

BIOS Update  
Guide

# Keysight M9537A SL06 BIOS Update



## Description

This Keysight M9537A BIOS upgrade allows you to restore or update the BIOS in your M9537A AXIe Embedded Controller. This Update Guide is for BIOS version **SL06**.

As an overview, here are the primary steps to updating the BIOS:

Step 1: Create a bootable USB flash drive

Step 2: Obtain the M9537A BIOS files from Keysight.com

Step 3: Obtain AFUDOS.exe from AMI.com

Step 4: Boot to DOS then run batch files to update BIOS

Step 5: Verify the Update

The remainder of this guide provides detailed instructions for performing these steps.

The instructions use the Microsoft Windows Internet Explorer (IE) browser on a Keysight M9537A Embedded Controller running Windows 10. If you use a different browser or PC, the screens may look different from the pictures below.

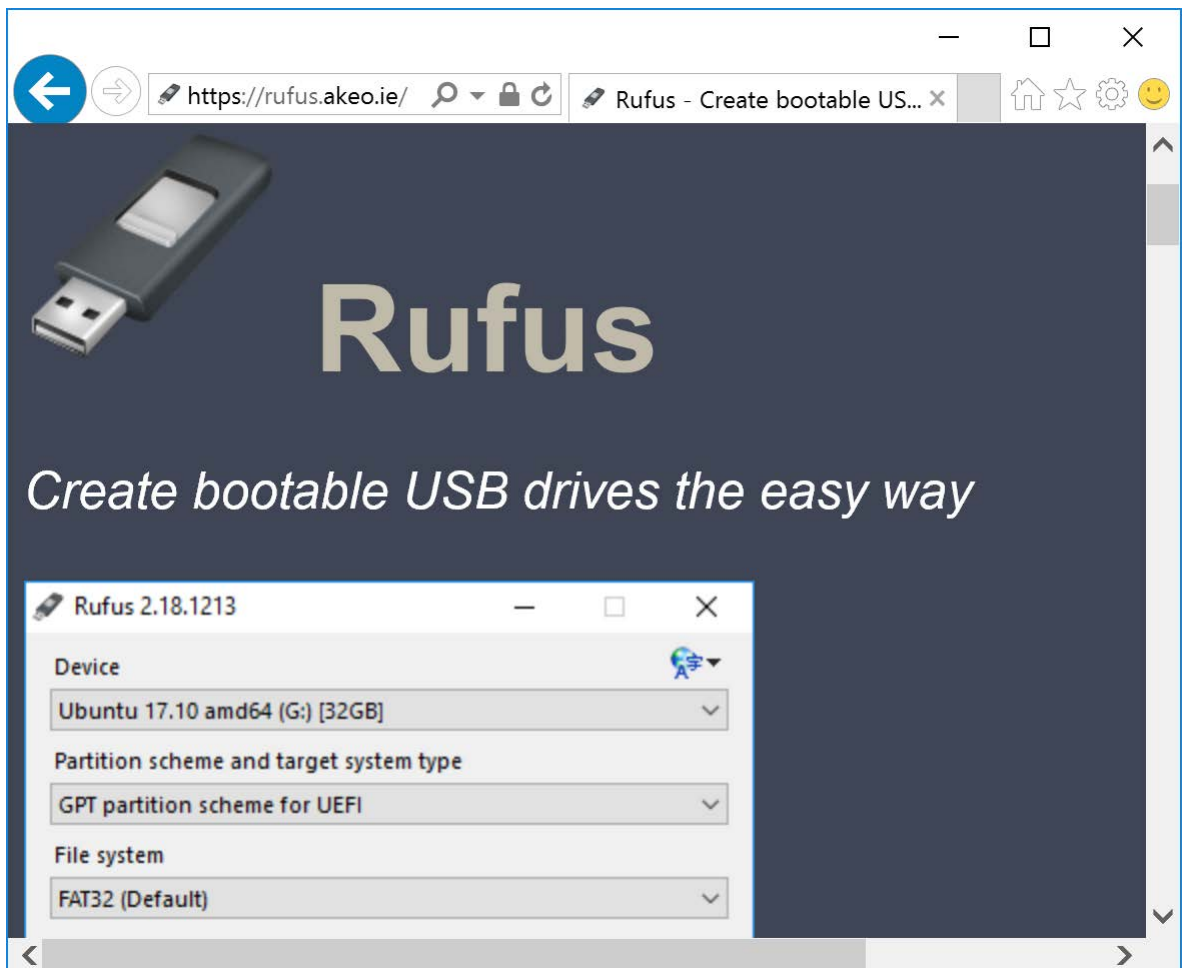
## Step 1: Create a bootable USB flash drive

In this step you will create a DOS bootable USB flash drive.

The following instructions are one possible method for creating a bootable USB flash drive. If you already have a bootable USB flash drive, you can skip this step. However, not all bootable USB flash drives provide the correct application environment for the Keysight BIOS update. For example, booting to a Windows 7 System Recovery Disk and going to the command prompt will not work.

The following instructions use a 3<sup>rd</sup> party tool called Rufus. The open source license allows you to use it freely. The Rufus 2.1 default settings create a USB flash drive that boots into a DOS-compatible operating system called FreeDOS<sup>1</sup>. This works well with our BIOS update.

