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Asked by:



Noel Carboni  
ProDigital Software

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12,825 Points 0 3 12

I have engineered software in computers dating back to the mid 1970s, including mainframes, minis, the first 8 bit micro systems, PCs, and all manner of custom controllers and systems. I've implemented (and managed groups of Engineers who implemented) operating systems, embedded software, and PC software. I have been in charge of Engineering processes and Configuration Management, and now own my own software firm with sales worldwide. NCarboni@ProDigitalSoftware.com

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# Windows 8.1 File System Performance Down Compared to Windows 7

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## Question

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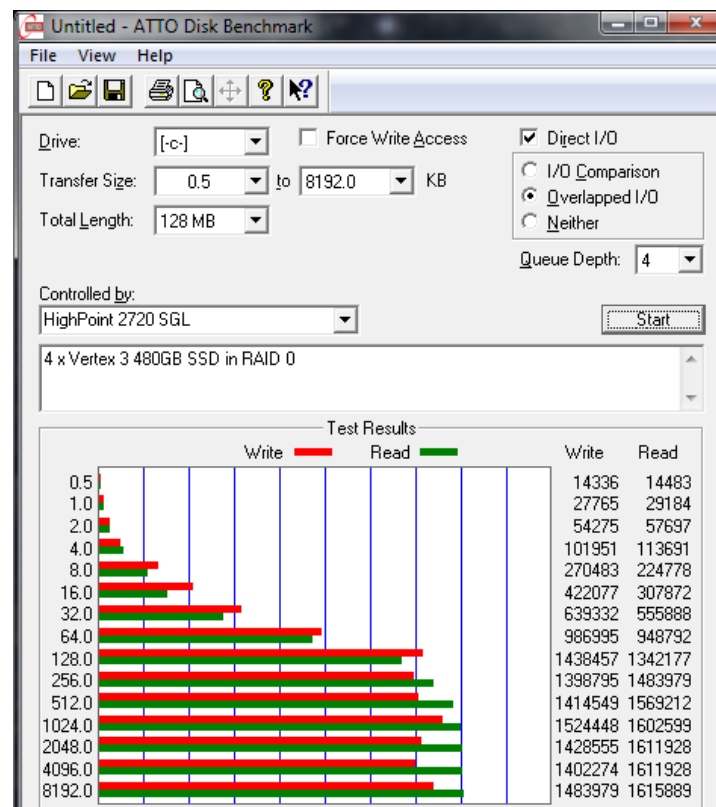
I have a good workstation and a fast SSD array as my boot volume. **Ever since installing Windows 8.1 I have found the file system performance to be somewhat slower than that of Windows 7.** There's nothing wrong with my setup - in fact it runs as stably as it did under Windows 7 on the same hardware with a similar configuration.

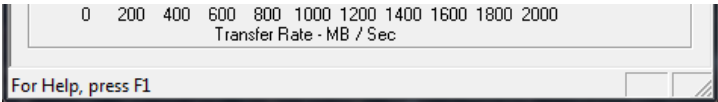
**The NTFS file system simply isn't quite as responsive on Windows 8.1.**

For example, under **Windows 7** I could open Windows Explorer, navigate to the root folder of C:, select all the files and folders, then choose **Properties**. The system would count up all the files in all the folders at a rate of about **30,000 files per second** the first time, then about **50,000** files per second the next time, when all the file system data was already cached in RAM.

