



# **USB2IDE**

*Software/Hardware Test and Debugger*

<b>1. INTRODUCTION .....</b>	<b>4</b>
1.1 INFORMATION ABOUT DEBUGGER TOOLS.....	4
1.2 BUILDING THE DRIVER .....	4
<b>2. USBMPD.EXE.....</b>	<b>4</b>
2.1 OVERVIEW.....	4
2.1.1 Software Requirements .....	4
2.1.2 Hardware Requirements .....	5
2.1.3 Hardware Setup .....	5
2.1.4 Disable Mini-port driver- USBMPD.MPD.....	5
2.1.5 SCSI Command Menu .....	5
2.2 ATAPI/IDE DEBUGGER UTILITIES .....	7
2.2.1 Help Command .....	7
2.2.2 Display Command .....	7
2.2.3 Fill Command .....	7
2.2.4 Search Command.....	8
2.2.5 Set Command .....	8
2.2.6 READ (10) Command .....	9
2.2.7 READ TOC Command .....	9
2.2.8 READ CAPACITY Command .....	10
2.2.9 SYNCHRONIZE CACHE Command .....	10
2.2.10 WRITE (10) Command.....	10
2.2.11 VERIFY 10 Command.....	11
2.2.12 INQUIRY Command .....	11
2.2.13 MECHANISM STATUS Command .....	12
2.2.14 MODE SELECT Command .....	12
2.2.15 MODE SENSE Command .....	13
2.2.16 TEST UNIT READY Command.....	13
2.2.17 WRITE BUFFER Command .....	14
2.2.18 FORMAT UNIT Command.....	14
2.2.19 MEDIUM REMOVE Command .....	15
2.2.20 REQUEST SENSE Command.....	15
2.2.21 SEND DIAGNOSTIC Command .....	15
2.2.22 PLAY AUDIO Command .....	16
2.2.23 SCSI Command.....	16
2.2.24 SEND Command .....	17
2.2.25 CLEAR PIPE Command.....	17
2.2.26 Software/Hardware Reset Command .....	18
2.2.27 USB Data Read Command.....	18
2.2.28 USB DATA WRITE Command.....	19
2.3 ATAPI/IDE TEST UTILITIES .....	19
2.3.1 Quick READ/WRITE Test Command.....	19
2.3.2 READ/WRITE Test Command.....	20
2.3.3 Single READ/WRITE SPEED TEST Command .....	21

Table 1 ScanLogic ATAPI/IDE Debugger Utilities .....	6
Table 2 SCSI Command Groups .....	16
Example 1: Help .....	7
Example 2: To display at USB address 0 to 100 .....	7
Example 3: To create the up-ramp pattern .....	8
Example 4: Setup different display format .....	8
Example 5 READ (10) Command .....	9
Example 6: READ TOC Command .....	9
Example 7: READ CAPACITY command .....	10
Example 8: SYNCHRONIZE CACHE Command .....	10
Example 9: WRITE (10) Command .....	11
Example 10: VERIFY (10) Command .....	11
Example 11: INQUIRY Command .....	12
Example 12: MECHANISM STATUS Command .....	12
Example 13: MODE SELECT Command .....	13
Example 14: MODE SENSE Command .....	13
Example 15: TEST UNIT READY Command .....	14
Example 16: WRITE BUFFER Command .....	14
Example 17: FORMAT UNIT Command .....	14
Example 18: REQUEST SENSE Command .....	15
Example 19: SEND DIAGNOSTIC Command .....	15
Example 20: PLAY AUDIO Command .....	16
Example 21: SCSI Command .....	16
Example 22: SEND Command .....	17
Example 23: CLEAR PIPE Command .....	17
Example 24: Software/Hardware Reset Command .....	18
Example 25: USB DATA READ Command .....	18
Example 26: USB DATA WRITE Command .....	19
Example 27: Quick Read/Write Test .....	19
Example 28: READ/WRITE TEST Command .....	20
Example 29: Single READ/WRITE SPEED TEST Command .....	21

## 1. INTRODUCTION

This application a debugging tool for firmware and the system software drivers. It can be used for all other diagnostic purposes for testing ATAPI and IDE devices. The program is written in MS C++.

