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Antivirus & Internet Security Performance Benchmarking

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REVISION HISTORY

Revision	Revision History	Date
1	Initial version of the document	1/Nov/2007
2	Update after review to correct a number of minor oversights. Removed Trend Micro AV/AS 2007 results as newer 2008 results were available.	20/Nov/2007
3	Added results from 3 new internet security products - Norton 360V2 - Microsoft OneCare 2.0 - Trend Micro Internet Security Pro 2008 It should be noted that the addition of additional products can affect the star ratings of existing products. This is because the star ratings are relative results showing performance relative to other products, rather than absolute values. So some of the existing products may have also had their star ratings altered compared to the previous edition of this document.	10/March/2008

REFERENCES

Ref #	Document	Author	Date
1	Measuring Performance in Windows Vista http://www.microsoft.com/whdc/system/sysperf/Vista_perf.mspx	Microsoft	July 13 2007
2	Symantec RFP, Ed 1- 3	**Dora Karali,** Symantec Corporation	8/Aug/2007 - 22/Aug/2007
3	Performance Testing Methodologies 2007 + Symantec test cases	**Global Performance Unit** Symantec Corporation	9/Aug/2007

Executive Summary

System Impact Performance benchmark testing was carried on twenty-four Antivirus and Internet Security products from various vendors between September and November 2007. The current generation of products, available as of October 31 2007, were tested. For edition 3 of this document, 3 additional products were tested during February 2008, to make a total of twenty seven products tested. These new results have been included in this version of the document.

Measurements were made against five different metrics (6 in the case of some products) on a low range, resource challenged, PC running XPsp2. The performance metrics measured were:

- Boot time
- Scan speed
- UI launch speed
- Memory utilization
- HTTP download speed (Internet Security products only)
- IE launch / browsing speed

No attempt was made to measure the effectiveness of threat detection, as this aspect of the products is covered by other industry benchmarks such as Virus Bulletin and AV-Comparatives.org. This report is solely focused on measuring how responsive the applications are and by how extensively the applications utilize the resources of the machine.

The products were divided into two groups, AntiVirus products (AV) and Internet security products (IS). AV products are defined in this report as products which are primarily focused on detecting and remediating viruses & spyware. IS products typically add additional functions to provide comprehensive internet protection, such phishing detection, firewalls, scanning of web pages and the HTTP data.

Each product was then given a score of 1 to 5 for each metric and then an overall combined score was calculated, to rank the performance of each product relative to the other products.

The following four Antivirus products proved to be the best performing: Norton Antivirus 2008, Avast, AVG Free & Avira AV.

The following four Internet Security products proved to be the best performing: Norton Internet Security 2008, Norton 360, Zone Alarm IS 7.1 and Trend Micro IS 2008.

All of the above mentioned products scored the same 5 star rating.

Products tested

The list of products under test in this report are:

Manufacturer	Product Name	Product Version	Date Tested
Agnitum	Outpost Security Suite Pro	2007	5th Oct '07
Alwil Software	Avast!	4.7	4th Oct '07
Avira	Personal Edition Classic	7.06	5th Oct '07
BitDefender	BitDefender Antivirus	2008	9th Oct '07
BitDefender	BitDefender Total Security	2008	9th Oct '07
Check Point Software	ZoneAlarm Antivirus	7.0	3rd Oct '07
Check Point Software	ZoneAlarm Internet Security Suite	7.0	3rd Oct '07
F-Secure	F-Secure Anti-Virus 2008	2008	10th Oct '07
F-Secure	F-Secure Internet Security 2008	2008	10th Oct '07
G DATA	G DATA AntiVirus	2008	5th Nov '07
G DATA	G DATA Internet Security	2008	7th Nov '07
Grisoft	AVG Free	7.5	19th Sept '07
Kaspersky Lab	Kaspersky Anti-Virus	7.0	12th Sept '07
Kaspersky Lab	Kaspersky Internet Security	7.0	11th Sept '07
McAfee	McAfee Total Protection (*)	2008	25th Oct '07
McAfee	McAfee VirusScan Plus Firewall and AntiSpyware (*)	2008	25th Oct '07
Microsoft	Windows Live OneCare	2.0	18th Feb '08
Panda Security	Panda Antivirus	2008	20th Sept '07
Panda Security	Panda Internet Security	2008	27th Sept '07
Symantec	Norton Antivirus	2008	5th Sept '07
Symantec	Norton Internet Security	2008	6th Sept '07
Symantec	Norton 360	2008	29th Feb '08
Trend Micro	Trend Micro AntiVirus + AntiSpyware	2008	8th Oct '07
Trend Micro	Trend Micro PC-cillin Internet Security	2008	8th Oct '07
Trend Micro	Trend Micro Internet Security Pro	2008	18th Feb '08
Webroot Software	Webroot Spysweeper	5.5	19th Sept '07

(*) McAfee products are "version-less" subscriptions.

