webroot

Anti-Virus Comparative

Single Product Performance test

Impact of **Webroot Internet Security 2011** on System Performance
(Essentials and Complete)

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Introduction

We want to make clear that the results in this report are intended to give only an indication of the impact on system performance (mainly by the real-time/on-access components) of the various Security suites in these specific tests. Users are encouraged to try out the software on their own PC's and form an opinion based on their own observations.

Tested products

The following products were evaluated (with default settings) in this test:

- avast! Internet Security 5.0
- AVG Internet Security 9.0
- BitDefender Internet Security 2010
- eScan Internet Security Suite 10
- ESET Smart Security 4.2
- F-Secure Internet Security 2011
- G DATA Internet Security 2011
- Kaspersky Internet Security 2011
- Kingsoft Internet Security 2010
- Norman Security Suite Pro 8
- Panda Internet Security 2011
- PC Tools Internet Security 2011
- Symantec Norton Internet Security 2011
- Trend Micro Internet Security Pro 2010
- **Webroot Internet Security 2011**
- **(Essentials and Complete score the same)**

Please note that the results in this report apply only to the products/versions listed above and should not be assumed comparable to (e.g.) the versions provided by the above listed vendors as part of a product suite. Also, keep in mind that different vendors offer different (and differing quantities of) features in their products.

The following activities/tests were performed under Windows XP and Windows 7:

- File copying
- Archiving / Unarchiving
- Encoding / Transcoding
- Installing / Uninstalling applications
- Launching applications
- Downloading files
- Worldbench Testing Suite (XP)

Test methods

The tests were performed on an Intel Core 2 Duo E8300 machine with 2GB of RAM and SATAII hard disks. The performance tests were first done on a clean Windows XP Professional SP3 system (English) and then with the installed Internet Security software (with default settings). This report contains also results based on Windows 7 Professional.

The hard disk was defragmented before starting the various tests, and care was taken to minimize other factors that could influence the measurements and/or comparability of the systems (network, temperature, etc.). Optimizing processes/fingerprinting used by the products were also considered – this means that the results represent the impact on a system which has already been used by the user for a while. The tests were repeated several times (with and without fingerprinting) in order to get mean values and filter out measurement errors. After each run the workstation was defragmented and rebooted.

We simulated various file operations that a computer user would execute: copying[1] different types of clean files from one place to another, archiving and unarchiving files, encoding and transcoding[2] audio and video files, converting DVD-Files to IPOD format, downloading files from Internet, launching applications, etc.

We also used a third-party industry recognized performance testing suite (Worldbench 6) to measure the system impact during real-world product usage.

Readers are invited to evaluate the various products themselves, to see how they impact on their systems (such as software conflicts and/or user preferences, as well as different system configurations that may lead to varying results).

We did not test boot-times on purpose. Security products need to load on systems at an early stage to provide security from the very beginning – this load has some impact on the time needed for a system to start up. Measuring boot times accurately is challenging. The most significant issue is to define exactly when the system is fully started, as many operating environments may continue to perform start-up activities for some time after the system appears responsive to the user. It is also important to consider when the protection provided by the security solution being tested is fully active, as this could be a useful measure of boot completion as far as the security solution is concerned. To test this is almost impossible. Some vendors let the user choose if he wants a safe or fast start. We recommend to use the safe start, the user will only loose a few seconds but get more security. Furthermore, some security products are loading their services very late (even minutes later) at boot (users may notice that after some time that the system loaded, the system gets very slow for some moments), so the system looks like loading very fast, but it just loads its services later and makes the system also insecure/vulnerable. As we do not want to support such activities, and considering that in most cases a workstation is powered on only once a day, we decided to do not measure boot times.

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1 We used 2GB data of various file categories (pictures, movies, music, various MS Office 2003 and 2007 documents, PDF files, applications/executables, operating system files, archives, etc.).

2 Converting MP3 files to WAV, MP3 to WMA, AVI to MPG and MPG to AVI, as well as IPOD format

Test results

These specific test results show the impact on system performance that Internet Security products have, compared to the other tested Internet Security products. The reported data just give an indication and are not necessarily applicable in all circumstances, as too many factors can play an additional part. As we noticed that delivering percentages gets easily misinterpreted by users (as well as misused by marketing departments of AV vendors), we grouped the results in four categories, as the impact within those categories can be considered almost equal, also considering error measurements. The categories were defined by the testers, based on what would be felt/noticed from user's perspective (e.g. "slow" means that the user would notice and label the added slowdown as too high, also compared to the impact of other security products).

