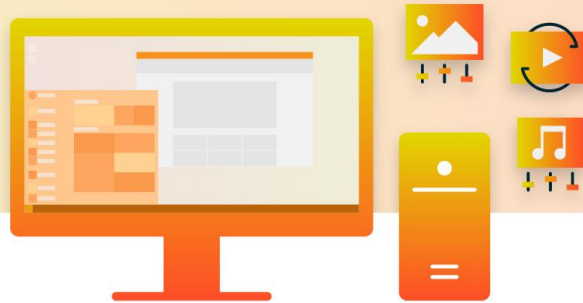


# HDXPRT 4 User Manual

September 18, 2019

## HDXPRT 4



Benchmark**X**PRT

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# Introduction

HDXPRT, the High Definition Experience & Performance Ratings Test, is a benchmarking software tool designed to assess PC capabilities for handling real-world media scenarios while using common consumer applications. It presents results that are relevant and easy to understand. HDXPRT 4 uses mainstream applications to test the performance of the system and installs trial versions of some required applications during setup. The HDXPRT 4 setup process takes about 30 minutes on most mainstream systems. The following sections provide information on HDXPRT 4, its minimum system requirements, installation process, and run instructions.

## What's new in HDXPRT 4

HDXPRT 4 bases workloads on usages performed with common consumer applications. These applications are required to run a HDXPRT 4 test. To make it easy for users to test with HDXPRT, trial versions of some of the required applications are included in HDXPRT setup and are automatically installed when HDXPRT is installed.

### BUNDLED SOFTWARE

The following software is included with the HDXPRT 4 installer. As noted above, some of the applications bundled with HDXPRT are trial versions and will expire after 30 days. Should the applications expire, you will need to reinstall HDXPRT. In some cases, a fresh OS install may also be necessary.

For HDXPRT to install and run properly it must install the applications it uses. If these applications are already installed on your system, you will need to uninstall them before installing HDXPRT. We are investigating ways to remove this restriction in the future.

- Audacity® 2.2.1
- HandBrake 1.2.2
- Microsoft® .NET Framework 4.7.1

### TEST SCENARIOS

HDXPRT 4 has three test scenarios. They are:

- **Edit Photos:** The usages in this category include editing photos to add watermarks, creating a panorama, processing HDR photos, and using editing tools to open closed eyes and remove shake in photos.
- **Convert Videos:** The usages in this category include converting 4K videos to formats optimized for a mobile phone and for streaming using H.264 and H.265 codecs.
- **Edit Music:** The usages in this category include mixing and editing music files.

## Minimum system requirements

- Intel® Pentium® 4 3.0 GHz CPU with HyperThreading, or equivalent AMD processor and above
- 8 GB of RAM
- 40 GB of free disk space
- 1280 x 800 display resolution (at 100% scale factor) or above, 8-bit color or above
- Windows® 10, 64-bit (Language: US English)

### ADDITIONAL CONSIDERATIONS

- HandBrake tests use Intel's Quick Sync feature on systems that support it – Quick Sync requires a 2nd generation (Sandy Bridge) or newer Intel Core series processor with integrated Intel HD Graphics enabled.
- The HandBrake transcode 4K content to 1080p task using H.265 12-bit (with x265) uses x265 on systems that support it.
- In addition to Quick Sync, HandBrake 1.2.2 supports hardware acceleration with AMD's Video Coding Engine (VCE) and NVIDIA's video encoder (NVENC). By default, HDXPRT4 v1.1 will use the encoder available through a system's integrated graphics, but testers can target discrete graphics by changing a configuration file flag before running the benchmark. HDXPRT will then use the encoder provided by the discrete graphics hardware. This configuration setting only takes effect when more than one of the supported encoders (QSV, VCE, or NVENC) are found on the system.

## Installing HDXPRT 4

### PREREQUISITES

NOTE: You must be a user with administrative privileges to run and install HDXPRT 4. Prior to installation, you should always do a full backup of your system and close all open programs; Microsoft Visual C++ Redistributable Package will be installed and may not be removed automatically when the user uninstalls HDXPRT 4.