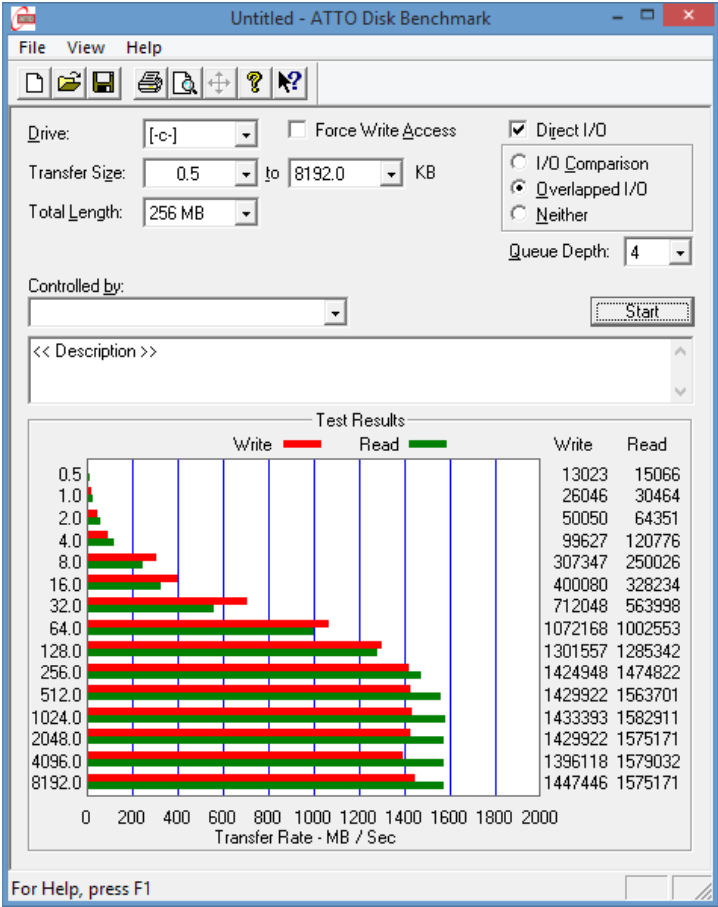
**Windows 8.1** will enumerate roughly **10,000 files per second** the first time, and around **18,000** files per second the second time - **a roughly 1 to 3 slowdown**. The reduced speed once the data is cached in RAM implies that something in the operating system is the bottleneck.

Not every operation is slower. I've benchmarked raw disk I/O, and Windows 8.1 can sustain almost the same data rate, though the top speed is a little lower. For example, Windows 7 vs. 8 comparisons using the ATTO speed benchmark:

**Windows 7:**



Windows 8:




-Noel

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Tuesday, February 11, 2014 1:34 AM

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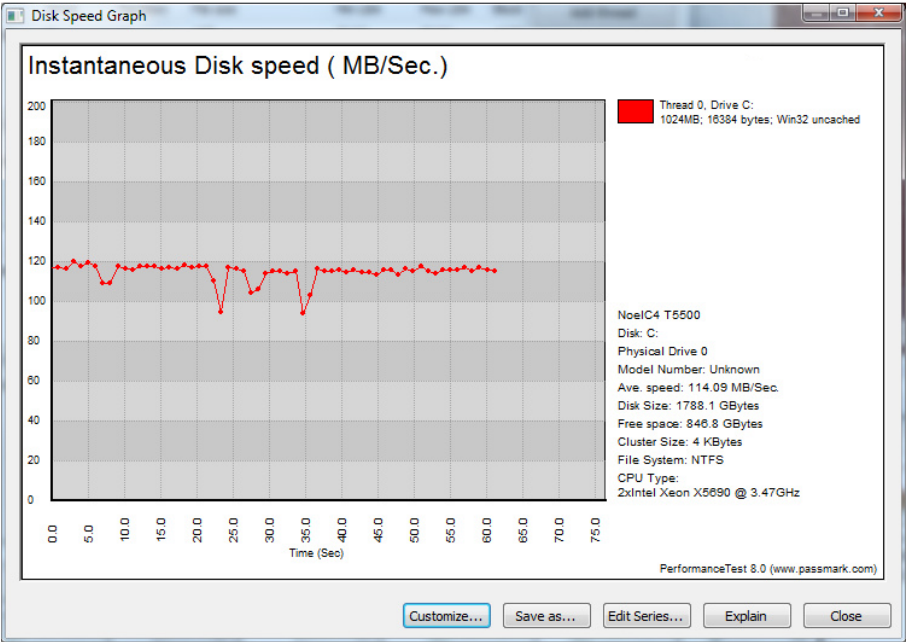
  
