# ATCA Shelf Manager
# V2.2.0 Firmware Update Notice

Thank you for choosing a Schroff or Electronic Solutions ATCA chassis and Shelf Manager. The Shelf Manager in your 5, 14, or 16 slot chassis is based on Pigeon Point Systems technology. Pigeon Point Systems periodically releases new versions of the Shelf Manager firmware that provide new features, bug fixes, and support for new hardware. The details of this firmware update are in the list below.

The ShMM-500 and ShMM-300 use different microprocessors so it is important to install the correct firmware. There are also two versions of ShMM-500 firmware depending on your shelf manager configuration. Chassis that were originally shipped with ShMM-500s use firmware that is configured for a USB redundancy connection. Chassis that were upgraded by the customer from a ShMM-300 to a ShMM-500 use firmware that is configured for an Ethernet redundancy connection.

Regression testing has been performed on all Schroff and Electronic Solutions Shelf Managers and a large variety of chassis configurations to insure that this firmware update is compatible with existing equipment.

The Shelf Manager firmware is distributed in Zip files that contain five files for the ShMM-500 and two files for the ShMM-300. The instructions that are included in the Zip file detail the firmware installation process.

**Identifying your Shelf Management Mezzanine:**
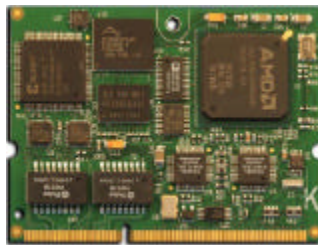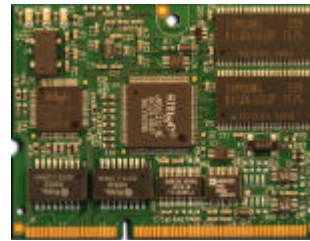


ShMM-500                                    ShMM-300

## ShMM-500 Firmware with a USB Redundancy Connection
sentry.63998-04653.zip

## ShMM-500 Firmware with an Ethernet Redundancy Connection
sentry.63998-05552.zip

## ShMM-300 Firmware with an Ethernet Redundancy Connection
sentry.63998-05154.zip

## New and Changed Features for 2.2.0
The following new features are introduced in this release.

**Some informational CLI commands now work on the backup Shelf Manager.**

Several informational CLI commands, including "ipmc", "fru", and sensor-related commands, now work on the backup ShMM. They report information local to the backup ShMM and do not try to access other IPM controllers.

**Initial thresholds for ShMM-hosted sensors are now configurable**

Initial threshold and hysteresis values for sensors implemented on the ShMM (belonging both to the ShMC (20h) and the alternate "physical" IPM controller) are now configurable. To achieve that, it is necessary to prepare a text file containing SDRs for the relevant sensors with the overriding values, compile it with the SDR compiler and place the resulting binary file on both ShMMs as "/var/nvdata/user_sdr". For the sensors hosted by the alternate controller (the one with the physical ShMM address), there should be two SDRs in this file – one for each possible hardware address of the ShMM (or more precisely, its carrier board, when installed in the shelf).

**Support for multi-slot ATCA boards is implemented**

Starting with this release, the Shelf Manager supports power management for multi-slot ATCA boards (boards that report more than one slot in the response to the "Compute Power Properties" command). All slots occupied by such a board are properly accounted for when the board is powered up.

**Hot swap state of the ShMM carrier can now affect the redundancy state of dual Shelf Managers**

If the configuration variable SWITCHOVER_ON_HANDLE_OPEN is defined in the configuration file and set to TRUE, a switchover will take place if the alternate controller on the active Shelf Manager gets into the state M1 after the hot swap handle is opened on the carrier. Also, a transition from M5 to M6 will not be permitted for this controller if there is no available backup Shelf Manager in the shelf. The default value of the configuration variable, SWITCHOVER_ON_HANDLE_OPEN, is FALSE.

**Switchovers that would have resulted from a broken Ethernet link will not occur if the backup Shelf Manager has no Ethernet connectivity**

If the Ethernet link to the active Shelf Manager is broken and the configuration parameter SWITCHOVER_ON_BROKEN_LINK is set to a positive value, earlier releases of the Shelf Manager performed a switchover to the backup Shelf Manager. This switchover is now avoided if the backup Shelf Manager does not have Ethernet connectivity (to prevent indefinite bouncing between the Shelf Managers).