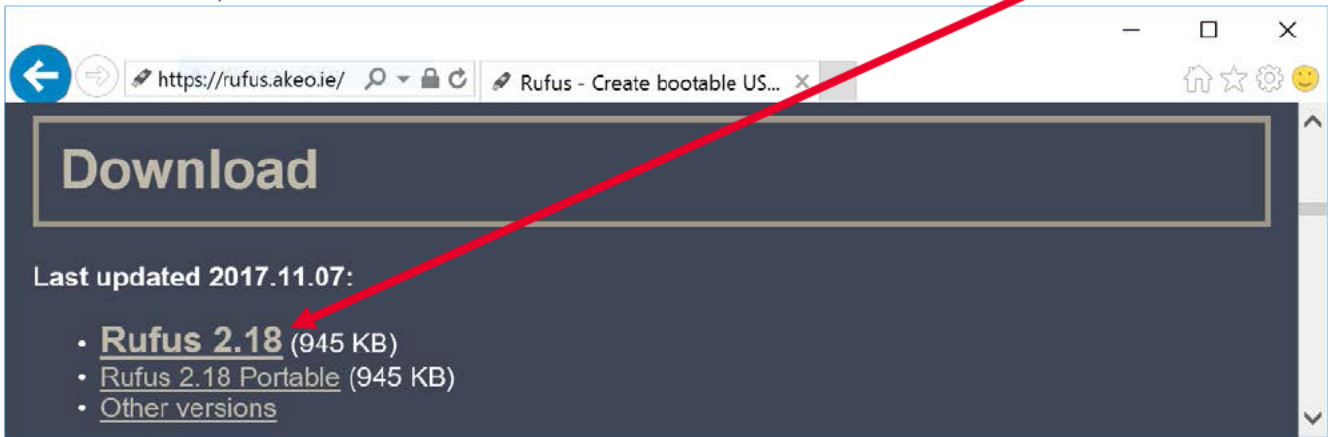
1. Insert an empty USB flash drive into a USB port on the M9537A. A 128MB flash drive or larger should be used.
2. Run IE browser and go to this website: <https://rufus.akeo.ie/>. This opens the following window:



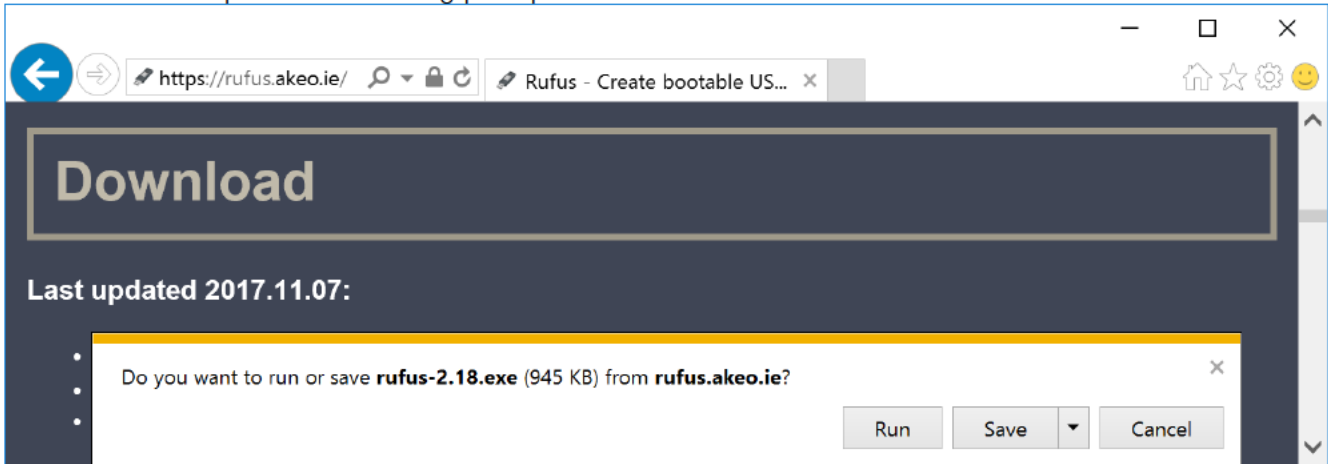
<sup>1</sup> For more information about FreeDOS, see: <http://www.freedos.org>

Scroll down to the “Download” section and click on the “Rufus” link.

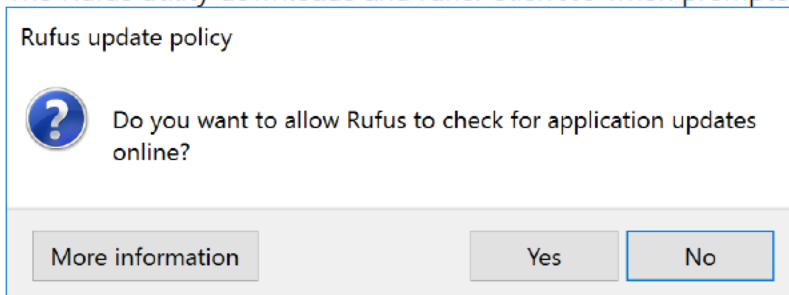
3. Scroll down, then click on the link in the download section.



