2020

Product Catalog

AMI - a global leader in powering, managing and securing the world's connected digital infrastructure through its BIOS, BMC and security solutions

Disclaimer

AMI
5555 Oakbrook Parkway,
Building 200
Norcross, GA 30093

Founded in 1985 and known worldwide for AMIBIOS®, the mission of AMI is to power, manage and secure connected devices by providing best-in-class UEFI and remote management firmware, software and utilities to top-tier manufacturers of desktop, server, mobile and embedded/IoT systems. In line with its technology focus, AMI is a member of numerous industry associations and standards groups, such as the Unified EFI Forum (UEFI), the NIST National Cybersecurity Excellence Partnership (NCEP) and Trusted Computing Group (TCG). Headquartered in Norcross, Georgia, AMI has locations in the U.S., China, Germany, India, Japan, Korea, Taiwan and Hong Kong to better serve its customers..

Table on Contents

About AMI	3
Power	4
Aptio V The Next Generation of UEFI BIOS	4
Aptio BIOS Firmware Based on the UEFI Specification	4
Manage	5 – 7, 9
MegaRAC SP-X	5
MegaRAC CM-X	5
AMI Fabric Fabric Management	6
AMI Fabrics Ethernet Fabric and Server SAN Management	7
AMI Composer Hyperscale Management Ecosystem	9
Secure	8
AMI CLEFS	8
AMI FirST	8
Utilities	10 – 16
AMI Firmware Update (AFU)	10
AMI BIOS Configuration Program (AMIBCP)	10
AMI Setup Control Environment (AMISCE)	10
AMI Setup Data Extraction (AMISDE)	11
AMISLP	11
AMI Utility Configuration Program (AMIUCP)	11
Change Logo	11
Desktop Management Interface Edit (DMIEdit)	12
AMI Key Management (AMIKM)	12
Module Management Tool (MMTool)	12
AMI UEFI ROM Dissect Tool (AMIRDT)	13
Signing Server	13
AMIDiag for UEFI	14
AMIDebug for UEFI	14
AMI PreBoot Application (PBA)	15
AMI Visual eBIOS	15
AMI Remote BIOS	16
Cloud	17
AMI DevNet	17
International Offices	18

About AMI

AMI creates and manufactures key hardware and software solutions for the global computer marketplace, providing the highest quality and compatibility necessary to build today's advanced computing systems. Established by S. Shankar in 1985, AMI's mission is to design state-of-the-art computer solutions and develop advanced technology for the best computing solutions in the world. Today, AMI is the world's largest BIOS firmware vendor, with AMIBIOS® and Aptio® deployed in a high proportion of all computers worldwide.

AMI's extensive product line includes Aptio and AMIBIOS system software and firmware, MegaRAC® remote management software and firmware, Embedded Controller (EC) firmware, as well as a wealth of design, testing, validation and engineering services for system manufacturers.

With these product groups, AMI is uniquely positioned to provide all of the fundamental components necessary to offer complete system performance, manageability, and availability for today's enterprise and personal computing requirements. AMI prides itself on its unique position as the only company in the industry that offers products and services based in all of these core technologies.

Founded in 1985, AMI has been a consistent leader in the technology industry, accomplishing a number of firsts which include:

- First to build motherboards based on the Intel® 386 and 486 processor platforms
- First to use on-board external cache designs for these boards - significantly improving their performance
- First in the world to build and ship a Quad-Xeon® processor system: the MegaPlex®
- As a recognized leader in the BIOS market, AMI was:
    - First to support USB
    - First to create a GUI BIOS interface with mouse support
    - First to integrate diagnostics
    - First to support ACPI
- First to develop a diagnostic product for the Extensible Firmware Interface (EFI) in 2001, and first to market a native diagnostic for the Unified Extensible Firmware Interface (UEFI), AMIDiag® for UEFI in 2008
- AMI's MegaRAC® G2 remote server management card was named as a finalist at the 2002 NetWorld+Interop trade show for outstanding design and superior performance
- AMI's MegaRAC® G2 was named a 2003 Ultimate Custom Solutions award winner by CRN magazine
- AMI was first to provide 100% remote manageability and KVM for multiple ASICs with its MegaRAC® SP service processor firmware
- AMI was also the first remote management company to create a service processor stack that merged IPMI with Linux-based management features
- AMI was first to introduce in 2008 a Serial GPIO enclosure controller chip compliant with the International Blinking Pattern Interpretation (IBPI) specification, the MG9082, which extends the use of SGPIO chips to high-end storage servers
- For over 25 years, AMI has been deeply committed to maintaining its leadership position in the computer industry, with the majority of its employees worldwide directly engaged in the design and development of cutting-edge computer technologies.

Power

BIOS/UEFI Firmware

AMI is the market leader known worldwide for its best-in-class BIOS and UEFI Firmware, used every day in all segments of the computing market in Server, Embedded, Tablet, Client and ARM products. Top OEMs and ODMs around the world consistently choose AMI for The Aptio Advantage.

AptioV® The Next Generation of UEFI BIOS

Aptio® V represents the "next generation" of UEFI BIOS Firmware, featuring support for the latest UEFI specifications and the security, fast boot and touch support that today's platforms require.

Aptio V brings together all of the experience, value-adds and improvements of Aptio® 4 and AMIBIOS® - empowering the top OEMs and ODMs around the world with The Aptio Advantage. Aptio V also features specific enhancements and benefits for each key market segment - server, embedded, tablet, client and ARM - making the reasons to choose Aptio V perfectly clear.

