

White paper
Using BurnInTest on a system with no
Operating System



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Overview

Many BurnInTest users can benefit from testing PC hardware when there is no Operating system installed, or the Operating System is inoperable. This can be useful for testing PC hardware:

1. In a production line environment,
2. That is to be shipped with Linux,
3. In a known virus free environment and
4. To try to determine the cause of corruption of an Operating System.

This document aims to assist people in setting up an environment that allows PassMark BurnInTest to be used in these situations.

This paper is applicable to the 32-bit Windows Professional edition of BurnInTest v6.0. This version of BurnInTest requires Microsoft Windows in order to run. To run BurnInTest on a system without an operating system you need to set up a "Pre-install environment" that allows Microsoft Windows to be booted from a CD. This document describes setting up a Bart Pre-install environment (BartPE) environment that includes both Windows XP SP2 and BurnInTest V6.0 on a bootable CD. This document does not cover Microsoft's Pre-install Environment (WindowsPE/ WinPE).

This document does not intend to cover product licensing issues and it is up to the reader to review this¹.

Audience

This paper is targeted at companies and individuals that need to run BurnInTest on a system without a working or installed Operating system. It is aimed at people with technical PC knowledge.

Standard Environment

While there are many different permutations and combinations of configuring BartPE, its associated plugin's and BurnInTest, this paper attempts to describe a standard approach that will be supported by PassMark Software. Please note that PassMark Software provides email support for BurnInTest, but are not able to provide BartPE, BartPE plugin or Microsoft Windows support.

The Standard BartPE environment including BurnInTest PRO is:

- 32-bit Microsoft XP Professional SP2 (or higher).

¹ BartPE and PE Builder are Copyright (c) 2002-2005 Bart Lagerweij. All rights reserved. You should refer to the license agreement for use of BartPE on: <http://www.nu2.nu/pebuilder/>

Microsoft Windows licensing issues should also be reviewed on the above web site, together with your Microsoft Windows license agreement, to ensure you do not breach your license agreement with Microsoft. Microsoft Windows is Copyright Microsoft Corporation.

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- PE Builder V3.1.3 (or higher).
- Windows XPE Plugin v1.0.4 (or higher). This includes additional Windows libraries required by BurnInTest.
- HWPnp 1.0.0.21 (or higher). This provides plug and play to allow devices to be added post boot.
- Enable COM & LPT Ports Plugin (com_lpt_ports.zip V2). If you want to test serial ports.
- BurnInTest PRO v6.0.1002 (or higher).
- Hardware including at least 512MB of RAM.
- It is recommended that you test with a USB drive and save/load the configuration file to/from this, as well as saving any log files to the USB drive.

Other BartPE plugins could be used, but have not in general been tested in the environment described.

There are a several basic choices with the setup BurnInTest with BartPE. The main examples are:

- a) *A pre-defined configuration file that can't be changed.*

The configuration file would be placed in the Program Files directory on the CD (X:\Programs\BurnInTest). For this option BurnInTest must be started with the -p command line parameter (which instructs BurnInTest to use the Program directory instead of the default My Documents directory).

- b) *A pre-defined configuration file that can be changed.*

The configuration file would be copied to the RAMdisk (i.e. My Documents) during installation (e.g. B:\PassMark\BurnInTest). The configuration file is not saved to the CD.

- c) *A pre-defined configuration file that can be changed and saved.*

Installing BurnInTest as in either (a) or (b) but starting BurnInTest with the command line parameter -c <filename> to load/save configuration files from a USB drive (for example).

We recommend (c), with the configuration file and log files saved to a USB drive.

The standard BartPE plug-in package for BurnInTest available on the PassMark Website can be used for cases (a) and (c).

The files would need to be modified for case (b). The bit.inf file would need to define that the LastUsed.bitcfg file should be copied to the My Documents directory e.g.

B:\PassMark\BurnInTest. The bit_nu2menu.xml file would need to be changed to remove the -p command line parameter.

Limitations

Currently, we plan to support the following BurnInTest tests under the above standard environment:

- CPU – Math;
- CPU – SIMD;
- CD-RW/DVD;
- RAM;

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- Disk (For testing Hard disks, other disk types, USB ports using USB drives, Firewire ports using Firewire drives);
- Network (Standard);
- Parallel Port ;
- Serial port;
- Video Playback;
- Plugin (BurnInTest plugins, not BartPE plugins).