1. Copy the HDXPRT 4 build to the "C:\\" directory on your local machine.
2. Extract the HDXPRT 4 installation files in the same location.
3. Click on HDXPRTSetup.exe in the build folder to start HDXPRT 4 setup. If a SmartScreen warning pops up, click Run.
4. In the Welcome to HDXPRT4 Setup window, Click Next.
5. Review and accept the HDXPRT end-user license agreement.
6. HDXPRT setup will install the bundled applications listed in Section 2.1. The installer automatically executes the setup of the required applications. Do not click on any intermediate dialogs you see during setup, as this can cause setup to fail.

In the Completing HDXPRT4 Setup window, click Finish. The system will reboot.

# HDXPRT 4: Installation instructions for Adobe Photoshop Elements 2018 and CyberLink MediaEspresso 7.5 trial versions

HDXPRT 4 includes tests that use the trial versions of Adobe Photoshop Elements 2018 and CyberLink MediaEspresso 7.5. However, it does not install these applications. Before you run HDXPRT 4, follow the instructions below to download these applications from their vendor sites and install them on your test system. We include options for installing them on a single system or on multiple systems in a lab setting.

## Installing the CyberLink MediaEspresso 7.5 trial

### SINGLE SYSTEM

1. In Microsoft Edge, browse to <https://www.cyberlink.com/prog/ap/mex/download.jsp>.
2. In the “What do you want to do with Cyberlink\_MediaEspresso\_Downloader.exe (1.1 MB)?” dialog box, click Run.
3. The download process will begin automatically. When the CyberLink MediaEspresso downloader reports that the installation process will begin after a set amount of time, click Install Now.
4. If your system displays a User Account Control notice asking, “Do you want to allow this app to make changes to your device?” click Yes.
5. In the installation dialog window, choose English as the language, keep the default installation location, and click Next.
6. Click to Accept the license agreement.
7. When the installer reports “Installation Complete,” close the installer without launching MediaEspresso.

### MULTIPLE SYSTEMS

Labs planning to run HDXPRT 4 on multiple test systems may prefer to download MediaEspresso once and bundle that download with the HDXPRT 4 install files. To do so, follow these steps:

1. In Microsoft Edge, browse to <https://www.cyberlink.com/prog/ap/mex/download.jsp>.
2. In the “What do you want to do with Cyberlink\_MediaEspresso\_Downloader.exe (1.1 MB)?” dialog box, click Run.
3. When the CyberLink MediaEspresso downloader reports that the download process is complete, click Open File Location to locate the downloaded CyberLink\_MediaEspresso\_Downloader.exe file.
4. Bundle that file with the HDXPRT 4 installation package.
5. Perform the following steps on each test system:
  - a. Open the CyberLink\_MediaEspresso\_Downloader.exe file.
  - b. Follow steps 4 to 7 from the single-system installation instructions above.

# Installing the Adobe Photoshop Elements 2018 trial

## SINGLE SYSTEM

### Downloading the Photoshop Elements 2018 installer

1. In Microsoft Edge, browse to <https://helpx.adobe.com/photoshop-elements/kb/photoshop-elements-downloads.html>.
2. Click the Download 64-bit link for Photoshop Elements 2018 for Windows.
3. In the “What do you want to do with PhotoshopElements\_2018\_LS30\_win64.exe (2.4 GB)?” dialog box, click Run. The download process may take several minutes, depending on your download speed.
4. Depending on the security settings, when the download completes, you may see an Open File – Security Warning dialog box asking, “Do you want to run this file?” If so, click Run.

### Extracting the Photoshop Elements 2018 installation file

1. When the download and security scan processes are complete, a folder location installation dialog box will pop up. Select the default Desktop location or another location you prefer, and click Next.
2. In the Files Are Ready dialog box, choose the second option, “Open the specified folder,” and click Finish.
3. In the Windows Explorer window that appears, double-click to open the PSE 2018 folder.

### Turning off Wi-Fi

If Wi-Fi is enabled on your system, Adobe will require you to sign into your Adobe account during the Photoshop Elements installation process. The HDXPRT 4 benchmark assumes you have not signed in. Therefore, at this point turn off the system’s Wi-Fi.

