

Upgrade or
Restore

M9036A PXIe Embedded Controller BIOS

Notices

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Safety Information

CAUTION

A CAUTION denotes a hazard. It calls attention to an operating procedure or practice that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING denotes a hazard. It calls attention to an operating procedure or practice, that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Safety Information

The following general safety precautions must be observed during all phases of operation of this instrument. Failure to comply with these precautions or with specific warnings or operating instructions in the product manuals violates safety standards of design, manufacture, and intended use of the instrument. Keysight Technologies assumes no liability for the customer's failure to comply with these requirements.

General

Do not use this product in any manner not specified by the manufacturer. The protective features of this product must not be impaired if it is used in a manner specified in the operation instructions.

Before Applying Power

Verify that all safety precautions are taken. Make all connections to the unit before applying power. Note the external markings described under "Safety Symbols".

Ground the Instrument

Keysight chassis' are provided with a grounding-type power plug. The instrument chassis and cover must be connected to an electrical ground to minimize shock hazard. The ground pin must be firmly connected to an electrical ground (safety ground) terminal at the power outlet. Any interruption of the protective (grounding) conductor or disconnection of the protective earth terminal will cause a potential shock hazard that could result in personal injury.

Do Not Operate in an Explosive Atmosphere

Do not operate the module/chassis in the presence of flammable gases or fumes.

Do Not Operate Near Flammable Liquids

Do not operate the module/chassis in the presence of flammable liquids or near containers of such liquids.

Cleaning

Clean the outside of the Keysight module/chassis with a soft, lint-free, slightly dampened cloth. Do not use detergent or chemical solvents.

Do Not Remove Instrument Cover

Only qualified, service-trained personnel who are aware of the hazards involved should remove instrument covers. Always disconnect the power cable and any external circuits before removing the instrument cover.

Keep away from live circuits

Operating personnel must not remove equipment covers or shields. Procedures involving the removal of covers and shields are for use by service-trained personnel only. Under certain conditions, dangerous voltages may exist even with the equipment switched off. To avoid dangerous electrical shock, DO NOT perform procedures involving cover or shield removal unless you are qualified to do so.

DO NOT operate damaged equipment

Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified by service-trained personnel. If necessary, return the product to an Keysight Technologies Sales and Service Office for service and repair to ensure the safety features are maintained.

DO NOT block the primary disconnect

The primary disconnect device is the appliance connector/power cord when a chassis used by itself, but when installed into a rack or system the disconnect may be impaired and must be considered part of the installation.

Do Not Modify the Instrument

Do not install substitute parts or perform any unauthorized modification to the product. Return the product to an Keysight Sales and Service Office to ensure that safety features are maintained.

In Case of Damage

Instruments that appear damaged or defective should be made inoperative and secured against unintended operation until they can be repaired by qualified service personnel

CAUTION

Do NOT block vents and fan exhaust: To ensure adequate cooling and ventilation, leave a gap of at least 50mm (2") around vent holes on both sides of the chassis.

Do NOT operate with empty slots: To ensure proper cooling and avoid damaging equipment, fill each empty slot with an AXle filler panel module.

Do NOT stack free-standing chassis: Stacked chassis should be rack-mounted.

All modules are grounded through the chassis: During installation, tighten each module's retaining screws to secure the module to the chassis and to make the ground connection.

WARNING

Operator is responsible to maintain safe operating conditions. To ensure safe operating conditions, modules should not be operated beyond the full temperature range specified in the Environmental and physical specification. Exceeding safe operating conditions can result in shorter lifespan, improper module performance and user safety issues. When the modules are in use and operation within the specified full temperature range is not maintained, module surface temperatures may exceed safe handling conditions which can cause discomfort or burns if touched. In the event of a module exceeding the full temperature range, always allow the module to cool before touching or removing modules from the chassis.

Safety Symbols








CAUTION

A CAUTION denotes a hazard. It calls attention to an operating procedure or practice, that, if not correctly performed or adhered to could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING denotes a hazard. It calls attention to an operating procedure or practice, that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Products display the following symbols:

-  Warning, risk of electric shock
-  Refer to manual for additional safety information.
-  Earth Ground.
-  Chassis Ground.
-  Alternating Current (AC).
-  Standby Power. Unit is not completely disconnected from AC mains when switch is in standby.
-  Antistatic precautions should be taken.
- CAT I IEC Measurement Category I, II, III, or IV
- CAT II
- CAT III
- CAT IV

For localized Safety Warnings, Refer to Keysight Safety document (p/n 9320-6792).