[Noel Carboni](#) ProDigital Software 12,825 Points

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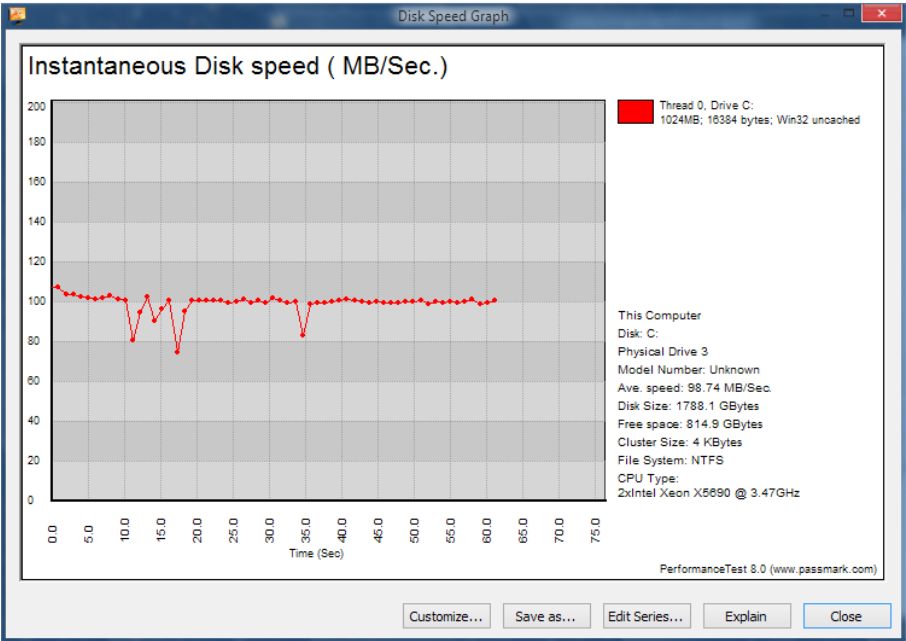
I've done other "real world" type multithreading/loading benchmarks using such things as Passmark PerformanceTest, and again, the results show Windows 8.1 falls behind Windows 7.

Windows 7

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Windows 8



I'd be grateful for any improvements you can suggest for optimizing I/O speed. Thanks!

-Noel

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Hi Noel,

Thanks for posting in Microsoft TechNet forums.

I will try to involve someone familiar with this topic to further look at this issue. There might be some time delay. Appreciate your patience.

Thank you for your understanding and support.

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Kate Li  
TechNet Community Support

All-In-One Script Framework



IT Pros' Time Saver

Thursday, February 13, 2014 1:01 AM

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Kate Li Pactera (MSFT CSG) 11,480 Points



No worries, and thanks for your response.

The problem can be characterized most quickly by the slowdown in enumerating files in folders. Unfortunately, besides some benchmarks that show only an incremental degradation in file read/write performance, I don't have any good before/after measurements of other actual file operations.

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Since posting the above I have verified:

- My system has 8dot3 support disabled (same as my Windows 7 setup did).
- Core Parking is disabled; CPU benchmarks are roughly equivalent to what they were.
- File system caching is configured the same.
- CHKDSK reports no problems

C:\TEMP>fsutil fsinfo ntfsinfo C:

```
NTFS Volume Serial Number : 0xdc00eddf00edc11e
NTFS Version : 3.1
LFS Version : 2.0
Number Sectors : 0x00000000df846fff
Total Clusters : 0x000000001bf08dff
Free Clusters : 0x000000000c9c57c5
Total Reserved : 0x0000000000001020
Bytes Per Sector : 512
Bytes Per Physical Sector : 512
Bytes Per Cluster : 4096
Bytes Per FileRecord Segment : 1024
Clusters Per FileRecord Segment : 0
Mft Valid Data Length : 0x0000000053f00000
Mft Start Lcn : 0x00000000000c0000
Mft2 Start Lcn : 0x0000000000000002
Mft Zone Start : 0x0000000008ad8180
Mft Zone End : 0x0000000008ade6a0
Resource Manager Identifier : 2AFD1794-8CEE-11E1-90F4-005056C00008
```

C:\TEMP>fsutil fsinfo volumeinfo c:

```
Volume Name : C - NoelC4 SSD
Volume Serial Number : 0xedc11e
Max Component Length : 255
File System Name : NTFS
Is Readwrite
Supports Case-sensitive filenames
Preserves Case of filenames
Supports Unicode in filenames
Preserves & Enforces ACL's
Supports file-based Compression
Supports Disk Quotas
Supports Sparse files
Supports Reparse Points
Supports Object Identifiers
Supports Encrypted File System
Supports Named Streams
Supports Transactions
Supports Hard Links
Supports Extended Attributes
Supports Open By File ID
```

Supports Open by File ID  
Supports USN Journal

I am continuing to investigate:

- Whether file system fragmentation could be an issue. I think not, since I measured the slowdown immediately after installing Windows 8.1.
- All of the settings in HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\FileSystem

Thank you in advance for any and all suggestions.

