

A Comparison of Graphic Applications' Performance in Microsoft Windows and Apple OS Environment

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Abstract. *When planning to equip a graphic design company, one must choose between two competitive operating systems in the market – the Microsoft Windows OS and the Apple OS, including the corresponding hardware available. Of course, the results heavily depend on a single computer's user, so the human factor related to the usability of a single computer shouldn't be ignored.*

With this paper we aim to display results of a research focused on the concrete data processing speed and using various graphic applications, conducted in real conditions, thus suggesting the better choice of the two systems.

Keywords. Microsoft Windows, Apple OS, data processing speed in graphic applications, Boot Camp, Adobe CS3

1 Introduction

In graphics computer is a tool that is used on everyday basis. Technology is constantly developing. Hardware development follows software development. The most commonly used group of graphic programs today is Adobe CS that contains almost all applications necessary for a designer to do their work and it can be installed in two operating systems – Win OS and Apple OS. Each of these systems used its own hardware that was incompatible with the other one due to the difference in the processor that was used. When Apple transferred from Motorola/IBM processor to Intel processor and when the Boot Camp application was issued, we obtained the possibility to use the same hardware for both operating systems, by means of which we are now able to perform tests on both operating systems

and in this way help the firms that are unsure what to use and how to use it for their work. Of course, it is necessary to point out that along with the execution speed, hardware power and the operating system stability, the most important factor is the person operating the computer. We measured the execution speed of operations that are often used at image processing and filter usage in Photoshop v10.0 and v9.0 in Windows XP and OS X 10.4.11, after which we prepared documents to be printed by using Adobe Indesign v5.0 and Adobe Distiller v.7.0 (creation of PostScript and PDF documents).

2 Apple and Microsoft operating environment

Graphics companies currently to the largest extent still use Apple computers and the belonging operating system. It is true that younger generations that grew up using Windows platforms increasingly use PCs due to their price and availability. Apple probably made a mistake when it, due to copies of Apple II computers that started to appear, closed the system in the new line of Macintosh computers, trying to keep its rights concerning the operating system and the machinery part of the computer. By doing so, Apple provided Microsoft with the opportunity to become the market leader in PC business after 1990. Data show that Microsoft currently covers 91% of the market, whereas Apple covers only 7.5%. The most recent operating systems are Mac OS X v10.5 (Leopard), Mac OS X v10.4 (Tiger), Mac OS X v10.3 (Panther) and Windows XP. Differences between individual OS X versions are not large and usually they relate to safety improvements of OS itself and its

applications, as well as to some new options. It is important to say that OS X 10.4 is the first operating system based on computers with Intel processors and this concerns its version 10.4.4. The reason for transferring from Motorola/IBM processor, i.e. from PowerPC processor to Intel x86 processors is the fact that Apple was not satisfied with the speed of development of PowerPC technology that started to fall behind compared with the processor producers of the time. AMD was at the time the only alternative to Intel in the PC processor business, but its production capacity was much lower, so Apple opted for Intel after all, because users generally acknowledged Intel as a brand. Thereby Apple indirectly admitted to the fact that it was a mistake to close the system, because by issuing Boot Camp utility it allowed its users to install Windows products on their Macintosh computers. Regarding Microsoft products it might be useful to mention that the relatively recent Vista system failed and did not achieve the expected results, i.e. it did not take over the role of Windows XP operating system on the market. Due to significant graphic improvements of GUI, the performance and operating speed of OS decreased, which is definitely not good for the operation. Its current unreliability is also one of the problems, so if somebody opted for Microsoft systems, they opted for Windows XP. When discussing programs used in graphics industry, Adobe Systems Company should not be left out. Its first product is PostScript. Adobe Photoshop is the program used by almost every reputable designer. The first version of this program was used only on Apple computers, but later the version 2.5 was issued and it is compatible with Windows. The current versions of Photoshop are CS2 and CS3 (Creative Suite). They are included in the package with other Adobe System products, depending on the type of the package. Adobe also announced that CS4, the first 64-bit application package, is to be issued for Windows operating systems only, whereas only 32-bit applications will be available for OS X. This should occur in 2009. It should be mentioned that Adobe CS2 package on OS X on Intel-based computers operates through Rosetta that allows the applications compiled for PowerPC processor family to use Intel processor, which results in lower speed while using it, as it will be shown by the following tests.

3 Comparison of operating speed of graphic applications

The operating speed test was performed on computers MacBook Pro 2 GHz Intel Core Duo, 2 GB 667 MHz DDR2, 100 GB SATA and ATI Radeon X1600 with OS X 10.4.11 operating system and with the assistance of Boot Camp installed in Windows XP and a common stop watch. In order for the test to be as reliable as possible, we first adjusted the settings in

Photoshop v10.0 and v10.9 on both operating systems (History States = 1, Cache Levels = 4, Memory usage = 100%). We opened a 3648x2736 pixel image, adjusted the Radial blur filter (Amount = 100, Blur method = zoom, Quality = best) and repeated the measuring a few times and expressed an average value. Filters are a component of Adobe Photoshop and can be used in order to create a unique image, which can also be used as protection, because only you are familiar with the values of the used filters, and the results will visually differ. We repeated the procedure with and without other applications (WinXP – IE, Word, AI, ID, Task Manager, Outlook, NOD32; OS-X – Safari, Word, AI, ID, Activity Monitor) Fig 1.