### Installing Photoshop Elements 2018

1. In the extracted PSE 2018 folder, double-click Set-up.exe.
2. If a dialog box that says “Installer has detected that a machine restart may be pending” appears, click Ignore.
3. If your system displays a User Account Control notice asking, “Do you want to allow this app to make changes to your device?” click Yes.
4. At the Welcome screen, where you can choose to install Adobe Photoshop Elements 2018 or try it for a limited time, click to try it.
5. On the Sign in screen, click Sign In.
6. On the “Please connect to the internet and retry” screen, click Sign In Later.
7. Click Accept to agree to the license agreement.
8. In the Options screen, click Install.
9. If your system displays a User Account Control notice asking, “Do you want to allow this app to make changes to your device?” click Yes. The installation process may take several minutes.
10. When installation is complete, click Close.

## MULTIPLE SYSTEMS

Labs planning to run HDXPRT 4 on multiple test systems may prefer to download and extract the PSE installation files once and bundle those files along with the HDXPRT 4 files. To do so, follow these steps:

1. Download and extract the Photoshop Elements 2018 installer using the instructions in the single system section above.
2. Copy the extracted folder to each test system.
3. Turn off Wi-Fi on each test system.
4. Install Adobe Photoshop Elements 2018 using one of the following methods:
  - Manual installation:  
In the extracted folder, double-click the Set-up.exe file to start the installer, then follow the single-system instructions in the Installing Adobe Photoshop Elements 2018 section above.
  - Silent installation:  
Add a batch file with the following command to the extracted folder:  

```
Start /wait OEM.exe -P PSE
```

## Starting an HDXPRT test

### BEFORE STARTING THE TEST

- HDXPRT 4 requires the display size of text and other items on your screen to be set to 100%, which is the default option on many computers, or 200%. To access this setting on your PC, go to Settings, then System, then Display, then Scale and layout.
- Restart the system.
- Open HDXPRT and run the benchmark normally.

If, after installing HDXPRT, you encounter an error related to administrative permissions when trying to open Microsoft Edge, return User Account Controls to the default setting, and restart the system. The default User Account Control setting is the third notch from the bottom: “Notify me only when apps try to make changes to my computer.”

### CHECKING FOR WINDOWS SECURITY INTERFERENCE

During the installation process on some systems, Windows Security may quarantine the installation executables for some of HDXPRT 4’s real-world applications. This is a current known issue for MediaEspresso’s ME75\_2x4K\_transcode.exe file. After the installation process is complete, check to see if this has occurred on your test system by navigating to the C:\Program Files (x86)\HDXPRT4\HDXPRT4\_Workloads\HDXPRT4\_Tests folder. If the folder contains 32 items after installation, including ME75\_2x4K\_transcode.exe, you are ready to test. If you've already attempted a test run, HDXPRT 4 will have added HDXPRTRunLog.txt to the folder, and there will be 33 total items in the folder.

If the ME75\_2x4K\_transcode.exe is missing, use the steps below to restore the file:

1. Open the Windows Security app.
2. Select Virus and threat protection.
3. Under Current threats, select Protection history.
4. Check to see if Windows Security removed any threats around the time of the HDXPRT 4 installation process. If so, click the drop-down menu on the right-hand side, where Windows Security lists the severity of the threat.

5. You may see a false positive that reports the ME75\_2x4K\_transcode.exe file as Trojan:Win32/Wacatac.B!ml.
6. Select the Actions drop-down menu and choose Restore.
7. Check to see if the ME75\_2x4K\_transcode.exe file is in C:\Program Files (x86)\HDXPRT4\HDXPRT4\_Workloads\HDXPRT4\_Tests.

## CHANGING THE CONFIGURATION FILE TO USE DISCRETE GRAPHICS

HandBrake 1.2.2 supports the hardware acceleration capabilities of discrete graphics hardware with Intel QSV, AMD VCE, and NVIDIA NVENC encoders. By default, HDXPRT4 v1.1 will use the encoder available through a system's integrated graphics, but testers can target discrete graphics by changing a configuration file flag before running the benchmark. HDXPRT will then use the encoder provided by the discrete graphics hardware.

