics

Unless otherwise specified, the parameters listed in Table 6.1 refer to the value at Tamb=25°C.

Table 6.1 Electrical characteristics

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°C	

7. Structure and Dimensions

Board dimensions: 30 mm (width) x 50.95 mm (length) x 7.35 mm (height). Figure 7.1 and Figure 7.2 show detailed dimensions. Unit: mm.

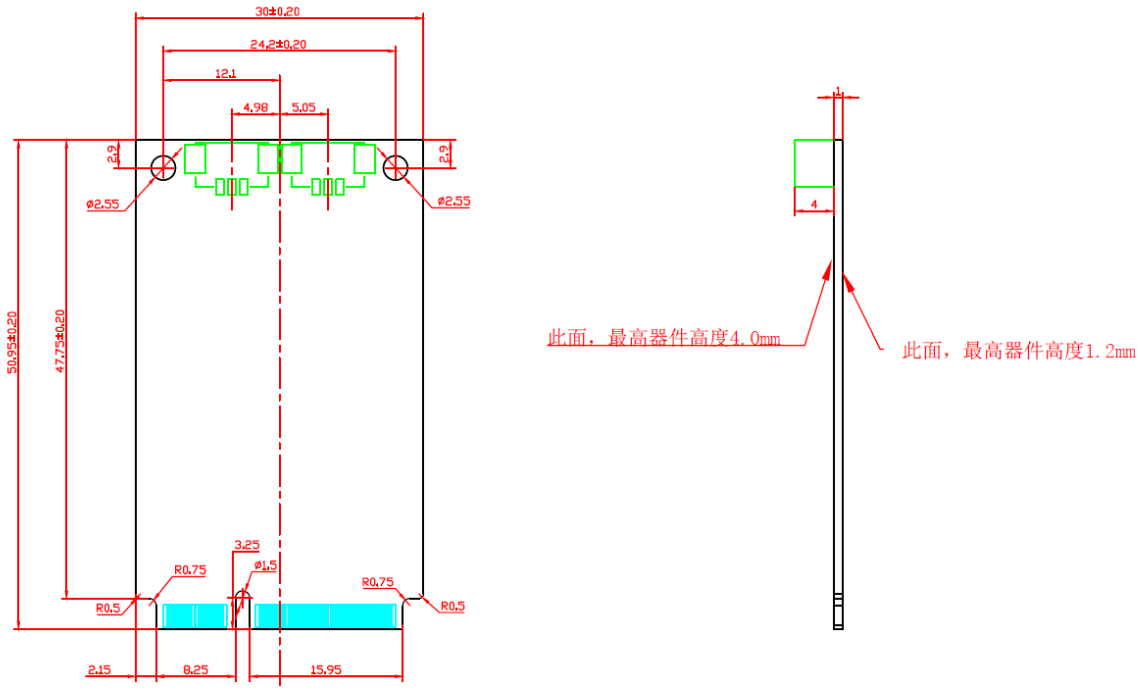


Figure 7.1 Main board structure dimensions

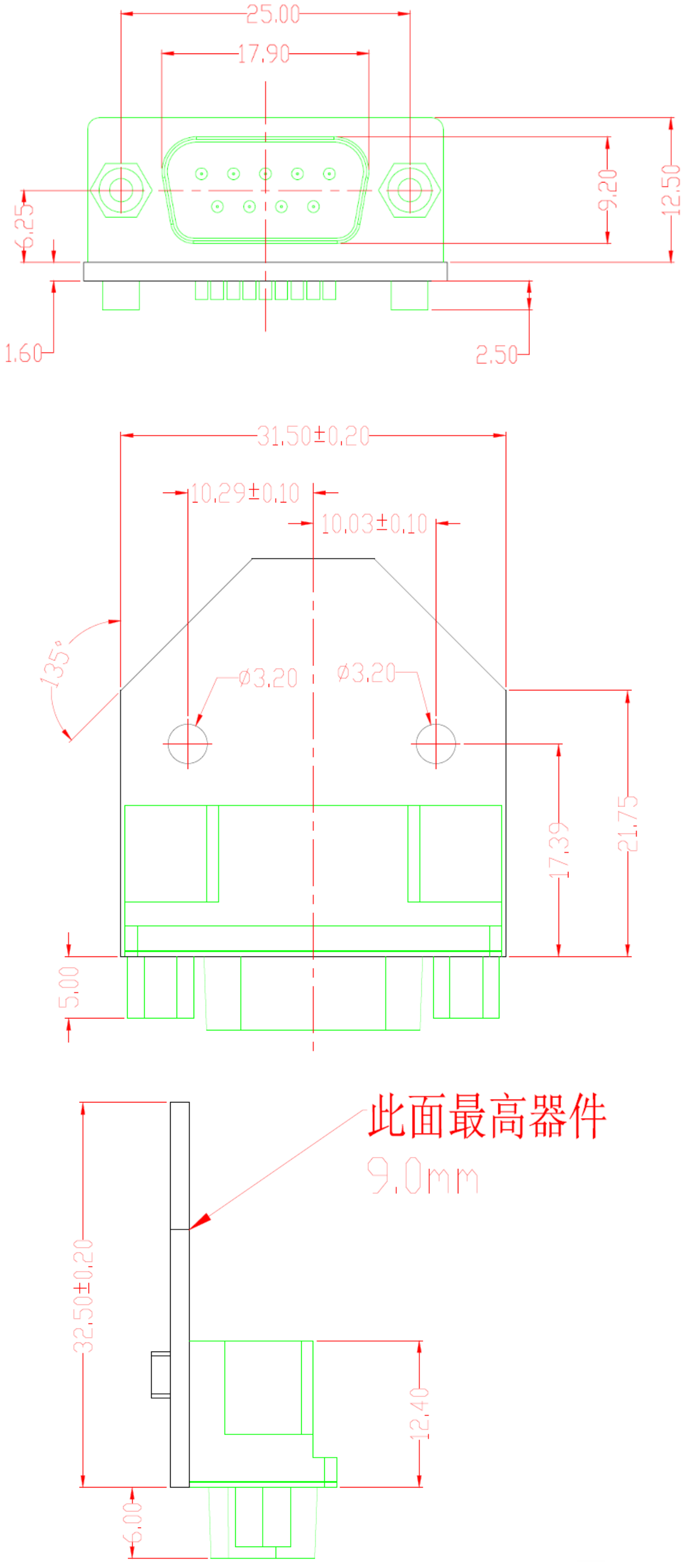


Figure 7.2 PACK board dimensions

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.

Table 8.1 Inspection and maintenance

No.	Item	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

		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.	Item	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!

Appendix A SJA1000 standard baud rate

No.	Baudrate (Kbps)	Crystal frequency = 16 MHz	
		BTR0 (Hex)	BTR1 (Hex)
1	5	BF	FF
2	10*	31	1C
3	20*	18	1C
4	40	87	FF
5	50*	09	1C
6	80	83	FF
7	100*	04	1C
8	125*	03	1C
9	200	81	FA
10	250*	01	1C
11	400	80	FA
12	500*	00	1C
13	666	80	B6
14	800*	00	16
15	1000*	00	14

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

Guangzhou ZLG Electronics Co., Ltd.

For more details, please visit
www.zlg.cn

Welcome to call the national service hotline
400-888-4005