**Set Port State commands are now sent synchronously during E-Keying**

The Shelf Manager now waits for completion of each Set Port State command sent to an IPMC during the E-Keying process before sending another Set Port State command to that IPMC. This change improves interoperability for boards where the IPM Controller does not keep up with a stream of Set Port State commands sent asynchronously by the Shelf Manager.

**The IPMI Cold Reset command can now reset a standalone Shelf Manager**

If the configuration variable ALLOW_RESET_STANDALONE is defined in the configuration file and set to TRUE, the IPMI command Cold Reset sent resets the active Shelf Manager even if there is no available backup Shelf Manager in the shelf. Otherwise, this command is ignored if there is no available backup Shelf Manager in the shelf. The default value of the configuration variable ALLOW_RESET_STANDALONE is FALSE. If there is a backup Shelf Manager in the shelf available for the switchover, the command Cold Reset sent to the active Shelf Manager initiates the switchover.

**All commands arriving to the Shelf Manager from IPMB-0 are optionally allowed**

If the configuration variable ALLOW_ALL_COMMANDS_FROM_IPMB is defined in the configuration file and set to TRUE, almost all IPMI commands (except for the session management commands) are accepted by the Shelf Manager when arriving from IPMB-0. The default value of the configuration variable ALLOW_RESET_STANDALONE is FALSE. By default, user management commands, channel management commands, LAN configuration commands (except for Get LAN Configuration Parameters) and Cold Reset are not accepted by the Shelf Manager from IPMB-0, due to security considerations.

**Changing the Event Receiver is optionally prohibited by the Shelf Manager**

Since the Shelf Manager is the main SEL maintaining authority in ATCA shelves, the Shelf Manager can now reject a request to redirect the event receiver when it is sent to the ShMC address (20h) or to the alternate controller. This is done if the configuration variable ALLOW_CHANGE_EVENT_RECEIVER is defined in the configuration file and set to FALSE. The default value of the configuration variable ALLOW_CHANGE_EVENT_RECEIVER is TRUE.

**Enumeration order of SEL entries has been changed in SNMP queries**

In order to satisfy the requirement of ordered indexes in an SNMP query, the SEL entries reported in response to the SNMP read request are now ordered by SEL entry numbers. This order may be different from the order in which the SEL entries were added to the SEL. To determine the order in which the entries were added to the SEL, the application can compare the "timestamp" fields in the SEL records (for records that are time-stamped).

**Automatic recovery of isolated links in radial IPMB-0 configurations now supported**
In radial IPMB-0 shelf configurations, the Shelf Manager is now able to automatically re-enable previously isolated IPMB-0 links after the expiration of a predefined timeout. If the fault is still in place, the isolation algorithm will again isolate the faulty link; if the fault is no longer

observed, the link becomes operational. The configuration variable IPMB_LINK_ISOLATION_TIMEOUT defines the length of the isolation timeout. The default value for this variable is -1, which means that links that are isolated are never manually recovered.

## Release 2.1.2 of Monterey Linux adds features

The update of Monterey Linux that is delivered with this Shelf Manager release supports the following additional features:
- Optimizations in U-Boot aimed at shortening the boot-up time
- An enhancement in JFFS2 code, preventing CRC Errors from flooding the log file
- Various small fixes in the U-Boot POST facility
- A new **shmm_tests** sample project demonstrating the Run-Time Self-Test Interface of the ShMM-500
- Support for reporting and logging of CPU errors

In this release, the logging of CPU errors is turned off by default, pending investigation of some scenarios where excessive errors are logged. PPS expects to have the logging enabled by default in a future release.
In addition, the following changes have been made in the bundled Linux configuration:
- Support for **ssh** client, **scp** (secure copy) and **sshd** (server) have been added for the ShMM-500.
- The home directory for user **ftp** has been set to **/var/bin** for the ShMM-300 and ShMM-500.
- For the ShMM-300, the device driver for the Ethernet port built into the C5470 (eth0) is optimized for improved performance, but not as aggressively as the version of that driver that was initially included in release 2.1.1 and withdrawn in 2.1.2.