To change the configuration flag:

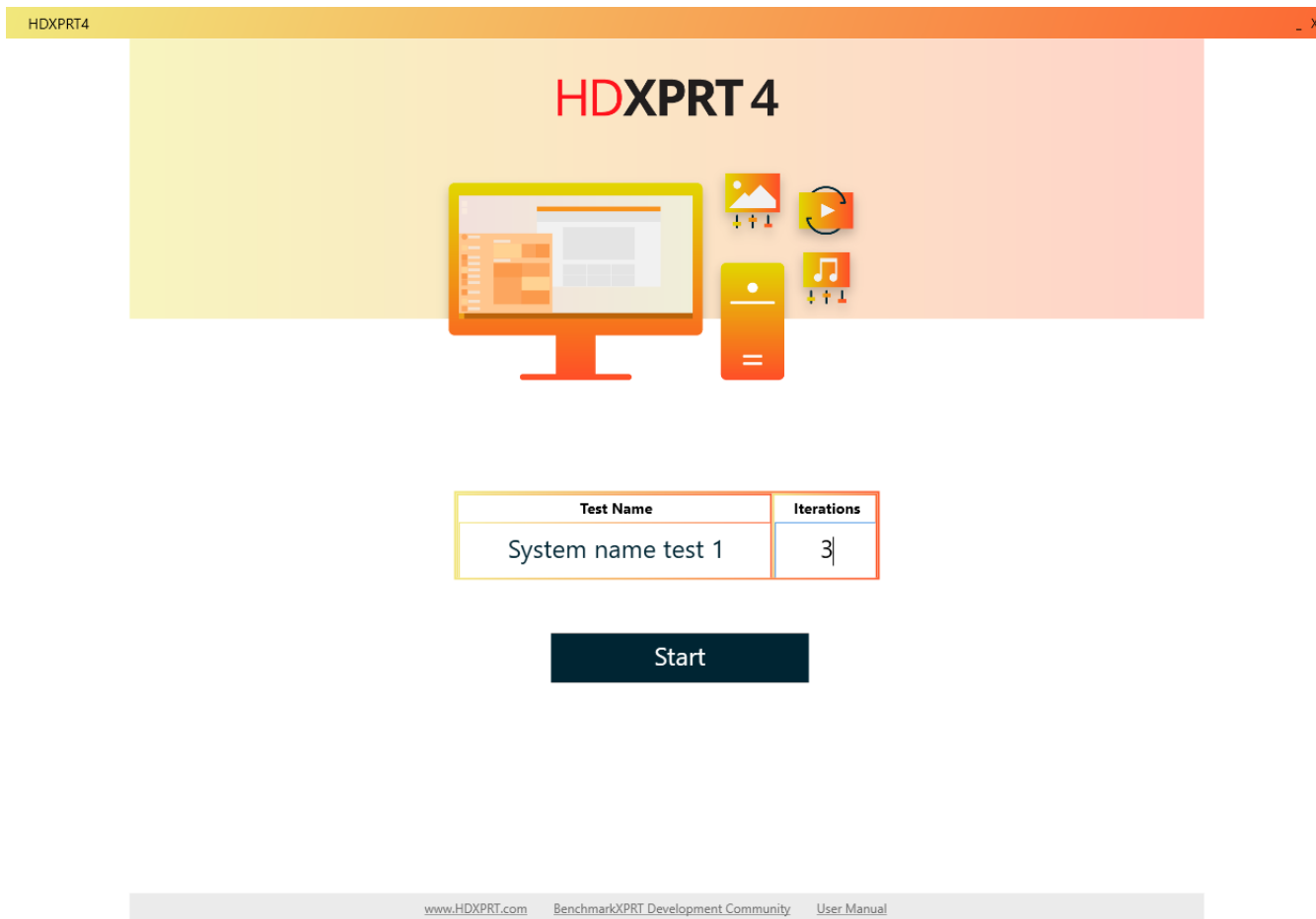
1. Go to HDXPRT4\HDXPRT4\_Workloads.
2. Open the HDXPRT4\_Setting.ini file.
3. Set the following flag to false.  
[HWAccel]  
UseIntegrated=true
4. Save the changes and close the file. You can now proceed with normal test setup.