### 1.1 Information about Debugger tools

This software is released as object code. For source code, please contact our representatives at [support@scanlogic.com](mailto:support@scanlogic.com).

### 1.2 Building the Driver

In order to build the driver, you need the following installed:

- Win98/2000 DDK
- Visual C++ 5.0

The source files come with a project file and a makefile file, so the driver can be built in Visual C++ or at the DOS command line. Depending on where the tools are loaded, paths may need to be modified both in the Visual C++ and command line environments. Once these are done, the driver can be built either way.

## 2. USBMPD.EXE

USBMPD.EXE is an executable file for firmware debugger and transfer rate test.

### 2.1 Overview

USBMPD.EXE is a Windows program to help you debug firmware and system software driver for ATAPI/IDE Devices such as HD, CD-ROM, CD-RW, LS120, MO, ZIP, Tape Backup Drive, and Compact-Flash, CLIK, MicroDrive, SmartMedia etc.

#### 2.1.1 Software Requirements

USBMPD.EXE

**Firmware:**

Cidexxx.bin ; Firmware for ATAPI and IDE Devices. The name may be changed in future.

**System Software:**

usbmpd.mpd ; Bulk-Only Transport Driver  
usb2ide.sys ; Scanlogic WDM Driver

**Inf Files:**

usbdev.inf ; Scanlogic inf files for Windows 98

```
usbide.inf      ;  
nt2000.inf      ; For Windows2000
```

### 2.1.2 Hardware Requirements

- The SL11RIDE-DVK Evaluation hardware board.
- A USB cable.
- ATAPI/IDE devices

### 2.1.3 Hardware Setup

If you are installing Windows 98 for the first time, follow these steps:

1. Connect the ATAPI device to the board.
2. Plug in 12VDC adapter to J3
3. Wait for 20-30 seconds to allow the ATAPI/IDE device to spin up
4. Insert USB cable J1
5. Run USBMPD (see Table 1 ScanLogic ATAPI/IDE Debugger Utilities for more detail)

### 2.1.4 Disable Mini-port driver- USBMPD.MPD

The USBMPD.EXE is built under the Mini-port driver (USBMPD.MPD). You need to disable our USBMPD.MPD before running USBMPD.EXE. If you do not disable the USBMPD.MPD, USBMPD.EXE will fail to run.

#### To Disable UDBMPD.MPD:

- Click the right button of the mouse on [My Computer]
- Click the left button and the right button of the mouse on [Properties]
- Click [Device Manager]→[Hard disk controller]→[USBIDE BULK Storage Adapter]
- Double click at USB BULK Storage Adapter
- Check to select "**Disable in this hardware profile**"
- Click "OK" and close System Properties.

### 2.1.5 SCSI Command Menu

In the following, text in **bold** is generated by the program. Other text shows what you will have to generate. USBMPD.EXE commands are not case sensitive.

The table 1 is base on the CF Specification, ATA/ATAPI-5 (Attachment with Packet Interface Extension) from American National Standard for Information System.

**Table 1 ScanLogic ATAPI/IDE Debugger Utilities**

====SCSI Command Menu. Version 1.0====

Display	: disp .....	<addr> [cnt]
Fill	: fill .....	<addr><data>[cnt] [inc]
Search	: search .....	<addr><cnt><data>
Set	: set .....	<dbug> [f d o h]
READ(10)	: 28 .....	<addr><length>
READ_TOC	: 43 .....	<addr><length>
READ_CAPACITY	: 25.....	<len>
START/STOP_UNIT : 1b .....	<CMD4>	
SYNCH CACHE	: 35 .....	
WRITE(10)	: 2a .....	<addr><length>
VERIFY(10)	: 2f .....	<addr><length>
INQUIRY	: 12 .....	<CMD2>
MechStatus	: bd .....	<CMD4>
ModeSelect	: 55 .....	<CMD4>
ModeSense	: 5a .....	<CMD4>
TestUnitReady	: 00 .....	
WRITE BUFFER	: 3b .....	<length>
Format Unit	: 04 .....	
Medium Remove	: 1e .....	<1 0>...
Request Sense	: 03 .....	<Blen=CMD4>
Send Diagnostic	: 1d .....	
Play Audio	: 47 .....	<start><end>
SCSI Command	: scsi.....	<opcode><addr><cnt>
Send Command	: send.....	<len><0=rd, 1=wr>
Clear Pipe	: clr .....	<pipe>
SW/HW Reset	: reset .....	<0=soft 1=hard>
USB Data Read	: dread.....	<len>
USB Data Write	: dwrite.....	<len>
Quick Test W/R	: qtest.....	<byteCount><passes>
Test W/R	: test.....	<byteCount><passes>
Speed Test	: sptest .....	<byteCount><1=wr,0=rd>
Exit Main Program	: exit	
Help SCSI Command	: help	
Prompt	:Host>	