## Bug Fixes

Several bugs have been fixed in this version of the Shelf Manager; they include:
1. When assigning power to FRUs, the Shelf Manager didn't take into account the power assigned to the FRUs before the startup of the current instance of the Shelf Manager or before the last Shelf Manager switchover.
2. A deadlock could happen when the Shelf Manager sent the GetDeviceID command to an IPM controller in the firmware upgrade state.
3. The allowance delay was canceled by activation of additional FRUs on an already powered board.
4. Intensive SEL writes could cause the SEL to overflow in spite of the automatic truncation provisions in the Shelf Manager.
5. No gratuitous ARP packets were sent to notify the switch about the IP address change after a Shelf Manager network interface switchover (in an ShMC cross-connected environment).
6. The allowance for readiness worked incorrectly for multi-slot boards.
7. The Shelf Manager incorrectly processed a Board Point-to-Point Connectivity record with length between 250 and 255 bytes, causing problems in E-Keying.

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8. The cooling management code powered up FRUs that were powered down during Critical Alert state before the system reached the Normal state, potentially resulting in undesirable power up/down cycling on those FRUs, as long as the shelf remained in Critical Alert state.

9. Information about RMCP sessions that are closed due to timeout was not properly propagated from the active to the backup Shelf Manager.

10. When releasing a bused resource (Bused E-Keying) in response to a CLI request, the Shelf Manager behaved incorrectly when some boards were in state M7.

11. When forming M7-related events for FRUs, the Shelf Manager sometimes used the sensor number 255, even though the actual sensor number was known for the FRU involved.

## Known Problems

None at this time.

**Schroff Specific New and Changed Features for Release V2.2.0**

- Added support for ACB-IV including ADM1024 support.
- Added support for new shelf with non-intelligent fans.
- Added support for shelf with arbitrary set of tachometer lines connected.
- Added support for NEBS cooling requirements compliance.
- Added support for air filter sensor polarity.
- Fixed a bug that prevented proper handling of 'clia minfanlevel' command.
- Implemented PEM pushbutton dual function (handle open/handle close).
- Updated PEM-related code dealing with handle status and LEDs.
- Changed the number of LEDs on fan trays and PEMs to 3.
- Implemented processing of adaptive fan threshold tables.
- Changed the cooling strategy to power up FRUs after critical alert condition only if normal condition has been reached. Implemented radial IPMB-0 isolation recovery.
- Added automatic recovery from transient IPMB faults on radial IPMB shelf managers.
- Added CARRIER_OPTIONS="NEBS" Using the NEBS cooling strategy for this chassis.
- Added CARRIER_OPTIONS="TACH_MASK=0xFF" TACH_MASK:(integer mask) Fan tachometer usage mask for ACB-IV (default = 0xFF). Hexadecimal numbers can be specified with the "0x" prefix

## New and Changed Features for 2.1.3
The following new features are introduced in this release.

### IPMI command "Get AuthCode" now supported

The Shelf Manager now supports the IPMI command "Get AuthCode" from the group of IPMI Messaging Support commands. This command can be used to send a block of data to the Shelf Manager, with the response being a hash of the data concatenated with the internally stored password for the specified channel and user.

### Parity check added in the "readhwaddr" utility

A parity check was added to the "readhwaddr" utility that reads the Shelf Manager hardware address during system startup. This allows early recognition of an incorrect hardware address.

### Bug Fixes
Several bugs have been fixed in this version of the Shelf Manager; they include:

1. Reading FRU information returned stale data and did not return an error for some FRUs managed by the Shelf Manager, after their extraction.
2. Command handler for the command "clia getfruledtstate" could hang in some circumstances.
3. Sensors on LUN 3 for remote IPM Controllers were not available to certain CLI commands.
4. A deadlock could happen in a situation when IPMI commands arriving from a LAN session were rejected due to a privilege violation, and simultaneously there was a significant traffic on the IPMB.
5. When responding to the ATCA "Get Address Info" query by site type and address, FRU device ID 0 was always returned even if the target FRU was described as an additional FRU in the Address Table.
6. Command invocations with excess parameters were incorrectly handled in the case of sensor-related CLI commands.
7. There were several typos in logged messages.

### Known Problems
None at this time.

**Bug Fixes for V2.1.2**

The changes in this release are limited to bug fixes at the level of Monterey Linux. There is one fix each in Monterey Linux for the ShMM-300 and the ShMM-500.

1. On the ShMM-300, release 2.1.1 included an optimized driver for the Ethernet interface built into the C5471 (the main processor). In some operational environments, this optimization can interfere with the ability of the processor to strobe the watchdog that monitors the overall health of the Shelf Manager. Delays in such strobes can cause the watchdog to trigger, leading to unexpected switchovers. For release 2.1.2, the original Ethernet driver has been restored. PPS is investigating alternative ways to optimize the operation of this driver without the negative side effects on watchdog operation.

