Dell™ Latitude™ E6430 notebook
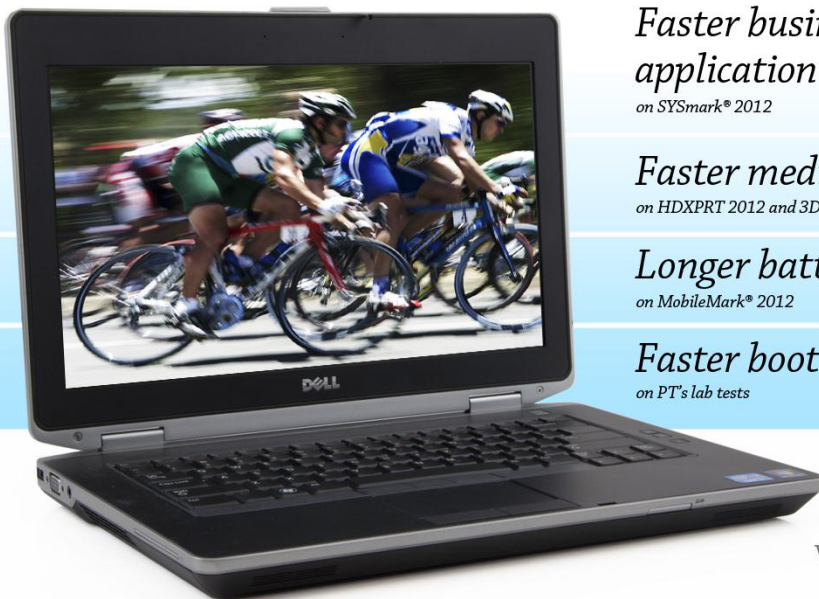
Faster business application performance
on SYSmark® 2012

Faster media handling and 3D
on HDXPRT 2012 and 3DMark® 11

Longer battery life
on MobileMark® 2012

Faster boot time
on PT's lab tests

versus HP EliteBook 8470p

When it comes to your employees' notebook computers, every second counts. A sluggish system not only affects productivity, but is a source of annoyance as well. Battery life also matters—the longer the better. That's why it's essential to select notebooks that offer the fast performance and long battery life.

Principled Technologies tested two notebook systems in our labs, the Dell Latitude E6430 and the HP EliteBook 8470p. We found that the Latitude outperformed the EliteBook in four areas: business application performance, media handling and 3D, boot time, and battery life. These advantages can save your workers time, making the Dell Latitude E6430 an excellent choice.

TIME IS OF THE ESSENCE

Because battery life and notebook performance are so important to today's worker, we conducted a range of tests to compare the Dell Latitude E6430 and the HP EliteBook 8470p. We conducted every test three times and present the results for the median run of each test.

Battery life testing

As Figure 1 shows, the Dell Latitude E6430 had longer battery life than the HP EliteBook 8470p, lasting for 330 minutes, a 42.2 percent increase in battery life.

Figure 1: The battery of the Dell Latitude E6430 lasted 42.2 percent longer than that of the HP EliteBook 8470p.
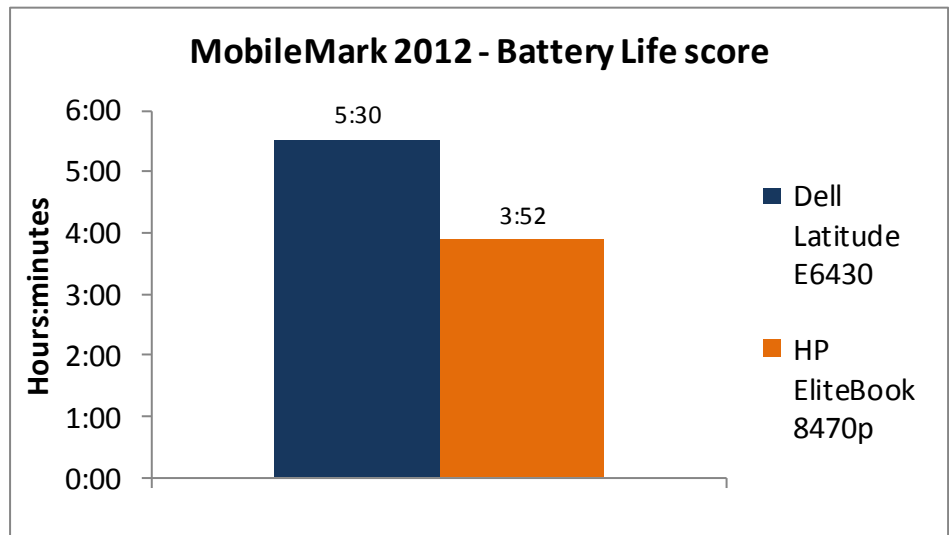

