

Intel® X18-M and X25-M SATA Solid State Drive Firmware Update Tool

Guidelines



INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. Intel products are not intended for use in medical, life saving, life sustaining, critical control or safety systems, or in nuclear facility applications.

Intel may make changes to specifications and product descriptions at any time, without notice.

Intel Corporation may have patents or pending patent applications, trademarks, copyrights, or other intellectual property rights that relate to the presented subject matter. The furnishing of documents and other materials and information does not provide any license, express or implied, by estoppel or otherwise, to any such patents, trademarks, copyrights, or other intellectual property rights.

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 Guidelines, as well as the software described in it, is furnished under license and may only be used or copied in accordance with the terms of the license. The information in this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Intel Corporation. Intel Corporation assumes no responsibility or liability for any errors or inaccuracies that may appear in this document or any software that may be provided in association with this document.

Except as permitted by such license, no part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the express written consent of Intel Corporation.

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 by visiting Intel's website at <http://www.intel.com>.

*Other names and brands may be claimed as the property of others. Copyright © 2009, Intel Corporation. All Rights Reserved.



Contents

1.0	Overview	5
1.1	Purpose	5
1.2	System Requirements	5
2.0	Known Issues	6
2.1	RAID and RAID0 Platforms	6
2.2	Apple* Safari*	6
2.3	Nvidia* Chipsets	6
3.0	Microsoft* Windows*/Linux Instructions.....	7
3.1	Perform the Setup	7
3.2	Download the Firmware Update Tool to CD-R.....	8
3.3	Run the Firmware Update Tool	10
3.4	Verify New Firmware Update.....	12
4.0	Apple* Macintosh* Instructions	14
4.1	Perform the Setup	14
4.2	Download the Firmware Update Tool to CD-R.....	14
4.3	Start the Firmware Update Process	18
5.0	Additional Information – How to Burn the ISO Image Using Microsoft* Windows* or Linux* OS.....	19
6.0	Reference Documents.....	21
7.0	Glossary	21
8.0	Revision History	21





1.0 Overview

1.1 Purpose

This document describes the process of updating the firmware on the Intel® X18-M and X25-M SATA Solid State Drives (SSDs). Easy to do, the firmware update process involves four simple steps:

1. Perform the setup as per section 3.1

2. Download the Firmware Update Tool to a CD-R

The tool is a self-contained firmware update package formatted as an ISO image on a CD-R.

3. Run the Firmware Update Tool

When installed into a host system, the CD-R boots its own DOS environment and runs the necessary firmware update software to modify your Intel® SSD.

4. Verify the update

For Microsoft* Windows* and Linux operating systems, please use the update instructions apply in [Section 3](#).

For Apple* Mac OS* systems please refer to [Section 4](#).

1.2 System Requirements

To use the Firmware Update Tool, you will need the following items:

- Intel® X18-M or X25-M Intel® SATA SSD
- Host system with a Read/Writable (R/W) CD-ROM Drive
- ISO image burning software usually provided with R/W CD-ROM Drive
- Blank CD-R
- A charged battery, if the update occurs on a mobile system



2.0 Known Issues

2.1 RAID and RAID0 Platforms

The Intel® X18-M/X25-M SATA SSD Firmware Update Tool does not support updating SSDs in systems using RAID. For RAID systems only, use the following instructions:

1. It is highly recommended for ANY RAID setup that you first back-up your data
2. Perform setup as per section 3.1
3. Burn the ISO image to a CD-R

Note: The RAID must be disabled by using BIOS in order to update the drives. Do not use the Intel® Matrix Storage Manager (IMSM) or any other software based RAID manager to disable the RAID option.

4. Using BIOS, turn off RAID by enabling "Legacy" or "Compatibility" mode, save and reboot
5. Run the firmware update tool
6. Verify firmware update
7. Using BIOS, re-enable RAID for both drives, save and reboot

2.2 Apple* Safari*

Please use the Mozilla* Firefox* browser as there is a known website incompatibility with Apple* Safari*.

2.3 Nvidia* Chipsets

Some Nvidia chipset-based systems, including Apple Macintosh systems using Nvidia chipsets, do not recognize an Intel® SSD. To update the Intel® SSD, use the following instructions:

1. Remove the Intel® SSD from the system.
2. Complete the firmware update on a non-Nvidia system.
3. After a successful firmware update, reinstall the Intel® SSD in the Nvidia-based system.
4. Reboot the Nvidia*-based system.



3.0 Microsoft* Windows* /Linux Instructions

3.1 Perform the Setup

Complete the following steps before starting the firmware update process on the PC containing the SSD.

1. Back Up the SSD

Perform a complete system backup on your Intel® SSD to ensure that no data is lost during the firmware update process. Intel® is not responsible for any data loss that might occur during or after a firmware update to a SSD.

Following a successful firmware update, data restoration should not be required.

2. Plug In the Power

For mobile PCs, ensure the computer's battery is fully charged. For desktop PCs, ensure your system is plugged in to AC power during the update process. Do not remove power at any time during the firmware update process as this could produce incomplete results and may render your Intel® SSD unusable.

3. Turn Off the Drive Password Protection

Some systems provide the ability to password protect their drives. If your system has password protection enabled, the Intel® SSD will reject any requests from the host to update the firmware. You will need to turn off the drive password protection prior to beginning the firmware update process.

Although it varies from system to system, you can usually find the Drive Password Protection feature located in the BIOS. Please consult your system's documentation for the BIOS settings and passwords.

If you are still unsure or need help disabling the drive password protection feature, please contact Intel® Customer support at the following website:

<http://www.intel.com/support/9089.htm>

4. Check the Boot Order

As a default, most systems will boot from the R/W CD-ROM drive before the system drive. To determine the boot order for your system, reboot and enter BIOS Setup. Depending on the BIOS vendor, look for a parameter named **Boot Device Priority** or **Boot Load Order**. Now ensure that the system boots the CD-ROM drive before the drive that contains the OS.