The CSA mark is a registered trademark of the Canadian Standards Association and indicates compliance to the standards laid out by them. Refer to the product Declaration of Conformity for details.



Notice for European Community: This product complies with the relevant European legal Directives: EMC Directive (2004/108/EC) and Low Voltage Directive (2006/95/EC).



The Regulatory Compliance Mark (RCM) mark is a registered trademark. This signifies compliance with the Australia EMC Framework regulations under the terms of the Radio Communication Act of 1992.

ICES/NMB-001

ICES/NMB-001 indicates that this ISM device complies with the Canadian ICES-001.



This symbol represents the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of this product.



South Korean Class A EMC Declaration. This equipment is Class A suitable for professional use and is for use in electromagnetic environments outside of the home.

A 급 기기 (업무용 방송통신기자재)
이 기기는 업무용 (A 급) 전자파적합기
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의하시기 바라 며 , 가정외의 지역에서
사용하는 것을 목적으로 합니다.



Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

This product complies with the WEEE Directive (2002/96/EC) marking requirement. The affixed product label (see below) indicates that you must not discard this electrical/electronic product in domestic household waste.

Product Category: With reference to the equipment types in the WEEE directive Annex 1, this product is classified as a "Monitoring and Control instrumentation" product.

Do not dispose in domestic household waste.

To return unwanted products, contact your local Keysight office for more information.



1 Keysight Technologies M9036A PXIe Embedded Controller

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Keysight Technologies M9036A PXIe Embedded Controller

The following instructions describe how to upgrade or restore BIOS versions AG22, AG23, or later in your M9036A PXIe Embedded Controller.

If you are using your M9036A to control 3 or 4 PXIe chassis, use BIOS version AG21-M. Please refer to the installation instructions for BIOS AG21-M.

To determine which BIOS is currently installed use either of these methods:

- In windows, run the command msinfo32.exe. The first screen displayed will show the BIOS version number.
- Boot to the BIOS screen by hitting DEL on boot-up when the splash screen appears. The first screen displayed will show the BIOS version number.

If your currently installed BIOS version is AG20 or later, you may proceed with installation of the new BIOS versions AG22, AG23, or later. If your BIOS is AG19 or a earlier, please first install AG20, AG21, or AG21-M before proceeding. The installation instructions for each of those BIOS can be found from the page where you down load that BIOS.

Installation Process Overview

The instructions on the following pages contain detailed steps on how to restore or upgrade the Keysight M9036A BIOS.

The process contains these three Steps:

- 1** Download the BIOS files from www.Keysight.com.
- 2** Download the AFUWin utility from AMI.com.
- 3** Update the M9036A BIOS.

Perform Steps 1 and 2 from a PC that has access to Keysight.com and AMI.com, then for Step 3 move the files to the M9036A for the BIOS update or restore.

Step 1: Download the BIOS from www.Keysight.com

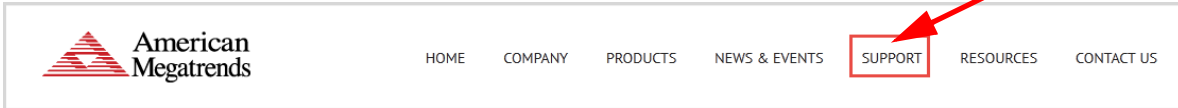
- 1 Open your browser to: www.keysight.com/find/M9036A.
- 2 Click on **Visit Technical Support**.
- 3 Click the **Drivers, Firmware & Software** tab.
- 4 Select M9036A BIOS Downloads.