Key Aptio V Features

- **Common Core** across all market segments
- **Multi-platform support**: for x86 / non-x86 systems, Windows® and Linux® environments
- **Modular Architecture**: Drop in eModules for custom features on top of common BIOS core
- **UEFI 2.6** and **EDK II** Support
- **Custom Authored Tools** for UEFI Development
- **Robust Security Features** with SecureBoot, NIST SP 800-147 Secure Flash support and more
- **Extensible Setup Architecture (ESA)**: Feature-rich, streamlined graphical setup environment
- **Full touch screen support** for the BIOS for tablet and touch-based devices

Aptio® BIOS Firmware Based on the UEFI Specification

Aptio® represents AMI's first evolution from Legacy BIOS firmware solutions, based on the UEFI Specifications and the Intel® Platform Innovation Framework for EFI. Aptio is specifically designed to address issues of firmware portability and extensibility to future platforms that arose during the industry migration to 64-bit platforms over recent years.

Along with silicon enabling components, Aptio can be expanded using a variety of drivers, development tools, support utilities and pre-boot application solutions, including:

- **Visual eBIOS** (VeB)
- **AMI Debug** for UEFI
- **AMI Flash Utility** (AFU)
- **Change Logo** Utility
- **AMIBCP** BIOS Configuration Program
- **MMTool** ROM Management Tool
- **DMIEdit** SMBIOS Data Management Tool
- **AMISDE** Setup Date Export Tool
- **AMISLP** SLP Insertion Tool
- **AMISCE** NRAM Variable Update Tool
- **AMIUCP** Flash Utility Customization Tool

Manage

MegaRAC Remote Management Firmware/Software Solutions

Looking for easy to use, robust and reliable IT management solutions based on the latest industry standards? Consider the MegaRAC family of BMC Remote Management Firmware Solutions for total in/out-of-band management for platforms and devices across the enterprise — including servers, modular and blade systems, client and cloud-based systems, embedded/IoT systems and industrial PCs, IPMI devices, Intel® Active Management Technology (AMT) devices, AMD® DASH-enabled systems and more.

MEGARAC® SP/X BMC Firmware

MegaRAC® SP-X is a powerful server management solution composed of firmware and software components based on industry standards like IPMI 2.0, Restful APIs, SMASH, Serial over LAN (SOL) and key serviceability features like remote presence, CIM profiles and advanced automation. It is available for all the major System-On-Chip (SoC) designs and supports the following platform architectures:

- Intel® / AMD x86
- Arm® 64 (including Ampere eMAG™, Marvell and Qualcomm)
- POWER® 8/9 from IBM

MegaRAC SP-X firmware features a high level of modularity, with the ability to easily configure and build the firmware image by selecting features using an intuitive graphical development tool chain. These features are available in independently maintained packages, for superior manageability of the firmware stack.

- **Robust RAS** (Reliability, Availability, Serviceability)
- **User-friendly web interface** through integrated web server
- **Command line protocol (CLP)** based on the DMTF SMASH specification
- **Programmable web services** based on the WSMAN standard
- **Secure-Shell (SSH)-based Serial over LAN** for remote access
- **Remote KVM** with complete console redirection
- **Rich Virtual Media** for mass storage redirection
- **Power and Cooling** management via DCMI support
- **OEM Customization support** (with optional toolset)

MEGARAC® CM/X

Chassis Management for Modular / Blade Servers

MegaRAC® CM (Chassis Manager) is a robust Linux®-based firmware solution for the management of modular server chassis. It is extended from AMI's successful MegaRAC® SP-X system-on-chip (SoC) Firmware and is in full compliance with the Open Blade Architecture System Management Specification from the Server System Infrastructure (SSI) Forum. In addition to blades, MegaRAC CM fits nicely into microserver designs and rack-level management based on its flexible framework and customization tools.

- **Discovery, management and health monitoring** of all server chassis elements
- **Manages** power supplies, compute blades, I/O modules and cooling devices
- **Supports widely adopted communications protocols** such as RMCP, SNMP and WS-Discovery
- **DMTF interoperability standards** like CIM, SMASH-CLP and WS-MAN

ami | Fabric™

Fabric Management

AMI® Fabric™ Fabric Management Firmware is a powerful firmware / software stack that combines complete fabric management functionality with that of a baseboard management controller (BMC). It offers all of the BMC management tasks as defined by IPMI 2.0, Serial over LAN (SOL), complete out-of-band (OOB) connectivity and an advanced component management framework to support PCIe switch-based management, NVMe, RAID and industry-standard drivers. For remote access to fabric management tasks, AMI Fabric provides a secure embedded web server and UI, along with Secure-Shell (SSH)-based SOL as well as standard IPMI-based SOL.

AMI Fabric is based on the proven, highly stable and widely-used MegaRAC SP-X stack, sharing the same code base. Like MegaRAC SP-X, AMI Fabric firmware provides a high level of modularity, with the ability to easily configure the complete stack by selecting available features in package form. OEM-level modifications are made using MegaRAC Development Studio (MDS), an Eclipse™-based Integrated Development Environment (IDE) for server management with the power to customize, build and debug all at once. Additionally, AMI Fabric support is available on all of the advanced System-On-Chip (SoC) devices from the leading manufacturers.

- Linux® Development Kit (LDK)
- Support for IPMI, including LAN and serial interface support
- Component Manager features RAID, SAS/IT support and complete PCI switch management API
- NVMeMI with I2C and MCTP/I2C
- PCI Root Complex support
- Admin-level NVMe drive management via PCI-Express (PCIe) standard
- Web UI features PCI switch management, NVMeMI and drive management capabilities
- Remote update capability for BMC and drive firmware

ami | FabricS™

Ethernet Fabric and Server SAN Management

AMI® FabricS™ Ethernet Fabric and Server SAN Management Firmware is a powerful firmware/software solution combining the complete functionality to support Server SAN, including Ethernet Fabric management and NVMe drive management, with that of a baseboard management controller (BMC).