2. On the ShMM-500, the Au1550 DMA driver was invoking the kmalloc kernel service with inappropriate flag options from an interrupt handler, causing a kernel crash. One context in which this crash occurred was during the bootstrap process for a pair of ShMM-500-333M64F128R units in a shelf implementing a USB-based software redundancy interface. The Au1550 DMA driver interrupt handler has been modified to invoke kmalloc only with flag options that are permissible in that context.

**New and Changed Features for V2.1.1**

**New CLI commands for working with FRU LEDs**

The Shelf Manager now supports two new CLI commands "getfruledstate" and "setfruledstate" that can be used to obtain and set the state of FRU LEDs. These commands are basically wrappers around the ATCA commands Get FRU LED State, Set FRU LED State.

**Startup order of dual Shelf Managers during the initial power-up of the shelf more predictable**

Additional code and certain delays were added to the Shelf Manager code to make sure that during initial power-up of the shelf, the Shelf Manager with the lower physical address becomes the Active Shelf Manager in most cases.

**Allowing designation of two IPMB addresses as the source for Shelf FRU Information**

In shelves where the sources of the Shelf FRU Information are located behind IPM controllers, it is often the case that the IPMB addresses of these IPM controllers are known in advance. The Shelf Manager now supports configuration parameters that allow limiting the search for Shelf FRU Information to the designated IPMB addresses, instead of polling all known IPM controllers in the shelf. This optimization allows reducing the time needed to obtain the Shelf FRU Information during initial power-up of the shelf.

**Updated version of Monterey Linux, C547x Edition**

This Shelf Manager release (as delivered for the ShMM-300) is based on an updated version of Monterey Linux, C547x Edition. This version has the following changed feature:

1. The bus speed for the master-only $I^2C$ bus has been increased.

**Software workaround on ShMM-500 for hardware level problem with the ACTIVE# signal generated by the CPLD**

Due to hardware issues, on some carriers the Active bit in the CPLD on the active Shelf Manager sometimes disappeared (with a corresponding deactivation of the ACTIVE# signal) when the backup ShMM carrier was physically inserted and/or removed. A software workaround for this hardware level problem was enabled in the Shelf Manager for selected carriers. Now, in addition, it is enabled by default in ShMM-500-based instances of the Shelf Manager.

**Support for "board", "shm" and "fan_tray" notation in ATCA shelves**

In the command line interface, the notation "board", "shm", "power_supply" and "fan_tray" for designating board FRUs, dedicated shelf manager FRUs, power supply FRUs, and fan tray FRUs was originally supported only in CompactPCI shelves. Now this notation, except for "power_supply", is also supported in ATCA shelves.

To reduce the probability of packet loss in the presence of heavy Ethernet traffic loads, the driver for the Ethernet interface built into the processor of the ShMM-300 has been optimized. The Ethernet interface known as "eth0" at the Linux level is the one affected by this change. The optimization required additional space in the uClinux kernel. As a result, the kernel is now stored in Flash in a compressed form and must be uncompressed at boot time. ShMM-300 boot time is now longer by about five seconds, but the compressed image is about half the size of the uncompressed image, leaving much more headroom for later kernel additions, should those become necessary.

## Bug Fixes
Several bugs have been fixed in this version of the Shelf Manager; they include:

1. E-Keying for cross-connect links was not working properly: if cross-connects were used, the connection between the Hub boards on base interface channel 2 could not be established.
2. When reading the Shelf FRU Information from standalone IPM controllers, the Shelf Manager did not retry some IPMB commands in the presence of physical errors on the bus.
3. The Shelf Manager crashed when a certain (invalid) IPMB address was used in CLI commands.
4. Rewriting Shelf FRU via the CLI command "clia frudataw 20 254" worked unreliably; in some cases the Shelf FRU was not updated.
5. OEM-defined PEF filters were incorrectly stored in non-volatile storage.
6. In the command "clia frucontrol board" for ATCA shelves, the board number parameter was interpreted incorrectly.
7. Incorrect information was printed by the CLI command "clia getfanlevel" if the response from the target FRU did not contain the "Local Control Fan Level" field.
8. SNMP variables for "fan tray present" and "fan tray healthy" were reported incorrectly on ATCA shelves.
9. In SNMP traps generated by the Shelf Manager, the fields "Trap Source Type" and "event Source Type" were incorrectly set to 58h instead of 20h.
10. In SNMP traps generated by the Shelf Manager, the field "Manufacturer ID" was not populated; it is now set to the PPS IANA number.
11. An incorrect error message was printed by the CLI command "clia setfanlevel" when the specified fan level was out of range.
12. An incorrect SEL index was sometimes reported by "snmpwalk".
13. Shelf Manager could crash in a shelf with a large number of temperature sensors.
14. Incorrect error messages were displayed when a CLI command supported only in the 2.x environment was issued.
15. Shelf Manager could crash if the value of configuration variable MAX_SEL_ENTRIES in /etc/shelfman.conf was reduced.
16. The command "clia board" did not show any information, but also did not issue an error message, if a parameter value for "board number" greater than 255 was specified.
17. An extra random character was sometimes printed in CLIA error output.
18. The command "clia setfanlevel" did not issue an error message if a parameter value for "fan level" greater than 255 was specified.