The screenshot shows the Keysight website's technical support page for the M9036A PXIe Embedded Controller. The page has a red navigation bar with 'Products & Services', 'Technical Support', 'Industries & Technologies', and 'About Keysight'. Below the navigation bar, there is a breadcrumb trail: 'Home > Products & Services > ... > PXI Chassis and Controllers > M9036A PXIe Embedded Controller > Technical Support'. The main heading is 'M9036A PXIe Embedded Controller' with a product status of 'Currently Orderable | Currently Supported' and a link to 'View Product Details'. There is an image of the controller and a gallery of images. Below the images, there are tabs for 'Document Library', 'Drivers, Firmware & Software', 'FAQs', and 'Training & Events'. The 'Drivers, Firmware & Software' tab is active, showing a 'Refine the List' section with 1-2 of 2 items. The first item is 'M9036A BIOS Downloads' (circled in red), which is categorized as 'Computer Software' and includes links for 'New and old BIOS'es for the M9036A...' and 'Previous Versions'. The second item is 'M9036A Embedded Controller Driver with IVI and MATLAB Drivers', categorized as 'Driver'.

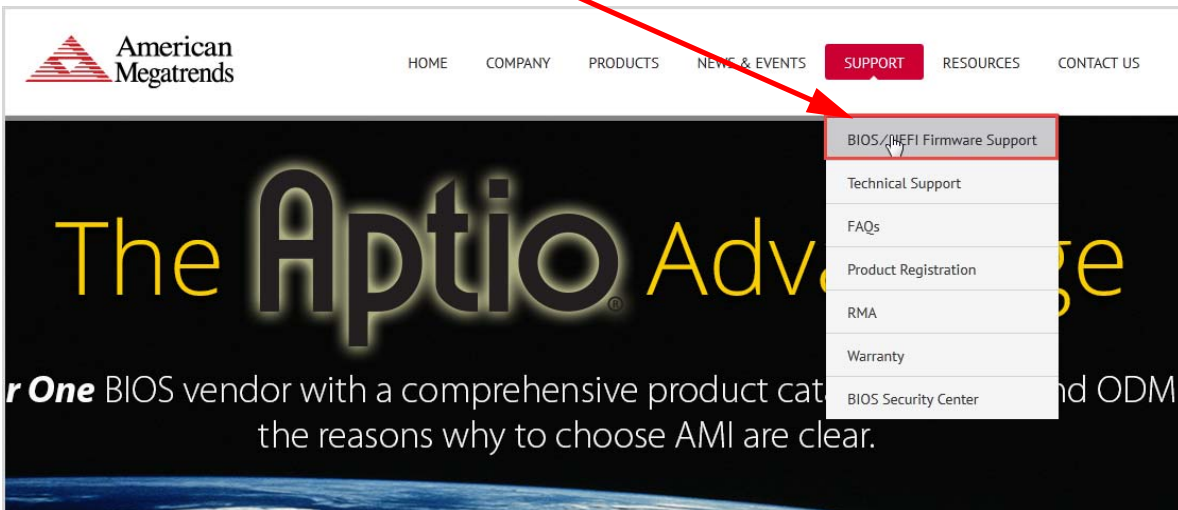
- 5 Click the **Download** button. Click on the BIOS you want to download.
- 6 Save the downloaded zip file for Step 3.

Step 2: Download the AFUWin utility from AMI.com

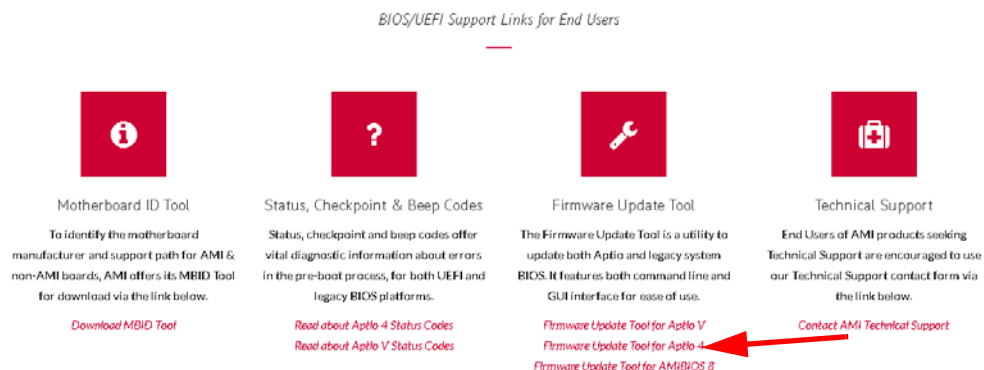
- 1 Go to the American Megatrends, Inc. (AMI) website: ami.com
- 2 From the AMI home page, click on **Support**:



- 3 In the drop down menu Click **BIOS/UEFI Firmware Support**:



- 4 Scroll down to near the bottom of the web page to the section called “BIOS/UEFI Support Links for End Users”. Then in the column with the wrench icon, called “Firmware Update Tool”, click on the middle of the 3 items: “Firmware Update Tool for Aptio 4”.