For more information on how to set the CD-ROM drive boot order, please consult the system documentation for your PC.

If you still need additional assistance checking the boot order, please contact Intel® Customer support at the following website:

<http://www.intel.com/support/9089.htm>

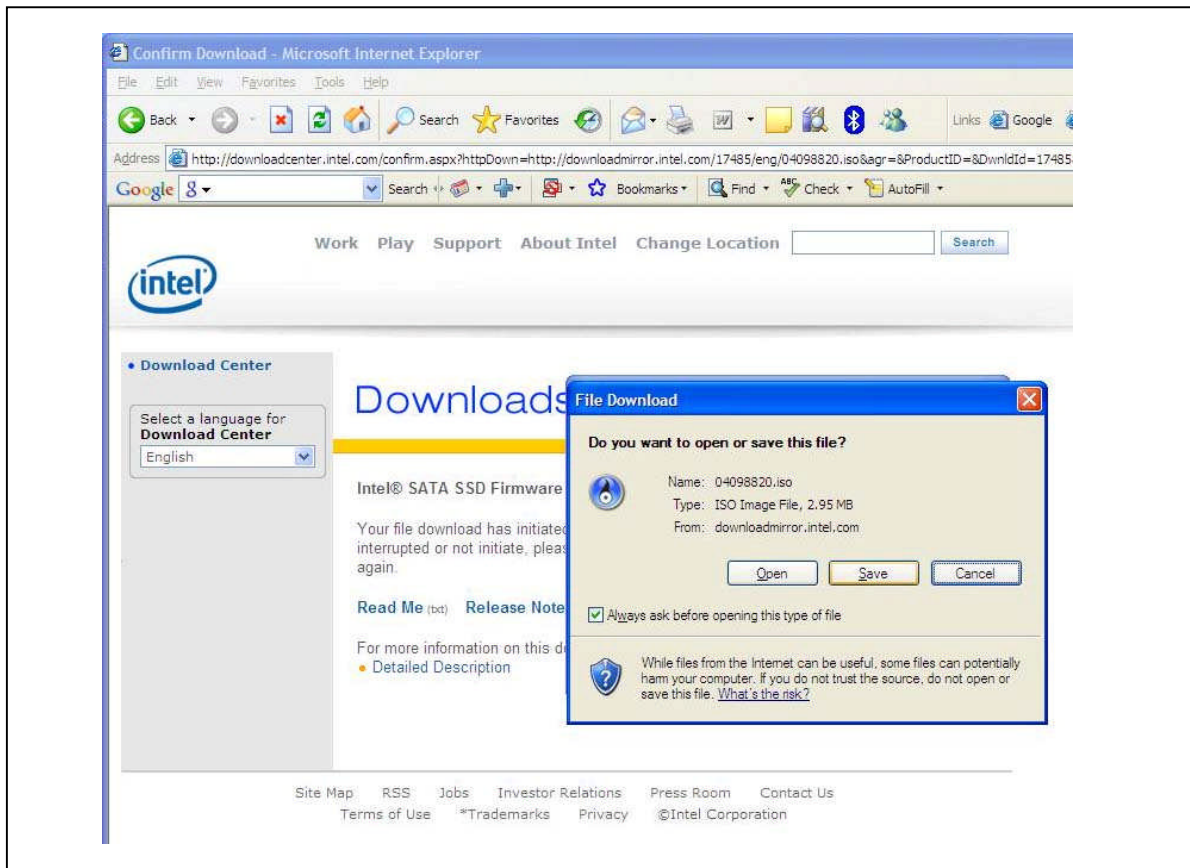
5. Close All Other Applications

Before beginning the firmware download process, close all other applications except for your Internet browser.

3.2 Download the Firmware Update Tool to CD-R

1. Go to Intel's® support website located at http://www.intel.com/support/ssdc/index_update.htm
2. Click the link under the **Update Now** heading to display the *Downloads* web page.
3. Review the *README.TXT* file to better understand the firmware update process. The *README.TXT* file contains high level instructions for using the firmware update tool.
4. Click **Download** to display the terms of the license agreement. (The *README.TXT* file also includes the license agreement information.) After reading the agreement, click **ACCEPT** (at the bottom of the page) to display the web page with the download firmware link.
5. Click **Intel® SATA SSD Firmware Update Tool** and the browser will prompt you to select **Open**, **Save** or **Cancel** (see Figure 1).