19. Comparing sensor values with thresholds was performed incorrectly for some ADM1026 analog sensors.
20. The IPMB Power On Self Test (POST), which ran by default on each boot of the ShMM-500, could falsely report a failure in the IPMB-0 interface. The test has been removed from U-Boot pending further investigation.

**Known Problems**

None at this time.

**New and Changed Features for Release V2.1.0**

**Support for ShMC cross-connects on the Shelf Manager**

On the ShMM-500 only, this release supports "cross-connects" that allow RMCP communication with the Shelf Manager via *both* Base Interface hubs, in suitably implemented and configured shelves. This support is implemented according to the recently adopted PICMG 3.0 ShMC cross-connects Engineering Change Notice (formally, ECN 3.0-2.0-001). In the cross-connect configuration, both Ethernet adapters on the ShMM-500 ("eth0" and "eth1") are used for external RMCP-based communication through the Base Interface hubs; both adapters are intended to be attached to the cross-connect links leading to these hubs. Only one of the links is used for RMCP communication at any given time, but in case of a physical link failure, RMCP communication is switched over to the other link. Also, this feature requires that the FRU information for both the Shelf Manager and the shelf confirm the presence of cross-connect links. When cross-connects are enabled, redundancy communication between the ShMM-500s is done via USB links; this requires hardware support in the ShMM-500 carrier. In addition, the Base Interface hubs in the shelf must support cross-connects. To enable this mode, a special configuration variable RMCP_NET_ADAPTER2 must be defined in the Shelf Manager configuration file (along with appropriate FRU information data). The IPMSentry Shelf Manager User Guide provides additional guidance on this topic.

Note: Schroff ATCA chassis that are shipped with ShMM-500 equipped Shelf Managers are capable of supporting ShMC cross-connects.

**Hysteresis support for local sensors on the Shelf Manager**

Hysteresis support was added for ADM1026 voltage, analog, temperature sensors (including one local ADM1026 temperature sensor and two possible external temperature sensors), as well as for fan tachometer sensors. The LM75 and MAX66xx temperature sensors are also now supporting hysteresis functionality. All the sensors mentioned above support two types of hysteresis – positive, for upper threshold limits, and negative, for lower threshold limits. The hysteresis value is applied to all the appropriate threshold limits; for example, the positive hysteresis value is applied to upper non-recoverable threshold, upper critical threshold and upper non-critical threshold if all of these exist for a given sensor.

**Hysteresis support in CLI, WEB and SNMP interface.**

The Shelf Manager now supports two new CLI commands "gethysteresis" and "sethysteresis" that can be used to obtain and set hysteresis for any sensors in the shelf. This functionality is also duplicated in the WEB interface. SNMP variables for hysteresis are now writable, which allows setting sensor hysteresis through SNMP as well as obtaining it.

**New CLI commands for working with IPMB links**

The Shelf Manager now supports two new CLI commands "getipmbstate" and "setipmbstate" that can be used to obtain and set the state of IPMB links, both in bused and radial

configurations. The functionality of these commands is based on obtaining the reading(s) of the IPMB link sensor(s) (for the "get" operation) and on the capabilities of the ATCA command SetIPMBState (for the "set" operation).