- 5 At the bottom of the license agreement, check the box to indicate that you are not a robot, then click on “submit”. The download will start.



- 6 Save the downloaded zip file for Step 3.

Step 3: Update the M9036A BIOS

NOTE

In order to restore or upgrade the BIOS, you must be logged in on the Keysight M9036A controller as a single user with Administrator privileges. If you are not, you must logout and then login again as a single user to an account with Administrator privileges. Set the User Account Control to the default position.

- 1 Copy the zip file you downloaded in Step 1 to the M9036A. Unzip the files. Remember the folder name that was just created. We will call it your BIOS folder. You now have files like the ones in this example for AG22:

AG22 BIOS Files:

3970AG22.rom

FLASHROM.CMD

- 2 Copy the zip file you downloaded in Step 2 to the M9036A.
- 3 The goal is to move two specific files to your BIOS folder. Double click the zip file to open Windows Explorer. Double click the folder. You will find a **afuwin** folder. Double click the **afuwin** folder and notice that it contains two folders **32** and **64**.
- 4 Open the appropriate folder that matches your M9036A Operating System – either **32** for 32-bit OS or **64** for 64-bit OS. See the Note at the end of this document for instructions on how to tell which OS you have on your M9036A.
- 5 Notice that this folder contains a zip file. Double click the zip file. Navigate the folder to find two specific files and copy them to your BIOS folder. Those two files are:

For a 32-bit system:	For a 64-bit system:
afuwin.exe	afuwinx64.exe
amifldr32.sys	amifldr64.sys

- 6 At this point, you should have at least four files in your BIOS folder. They look like this using AG22 as an example:

For a 32-bit system:	For a 64-bit system:
3970AG22.rom	3970AG22.rom
FLASHROM.CMD	FLASHROM.CMD
afuwin.exe	afuwinx64.exe
amifldr32.sys	amifldr64.sys

- 7 You have all the files for the BIOS upgrade. Double click on the **FLASHROM.COMD** file. This opens the following screen:

```

C:\WINDOWS\system32\cmd.exe
**
** Agilent M9036A BIOS update tool (8/19/2016)
**
** You are about to reprogram the system BIOS to [3970AG22.rom].
** - This update only for the Agilent M9036A embedded PXIe controller.
** - See M9036A support web page for which BIOS is correct for your system.
** - Do not proceed unless you are certain you want to do this.
**
** WARNING! If installing onto a system using an AG19 (or earlier) BIOS:
** - DO NOT PROCEED until you first install the Microsoft Fixit
**   patch documented in the Microsoft KB 922976 article.
** - Ignoring this step can make your Windows OS unbootable.
** - Determine your BIOS rev by viewing 1st panel Of BIOS Setup.
** - See Agilent's M9036 support web page for documentation.
**
** This is not an issue when updating AG20 or later BIOS's.
**
Proceed with BIOS install (Y/N)?y

```

- 8 Type **Y** and press **Enter**. When done, the screen will look like this:

```

C:\WINDOWS\system32\cmd.exe
**
** Agilent M9036A BIOS update tool (8/19/2016)
**
** You are about to reprogram the system BIOS to [3970AG22.rom].
** - This update only for the Agilent M9036A embedded PXIe controller.
** - See M9036A support web page for which BIOS is correct for your system.
** - Do not proceed unless you are certain you want to do this.
**
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** - Ignoring this step can make your Windows OS unbootable.
** - Determine your BIOS rev by viewing 1st panel Of BIOS Setup.
** - See Agilent's M9036 support web page for documentation.
**
** This is not an issue when updating AG20 or later BIOS's.
**
Proceed with BIOS install (Y/N)?y
Doing BIOS update on 32-bit system..DO NOT CYCLE POWER...
-----+-----
:          AMI Firmware Update Utility v3.07.01
:  Copyright (C)2014 American Megatrends Inc. All Rights Reserved.
-----+-----
Reading flash ..... done
- FFS checksums ..... ok
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
Erasing Main Block ..... done
Updating Main Block ..... done
Verifying Main Block ..... done
Erasing NURAM Block ..... done
Updating NURAM Block ..... done
Verifying NURAM Block ..... done
..BIOS [3970AG22.rom] update complete - reboot system.
Done.
Press any key to continue . . .