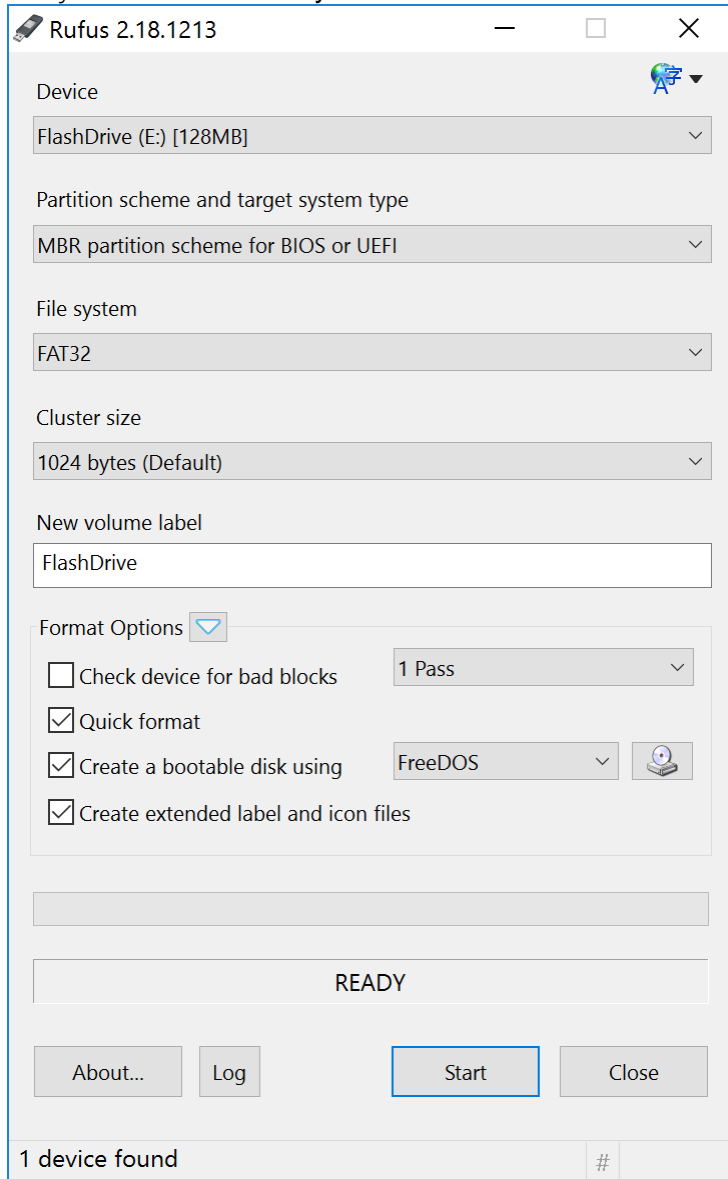
4. IE browser opens the following prompt. Click **Run**.



5. The Rufus utility downloads and runs. Click **No** when prompted about the **Rufus update policy**.



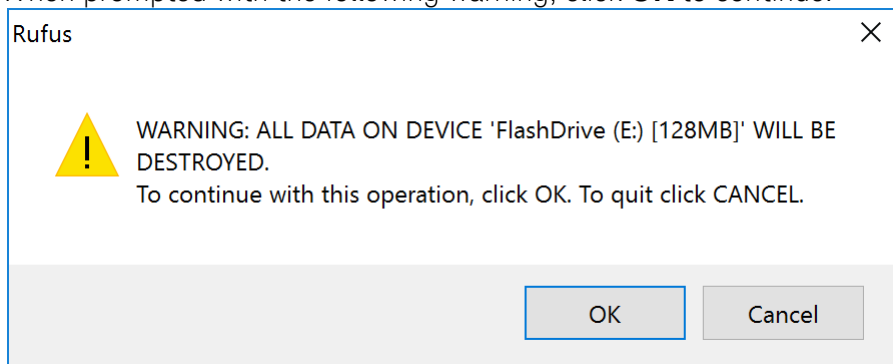
6. Verify that the **Device** is your flash drive.



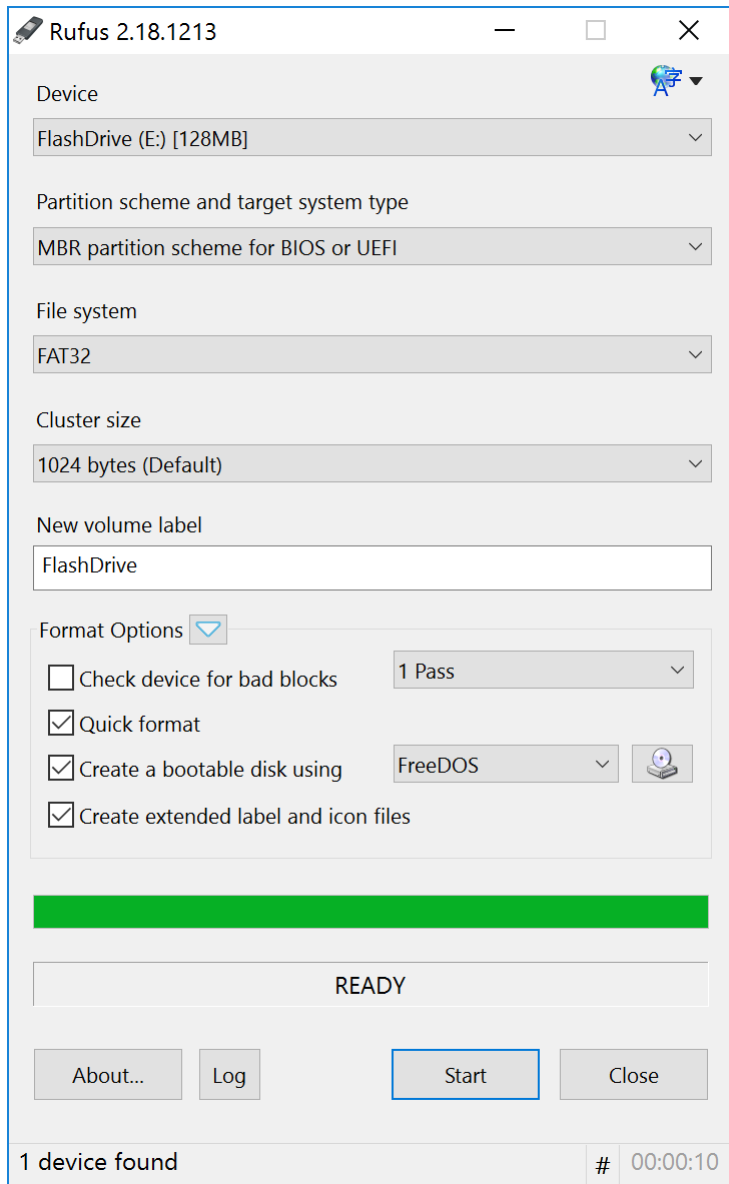
Note: If you have a large flash drive you might need to set the File system to “Large FAT32” in order to make your flash drive bootable.