Figure 1. Download the ISO Image



6. Click **Open** to download the file.



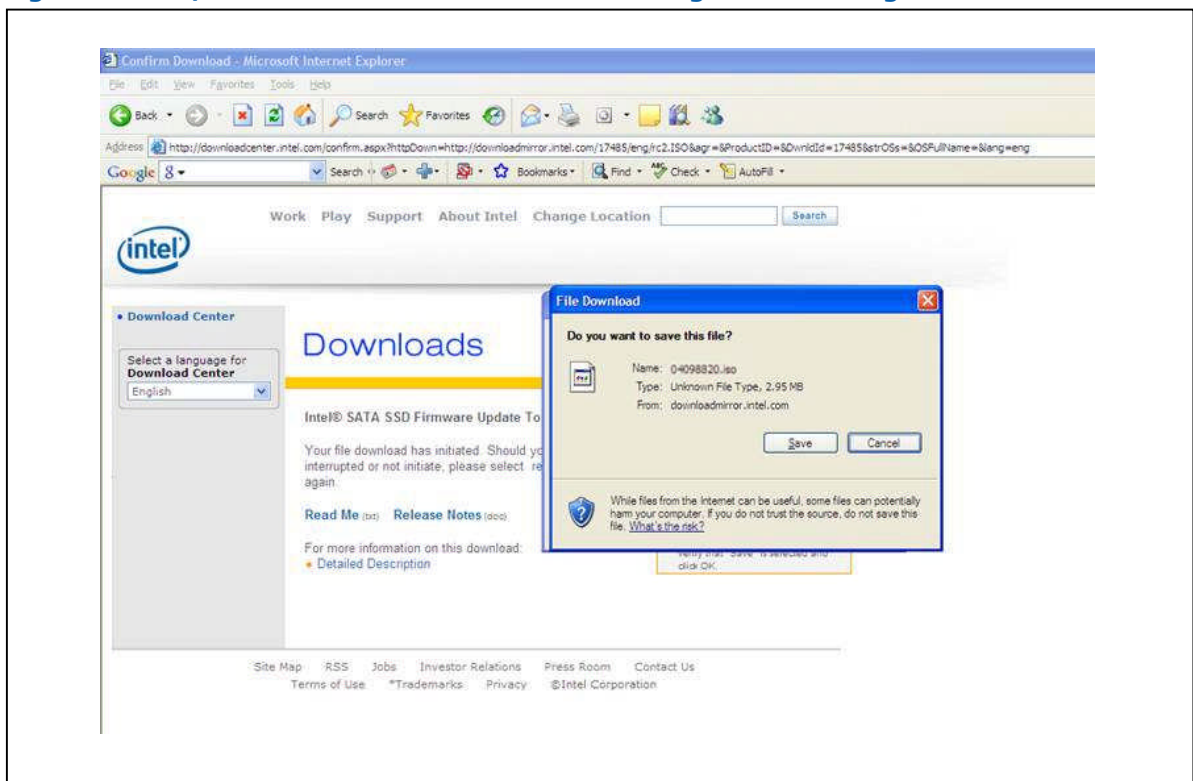
7. Your Read/Write CD-ROM drive software will guide you through the process of burning an ISO image. For more information, see [Section 5.0 Additional Information - How to Burn the ISO Image Using Microsoft* Windows* or Linux* OS](#).

Notes: Similar to an archive file and analogous to a disk image, an ISO image is specifically used for optical disks like CD-Rs in a format specified by the International Organization for Standardization (ISO).

You cannot just copy an ISO image to a blank CD-R. It will just appear as a data file and not work correctly. The ISO image contains all the files for the firmware update tool; it must be decoded with software and installed onto a CD-R.

8. If your R/W CD-ROM software does not recognize ISO images, you may see a screen similar to Figure 2.
 - Click **Save** to download the ISO image to your drive.
 - Locate a software package on the internet that burns ISO images. Install the application.
 - Double click the ISO image on your drive to decode the image and burn the Firmware Update Tool onto the CD-R.

Figure 2. R/W CD-ROM Software Does Not Recognize ISO Images

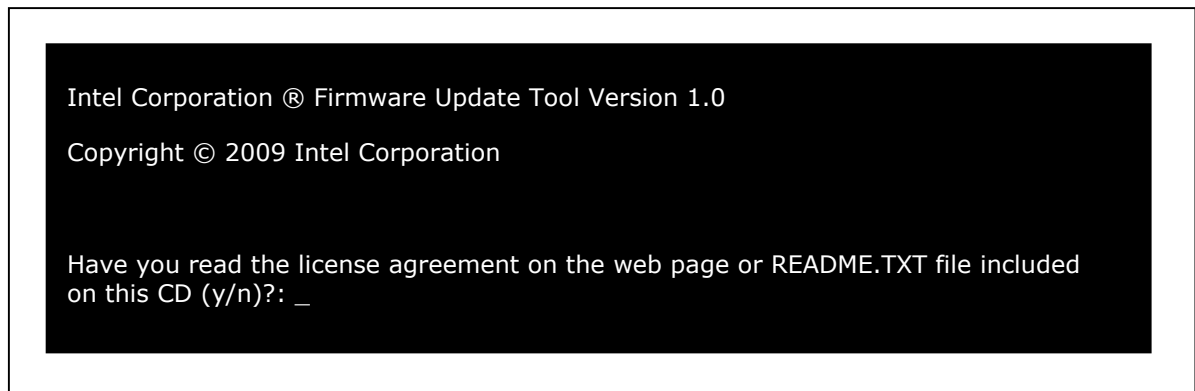


3.3 Run the Firmware Update Tool

After creating the ISO image CD-R, turning off Drive Password Protection, designating the CD-ROM drive to boot first or prior to the OS drive, fully charging the battery (for mobile) and plugging the power cable into the wall, you are ready to begin your firmware update.

1. Insert the CD-R containing the ISO image into the R/W CD-ROM drive.
2. Reboot the system from the CD-ROM drive, which will automatically load FreeDOS* and start the Firmware Update Tool. Let the program run until it displays the DOS screen shown in Figure 3.

Figure 3. Initial Start Screen



3. Enter **"y"** and press **Enter** to indicate you have read the license agreement.
4. Enter **"y"** and press **Enter** again to **"....accept these terms of use (y/n)?:"**.
5. The tool scans your system for Intel® SSDs and displays a screen similar to the one shown in Figure 4. If your system contains more than one Intel® SSD, the tool will display the first one it encounters.

Note: If the tool does not find an Intel® SSD, the program will display the following error message:

Intel SSD is not attached or is disabled.

If you know an Intel SSD is installed and correctly connected to your system, please contact Intel Customer Support for further assistance at the following website: <http://www.intel.com/support/9089.htm>.