Metrics – Criteria measured

The metrics used for this report were selected because they provide an indication of the product's performance in a number of key areas which impact on the user experience. They are also objective metrics that can be replicated and re-produced by 3rd parties if required. See Appendix 1 for specific test methodologies.

Benchmark 1 - Boot time

The time taken for the machine to boot was measured. It is typical for protection applications of this genre to be launched at Windows start up. This typically adds some amount of time to the boot time for the machine. Our aim was to measure the additional time added to the boot process as a result of installing these applications. Shorter boot times are better and indicates that the application has less impact on the normal operation of the machine.

Benchmark 2 - Scan speed

All these products have functionality designed to detect viruses and various other forms of malware by scanning files on the system. This test measured the amount of time required to scan a typical set of clean files. The sample set used against all products was 1.2GB worth of data, made up of typical Window's files from the Windows system folder and Office files.

Benchmark 3 – User Interface launch speed

The time taken to start the User Interface of the product was measured. This is one measure of how responsive an application appears to a user. Both the initial launch time and the subsequent launch times, to allow for caching effects, were measured. For simplicity only the more critical initial times are used in this report.

Benchmark 4 - Memory utilization

The amount of RAM used by the product was measured while the machine and product were in an idle state, running in the background. All processes used by the application were identified and the total RAM usage calculated. The less RAM an application uses while resident in the background the better. Idle state measurements were made, as opposed to RAM used while actively scanning, because it is easier to measure the stable idle state and the aim was to see what resources were being used on a permanent basis.

Benchmark 5 - HTTP download speed

These products scan data for malware as it is downloaded from the local network or internet. This test measures what impact the product has on HTTP downloads across a local network. A 100Mbit/sec NIC and switch were used.

Benchmark 6 - IE launch / browsing speed

The time taken to start the user interface of Internet Explorer was measured. This is one measure of how the product impacts on the responsiveness of the system. Both the initial launch time and the subsequent launch times, to allow for caching effects, were measured. For simplicity only the more critical initial times are used in this report.

Test results – Antivirus Products

Percentage rankings

	Boot Time	Scan Time	UI Initial	Memory	IE Initial
Avast	100%	100%	75%	80%	69%
AVG Free	90%	79%	93%	100%	91%
Avira AV	95%	95%	84%	93%	89%
BitDefender AV 2008	97%	89%	78%	100%	0%
F-Secure AV 2008	28%	57%	58%	20%	28%
G-Data AV 2008	90%	53%	63%	0%	25%
Kaspersky AV 7	89%	0%	87%	81%	96%
McAfee AV 08	86%	36%	58%	41%	87%
Norton AV 2008	72%	91%	82%	89%	95%
Panda AV 2008	86%	100%	24%	35%	92%
Trend Micro AV/AS 2008	86%	92%	0%	46%	70%
Webroot SS AV/AS 5.5	0%	79%	100%	81%	100%
ZoneAlarm AV 7.1	50%	91%	66%	72%	79%

The percentage of range indicates where the product performed on a single test in comparison to the other products. The range is the difference between the best performing product and the worst performing product. All products were scored against this range. A score of 100% indicates the best performance and a score of 0% indicates the worst performance. Unlike a simple ranking, this method test does not negatively impact products that had similar performance near the top of the range.

Quintiled Star Ranking

	Boot Time	Scan Time	UI Initial	Memory	IE Initial
Avast	★★★★★	★★★★★	★★★★	★★★★★	★★★★
AVG Free	★★★★★	★★★★	★★★★★	★★★★★	★★★★★
Avira AV	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BitDefender AV 2008	★★★★★	★★★★★	★★★★	★★★★★	★
F-Secure AV 2008	★★	★★★	★★★	★★	★★
G-Data AV 2008	★★★★★	★★★	★★★★	★	★★
Kaspersky AV 7	★★★★★	★	★★★★★	★★★★★	★★★★★
McAfee AV 08	★★★★★	★★	★★★	★★★	★★★★★
Norton AV 2008	★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Panda AV 2008	★★★★★	★★★★★	★★	★★	★★★★★
Trend Micro AV/AS 2008	★★★★★	★★★★★	★	★★★	★★★★
Webroot SS AV/AS 5.5	★	★★★★	★★★★★	★★★★★	★★★★★
ZoneAlarm AV 7.1	★★★	★★★★★	★★★★	★★★★	★★★★

The Quintiled Percentage of Range provides a score to each vendor depending on the score of the Percentage of Range (see above). Each range is in 20 point increments starting with 1 (0

to 20%) to 5 (80 to 100%). Once again, this rewards vendors who consistently perform at the top of each category.