Currently we do not plan to support the following tests under BartPE (feedback from users with their experience, may influence this list):

- Sound;
- 2D;
- 3D;
- USB (using the Passmark USB plugs);
- Printer;
- Tape.

The same limitations apply to running BurnInTest from a CD as under a 'normal' installation of Windows, for example, you will not be able to save the configuration settings to the CD and Accumulated log file results will not be available. It is recommended that you test with a USB drive and save/load the configuration file to/from this, as well as saving any log files to the USB drive.

These limitations are primarily due to the additional environment setup, and time available for this version of the document.

Please note that we have intentionally not restricted any of the BurnInTest tests in software, as I am sure there are BartPE users that have or will get these tests working under BartPE. Send us an email.

Downloads

Microsoft XP PRO SP2:

You should have received this CD/DVD when you purchased your license.

Refer to the PE-Builder website for the latest version of PE Builder:

<http://www.nu2.nu/pebuilder/>

For the latest version of the XPE Plugin from Sherpya:

<http://sourceforge.net/projects/winpe/>

For the latest version of the HWPnP Plugin:

<http://www.paraglidernc.com/>

For the latest version of the Enable COM & LPT Ports Plugin:

http://www.bootcd.us/BartPE_Plugin_Details/182/Enable-COM-&-LPT-Ports.html

For the latest version of the BurnInTest PRO v6.0:

<http://www.passmark.com/ftp/bitpro.exe>

There are many interesting sites regarding BartPE, here are a few I found useful in preparing this document:

<http://www.nu2.nu/pebuilder/>

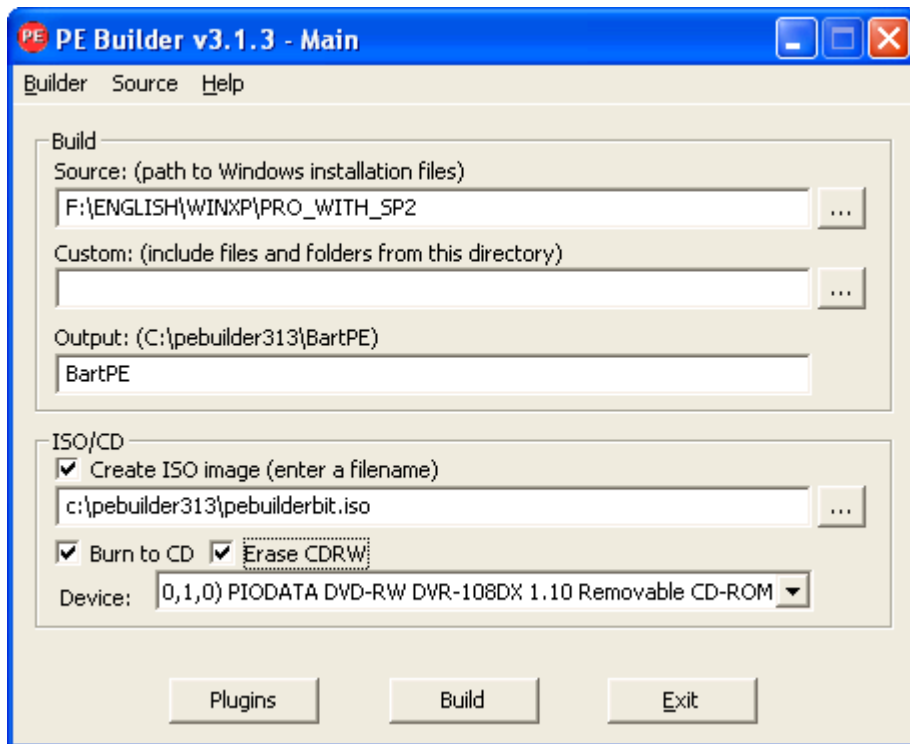
<http://xpe.collewyn.info/index.php>

http://www.bcdwb.de/faq/2_plugincreate_e.html

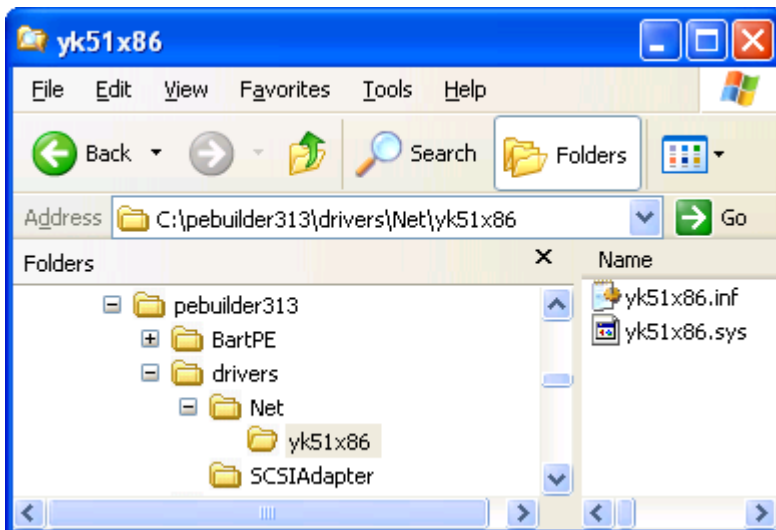
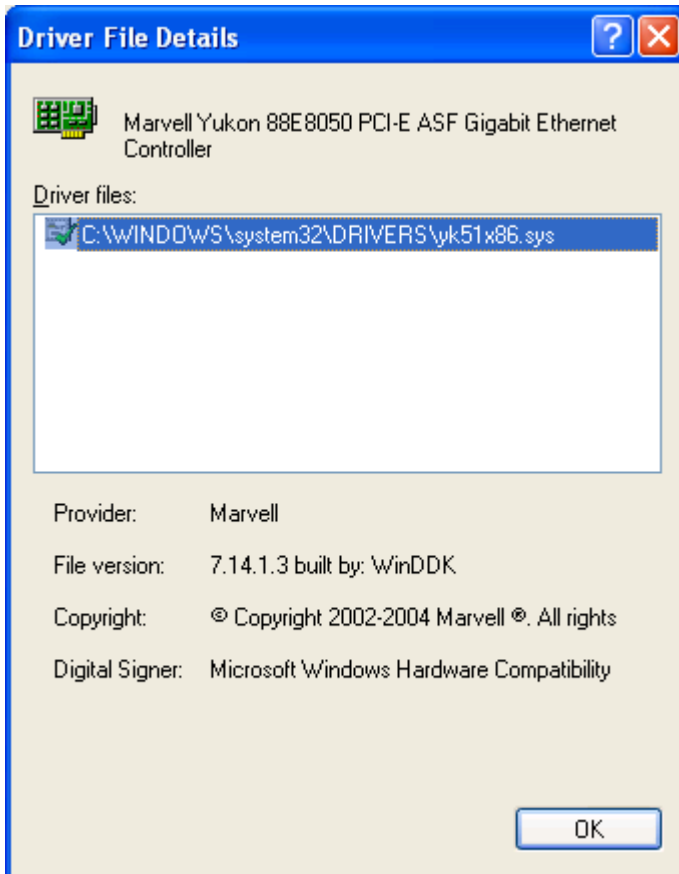
Building a Preinstall Environment

This section describes how to build a Preinstall environment. It is lifted from the PEbuilder website, and has been modified for the "Standard Environment" for BurnInTest.