7. Click on **Start**.

8. When prompted with the following warning, click **OK** to continue.




9. In less than 20 seconds the screen should look like this. Click **Close**.

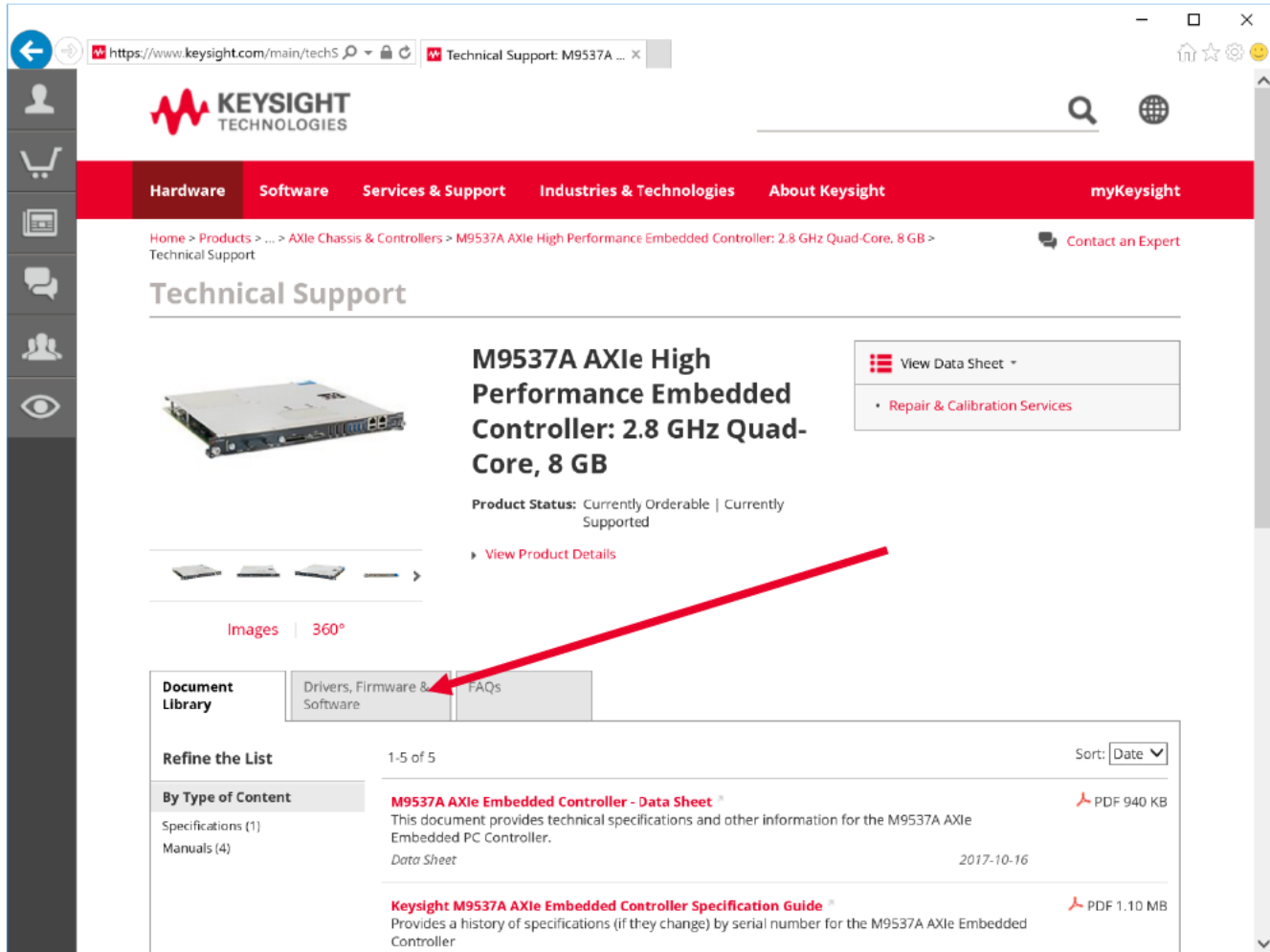


10. You have created a bootable USB flash drive that boots into a DOS-compatible operating system called FreeDOS. You are ready for Step 2.

## Step 2: Obtain the M9537A BIOS files from Keysight.com

In this step you will collect files from Keysight.com and put them on your DOS bootable flash drive.

1. In the browser go to Keysight.com and search on M9537A,  
or use this link [www.keysight.com/find/M9537A](http://www.keysight.com/find/M9537A)
2. Then click on:  Visit Technical Support You will see a page like this:



The screenshot shows the Keysight website's technical support page for the M9537A AXIe High Performance Embedded Controller. The page includes a navigation menu, a breadcrumb trail, and a document library section. A red arrow points to the 'Drivers, Firmware & Software' tab in the document library.