## 2.2 ATAPI/IDE Debugger Utilities

The following commands show you how USBMPD.EXE works. This assumes that software and hardware have been installed correctly. Otherwise, the program may be caused Windows OS to terminate abnormally.

### 2.2.1 Help Command

The USBMPD.EXE has an on-line help facility. Type help at the command prompt and the on-line message will show as below.

**Example 1:** Help

```
Host> help
```

### 2.2.2 Display Command

The command **display** requires 2 parameters; address and line count. To start, it will be zero.

Function parameters: display (addr, cnt)

**Example 2:** To display at USB address 0 to 100

```
Host>disp 0 100 ; Display from address 0
to 100
0000 0000 0000 0000 0000 0000 0000 0000 0000 .....
--
0060 0000 0000 0000 0000
```

### 2.2.3 Fill Command

The command **fill** required 4 parameters; address, data, line count, and increment. This command is used to fill or clear memory.

Function parameters: fill (address, data, cnt, inc)

**Example 3:** To create the up-ramp pattern

```
Host> fill x10 0 512 1 ; create the up-ram pattern
Host> d 0 100 ; show the pattern
0000 0000 0000 0000 0000 0000 0000 0000 0000 .....
...
0010 0000 0001 0002 0003 0004 0005 0006 0007 .....
0018 0008 0009 000a 000b 000c 000d 000e 000f .....
...
0058 0048 0049 004a 004b 004c 004d 004e 004f H. I. J. K. L. M. N. O.
0060 0050 0051 0052 0053
```

## 2.2.4 Search Command

The command **search** requires 4 parameters; address, line count, and data. This command is used to search data from SL11RIDE's address.

Function parameters: search (address, cnt, data)

## 2.2.5 Set Command

The command **set** requires 2 parameters; address, mode. This command is used to setup debug mode in different display formats.

Function parameters: set(address, mode)

Format Mode:

- f: default format
- d: decimal format
- o: octal format
- h: hexadecimal format

Note: default format is hexadecimal format.

**Example 4:** Setup different display format

```
Host> 00 ; Device read command
Host> set 0 d ; Set from address 0 to
display decimal format
Host> d 0 10 ; Command display decimal
format
0000 021333 017218 000000 000000 000000 000000 000128 000012
USBC.....
0008 021333 021314
Host> set 0 f ; Switch back to default
Host> dis 0 10 ; Display again
0000 5355 4342 0000 0000 0000 0000 0080 000c USBC.....
0008 5355 5342
```



## 2.2.6 READ (10) Command

The command **READ (10)** requests the device transfer data to the host computer through BULK IN endpoint. The most recent data value written in the addressed logical block is returned. This command is considered obsolete and is only supported by legacy drives.

Function parameters: read10 (address, len)

### Example 5 READ (10) Command

```
Host> 28 0x8000 100 ; Read address 0x8000
with length 100
Get Status 0 Length 64 Len 100 ; Report the status and
length
Host> d 0 64 ; Display
0000 5355 4342 0000 0000 0064 0000 0080 280c USBC....d.....(
0008 5355 5342 0350 ffff 0064 0000 0000 0000 USBSP...d.....
0010 0000 0000 8000 0000 0000 0000 0000 0000 .....
0018 5300 312d 3032 5620 5245 2035 2020 3030 .S-120 VER5 00
0020 3546 3531 354d 5639 c303 0000 0000 0000 F515M59V.....
-----
```

## 2.2.7 READ TOC Command

The command **READ TOC** reads the table contents of the medium. Track zero is where the table of contents begins. This is a CD-ROM command.