The firmware component of AMI FabricS resides on the preexisting onboard BMC, along with extensions that enable completely secure, out-of- band (OOB) NVMe storage manageability, available right out of the box. Its software component, called Ethernet Storage Manager (ESM), runs on the server chipset.

AMI FabricS supports Intel® x86 and AMD platforms storage server architectures.

In addition to the high degree of out-of-band NVMe storage management for discovering storage pools, creating namespaces, attaching/detaching NVMe storage volumes to remote compute nodes, a key aspect of AMI FabricS is its inclusion of NVMe Management Interface (NVMe-MI) support to enable drive inventory and telemetry data support on the BMC OOB interface.

AMI FabricS is based on the proven, highly stable and industry-leading AMI Core Technology. AMI FabricS firmware provides a high level of modularity, with the ability to easily configure the complete firmware / software stack by selecting and deselecting features that are available in package form.

- True *Server SAN* solution for commodity / white box storage hardware
- Caters to hyperscale as well as hyperconverged infrastructure needs
- Supported servers: Intel® x86 and AMD platforms
- Completely secure, out-of-band (OOB) storage management
- Runs on standard BMC hardware (including AST2500/AST2600)
- Redfish™ and Intel® RSD (Storage/Fabric PSME) support
- AMI® Composer™ Pod Management Software

ami | Composer™

Hyperscale Management Ecosystem

AMI® Composer™ from American Megatrends is a robust hyperscale node, rack and POD management ecosystem for both traditional and telco cloud infrastructure. It is built around a central framework that delivers core manageability features with simplified physical configurations of compute, network and storage-level resources. Various extensions to the AMI Composer framework add individual manageability capabilities including server, POD and telco cloud system management, thanks to its compliance with key management specifications like DMTF Redfish® and Intel® Rack Scale Design.

AMI Composer allows users to browse, assign, compose and manage physical resources at the rack, chassis, and system level through an intuitive and powerful web-based user interface. Administrators can compose physical resources to create a logical node and provision the logical node with the operating system and software required. This provides the advantage of demand-driven dynamic scaling to optimize datacenter resource utilization, reducing CAPEX and boosting operational efficiency.

The Four Manageability Extensions of AMI Composer:

AMI Composer System Manager: This extension works with any device that has AMI Composer System Manager and does not require an onboard Baseboard Management Controller (BMC)
AMI Composer Server Manager: This extension brings Redfish® based server management to any Redfish® compliant BMC, and adds BIOS and BMC configuration and update support not native to Redfish®
AMI Composer POD Manager: This extension adds Intel® RSD-based POD management for composable disaggregated infrastructure (CDI) system management
AMI Composer Telco Cloud Manager: Arriving in late 2019, this extension delivers MANO-based telco cloud management, enabling service providers to provision Open Source MANO (OSM), provision and deploy network services and more

- Platform agnostic manageability across the datacenter
- "Automated everything" with deep extensibility and REST APIs for integration with orchestration software like OpenStack® and Microsoft® Azure®
- Compliant with DMTF Redfish® and Intel® Rack Scale Design management specifications
- Clean, responsive and flexible web interface dashboard for detailed views of system health and performance
- Robust provisioning including BIOS and BMC firmware update, application deployment and more
- System discovery, asset information and health monitoring
- Logical node composition based on payload templates
- Node provisioning through PXE server
- Power operations: Restore composed node resources on PSME power cycle
- Custom event logs and notifications
- User Management, including role, privilege and aler

Secure

Security Services and Solutions

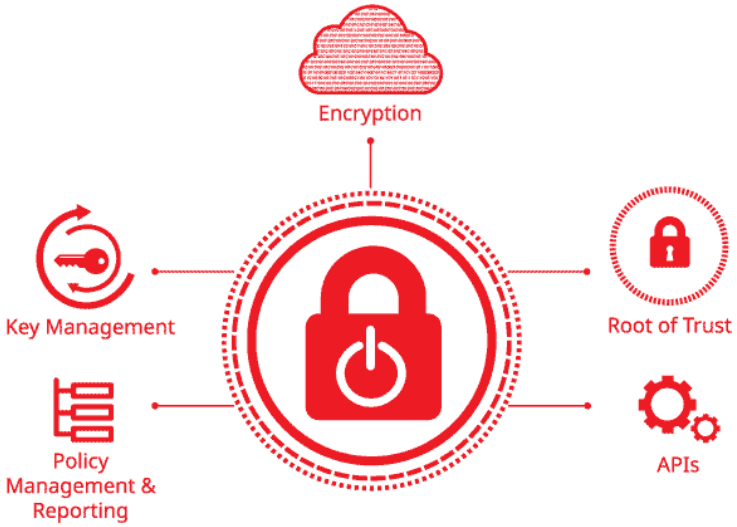
Looking for easy to use, robust and reliable IT management solutions based on the latest industry standards? Consider the MegaRAC family of BMC Remote Management Firmware Solutions for total in/out-of-band management for platforms and devices across the enterprise — including servers, modular and blade systems, client and cloud-based systems, embedded/IoT systems and industrial PCs, IPMI devices, Intel® Active Management Technology (AMT) devices, AMD® DASH-enabled systems and more.

ami CLEFS™

Cloud Environment for Firmware Signing

Private key management and firmware signing for UEFI and BMC firmware is seen as a growing potential vector of harm, both for manufacturers and their end users. The inappropriate storage of keys, when stored together with the source code they protect, is increasingly a key contributor to this threat - since an attack on the protected code can compromise its key as well.

Fortunately, use of *a dedicated signing server, called a Hardware Signing Module or HSM, can isolate and protect keys from such an attack*. Placing an HSM in the cloud adds an additional layer of security for vulnerable keys.