Figure 2 shows the median results for our battery life testing using the BAPCo® MobileMark® 2012 benchmark.

BAPCo MobileMark 2012		
	Dell Latitude E6430	**HP EliteBook 8470p**
Screen brightness	154 nits	156 nits
MobileMark 2012 - Battery Life score (minutes)	330	232
MobileMark 2012 - Battery Life score (hours: minutes)	5:30	3:52

Figure 2: Median scores for the BAPCo Mobile Mark 2012 benchmark. Higher numbers are better.

Boot times

The less time users spend waiting for their notebooks to boot up, the more time they have to be productive. Figure 3 shows the median results for our boot time tests. In our tests, the Dell Latitude E6430 took 4.8 percent less time to boot than the HP EliteBook 8470p.

Boot times			
	Dell Latitude E6430	HP EliteBook 8470p	Percentage Dell win
Boot	26.00	27.03	4.8%

Figure 3: Median boot times, in seconds, for the two systems.

Performance testing

Because performance is so important to today's worker, we used three benchmarks to rate the performance of the notebooks, and found that the Dell Latitude E6430 was up to completing the tasks workers require.

We tested the gaming performance of the systems using FutureMark® 3DMark®11, which tests the graphics capabilities of the notebooks, and found that the Dell Latitude E6430 outperformed the HP EliteBook 8470p by 12.7 percent on the 3DMark11 benchmark. Figure 4 shows the median results of our 3DMark11 tests.

FutureMark 3DMark11		
	Dell Latitude E6430	HP EliteBook 8470p
3D Mark score	1,101	953
Graphics score	973	834
Physics score	4,745	4,768
Combined score	947	840

Figure 4: Median scores for the FutureMark 3DMark11 benchmark. Higher numbers are better.

BAPCo SYSmark® 2012 measures system performance for a number of common tasks including office productivity and media creation. Figure 5 shows the median results of our SYSmark 2012 tests. The Dell Latitude E6430 achieved a higher SYSmark2012 Overall Performance Rating than the HP EliteBook 8470p.

BAPCo SYSmark 2012		
	Dell Latitude E6430	HP EliteBook 8470p
SYSmark 2012 Overall Performance Rating	**144**	**141**
SYSmark 2012 – Office Productivity	136	132
SYSmark 2012 – Media Creation	146	145
SYSmark 2012 – Web Development	133	127
SYSmark 2012 – Data/Financial Analysis	164	161
SYSmark 2012 – 3D Modeling	134	138
SYSmark 2012 – System Management	155	144

Figure 5: Median scores for the BAPCo SYSmark 2012 benchmark. Higher numbers are better.

HDXPRT 2012 measures the performance of systems on common media usages. Figure 6 shows the median results of our HDXPRT 2012 tests. The Dell Latitude E6430 had a 25.7 percent higher Overall Create HD Score than the HP EliteBook 8470p.

HDXPRT 2012		
	Dell Latitude E6430	**HP EliteBook 8470p**
Create HD Score (Higher is better)	**210**	**167**
Media Organizer - minutes (lower is better)	4.91	5.07
Media Creator - minutes (lower is better)	10.29	12.14
Photo Blogger - minutes (lower is better)	7.24	7.39
Video Producer - minutes (lower is better)	1.86	5.38
Music Maker - minutes (lower is better)	2.66	2.31

Figure 6: Median scores for the HDXPRT 2012 benchmark.

