



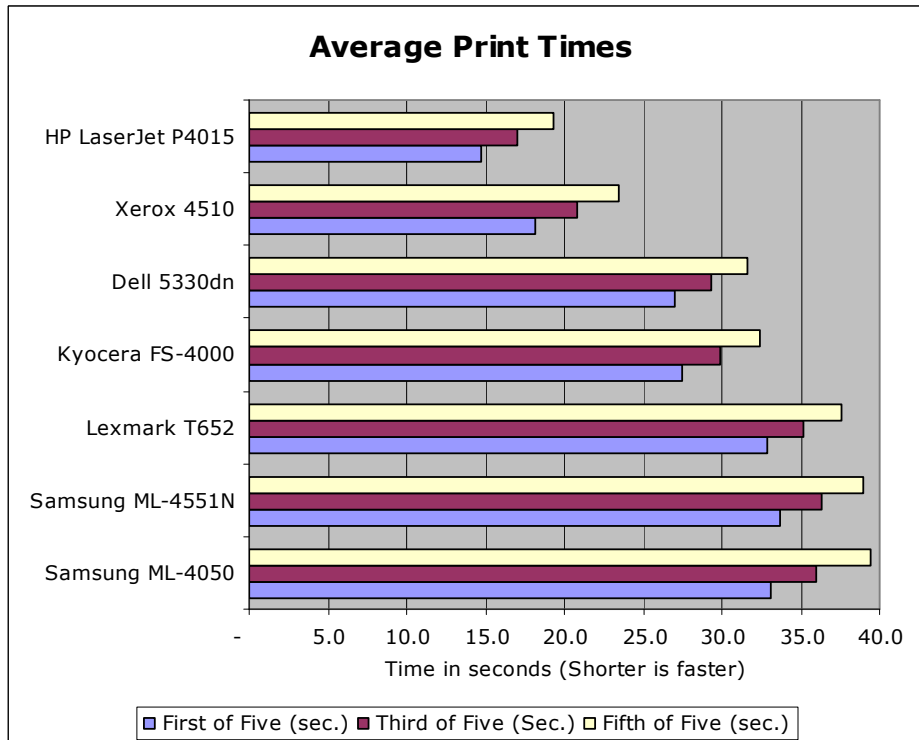
QualityLogic Performance Report

- HP LaserJet P4015 Printer vs. Laser Competitors -

QualityLogic Inc., an independent test firm, recently performed tests to compare the print throughput performance of the HP LaserJet P4015 (with Instant-on Technology) with a selection of competitive products from various manufacturers. The testing demonstrated that the HP LaserJet P4015 printed documents typical of a small/medium business environment faster from power save. Enabled by Instant-on Technology, the HP LaserJet P4015 printer delivered, on average, all of the pages in the print jobs sooner than the other printers tested, resulting in faster throughput for the entire job.

Printer specifications may provide PPM rated throughput without indication of the warm-up time required prior to printing. This test included the warm-up time when printing a typical job from the printer power-save mode that a small/medium business user will experience. Test documents of five pages each were printed 30 minutes after having ensured that each printer entered its power-save mode.

Under these test conditions, the HP LaserJet P4015 outperformed the competitors. The graph below shows the average print time of the first, third, and final page of various five-page test documents. The HP LaserJet P4015 printed the five-page test documents faster than the competitors (a shorter bar is faster). This data represents the average print time of all five-page documents printed from five test applications.



The following table shows the printers tested, their manufacturer specified print speed for letter size paper and first page out times, if available, compared to the actual performance achieved during testing by QualityLogic.

Printer	Published Specifications		Actual Performance		
	Speed (PPM)	First page out (seconds)	First of five page out (seconds)	Third of five page out (seconds)	Fifth of five page out (seconds)
HP LaserJet P4015¹	52	8.5	14.8	17.0	19.3
Xerox 4510²	45	8.0	18.2	20.9	23.5
Dell 5330dn³	50	*	27.0	29.3	31.6
Kyocera FS-4000⁴	47	15.0	27.5	29.9	32.4
Lexmark T652³	50	7.5	32.8	35.2	37.6
Samsung ML-4551⁵	45	8.5	33.7	36.3	39.0
Samsung ML-4050⁶	40	9	33.1	36.0	39.4

Notes:

* Manufacturer does not provide this information on their web site or in accompanying manuals.

Test Platform

Testing was performed using the QualityLogic PageSense 4.2 automated performance test tool, connected to a desktop personal computer with an AMD Athlon 2GHz processor with 256Mb of memory, using the Microsoft Windows XP Professional Edition operating system. All printers were connected to the test computer using a USB connection.

¹ Originally tested in April 2008

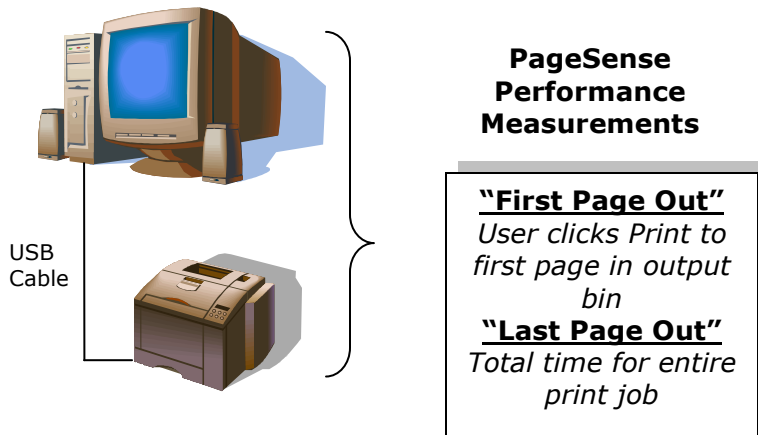
² Originally tested in May 2007

³ Originally tested in January 2009

⁴ Originally tested in August 2006

⁵ Originally tested in February 2008

⁶ Originally tested in June 2007



Test Approach

All print drivers were installed using the Plug-n-Play method and tested using the default settings. Printing was done on letter size paper. All products were selected by HP and purchased by QualityLogic from various vendors.

Each printer was tested using the default settings as delivered from the manufacturer. No modifications were made to the printer or driver settings.

Based on HP's belief that typical print jobs for the small/medium business environment are between one and five pages, documents of five pages in length were chosen for this test.

For all printers, each test file was printed 30 minutes after having ensured that the printer entered the power-save state. PageSense was used to automate the testing and provide consistent timing between tests. All files were printed twice. Any files logging a five percent deviation between test runs were retested.

QualityLogic selected test files that it considered typical of a small/medium business environment from PageSense's suite of performance test files. The test included files from Microsoft Internet Explorer 6.0, Microsoft Office 2000 Suite, and Adobe Acrobat Reader 6.0. Standard PageSense test files were modified to fit the five-page document length requirements of this test.

PageSense uses application test files and an automated process for printing and recording time measurements using a smart paper sensing unit. Performance data is logged into a database automatically. Many leading printer manufacturers and industry publications, such as PC Magazine, use PageSense to automate testing and provide comparable results between printers. PageSense is a standard, automated approach to performance testing.

This study was commissioned by HP.

About QualityLogic

QualityLogic is a leading Software Quality Services Company offering a variety of testing services and related tools focused on the conformance, performance, and interoperability testing needs, from low level firmware testing, to high level multi-tier application testing. QualityLogic has over 23 years' experience, both in developing specialized test tools and providing comprehensive testing services for top industry manufacturers.

Test results provided by QualityLogic. Tests were performed under laboratory conditions and your results may vary.

© 2009 QualityLogic Inc. All rights reserved.