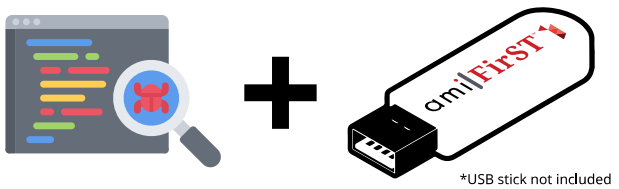


ami FirST™

Firmware Security Testing

AMI Firmware Security Testing (FirST) is a suite of test tools for verification of production UEFI firmware security for x86/x64 architectures. AMI FirST tests are kept current with the latest developments in firmware security threats for comprehensive testing and prevention of security defect regression and vulnerability.

Log information and test results from AMI FirST are provided in a simple, concise format. Each test is clearly delineated with pass, fail or not applicable status. Every failed test directs the user to the corresponding AMI Security Advisory for remediation of the issue and any additional required action.



ami™

Utilities

Firmware Tools & Utilities

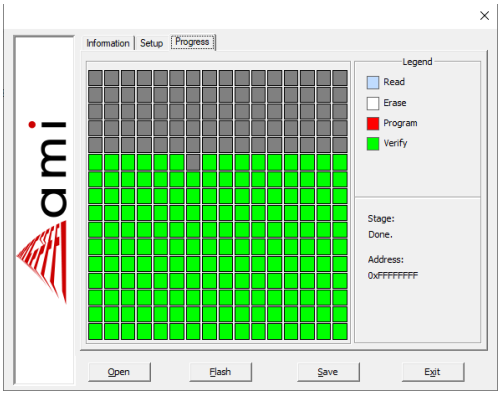
AMI provides a comprehensive lineup of debug and diagnostic tools, pre-boot utilities and development systems to help improve the development experience and speed time to market. Many of these are incorporated directly into Aptio source code, while others are available for direct sale to AMI customers.

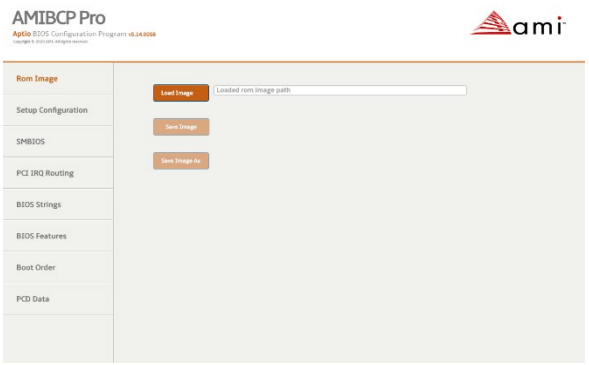
UEFI / BIOS Utilities for Aptio and AMIBIOS

Custom UEFI and BIOS utilities for Aptio and AMIBIOS simplify the development and debug experience. AMI's Aptio firmware offers an easy transition to the Unified Extensible Firmware Interface (UEFI) specification, giving developers all the advantages of UEFI - modularity, portability, C-based coding - while retaining easy-to-use tools that facilitate manufacturing and enhance productivity. AMI's rich set of utilities for BIOS ROM image customization without rebuilding the firmware provide a clear advantage in reducing both time and cost.

AMI Firmware Update (AFU)

AMI Firmware Update (AFU) is a scriptable command line utility for DOS, Microsoft Windows®, Linux, FreeBSD and the UEFI shell. Utilized for factory or field BIOS updates, AFU is flexible enough to update the entire Flash part or only a portion. It programs the main BIOS image, boot block or OEM configurable ROM regions.



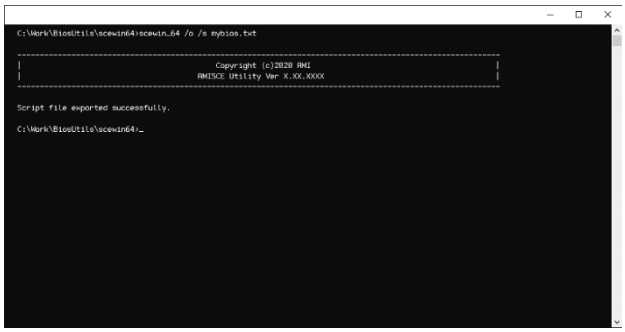


AMI BIOS Configuration Program (AMIBCP)

The AMI BIOS Configuration Program (AMIBCP) for Aptio enables customers to modify parameters in a BIOS ROM without rebuilding from source. Developers can modify default values for BIOS setup parameters, modify default boot order in BIOS setup, view and edit sign-on and setup strings, and edit SMBIOS string data.

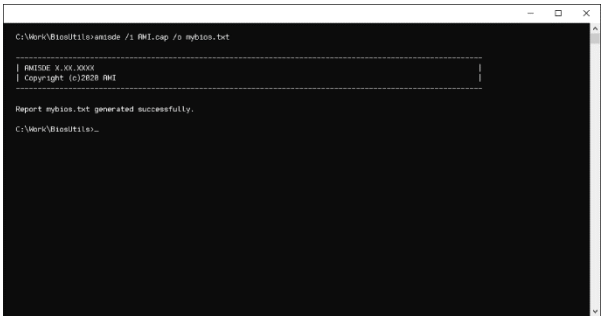
AMI Setup Control Environment (AMISCE)

AMISCE is a command line tool which provides an easy way to update NVRAM variables, extract variables directly from the BIOS, change settings using either a text editor or a setup program and update the BIOS. AMISCE produces a script file that lists all setup questions on the system being modified by AMISCE. The user can then modify the script file and use it as input to change the current NVRAM setup variables.