WHAT WE TESTED

In this section, we present a brief overview of what we tested. For detailed system configuration information, see Appendix A. For step-by-step details on how we tested, see Appendix B.

BAPCo MobileMark 2012

MobileMark 2012 is an industry-standard benchmark that provides a battery life rating and a performance rating based on common office scenarios. In our tests, we focus solely on the battery life rating. MobileMark 2012 applications and workloads specific to mobile systems. These include office activities like file and document management, data processing, and rich content creation. This module provides a score for battery life of the tested applications.

MobileMark 2012 includes the following applications with their corresponding tasks:

- ABBYY® FineReader Pro 11
- Adobe® Acrobat® Pro X
- Adobe Flash® Player 11
- Adobe Photoshop® CS5 Extended 12.04
- Adobe Photoshop Elements 10
- Adobe Premiere® Pro CS 5.5
- CyberLink PowerDVD Ultra 11
- Microsoft® Excel® 2010 SP1
- Microsoft Internet Explorer® 9
- Microsoft Outlook® 2010 SP1
- Microsoft PowerPoint® 2010 SP1
- Microsoft Windows Media Player
- Microsoft Word 2010 SP1
- Mozilla® Firefox® 10.0.2
- WinZip® Pro 16

MobileMark 2012 measures system battery life in minutes. It records system battery life at the start of the benchmark and repeats the workload until the system battery life is depleted, or until the system powers down due to low battery life.

MobileMark 2012 records a timestamp once per minute. At the end of the benchmark, it compares the beginning timestamp to the final (last recorded) timestamp. MobileMark 2012 derives its system battery life rating as the number of minutes between the start and end timestamps.

For more information on this benchmark, see http://www.bapco.com/products/mobilemark2012/index.php.

FutureMark 3DMark11

FutureMark's 3DMark11 1.0.3 benchmark suite tests system GPU DirectX®11 performance and CPU workload processing performance, primarily to report a system's 3D gaming capability. Tests include HDR rendering, shadow mapping, and pixel shading. For more information on this benchmark, see http://www.3dmark.com/3dmark11.

BAPCo SYSmark 2012

BAPCo SYSmark 2012 is an application-based benchmark that tests performance in the following office workload scenarios: office productivity, media creation, Web development, data/financial analysis, 3D modeling, and system management. SYSmark 2012 records the time the system takes to complete each individual operation in each scenario. For more information on this benchmark, see http://www.bapco.com/products/sysmark2012/.

HDXPRT 2012

The High Definition eXperience & Performance Ratings Test (HDXPRT) 2012, is a benchmark that evaluates the capabilities of PCs in consumer digital media uses, including

- Media Organizer
- Media Creator
- Photo Blogger
- Video Producer
- Music Maker

For more information on HDXPRT 2012, see www.hdxprt.com.

IN CONCLUSION

Today's workers do not want their computers to keep them waiting and they certainly want their notebooks to run as long as possible when unplugged. Selecting notebooks that perform everyday tasks quickly and have long battery life makes good business sense. In our tests, the Dell Latitude E6430 delivered better performance and longer battery life than the HP EliteBook 8470p. This makes it an excellent choice for your employees.

APPENDIX A – SYSTEM CONFIGURATION INFORMATION

Figure 7 provides detailed configuration information for the test systems.