Figure 4. Scanning for Intel® SATA SSDs



6. Enter **"y"** and press **Enter**. The tool will display a warning screen as shown in Figure 5.

Figure 5. Warning Screen

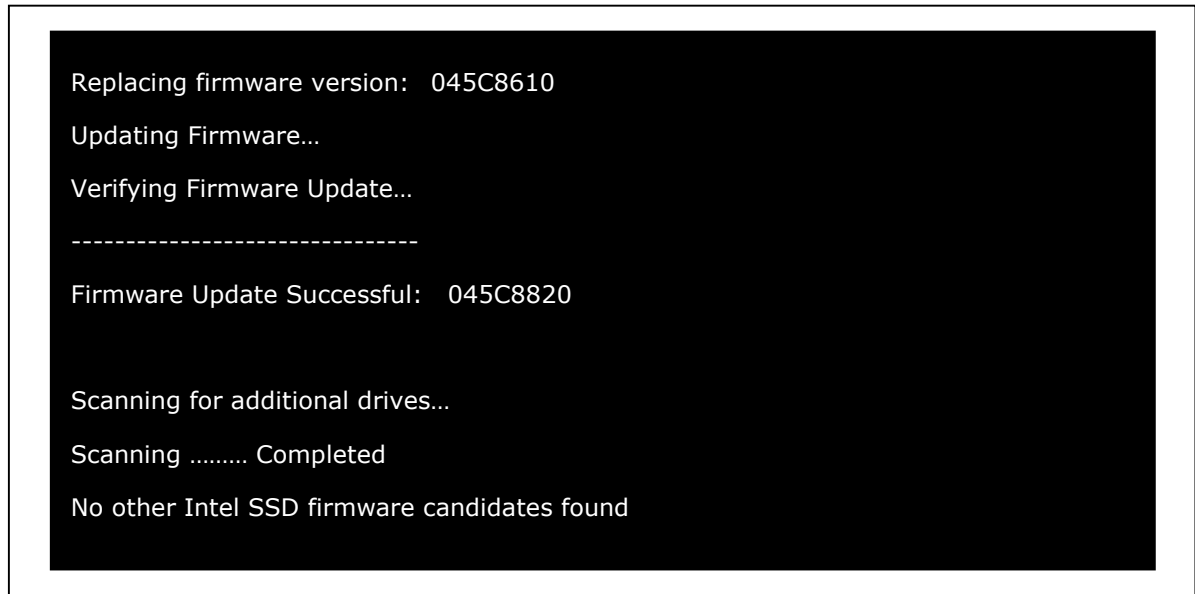


7. Enter **"y"** and press **Enter** to proceed with the update. It will take a couple of seconds to update the firmware on your SSD. It is critical that you do not remove power or reboot your system during this phase of the update. Doing so will produce unpredictable results and may render your SSD inoperable.



8. Once the update is complete, the tool will display the screen shown in Figure 6.

Figure 6. Firmware Update Successful



Upon completing the firmware update, the tool then scans your system for any other SSDs. If the scan locates additional Intel® SSDs, the tool will list the next Intel® SSD requiring an update and prompt you to update it as well. Repeat Steps 6 through 8 to update the firmware on each Intel® SSD found in your system.

3.4 Verify New Firmware Update

Use the following steps to verify that each Intel® SSD contains the new firmware.

1. Press **CTRL + ALT + DEL** to reboot the system. Be sure the CD with the ISO image is still in the CD-ROM; this will reload the Intel® X18-M/X25-M SATA SSD Firmware Update Tool.
2. Enter **"y"** and press **Enter** to indicate you have read the license agreement.
3. Enter **"y"** and press **Enter** again to **"...accept these terms of use (y/n)?:"** to reactivate the scanning process. The Firmware field should display **"045C8820"**. The last four digits, **"8820"**, indicate this SSD contains the correct firmware.



Figure 7. Scanning for Intel® SATA SSDs



4. Enter "n" and press **Enter** to "**Do you want to update this drive (y/n)?**". This will activate the scanning processing for the next Intel® SSD. Repeat until you have verified that each updated SSD contains the new firmware.
5. The firmware update process is now complete.
6. If applicable, see Steps 8-11 under [Section 2.1 RAID and RAID0 Platforms](#) to restore RAID0 (and AHCI mode, if previously changed to "Legacy" or "Compatibility") on your system.
7. Reboot your system. Your system should now boot from the SSD and your native OS should load.



4.0 Apple* Macintosh* Instructions

4.1 Perform the Setup

Complete the following steps before starting the firmware update process on the PC containing the SSD.

1. Back Up the SSD

Perform a complete system backup on your Intel® SSD to ensure that no data is lost during the firmware update process. Intel® is not responsible for any data loss that might occur during or after a firmware update to a SSD.

Following a successful firmware update, data restoration should not be required.

2. Plug In the Power

For mobile PCs, ensure the computer's battery is fully charged. For desktop PCs, ensure your system is plugged in to AC power during the update process. Do not remove power at any time during the firmware update process as this could produce incomplete results and may render your Intel® SSD unusable.