Function parameters: readtoc (address, len)

### Example 6: READ TOC Command

```
Host> 43 0 100 ; READ TOC at address 0,
length 100
Get Status 1 Length 64 Len 100 ; Report status and
input length
Host> d 0 100 ; Display
0000 5355 4342 0000 0000 0064 0000 0080 430c USBC....d.....C
0008 5355 5342 5451 ffff 0064 0000 0001 0000 USBST...d.....
0010 0000 0002 0000 0000 6400 0000 0000 0000 .....d.....
0018 5300 312d 3032 5620 5245 2035 2020 3030 .S-120 VER5 00
0020 3546 3531 354d 5639 c303 0000 0000 0000 F515M59V.....
0028 0000 0000 0000 0000 0000 0000 0000 0000 .....
0030 0000 0000 0000 0000 0000 0000 0000 0000 .....
0038 0000 0000 0000 0000 0000 0000 0000 0000 .....
0040 79ef bc95 0000 0000 0000 0000 0000 0000 .y.....
---
```

## 2.2.8 READ CAPACITY Command

The command **READ CAPACITY** is the way the host computer requests information regarding the capacity of the medium of the devices. This command is considered obsolete and is only supported by legacy drivers.

Function parameters: readcap (len)

### Example 7: READ CAPACITY command

```
Host> 25 64 ; Read Capacity, length 64
Get Status 0 Length 38 Len 64 ; Report status and input
length
Host> d 0 100 ; Display
0000 5355 4342 0000 0000 0040 0000 0080 250c USBC....@.....%
0008 5355 5342 0350 0008 0038 0000 0000 0000 USBSP...8.....
0010 0000 3f0b 0000 0002 0000 0000 0000 0000 ...?.....
0018 5300 312d 3032 5620 5245 2035 2020 3030 .S-120 VER5 00
0020 3546 3531 354d 5639 c303 0000 0000 0000 F515M59V.....
0028 0000 0000 0000 0000 0000 0000 0000 0000 .....
...
```

Eight bytes of READ CAPACITY data are returned to the host PC.

## 2.2.9 SYNCHRONIZE CACHE Command

The command **SYNCHRONIZE CACHE** endures logical blocks in cache have their most recent value recorded on the physical medium.

Function parameters: No parameters.

### Example 8: SYNCHRONIZE CACHE Command

```
Host> 35 ; SYNCHRONIZE CACHE
Get Status 1 Length 0 Len 0 ; Report Status and length
Host> d 0 64 ; Display
0000 5355 4342 0000 0000 0000 0000 0080 350c USBC.....5
0008 5355 5342 5451 ffff 0000 0000 0001 0000 USBSQT.....
0010 0000 0000 0000 0000 0000 0000 0000 0000 .....
0018 0000 0000 0000 0000 0000 0000 0000 0000 .....
0020 0000 0000 0000 0000 0000 0000 0000 0000 .....
----
```

## 2.2.10 WRITE (10) Command

The command **WRITE (10)** requests the medium to write data transferred by the host computer to the medium.

Function parameters: write10 (address, len)

#### Example 9: WRITE (10) Command

```
Host> 2a x800 100 ; WRITE command
Get Status 1 Length 64 Len 100 ; Report status and length
Host> d 0 100 ; Display result
0000 5355 4342 0000 0000 0064 0000 0000 2a0c USBC....d.....*
0008 5355 5342 2051 0000 0064 0000 0001 0000 USBSQ ..d.....
...
0060 0000 0000 0000 0000
```

#### 2.2.11 VERIFY 10 Command

The command **VERIFY** requests the device to verify the data written on the medium. This command is identical to the READ (10) command except no data is transferred to the host.

Function parameters: verify10 (address, len)

#### Example 10: VERIFY (10) Command

```
Host> 2f 0 64
Get Status 1 Length 0 Len 0
Host> d 0 64
0000 5355 4342 0000 0000 0000 0000 0080 2f0c USBC...../
0008 5355 5342 2051 0000 0000 0000 0001 0000 USBSQ .....
0010 0000 0000 0000 0000 0000 0000 0000 0000 .....
...
0038 0000 0000 0000 0000 0000 0000 0000 0000
```

#### 2.2.12 INQUIRY Command

The command **INQUIRY = 12** requests information about the parameters of the device to be sent to the host computer. The command INQUIRY can be used by a host computer to determine the configuration of the device. The device responds with information that include its type and specification level and may include the vendor's identification, model number and other useful information.