System	Dell Latitude E6430	HP EliteBook 8470p
General		
Number of processor packages	1	1
Number of cores per processor	2	2
Number of hardware threads per core	2	2
System power management policy	Dell	HP Optimized
Processor power-saving option	Enhanced Intel® SpeedStep® Technology	Enhanced Intel SpeedStep Technology
System dimensions (length x width x height)	14-7/8" x 9-1/2" x 1-3/8"	13-1/4" x 9-1/16 x 1-3/8"
System weight	5 lbs. 4 oz.	5 lbs. 6 oz.
CPU		
Vendor	Intel	Intel
Name	Core™ i7	Core i7
Model number	3520M	3520M
Stepping	E1	E1
Socket type and number of pins	Socket 988B rPGA	Socket 988B rPGA
Core frequency (GHz)	2.90	2.90
L1 cache	32 KB + 32 KB (per core)	32 KB + 32 KB (per core)
L2 cache	512 KB (256 KB per core)	512 KB (256 KB per core)
L3 cache	4 MB	4 MB
Platform		
Vendor	Dell	Hewlett-Packard
Motherboard model number	0H3MT5	179B
Motherboard chipset	Intel QM77	Intel QM77
BIOS name and version	Dell A02 (04/24/2012)	Hewlett-Packard 68ICF Ver. F.04 (06/12/2012)
Memory module(s)		
Vendor and model number	Hyundai HMT351S6CFR8C-PB	Micron MT16KTF51264HZ-1G6M1
Type	PC3-12800	PC3-12800
Speed (MHz)	1,600	1,600
Speed running in the system (MHz)	1,600	1,600
Timing/Latency (tCL-tRCD-tRP-tRASmin)	11-11-11-28	11-11-11-28
Size (MB)	4,096	4,096
Number of memory module(s)	2	2
Amount of RAM in system (GB)	8	8
Chip organization (single-sided/double-sided)	Double-sided	Double-sided
Channel (single/dual)	Dual	Dual

System	Dell Latitude E6430	HP EliteBook 8470p
Hard disk		
Vendor and model number	Seagate ST500LX003-1AC15G	Toshiba MK5061GSYN
Number of disks in system	1	1
Size (GB)	500	500
Buffer size (MB)	32	16
RPM	7,200	7,200
Type	SATA 6.0 Gb/s	SATA 3.0 Gb/s
Controller	Intel Mobile Express Chipset SATA RAID Controller	Intel 7 Series Chipset Family SATA AHCI Controller
Driver	Intel 11.0.0.1032 (11/29/2011)	Intel 11.1.0.1006 (11/29/2011)
Operating system		
Name	Windows 7 Professional x64	Windows 7 Professional x64
Build number	7601	7601
Service Pack	1	1
File system	NTFS	NTFS
Kernel	ACPI x64-based PC	ACPI x64-based PC
Language	English	English
Microsoft DirectX version	DirectX 11	DirectX 11
Graphics card 1		
Vendor and model number	NVIDIA® NVS 5200M	AMD Radeon HD 7570M
Type	Discrete	Discrete
Chipset	NVS 5200M	HD 7570M
BIOS version	70.8.a8.0.13	BR 42926.001
Total available graphics memory (MB)	4,095	4,830
Dedicated video memory (MB)	1,024	1,024
System video memory (MB)	0	0
Shared system memory (MB)	3,071	3,806
Resolution	1,366 x 768 x 32-bit	1,366 x 768 x 32-bit
Driver	NVIDIA 8.17.12.9679 (05/10/2012)	AMD 8.951.6.0 (03/29/2012)
Sound card/subsystem		
Vendor and model number	IDT High Definition Audio	IDT High Definition Audio
Driver	IDT 6.10.0.6324 (01/25/2011)	IDT 6.10.6392.0 (03/05/2012)
Ethernet		
Vendor and model number	Intel 82579LM Gigabit	Intel 82579LM Gigabit
Driver	Intel 11.15.12.0 (11/30/2011)	Intel 11.15.16.2001 (02/22/2012)
Wireless		
Vendor and model number	Intel Centrino® Ultimate-N 6300	Intel Centrino Ultimate-N 6300
Driver	Intel 15.1.1.1 (03/12/2012)	Intel 15.1.0.18 (02/20/2012)
Optical drive(s)		
Vendor and model number	Matshita UJ8B2	HP GT50N
Type	DVD-RW	DVD RW

System	Dell Latitude E6430	HP EliteBook 8470p
USB ports		
Number	4	4
Type	2 x USB 2.0, 2 x USB 3.0	2 x USB 2.0, 2 x USB 3.0
Other	Media card reader, HDMI, eSATA	Media card reader, eSATA
IEEE 1394 ports		
Number	0	1
Monitor		
LCD type	HD LED WXGA	HD LED WXGA
Screen size	14"	14"
Refresh rate	60 Hz	60 Hz
Battery		
Type	Dell T54FJ	HP CC06
Size (length x width x height)	8-1/4" x 2" x 13/16"	8-1/16" x 1-7/8" x 3/4"
Rated capacity	5400mAh / 11.1V (60Wh)	5600mAh / 11.1V (62Wh)
Weight	11 oz.	11 oz.

