

MegaRAC® FP-X™ Fabric Management Firmware



A powerful firmware / software stack combining fabric management capabilities like PCIe switch and drive management together with all Redfish™ and IPMI 2.0-defined BMC management tasks

MegaRAC® FP-X Fabric Management Firmware from American Megatrends (AMI) is a powerful firmware/software solution combining the complete functionality to support fabric management, like PCIe switch management and NVMe/drive management, with that of a baseboard management controller (BMC).

A key aspect of MegaRAC FP-X is its inclusion all of the BMC management tasks as defined by Redfish™ and IPMI 2.0, along with Serial over LAN (SOL), complete out-of-band (OOB) connectivity, an extensive web UI and an advanced component management framework to support PCIe Switch based management, NVMe support, RAID/IT support and support for industry-standard drivers.

For remote access to fabric management tasks, MegaRAC FP-X provides a secure embedded web server. It also features Secure-Shell (SSH)-based SOL for remote access, in addition to standard IPMI-based SOL. MegaRAC FP-X support is available on all of the advanced System-On-Chip (SoC) devices from the industry's leading manufacturers.

MegaRAC® FP-X is based on the proven, highly stable and industry-leading MegaRAC® SP-X stack with which it shares a core codebase. Like SP-X on which it is founded, MegaRAC FP-X 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.

Many stack components and OEM-level changes can be completely customized and enhanced using MegaRAC® Development Studio (DS), an Eclipse™-based Integrated Development Environment (IDE) for server management that gives developers the ability to customize the stack, build and debug all at once.

KEY FEATURES

- 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 now updated with PCI Switch Management, NVMeMI and drive management capabilities
- Remote update capability for BMC and drive firmware

Technology Pack Features

- Redfish™ 1.1 support
- Intel® RSD 2.1 support
- MegaRAC® Composer™ Pod Management Software

MEGARAC FP-X CORE FEATURES

Stack Design and Packaging

- Robust PCIe switch management
- Each feature of FP-X is built and available as a separate package, for a high level of stack modularity
- FP-X offers the capability to generate customized source / binary packages*
- Each package contains clearly-defined, separate common and hardware-specific modules for easy portability across various SoC/hardware platforms
- A new Linux® kernel and boot loader (U-BOOT) base make use of the advanced features / components available in the latest release

**Dependent on feature licensing*

MegaRAC Development Studio (DS) Integrated Development Environment (IDE)

- MegaRAC DS is a unified IDE used to customize, build and debug porting and development efforts in MegaRAC FP-X and other MegaRAC platforms
- Customization, modification and addition of OEM features are possible even on the binary image
- Stack configuration is extremely simple and based on the specific SoC and hardware platforms
- Features sophisticated automated test tools for feature testing and validation
- A large repository of standard devices is included - to support nearly any hardware platform
- Provides an intuitive, GUI-based mechanism to quickly and easily extend support for new devices
- FRU generation and management is integrated within MegaRAC DS

The MegaRAC FP-X Web Interface

MegaRAC FP-X provides an intuitive, rich content-based web interface that makes management of the service processor from a single control point incredibly easy. Web sessions are established with user-based authentication and secured with the *https* secure web communication protocol. Features accessible via the web interface in MegaRAC FP-X include:

- Dashboard & system information
- FRU information
- Platform health
- Configuration
- Remote control
- Maintenance and firmware update
- PCIe Switch configuration management
- NVMe controller management
- RAID/IT management, if applicable
- Drive management

MEGARAC FP-X FEATURES AND SPECIFICATIONS

Standard Linux® kernel

- Includes complete peripheral support as required on fabric management node

IPMI 2.0 Support

- FP-X features an enhanced IPMI 2.0 implementation
- Advanced node management via IPMI
- Support for overwriting / modifying standard command processing
- Complete platform / sensor porting support
- Support for LAN and serial interface
- Dynamically pluggable transport layers (both LAN and serial)
- GUID creation
- Serial over LAN (SOL)

Component Management Framework

- PCIe switch fabric management
 - Complete fabric management API support for Microsemi PCIe Switch
- NVMe controller management
 - Basic management support (I2C-based)
 - Complete management interface (MI) support (I2C or MCTP/I2C-based, as applicable)
- RAID/IT controller management

NVMe Driver Management (through PCIe standard)

- Enables NVMe administrator command support via PCIe

Enhanced User Interface

- Rich, dynamic HTML5-based web front end
- PCIe switch configuration management support
- NVMe basic management / MI configuration support
- RAID/IT configuration support
- Drive management support

Services

- Configure services from a single access point
- Support for Windows® Active Directory, OpenLDAP, RADIUS, Novell DS
- Support for industry-standard discovery methods, including WS-DISCOVER, UPNP, SLIP, DDNS, RMCP ping
- Support for industry standard name services, including NMBD, DDNS, WINS
- SP stack-level firewall support and IPMI-based firewall service

Authentication and Security

- Hardware-based encryption support, integrated with OpenSSL (hardware-dependent feature)
- SSL-based single-point, configurable encryption support for all out-of-band network access
- Unified authentication via PAM
- SMTP-AUTH support (LOGIN, PLAIN, and CRAM-MD5 only)
- Security auditing to identify and fix potential security holes
- Secure password reset

Auto-Recovery and Fault Tolerance

- Fail-safe configuration storage
- Redundant firmware/fail-safe image boot (may require hardware support)
- Shared MegaRAC SP-X core enables auto-recovery of services with near-zero downtime
- Ability to restore factory default configurations

Abstraction Layers

- MegaRAC class library to support object-oriented porting projects
- Abstraction layer to unify critical shared resource usage across various applications and services
- Abstraction layer can hide OS/system level details from the applications and libraries for easy OS migration
- Network Connection Management Library (NCML) abstracts network-related maintenance from individual system services for uniform method of network configuration and connectivity to all services

Extended Technologies

- NTP support
- IPv6 protocol support
- Industry-standard web servers, including Lighttpd
- VLAN interface support
- Encrypted flash support

Runtime Debug Support

- Configurable detailed log for each service integrated in the final image, for simple issue resolution in the field
- Remote debug support for flashed images

Firmware Upgrade

- Enhanced, fast, reliable firmware upgrade with YAFU and web UI

For more information:

<https://ami.com/products/remote-management/fabric-manager>



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