**Document Library**

Drivers, Firmware & Software | FAQs

Refine the List 1-5 of 5 Sort: Date

**By Type of Content**

- Specifications (1)
- Manuals (4)

**M9537A AXIe Embedded Controller - Data Sheet** PDF 940 KB  
This document provides technical specifications and other information for the M9537A AXIe Embedded PC Controller.  
Data Sheet 2017-10-16

**Keysight M9537A AXIe Embedded Controller Specification Guide** PDF 1.10 MB  
Provides a history of specifications (if they change) by serial number for the M9537A AXIe Embedded Controller

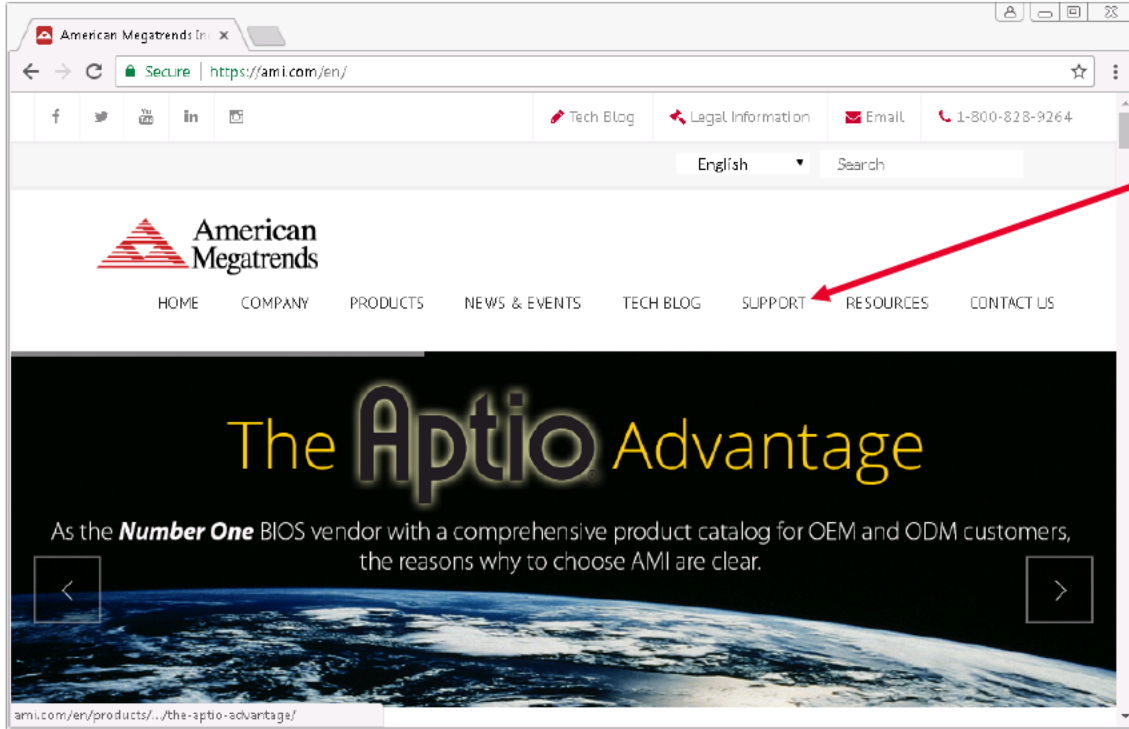
3. Click on the tab labeled “Drivers, Firmware & Software.
4. Click on the BIOS entry:
  - M9537A BIOS Downloads**  
New and old BIOS'es for the M9537A...
  - Previous Versions**
  - Computer Software*
5. Select BIOS version SL06 then download the zip file.
6. Unzip the file.
7. Copy the folder “M9537A\_SL06” to the DOS bootable flash drive.



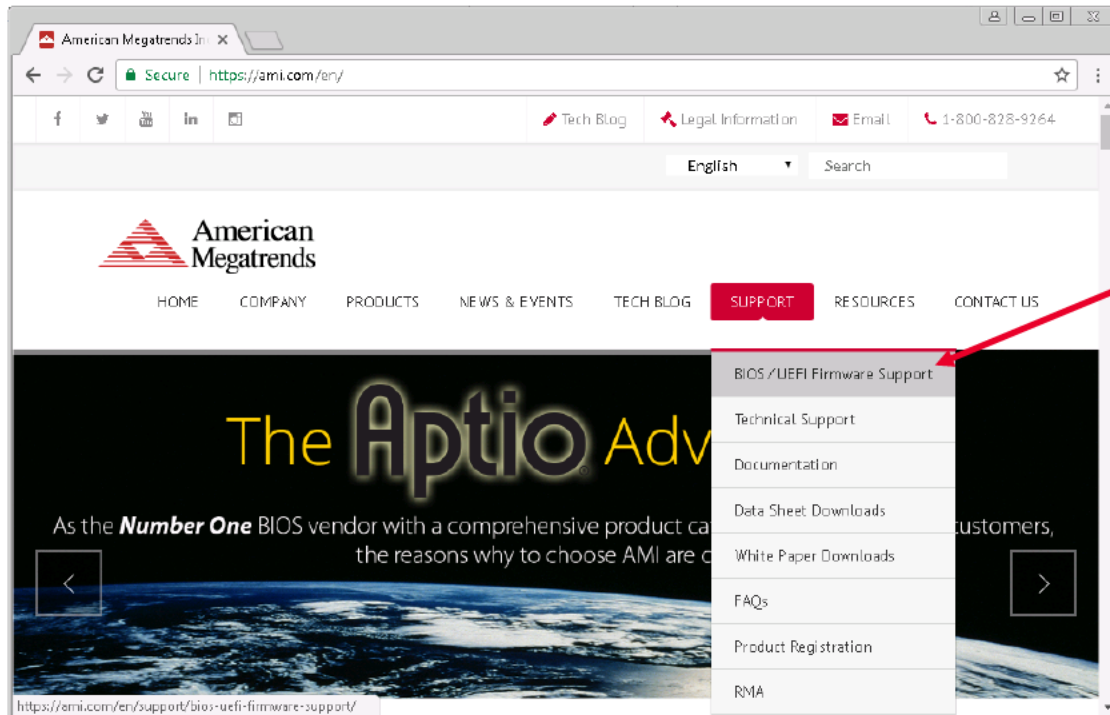
## Step 3: Obtain AFUDOS.exe from AMI.com

In this step you will collect the file AFUDOS.exe from AMI.com and then copy it on your DOS bootable USB flash drive.

