HDXPRT

High Definition Experience & Performance Ratings Test

HDXPRT 2012 v1.0 WHITE PAPER

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1   HDXPRT 2012 OVERVIEW

HDXPRT, the High Definition Experience & Performance Ratings Test, is a benchmarking software tool for assessing the capabilities of PCs at handling real-world media scenarios using common consumer applications. It has been collaboratively developed by the HDXPRT Development Community, administered by Principled Technologies, Inc. The benchmark presents results in a way that is meaningful to and easily understandable by consumers.

2   USAGE CATEGORIES MEASURED

Figure 1. HDXPRT 2012 evaluates a PC's capabilities for users creating and sharing digital media content.

The five major use case categories measured by HDXPRT 2012 are the following:

- **Media Organizer.** These consumers concentrate on basic consumer media usages, such as organizing, auto-enhancing, and converting captured content of various media types (photos, videos, music).
- **Media Creator.** These consumers are similar to those in the Media Organizer, but more advanced in the scope and complexity of media usages.
- **Photo Blogger.** These consumers are photo enthusiasts who take many pictures, process them, and share them via messaging or social networks.

- **Video Producer.** These consumers are advanced and savvy media enthusiasts who shoot, edit, tag, and publish videos to share with others.
- **Music Maker.** These consumers create, edit, and post music and podcasts for sharing.

These categories give more targeted information than the Digital Media Creation category HDXPRT 2011 used.

The HD video playback category from HDXPRT 2011 is not part of HDXPRT 2012.

Figure 2 shows the categories of results produced by HDXPRT 2012.

Figure 2. HDXPRT result categories.

2.1 HDXPRT 2012 test scenarios

This section describes in more detail the HDXPRT 2012 test scenarios for each of the test categories mentioned above. For more information about the applications HDXPRT uses, see section 3 – Applications used in HDXPRT 2012.

2.1.1 Media Organizer

This first scenario category incorporates activities such as organizing, using auto-enhance, and converting captured content of the various media types. Users commonly perform these tasks with software such as Adobe® Photoshop® Elements and Apple® iTunes®. This scenario includes the following tasks:

- Using Adobe Photoshop Elements, import photos and videos and organize a media library
- Using Adobe Photoshop Elements, enhance photos using auto options (e.g., red eye removal, brightness and contrast changes, automatic color balancing, etc.)
- Using Apple iTunes, import music and organize a music library
- Using iTunes, convert a video for Apple iPhone®

2.1.2 Media Creator

This scenario category is similar to the Media Organizer scenario, but more advanced in scope and process. The media usages in this category include organizing, editing, creating, and converting content. These usages typically involve commercial/enthusiast software such as Photoshop Elements (PSE), HDRsoft Photomatix, GIMP, Adobe Premiere Elements (PRE), HandBrake/x264, and Media*Espresso*. This scenario includes the following tasks:

- Using Adobe Photoshop Elements, convert raw photos to JPEG
- Using GIMP, the GNU Image Manipulation Program , apply filters on photos
- Using Adobe Photoshop Elements, stitch photos together
- Using HDRsoft Photomatix, create HDR Photos
- Using Adobe Photoshop Elements, organize the photos in a photo book
- Using Adobe Premiere® Elements, do the following tasks:
    - Import videos
    - Organize library
    - Trim clips
    - Combine clips with transitions
    - Apply video effects
    - Export the resulting video
- Using HandBrake, an open-source, GPL-licensed, multiplatform, multithreaded video transcoder, to convert a video to the x264 video format
- Using CyberLink Media*Espresso*, convert the video to be more efficient on Web and mobile devices, a process known as transcoding.

