PassMark Software
USB 2.0 Loop Back Plug Users Guide

(Model PMUSB02 rev.2)

Introduction

When used with the PassMark™ BurnInTest or USB2Test software, the USB 2.0 Loop Back Plug can be used to test that USB1.x or USB2.0 ports function correctly and provide the expected speed. It is possible to verify that:

- The USB port is powered.
- That a port is capable of High-Speed (480Mb/s) or Full-Speed (12 Mb/s). The maximum speed of the port can be benchmarked. Windows only.
- That data can be sent and received from the port.
- That data can be transferred without error.
- The system remains stable under long periods of load.
- USB1.x/2.0 has been correctly installed on the system.
- Low-level USB bus errors introduced by poor cabling, for example, are not occurring.

The USB 2.0 Loop Back Plug is software upgradeable.

General Notes

Compatibility

Windows XP SP3, 2003 Server, Vista, 2008 Server, Window 7, 8, 10 and Linux are supported.
Windows: BurnInTest Pro v4 (or later) or USB2Test software is required for Windows. Both 32bit and 64bit Windows drivers are available.
Linux: BurnInTest Linux v2 (or later) is required. The Linux 'usblib' is required (included with most Linux distributions).

USB Hubs

While the USB loopback plug will work when connected via a self-powered hub, direct connection is the preferred method of connection when testing a computer system. Having a direct connection eliminates the hub as a point of failure. If the aim of the testing is to test the hub hardware itself, then connection via a hub may be preferable.

Cabling

Select a short quality captive, shielded, USB cable rated for High-Speed when testing. Some cheaper USB cables are not well shielded and are not recommended. The cable must be shorter than the 5m allowed in the USB standard. If a USB connection is required beyond 5m one or more hubs are required to extend a USB connection.

Multiple USB plugs

Multiple USB plugs can be connected and simultaneous loopback testing carried out.

It should be noted that maximum speed reduces as the number of USB devices are connected. To determine the maximum speed of a USB port, it recommended only one plug to USB ports managed by a single USB host controller.

Each USB plug is unique and has its own serial number. For this reason the windows plug and play software will attempt to re-install the drivers every time a new Loop back plug is connected. If you are testing with a large number of plugs it can be easier to copy the contents of the device driver CD to your hard disk before installing the first plug. You can view the serial number and firmware version of each plug from within BurnInTest Professional.

Speed

On a well-configured USB2.0 port directly connected to the PC motherboard (not via a PCI card for example) speeds of greater than 300Mb/s can be expected on a system that is functioning correctly.

Windows Vista, 7, 8 & 10 Installation

Un-install any previous version of the USB 2.0 Loopback plug device driver before installing a new version.

Step1 – connect the device

With the computer turned on and running, connect the USB 2.0 Loop Back Plug to the USB port on the computer to be tested. The central red power light on the USB plug should illuminate when connected. The "Installing device driver software" bubble should be displayed.

If a USB 2.0 Loopback plug has been installed on the system previously. Then the device drivers will be automatically installed and the installation is complete.

Step 2 – install the device driver

Make sure that you have either the device driver CD or drivers that you have downloaded from the PassMark web site available. Insert the device driver CD.

Start Device Manager by selecting Windows Start and typing "Device Manager".

From within Device Manager, select the "USB2Test" device and select "Update Driver Software..."

Select "Browse my computer for driver software" and enter the location of the device drivers, e.g. the directory on the installation CD. Select Next.

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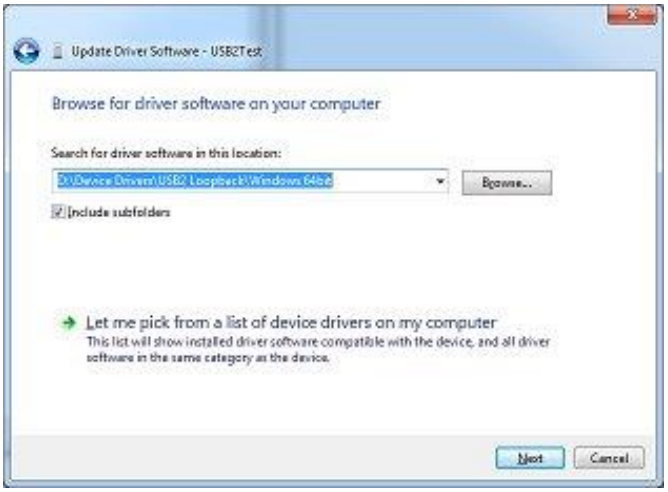


After successful installation, a Window will be displayed indicating that "Windows has successfully updated your driver software".

The device will step through its LEDs to indicate that the hardware has successfully initialized.

Step 3 – starting the test software

The USB 2.0 Loopback plug can be used to test USB ports with USB2Test or BurnInTest software. To run USB2Test, copy the utility from the CD to your hard disk and double click on "USB2Test.exe". See the software help files for details of using USB2Test or BurnInTest.

Uninstalling in Windows Vista, 7, 8 or 10

From the Windows "Start" option, select "Control Panel", "System", "Hardware", "Device Manger", from the "Universal Serial Bus controllers" branch of the device tree, select the "PassMark USB2.0 Loopback plug" device and from the menu select "Action", "Uninstall".

Linux Installation

No specific USB installation is required as the USB 2.0 Loopback plug uses the usblib as a standard USB device. With the computer turned on, connect the USB 2.0 Loop Back Plug to the USB port to be tested. The red power light on the USB plug should illuminate when connected. That's it, you are ready to test with BurnInTest for Linux.

Trouble shooting

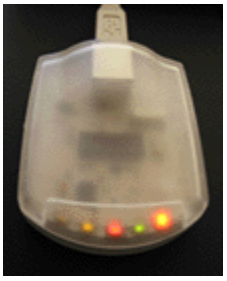
Symptom: No red power light on USB plug
The computer USB port should provide a 5 Volt power supply. There is most likely a fault with the computer.

Symptom: Power, but no Found New Hardware window
The basic USB device enumeration process could not be completed. This could be a fault in the Windows O/S installation or with the USB hardware in the computer.

Symptom: Slow transfer speed or errors
Again, this could be the USB hardware in the computer or be also caused by external interference, a poorly shielded cable

Technical Specifications

USB standard:	USB 2.0 (and USB 1.1)
Plug and play:	Compliant
Physical connector:	4 wire USB (2 x Balanced Signal, 1 Voltage, 1 Ground)
USB Transfer modes:	Bulk
Voltage:	4.4V – 5.25V (No external power req'd)
Current:	250mA (Theoretical Max), 60mA (Typical Operation)
Clock speed:	24Mhz
Case:	High impact MABS plastic
Size:	65mm x 50mm x 20mm (2.5 x 2.0 x 0.8 inches)
Weight:	35g (1.3oz)
EMC standards:	AS/NZS 3548:1995, EC
Storage Temperature:	-20 ºC to + 70 ºC
Usage Temperature:	0 ºC to + 45 ºC
Model number:	PMUSB02 (rev2)
RoHS (Lead free):	Yes



From Left to Right:
Red LED = USB Bus Error
Yellow LED = Receive data
Red LED = Power
Green LED = Transmit data
Orange LED = 480mb/s (Hi-Speed)

Notes

If a USB port has insufficient power to start the USB2Test device in High-Speed mode you will receive a HID device driver error message "This device cannot start (code 10)". Disconnect other devices from the same USB root hub. Benchmark tests should be stopped prior to placing a PC in a Sleep state.

Disclaimer

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