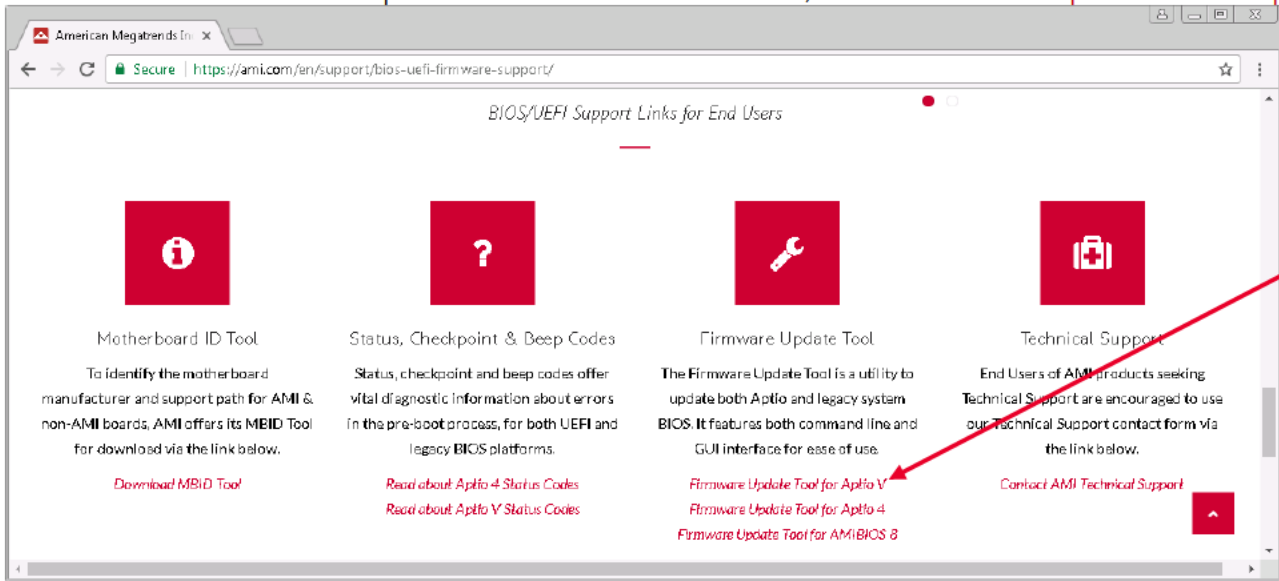
1. Open browser to: [www.ami.com](http://www.ami.com).
2. Left-click the word **“Support”** in the top row of the web page. Note: the screen may look different than the one shown below.



3. A pull-down menu appears. Select **“BIOS/UEFI Firmware Support”**.



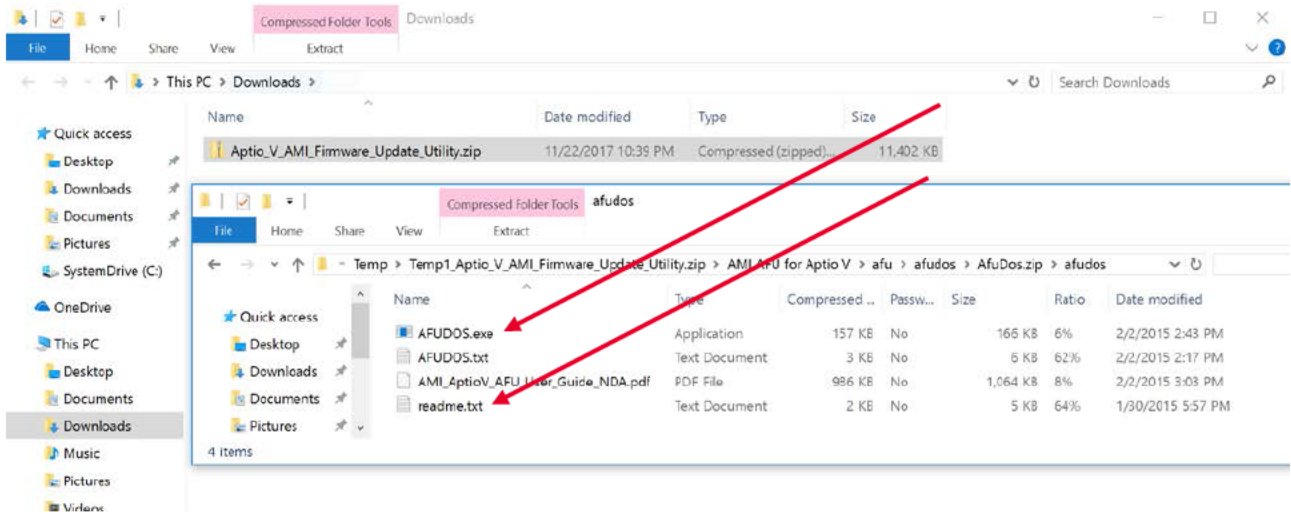
4. Scroll down to near the bottom of the web page to the section *BIOS/UEFI Support Links for End Users*, and under the column Firmware Update Tool with the wrench icon, click on **Firmware Update Tool for Aptio V**.



5. The License Agreement opens. Scroll down to the bottom and **check** the box and **click** on "submit" to start the download. Save the .zip file



6. Unzip the files and then navigate to the “afu” folder, then to the “afudos” folder. Enter the “afudos” folder and find the zip file “AfuDos.zip”. Open it, and enter the “afudos” folder. There you will finally find “afudos.exe” and the “readme.txt” file.



