

FAQ No. 01698**How to increase FPS of games?**

Affected Model: All

Q: How to increase FPS of games?

A: There are 8 general tips to get more FPS in games. Please note that each notebook might have different features and hardware components. If you have any further question on performance, please contact with MSI local service.

1. Check the recommended specifications from game's website.

User can find the information of system requirements from game's website. Please make sure your notebook is qualified for the game. If your notebook isn't reaching the standard of game's requirements, replacing hardware components in high ranking are possible to improve the performance. However, if you want to upgrade CPU, GPU, RAM or storages for your notebook, please check the spec, warranty and service information from MSI official website first.

(<http://www.msi.com/>).

For example – SPEC for GTA V

RECOMMENDED	
OS	Windows 8.1 64 Bit, Windows 8 64 Bit, Windows 7 64 Bit Service Pack 1
Processor	Intel Core i5 3470 @ 3.2GHz AMD X8 FX-8350 @ 4GHz
Memory	8GB
Video Card	NVIDIA GTX 660 2GB AMD HD 7870 2GB
Sound Card	100% DirectX 10 compatible
HDD	65GB

2. Update your GPU drivers.

If you want to get the best performance on notebook, please update latest graphic drivers which are recommended by MSI or GPU vendor.

For example: You can download and update VGA driver from MSI official website.

(<http://www.msi.com/>)

Type	VGA	Title	Intel Graphic Card
OS	Win8.1 64, Win7 64	Language	English
Release Date	2015-06-03	Version	10.18.14.4206
File Size	119.88 MB	File	Download

Type	VGA	Title	Nvidia VGA Driver
OS	Win8.1 64	Language	English
Release Date	2015-03-27	Version	347.88
File Size	393.65 MB	File	Download

3. Set dGPU for games.

If your notebook has discrete GPU, dGPU has better performance than integrated GPU on graphic performance. MSI recommends using dGPU for games.

For example:

You can set select preferred graphics processor for each program in NV control panel.

NVIDIA Control Panel

File Edit Desktop 3D Settings Help

Back Home

Select a Task...

3D Settings

- Adjust image settings with preview
- Manage 3D settings
- Set PhysX Configuration

Manage 3D Settings

You can change the global 3D settings and create overrides for specific programs. The overrides will be used automatically each time the specified programs are launched.

I would like to use the following 3D settings:

Global Settings Program Settings

1. Select a program to customize:

Chrome (chrome.exe) Add Remove Restore

Show only programs found on this computer

2. Select the preferred graphics processor for this program:

Integrated graphics

Use global setting (Auto-select: Integrated)

High-performance NVIDIA processor

Integrated graphics

Feature	Setting
Ambient Occlusion	Not supported for this application
Anisotropic filtering	Use global setting (Application-controlled)
Antialiasing - FXAA	Not supported for this application
Antialiasing - Mode	Use global setting (Application-controlled)
Antialiasing - Setting	Use global setting (Application-controlled)
Antialiasing - Transparency	Use global setting (Off)
CUDA - GPUs	Use global setting (All)
Maximum pre-rendered frames	Use global setting (Use the 3D application...)

Description:

Indicates which graphics processor programs will use. To ensure compatibility, the driver may override this setting. Programs that launch on external displays that are driven by the NVIDIA GPU will always use the NVIDIA GPU.

Typical usage scenarios:

- Auto-select allows the driver to pick the most compatible processor
- High-performance NVIDIA processor provides the best performance
- Integrated graphics provides longer battery life

