FAQ No. 01990

PCI-e Storage Device Upgrade advisory

Affected Model: MSI notebooks which supports PCI-e storage devices is shown in FAQ with “PCI-e (NVMe)” in M.2 SSD Interface column.

Q: What should I know before upgrading PCI-e storage devices on my notebook?

A: MSI suggest to do the upgrade at our local service center to install our approval PCI-e (NVMe) SSD for your notebook.

If you’d like to do the upgrade on your own, please read through the information below before doing the upgrade and note that MSI can’t guarantee the SSD performance and stability if you’re not using our approval SSD.

Contact with our local service center for help if you have any further questions.

1. PCI-e (NVMe) SSD Thermal Considerations

One of the most pressing concerns with PCI-e (NVMe) SSD is its greater susceptibility to temperature throttling. Due to the slim form factor, SSD’s inability to effectively disperse heat gives an easily overheat result under heavy load.

Once SSD’s temperature reaches a certain threshold, SSD’s overheating protection mechanism will be activated and may cause the performance drop, or even worst forced the system shut down.

2. Compatilbity of PCI-e (NVMe) SSD

PCI-e (NVMe) SSD is the newer standard storage device, if you're using the unapproval SSD, you may have compatilbity problems below. To solve the problem, we suggest to contact with our local service center and let them do the update with our approval SSD or ask for further upgrade support.

I. **PCI-e SSD can work properly but the information in BIOS shows incorrectly**

If the system can runs properly without problems, try to update the latest BIOS version released on MSI website since the newer version may improve the compatiblity with the storage devices. You may also leave the concern since the information display problem doesn't affect the system at all.

II. **PCI-e SSD can't work properly and the information in BIOS shows incorrectly**

You may contact with the SSD manufacturer and try to update the latest firmware if available or update the latest BIOS released on MSI website for your notebook.

**Some SSD's option ROM (OROM) cannot get pass Secure Boot. In order to boot from the SSD, please disable Secure Boot*1 in BIOS.*

*1: Find the **Secure Boot** options in BIOS by entering BIOS Setup Menu > Security > Secure Boot menu > Secure Boot Support.

3. Windows 7 Support

To get the most stable, compatible and fully functional support of PCI-e (NVMe) SSD, MSI suggests to run Windows 10 which supports UEFI natively.

To install Windows 7 on PCI-e (NVMe) SSD supported notebooks, is a complex and time-consuming procedure. It takes extra steps and also advanced technical knowledge to perform. Even if the installation has completed, there are still high risks that the system will face compatibility problems and limitations listed below. MSI can't guarantee that Windows 7 can run properly without problems on PCI-e (NVMe) SSD due to its limitations and concerns.

I. **Windows 7 Compatibility Considerations**

Windows 7 does NOT support UEFI natively and has to run under compatibility support mode in order to be installed on PCI-e (NVMe) storage devices. Potential risks of having compatibility problems running Windows 7 should be aware of.

II. Limited support on Windows 7 by SSD manufacturers

To successfully use an PCI-e (NVMe) SSD as a boot device, the operating system must supports NVMe. Unlike Windows 10 supports NVMe natively, Windows 7 needs the additional NVMe driver and advanced technical knowledge to complete the installation.

Some SSD manufacturers, like Intel, provide the NVMe driver but claims that their SSD has limited support in Windows 7.

For others that don't provide Windows 7 NVMe drivers, you may try the hotfix provided by Microsoft to add native driver support in NVMe in Windows 7.

Please be aware that Microsoft makes no warranty, implied or otherwise, about the performance or reliability of these PCI-e (NVMe) products.