3. Close All Other Applications

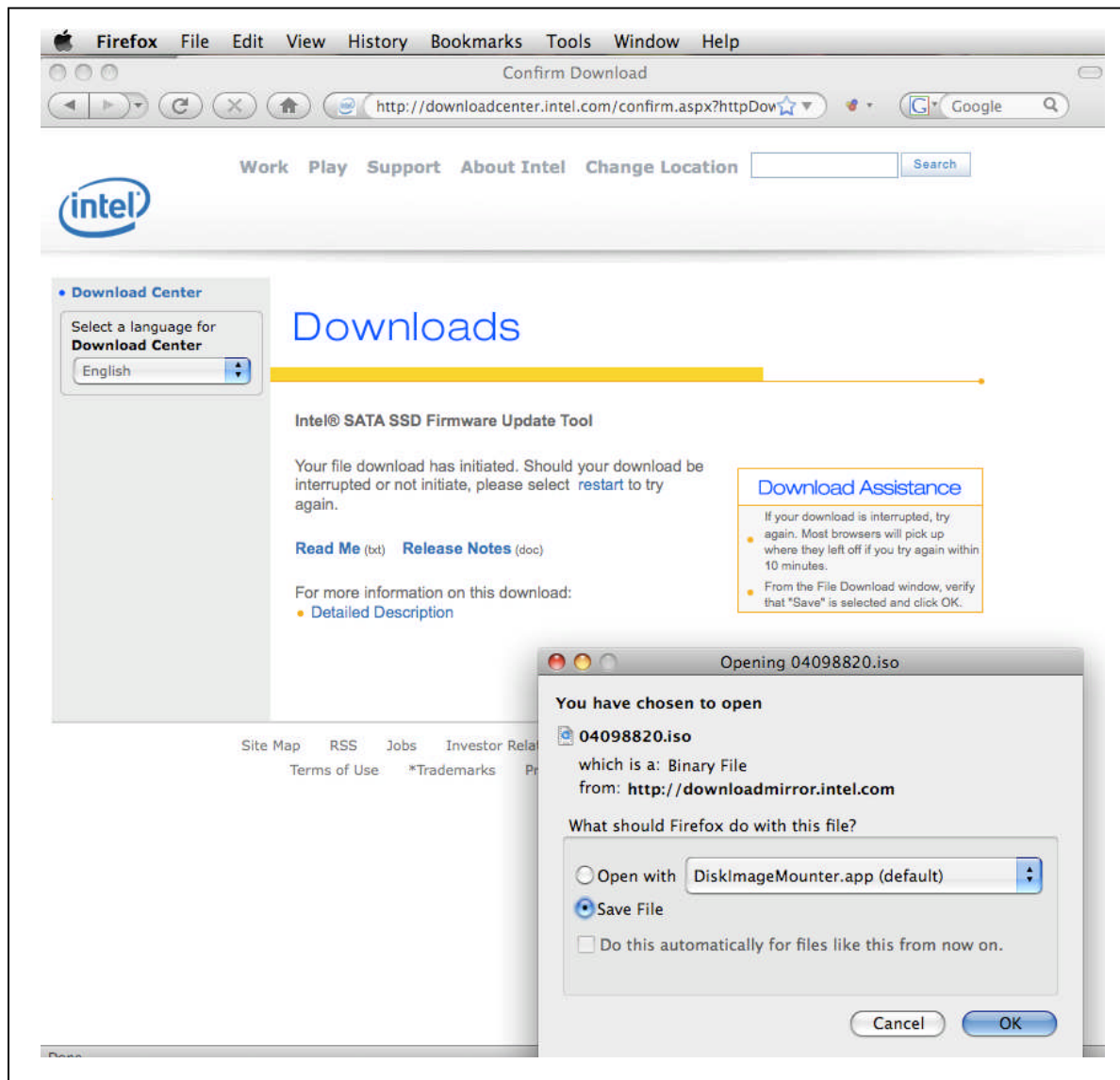
Before beginning the firmware download process, close all other applications except for your Internet browser.

4.2 Download the Firmware Update Tool to CD-R

1. Go to Intel's® [support website](http://www.intel.com/support/ssdc/index_update.htm) located at http://www.intel.com/support/ssdc/index_update.htm
2. Click the link under the **Update Now** heading to display the *Downloads* web page.
3. Review the *README.TXT* file to better understand the firmware update process. The *README.TXT* file contains high level instructions for using the firmware update tool.
4. Click **Download** to display the terms of the license agreement. (The *README.TXT* file also includes the license agreement information.) After reading the agreement, click **ACCEPT** (at the bottom of the page) to display the web page with the download firmware link.
5. Click **Intel® SATA SSD Firmware Update Tool** and the browser will prompt you to select **Open**, **Save** or **Cancel** (see Figure 8).



Figure 8. Download the ISO Image

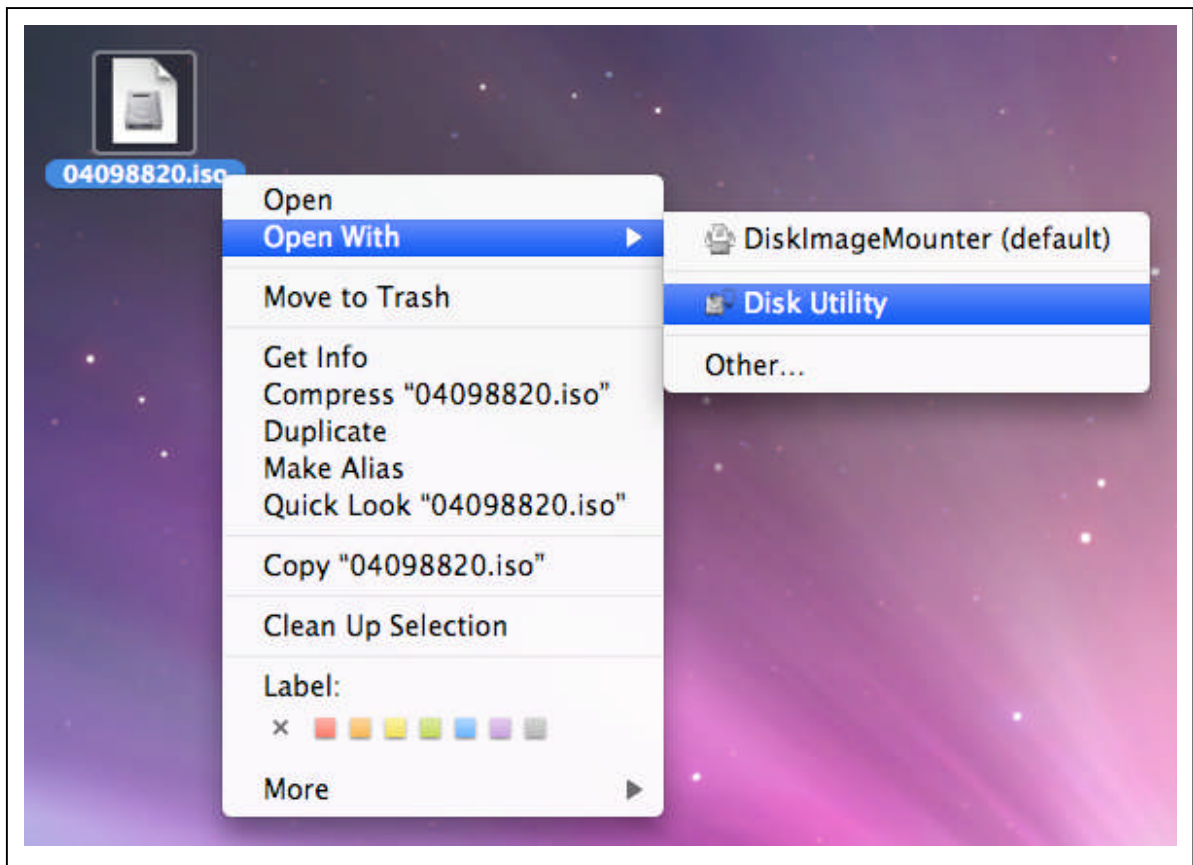


NOTES: The Mozilla* Firefox* product was used only as an example to create this screen shot and does not imply any endorsement or warranty by Intel.