File copying

Some Anti-Virus products do not scan all kind of files by design/default (based on their file extensions), or use fingerprinting technologies, which may skip already scanned files in order to increase the speed (see comments on page 6).

We copied a set of different file types which are widespread at home and office workstations from one physical hard disk to another physical hard disk.

+0% to +25%	very fast
+25% to +50%	fast
+50% to +100%	mediocre
over +100%	slow

	Windows XP		Windows 7	
	On first run	**On subsequent runs (with fingerprinting, if available)**	**On first run**	**On subsequent runs (with fingerprinting, if available)**
Avast	fast	very fast	very fast	very fast
AVG	fast	very fast	fast	very fast
Bitdefender	fast	fast	mediocre	fast
eScan	mediocre	fast	mediocre	fast
ESET	fast	very fast	fast	fast
F-Secure	mediocre	very fast	fast	very fast
G DATA	slow	very fast	mediocre	fast
Kaspersky	mediocre	fast	fast	very fast
Kingsoft	fast	very fast	fast	fast
Norman	fast	very fast	mediocre	mediocre
Panda	fast	very fast	mediocre	fast
PC Tools	fast	very fast	fast	very fast
Symantec	fast	very fast	fast	fast
Trend Micro	mediocre	mediocre	mediocre	mediocre
Webroot	**very fast**	**very fast**	**very fast**	**very fast**

Archiving and unarchiving

Archives are commonly used for file storage, and the impact of Anti-Virus software on the time taken to create new archives or to unarchive files from existing archives may be of interest for most users.

We archived a set of different file types which are widespread at home and office workstations form one physical hard disk to another physical hard disk and unzipped them after this again on a third physical hard disk.

The results below already consider the fingerprinting/optimization technologies of the Anti-Virus products, as most users usually make archives of files they have on their disk.

+0% to +20%	very fast
+20% to +40%	fast
+40% to +80%	mediocre
over +80%	slow

	Windows XP	Windows 7
Avast	very fast	very fast
AVG	very fast	very fast
Bitdefender	very fast	very fast
eScan	very fast	very fast
ESET	very fast	very fast
F-Secure	fast	very fast
G DATA	very fast	very fast
Kaspersky	fast	very fast
Kingsoft	very fast	very fast
Norman	very fast	very fast
Panda	very fast	very fast
PC Tools	fast	very fast
Symantec	fast	very fast
Trend Micro	fast	very fast
Webroot	**very fast**	**very fast**

Encoding/transcoding

Music files are often stored and converted on home systems, and converting such files takes system resources. Due that, many home users may be interested to know if their Anti-Virus products imposes a slowdown while converting multimedia files from one format to another.

We encoded and transcoded some multimedia files with FFmpeg, and for the IPOD conversion we used HandBrakeCLI. The impact during FFmpeg and IPOD converting was almost the same.

+0 to +15% very fast
+15 to +30% fast
+30 to +50% mediocre
over +50% slow

	Windows XP	Windows 7
Avast	very fast	very fast
AVG	very fast	very fast
Bitdefender	very fast	very fast
eScan	very fast	very fast
ESET	very fast	very fast
F-Secure	very fast	very fast
G DATA	very fast	very fast
Kaspersky	very fast	very fast
Kingsoft	very fast	very fast
Norman	very fast	very fast
Panda	very fast	very fast
PC Tools	very fast	very fast
Symantec	very fast	very fast
Trend Micro	very fast	very fast
Webroot	**very fast**	**very fast**

All tested Internet Security products added less than 15% slowdown (very fast) to the process and would add almost unnoticeable impact while encoding/transcoding normal multimedia files.

Installing/uninstalling applications

We installed several programs (like Visual C++, .NET Framework, etc.) with MSI installers, and then uninstalled them and measured how long it took. We did not consider fingerprinting, because usually an application is only installed once.