System Information

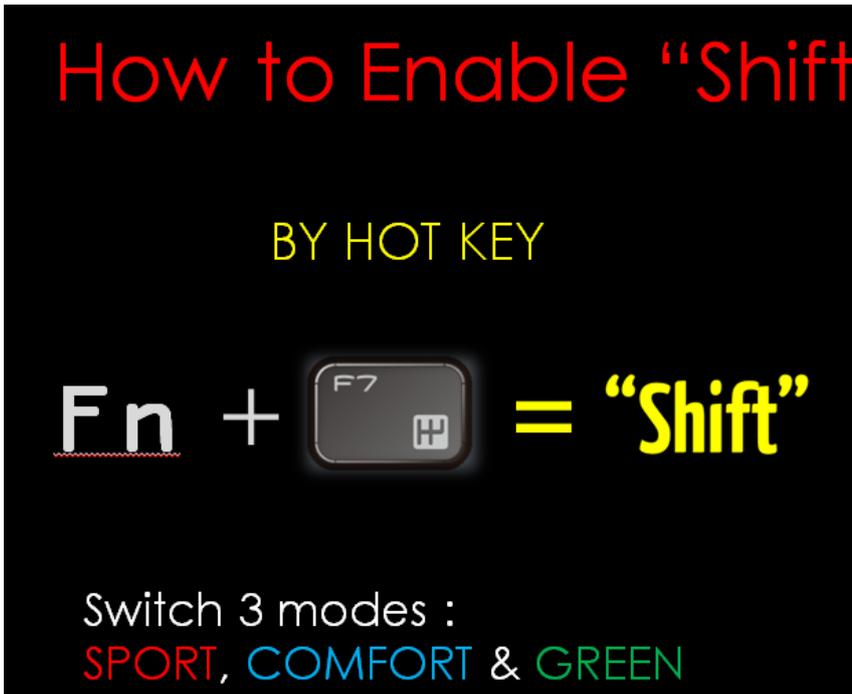
4. Use optimization software

Some of software from MSI or GPU vendors provided optimization for performance/games

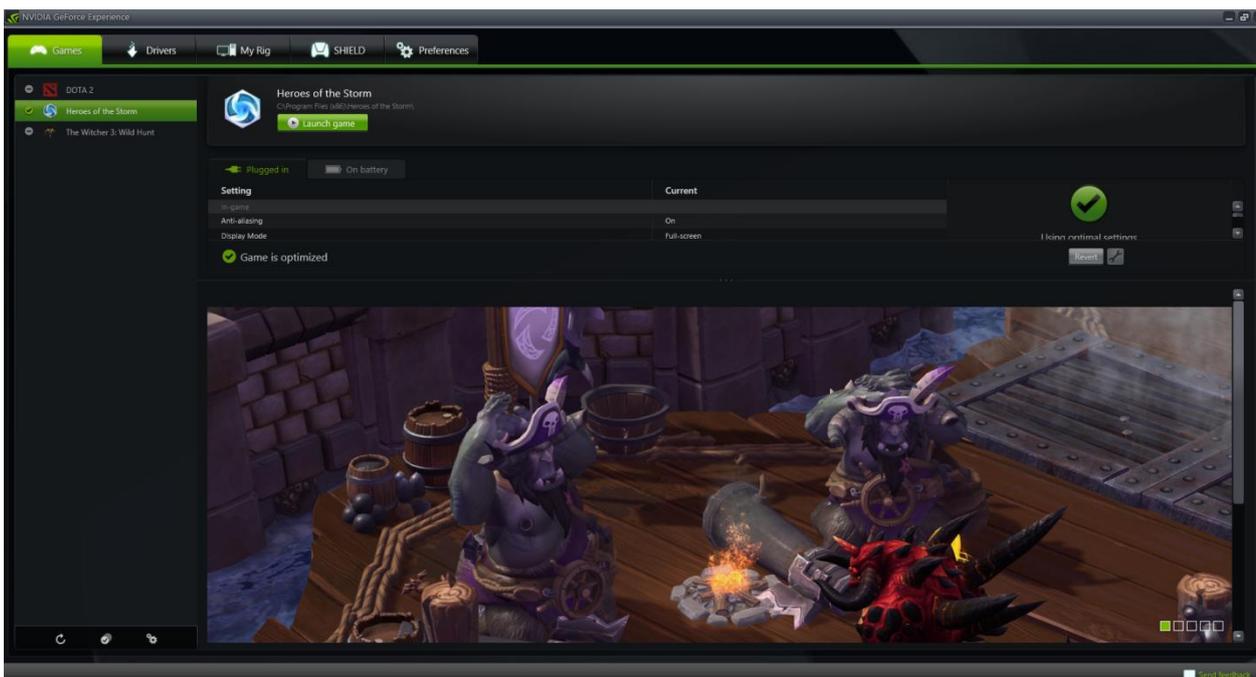
For example:

(1) Shift mode:

Sport mode of MSI notebooks drive CPU and GPU to the highest frequency and get the highest performance.



(2) Nvidia GeForce experience provides optimal settings for games.

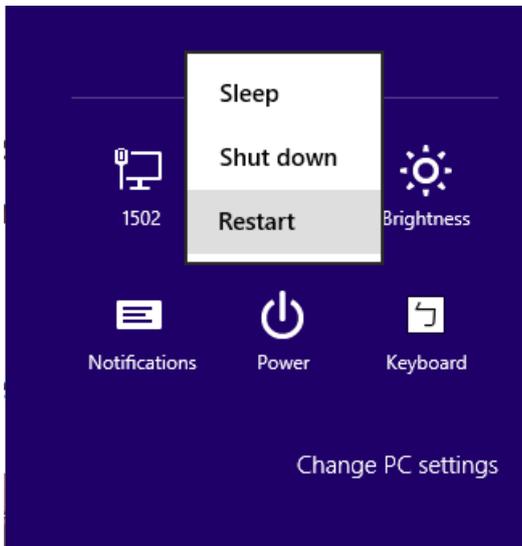


5. Optimize Windows for better performance

There are many ways to help speed up your Windows and make your notebook faster.

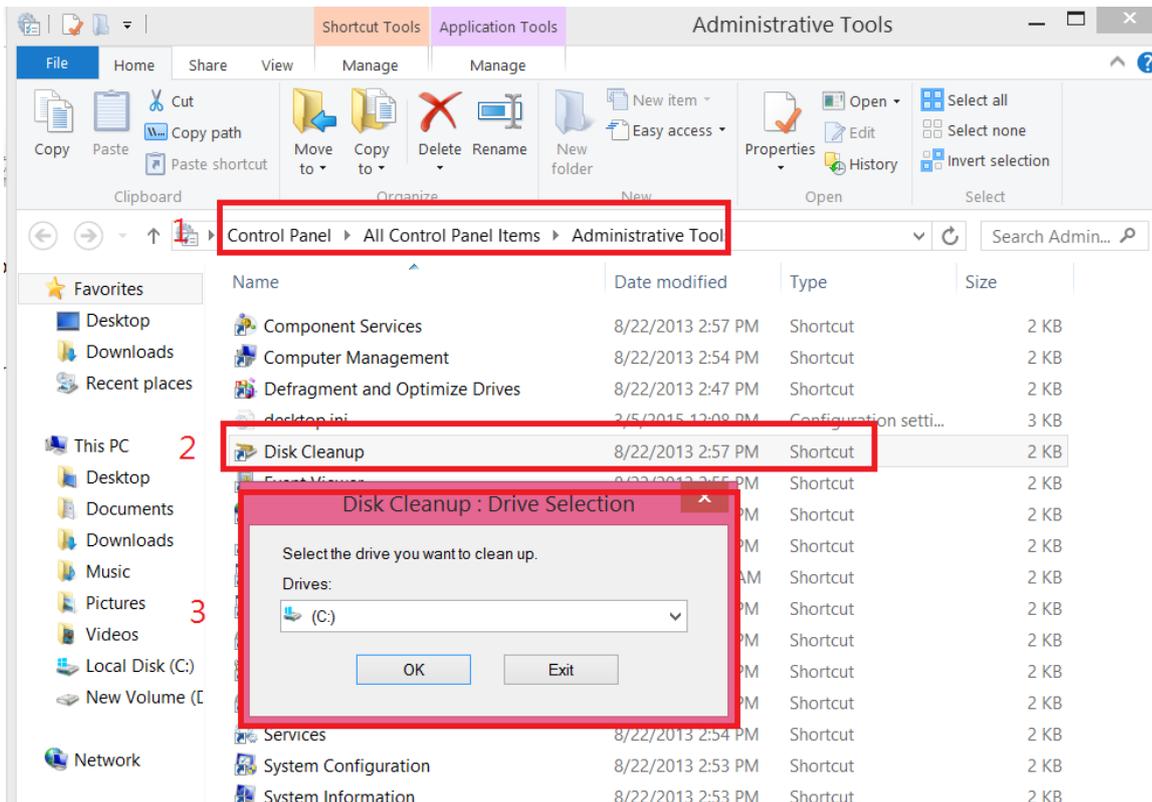
(1) Restart regularly:

Restarting will close all the software running on your PC. Restarting can fix mysterious performance problems when the exact cause is hard to pinpoint.



(2) Clean up your storages:

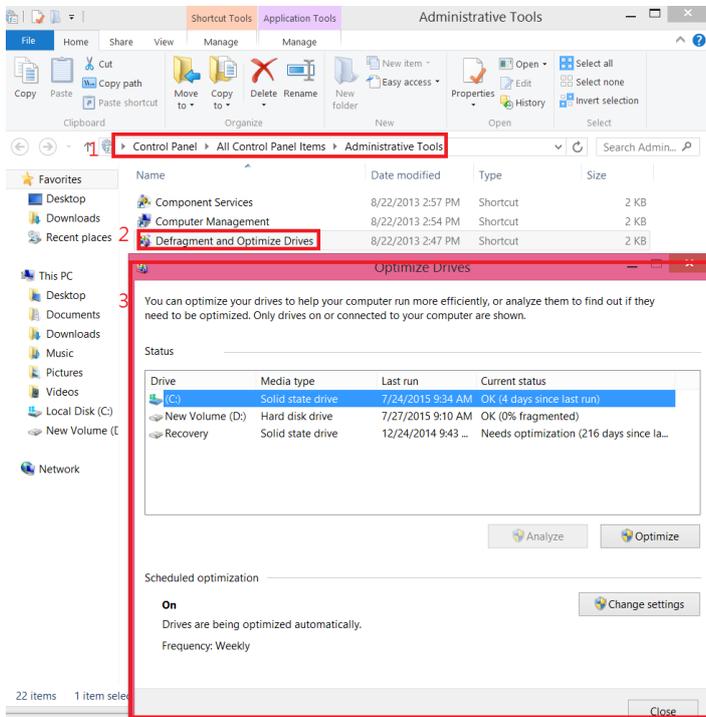
You can find [Disk Cleanup] in [Control Panel] -> [Administrative Tools]. The tool can remove temporary files, empties the Recycle Bin and other items that you no longer need.



(3) Defragment your hard disk:

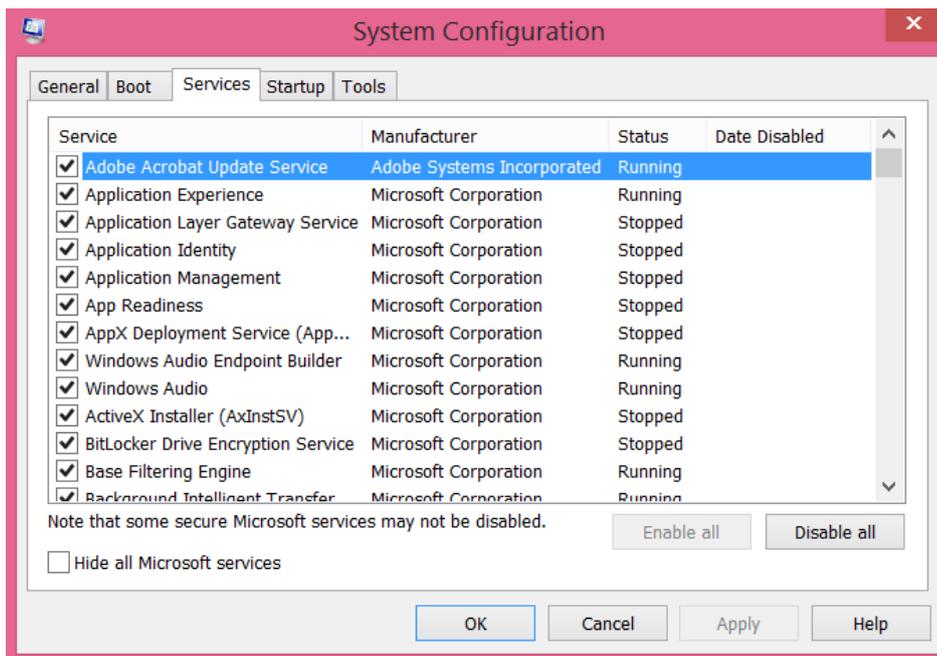
Fragmentation makes your hard disk do extra work that can slow down your computer. Disk Defragmenter rearranges fragmented data so your hard disk can work more efficiently.

(Warning): Please note that defragmenting SSDs does not provide performance benefits, but rather reduces its capacity. Therefore, MSI recommend using this tool for HDD only)



(4) System Configuration:

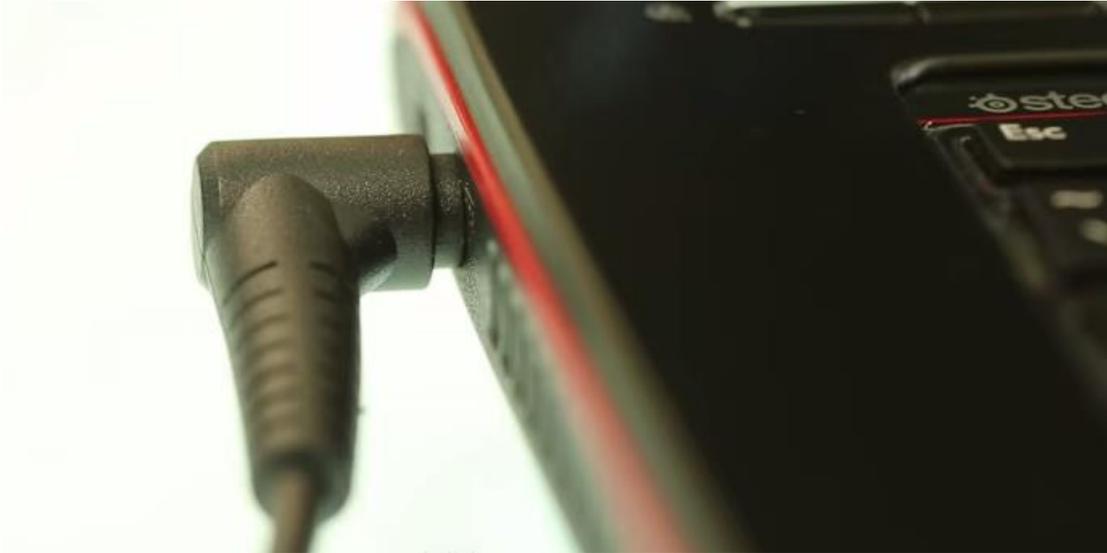
System Configuration (msconfig) is a tool that can help identify problems that might prevent Windows from starting correctly. We can stop the services which we don't need anymore.



6. Connect both of AC power and battery.

MSI recommends using both AC adapter and battery as power source for high loading games/applications. Both of AC adapter and battery will keep the CPU and GPU staying with overclocking status for a longer time by coordinating the power consumption.

AC adapter:



Battery pack:



7. Set graphics to medium or low settings and adjust suitable resolution for display. Some games are not designed for high resolution and some GPUs don't have best performance in high resolution. In this case, please set graphics to medium or low settings and adjust suitable resolution for display. For example, let us check the graphic settings in GTA V and Heroes of the Storm.



