

Intel[®] Cache Acceleration Software (Intel[®] CAS) for Windows*

Quick Start Guide

June 2015 Revision 001



Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined". Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information.

No computer system can provide absolute security. Requires an enabled Intel® processor, enabled chipset, firmware and/or software optimized to use the technologies. Consult your system manufacturer and/or software vendor for more information.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. Check with your system manufacturer or retailer or learn more at intel.com.

The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.

Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or go to: http://www.intel.com/design/literature.htm

All products, computer systems, dates, and figures specified are preliminary based on current expectations, and are subject to change without notice.

Intel, Intel Cache Acceleration Software, Intel CAS, and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

*Other names and brands may be claimed as the property of others.

Copyright © 2015 Intel Corporation. All rights reserved.



1 Setting up Intel[®] CAS

NOTE: Back up all data before beginning Intel[®] Cache Acceleration Software setup!

Set up Intel[®] Cache Acceleration Software (Intel[®] CAS) for Windows* as follows:

- 1. Open the user interface (UI)
 - a. Click Start.
 - b. In the Search box, type Intel Cache Acceleration Software.



NOTE: For faster start next time, right click on **Intel® Cache Acceleration Software** and choose **pin to start**. Intel® CAS will show up on your start menu.

2. Log in using your administrator account



3. Click the Start button to access the Intel® CAS configuration options





4. Choose a Caching SSD and Caching Mode

Choose an empty SSD with NTFS file system or a partition on the SSD with NTFS file system. Intel[®] CAS for Windows 2.7 supports only read acceleration. (Release 3.0 will support both read and write acceleration.)

Cache Volume		Mode	2 Level Cache
D:\)	accelerated reads	●On ○Off

When **2 Level Cache** is On, Intel[®] CAS is able to use System Memory (DRAM) resources in addition to the Caching SSD storage media.



The following are guidelines with regard to the **2 Level Cache** option:

- If you have zero-tolerance for data loss due to unexpected power event (restart, shutdown), 2 Level
 Cache should be set to Off. 2 Level Caching utilizes System Memory (DRAM), for caching of data.
 System Memory is volatile memory (by contrast SSD contains non-volatile memory) and in the event of an unexpected power failure, all data in system memory will be lost.
- If your system memory is already nearing capacity, keep this option off as it uses a significant amount of memory.
- If you use Intel PCIe* NVMe* SSD as a caching SSD, you can toggle this on and off to compare the performance. In certain situations, keeping this option turned off will result in better performance.
- If your SATA SSD is strictly a caching SSD, better performance can generally be achieved by keeping the **2 Level Caching** option on.
- You may want to consider adding more memory if you are using SQL Server or Exchange, as those applications also require extra memory.
- 5. Include or Pin Files/Folders.

When setting up Intel[®] CAS you can customize, based on your specific needs, which files/folders will be kept in cache using the "Include" or "Pin" feature. The differences in the "Include" and "Pin" options are defined in the following table:

	Include	Pin
Guaranteed?	Best Effort	Guaranteed
	i.e. "please try your best to put this file into cache"	i.e. "please guarantee this file into cache"
When?	First access of the file	Immediately
What?	Files and folders	Files only



In the example below, "c:\iobw.tst" is "Included".

^	C:\iobw.tst	\$
(x86)		
>		
~	<	>
	(×86)	(x86)

Do the following if you prefer to choose "Pin" instead of "Include":

C:\iobw.tst		× on
Salact Action		
Select Action		
Select Action		
	×	
Select Action		
Add		
		$\sim \sim$
Cilebrast 2, click this	1 1	1 click th
	· · ·	A. CHER III
		\sim \sim
		-
		7
		Save
1	Cancel 🤇 Ok	3. click this
1	Cancel Ok	3. click this

6. Save your setup to make it activate your changes.



Setup is now complete!



2 Troubleshooting Intel[®] CAS

2.1 Is My Caching Warming up?

To determine how much data has been warmed up (prepared to support caching) look at how much of the caching SSD capacity has been used. In the example below, there are 12 GB of data on the SSD, this means that the 12 GB file that was already "pinned" to the SSD for caching has been completely warmed up.

1 💭 🗋 = 1	Drive Tools	This PC	ĸ
File Computer View	Manage	~ ~	0
🔄 🏵 👻 🕆 🎼 🕨 This PC		Search This PC 🔎	>
★ Favorites ■ Desktop ▶ Downloads ™ Recent places	▲ Fold	ders (6) Desktop Documents	^
This PC		Downloads	
Downloads Music Pictures		Music	
Videos barracuda500GB (C:)		Pictures	=
P3700 (D:) 🐙 share (\\10.2.28.25) (Z:)	2	Videos	
🙀 Network	⊿ Dev	barracuda500GB (C:) NTFS 97.0 GB free of 465 GB	
		P3700 (D:) NTFS 173 GB free of 185 GB	
	4	DVD RW Drive (E:)	
	▲ Net	twork locations (1) share (\\10.2.28.25) (Z:) NTFS	~
10 items 1 item selected			

If your data does not warm up, perform the following steps:

- 1. Use "Pin" instead of "Include"
- 2. Wait a minute to see if data starts to warm up.
- 3. Hit F5 to refresh the SSD quota.
- 4. Toggling the "start", "stop" and "clear" buttons in the Intel[®] CAS UI may help.



2.2 How Effective Is My Caching?

To determine how effective the caching is, check the cache hit rate by performing the following steps.

- 1. Open the Windows* **Performance Monitor** utility by typing "Performance Monitor" in the search field.
- 2. Click the green plus (+) button to add performance counters.



3. Scroll down, select Intel Cache Acceleration Software and click OK.

0	Performance Monitor	- 🗆 X
No File Action View	Window Help	- 8 ×
🗢 🏓 🖄 🔂 😒		
Performance	Add Counters	
 Data Collector S Reports 	Available counters Added counters Added counters	
	IPHTTP Stoken IPHTTP Stoken IPHTTP Stoken Control of the stoken Interaces of selected object: Interaces of selected obj	
	Keenin Add >> Remove << Correction Correction	



4. Change the view from the default Line to Report.

		Performance Monitor		_ _ ×
N File Action View Windo	w Help			_ Ø >
Petranac Petranac	Bits Color Color 100 Une Hidsoyam bar Hidsoyam bar Report 80	Counter Conference Con	35 PM 312-55 PM 312-55 PM 0.000 Maximum (1 Parent Object 	a1105 PM 3:1142 PM 3000 Duration 1:40 celeration (WWH-HGGU0066 celeration (WWH-HGGU0066 celeration (WWH-HGGU0066 celeration (WWH-HGGU0066 celeration (WWH-HGGU0066) celeration (WWH-HGGU0066)
	<			2

5. View the cache hit rates.

No Performance Monitor					
No File Action View Windo	w <u>H</u> elp		_ # ×		
Performance Monitoring Tools Performance Monitor Performance Monitor Performance Collector Sets Performance Solution Reports	Comparing the second seco	100.000 99.995 0.005 3.051.000 0.000 12,702.000 12,702.000 0.000 335,936.000 3.351.000 3.351.000 12,883.000 0.000 3.353.000 12,883.000 12,782.000 12,833.000 12,283.000 12,293.000 12,293.000 12,293.000 12,293.000 12,293.000 12,293.000 12,293.000 12,293.000 12,293.000 12,293.000 12,293.0000 12,293.0000 12,293.0000 12,293.0000 12,293.0000 12,293.0000 12,293.00000 12,293.0000 12,293.00000 12,293.00000 12,293.000000000000000000000000000000000000			