AMI Setup Data Extraction (AMISDE)

AMISDE is a command line tool for exporting setup data from an Aptio ROM image, including spreadsheet applications such as Microsoft Excel®. It generates a helpful summary report of BIOS setup parameters and default values that enhances productivity in testing and manufacturing.

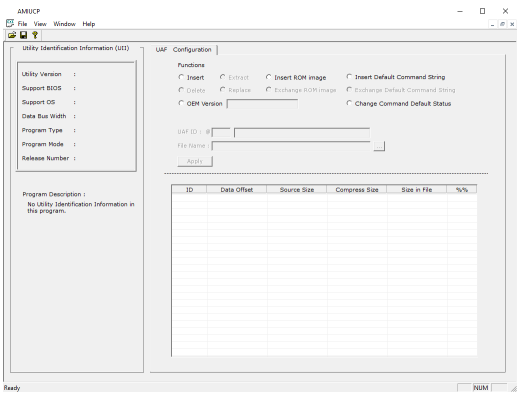


AMISLP

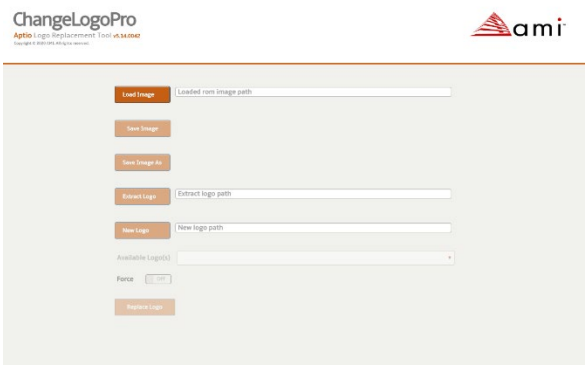
AMISLP allows the insertion of Microsoft System Locked Pre-Installation (SLP) key files into the BIOS image. SLP keys are used for OEM activation of Microsoft Windows® 7 and Vista®. For Windows® 8.1 and Windows® 10, the OEM Activation 3.0 eModule is used in conjunction with AFU v2.35 or greater.

AMI Utility Configuration Program (AMIUCP)

AMIUCP is a utility that is used to pre-configure the Aptio Flash Utility (AFU). Users can insert and exchange the default command string and ROM image used in AFU to create a customized version of the utility. AMIUCP supports AFU v2.35 or AFUWINGUI v1.12 or later.



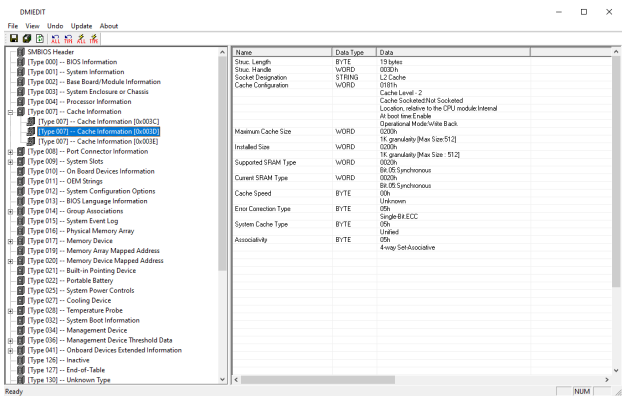
Change Logo

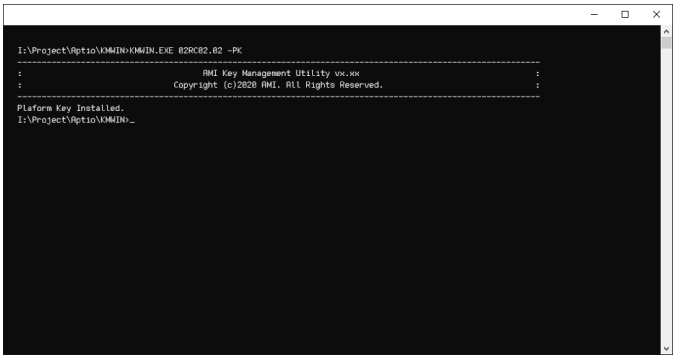


ChangeLogo allows developers to easily change logos displayed by Aptio at boot. The full screen "splash" logo and small logos appearing on the main screen during POST can be replaced with custom logos. ChangeLogo also allows logos to be extracted from existing Aptio ROM files.

Desktop Management Interface Edit (DMIEdit)

DMIEdit is a scriptable command line utility for DOS, Microsoft Windows®, Linux and the UEFI shell. The Desktop Management Interface Editor for Aptio enables developers to modify strings associated with platform SMBIOS tables (System, Base Board, Chassis, OEM string, etc). In manufacturing, use DMIEdit to embed platform serial numbers, UUID and license keys into the SMBIOS table, which identifies platforms to management software.



