SSD7000 Series UEFI ROM Update Guide (PC)

V1.00 - August 2020

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Overview

This guide explains how to update SSD7000 Series NVMe RAID controllers' UEFI ROM using a PC platform.

Prerequisites

This section describes the base hardware and software requirements for SSD7000 Series NVMe RAID Controllers.

Update UEFI ROM

This section describes how to update the UFEI ROM using a PC.

Troubleshooting

Please consult this section if you encounter any difficulties flashing SSD7000 Series NVMe Controller UEFI ROM. It includes descriptions and solutions for commonly reported technical issues.

Appendix

This section describes how to collect trouble shooting information for support cases you have submitted via our Online Support Portal.

Prerequisites

- 1. **NVMe Drives must be removed**. To avoid data loss, please remove all NVMe drives from the SSD7000 Series NVMe Controller.
- 2. **A PCIe 3.0/4.0 slot with x8 or x16 lane.** The SSD7202, SSD7103, SSD7105 or SSD7505 must be installed into a PCIe 3.0/4.0 slot with x8 or x16 lanes.
- 3. The motherboard needs to be booted into UEFI mode. Confirm that the motherboard boots in UEFI mode.
- 4. **USB flash drive: FAT32 format.** Make sure the file system of the USB flash drive is FAT32 format.

Update UEFI ROM

Step 1 Prepare UEFI ROM Package

1. Unzip the SSD7000 Series NVMe Controller UEFI package to the root dir (/) of a USB flash drive (e.g. FAT32), and insert the USB flash drive into the motherboard;

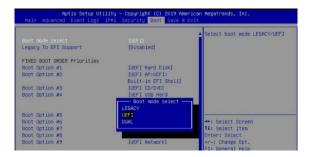
Please download UEFI software on the official website.

Product	Download Page Link
SSD7103	https://highpoint-tech.com/USA_new/series-ssd7103-download.htm
SSD7202	https://highpoint-tech.com/USA_new/series-ssd7202-download.htm
SSD7105	https://highpoint-tech.com/USA_new/series-ssd7105-download.htm
SSD7505	https://highpoint-tech.com/USA_new/series-ssd7500-download.htm

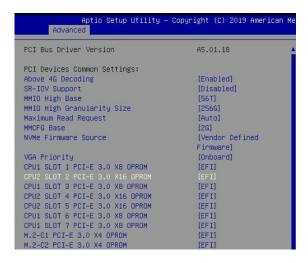
SSD7103:	SSD7202:
efi 7103uefi.rom ArrayCreate.efi load.efi README SSD7103.nsh startup.nsh	efi 7202uefi.rom ArrayCreate.efi load.efi README SSD7202.nsh startup.nsh
SSD7105:	SSD7505:
efi 7105uefi.rom ArrayCreate.efi load.efi README SSD7105.nsh startup.nsh	efi 7505uefi.rom ArrayCreate.efi load.efi README SSD7505.nsh startup.nsh

Step 2 Check System EFI Settings

- 1. Insert the SSD7000 series NVMe controller into the motherboard, power on the system, and enter the BIOS.
- 2. Change the UEFI settings (Example: SuperMicro X11DPi-NT motherboard):
 - a. Set 'Boot mode select' to 'UEFI':



b. Set the Slot where the SSD7000 Series NVMe Controller is located to 'EFI'.



3. Save changes and reboot.

Step 3 Flash the UEFI ROM

1. Boot from the UEFI USB flash drive and enter the UEFI interface;

```
Boot Override
UEFI: Built-in EFI Shell
UEFI: ASUS SDRW-O8D2S-U A801
UEFI: aigo U350 1100, Partition 4
Launch EFI Shell from filesystem device
```

2. Enter the following command to flash the UEFI ROM to the SSD7000 NVMe Controller:

SSD7xxx.nsh

When the message 'Passed' appears, the flash was successful.