6. Click **Save File** to download and save the ISO image.
7. Right click the ISO image and open **Disk Utility**. See Figure 9.

Note: You cannot save the ISO file to your hard drive and copy it to a blank CD-ROM. It will just appear as a file and not work correctly. The ISO image contains all the files for the firmware update tool; it must be decoded with software and installed onto a CD-ROM.

Figure 9. Selecting Disk Utility

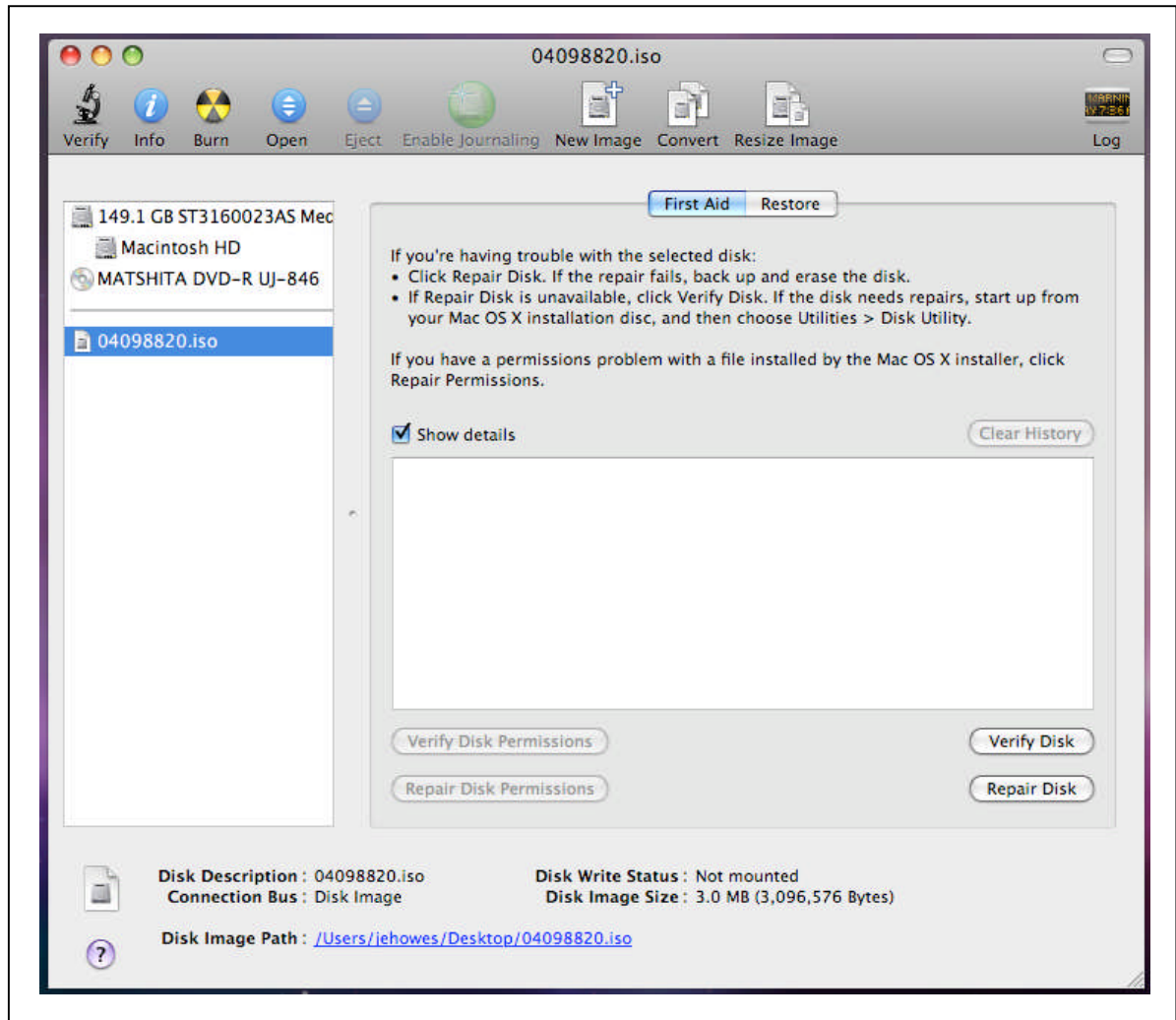


NOTES: These Apple* products were used only as examples to create this screen shot and do not imply any endorsement or warranty by Intel®.