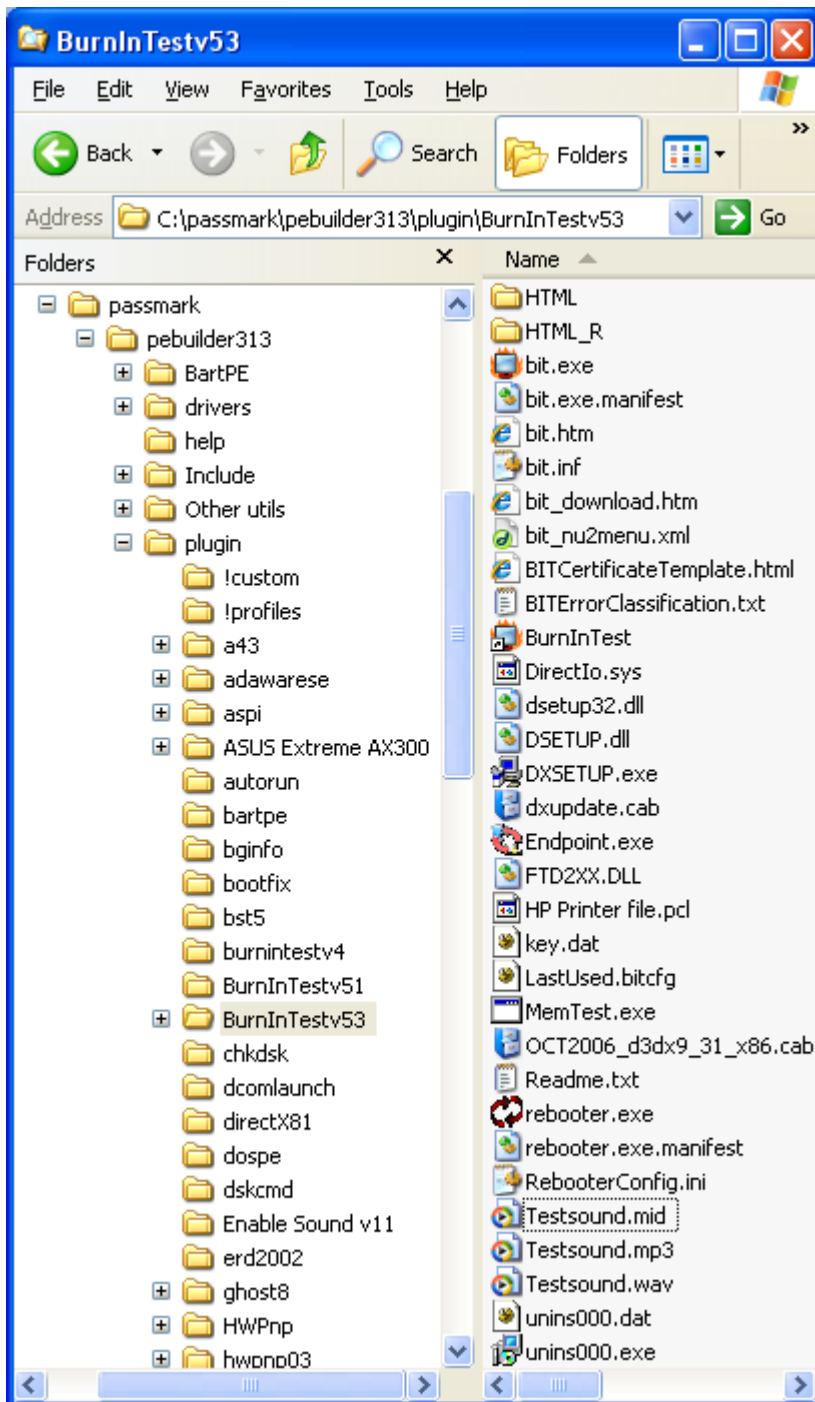
1. Make sure that your system (that you plan to build the BartPE environment on) has about 500MB of free disk space!
2. Download PE Builder and install it. See the Download section.
3. Start PE Builder (pebuilder.exe). When you start PE Builder for the first time it will ask if you agree with the license agreement.
4. Now PE Builder will ask to search for windows installation files. You should use your Windows XP setup/installation CD/DVD.
5. At the main PE Builder dialog, select the "Burn to CD/DVD" option. When you are using an erasable medium, make sure that the "AutoErase RW" option is enabled. The "burn using" option should be set to "StartBurn". Select your CD writer device from the Device list. For example:



6. Download the XPE plugin (see download section) and copy the files to the plugin directory.
7. Download the HWPnp plugin (see download section) and copy the files to the plugin directory.
8. Download the Enable COM & LPT Ports Plugin (see download section) and copy the files to the plugin directory. This is only required if you want to test serial ports (e.g. COM1).
9. If you want Network testing/access, copy your network card driver (.inf and .sys) to the drivers\Net directory. For example (specific to the system I just tested):