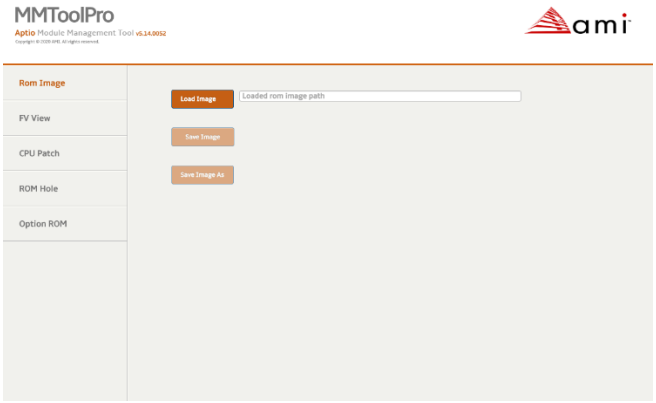


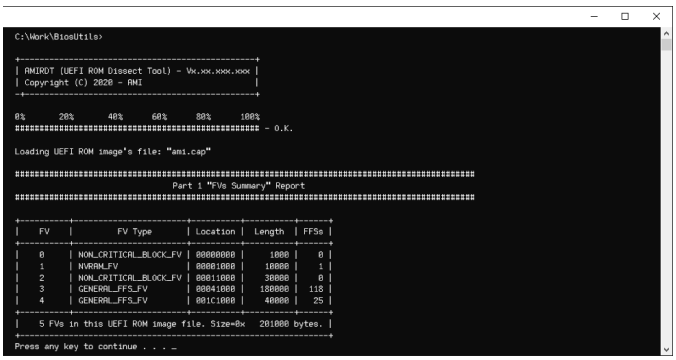
AMI Key Management

The AMIKM utility program can write PK, KEK and signature database information to the target system. Please note that the SMI Variable module is required in order to use AMIKM.

Module Management Tool (MMTool)

Aptio's Module Management Tool (MMTool) allows developers to manage firmware file modules contained within an Aptio firmware ROM image. Use MMTool to extract, replace and insert binary components such as modules, Option ROMs, microcode patches and ROM holes using its graphical or command line interface. With MMTool, developers can also create reports on the contents of an opened ROM image.





AMI UEFI ROM Dissect Tool (AMIRDT)

The AMIRDT utility makes it easy for developers to dissect a UEFI ROM and produce related reports on ROM status and size. This powerful tool can dissect ROMs down to section level, dissect NVRAM Variables, compare two ROMs and search the GUIDs of a given FFS to provide a summary of their sizes from ROM.

AMIDiag for UEFI

The Only Diagnostic Solution for UEFI

AMIDiag™ is the only hardware diagnostic solution for the Unified Extensible Firmware Interface (UEFI) available in the market today. AMIDiag for UEFI operates independently from the operating system, offering great advantages to AMI OEM/ODM customers.

AMIDiag for UEFI builds on a long history of AMIDiag products and is designed by a pioneer in UEFI firmware. It is currently available only to OEM/ODM customers. To request a free limited-time evaluation copy, please contact an AMI software sales consultant.

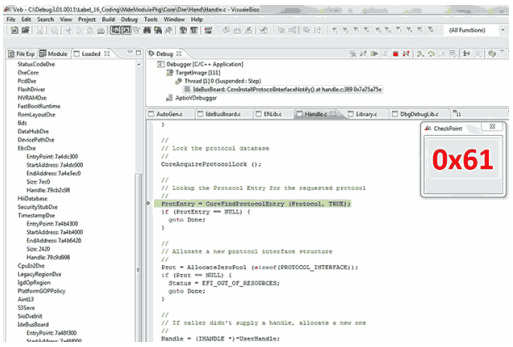
- **No dependency** on legacy BIOS
- **For IA32 and x64** UEFI environments
- **Compatible with** current and future UEFI platforms
- **Leverage original** AMIDiag product features
- **Shipped for years** by a UEFI leader
- **Tested against** multiple UEFI implementations

AMIDebug™ for UEFI

Source-Level Debugging for Aptio and UEFI Projects

AMI Debug for UEFI is a powerful solution for debugging UEFI projects, offering source-level debugging without the need for an expensive in-circuit emulator (ICE). Using standard RS-232 or USB 2.0 cables, developers have access to source-level debugging and control the debug target hardware through a GUI application for Microsoft Windows®.
AMI Debug for UEFI works with AMI's Aptio as well as projects based on the "TianoCore" EFI Development Kit (EDK) or any UEFI Shell application. Aptio and TianoCore developers can debug at the firmware level, while application and driver developers can invoke debugging features at the shell without the need to embed modules in the ROM image. This flexible and inexpensive tool works for IA32 and x64 build targets. It is currently available only to OEM/ODM customers; for more information, please contact an AMI software sales consultant.

- Designed for **UEFI 2.x and EFI 1.x**
- Integrates into **Visual eBIOS (VeB)** Development Environment from AMI
- **Modular**, easily included in any project
- **Works with AMI's USB checkpoint device**
- **Can be embedded in target firmware or launched from the EFI Shell**
- **Supports IA32 and x64 build targets**



ami™

AMI PBA Pre-boot Applications

A Complete Toolkit for Pre-Boot Customization

AMI's pre-boot applications (PBA) offer system builders the capability to store tools and applications on a hidden partition of the hard disk. Easily activated by a hotkey at startup, AMI PBA tools and services enhance user the experience by saving time and eliminating difficulties. Recovery and diagnostics services facilitate customer service issues, reducing service calls and speeding up resolution of potential issues.

In addition to its applications, AMI provides a complete set of tools for an OEM to customize and control the contents of the pre-boot environment, including:

- **AMI Rescue** recovery application
- **AMIDiag™** Diagnostic Utilities for UEFI
- **Disk Utilities** for hidden partition backup, restore and resizing
- **Service Creation** Utility
- **Service Packaging** Utility
- **Partition Library**
- **Services Library**
- **Service Access** Driver
- **OEM Development** Environment

Visual eBIOS Integrated Development Environment

Development Environment Built for Aptio V

Visual eBIOS (VeB) is a graphical Integrated Development Environment (IDE) created for product-strength firmware development. Originally introduced by AMI in 2001, VeB provides the advanced graphical environment for firmware development in Aptio® V, AMI's flagship UEFI BIOS. It has grown to become an indispensable tool for stable and modern BIOS development.

The Visual eBIOS (VeB) development environment supports multiple operating systems, including Windows® and Linux®, with cross-platform support for x86, x64 and ARM systems. VeB can reduce the need for coding with complex commands, while consistency between Aptio versions and hardware platforms eliminates the need to re-learn use of the tool. Instead, VeB enables firmware engineers managing different product lines to share their development experience, leading to improved product quality and stability.