**Updated version of Monterey Linux, Au1550 Edition**

This Shelf Manager release (as delivered for the ShMM-500) is based on an updated version of Monterey Linux, Au1550 Edition. This version has the following new and changed features:
1. Support for write buffer Flash programming algorithm in U-Boot and Linux, boosting flash programming performance
2. Newer version of the **eraseall** Flash management utility, providing an interface to prepare a Flash partition for JFFS2 operation, which shortens the mount time.
3. Changed layout of Flash partitions for ShMM-500 variants with 32MB and 64MB of Flash.
4. Change the Linux Flash driver to remove support for the reliable_upgrade=n U-Boot environment setting.
5. **Updated version of Monterey Linux, C547x Edition**

This Shelf Manager release (as delivered for the ShMM-300) is based on an updated version of Monterey Linux, C547x Edition. This version has the following new and changed features:
 1. In the Ethernet driver, added optimized processing of ARP requests protecting the ShMM against flooding with massive ARP requests which happens at some clients' sites and causes problems in the Shelf Manager.

**Bug Fixes**
Several bugs have been fixed in Monterey Linux and underlying firmware in this release; they include:

1. An error in the implementation of the interface to the physical Ethernet link status on ShMM-500, which resulted in an incorrect value being returned sometimes.
2. An error in the Ethernet driver on ShMM-300, which could lead to complete loss of connectivity to the Shelf Manager in case of a temporary link failure.
3. An error in the ShMM-500 CPLD logic, which, under certain conditions, could lead to situations where a write to a CPLD register does not actually change the state of the device.

Several bugs have been fixed in this version of the Shelf Manager; they include:

1. Release 2.0.1 of the Shelf Manager crashes on the ShMM-300 in some configurations after a switchover, due to stack overflow.

**Known Problems**
None known.

**New Hardware Support and Changes**

1. Support for intelligent PEMs: The status LEDs will be set to the correct state after the shelf manager boots. The voltage and temperature sensors and the FRU SEEPROM are supported.

2. SAP Presence Detect: The SAP detect signal is now implemented. If the SAP is replaced the LEDs and alarm relays will be set to the correct state.

3. User LEDS: USER LED1 and USER LED3 were swapped. The relationship is now correct.

4. Air Filter Detect: The state of the air filter detect switch was corrected.

**Chassis FRU Data Update**

The ATCA specification ECN001 requires changes to the chassis FRU data. New chassis FRU data and the installation procedure are available from our ATCA WWW page at: http://www.a-tca.com/atca/software. The V2.1.0 firmware will run correctly with the existing chassis FRU data but will not be fully compliant with the ATCA specification ECN001.

**New and Changed Features for Release V2.0.1**

**Support for automatic switchover when Ethernet physical link used for RMCP is broken**

The Shelf Manager now monitors the state of the physical Ethernet link on the Ethernet adapter used to communicate with the System Manager via RMCP. When the link becomes physically disconnected, and stays disconnected for the configurable amount of time, the Shelf Manager automatically initiates a switchover to the backup.

**Improvements in the reliable upgrade procedure on the Shelf Manager level**

In the case of partial firmware upgrades (such as an update of the RFS image only), instead of relying on the user to make sure that non-updated partitions in the provisional Flash contain sensible data, the reliable upgrade procedure now itself copies the partitions that are not included in the partial upgrade, from the persistent to the provisional Flash.

Also, to accommodate for the increased boot time due to power-on self tests now performed by Monterey Linux during boot, the reliable upgrade procedure now temporarily (just for reboots that are part of a reliable upgrade) sets the boot delay to 0 and the set of power-on self tests at boot time to the minimum possible set.

**Updated Version of Monterey Linux, Au1550 Edition**

This Shelf Manager release is based on an updated version of Monterey Linux, Au1550 Edition. This version has the following new and changed features:

1. Support for detecting the physical Ethernet link status (connected/disconnected).
2. Improvements in the reliable upgrade utility.
3. Support for power-on self tests and a run-time self-test interface for the Linux kernel.

## Bug Fixes

Several bugs have been fixed in this version of the Shelf Manager; they include:

1. The Command Line Interface (CLI) command "clia setfanlevel" crashed when it was issued without parameters on the ShMM-500.
2. CLI commands targeted to odd (illegal) IPMB addresses were not rejected by the Shelf Manager and caused CRC errors in IPMB packets.
3. Errors occurred when trying to set the LAN configuration parameter "destination address" via the web interface.
4. When multiple switchovers were initiated via the IPMI ColdReset command, the backup Shelf manager sometimes failed to take over the control of the shelf in a timely manner.
5. Changing the gateway IP address corrupted the routing table on the backup Shelf Manager in RMCP IP propagation mode.
6. A rarely occurring deadlock (happening when FRU hot swap state was updated) was diagnosed and fixed.