7. Open the “readme.txt” file and verify that the version number is 5.07.01. The first few lines of the “readme.txt” file look like this:

```
AFU (AMI Firmware Update) is a package of utilities used
to update the system BIOS under various operating systems.

Note: AFU only works for APTIO with SMI FLASH support.
      Compatible with Aptio 5.

The package includes:
- AFUDOS 5.07.01
- AFUDOS Release Notes
- AFU User Guide
```

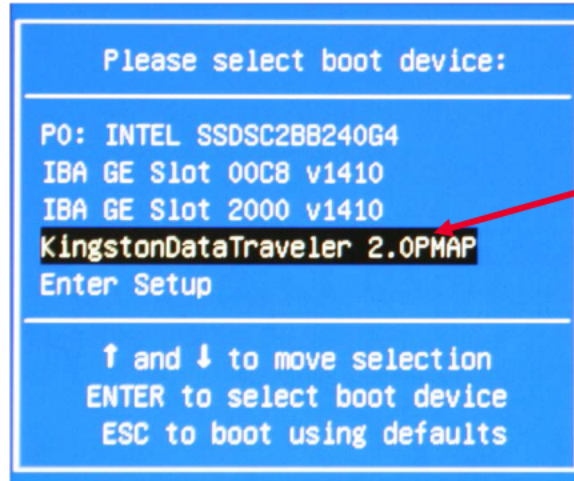
If the version is not 5.07.01, then stop the BIOS install and consult Keysight technical support for advice. Keysight has verified that version 5.0.7.01 works correctly for installing the BIOS.

8. Copy “AFUDOS.exe” to your flash drive into the folder “M9537A\_<version>/BIOS1/”. For example, if your flash drive is drive D:, then copy AFUDOS.exe to “D:/M9537A\_SL06/BIOS1/”.

## Step 4: Boot to DOS then run batch files to update BIOS

In this step you will update your M9537A to the new version of BIOS and Intel ME Firmware version 11.8.50.3399.

1. With the USB flash drive plugged into the M9537A, reboot and press F7 during the boot up splash screen. Scroll down to your flash drive and press Enter.



Your flash drive may appear different.

If the flash drive does not appear in this list, put it in the other type of USB port (i.e. USB 2.0 or USB 3.0) and reboot. If it still does not appear, then try a different manufacturer flash drive or smaller size flash drive.

2. Within three seconds you will be booted to FreeDOS and have a command prompt.
3. Change to the folder M9537A\_SL06/BIOS1/  
For example type: `cd M9537A_SL06/BIOS1<enter>`

```
FreeDOS kernel 2042 (build 2042 OEM:0xfd) [compiled May 11 2016]
Kernel compatibility 7.10 - WATCOMC - FAT32 support

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WARRANTY; you can redistribute it and/or modify it under the terms of the
GNU General Public License as published by the Free Software Foundation;
either version 2, or (at your option) any later version.
C: HD1, Pri[ 1], CHS=    0-32-33, start=    1 MB, size=119999 MB

FreeCom version 0.84-pre2 XMS_Swap [Aug 28 2006 00:29:00]
Using US-English keyboard with US-English codepage [437]
C:\>cd M9537A~1\BIOS1\
C:\M9537A~1\BIOS1>
```

4. Please run 2 batch commands one after the other. Do not start the next until the first one finishes. Each batch command starts with a digit. The digits are the order of execution 1 through 2. Because the DOS command line provides auto-completion on a tab, it's very easy to run the commands one after the other, by typing "1<tab><enter>", "2<tab><enter>".

The 2 commands that you will execute are:

```
1PBIOS1.BAT  
2PME.BAT
```

#### CAUTION

The command "2PME.BAT" is a window of vulnerability. If you remove power or pull the USB flash drive during execution of this command, your M9537A will most likely lock-up and will not boot. To get your M9537A working again you must send it to Keysight for repair.