```

- 9 After the utility completes, press any key, then restart the M9036A. The chassis will power off twice while applying the BIOS and then the M9036A will boot to Windows. You are done with the update.

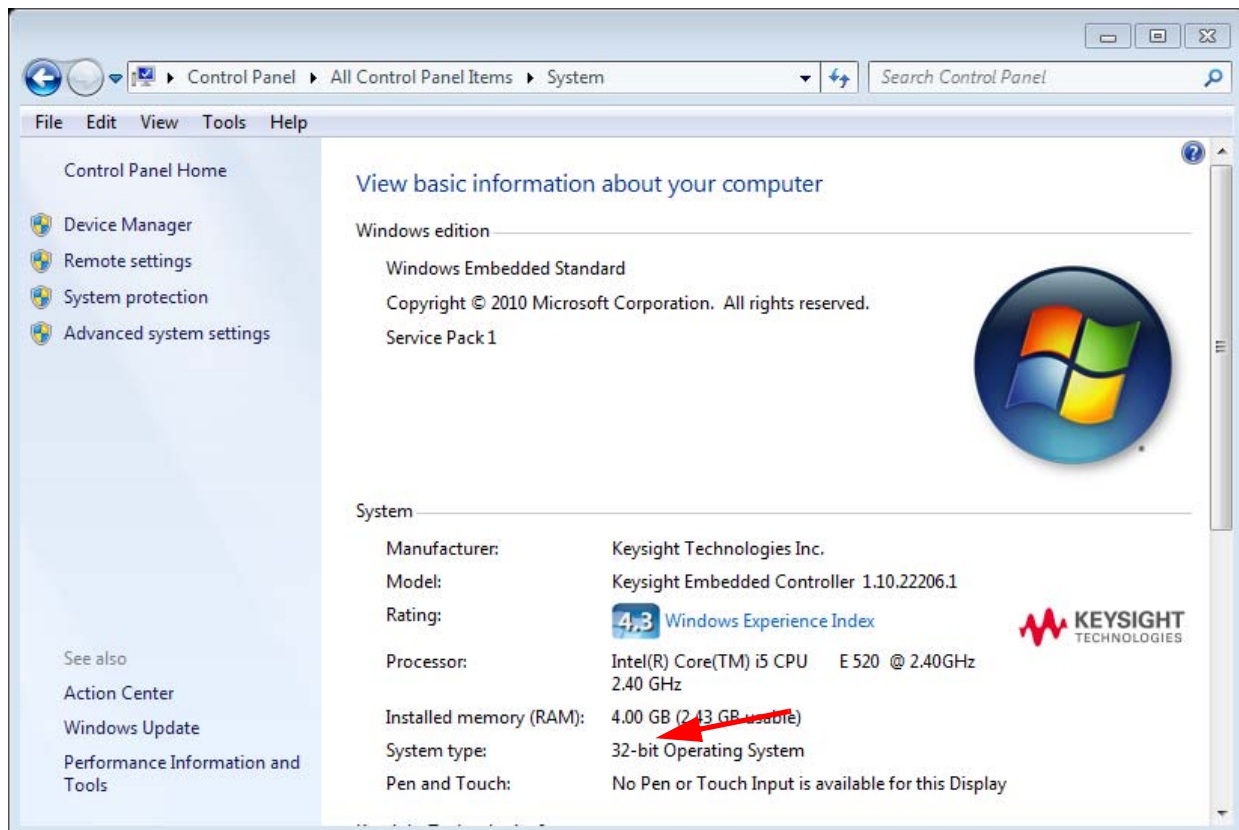
Verify BIOS Version

To determine which BIOS is currently installed use either of these methods:

- In windows, run the command msinfo32.exe. The first screen displayed will show the BIOS version number.
- Boot to the BIOS screen by hitting DEL on boot-up when the splash screen appears. The first screen displayed will show the BIOS version number.

NOTE

You can determine whether you have a 32-bit or a 64-bit Operating System in **Start->Control Panel->System**.





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