Overall star score - Antivirus Products

The Quintile Scores above are averaged and then rounded to create the overall "Star Score" (below)

	Overall Star Score
Avast	★★★★★
AVG Free	★★★★★
Avira AV	★★★★★
BitDefender AV 2008	★★★★
F-Secure AV 2008	★★
G-Data AV 2008	★★★
Kaspersky AV 7	★★★★
McAfee AV 08	★★★★
Norton AV 2008	★★★★★
Panda AV 2008	★★★★
Trend Micro AV/AS 2008	★★★★
Webroot SS AV/AS 5.5	★★★★
ZoneAlarm AV 7.1	★★★★

Four Anti-virus products had high enough performance across the five test metrics to average 5 stars, Avast, AVG Free, Avira AV and Norton AV 2008.

Test results – Internet Security Products

Percentage rankings

	Boot Time	Scan Time	UI Initial	Memory	HTTP Download	IE Initial
Agnitum Outpost Security Suite 2007	58%	60%	100%	48%	76%	65%
BitDefender Total Security 2008	92%	87%	86%	100%	0%	62%
F-Secure IS 2008	43%	18%	76%	47%	58%	73%
G-Data IS 2008	95%	41%	76%	42%	63%	58%
Kaspersky IS 7	100%	0%	92%	92%	31%	100%
McAfee TP 08	92%	17%	76%	58%	50%	84%
Microsoft OneCare	0%	67%	0%	81%	94%	65%
Norton 360	87%	75%	70%	86%	92%	63%
Norton IS 2008	89%	91%	96%	95%	99%	74%
Panda IS 2008	21%	100%	45%	0%	96%	100%
Trend Micro IS 2008	81%	92%	51%	67%	100%	92%
Trend Micro IS 2008 Pro	66%	89%	61%	55%	98%	0%
ZoneAlarm IS 7.1	71%	92%	85%	83%	77%	93%

See the corresponding Antivirus test above for details about how the percentage values were derived from the raw results.

Quintiled star ranking

	Boot Time	Scan Time	UI Initial	Memory	HTTP Download	IE Initial
Agnitum Outpost Security Suite 2007	★★★	★★★	★★★★★	★★★	★★★★	★★★★
BitDefender Total Security 2008	★★★★★	★★★★★	★★★★★	★★★★★	★	★★★★
F-Secure IS 2008	★★★	★	★★★★	★★★	★★★	★★★★
G-Data IS 2008	★★★★★	★★★	★★★★	★★★	★★★★	★★★
Kaspersky IS 7	★★★★★	★	★★★★★	★★★★★	★★	★★★★★
McAfee TP 08	★★★★★	★	★★★★	★★★	★★★	★★★★★
Microsoft Onecare	★	★★★★	★	★★★★★	★★★★★	★★★★
Norton 360	★★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★
Norton IS 2008	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★
Panda IS 2008	★★	★★★★★	★★★	★	★★★★★	★★★★★
Trend Micro IS 08 Pro	★★★★	★★★★★	★★★★	★★★	★★★★★	★
Trend Micro IS 2008	★★★★★	★★★★★	★★★	★★★★	★★★★★	★★★★★
ZoneAlarm IS 7.1	★★★★	★★★★★	★★★★★	★★★★★	★★★★	★★★★★

See the corresponding Antivirus test above for details about how the star values were derived from the raw results.

Overall star score - Internet Security Products

	Overall Star Score
Agnitum Outpost Security Suite 2007	★★★★
BitDefender Total Security 2008	★★★★
F-Secure IS 2008	★★★
G-Data IS 2008	★★★★
Kaspersky IS 7	★★★★
McAfee TP 08	★★★★
Microsoft Onecare	★★★
Norton 360	★★★★★
Norton IS 2008	★★★★★
Panda IS 2008	★★★★
Trend Micro IS 08 Pro	★★★★
Trend Micro IS 2008	★★★★★
ZoneAlarm IS 7.1	★★★★★

Only four Internet Security products had high enough performance across the six test metrics to average 5 stars, Norton Internet Security 2008, Norton 360, Zone Alarm IS 7.1 and Trend Micro IS 2008.