8. With the Disk Utility open, click on the ISO image you downloaded.
9. Click on the **Burn** button in the toolbar.

Figure 10. Using Disk Utility to Burn ISO Image

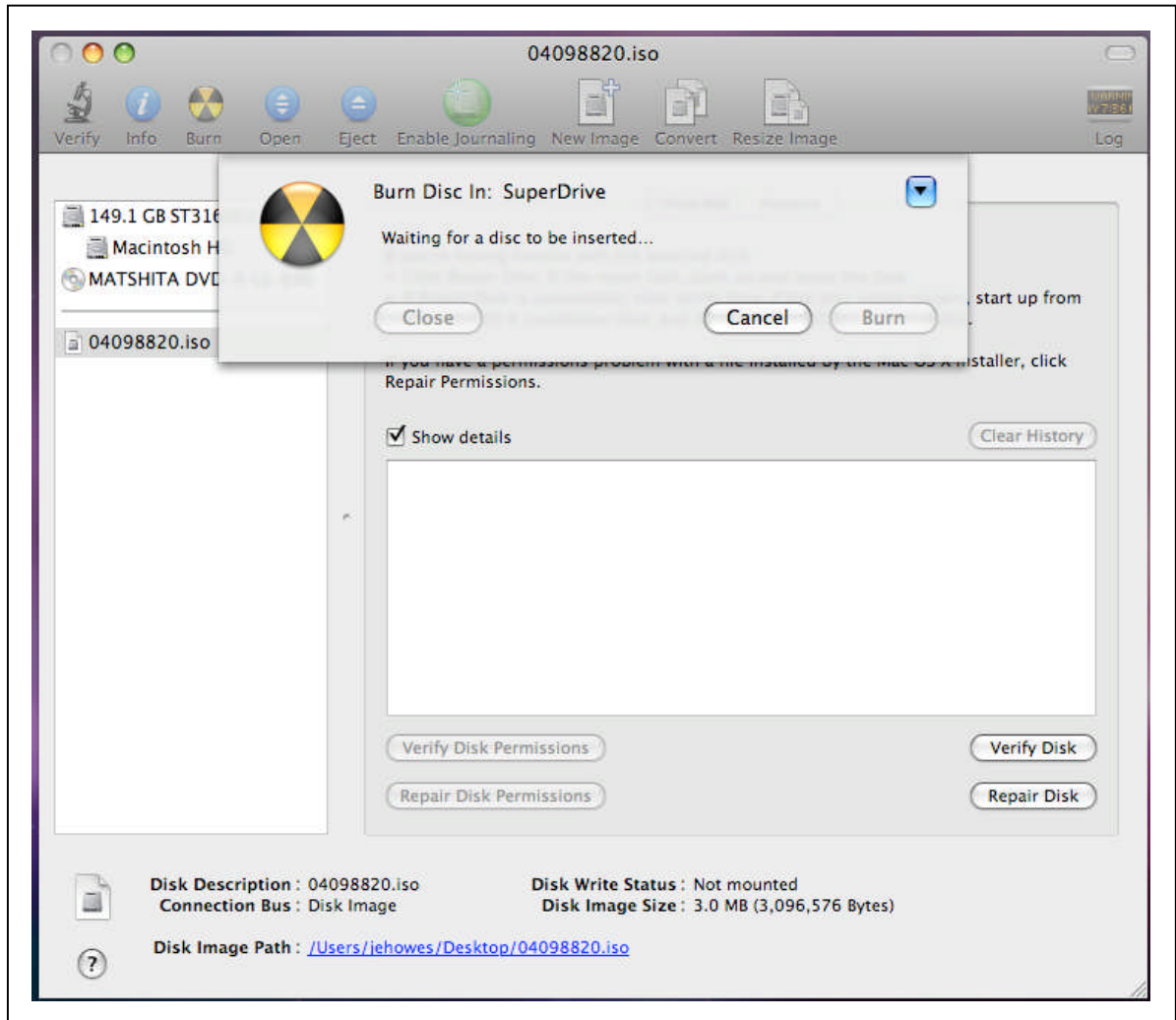


NOTES: The Apple* and Matsushita* products were used only as examples to create this screen shot and do not imply any endorsement or warranty by Intel®.

You will be prompted to

1. Install a blank CD-ROM.
2. Click on the **Burn** button. The application will display a status screen that is similar to Figure 11.

Figure 11. Image Burning Process – Mac OS



NOTES: The Apple* and Matsushita* products were used only as examples to create this screen shot and do not imply any endorsement or warranty by Intel®.

The process of burning a CD-ROM will take approximately five minutes.

4.3 Start the Firmware Update Process

After creating the ISO image CD, fully charging the battery (for mobile) and plugging the power cable into the wall, you are ready to begin your firmware update.

Please go to [Section 3.3 Run the Firmware Update Tool](#) and follow the steps to update the firmware. Then use [Section 3.4 Verify New Firmware Update](#) to confirm your Intel® SSDs contain the new firmware.

Note: Hold the “c” key down to force your system to boot from the CD-ROM drive.