SSD7103:

```
Shell> echo -off
FSO:\> SSD7103.nsh
FSO:\> load.efi 7103uefi.rom
Load Utility for Flash EPROM v1.0.5
(built at Mar 2 2020 14:39:05)

Found adapter 0x71031103 at PCI 142:0:0
Flash size 0x10000, File size 0xe400
Offset address 0x20000
EPROM Vendor: WINBOND W25X40BV
Erasing ....Suceeded
Flashing ....
Flashing Success (total retry 0)

Verifing ....
Passed !
```

SSD7202:

```
Shell> echo -off
FSO:\> SSD7202.nsh
FSO:\> load.efi 7202uefi.rom
Load Utility for Flash EPROM v1.0.5
(built at Mar 12 2020 13:34:24)

Found adapter 0x72021103 at PCI 138:0:0
Flash size 0x10000, File size 0xe200
Offset address 0x20000
EPROM Vendor: WINBOND W25X40BV
Erasing ....Suceeded
Flashing ....
Flashing Success (total retry 0)

Verifing ....
Passed !
```

SSD7105:

```
Shell> echo -off
FSO:\> SSD7105.nsh
FSO:\> load.efi 7105uefi.rom
Load Utility for Flash EPROM v1.0.7
  (built at Jul 16 2020 18:40:15)

Found adapter 0x71051103 at PCI 140:0:0
Flash size 0x10000, File size 0xea00
Offset address 0x20000
EPROM Vendor: WINBOND W25X40BV
Erasing ....Suceeded
Flashing ....
Flashing Success (total retry 0)

Verifing ....
Passed !
```

SSD7505:

```
Shell> echo -off
FSO:\> SSD7505.nsh
FSO:\> load.efi 7505uefi.rom
Load Utility for Flash EPROM v1.0.6
  (built at May 13 2020 17:21:35)

Found adapter 0x75051103 at PCI 144:0:0
Flash size 0x10000, File size 0xea00
Offset address 0x20000
EPROM Vendor: WINBOND W25X40BV
Erasing .....Suceeded
Flashing ....
Flashing Success (total retry 0)

Verifing ....
Passed !
```

3. Reboot to complete the update process.

Troubleshooting

Problem 1: No supporting host adapter is found

When using the 'SSD7xxx.nsh' command, the procedure does not start and the message 'No supporting host adapter is found' is displayed:

```
FSO:\> SSD7103.nsh
FSO:\> load.efi 7103uefi.rom
Load Utility for Flash EPROM v1.0.4
(built at Apr 28 2019 16:51:40)
No supporting host adapter is found.
FSO:\>
```

Solution:

Shutdown the system and move the SSD7000 controller to another PCIe slot, and repeat the flash procedure. If the problem still occurs, please refer to the <u>appendix</u> for collection.

Appendix

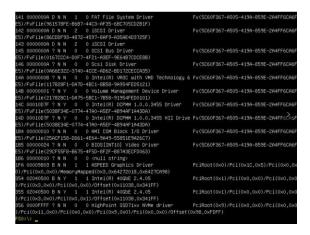
Collecting SSD7000 Series UEFI information

- 1. Unzip the SSD7000 Series NVMe Controller UEFI package to the root dir (/) of a USB flash drive, and insert the USB flash drive into the PC.
- 2. Make sure the SSD7000 Series NVMe Controller is installed into a PCIe 3.0/4.0 slot with x8 or x16 lanes;
- 3. Boot from the UEFI USB flash drive and enter the UEFI interface;
- 4. At the command prompt, type the following command and press Enter:

drivers



The following information will be displayed:



5. Save the driver information that is displayed on screen using the following command:

drivers > drivers.txt



It will save drivers' log to the USB drive, as the file "drivers.txt".

6. At the command prompt, type the following command and press Enter:

pci



The following information will be displayed:

7. Save the on-screen pci information using the following command:

pci > pci.txt



This will save the pci's log to the USB boot drive, as the file "pci.txt".