What this report doesn't cover

This report focused on performance measurements such as execution speed and resource usage. No attempt was made to measure the effectiveness of threat detection, as this aspect of the products is covered by other industry benchmarks such as Virus Bulletin &, AV-Comparatives.org.

The metrics used for this report cover a number of key performance areas and are metrics that can be replicated & re-produced by 3rd parties if required.

However there are a number of areas that this report doesn't attempt to cover. These include,

- CPU usage during local file scanning
- Impact on multitasking foreground tasks while scanning is in progress in the background
- RAM usage during scanning
- Impact on shutdown & hibernation times
- Installation & Un-installation times
- Out of the box virus signature update times
- Impact on E-mail receive and send times
- Speed of the products UI when performing common tasks
- Impact on system stability
- Testing on high end hardware running Vista.
- Testing on 64bit operating systems with 64bit hardware.
- Some products such as NOD32 were omitted, whose new 2008 antivirus software release was not available by our deadline for testing antivirus products.

Some of these items are subjective and / or not easily measured, others such as signature update times are likely to change from one week to the next.

Some testing was performed on Vista, but at the time of writing, one product failed to install cleanly under Vista when tested (G-Data IS 2008) and another explicitly stated that it did not support Vista (Agnitum Outpost Security Suite 2007). The incomplete set of Vista measurements, not included in this report, show results that were for the most part broadly in line with the XP results.

It might be of interest to re-visit this list during any future tests with a view to adding additional metrics.

Disclaimer & Disclosure

This report only covers products that were available up until available as at October 31 2007.

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Disclosure

Symantec Corporation funded the production of this initial version of the report and supplied some of the test scripts used for the tests (See appendix 1 'test methods' below).

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An electronic copy of this report can be found here,
http://www.passmark.com/ftp/Antivirus-Performance-Testing-Ed3.pdf

Appendix 1 - Test method – How we tested

Common methodology

Norton Ghost was used to create images of the O/S and these clean images were restored before the test of each product.

Image creation steps

1. Install and Activate Windows
2. Download and Install Windows Updates
3. Disable Automatic Updates
4. Turn off windows security notifications
5. Disable windows defender automatic scans to avoid unexpected background activity
6. If testing on Vista, close and disable "start at run", Vista sidebar to avoid some background activity
7. Disable windows firewall
8. For XP install .NET 2.0 as this is required by Ghost (and probably by several of the products under test).
9. Install Ghost
10. Disable ghost taskbar icon from auto startup in msconfig
11. Disable windows defender from startup in msconfig
12. Optimize bootup with ProcessIdleTasks (repeated several times)
13. If testing on Vista, disable Vista admin prompts to allow for better test automation
14. Reboot and tell msconfig not to start again.
15. Create image using Ghost

Benchmark 1 - Boot time

The machines were rebooted in a cyclic manner. Averages of 15 boot times were taken for each product on each machine. The start of the boot process was taken to be the end of the BIOS initialization and the end of the boot process was taken to be when the CPU was idle for 5 continuous seconds.

Windows has various functions to optimize the boot process. So it is important to force optimization of the system before starting the test (with ProcessIdleTasks) and delete the Windows pre-fetch folder.

Benchmark 2 - Scan speed

The time it took for each product to scan a set of sample files. The sample used was identical in all cases and contained a mixture of system files and Office files. In total there were 6159 files whose combined size was 982MB. Most of these files come from the Windows system folders. As the file types can influence the scan speed, the breakdown of the main file types, file numbers and total sizes of the files in the sample set is given here.

.dll	2589	490MB	.mof	43	6MB	.py	20	<1MB
.exe	695	102MB	.ax	39	4MB	.msc	18	1MB
.sys	332	23MB	.xls	38	3MB	.vbs	18	1MB
.gif	302	1MB	.ime	35	5MB	.xml	18	1MB
.doc	281	64MB	.drv	31	1MB	.rtf	16	62MB
.wmf	185	2MB	.txt	31	1MB	.ocx	16	4MB
.png	149	2MB	.chm	30	6MB	.tsp	14	1MB
.html	126	1MB	.cpl	29	4MB	.com	14	<1MB
.nls	80	6MB	.mfl	29	3MB	.xsl	14	<1MB
.jpg	70	1MB	.inf	26	2MB	.h	13	<1MB
.ini	59	2MB	.hlp	22	3MB	.vsd	12	2MB
.ico	58	<1MB	.imd	20	18MB	.scr	12	2MB

.aw	12	2MB	.lex	9	10MB	.wav	7	5MB
.js	12	1MB	.ppt	9	4MB			
.zip	11	25MB	.acm	9	1MB			

For each product 5 samples were taken with the machine rebooted before each sample to clear any caching effects.