Function parameters: inquiry (len)

**Example 11: INQUIRY Command**

```

Host> 12 96 ; INQUIRY the Vendor Unit
Host> d 0 64 ; Display
0000 5355 4342 0000 0000 0060 0000 0080 120c USBC....`.....
0008 5355 5342 0350 0060 0000 0000 0000 0000 USBSP.`.....
0010 8000 0100 007b 0000 414d 5354 4948 4154 ....{...MATSHI TA
0018 534c 312d 3032 5620 5245 2035 2020 3030 LS-120 VER5 00
0020 3546 3531 354d 5639 c303 0000 0000 0000 F515M59V.....
0028 0000 0000 0000 0000 0000 0000 0000 0000 .....
0030 0000 0000 0000 0000 0000 0000 0000 0000 .....
0038 0000 0000 0000 0000 0000 0000 0000 0000

```

The INQUIRY command will display device manufacturer's name, model, and its version.

**2.2.13 MECHANISM STATUS Command**

The command **MECHANISM STATUS** requests the ATAPI CD-ROM drive respond with the current status of CD Drive, which includes any Changer Mechanism. This command provides information to the host computer about the current operational state of the Device.

Function parameters: MecStatus (len)

**Example 12: MECHANISM STATUS Command**

```

Host> bd 64
Get Status 0 Length 40 Len 64
Host> d 0 100
0000 5355 4342 0000 0000 0040 0000 0080 bd0c USBC....@.....
0008 5355 5342 0350 0000 0040 0000 0000 0000 USBSP...@.....
0010 0000 0000 4000 0000 0000 0000 0000 0000 .....@.....
...
0060 0000 0000 0000 0000

```

**2.2.14 MODE SELECT Command**

The command **MODE SELECT =55** lets the host computer specify medium or parameters for the device. The host computer issues MODE SENSE prior to each MODE SELECT to determine supported pages, page lengths, and other parameters.

Function parameters: ModeSelect (address, len)

**Example 13: MODE SELECT Command**

```

Host> 55 64 ; Mode Select command
Host> d 0 100 ; Display
0000 5355 4342 0000 0000 0040 0000 0000 550c USBC....@.....U
0008 5355 5342 0350 0000 0000 0000 0000 0000 USBSP.....
0010 0000 0000 0000 0000 0000 0000 0000 0000 .....
...
0060 0000 0000 0000 0000

```

**2.2.15 MODE SENSE Command**

The command **MODE SELECT =5a** is for the device to report parameters to the host computer. It is a complementary command to the MODE SELECT command.

Function parameters: ModeSense (len)

**Example 14: MODE SENSE Command**

```

Host> 5a 64 ; Mode Sense command
Get Status 1 Length 40 Len 64 ; Return status and length
Host> d 0 100 ; Display
0000 5355 4342 0000 0000 0040 0000 0080 5a0c USBC....@.....Z
0008 5355 5342 6851 0000 0040 0000 0001 0000 USBSQh..@.....
0010 0000 0000 0000 0000 4000 0000 0000 0000 .....@.....
...
0060 0000 0000 0000 0000

```

**2.2.16 TEST UNIT READY Command**

The command **TesUnitReady =00** checks if the device is presented or READY. This is not a request for a self-test. If the device accepts an appropriate medium access command without STALL, this command returns no error. If the device cannot become operational or is in a state such that a host computer action is required to make the device ready, the device will STALL the control endpoint with a sense key of NOT READY.

The **TesUnitReady** is useful because it allows a host computer to poll a device until it is ready without a need to allocate space for return data. Specially, it checks cartridge status. The device is expected to respond promptly to indicate the current status of the device.

Function parameters: No Parameters

**Example 15: TEST UNIT READY Command**

```

Host> 00                                ; TEST UNIT READY command
Host> d 0 64                            ; Display

0000  5355 4342 0000 0000 0000 0000 0080 000c USBC.....
0008  5355 5342 0350 ffff 0000 0000 0000 0000 USBSP.....
0010  0000 0000 0000 0000 0000 0000 0000 0000 .....
0018  0000 0000 0000 0000 0000 0000 0000 0000 .....