## RUNNING AN HDXPRT TEST

### From the UI

1. To launch HDXPRT 4, right click the HDXPRT 4 shortcut on the desktop and then select "Run as Administrator." You can also launch HDXPRT 4 from the Start menu. But be sure to run it as administrator.  
  
This launches the HDXPRT home screen (See Figure 1).
2. Enter a test name. HDXPRT will save the test results in a file with this name.
3. Enter the number of iterations you'd like to run. You can designate up to five iterations. If more than one iteration is selected, HDXPRT calculates a median from all the iterations. The median scores for each workload are used to calculate category durations and the overall score.





**Figure 1: The HDXPRT 4 home screen.**

4. To start the test, click Start. HDXPRT takes about 45 minutes to finish one iteration on most systems.

At this point HDXPRT 4 will disable all internet connections to prevent any of the bundled applications from connecting to their home page to check and offer updates. This is to run the same versions of the applications on all systems for proper functioning and score consistency. Please do not manually enable any internet connections at this point. HDXPRT will enable all internet connections after finish running the benchmark.

#### **From the command line for automation**

1. To launch HDXPRT 4 from the command line, open Command Prompt as administrator and navigate to the HDXPRT4\HDXPRT4\_Workloads\HDXPRT4\_Tests folder.
2. Enter the command  
`hdxprt4.exe testname=sampletest`, replacing “sampletest” with your desired test name. Note: Do not include spaces in the test name.  
  
The above command will start and run a single test. HDXPRT takes about 45 minutes to finish on most systems.
3. To run multiple test iterations via automation, enter the command

hdxprt4.exe testname=sampltestnsame iterations= n, replacing “n” with the desired number of iterations. For example, hdxprt4.exe testname=sampltestnsame iterations=3 will kick off a test run with three iterations.

4. At this point HDXPRT 4 will disable all internet connections to prevent any of the bundled applications from connecting to their home page to check and offer updates. This is to run the same versions of the applications on all systems for proper functioning and score consistency. Please do not manually enable any internet connections at this point. HDXPRT will enable all internet connections after finish running the benchmark.
5. HDXPRT will perform a system check and begin to run the workloads. If the test encounters an error, the error information is displayed on the screen, and an error report is automatically created on the desktop.
6. Do not attempt to initiate any other system activity while HDXPRT is running. Using the keyboard or mouse can cause the scripts to fail.
7. The results screen automatically appears at the end of a successful run (see Figure 2).