7. The sensors of a disabled controller were still polled and now are not.
8. During a switchover, "Set Port State" commands were sent to all IPM Controllers in the shelf, disabling and then immediately enabling the interfaces.
9. For redundant sensors (sensors that belong to the logical Shelf Manager and are transparently passed from the active to the backup Shelf Manager during a switchover), propagation of attributes did not work for the second and subsequent switchovers.
10. When accessing FRU information over the SNMP interface, the FRU information in some cases was cached incorrectly.
11. The Shelf FRU EEPROM size was limited to 2048 bytes due to an internal limitation in the Shelf Manager.
12. Pseudo-radial link isolation did not work with the ShMM-500 on some carriers (while working correctly with the ShMM-300).

## Known Problems

None known.

**Support for Reliable Upgrade on ShMM-500**

A special facility is now supported in ShMM-500 for reliably upgrading the resident firmware images, including the U-Boot, kernel and read-only file system images. This facility allows the user to preserve the original images during the upgrade process, and revert to the original images if necessary. This rollback takes place automatically if the new images are corrupted or otherwise nonoperational. Also, the user can manually initiate a rollback after the upgrade if the results are not satisfactory.

**Support for USB Redundancy Links on ShMM-500**

In this version, special support has been implemented for conducting communication between ShMM-500-based redundant Shelf Managers via two USB links. With this approach, the USB interfaces on ShMM-500s are connected via backplane traces and special network interfaces are emulated on top of USB. This approach frees the second Ethernet adapter on ShMM-500 for other types of connectivity. However, for this approach to work, USB connectivity must be supported by the Shelf Manager carrier in hardware.

**Termination of Shelf Manager Without Reboot on ShMM-500**

A new command "clia terminate" has been implemented in the Shelf Manager that terminates the Shelf Manager on ShMM-500 without rebooting the ShMM. If the current ShMM is active, a switchover takes place.

**Writing FRU Information From a Flash File via CLI**

On both ShMM-300 and ShMM-500, CLI now supports the command "clia frudataw", that allows the user to write a file on the ShMM flash file system into the FRU Information storage on a specific FRU in the shelf. A reciprocal command, "clia frudatar", allows the user to transfer the contents of the FRU Information storage for a specific FRU into a file on the ShMM flash file system.

**Updated Version of Monterey Linux, Au1550 Edition**

This Shelf Manager release is based on an updated version of Monterey Linux, Au1550 Edition. This version has the following new and changed features:

1.  FTP and SCP support within the reliable upgrade facility.
2.  An update to the reliable upgrade utility that allows rolling back a successful upgrade (reverting to the previous persistent flash).
3.  Redundant storage of U-Boot environment variables in EEPROM.

## Bug Fixes

Several bugs have been fixed in this version of the Shelf Manager; they include:
1. The Shelf Manager worked incorrectly in the case of an incorrect hardware address; on some carriers, the event required by the spec was not sent because IPMB-0 was not properly initialized in that case.
2. When breaking the network link between the active and backup ShMCs, the active Shelf manager could become unresponsive for an extended period of time.
3. The CLIA utility left temporary files on the ShMM file system in the case of abnormal termination, which could ultimately lead to filling up the file system and an inability to run new copies of CLIA.
4. The IPMI command SetSensorThreshold for LM75 sensors could not change lower thresholds.
5. When showing contents of sensor SDRs in the CLI commands (e.g. 'clia sensor –v"), various masks concerning lower thresholds were displayed incorrectly.
6. In some usage variants, the command "clia setsensoreventenable" added two extra bytes to the IPMI command sent to the target controller, and, as a result, the command was rejected by the target IPMC.
7. In CompactPCI systems, the FRU "deactivation locked" bit was not set properly in some circumstances.

Several bugs have also been fixed in the updated version of Monterey Linux; they include:

1. Updates to the IPMB driver to make the driver tolerant of various error conditions on the bus.
2. An update to the reliable upgrade utility, fixing a bug that could lead to a premature expiration of the watchdog timer.

The firmware installation instructions are now distributed as separate documents. The ShMM-300 can only be upgraded with TFTP. The ShMM-500 can be upgraded with TFTP or the new Reliable Upgrade facility.

**Contact**

If you have any questions on this notice please contact us:

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