```

**2.2.17 WRITE BUFFER Command**

The command **WRITE BUFFER =3b** enables the host to overwrite the contents of one sector in the device's buffer.

Function parameters: writeBuff (len)

**Example 16: WRITE BUFFER Command**

```

Host> 3b 64                            ; Write Buffer command
Get Status 1 Length 40 Len 64          ; return Status and Length
Host> d 0 100                          ; Display
0000  5355 4342 0000 0000 0040 0000 0000 3b0c USBC....@.....;
0008  5355 5342 2051 0000 0040 0000 0001 0000 USBSQ ..@.....
0010  0000 0000 0000 0000 0000 0000 0000 0000 .....
...
0060  0000 0000 0000 0000

```

**2.2.18 FORMAT UNIT Command**

The command **RequestSense =04** formats the medium according to the host computer define options.

Function parameters: No parameter

**Example 17: FORMAT UNIT Command**

```

Host> 04                                ; Format Unit command
Get Status 1 Length 0 Len 0            ; Return Status and
length
Host> d 0 100                          ; Display
0000  5355 4342 0000 0000 0000 0000 0080 040c USBC.....
0008  5355 5342 6451 ffff 0000 0000 0001 0000 USBSQd.....
0010  0000 0000 0000 0000 0000 0000 0000 0000 .....
0018  0000 0000 0000 0000 0000 0000 0000 0000 .....

```

### 2.2.19 MEDIUM REMOVE Command

The command **MEDIUM REMOVE** is an ATAPI command to remove the medium e.g. a CD-ROM.

### 2.2.20 REQUEST SENSE Command

The command **RequestSense =03** is always used in response to the status CHECK CONDITION status in order to read the sense data. This data gives information concerning the reason why the preceding command ended abnormally. The sense data is also updated when the command ends with COMMAND TERMINATED status.

Function parameters: RequestSense (len)

#### Example 18: REQUEST SENSE Command

```
Host> 03 8 ; REQUEST SENSE
Host> d 0 100 ; Display result
0000 5355 4342 0000 0000 0008 0000 0080 030c USBC.....
0008 5355 5342 0350 0008 0000 0000 0000 0000 USBSP.....
0010 0070 0006 0000 0a00 0000 0000 0000 0000 p.....
...
0060 0000 0000 0000 0000
```

### 2.2.21 SEND DIAGNOSTIC Command

The command **SEND DIAGNOSTIC** requests the device to reset and perform a self-test. The device will perform a hard RESET in response to SEND DIAGNOSTIC

Function parameters: No parameter

#### Example 19: SEND DIAGNOSTIC Command

```
Host> 1d ; SEND DIAGNOSTIC command
Get Status 1 Length 0 Len 0 ; Return length
Host> d 0 64 ; Display result
0000 5355 4342 0000 0000 0000 0000 0080 1d0c USBC.....
0008 5355 5342 5451 ffff 0000 0000 0001 0000 USBSQT.....
...
0030 0000 0000 0000 0000 0000 0000 0000 0000 .....
0038 0000 0000 0000 0000 0000 0000 0000 0000
```

### 2.2.22 PLAY AUDIO Command

The command **PLAY AUDIO** requests that an ATAPI CD-ROM Drive begins an audio playback operation. The command and output of the audio signal will be as specified by the setting of the mode parameters, which include the SOTC bit.

Function parameters: play (from, to) ;from start at 0

#### Example 20: PLAY AUDIO Command

```
Host> 47 0 3
Get Status 1 Length 0 Len 0
Host> d 0 100

0000 5355 4342 0000 0000 0000 0000 0080 470c USBC.....G
0008 5355 5342 5451 ffff 0000 0000 0001 0000 USBSQT.....
0010 0000 0000 0000 0000 0000 0000 0000 0000 .....
```

### 2.2.23 SCSI Command

The command **SCSI** is a function to setup the OPCODE, Address, and Length in the Command Descriptor Block (CDB).

Function parameters: SCSI (opcode, address, len)

#### Example 21: SCSI Command

```
Host> scsi 0 0 10 ; 6-bytes command
```

Note:  
No value is returned

Table 2 SCSI Command Groups

Group	OPCODE	Description
0	00h-1Fh	6-bytes commands
1	20h-3Fh	10-bytes commands
2	40h-5Fh	10-bytes commands
3	60h-7Fh	Reserved
4	80h-9Fh	16-bytes commands
5	a0h-bFh	12-bytes commands



6	c0h-dFh	Vendor-specific
6	e0h-FFh	Vendor-specific

### 2.2.24 SEND Command

The command **SEND** instructs the target to receive data from the initiator. This command sends sense data to a processor device.

