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PROMENTUM® ATCA-4500 Compute Processing Module

RELEASE NOTES

These release notes announce general availability of the RadiSys Promentum® ATCA-4500 compute processing module and the optional ATCA-5400 rear transition module.

About the ATCA-4500

The ATCA-4500 is a high-performance, single slot AdvancedTCA® compute processing module (CPM) based on the Intel® Xeon® processor. The CPM is ideal for control plane and server functions for LTE wireless infrastructure, deep packet inspection, IPTV, IP multimedia subsystems, and defense applications.

The ATCA-4500 provides 10-Gigabit Fabric Ethernet connectivity, eight DDR3 DIMM memory sockets, and an advanced mezzanine card (AMC) slot. The optional ATCA-5400 rear transition module (RTM) provides additional data storage and network interface options. More information on these and other RadiSys products and services is available at www.radisys.com.

Product features

ATCA-4500 CPM

The CPM uses an Intel Xeon processor with hyper-threading technology and an integrated memory controller, providing access to up to 64 GB of memory. The CPM supports dual 1-Gigabit Ethernet (GbE) links for the Base interface and dual 10 GbE links for the Fabric interface. The CPM runs a Linux operating system.

The CPM can host a mid-height AMC, supporting Ethernet, PCI Express, SAS and SATA connections to the AMC.

Optional ATCA-5400 RTM

The optional ATCA-5400 RTM provides additional data storage and connectivity functions for the CPM. The RTM has these interfaces on its face plate that provide connections to the CPM:

- Two 1-Gigabit Ethernet SFP sockets for external Ethernet connections through the RTM to the CPM
- An RS-232 serial port for rear management access to the CPM through a serial cable
- A USB 2.0 port for access to the CPM through a USB cable

An on-board SAS/SATA controller on the RTM supports an optional SAS or SATA hard disk drive (HDD). The controller can also access an AMC if it is installed in the CPM. The RTM includes two rear panel SAS ports for cable connections to additional hard disk drives, such as HDDs accessible from another RTM. The SAS/SATA controller supports RAID (redundant array of inexpensive disks), including RAID 0 (striping) and RAID 1 (mirroring) configurations.

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Firmware and software versions

The following table lists the ATCA-4500 CPM and ATCA-5400 RTM components and their current software versions. It also lists the versions for the available operating systems and upgrade tools.

Table 1. Component, OS, and upgrade tool versions

ATCA-4500 CPM component	Version	
BIOS	01.01.30	
IPMC	01.02	
IPMC FPGA	3.69	
IPMC FRU data	00.09	
Legacy FPGA	1.60 (FPGA and SPI flash)	
EEPROM (base and front/rear)	00.03	
EEPROM (Oplin - Fabric)	00.06	
ComMux	03	
ATCA-5400 RTM component	**Version**	
MMC	2.00	
RTM FRU	1.00	
RTM Alarm CPLD	08	
SAS BIOS	6.26.00	
SAS firmware	07	
Operating systems	**Version**	**Kernel or patch version**
MontaVista 4, 32-bit	RELEASE2.3.26_MV4_X86.6028	MV4 32-bit: cge-1068
MontaVista 5, 64-bit	RELEASE2.3.26_MV5_64_X86.485	MV5 64-bit: cge-1955
Wind River 2.0, 64-bit	RELEASE2.3.26_WR20_64_X86.9761	WR20 64-bit: SP2
Red Hat Enterprise Linux 5.2, 32-bit	RELEASE2.3.26_RH_X86.3893	RHEL5.2 32-bit
Upgrade tool or driver	**Version**	
rsys-update	2.2.14-1	
rsys-ipmitool	1.8.9-226	
rsys-ethtool	5-4	
eepupdate	1.11-1	
fru-update	1.0.5-1	
rsysbflash	2.29b8-1	
biosver	1.1-4	
ispVMEmbedded	1.2-5	
amifldrv	2.29b8-1.2.6.18_92	

Issues resolved in this release

eepupdate.sh is not compatible with the Fabric Ethernet controller on the ATCA-4500

The *eepupdate.sh* tool is used to update the EEPROM device attached to Ethernet controllers. Versions of this tool prior to version 1.11 have compatibility problems with the 10 Gb Fabric Ethernet interface. If older tools are used, the update will be incomplete and the MAC addresses of the 10 Gb Fabric Ethernet interfaces will be set to 00:00:50:4E:88:86 and 00:00:50:4E:88:87.

Use the *eepupdate_oplin.sh* tool to update the EEPROM on the Fabric Ethernet device.