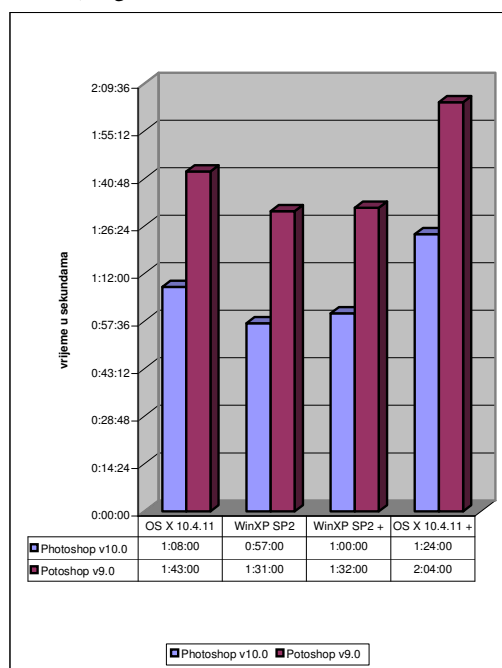


Figure 1. Times, 10 points, normal face
Only one filter was tested and by performing this test we wanted to see the operating speed. By performing another test we tested the speed and stability of Photoshop. The following actions were used: Image size, Image mode from RGB into CMYK, from CMYK into LAB, Shadow/Highlights and finally Gaussian Blur on a 3648x2736 pixel image. After the tests had been manually performed one after the other, everything went well, but when they were saved and performed in Action the application in Windows XP environment of Photoshop v9.0 crashed a couple of times, whereas in OS X it passed through all processes in an orderly manner without any errors. The following results were obtained Table 1.

Table 1: Operating speed of a couple of processes in Adobe Photoshop measured in seconds

	Win XP SP2 Photo. v10.0	Win XP SP2 Photo. v9.0	OS X 10.4.11 Photo. v10.0	OS X 10.4.11 Photo. v9.0
Image size 300%	2,30	2,30	3,10	9,00
Image Mode RGB to CMYK	8,91	11,70	13,30	36,00
Image Mode CMYK to LAB	12,70	15,50	18,40	42,00
Adjustments				
Shadow/Hightlight	14,54	20,00	15,39	29,00
Gaussian Blur 25%	5,20	15,00	5,85	32,00

By performing the last test we measured the creation of PostScript and PDF documents in Adobe Indesign v5.0 and Adobe Distiller v7.0. Scitex Brisque was used as the PostScript printer, and Distiller's settings were adjusted to High Quality Print Fig 2.

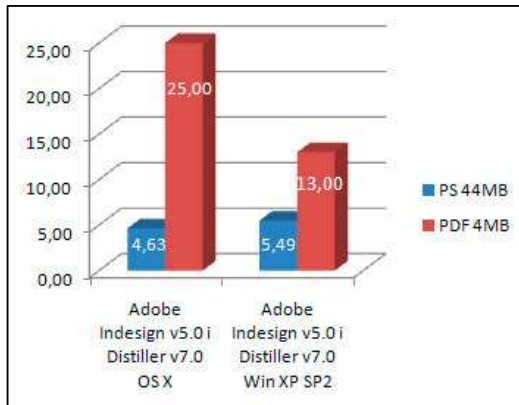


Figure 2: Speed of creating documents to be printed
Thereby the whole process of creating documents to be printed was covered, starting from image processing in Adobe Photoshop to obtaining a document ready to be printed. We gained an insight into the speed and stability of the systems that we used.

4 Conclusion

The end results of these tests have not provided us with the final "winner", due to the fact that the execution speed of one operation or even a couple of them was faster in Windows XP environment, which must be difficult for Apple to face with because they were the ones who boasted during their presentations about speeds and tests in Adobe Photoshop, even with an antivirus program or during the testing when we created real working conditions (we turned on applications that are usually on during the work of a graphic designer). It can be said with certainty that Adobe CS2 should definitely be avoided for OS X version because it turned out to be the worst solution according to all results. However, it cannot be denied that OS X system was more stable during the tests and that no application crashed at any moment, opposite to Windows XP environment and Photoshop that failed a couple of times. Creation of documents to be printed showed somewhat better results in OS X for creating PostScript documents, whereas the procedure

of creating PDF documents in Windows was finished more quickly. We would again like to point out that the tests were performed in the same hardware environment and under the same conditions.

5 References

- [1] T. LoCascio: **Mastering Photoshop CS3 for Print Design and Production**, Wiley, New York, USA, 2007.
- [2] P. Burke: **Mastering InDesign CS3 for Print Design and Production**, Wiley, New York, USA, 2007.
- [3] B. P. Lawler: **Official Adobe Print Publishing Guide**, Adobe Press, Berkeley, USA, 2005
- [4] M. O. Arguello & MLMUG: **Speed of Photoshop CS2**, available at <http://www.mlmutg.org/PSSpeed.html>, Accessed: 27th January 2007.