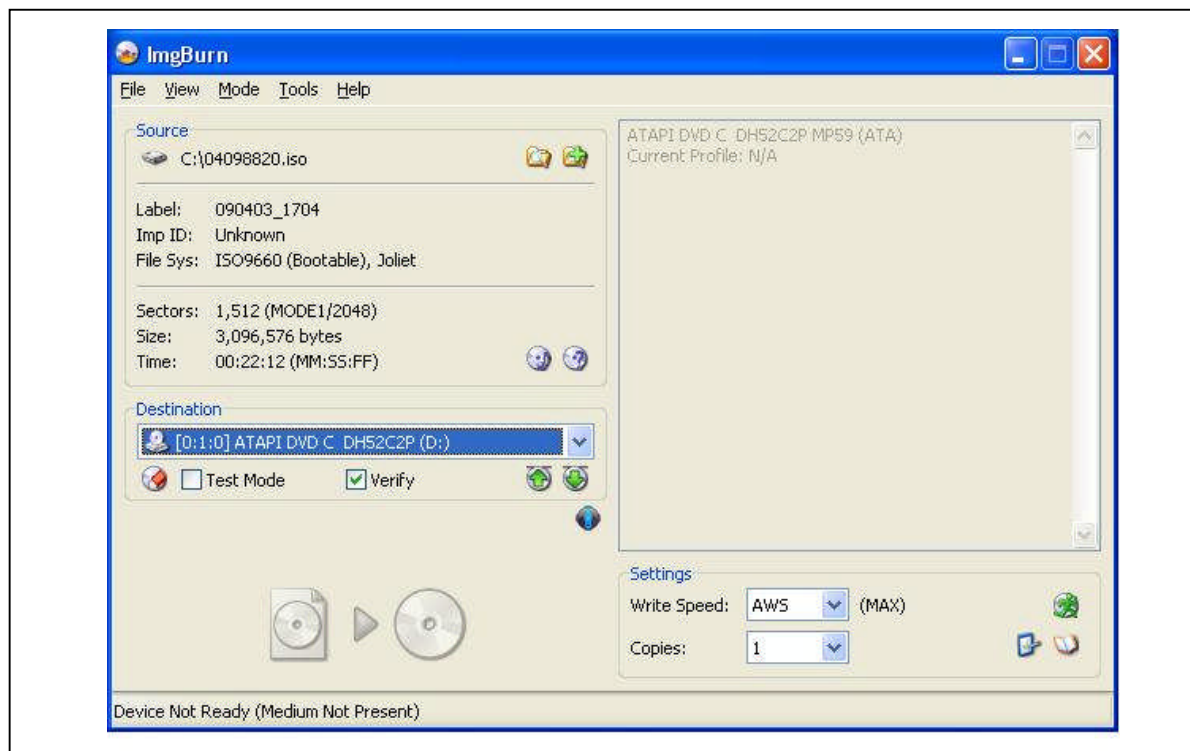


5.0 Additional Information – How to Burn the ISO Image Using Microsoft* Windows* or Linux* OS

Similar to an archive file and analogous to a disk image, an ISO image is specifically used for optical disks like CD-Rs in a format specified by the International Organization for Standardization (ISO). The Intel® X18-M/X25-M SATA SSD Firmware Update Tool image contains all the files needed to boot the CD-R and to run the firmware update process.

Once the download process begins, you may see a screen like the one in Figure 12.

Figure 12. Burning an ISO Image

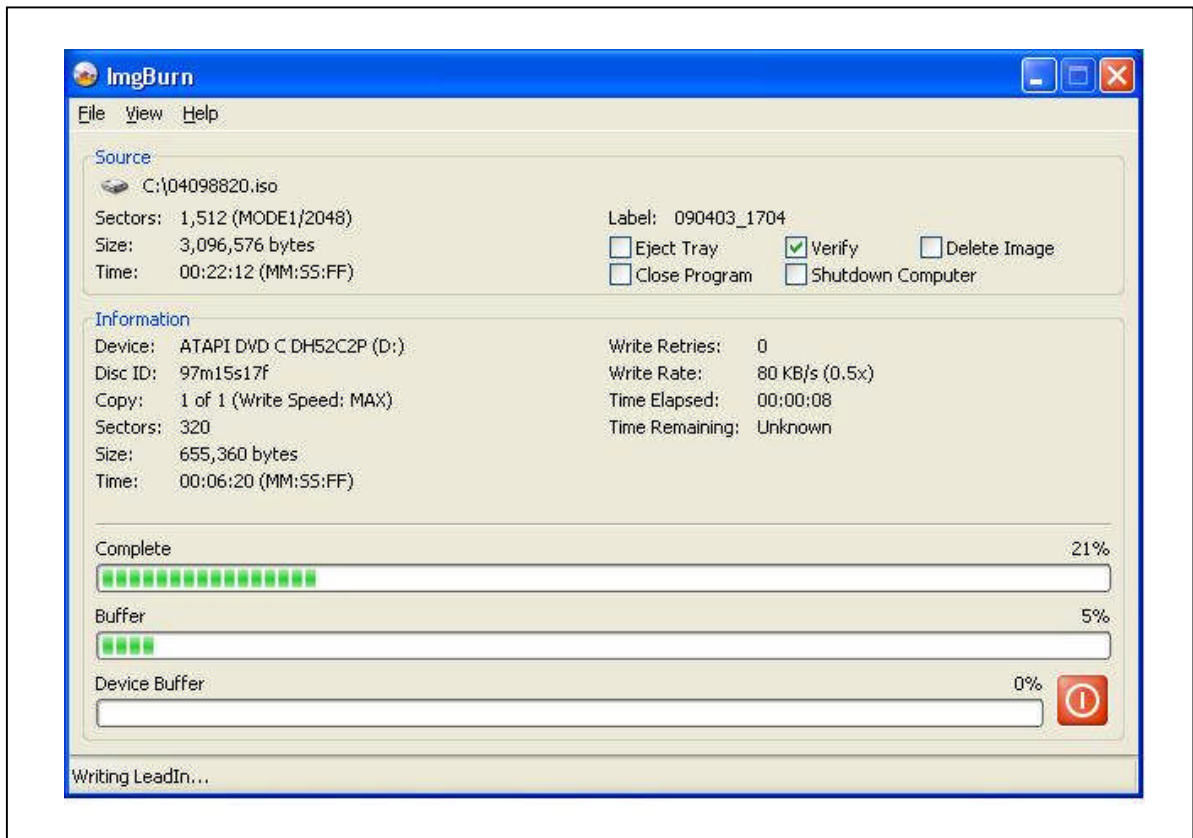


NOTES: The ImgBurn* and ATAPI DVD* products were used only as examples to create this screen shot and do not imply any endorsement or warranty by Intel®.

You will be prompted to

1. Install a blank CD-ROM.
2. Click on the **Burn** button. The application will display a status screen that is similar to Figure 13.

Figure 13. Image Burning Process



NOTES: The ImgBurn* and ATAPI DVD* products were used only as examples to create this screen shot and do not imply any endorsement or warranty by Intel®.

The process of burning a CD-ROM will take approximately five minutes.



6.0 Reference Documents

Table 1. Reference Documents

Document	Document No./Location
Intel® X18-M/X25-M SATA Solid State Drive Product Manual	318765-006US

7.0 Glossary

Table 2. Terms and Acronyms

Term	Description
AHCI	Advanced Host Controller Interface
ATA	Advanced Technology Attachment
ISO	International Organization for Standardization
ISO image	An archive file or disk image of an optical disc that uses the ISO format. Typically, the file has an .ISO extension; however, Apple* Mac OS* ISO images often use a .CDR extension.
SATA	Serial ATA
SSD	Solid State Drive

8.0 Revision History

Date	Revision	Description
April 2009	001	Initial release.