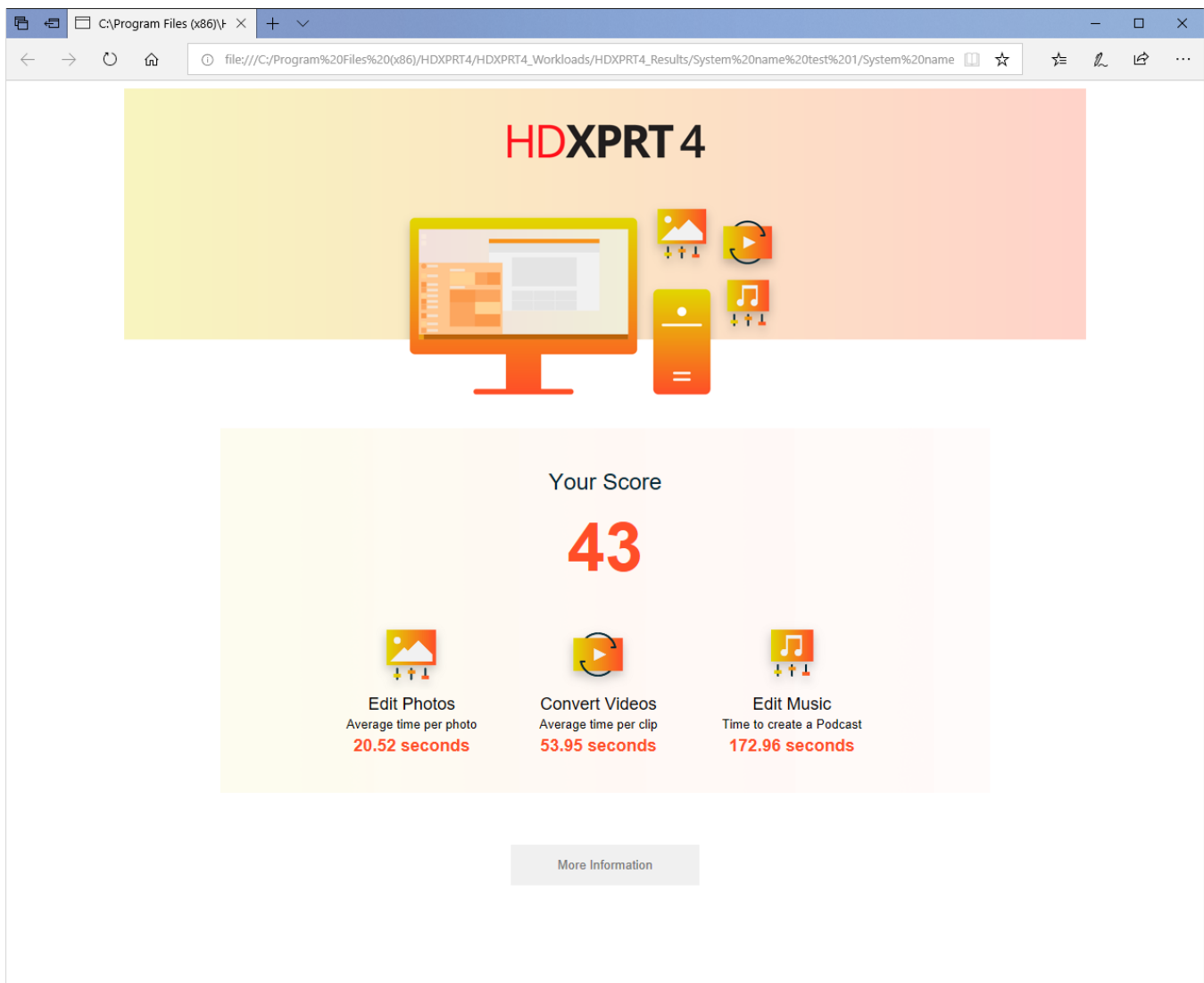


Figure 2: The HDXPRT 4 results screen.

## Results files

The results files of a test are archived in the <ProgramFiles (x86)>\HDXPRT4\HDXPRT4\_Results\<TestName> folder. Detailed system information for the test machine is also archived as part of the HDXPRT results report and can be viewed by clicking on the More Information button.

## Guidelines for reliable testing

When comparing your results to published results, remember that additional software installed on the system can affect results. Testing labs typically report results from “clean” systems to ensure accurate and consistent evaluation of the test systems’ capabilities.

The following recommendations represent good practices for consistent and reliable testing with HDXPRT 4.

- Close and disable any open applications and background programs, such as automatic disk defragmentation or virus scanners with automatic update features.
- Disable Windows Update and Windows Action Center notifications. NOTE: This may no longer be possible on newer versions of Windows 10.
- Set the system’s power settings to never go to sleep while plugged in.
- Restart the computer before running the benchmark and after making any driver or hardware changes.

## Uninstalling HDXPRT 4

To remove HDXPRT 4, go to Windows Settings\Apps\Apps and features:

1. Select HDXPRT 4 and click Uninstall.
2. At the “This app and its related info will be uninstalled” popup, click Uninstall.
3. When asked if you want to completely remove HDXPRT 4 and all of its components, click Yes.
4. A popup will inform you that HDXPRT 4 was successfully removed from your computer. Click OK.
5. Uninstalling HDXPRT 4 will only remove the HDXPRT 4 app. The uninstall process will not remove certain items such as the test results folders from the system.
6. You will need to uninstall the trial applications, such as Adobe Photoshop Elements and CyberLink MediaEspresso, separately.

# Technical support

To provide feedback or report any issues, please send all correspondence to the following email address:

[BenchmarkXPRTsupport@principledtechnologies.com](mailto:BenchmarkXPRTsupport@principledtechnologies.com).

For more information, visit us at [BenchmarkXPRT.com](http://BenchmarkXPRT.com) and [HDXPRT.com](http://HDXPRT.com).



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