Figure 7: Configuration information for the systems we tested.

APPENDIX B - HOW WE TESTED

Measuring time to boot

1. Simultaneously start the timer and boot the system.
2. Stop the timer when the Windows taskbar appears.
3. Record the result as the Boot time.
4. Repeat steps 1 through 3 two more times, and report the median of the three runs.

Measuring battery life with MobileMark 2012

Avoiding antivirus software conflicts

MobileMark 2012 is not compatible with any virus-scanning software, so we uninstalled any such software present on the notebook PCs before we installed the benchmark.

Avoiding pre-installed software conflicts

MobileMark 2012 installs the following applications, which its test scripts employ:

- ABBYY FineReader Pro 11
- Adobe® Acrobat Pro X
- Adobe Flash Player 11
- Adobe Photoshop CS5 Extended 12.04
- Adobe Photoshop Elements 10
- Adobe Premiere® Pro CS 5.5
- CyberLink PowerDVD Ultra 11
- Microsoft Excel® 2010 SP1
- Microsoft Internet Explorer
- Microsoft Outlook 2010 SP1
- Microsoft PowerPoint 2010 SP1
- Microsoft Windows Media Player
- Microsoft Word 2010 SP1
- Mozilla Firefox 10.0.2
- WinZip Pro 16

If any of these applications are already on the system under test, they could cause problems with the benchmark due to software conflicts. To avoid any such issues, before we installed the benchmark, we uninstalled all conflicting pre-installed software applications, including different versions of any of the programs MobileMark 2012 uses.

Adjusting display brightness and power settings

The brightness of a notebook's display affects its battery life. Therefore, BAPCo requires that, before you test with MobileMark 2012, you do the following step: make sure the brightness of the notebook's monitor is greater than or equal to 150 nits on a completely white screen while the notebook is unplugged and running on battery power. The measurement follows the standards from the Video Electronics Standards Association (www.vesa.org).

We complied with this standard for all the tests we ran by setting the notebook PC's brightness as close to 150 nits as we could without going below that brightness level. We used the following procedure before we started each test. Note: This procedure assumes we began with the notebook plugged into the power supply.

1. To create a completely blank, white screen, open Microsoft Paint by clicking Start→All Programs→ Accessories→Paint.
2. Press Ctrl+W to open the Resize and Skew dialog.
3. Under Horizontal and Vertical enter 200, and click OK.
4. Click the View tab.
5. Click Full screen to view a white screen.
6. Wait 45 minutes to allow the screen to warm.
7. Unplug the notebook from the power supply, and measure the display's brightness using a luminance meter in the center of the screen. (We used the Gossen Mavolux5032C.)
8. If the reading is below or significantly greater than 150 nits, use the notebook's keyboard screen-brightness-adjustment keys to bring the display as close to 150 nits as possible, then retest.
9. Allow the notebook to run on battery power for 10 minutes, re-measure the display, and adjust the brightness up or down as necessary.
10. Verify that the notebook saved the brightness setting by plugging in the system, unplugging it, and taking another reading.

Note: If the notebook did not save this setting, use its power management application(s) to set the brightness appropriately, and save that setting. If saving the settings is ineffective, use the keyboard brightness setting keys to adjust the screen to bring the display as close to 150 nits as possible. Next, note how many times you pressed the button to achieve the desired brightness. After unplugging the system under test, use the keyboard to set the desired brightness by pressing the brightness button as many times as you previously noted to return the screen to the correct brightness level.

Using the MobileMark built-in Configuration Tool

This tool supports three levels of configuration:

1. Only makes changes that are REQUIRED in order for the benchmark to run.
2. Additionally, makes changes that are RECOMMENDED for repeatable results.
3. Additionally, makes changes that help ensure best results.