2.1.3 Photo Blogger

This scenario includes tasks normally performed by photo enthusiasts who have substantial knowledge of digital tools, and are interested in processing and posting photos on enthusiast Web sites. This scenario uses Photoshop Elements, GIMP, and HDRsoft Photomatix, and includes the following tasks:

- Using Adobe Photoshop Elements, convert raw photos to JPEG
- Using GIMP, edit photos - apply filters, add effects
- Using Adobe Photoshop Elements, stitch photos to create panoramas
- Using HDRsoft Photomatix, create HDR photos

2.1.4 Video Producer

This scenario includes tasks performed by consumers savvy in video processing and editing. It includes creating and editing a highlights video for sharing on the Web or loading onto home and mobile devices. This scenario uses CyberLink PowerDirector and the bundled transcoder, Media*Espresso*. This scenario includes the following tasks:

- Using CyberLink PowerDirector, complete the following tasks:
    - Launch video editor and add video files
    - Combine clips in editor
    - Add transitions and preset effects
    - Create an AVCHD video
- Using CyberLink Media*Espresso*, convert a video to be more efficient on Web and mobile devices, a process known as transcoding

2.1.5 Music Maker

This scenario includes tasks performed by consumers who are experienced in mixing, remixing, editing, and sharing music. Consumers can complete the tasks in this category using free software such as Audacity®, which is distributed under the GNU General Public License (GPL), and Apple iTunes. This scenario includes the following tasks:

- Using Audacity, create and edit a music podcast:
    - Import music
    - Mix and merge tracks
    - Create music files
- Using Audacity, mix music with voiceover
- Using iTunes, convert WAV files to MP3 for posting.
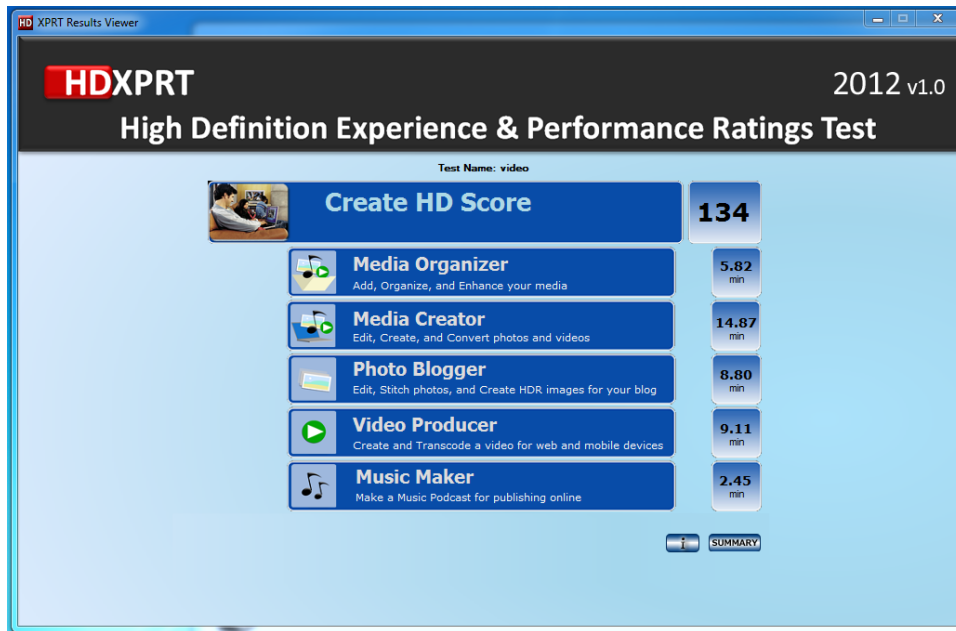
2.2   HDXPRT 2012 scoring metrics

Figure 3. HDXPRT Results Viewer.

Metrics for the scenarios in HDXPRT 2012 are the amount of time the test system needed to complete the scenario workload. The HDXPRT 2012 overall Create HD Score represents the system's overall media creation performance. The Create HD Score is calculated by taking a geometric mean of ratios between test system scores and scores of a calibration system, described in section 2.3. Results for scenarios that run individually do not include an overall score.

2.3   Calibration machine configuration

Figure 4 shows the detailed configuration of the calibration machine for HDXPRT 2012.