10. Download the latest version of BurnInTest PRO V6.0. Install BurnInTest onto your Hard disk drive.
11. Use the *File->Install BurnInTest on USB drive* to copy the the BurnInTest files to a user specified temporary directory. If you have a licensed version of BurnInTest, enter your license key at this stage and it will be included in the build. Copy this temporary directory to the PEbuilder plugins directory (e.g. C:\pebuilder\BartPE\plugin\)



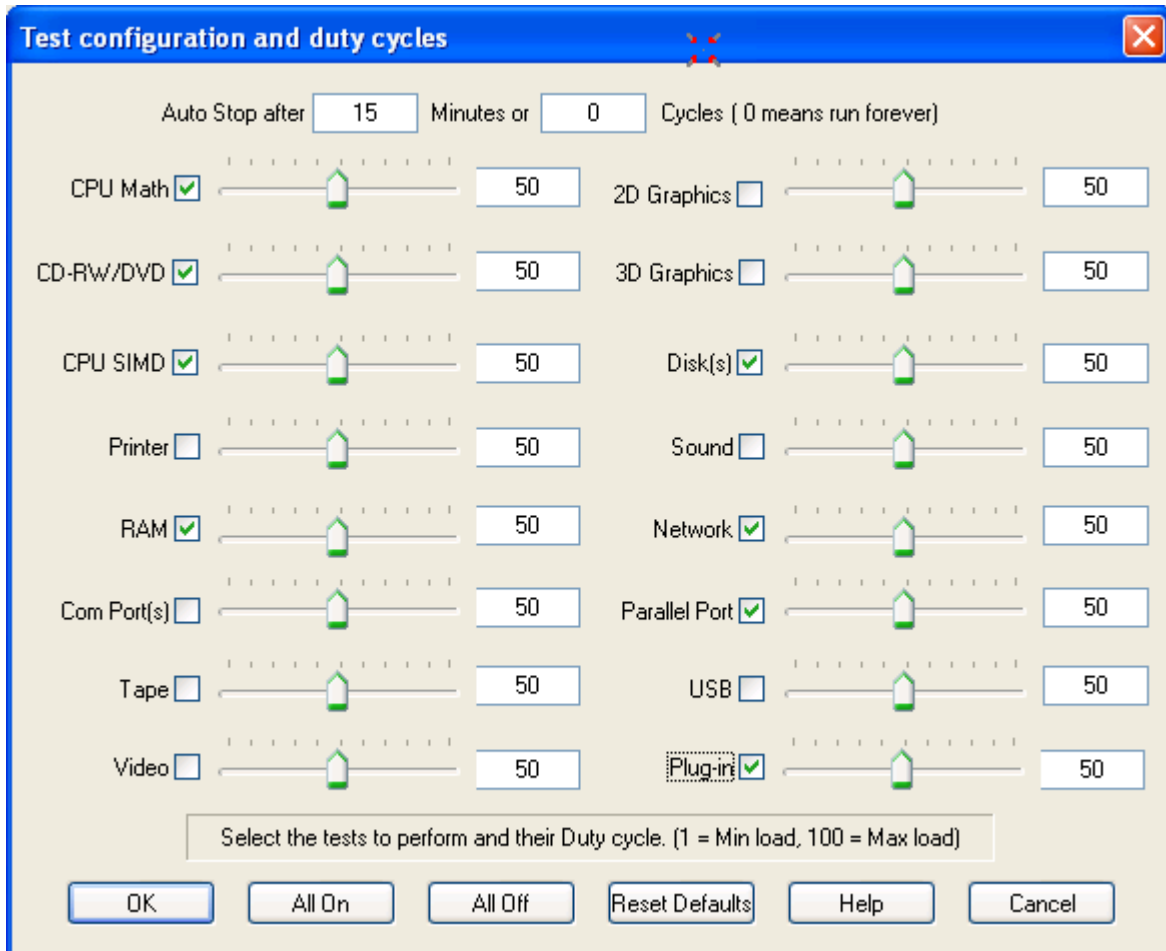
12. Download the BurnInTest plugin files from the Passmark website:

http://www.passmark.com/ftp/bit_bartpe_plugin.zip

Copy the extracted files to the BurnInTest plugin directory. These files are bit.inf, bit.htm, bit_nu2menu.xml. These will add a menu item to the "GO" -> "Programs" -> "BurnInTest" as well as instruct BartPE which BurnInTest files and where the BurnInTest files should be placed (on the CD under PROGRAMS). Please see Appendix 1 for the BurnInTest plugin file contents.

