

PERFORMANCE COMPARISON: DELL LATITUDE E6430 VS. LENOVO THINKPAD T430

Dell™ Latitude™ E6430 notebook



Faster business application performance

on SYSmark® 2012

Faster boot time

on PT's lab tests

Faster shutdown

on PT's lab tests

versus Lenovo® ThinkPad® T430

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. That's why it's essential to select notebooks that offer the fastest performance.

Principled Technologies tested two notebook systems in our labs, the Dell Latitude E6430 and the Lenovo ThinkPad T430. We found that the Latitude outperformed the ThinkPad in three areas: business application performance, boot time, and shutdown time. These advantages can save your workers time, making the Dell Latitude E6430 an excellent choice.



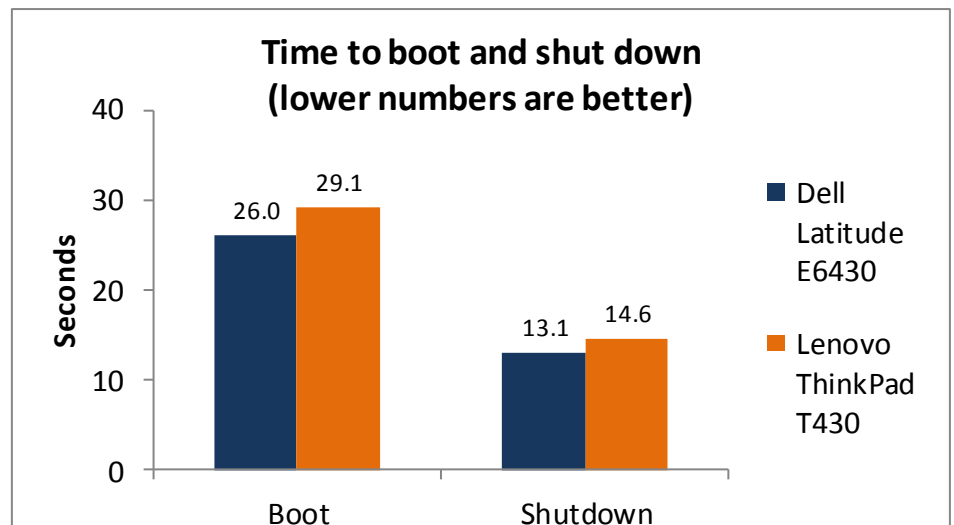
TIME IS OF THE ESSENCE

Because notebook system response time and performance are so important to today's worker, we conducted three tests to compare the Dell Latitude E6430 and the Lenovo ThinkPadT430. We measured boot time, shutdown time, and business application performance. We conducted each test three times and present the results for the median run of each test.

Boot and shutdown

The less time users spend waiting for their notebooks to boot up or shut down, the more time they have to be productive. Figure 1 shows the median results for our boot and shutdown tests. In our tests, the Dell Latitude E6430 took 10.6 percent less time to boot and 10.8 percent less time to shut down than the Lenovo ThinkPadT430.

Figure 1: The Dell Latitude E6430 took 10.6 percent less time to boot and 10.8 percent less time to shut down than the Lenovo ThinkPadT430.



Business application performance

Because performance is so important to today's worker, we used the BapCo SYSmark® 2012 benchmark to rate the performance of the notebooks, and found that the Dell Latitude E6430 was up to completing the tasks workers require.

BapCo SYSmark® 2012 measures system performance for a number of common tasks including office productivity and media creation. Figure 2 shows the median results of our SYSmark 2012 tests. The Dell Latitude E6430 achieved a higher SYSmark2012 Overall Performance Rating than the Lenovo ThinkPad T430.

BAPCo SYSmark 2012		
	Dell Latitude E6430	Lenovo ThinkPad T430
SYSmark 2012 Overall Performance Rating	144	141
SYSmark 2012 – Office Productivity	136	133
SYSmark 2012 – Media Creation	146	146
SYSmark 2012 – Web Development	133	129
SYSmark 2012 – Data/Financial Analysis	164	156
SYSmark 2012 – 3D Modeling	134	137
SYSmark 2012 – System Management	155	147

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

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 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/>.

IN CONCLUSION

Today’s workers do not want their computers to keep them waiting. Selecting notebooks that perform everyday tasks quickly makes good business sense. In our tests, the Dell Latitude E6430 booted, shut down, and performed office workload scenarios more quickly than the Lenovo ThinkPad T430. This makes it an excellent choice for your employees.

APPENDIX A – SYSTEM CONFIGURATION INFORMATION

Figure 3 provides detailed configuration information for the test systems.