Where possible, PerfScan++ was used to automate the testing process. Additionally, if possible the scan was run without launching the product's UI. When it was not possible to use PerfScan the samples were taken manually with a stop watch.

Benchmark 3 - UI launch speed

The launch speed of the product's user interface was tested using AppTimer. Each product was tested for 5 sets of 3 launches, with a reboot before each set. When compiling the results the first of each set was separated out so that there was a set of values for the initial launch after reboot and a set for subsequent launches.

In some cases AppTimer did not correctly record the time taken for UI launch. For instance, some applications would open their window and look like they were ready, but then continued to be unresponsive. Where this was noticeable the measurement was taken manually with a stop watch.

Benchmark 4 - Memory utilization

The Perflog++ utility was used to record process memory usage on the system at boot, and then every minute for another fifteen minutes after. This was done only once per product and resulted in a total of 16 samples. However the first sample taken at boot was never counted.

Because this recorded the memory usage of all processes, the products processes needed to be identified before the results could be processed. For this a program called Sysinternals Process Explorer was used to create a more detailed record of all the processes, with information such as company name included. This was run immediately after Perflog finished.

Benchmark 5 - HTTP download speed

For this test PerfBench was used to download a set of files from a server running Windows Vista Ultimate and IIS 7. The client machine and the server were placed on an isolated network segment and PerfBench would download the file set 15 times consecutively. Before the first test both the server and client were rebooted (but not in between subsequent samples).

The file set used was a partial copy of CNN.com. The total size of the sample retrieved was 24,313,141 bytes and the total number of files was 422. Files from the CNN web site were selected as being a typical set of HTML files.

Benchmark 6 - IE launch / browsing speed

The launch speed of Internet Explorer interface was tested using AppTimer. This test was practically identical to the UI launch test. Each product was tested for 5 sets of 3 launches, with a reboot before each set. When compiling the results the first of each set was separated out so that there was a set of values for the initial launch after reboot and a set for subsequent launches.

Appendix 2 - Test environment

System under test

AMD 1600+ CPU, ASUS A7V Motherboard, 512MB of RAM, 80GB Hard drive, 100Mbit/sec Ethernet.
Windows XP Service Pack 2.

A low range system was selected for testing as it was expected that the impact of the applications under test would be more pronounced on older hardware.

Appendix 3 - Raw results

Boot time

Product	Seconds
AV Products	
Avast	102.99
AVG Free	108.65
Avira AV	105.90
BitDefender AV 2008	104.91
F-Secure AV 2008	143.91
G-Data AV 2008	108.89
Kaspersky AV 7	108.95
McAfee AV 08	110.88
Norton AV 2008	118.60
Panda AV 2008	111.20
Trend Micro AV/AS 2008	110.65
Webroot Spysweeper AV/AS 5.5	159.71
ZoneAlarm AV 7.1	131.09
Average result	117.41

IS Products	
Agnitum Outpost Security Suite 2007	144.38
BitDefender Total Security 2008	114.34
F-Secure IS 2008	158.02
G-Data IS 2008	111.65
Kaspersky IS 7	107.35
McAfee TP 08	114.23
Microsoft Onecare	195.55
Norton 360	118.73
Norton IS 2008	116.67
Panda IS 2008	176.78
Trend Micro IS 08 Pro	137.14
Trend Micro IS 2008	124.32
ZoneAlarm IS 7.1	132.62
Average result	134.75

Scan time

Product	Seconds
AV Products	
Avast	169.6
AVG Free	344.1
Avira AV	207.0
BitDefender AV 2008	263.6

F-Secure AV 2008	529.6
G-Data AV 2008	562.8
Kaspersky AV 7	1005.1
McAfee AV 08	702.2
Norton AV 2008	242.7
Panda AV 2008	168.4
Trend Micro AV/AS 2008	231.2
Webroot Spysweeper AV/AS 5.5	343.0
ZoneAlarm AV 7.1	242.8
Average result	385.55