8. You can now check the contents of the drivers.txt and pci.txt that were saved to the USB flash drive. The items highlighted in red below file indicate that the SSD7000 Series NVMe Controller was recognized, and the driver loaded normally:

SSD7103:

drivers.txt:

```
14A 00000008 ? N N O 0 Intel(R) VROC with VMD Technology 6 Fv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(117828F1-DA7D-48C1-8858-9A954FED5121)
14B 00000001 ? N Y O 0 Volume Management Device Driver Fv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(17828E1-DA7D-48C1-8858-9A954FED0101)
14C 0001007F ? N Y O 0 Intel(R) DCPMM 1.00.3455 Driver Fv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(3058F48-0774-47AD-A5FF-4B94A1-A43DA)
14D 0001007F ? N Y O 0 Intel(R) DCPMM 1.00.3455 HIII Drive Fv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(5038F24-0774-47AD-A5FF-4B94A1-A43DA)
14D 0001007F ? N Y O 0 Intel(R) DCPMM 1.00.3455 HIII Drive Fv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(25ACF18-B076-4F6A9-5535159A26C7)
18D 00000024 ? N N O 0 BIO(SINT10) (video Driver Fv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(25CF55F8-B675-4F5D-872F-8B7A3ECFD063)
18B 00000017 ? N N O 0 cmil string>
1FA 00009803 B N N 1 1 ASPEED Graphics Driver Pv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(25CF55F8-B675-4F5D-872F-8B7A3ECFD063)
18B 00000017 ? N N O 0 cmil string>
1FA 00009803 B N N 1 1 ASPEED Graphics Driver Pv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(25CF55F8-B675-4F5D-872F-8B7A3ECFD063)
18B 00000017 ? N N O 0 cmil string>
1FA 00009803 B N N 1 1 ASPEED Graphics Driver Pv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(25CF55F8-B675-4F5D-852F-867A3ECFD063)
18B 00000017 (N N O) 0 cmil string>
1FA 00009803 B N N 1 1 ASPEED Graphics Driver Pv(SC60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(25CF55F8-B675-4F5D-852F-867A3ECFD063)
18B 00000017 (N N O) 0 cmil string>
1FA 00009803 B N N 1 1 ASPEED Graphics Driver Pv(Sc60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(25CF55F8-B675-4F5D-852F-867A3ECFD063)
18B 00000017 (N N O) 0 cmil string>
1FA 00009803 B N N 1 1 ASPEED Graphics Driver Pv(Sc60F367-A505-419A-859E-2A4FF6CA6FES)/FvFile(25CF55F8-B675-4F5D-852F-867A3ECFD063)
18B 00000017 (N N N O) 0 cmil string>
1FA 00009803 B N N 1 1 ASPEED Graphics Driver Pv(Sc60F367-A505-419A-859E-2A4F1A47AD-A54F4-A47AD-A54F4-A47AD-A54F4-A47AD-A54F4-A47AD-A54F4-A47AD-A54F4-A47AD-
```

pci.txt:

SSD7202:

drivers.txt:

```
141 0000000A D -- 1 - FAT File System Driver Fat
142 000000A D -- 2 - ISCSI Driver IScsiDxe
143 000000A D -- 2 - ISCSI Driver IScsiDxe
143 000000A C -- 2 - ISCSI Driver IScsiDxe
144 000000A C -- - Scsi Bus Driver ScsiBus
146 000000A C -- - Scsi Bus Driver ScsiBus
140 000000B C -- - Intel(R) VROC with VMD Technology 6 FvFile(117828F1-DA7D-4BC1-
8858-94954FED5121)
148 0000001 7 - X - Volume Management Device Driver FvFile(217828C1-DA75-5BC1-
7858-91954ED0101)
14C 0001007F 7 - X - Intel(R) DCPMM 1.0.0.3455 Driver FvFile(5038F34E-0774-47A0-A5EF-
4894AF1A45A)
14D 00000107F 7 - X - Intel(R) DCPMM 1.0.0.3455 Triver FvFile(5038E34E-0774-47A0-A5EF-
4894AF1A45A)
184 000000107F 7 - X - AMI CSM Block I/O Driver
185 000000017 - - - - BiOS(INT10) Video Driver
186 000000017 - - - - Gull string 174 0000980 B - X 1 1 Intel(R) 40GbE 2.405
350 02040500 B - X 1 1 Intel(R) 40GbE 2.405
350 02040500 B - X 1 1 Intel(R) 40GbE 2.405
351 000000117 - - - - HighPoint SSD7xxx NVMe driver Offset(0x1038,0x341FF)
351 000000017 - - - - HighPoint SSD7xxx NVMe driver Offset(0x1038,0x341FF)
```