System	Dell Latitude E6430	Lenovo ThinkPad T430
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	Energy Saver
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"	13-3/8" x 9-1/8" x 1-3/8"
System weight	5 lbs. 4 oz.	4 lbs. 14 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	Lenovo
Motherboard model number	0H3MT5	2342CTO
Motherboard chipset	Intel QM77	Intel QM77
BIOS name and version	Dell A02 (04/24/2012)	Lenovo G1ET41WW (1.16) (05/25/2012)
Memory module(s)		
Vendor and model number	Hyundai HMT351S6CFR8C-PB	Hyundai HMT351S6CFR8C-PB
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	Lenovo ThinkPad T430
Hard disk		
Vendor and model number	Seagate ST500LX003-1AC15G	Hitachi HTS725050A7E630
Number of disks in system	1	1
Size (GB)	500	500
Buffer size (MB)	32	32
RPM	7,200	7,200
Type	SATA 6.0 Gb/s	SATA 6.0 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 11.2.0.1006 (05/30/2012)
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	NVIDIA NVS 5400M
Type	Discrete	Discrete
Chipset	NVS 5200M	NVS 5400M
BIOS version	70.8.a8.0.13	70.08.B7.01.00
Total available graphics memory (MB)	4,095	4,095
Dedicated video memory (MB)	1,024	1,024
System video memory (MB)	0	0
Shared system memory (MB)	3,071	3,071
Resolution	1,366 x 768 x 32-bit	1,366 x 768 x 32-bit
Driver	NVIDIA 8.17.12.9679 (05/10/2012)	NVIDIA 8.17.12.9688 (05/31/2012)
Sound card/subsystem		
Vendor and model number	IDT High Definition Audio	Realtek High Definition Audio
Driver	IDT 6.10.0.6324 (01/25/2011)	Realtek Semiconductor Corp. 6.0.1.6617 (04/17/2012)
Ethernet		
Vendor and model number	Intel 82579LM Gigabit	Intel 82579LM Gigabit
Driver	Intel 11.15.12.0 (11/30/2011)	Intel 11.15.16.0 (01/11/2012)
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	Optiarc AD-7740H
Type	DVD-RW	DVD-RW

System	Dell Latitude E6430	Lenovo ThinkPad T430
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
IEEE 1394 ports		
Number	0	0
Monitor		
LCD type	HD LED WXGA	HD LED WXGA
Screen size	14"	14"
Refresh rate	60 Hz	60 Hz
Battery		
Type	Dell T54FJ	Lenovo 45N1005
Size (length x width x height)	8-1/4" x 2" x 13/16"	8-1/8" x 2" x 3/4"
Rated capacity	5400mAh / 11.1V (60Wh)	5200mAh / 10.8V (57Wh)
Weight	11 oz.	11 oz.

Figure 3: Configuration information for the systems we tested.

APPENDIX B - HOW WE TESTED

Measuring time to boot and shut down

Boot and shutdown times

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. Bring up an administrative command prompt:
 - a. Select Windows Start orb.
 - b. Type `cmd` and right-click `cmd.exe`.
 - c. Select Run as administrator.
5. Type `Cmd.exe /c start /wait Rundll32.exe advapi32.dll,ProcessIdleTasks`
6. Do not interact with the system until the command completes.
7. After the command completes, wait 5 minutes before running the test.
8. Simultaneously start the timer and shut down the system (Start→Shut Down).
9. Stop the timer when the power LED turns off.
10. Record the result as the shutdown time.
11. Repeat steps 1 through 10 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.

ABOUT PRINCIPLED TECHNOLOGIES



Principled Technologies, Inc.
1007 Slater Road, Suite 300
Durham, NC, 27703
www.principledtechnologies.com

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.

Principled Technologies is a registered trademark of Principled Technologies, Inc.
All other product names are the trademarks of their respective owners.

Disclaimer of Warranties; Limitation of Liability:

PRINCIPLED TECHNOLOGIES, INC. HAS MADE REASONABLE EFFORTS TO ENSURE THE ACCURACY AND VALIDITY OF ITS TESTING, HOWEVER, PRINCIPLED TECHNOLOGIES, INC. SPECIFICALLY DISCLAIMS ANY WARRANTY, EXPRESSED OR IMPLIED, RELATING TO THE TEST RESULTS AND ANALYSIS, THEIR ACCURACY, COMPLETENESS OR QUALITY, INCLUDING ANY IMPLIED WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE. ALL PERSONS OR ENTITIES RELYING ON THE RESULTS OF ANY TESTING DO SO AT THEIR OWN RISK, AND AGREE THAT PRINCIPLED TECHNOLOGIES, INC., ITS EMPLOYEES AND ITS SUBCONTRACTORS SHALL HAVE NO LIABILITY WHATSOEVER FROM ANY CLAIM OF LOSS OR DAMAGE ON ACCOUNT OF ANY ALLEGED ERROR OR DEFECT IN ANY TESTING PROCEDURE OR RESULT.

IN NO EVENT SHALL PRINCIPLED TECHNOLOGIES, INC. BE LIABLE FOR INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH ITS TESTING, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL PRINCIPLED TECHNOLOGIES, INC.'S LIABILITY, INCLUDING FOR DIRECT DAMAGES, EXCEED THE AMOUNTS PAID IN CONNECTION WITH PRINCIPLED TECHNOLOGIES, INC.'S TESTING. CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES ARE AS SET FORTH HEREIN.