Component	Specification
CPU	Intel® Pentium® Processor E6800 (2M cache, 3.33 GHz, 1,066 FSB)
Operating system	Windows® 7 Ultimate Service Pack 1 (64-bit)
Motherboard	
Manufacturer	Intel
Model	DG45ID
BIOS version	IDG4510H.86A.0135.2011.0225.1100
Memory	
Manufacturer	OCZ
Channels	Dual
Type	DDR2
Size	2 x 2 GB
Speed	800 MHz
Latency	6-6-6-18
Graphics	
Manufacturer	Intel
Model	Intel G45 ExpressChipset
Driver	8.15.10.2555
Hard drive	
Manufacturer	Seagate®
Model	ST31000524AS
Size	1 TB
RPM	7,200
Cache	32 MB
Power supply	
Manufacturer	Antec®
Model	TruePower 650
Power	650 W
Other system settings	
Display resolution	1,920 x 1,080, 60 Hz
System restore	Off
Windows Update	Off
Screen saver	Off
Power Management	High Performance

Figure 4. HDXPRT 2012 calibration machine configuration.

3   APPLICATIONS USED IN HDXPRT 2012

HDXPRT 2012 bases workloads on usages performed with common consumer applications. Figure 5 lists the applications required to run an HDXPRT 2012 test.

Application	Comments
Apple iTunes 10.5.2.11	A digital media player application used for playing and organizing digital music and video files. The application also acts as an interface to manage the contents on the Apple iPod®, iPhone, and iPad® product lines.
Adobe Photoshop Elements 10	A leading consumer photo-editing software application from Adobe that lets users create, edit, organize, and share images.
Adobe Premiere Elements 10	A leading consumer video-editing software application from Adobe that provides automated movie-editing options, professional-quality effects, and quick and easy sharing.
Audacity 2.0	Open-source application used for recording and editing sounds. It is free to use and supports Microsoft® Windows, Linux®, Mac® OS X®, and other operating systems. Note: Audacity 1.3.14 Beta is the only version that supports Windows 7. We are hoping for a non-beta version in time for us to test it before the HDXPRT release.
CyberLink Media*Espresso* 6.5	A media converter that supports a range of media formats—video, photo, and music files—and a range of devices including smart phones such as the Apple iPhone, media players such as the Apple iPod and iPad, and game consoles such as Sony® PlayStation 3. Media*Espresso* also lets users share media on Facebook and YouTube and output media to iTunes.
CyberLink PowerDirector 10	An extremely fast video editing application with rich end-to-end video editing suites.
GIMP 2.6.11	GIMP, or GNU Image Manipulation Program, is a free graphics editor that is compatible with Microsoft Windows, Linux, and Mac OS X, and allows users to edit and retouch images.
HandBrake/X264 0.9.5	An open-source, Gnu Public Licensed, multithreaded, multiplatform video transcoder. It accepts most common multimedia files, and produces MPEG-4, H.264, or Theora video formats and all common audio formats, including AAC, CoreAudio AAC, MP3, and Vorbis.
HDRsoft Photomatix Pro 4.1.4	High-quality two-stage high dynamic range imaging (HDR) processing software that provides image overlaying and adjustable tone mapping.

Figure 5. Application components in HDXPRT 2012.

Please refer to the HDXPRT 2012 User Manual for further details.

4   MINIMUM SYSTEM REQUIREMENTS

Testing shows that the minimum requirements for a system to run HDXPRT 2012 are as follows:

- Intel dual-core 2.0GHz processor or equivalent
- 2 GB RAM
- 40 GB of free disk space
- 1,024 x 768, 24-bit color video display settings
- DVD ROM to install HDXPRT
- Microsoft® Windows® 7 64-bit edition (Language: US English)

5   CONTACT INFORMATION

If you would like additional information or would like to provide us with feedback, please write to us at HDXPRTsupport@hdxprt.com.

For up-to-date information on HDXPRT, patches, and workarounds, please visit www.hdxprt.com.