Resolution: Use the new tool *eepupdate_oplin.sh* to upgrade the EEPROM on the Fabric Ethernet device. If you have used a previous tool on your ATCA-4500 and the MAC addresses of the 10 Gb Fabric Ethernet interfaces match those above, please contact RadiSys for instructions on correcting the problem.

Issue No: RSYS00049074

IPMI driver fails to load on startup with MontaVista 5 em64t version 2.3.20

The IPMI driver fails to load on startup after installing MontaVista 5 em64t and the 2.3.20 RPMs on the CPM.

This is an issue with the MV module-init-tools-3.2.2-1.0.0.0900195 package. MontaVista has released package updates to resolve the issue.

Resolution: Acquire these two MontaVista package updates:

- depmod-3.2.2-1.0.1.0901158.x86_em64t.mvl from MontaVista
- module-init-tools-3.2.2-1.0.1.0901158.x86_em64t.mvl

Issue No: RSYS00048203

Known product limitations

This section describes the known limitations at the time of product release.

Unable to set thresholds on IOH_DIE_TEMP for ATCA-4500

The IOH_DIE_TEMP sensor thresholds for the CPM cannot be altered from the ATCA-2210 Shelf Manager. Attempting to set the sensor thresholds from the ATCA-2210 HPIAPP results in a "SA_ERR_HPI_INVALID_CMD" error.

Workaround: Use the following procedure to alter the CPM IOH_DIE_TEMP sensor thresholds:

Sample session:

1. Get the sensor thresholds (0x10 is the IOH-DIE_TEMP sensor number):

```
rsys-ipmitool raw 0x04 0x27 0x10
38 00 00 00 c8 e6 fa
```

2. Set the IOH_DIE_TEMP thresholds (UNC, UC, UNR) from (C8, E6, FA) to (C7, E7, FB):

```
rsys-ipmitool raw 0x04 0x26 0x10 0x38 0x00 0x00 0x00
0xc7 0xe7 0xfb
```

3. Get the sensor thresholds again. The thresholds are changed:

```
rsys-ipmitool raw 0x04 0x27 0x10
38 00 00 00 c7 e7 fb
```

4. Set the IOH_DIE_TEMP thresholds (UNC, UC, UNR) from (C7, E7, FB) back to the original settings of (C8, E6, FA):

```
rsys-ipmitool raw 0x04 0x26 0x10 0x38 0x00 0x00 0x00
0xc8 0xe6 0xfa
```

5. Get the sensor thresholds again. The thresholds are changed back to their original settings:

```
rsys-ipmitool raw 0x04 0x27 0x10
38 00 00 00 c8 e6 fa
```

Resolution: This issue will be addressed in a future release.

Issue No: RSYS00048214

Copper SFPs are not supported on the ATCA-5400 RTM

The ATCA-5400 RTM does not support copper SFPs. Other SFPs are supported.

Workaround: None.

Resolution: This issue may be addressed in a future RTM board revision.

Issue No: RSYS00048497

ethtool shows Speed: Unknown! (10000) on Fabric interfaces

Using *ethtool* or *rsys-ethtool* on the Fabric (Oplin) interfaces on any OS build, "Speed: Unknown! (10000)" is returned for the speed of the interface. This does not occur using version 6 of *ethtool*.

Workaround: Upgrade to *ethtool* version 6. Contact your OS vendor for information on this upgrade.

Resolution: Contact your OS vendor for the upgrade to *ethtool* version 6 or later.

Issue No: RSYS00048264

Local ipmitool firmware upgrades are much slower in MontaVista CGE 4.0

Upgrades of the ATCA-4500 IPMC firmware are very slow under MontaVista CGE 4.0. Given time to complete, there is no observed operational impact.

Workaround: None.

Resolution: This issue will be addressed in a future release.

Issue No: RSYS00048380

BIOS intermittently hangs at POST B4 when a bad USB CD/DVD drive or bad media is used

When a USB CD/DVD drive is attached to the system, the BIOS may hang at post code B4 if it cannot read the media in the drive. This can occur when a drive is failing, the media in the drive is bad, or when a USB bus-powered drive is attached but is not receiving sufficient power.

Workaround: Remove the DVD media, boot the ATCA-4500, then insert the disk into the DVD drive only after the board has booted into the OS.

If you are using a bus-powered drive, attach external power to use a dual-port USB power cable. If you are using writable media, such as a CD-R or DVD-R, create a new CD or DVD.

Resolution: This issue may be addressed in a future release.

Issue No: RSYS00048540

PXE Boot is not supported on RTM SFP ports

PXE Boot is not supported on the ATCA-5400 RTM SFP ports, or on any other SFP that operates in SGMII mode.

Workaround: None.

Resolution: This issue may be addressed in a future release.