-Noel

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Thursday, February 13, 2014 4:56 AM

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Hi,

I suggest involving storage vendor to checking issues form hardware side.

Best Regards,

Vincent Wu

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Friday, February 14, 2014 12:15 PM

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[Vincent Wu \(MSFT\)](#) 170 Points



Hi,

How are things going?

Best Regards,

Vincent Wu

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Saturday, February 22, 2014 12:14 PM

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[Vincent Wu \(MSFT\)](#) 170 Points



No change. The system is plenty fast enough to use, but I'd like all the performance I had with Windows 7.

I have an open ticket with HighPoint to see if they have any insight.

But I've seen no evidence Windows 8.1's file system is as fast for anyone as Windows 7's.

0

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-Noel

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Edited by [Noel Carboni](#) Saturday, February 22, 2014 2:29 PM

Saturday, February 22, 2014 2:28 PM

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By the way, I have just re-verified that not only is the Windows 8.1 file system performance way down compared to Windows 7, but it's similarly down compared to Windows 8 as well.

That the second run of an enumeration of all files on C: is MUCH slower, where the directory data is fetched from cache, **implies that the problem is in the OS itself**, not the implementation of the hardware driver. In fact, I verified this by comparing identically configured virtual machines backed by the same hardware.

Please continue to follow-up and find the source of this. It's cutting the I/O performance of a very powerful workstation down to that of a run-of-the-mill PC.

-Noel

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Sunday, February 23, 2014 4:35 PM

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Hi,

Please refer to the following link:

[http://technet.microsoft.com/en-us/library/dd723635\(v=office.12\).aspx](http://technet.microsoft.com/en-us/library/dd723635(v=office.12).aspx)

Best Regards,

Vincent Wu

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Friday, February 28, 2014 12:47 PM

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[Vincent Wu \(MSFT\)](#) 170 Points



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Thank you for the info, Vincent. I will do more measurements.

Only problem is I don't have the prior OS set up any longer, but I suppose I can try to gather more specific statistics between VMs running Windows 8.1 and an older OS.

I was kind of hoping for a response here saying, "We've done careful measurements and have..."

a) "...found it to be slower as well, we're working on the problem. Thank you for reporting it!"

b) "...found it to be as fast or faster than Windows 7", in which case I would have redoubled my efforts to find the root cause.

As it is my system runs perfectly - it's absolutely stable and error-free. Only thing is it's not as fast as any prior OS on it. And I've verified this is not unique to the install on my workstation, because as I mentioned similarly configured VMs running Windows 7, 8, and 8.1 show the problem clearly as well.

Thanks for continuing to keep this problem in mind.

-Noel

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Edited by [Noel Carboni](#) Friday, February 28, 2014 4:05 PM

Friday, February 28, 2014 4:04 PM

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[Noel Carboni](#) ProDigital Software 12,825 Points



Hi,

Have you tried applying the latest storage related hotfixes?

Best Regards,

Vincent Wu

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Tuesday, March 04, 2014 1:46 PM

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[Vincent Wu \(MSFT\)](#) 170 Points



I have kept my system up to date with Windows Update, but have not seen hotfixes that claim to improve performance. Do you have specific suggestions? This sounds encouraging.

-Noel

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[Configure The Windows 8 "To Work" Options](#)

Tuesday, March 04, 2014 11:12 PM

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[Noel Carboni](#) ProDigital Software 12,825 Points



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Hi,  
Please refer to the following link:  
<http://support.microsoft.com/kb/2920151>  
Best Regards,  
Vincent Wu

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Tuesday, March 11, 2014 7:02 AM

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Vincent Wu (MSFT) 170 Points



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Hi,  
Is there any update?  
Best Regards,  
Vincent Wu

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Monday, March 24, 2014 9:17 AM

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Vincent Wu (MSFT) 170 Points



No, I'm sorry to say nothing so far has restored the file system performance I once had with prior Windows versions.

-Noel

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Monday, March 31, 2014 1:44 AM

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