The Configuration tool makes the following configuration changes at each of the three levels:

Level 1 - Required

- Disables User Account Control (UAC)
- Disables Windows Update
- Disables System Sleep and Hibernate
- Sets Screen Dimming Timeout (2 minutes)
- Disables Low Battery Actions
- Disables Network Proxies
- Disables Autorun for Optical Drive

Level 2 - Recommended

- Create BAPCo power scheme

- Set Power Plan Type to balanced
- Disables Windows Firewall
- Disables Windows Sidebar/Gadgets
- Disables Windows Pop-ups
- Disables Incoming Remote Desktop Connections
- Disables Windows Error Reporting
- Disables Screen Saver and Monitor Timeout
- Sets CPU Adaptive Mode
- Disables Desktop Slideshow
- Disables Disk Defrag

Level 3 - Optional
- Sets Hard Disk Timeout
- Disables Windows Defender
- Disables System Restore
- Ignores Laptop Lid Close
- Sets Maximum Display Brightness
- Disables Adaptive Brightness

Because we are testing how well each system does out-of-box, we chose only the Required options in the Configuration tool.

Installing MobileMark 2012 and configuring the system for testing

1. Verify that the wireless adapter is enabled and connected to a wireless router that is not connected to the Internet.
2. Insert the MobileMark 2012 Install DVD into the notebook PC's DVD drive.
3. When the Autoplay menu appears, click Run MobileMark2012_Setup.exe.
4. At the Welcome screen, click Next.
5. Enter the serial number, and click Next.
6. Accept the license agreement, and click Next.
7. At the Choose Components screen, select Full, and click Next.
8. At the Choose Install Location screen, accept the default location of C:\Program Files (x86)\BAPCo\MobileMark2012, and click Next.
9. At the Choose Start Menu Folder screen, click Install.
10. Insert Disc 2 when prompted.
11. At the InstallShield Wizard Complete screen, click Finish.
12. Launch MobileMark 2012.
13. Click Configuration and choose only the Required options.
14. Click Apply, and restart the computer when prompted.
15. Adjust the screen brightness to no less than 150 nits:
    a. Click the Windows start button, and type `power options` in the Windows Start Search box.
    b. Click Change plan settings.
    c. Click Change advanced power settings.
    d. Expand the Display option, and change the Display brightness on battery and plugged in to the correct percentage that produces no less than 150 nits.

Note: If you are unable to save these settings, please see the Displaying Brightness section above.

Conditioning the battery

1. Plug the AC power adapter into the notebook PC, and completely charge the battery.
2. Install MobileMark 2012, following the steps we outlined in the Installing MobileMark 2012 section earlier in this section.
3. Double-click the MobileMark 2012 icon on the desktop.
4. Click the Office Productivity icon.
5. Type `System Conditioning` as the name for this test in the Project Name, check the box next to conditioning, and click Continue.
6. If MobileMark 2012 lists no problems or warnings, click Continue. If it does list any problems or warnings, close MobileMark 2012, and correct the problem(s) before proceeding.
7. When prompted, unplug the AC power adapter. The Office Productivity test begins immediately.
8. The test is complete when the notebook PC has fully depleted its battery and is no longer operational when running on battery power.
9. Plug the AC power adapter into the notebook PC, and completely charge the battery.

Measuring battery life with MobileMark 2012

We performed the following steps to run the MobileMark 2012 Office Productivity benchmark:

1. Double-click the MobileMark 2012 icon on the desktop.
2. Select the Office Productivity test by clicking the Office Productivity icon.
3. Enter a name for this test in the Project Name field, and click Continue.
4. If MobileMark 2012 lists no problems or warnings, click Continue. If it does list any problems or warnings, close MobileMark 2012, and correct the problem(s) before proceeding.
5. When prompted, unplug the AC power adapter. The test begins immediately.
6. The Office Productivity test is complete when the notebook PC has fully depleted its battery and is no longer operational when running on battery power.

We executed the MobileMark 2012 Office Productivity test three times on the system and took the median battery life run as the representative score for that test.