Function parameters: send (address, len)

#### Example 22: SEND Command

```
Host> send 64 x80 ; Send 64-byte Read
Get Status 0 Length 40 Len 64 ; Return Status and
length
Host> d 0 100 ; Display
0000 5355 4342 0000 0000 0040 0000 0080 000c USBC....@.....
0008 5355 5342 0350 ffff 0040 0000 0000 0000 USBSP...@.....
---
0060 0000 0000 0000 0000

Host> send 64 0 ; Send 64-byte Write
Get Status 0 Length 40 Len 64 ; Return Status and
length
Host> d 0 100 ; Display
0000 5355 4342 0000 0000 0040 0000 0000 000c USBC....@.....
0008 5355 5342 0350 ffff 0040 0000 0000 0000 USBSP...@.....
0010 0000 0000 0000 0000 0000 0000 0000 0000 .....
0018 0000 0000 0000 0000 0000 0000 0000 0000 .....
```

### 2.2.25 CLEAR PIPE Command

The command CLEAR PIPE clears a STALL from a device.

Function parameters: clear (pipe)

#### Example 23: CLEAR PIPE Command

```
Host> clr ; Clear Pipe Command
```

Note:

No value is returned.

### 2.2.26 Software/Hardware Reset Command

The command **SOFTWARE/HARDWARE RESET = reset** is an ATAPI/IDE command used to force re-calibration and find a lost track.

Function parameters: USBReset (type)

Type:

0= Software reset

1= Hardware reset

#### Example 24: Software/Hardware Reset Command

```
Host> reset 0 ; Software Reset Command
...
Host> reset 1 ; Hardware Reset Command

Note:
    No value is returned.
```

### 2.2.27 USB Data Read Command

The command **USB DATA READ = dread** reads data on the USB bus. The maximum length is 64.

#### WARNING!

Windows OS will show an error if the length of USB DATA WRITE is greater than 64.

Function parameters: d\_dataread (len)

#### Example 25: USB DATA READ Command

```
Host> dread 64 ; Data Read 64-byte
Host> d 0 64 ; Display
0000 5355 5342 0248 0000 0000 0000 0000 0000 USBSH.....
0008 0000 0000 0000 0000 0000 0000 0000 0000 .....
0010 0000 0000 0000 0000 0000 0000 0000 0000 .....
0018 0000 0000 0000 0000 0000 0000 0000 0000 .....
0020 0000 0000 0000 0000 0000 0000 0000 0000 .....
0028 0000 0000 0000 0000 0000 0000 0000 0000 .....
```

### 2.2.28 USB DATA WRITE Command

The command **USB DATA WRITE = *dwrite*** writes data on the USB bus. The maximum length is 8.

#### WARNING!

Windows OS will be error if the length of USB DATA WRITE is greater than 8.

Function parameters: *d\_datawrite* (len)

#### Example 26: USB DATA WRITE Command

```
Host> dwrite 8 ; Data Write 8-byte command
Host> d 0 64 ; Display
0000 0000 0000 0000 0000 0000 0000 0000 0000 .....
0008 0000 0000 0000 0000 0000 0000 0000 0000 .....
0010 0000 0000 0
```

## 2.3 ATAPI/IDE Test Utilities

These ATAPI/IDE commands may corrupt any data on the device. Make sure you have backed up any important data before carrying out the tests.

### 2.3.1 Quick READ/WRITE Test Command

The command **READ/WRITE = *qtest*** is an ATAPI/IDE command that is used for quick tests of the read/write speed of ATAPI/IDE devices include MO, ZIP, CLIK, LS120, CF, Smart Media, HD, and Microdrive. This command cannot test CD-ROMs and CD-RWs due to the characteristics of these mediums.

Warning! This command will cause data corruption.