13. Configure the BurnInTest tests (as per limitations section) or as required.

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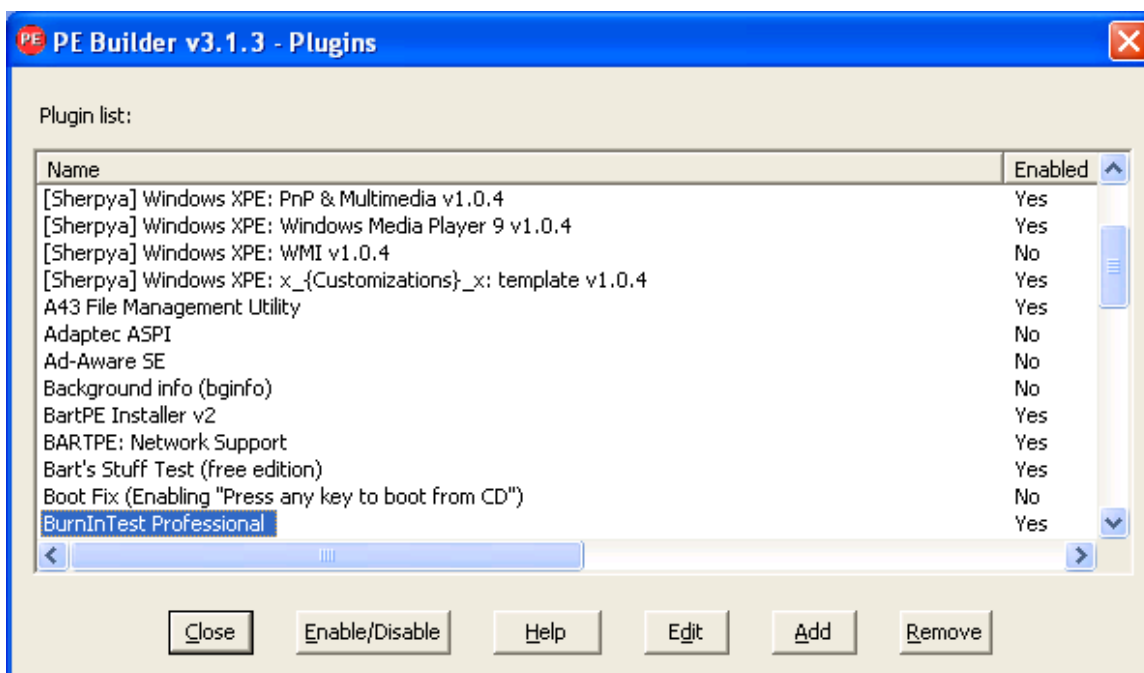
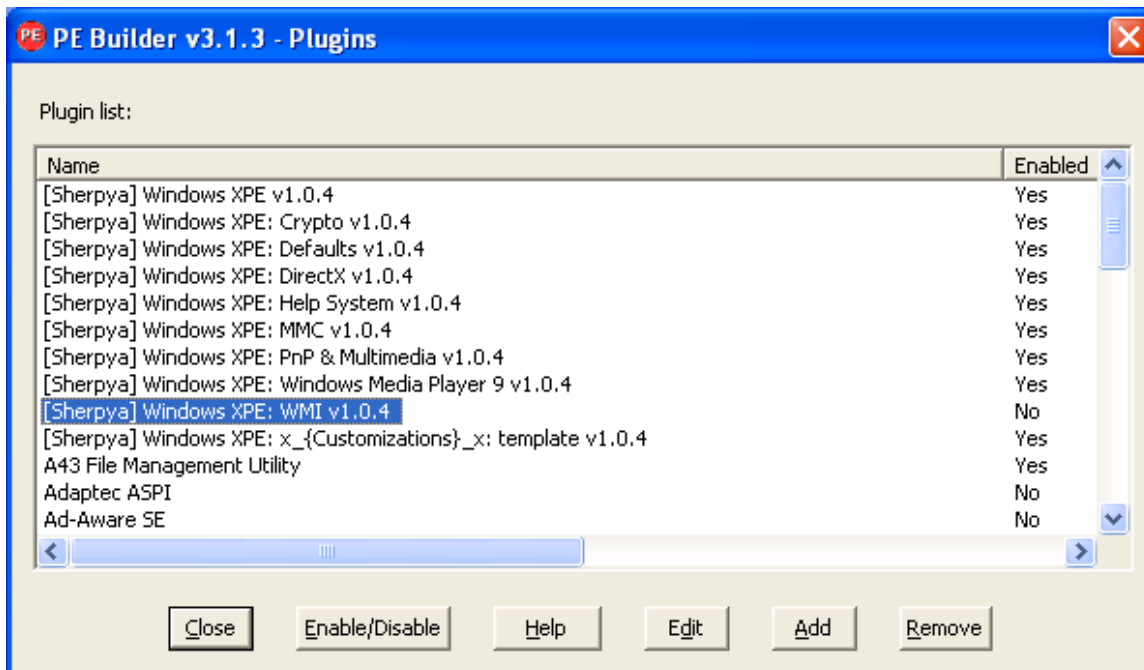