+0% to +25%	very fast
+25% to +50%	fast
+50% to +100%	mediocre
over +100%	slow

	Windows XP	Windows 7
Avast	very fast	very fast
AVG	very fast	very fast
Bitdefender	mediocre	very fast
eScan	very fast	very fast
ESET	fast	very fast
F-Secure	very fast	very fast
G DATA	mediocre	very fast
Kaspersky	fast	very fast
Kingsoft	fast	very fast
Norman	very fast	very fast
Panda	very fast	very fast
PC Tools	fast	very fast
Symantec	fast	very fast
Trend Micro	very fast	very fast
Webroot	**very fast**	**very fast**

Launching applications

Office document files and PDF files are very common. We opened some large document files in Microsoft Office (and closed it) and some large PDF files in Adobe Acrobat Reader (and closed it). Before each opening, the workstation was rebooted. The time taken for the viewer or editor application to open and a document to be displayed was measured.

Although we list the results for the first opening and the subsequent openings, we consider the subsequent openings more important, as normally this operation is done several times by users, and optimization features of the Anti-Virus products take place, minimizing their impact on the systems.

+0% to +50%	very fast
+50% to +100%	fast
+100% to +200%	mediocre
over +200%	slow

Results Windows XP

	Open Word		Open PDF	
	On first run	**On subsequent runs (with fingerprinting, if available)**	**On first run**	**On subsequent runs (with fingerprinting, if available)**
Avast	mediocre	**mediocre**	mediocre	**fast**
AVG	mediocre	**fast**	mediocre	**very fast**
Bitdefender	mediocre	**fast**	fast	**very fast**
eScan	mediocre	**fast**	mediocre	**mediocre**
ESET	fast	**very fast**	mediocre	**very fast**
F-Secure	mediocre	**very fast**	fast	**very fast**
G DATA	mediocre	**fast**	slow	**mediocre**
Kaspersky	mediocre	**fast**	mediocre	**fast**
Kingsoft	very fast	**very fast**	very fast	**very fast**
Norman	mediocre	**very fast**	fast	fast
Panda	very fast	**very fast**	fast	**very fast**
PC Tools	slow	**slow**	slow	**slow**
Symantec	fast	**very fast**	fast	**very fast**
Trend Micro	slow	**slow**	slow	**slow**
Webroot	**mediocre**	**fast**	**very fast**	**very fast**

Some optimization features may not take place in some products (or not reduce enough the impact), as documents and PDF files are common infection targets and therefore are anyway scanned when opened.

Results Windows 7

+0% to +50%	very fast
+50% to +100%	fast
+100% to +200%	mediocre
over +200%	slow

	Open Word		Open PDF	
	On first run	**On subsequent runs (with fingerprinting, if available)**	**On first run**	**On subsequent runs (with fingerprinting, if available)**
Avast	very fast	**very fast**	very fast	**very fast**
AVG	very fast	**very fast**	very fast	**very fast**
Bitdefender	very fast	**very fast**	fast	**very fast**
eScan	fast	**very fast**	very fast	**very fast**
ESET	very fast	**very fast**	very fast	**very fast**
F-Secure	very fast	**very fast**	fast	**very fast**
G DATA	mediocre	**very fast**	fast	**fast**
Kaspersky	mediocre	**fast**	mediocre	**fast**
Kingsoft	very fast	**very fast**	very fast	**very fast**
PC Tools	fast	**fast**	fast	**fast**
Norman	mediocre	**fast**	mediocre	**fast**
Panda	very fast	**very fast**	very fast	**very fast**
Symantec	very fast	**very fast**	very fast	**very fast**
Trend Micro	fast	**fast**	mediocre	**mediocre**
Webroot	**fast**	**very fast**	**very fast**	**very fast**

Downloading files from the Internet

Files are commonly downloaded from the internet. To avoid external influences, we used an in-house Apache web server (wget) connected with 1GB LAN and measured the download time. We tested using large files/archives.