Function parameters: test (size, passes)

#### Example 27: Quick Read/Write Test

```
Host> qtest 0x80000 5

Disk Capacity 3e80K

Write LBA 0 Sector passes 00000000 error 0 Transfer Rate 682KBytes/Sec
Reads Verify passes 00000000 error 0 Transfer Rate 998KBytes/Sec
Write LBA 400 Sector passes 00000001 error 0 Transfer Rate 692KBytes/Sec
Reads Verify passes 00000001 error 0 Transfer Rate 1000KBytes/Sec
Write LBA 800 Sector passes 00000002 error 0 Transfer Rate 706KBytes/Sec
Reads Verify passes 00000002 error 0 Transfer Rate 1004KBytes/Sec
Write LBA c00 Sector passes 00000003 error 0 Transfer Rate 722KBytes/Sec
Reads Verify passes 00000003 error 0 Transfer Rate 1000KBytes/Sec
Write LBA 1000 Sector passes 00000004 error 0 Transfer Rate
691KBytes/Sec
Reads Verify passes 00000004 error 0 Transfer Rate 1000KBytes/Sec
```

notice.

This command will check errors during the Read/Write transfer rate. It will be stopped if an error occurs.

### 2.3.2 READ/WRITE Test Command

The command **READ/WRITE = test** is an ATAPI/IDE command that tests the read/write speed of ATAPI/IDE devices include MO, ZIP, CLIK, LS120, CF, Smart Media, HD, and Microdrive. This command cannot test CD-ROMs and CD-RWs due to the characteristics of these mediums.

Function parameters: test (start, size, passes)

Warning! This command will cause data corruption.

#### Example 28: READ/WRITE TEST Command

```
Host> test 0 Host> x80000 1 ; Command
Read/Write speed test
Disk Capacity 31 MBytes, Total LBA fa00
Starting LBA 0 Ending LBA 8000, number of LBAs 8000
Write Sectors 00000000
Write Sectors 00001000 Transfer Rate 0695KBytes/Sec
Write Sectors 00001000
Write Sectors 00002000 Transfer Rate 0707KBytes/Sec
Write Sectors 00002000
Write Sectors 00003000 Transfer Rate 0691KBytes/Sec
Write Sectors 00003000
Write Sectors 00004000 Transfer Rate 0696KBytes/Sec
Write Sectors 00004000
Write Sectors 00005000 Transfer Rate 0696KBytes/Sec
Write Sectors 00005000
Write Sectors 00006000 Transfer Rate 0691KBytes/Sec
Write Sectors 00006000
Write Sectors 00007000 Transfer Rate 0694KBytes/Sec
Write Sectors 00007000
Write Sectors 00008000 Transfer Rate 0694KBytes/Sec Done
Read Sectors 00000000
Read Sectors 00001000 Transfer Rate 1011KBytes/Sec
Read Sectors 00001000
Read Sectors 00002000 Transfer Rate 1013KBytes/Sec
Read Sectors 00002000
Read Sectors 00003000 Transfer Rate 1012KBytes/Sec
Read Sectors 00003000
Read Sectors 00004000 Transfer Rate 1013KBytes/Sec
Read Sectors 00004000
Read Sectors 00005000 Transfer Rate 1012KBytes/Sec
Read Sectors 00005000
Read Sectors 00006000 Transfer Rate 1009KBytes/Sec
Read Sectors 00006000
Read Sectors 00007000 Transfer Rate 1014KBytes/Sec
Read Sectors 00007000
Read Sectors 00008000 Transfer Rate 1011KBytes/Sec Done
```

Date: 08/15/01

Revision: 1.4

Page: 20

notice.

This command will report disk capacity to the total size of LBA. It starts to run from 0 up to the total length that you have defined. If a hardware or power failure occurs, the program fails.

### 2.3.3 Single READ/WRITE SPEED TEST Command

The command **READ = *sptest*** is an ATAPI command that tests the read speed of ATAPI devices. This command ONLY applies to CD-ROMs and CD-RWs due to the characteristics of these mediums.

Function parameters: *sptest* (size, mode)

Warning! This command will cause data corruption.

#### Example 29: Single READ/WRITE SPEED TEST Command

```
Host> sptest x80000 0 ; Single Speed Test command
Read: Transfer Rate 1068KBytes/Sec

Host> sptest x80000 1 ; Single Speed Test command
Write: Transfer Rate 968KBytes/Sec
```