pci.txt:

```
00 87 08 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8747 Prog Interface 0
00 87 09 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8747 Prog Interface 0
00 87 10 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8747 Prog Interface 0
00 87 11 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8747 Prog Interface 0
00 8A 00 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8747 Prog Interface 0
01 8A 00 00 ==> Mass Storage Controller - RAID controller
Vendor 1103 Device 7202 Prog Interface 0
01 0A E 05 00 ==> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2057 Prog Interface 0
01 0A E 05 00 ==> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2058 Prog Interface 0
01 0A E 05 00 ==> Base System Peripherals - PIC
Vendor 8086 Device 2056 Prog Interface 20
01 0A E 05 00 ==> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2056 Prog Interface 0
01 0A E 05 00 ==> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2056 Prog Interface 0
01 0A E 04 00 ==> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2056 Prog Interface 0
01 0A E 04 00 ==> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2056 Prog Interface 0
```

SSD7105:

drivers.txt:

pci.txt:

```
00 87 09 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8749 Prog Interface 0
00 87 10 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8749 Prog Interface 0
00 87 11 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8749 Prog Interface 0
00 87 11 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8749 Prog Interface 0
00 87 12 00 ==> Bridge Device - PCL/PCI bridge
Vendor 1085 Device 8749 Prog Interface 0
00 8C 00 00 ==> Mass Storage Controller - RAID controller
Vendor 1103 Device 7105 Prog Interface 0
00 8C 00 00 ==> Mass Stystem Peripherals - Other system peripheral
Vendor 8086 Device 2085 Prog Interface 0
00 AE 05 00 ==> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2086 Prog Interface 0
00 AE 05 04 ==> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2086 Prog Interface 0
00 AE 00 0=> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2086 Prog Interface 0
00 AE 00 0=> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2086 Prog Interface 0
00 AE 0A 00 ==> Base System Peripherals - Other system peripheral
Vendor 8086 Device 2086 Prog Interface 0
```

SSD7505:

drivers.txt:

pci.txt:

```
00 89 1C 00 ==> Bridge Device - PCI/PCI bridge

Vendor 1000 Device C010 Prog Interface 0

08 00 00 ==> Bridge Device - PCI/PCI bridge

Vendor 1000 Device C010 Prog Interface 0

08 F 14 00 ==> Bridge Device - PCI/PCI bridge

Vendor 1000 Device C010 Prog Interface 0

08 F 15 00 ==> Bridge Device - PCI/PCI bridge

Vendor 1000 Device C010 Prog Interface 0

09 00 00 00 ==> Mass Storage Controller - RAID controller

Vendor 1103 Device 7505 Prog Interface 0

09 20 00 00 ==> Mass Storage Controller - Other mass storage controller

Vendor 1000 Device C010 Prog Interface 0

00 AE 05 00 ==> Base Storage Controller - Other mass storage controller

Vendor 8086 Device 2034 Prog Interface 0

00 AE 05 00 ==> Base System Peripherals - Other system peripheral

Vendor 8086 Device 2035 Prog Interface 0

00 AE 05 04 ==> Base System Peripherals - Other system peripheral

Vendor 8086 Device 2036 Prog Interface 0

00 AE 05 04 ==> Base System Peripherals - Other system peripheral

Vendor 8086 Device 2036 Prog Interface 0

00 AE 08 00 ==> Base System Peripherals - Other system peripheral

Vendor 8086 Device 2056 Prog Interface 0

00 AE 09 00 ==> Base System Peripherals - Other system peripheral

Vendor 8086 Device 2056 Prog Interface 0
```

If you fail to update SSD7000 Series NVMe Controller UEFI ROM, please submit a support ticket using our <u>Online Support Portal</u>, include a description of the problem in as much detail as possible, and upload the **driver.txt** & **pci.txt** information.