+0% to +25%	very fast
+25% to +50%	fast
+50% to +100%	mediocre
over +100%	slow

	Windows XP	Windows 7
Avast	fast	fast
AVG	mediocre	very fast
Bitdefender	fast	fast
eScan	very fast	very fast
ESET	mediocre	mediocre
F-Secure	mediocre	fast
G DATA	slow	slow
Kaspersky	mediocre	mediocre
Kingsoft	very fast	very fast
Norman	very fast	very fast
Panda	very fast	very fast
PC Tools	very fast	very fast
Symantec	very fast	very fast
Trend Micro	mediocre	fast
Webroot	**very fast**	**very fast**

WorldBench Tests

In order to provide an industry-recognized performance test, we used the WorldBench[3] testing suite of PCWorld. WorldBench6 is a leading application-based real-world performance benchmark.

Popular applications are each a component of the final WorldBench score. The WorldBench score (higher is better) is compared against a baseline[4] system. Below you can see the reached Worldbench scores.

	WB score
without AV	*115*
Panda	**104**
eScan	**103**
ESET	**103**
F-Secure	**103**
Kingsoft	**102**
Symantec	**101**
Avast	**100**
Webroot	**99**
G DATA	**98**
Kaspersky	**97**
AVG	**96**
Norman	**95**
PC Tools	**94**
BitDefender	**91**
Trend Micro	**90**

The WorldBench testing Suite consists of the following ten tests, simulating real-world usage: Adobe Photoshop CS2, Autodesk 3ds Max 8.0 SP3 (DirectX), Autodesk 3ds Max 8.0 SP3 (Rendering), Mozilla Firefox 2, Microsoft Office 2003 with SP1, Microsoft Windows Media Encoder 9.0, Multitasking: Mozilla Firefox and Windows Media Encoder, Nero 7 Ultra Edition, Roxio VideoWave Movie Creator 1.5 and WinZip 10.0.

The WorldBench Test under Windows 7 has not been included in this report due compatibility issues.

[3] For more information, see http://www.worldbench.com or http://en.wikipedia.org/wiki/WorldBench
[4] The Worldbench baseline system (score 100) is an Intel Core 2 Duo E6600, with 2GB RAM. The AV-Comparatives baseline system is an Intel Core 2 Duo E8300, with 2GB of RAM.

Summarized results

Users should weight the various subtests according to their needs. We applied a scoring system in order to sum up the various results.

XP	File copying (mean values)	Archiving/ unarchiving	Encoding/ transcoding	Installing/ uninstalling	Download	Launching applications	WorlBench	Total
Panda	very fast (13)	very fast (15)	very fast (15)	very fast (15)	very fast (15)	very fast (15)	104	**192**
Webroot	**very fast (13)**	**very fast (15)**	**very fast (15)**	**very fast (15)**	**very fast (15)**	**very fast (13)**	**99**	**185**
Kingsoft	very fast (13)	very fast (15)	very fast (15)	fast (10)	very fast (15)	very fast (15)	102	**185**
Norman	very fast (13)	very fast (15)	very fast (15)	very fast (15)	very fast (15)	very fast (13)	95	**181**
eScan	fast (8)	very fast (15)	very fast (15)	very fast (15)	very fast (15)	fast (8)	103	**179**
Symantec	very fast (13)	fast (10)	very fast (15)	fast (10)	very fast (15)	very fast (15)	101	**179**
ESET	very fast (13)	very fast (15)	very fast (15)	fast (10)	mediocre (5)	very fast (15)	103	**177**
Avast	very fast (13)	very fast (15)	very fast (15)	very fast (15)	fast (10)	fast (8)	100	**176**
F-Secure	fast (10)	fast (10)	very fast (15)	very fast (15)	mediocre (5)	very fast (15)	103	**173**
AVG	very fast (13)	very fast (15)	very fast (15)	very fast (15)	mediocre (5)	very fast (13)	96	**172**
BitDefender	fast (10)	very fast (15)	very fast (15)	mediocre (5)	fast (10)	very fast (13)	91	**159**
PC TOOLS	very fast (13)	fast (10)	very fast (15)	fast (10)	very fast (15)	slow (0)	94	**157**
Kaspersky	fast (8)	fast (10)	very fast (15)	fast (10)	mediocre (5)	fast (10)	97	**155**
G DATA	fast (8)	very fast (15)	very fast (15)	mediocre (5)	slow (0)	fast (8)	98	**149**
Trend Micro	mediocre (5)	fast (10)	very fast (15)	very fast (15)	mediocre (5)	slow (0)	90	**140**

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