Note that VeB is not sold as a standalone product, but is available to Aptio customers as part of the Aptio V source. Contact an AMI Software Sales Representative to learn more.

- **Familiar, intuitive interface** includes integrated project management, source control interfaces and helpful wizards
- **Manage project settings**, view project output & capture build logs
- Build projects **directly from VeB**
- Integrated **Source Control Support**
- Integrated **Debugger Support**
- **Text Editor** with UNICODE Support
- **Support for Arithmetic operations** with operator precedence for SDL language
- Support to **build a single component** directly from VeB
- Based on popular **Eclipse IDE**

ami | Remote BIOS™

Simplify System Maintenance and Configuration

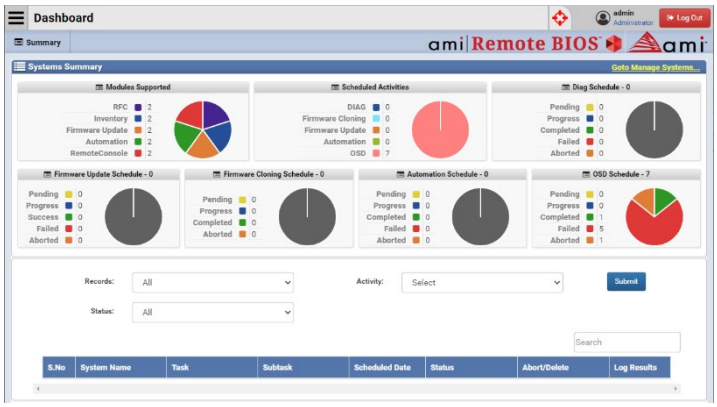
AMI Remote BIOS™ integrates firmware configuration and updates, hardware diagnostics and pre-OS applications in a Unified EFI (UEFI) environment. Combined with Aptio® firmware and AMIDiag™ diagnostics, it greatly simplifies system maintenance and setup. It also replaces the "recovery DVD" with an always available pre-boot management tool that can be executed from the BIOS flash ROM, NAND flash, on-board USB, protected disk partitions and proprietary storage. Additionally, AMI Remote BIOS allows for simple customization of the pre-OS environment, so developers can replace the standard BIOS look and feel with proprietary branding.

Move away from text-based applications to an intuitive graphical interface and make system diagnostics readily available to the user. Take advantage of UEFI standards to create a framework for integrating new applications that leverage the same GUI and customized themes. Execute BIOS and firmware updates in pre-boot to eliminate OS compatibility issues and enable recovery and full system tests even when the OS cannot boot. AMI Remote BIOS is currently available as an add-on product only to OEM/ODM customers; for more information, please contact an AMI software sales consultant.

Enterprise-wide Remote Client Management

In a highly connected world, enterprise customers demand better platform management on currently shipping client platforms offered by OEMs and ODMs.

Client systems have limited remote management functionality, which typically requires an onboard BMC or an operating system to be fully installed and actively running. While a BMC offers a high level of platform management, it normally ships exclusively on server platforms.



- BMC-less Remote BIOS Management
- Secure Remote Firmware Update
- Remote Diagnostics
- Remote BIOS Configuration & Settings Cloning
- Secure shell provided for remote administrator scripting
- Remote Console
- System Inventory Information
- Pre-OS Remote Management
- Data Analytics and Reports
- Remote Automation
- Remote OS Deployment

Leveraging AMI's expertise in both UEFI BIOS and BMC firmware, AMI has developed a comprehensive management solution that uses the in-band network to perform all administration during pre-boot. This means that enterprise-wide remote client management can be included on shipping OEM/ODM client platforms without any hardware modifications.

Cloud

Why AMI DevNet?

One of the key benefits of AMI DevNet is a highly streamlined development experience for all types of firmware engineering teams. It also has secure development at its core, as all source code developed in conjunction with AMI DevNet is required to pass static code analysis and other tests to ensure customer coding standards are enforced.

To make it familiar and compatible with existing OEM/ODM customer development methodologies, AMI DevNet also incorporates several well-known industry tools into its framework, such as Git, GitLab™, Docker™, Ansible®, Kubernetes™ and more.

As part of its code verification process, AMI DevNet enables continuous integration to ensure every check-in still builds. AMI DevNet also integrates automated testing to ensure the latest source is always well tested. For quick on-boarding of engineering or development teams, AMI DevNet moves complicated tool setup to the cloud.

ami | DevNet™

Git™-based Firmware Source Code Development and Distribution Environment

AMI DevNet™ is a web-based source code distribution and development solution that provides a unique, enhanced source code hosting solution with metadata-aware microservices and bots, together with a complete DevOps solution for BIOS and BMC firmware development. It features an enhanced robust Git™-based source control system with powerful integrated DevOps capabilities to help make firmware development simpler, faster and more secure. With fully integrated virtual and physical hardware testing services, AMI DevNet is a vital tool for bringing products to market on budget and on time.

AMI DevNet is available to AMI ODM and OEM firmware customers with the option to use specific components of the solution as needed and to integrate and add custom DevOps capabilities to AMI DevNet. The solution is not intended to replace each customer's own development methodologies, but rather to provide an opportunity to enhance and complement them, with the aim of shortening the development cycle and time to market.

- Complete DevOps environment for firmware development
- Automated testing for reliable, consistent source code
- Git-based source code control
- Multi-party development models for any combination of AMI / OEM / ODM collaboration
- Cloud-based, on-premise and hybrid solutions available
- Modular architecture — use only what is needed
- Git access available via HTTPS, SSH or web browser

Why AMI DevNet?