Graphics Settings



Graphics Settings	Low	Medium	High	Ultra
Resolution	1024*768	1366*768	1920*1080	1920*1080
FXAA	Off	Off	On	On
MSAA	Off	Off	x2	x4
NVIDIA TXAA	Off	Off	On	On
Vsync	Off	Off	Off	Off
Pause Game on Focus Loss	Off	Off	On	On
Population Density	Off	50%	100%	100%
Population Variety	Off	50%	100%	100%
Distance Scalling	Off	50%	100%	100%
Texture Quality	Normal	Normal	High	Very High
Shader Quality	Normal	Normal	High	Very High
Shadow Quality	Normal	Normal	High	Very High
Reflection Quality	Normal	Normal	High	Ultra
Reflection MSAA	off	x2	x4	x8
Water Quality	Normal	Normal	High	Very High
Particles Quality	Normal	Normal	High	Very High
Grass Quality	Normal	Normal	High	Ultra
Soft Shadows	Sharp	Soft	Softer	Softest
Post FX	Normal	Normal	High	Ultra
Motion Blur Strength	Off	Off	Off	Off
In-Game Depth Of Foeld Effects	Off	Off	Off	On
Anisotropic Filtering	Off	x4	x8	x16
Ambient Occlusion	Off	Normal	High	High
Tessellation	Off	Normal	High	Very High

Advanced Graphics	Low	Medium	High	Ultra
Long Shadows	Off	Off	Off	On
High Resolution Shadows	Off	Off	Off	On
High Detail Streaming While Flying	Off	Off	Off	On
Extended Distance Scaling	Off	Off	Off	100%
Extended Shadows Distance	Off	Off	Off	100%



Heroes of the Storm

Graphics Settings	GFE Optimized Settings	Custom Settings	Game Default Settings
Antialias	On	Off	Off
Resolution	1920x1080	1920x1080	1920x1080
Graphics Quality	Custom	Medium	High
Texture Quality	High	Medium	High
Shaders	High	Medium	High
Post-Processing	Medium	Medium	Medium
Shadows	High	Medium	High
Physics	Medium	Medium	High
Models	Ultra	High	High
Terrain	Ultra	Medium	High
Lighting	Ultra	Low	High
Movies	Low	Low	Low
Reflections	On	Off	Off
Effects	Medium	Medium	High
Indirect Shadows	Off	Off	Off

(1) Resolution:

You can lower screen resolution to get more FPS in game.

(2) FXAA (Fast Approximate Anti-Aliasing):

FXAA is an anti-aliasing algorithm. Turn it off can get more FPS in game.

(3) MSAA (Multi Sampling Anti-Aliasing):

MSAA is the most common option in games, but it's heavy on RAM and bandwidth.

(4) TXAA (Temporal anti-aliasing):

TXAA creates a smoother, clearer image than any other anti-aliasing solution by combining high-quality MSAA, post processes and temporal filters. However, it also costs system resource. Turn it off to gain more FPS.

(5) Vsync (Vertical synchronization):

Vsync can avoid tearing problem which is caused by different refresh rate from game and panel. But the option will lock the maximum FPS as panel refresh rate. If you want to get more FPS in game, please turn off Vsync.

(6) Graphic quality (Texture, Shadow, Reflection...etc.):

High graphic quality will bring us extraordinary images. There is no doubt that great pictures comes with the cost of performance. If you want to increase the FPS, please adjust suitable graphic quality for games.

(7) Others game settings (Such as Population Density/Variety and Depth of scene)

These options in GTA 5 will increase more scenes and NPC models. Reducing these kinds of settings can increase the game performance and FPS.

8. Close inessential programs.

Unnecessary programs will occupy system performance. Please stop useless tasks/programs in Task Manager or remove programs which are out of use in Programs and Features. You also can eliminate malware, spyware and viruses from your system.