Save the configuration file, or simply exit BurnInTest to save the configuration in the standard "LastUsed.bitcfg" file.

14. Select the plugins for the "Standard environment". From the Main PE Builder window, select „Plugins“. Within the Plugin's window ensure the following plugins are enabled:

- The "[Sherpya] Windows XPE" plugins;
- The "Perform plug and play hardware detection" plugin;
- The "BurnInTest Professional" plugins.

An example is shown in the following diagram.



- At the main PE Builder dialog, hit the "build" button (or press F7). PE Builder will now ask you to create a directory, answer with "yes".
- The license for your Windows XP product is shown. Read it and agree to it to continue.
- PE Builder will now start building BartPE. This will take a few minutes.
You will see a lot of files getting copied and/or decompressed, the ISO image build and the data recorded to your CD writer.
While burning to your CD writer you will not see any screen changes, just wait for it to finish...
- When burned OK, boot from the CD!

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19. On booting, you will be asked to configure the Network Adaptor. Select Static IP or DHCP as appropriate if you plan to use the Network test (and have setup up the network drivers in the drivers/net directory).

20. You should then select:

Go -> System Tools -> Install Devices (HWPnP)

21. To start BurnInTest you should select:

Go -> Programs -> BurnInTest

Enjoy!!!

Running BurnInTest on startup

To set BurnInTest to run automatically on system startup you need to include BurnInTest in the BartPE System Startup group. The following outlines how to do this:

- 1) Create an auto run file in the BurnInTest plug in directory. For example, "AutoRun_BurnInTest.cmd". Inside this file you include the BurnInTest startup command, for example:

```
%SystemDrive%\Programs\burnintest\bit.exe -p -x -c TestConfiguration.bitcfg -r  
Exit
```

Where the command line parameters are selected based on the desired configuration:

-p: Use the BurnInTest directory as the Default directory
-x: Skip the DirectX warning on startup
-c *TestConfiguration.bitcfg*: Load a pre-configured test configuration
-r: Run the test automatically after starting BurnInTest.

- 2) Once you have created the auto run command file you will then need to enter two new lines to the bit.inf file (the BartPE installation description file). For example:

```
[SourceDisksFiles]  
autorun_BurnInTest.cmd=2  
TestConfiguration.bitcfg=a,,1
```

Thanks to Pierre for providing this information:

<http://www.passmark.com/forum/showthread.php?t=1712>

Appendix 1 – BurnInTest Plugin

The BurnInTest BartPE plugin has 3 files,

- Bit.inf (installation directives);
- bit_nu2menu.xml (BartPE main menu setup)
- bit.htm (help file)

These are available from the PassMark website as a download.

Note: For earlier versions of BurnInTest, these files will need to be modified to reflect the differences in the files included in the BurnInTest package (for example the help files have different names).