Getting the MobileMark 2012 results

After each MobileMark Productivity 2012 test completed, we plugged the AC power adapter into the notebook PC and turned on the system. MobileMark 2012 started automatically after the system booted, then analyzed the test scores and opened the Test Results Viewer with the results from the last test.

To submit these results to BAPCo, we saved the test results by performing the following steps:

1. Click Save.
2. Enter a name and select FDR to save the results as an FDR file.
3. Click Save again, and select PDF to save the results as a PDF file.
4. Browse to the Documents directory where the result FDR and PDF files were saved.

Measuring graphics performance with 3DMark 11 1.0.3

Installing 3DMark 11

1. Purchase 3DMark 11 Professional Edition from http://community.futuremark.com/store/, and download the 3DMark_11_v103_installer.exe Windows package.
2. Install 3DMark 11 1.0.3 by double-clicking the 3DMark_11_v103.exe file; leave the default options set.
3. At the Choose Setup Language screen, choose English, and click Next.
4. At the Welcome screen, click Next.
5. At the License Agreement screen, click I accept the terms of the license agreement, and click Next.
6. At the Setup Type screen, click Complete, and click Next.
7. At the Ready to Install the Program screen, click Install.
8. When the 3DMark 11 Read Me page appears in your Web browser, review the document, and click Close when you are finished.
9. At the Setup Complete screen, click Finish to restart the computer.
10. Launch 3DMark 11 1.0.3 by double-clicking on the 3DMark 11 desktop icon. Enter the registration code, and click Register.
11. Exit 3DMark 11 1.0.3.

Running 3DMark11 1.0.3

1. Boot the system and open an administrative command prompt:
    a. Select Windows Start orb.
    b. Type `cmd` and right-click cmd.exe.
    c. Select Run as administrator.
2. Type `Cmd.exe /c start /wait Rundll32.exe advapi32.dll,ProcessIdleTasks`
3. Do not interact with the system until the command completes.
4. After the command completes, wait 5 minutes before running the test.
5. Double-click the 3DMark 11 desktop icon to launch the benchmark.
6. In the 3DMark 11 Main section, click the Performance option under Preset, and select Benchmark tests only.
7. Click Run 3DMark 11.
8. When the benchmark run completes, take a screenshot of the results, and record them as follows:
    - 3DMark Score
    - Graphics Score
    - Physics Score
    - Combined Score
9. Shut down the system.
10. Repeat steps 1 through 9 two more times, and report the median of the three runs.

Measuring performance with SYSmark 2012

Avoiding antivirus software conflicts

SYSmark 2012 is not compatible with any virus-scanning software, so we uninstalled any such software that was present on the notebook PCs before we installed the benchmark.

Avoiding pre-installed software conflicts

SYSmark 2012 installs the following applications, which its test scripts employ:

- ABBYY FineReader Pro 10.0
- Adobe Acrobat Pro 9
- Adobe After Effects CS5
- Adobe Dreamweaver CS5
- Adobe Photoshop CS5 Extended
- Adobe Premiere Pro CS5
- Adobe Flash Player 10.1
- Autodesk® 3DS Max® 2011
- Autodesk AutoCAD® 2011
- Google SketchUp™ Pro 8
- Microsoft Internet Explorer
- Microsoft Office 2010
- Mozilla Firefox Installer
- Mozilla Firefox 3.6.8
- Winzip Pro 14.5

If any of these applications are already on the system under test, they will cause problems with the benchmark due to software conflicts. To avoid any such issues, before we installed the benchmark, we uninstalled all conflicting pre-installed software applications, including different versions of any of the programs SYSmark 2012 uses.

Setting up the test

Using the SYSmark built-in Configuration Tool

This tool supports three levels of configuration:

1. Only makes changes that are REQUIRED in order for the benchmark to run.
2. Additionally, makes changes that are RECOMMENDED for repeatable results.
3. Additionally, makes OPTIONAL changes that help ensure best results.