IS Products	
Agnitum Outpost Security Suite 2007	444.4
BitDefender Total Security 2008	269.4
F-Secure IS 2008	713.4
G-Data IS 2008	566.0
Kaspersky IS 7	825.7
McAfee TP 08	714.6
Microsoft Onecare	401.4
Norton 360	344.8
Norton IS 2008	242.8
Panda IS 2008	188.0
Trend Micro IS 08 Pro	258.8
Trend Micro IS 2008	237.2
ZoneAlarm IS 7.1	238.0
Average result	418.81

User Interface Launch (Initial)

Product	Milliseconds
AV Products	
Avast	1611.20
AVG Free	691.20
Avira AV	1128.80
BitDefender AV 2008	1459.80
F-Secure AV 2008	2514.00
G-Data AV 2008	2268.0
Kaspersky AV 7	1008.50
McAfee AV 08	2514.00
Norton AV 2008	1229.75
Panda AV 2008	4330.00
Trend Micro AV/AS 2008	5600.00
Webroot Spysweeper AV/AS 5.5	301.80
ZoneAlarm AV 7.1	2085.00
Average result	2057.08

IS Products	
Agnitum Outpost Security Suite 2007	463.00
BitDefender Total Security 2008	1915.75
F-Secure IS 2008	3012.50
G-Data IS 2008	3012.00
Kaspersky IS 7	1306.80
McAfee TP 08	3012.50
Microsoft Onecare	11178.00
Norton 360	3630.00
Norton IS 2008	919.00
Panda IS 2008	6346.00
Trend Micro IS 08 Pro	4682.00
Trend Micro IS 2008	5688.00
ZoneAlarm IS 7.1	2111.00
Average result	3636.66

Memory Usage

Product	MB Used
AV Products	
Avast	16.2
AVG Free	2.8
Avira AV	7.7
BitDefender AV 2008	2.9
F-Secure AV 2008	57.5
G-Data AV 2008	71.5
Kaspersky AV 7	15.7
McAfee AV 08	43.5
Norton AV 2008	10.1
Panda AV 2008	47.6
Trend Micro AV/AS 2008	39.9
Webroot Spysweeper AV/AS 5.5	15.5
ZoneAlarm AV 7.1	22.1
Average result	27.15

IS Products	
Agnitum Outpost Security Suite 2007	82.3
BitDefender Total Security 2008	3.6
F-Secure IS 2008	82.6
G-Data IS 2008	90.4
Kaspersky IS 7	16.2
McAfee TP 08	66.7
Microsoft Onecare	32.1
Norton 360	24.8
Norton IS 2008	11.2

Panda IS 2008	153.7
Trend Micro IS 08 Pro	70.5
Trend Micro IS 2008	53.9
ZoneAlarm IS 7.1	28.9
Average result	55.15

HTTP Download times

Product	Seconds
IS Products	
Agnitum Outpost Security Suite 2007	33.8
BitDefender Total Security 2008	90.7
F-Secure IS 2008	47.7
G-Data IS 2008	43.8
Kaspersky IS 7	67.4
McAfee TP 08	53.3
Microsoft Onecare	20.4
Norton 360	22.5
Norton IS 2008	17.3
Panda IS 2008	19.1
Trend Micro IS 08 Pro	18.1
Trend Micro IS 2008	16.3
ZoneAlarm IS 7.1	33.4
Average result	37.22

IE Launch Initial

Product	Milliseconds
AV Products	
Avast	1722.0
AVG Free	1108.4
Avira AV	1188.4
BitDefender AV 2008	3646.8
F-Secure AV 2008	2875.3
G-Data AV 2008	2953.0
Kaspersky AV 7	976.5
McAfee AV 08	1228.0
Norton AV 2008	997.2
Panda AV 2008	1094.6
Trend Micro AV/AS 2008	1690.8
Webroot Spysweeper AV/AS 5.5	871.6
ZoneAlarm AV 7.1	1442.8
Average result	1676.57

IS Products

Agnitum Outpost Security Suite 2007	2646.6
BitDefender Total Security 2008	2780.2
F-Secure IS 2008	2288.0
G-Data IS 2008	2981.3
Kaspersky IS 7	1099.8
McAfee TP 08	1803.5
Microsoft Onecare	2664.8
Norton 360	2765.6
Norton IS 2008	2267.2
Panda IS 2008	1119.8
Trend Micro IS 08 Pro	5553.6
Trend Micro IS 2008	1474.8
ZoneAlarm IS 7.1	1404.8
Average result	2373.08