One of the key benefits of AMI DevNet is a highly streamlined development experience for all types of firmware engineering teams. It also has secure development at its core as all source code developed in conjunction with AMI DevNet is required to pass static code analysis and other tests to ensure customer coding standards are enforced.

To make it familiar and compatible with existing OEM/ODM customer development methodologies, AMI DevNet also incorporates several well-known industry tools into its framework, such as Git, GitLab™, Docker™, Ansible®, Kubernetes™ and more.

As part of its code verification process, AMI DevNet enables continuous integration to ensure every check-in still builds. AMI DevNet also integrates automated testing to ensure the latest source is always well tested. For quick on-boarding of engineering or development teams, AMI DevNet moves complicated tool setup to the cloud.

AMIEC Embedded Controller

AMI Backplane Controller Product Matrix

AMI Backplane Controllers from AMI provide LED and sensor control for SAS/SATA/NVMe drives. They provide exceptional flexibility and require minimal board real estate, making them a perfect fit for numerous applications.
A wide selection of reference designs and development tools are available to help speed the design process. AMI's Backplane Enclosure chips work with any HBA supporting SGPIO (SFF-8485) and/or SES-2 protocol over I2C. These Backplane Controllers can be flashed or upgraded via SMBus from the motherboard BMC, or USB, depending on the model.

- **Low-cost, true single chip** solution
- Parts Ready to use **No firmware or programming required**
- **Supports LED/Drive Management** through SGPIO (SFF-8485) and SES-2
- **Supports IBPI Specification** (SFF-8489)
- Can drive up to **3 LEDs per slot**
- **Provides drive Activity, Fail/Rebuild and Locate** LEDs for each drive
- **Up to 4 controllers can be cascaded** to support up to 32 drives
- **Firmware Upgradable** through SMBus from host BMC
- **Diagnostics and FW tools available** for Win32, Win64, Linux, EFI and DOS
- **Available in QFN-64, TQFP-48** and LQFP-32 packages

	MG9100	MG9098	MG9094	MG9081	MG9085A
Drives	8 U.2/U.3 NVMe/SAS/SATA	8 U.2 NVMe/SAS/SATA	8 SAS/SATA	8 SAS/SATA	6 SAS/SATA
UBM Channels	Yes, 2/4	No	No	No	No
PCIe Hot-plug SMBus support	Yes	Yes	No	No	No
VPP/SHP Platform Support	Yes	Yes	No	No	No
SAS Power Disable	Yes	Yes	No	No	No
NVMe/SAS Drive Detect	Yes	Yes	No	No	No
SGPIO Channels	2	2	2	2	1
SGPIO Configurations	32	32	44	30	4
SES-2 (Legacy I2C based)	No	No	No	Yes	Yes
BMC Access through SMBus	Yes	Yes	Yes	No	No
IPMI	No	No	No	Yes	No
IBPI	Yes	Yes	Yes	Yes	Yes
Ready LED Support	Yes	Yes	Yes	Yes	Yes
Global Act & Fail LED	Yes	Yes	Yes	Yes	Yes
USB	No	No	No	Yes	Yes
Internal Voltage Regulator	No	No	Yes	Yes	Yes
Internal Crystal	Yes	Yes	Yes	Yes	Yes
Package	QFN-64	QFN-64	TQFP-48	TQFP-48	LQFP-32

International Offices

AMI Global Headquarters
American Megatrends International LLC
5555 Oakbrook Parkway, Building 200
Norcross, GA 30093
Tel: 770.246.8600
Sales Tel: 800.828.9264
Fax: 770.246.8790
Technical Support: 770.246.8645
Email: swsales@ami.com /
hwsales@ami.com

Japan
American Megatrends Inc.
2-2-7 Parkside 1 Bldg. 5F
Kanda-tsukasamachi, Chiyoda-Ku
Tokyo, 101-0048 Japan
Tel: [81] 3-5256-1831
Fax: [81] 3-5256-1832
Email: japansales@ami.com

China
American Megatrends Information Technology (Kunshan) Co., Ltd.
Room 2101, Building 1,
No. 198, Chang Jiang Middle Road
Kun Shan City, Jiang Su Province, China
215301
Tel: [86] 512-5736-0204
Fax: [86] 512-5736-0224
Email: chinasales@ami.com

Korea
AMI Korea
Sepung Building 8F,
16 Teheranro 84 Gil,
Gangnamgu, Seoul, 06178 Korea
Tel: [82] 2-569-5689
Fax: [82] 2-569-4689
Email: koreasales@ami.com

Germany
American Megatrends International GmbH
Truderinger Strasse 283 81825 München
(Munich), Germany
Tel: [49] 89-9699-9510
Fax: [49] 89-9699-9519
Email: europesales@ami.com

Taiwan
AMI Taiwan
11F, No. 2
Sec. 3 MinChuan East Road
Taipei 104,Taiwan, R.O.C.
Tel: [886] 2-2516-8887
Fax: [886] 2-2516-8698
Email: taiwansales@ami.com

India
American Megatrends India Pvt. Ltd.
Tower A, 5th floor, Ratthas Tek Medows
51, Rajiv Gandhi Salai (OMR)
Sholinganallur
Chennai - 600 119 India
Phone: [91] 44-66540922
Fax: [91] 44-66540901
Email: sales@amiindia.co.in

Hong Kong
AMI Hong Kong Regional Headquarters
Unit 1103A, 11/F, Cosco Tower
183 Queen's Road Central
Sheung Wan, Hong Kong
Tel: [852] 2256 4068
Fax: [852] 2256 4078

For more information please visit: ami.com

5555 Oakbrook Parkway
Building 200
Norcross, GA 30093 USA
Tel: 770.246.8600
Sales/Toll Free : 800.828.9264
ami.com