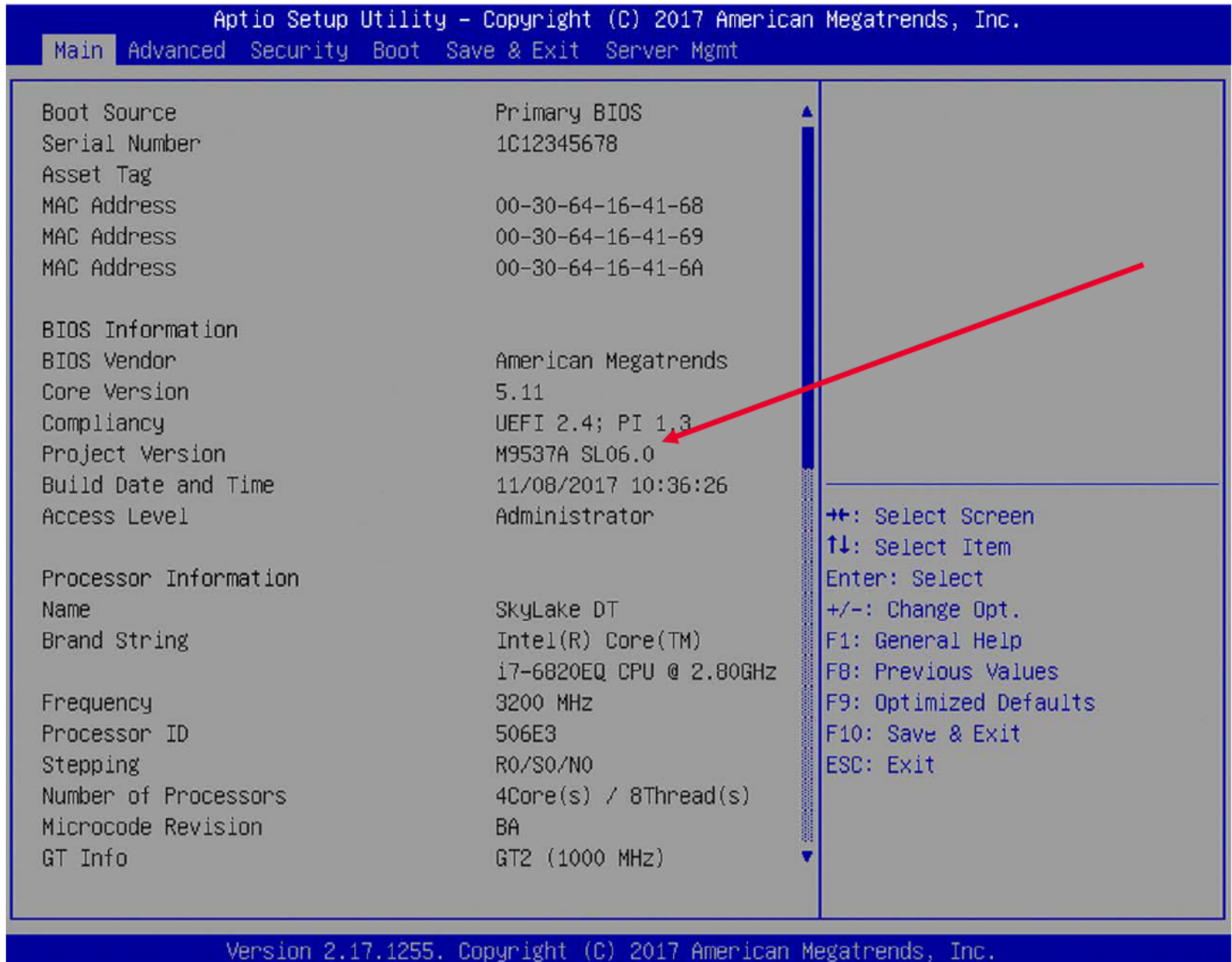
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The 1PBIOS1.BAT command takes about 2 minutes and will update the BIOS to SL06. The 2PME.BAT command takes a little more than 3 minutes and will update the Intel Management Engine (ME) firmware to version 11.8.50.3399. When the ME firmware is updated, the M9537A will automatically reboot.

## Step 5: Verify the Update

In this step you will verify that the installed version of BIOS is what you intended.

1. On the boot-up Keysight splash screen press the **DEL** key to display the BIOS screen.
2. On the Main BIOS screen the BIOS version is displayed. Verify it's the version you want.
3. You have completed updating the BMC on your M9537A.



The screenshot shows the Aptio Setup Utility interface. At the top, it says "Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc." and lists menu options: Main, Advanced, Security, Boot, Save & Exit, and Server Mgmt. The main display area is divided into sections: System Information, BIOS Information, and Processor Information. A red arrow points to the "Project Version" field in the BIOS Information section, which displays "M9537A SL06.0". A legend on the right side of the screen lists navigation keys: ←→ for Select Screen, ↑↓ for Select Item, Enter for Select, +/- for Change Opt., F1 for General Help, F8 for Previous Values, F9 for Optimized Defaults, F10 for Save & Exit, and ESC for Exit. The bottom of the screen shows "Version 2.17.1255. Copyright (C) 2017 American Megatrends, Inc."

Section	Item	Value
System Information	Boot Source	Primary BIOS
	Serial Number	1C12345678
	Asset Tag	
	MAC Address	00-30-64-16-41-68
	MAC Address	00-30-64-16-41-69
	MAC Address	00-30-64-16-41-6A
BIOS Information	BIOS Vendor	American Megatrends
	Core Version	5.11
	Compliancy	UEFI 2.4; PI 1.3
	Project Version	M9537A SL06.0
	Build Date and Time	11/08/2017 10:36:26
	Access Level	Administrator
	Processor Information	Name
Brand String		Intel(R) Core(TM) i7-6820EQ CPU @ 2.80GHz
Frequency		3200 MHz
Processor ID		506E3
Stepping		R0/S0/N0
Number of Processors		4Core(s) / 8Thread(s)
Microcode Revision		BA
GT Info		GT2 (1000 MHz)

You can also verify the BIOS version number by booting to Windows and running the command "msinfo32.exe". The first screen that opens, shows the BIOS version number.

4. On the BIOS screen hit the “Page Down” key to scroll to the bottom of the page. This will allow you to look at the ME firmware version and verify that you installed ME Firmware 11.8.50.3399.

The screenshot shows the Aptio Setup Utility interface with a blue header and footer. The main area is divided into a left pane for system information and a right pane for navigation instructions. A red arrow points to the 'ME FW Version' field, which displays '11.8.50.3399'.

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.	
Main   Advanced   Security   Boot   Save & Exit   Server Mgmt	
Memory RC Version	1.9.0.0
Total Memory	16384 MB
Memory Frequency	2133 MHz
PCH Information	
Name	SKL PCH-H
PCH SKU	PCH-H Mobile QM170
Stepping	31/D1
LAN PHY Revision	N/A
ME FW Version	11.8.50.3399
ME Firmware SKU	Corporate SKU
System Management	
SPI Clock Frequency	
DOFR Support	Unsupported
Read Status Clock Frequency	48 MHz
Write Status Clock Frequency	48 MHz
Fast Read Status Clock Frequency	48 MHz
System Language	[English]
▶ System Management	
System Date	[Thu 11/23/2017]
System Time	[00:11:46]

Navigation instructions (right pane):

- +/: Select Screen
- ↑↓: Select Item
- Enter: Select
- +/-: Change Opt.
- F1: General Help
- F8: Previous Values
- F9: Optimized Defaults
- F10: Save & Exit
- ESC: Exit

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Edition 2, November 2017

Published in U.S.A.



M9537-90025

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