The Configuration tool makes the following configuration changes at each of the three levels:

Level 1 - Required

- Disables User Account Control (UAC)
- Disables Windows Update
- Disables System Sleep and Hibernate
- Disables Low Battery Actions
- Disables Network Proxies

Level 2 - Recommended

- Creates BAPCo power scheme
- Sets Power Plan Type to High Performance
- Disables Windows Firewall
- Disables Windows Sidebar/Gadgets
- Disables Windows Pop-ups
- Disables Incoming Remote Desktop Connections
- Disables Windows Error Reporting
- Disables Screen Saver and Monitor Timeout

- Sets CPU Adaptive Mode
- Disables Desktop Slideshow
- Disables Disk Defrag

Level 3 - Optional

- Sets Hard Disk Timeout
- Disables Windows Defender
- Disables System Restore
- Ignores Laptop Lid Close
- Sets Maximum Display Brightness
- Disables Adaptive Brightness

Because we are testing how well each system does out of the box, we chose only the Required options in the Configuration tool.

1. Insert the SYSmark 2012 Install DVD into the notebook PC's DVD drive.
2. When the Autoplay menu appears, click Run SYSmark2012_setup.exe.
3. At the Welcome screen, click Next.
4. Enter the serial number, and click Next.
5. Accept the license agreement, and click Next.
6. At the Choose Components screen, select Full, and click Next.
7. At the Choose Install Location screen, accept the default location of C:\Program Files (x86)\BAPCo\SYSmark2012, and click Next.
8. At the Choose Start Menu Folder screen, click Install.
9. Insert Disc 2 when prompted.
10. At the InstallShield Wizard Complete screen, click Finish.
11. Download and install SYSmark 2012 Patch 2 http://www.bapco.com/support/.
12. Launch SYSmark 2012.
13. Click Configuration and choose only the Required options.
14. Click Apply, and restart the computer when prompted.

Running the test

1. Launch SYSmark 2012 by double-clicking the desktop icon.
2. Enter a Project name and choose 3 iterations.
3. Click Run Benchmark.

Getting the SYSmark 2012 results

When SYSmark 2012 has completed, the Test Results Viewer appears. To submit these results to BAPCo, we saved the test results by performing the following steps:

1. Click Save.
2. Enter a name, and select FDR to save the results as an FDR file.
3. Click Save again, and select PDF to save the results as a PDF file.
4. Browse to the Documents directory where the result FDR and PDF files were saved.

Measuring digital media capabilities with HDXPRT 2012

Setting up the test

1. Insert the HDXPRT DVD-ROM into your DVD drive.
2. At the HDXPRT Install screen, tlick Install HDXPRT.
3. Accept the HDXPRT end user license agreement.
4. After the setup is complete, select Yes, I want to restart my computer now, and click Finish.

Running HDXPRT

1. Click the HDXPRT 2012 shortcut on the desktop.
2. Click Run HDXPRT.
3. Enter a test name, choose 3 iterations, and click Run.
4. The Results Screen automatically appears at the end of a successful run. The test results files are found in the C:\ProgramFiles\HDXPRT\Reports\<TestName> directory.

ABOUT PRINCIPLED TECHNOLOGIES

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We provide industry-leading technology assessment and fact-based marketing services. We bring to every assignment extensive experience with and expertise in all aspects of technology testing and analysis, from researching new technologies, to developing new methodologies, to testing with existing and new tools.

When the assessment is complete, we know how to present the results to a broad range of target audiences. We provide our clients with the materials they need, from market-focused data to use in their own collateral to custom sales aids, such as test reports, performance assessments, and white papers. Every document reflects the results of our trusted independent analysis.

We provide customized services that focus on our clients' individual requirements. Whether the technology involves hardware, software, Web sites, or services, we offer the experience, expertise, and tools to help our clients assess how it will fare against its competition, its performance, its market readiness, and its quality and reliability.

Our founders, Mark L. Van Name and Bill Catchings, have worked together in technology assessment for over 20 years. As journalists, they published over a thousand articles on a wide array of technology subjects. They created and led the Ziff-Davis Benchmark Operation, which developed such industry-standard benchmarks as Ziff Davis Media's Winstone and WebBench. They founded and led eTesting Labs, and after the acquisition of that company by Lionbridge Technologies were the head and CTO of VeriTest.