Task Manager:

Name	Status	1% CPU	34% Memory	1% Disk	0% Network
Apps (9)					
Google Chrome (32 bit)		0%	117.6 MB	0 MB/s	0 Mbps
Internet Explorer (9)		0%	184.3 MB	0 MB/s	0 Mbps
Microsoft Outlook (32 bit) (2)		0%	138.5 MB	0 MB/s	0 Mbps
Microsoft PowerPoint (32 bit)		0%	29.9 MB	0 MB/s	0 Mbps
Microsoft Word (32 bit) (2)		0%	49.6 MB	0 MB/s	0 Mbps
Paint		0%	41.5 MB	0 MB/s	0 Mbps
Skype (32 bit)		0.4%	93.4 MB	0 MB/s	0 Mbps
Task Manager		0%	12.0 MB	0.1 MB/s	0 Mbps
Windows Explorer (2)		0%	79.1 MB	0 MB/s	0 Mbps
Background processes (76)					
Adobe Acrobat Update Service ...		0%	1.5 MB	0 MB/s	0 Mbps
Device Association Framework ...		0%	9.1 MB	0 MB/s	0 Mbps
Elan Service		0%	0.4 MB	0 MB/s	0 Mbps
ETD Control Center		0%	3.0 MB	0 MB/s	0 Mbps
ETD Control Center Helper		0%	1.0 MB	0 MB/s	0 Mbps

Programs and Features:

Name	Publisher	Installed On	Size	Version
Adobe Acrobat Reader DC - Chinese Traditional	Adobe Systems Incorporated	7/16/2015	210 MB	15.008.20082
ELAN Touchpad 11.13.11.4_X64_WHQL	ELAN Microelectronic Corp.	4/30/2015		11.13.11.4
FileZilla Client 3.9.0.6	Tim Kosse	12/23/2014	22.5 MB	3.9.0.6
Google Chrome	Google Inc.	12/17/2014		44.0.2403.107
Intel(R) Manageability Engine Firmware Recovery Agent	Intel Corporation	12/16/2014	58.0 MB	1.1.0.36960
Intel® Graphics Driver	Intel Corporation	4/30/2015	74.2 MB	10.18.10.3995
Intel® Management Engine Components	Intel Corporation	12/17/2014	20.4 MB	9.0.20.1447
Intel® PROSet/Wireless Software	Intel Corporation	4/30/2015	251 MB	17.13.11
Intel® Rapid Storage Technology	Intel Corporation	12/17/2014		12.8.0.1016
KB9X Radio Switch Driver	ENE TECHNOLOGY INC.	12/17/2014		1.1.0.0
Microsoft Office Professional Plus 2010	Microsoft Corporation	12/17/2014		14.0.6029.1000
Microsoft Visual C++ 2008 Redistributable - x64 9.0.30729.4148	Microsoft Corporation	12/16/2014	13.1 MB	9.0.30729.4148
Microsoft Visual C++ 2008 Redistributable - x64 9.0.30729.6161	Microsoft Corporation	12/30/2014	11.5 MB	9.0.30729.6161
Microsoft Visual C++ 2008 Redistributable - x86 9.0.30729.4148	Microsoft Corporation	12/16/2014	10.1 MB	9.0.30729.4148
Microsoft Visual C++ 2008 Redistributable - x86 9.0.30729.6161	Microsoft Corporation	12/30/2014	8.78 MB	9.0.30729.6161
Microsoft Visual C++ 2010 x64 Redistributable - 10.0.40219	Microsoft Corporation	12/16/2014	13.8 MB	10.0.40219
Microsoft Visual C++ 2010 x86 Redistributable - 10.0.40219	Microsoft Corporation	12/16/2014	11.1 MB	10.0.40219
Microsoft Visual C++ 2012 Redistributable (x64) - 11.0.51106	Microsoft Corporation	12/17/2014	20.5 MB	11.0.51106.1
MiRouter	小米通訊技術有限公司	7/6/2015		1.1.1