Issue No: RSYS00048603

Red Hat Linux may occasionally change the order of the Ethernet ports

CPM Ethernet ports may occasionally be renumbered with Red Hat Enterprise Linux.

The order that Ethernet ports are named (eth0, eth1, etc.) is dependent on the driver initialization order. For Red Hat systems, the device order can change between boots because the igb and ixgbe drivers are kernel modules that can race with each other to initialize.

Kernels with the igb and ixgbe drivers compiled in (not kernel modules) initialize based on the order that the busses are scanned, so the naming appears static. AMC cards and USB devices can still cause the device naming to change based on where in the bus the devices appear when the system boots up.

Workaround: The udev device manager can assign static names based on other device properties (such as the MAC address) for this type of naming issue. Refer to the Red Hat OS documentation for udev usage.

Resolution: This issue may be addressed in a future release of the Red Hat operating system.

Issue No: RSYS00048898

CPM DHCP client identifier has a different format than other nodes on MV 4 and MV 5

When an ATCA-4500 CPM is inserted into a chassis slot, its DHCP client identifier specified in the dhcpd.conf file requires a different format than other modules inserted in the same slot. This only occurs on MontaVista 4 and MontaVista 5.

If the CPM is inserted in slot 4 of chassis 5_2, the dhcpd.conf file matches only when it uses either of these identifier specifications:

- option dhcp-client-identifier 00:30:30:3a:33:32:3a:32:64:3a:33:34;
- option dhcp-client-identifier "\00000:32:2d:34";

If an ATCA-7220, ATCA-9100, or ATCA-4310 is installed in the same location, dhcpd.conf requires one of these specifications in order to match:

- option dhcp-client-identifier 00:32:2d:34;
- option dhcp-client-identifier "\0002-4";

Workaround: None.

Resolution: This issue may be addressed in a future release.

Issue No: RSYS00048746

PXELINUX and ISOLINUX fail with "Initial menu has no LABEL entries!" error

The ATCA-4500 boot fails with "Initial menu has no LABEL entries!" when booting PXE (served with PXELINUX) or CD/DVD (using ISOLINUX as the boot loader). The problem occurs if:

1. The PXELINUX or ISOLINUX used is derived from SYSLINUX 3.62 and above (currently, the latest affected SYSLINUX is 3.82).
2. The PXELINUX or ISOLINUX configuration file uses menu.c32 or vesamenu.c32 to display a boot selection menu. The following is an example configuration file entry:

```
DEFAULT menu.c32
```

Workaround: **PXELINUX:**
Workaround 1: Replace menu.c32 and vesamenu.c32 in the PXE server with the same file from an older version (such as SYSLINUX 3.54).
Workaround 2: Do not use menu.c32 and vesamenu.c32 in the PXE configuration file.

ISOLINUX:
Workaround 1: Use a USB drive instead of a CD drive.
Workaround 2: Rebuild the CD by replacing menu.c32 and vesamenu.c32 on the CD with the same file from an older version (such as SYSLINUX 3.54).
Workaround 3: Do not use menu.c32 and vesamenu.c32 for displaying the boot selection menu.

Resolution: This issue will be addressed in a future release.

Issue No: RSYS00048908

Slave interfaces get IP address on MV 4 after creation of Ethernet channel bond

The slave interface gets the IP address when an Ethernet channel bond is created on the CPM with MontaVista 4 i386 installed as the OS. Consequently, the CPM routing table is found for the slave interface, rendering the CPM unreachable. Only the bonded interface should get the IP address.

Workaround: None.

Resolution: This issue may be addressed in a future release.

Issue No: RSYS00048907

Errors may not be logged or reported when BIOS disables bad DIMMs during memory detection

When individual DIMMs are disabled due to memory test failures, the failure errors may not be reported to the user or logged through the IPMC. The total system memory available (listed in setup) will exclude the disabled DIMMs.

Workaround: None.

Resolution: This issue will be addressed in a future release.

Issue No: RSYS00048699

rsysbflash and rsys-update for Linux should not be used with any BIOS prior to 01.01.29

The *rsysbflash* utility may hang the system if it is used on any BIOS prior to 01.01.29. A BIOS update is required to enable *rsysbflash*. The *rsys-update* utility depends on *rsysbflash*, so *rsys-update* will also fail on CPMs where the BIOS version is prior to 01.01.29.

Workaround: Update the BIOS to 01.01.29 or later using the EFI shell, or use *afulnx* 2.29b6 or later.

Resolution: This issue will be addressed in a future release.

Issue No: RSYS00048645

BIOS shell displays "Cannot read from file - Device Error" when updating to BIOS 01.01.30

If the BIOS is updated using the *update.nsh* script, the EFI shell returns "Shell: Cannot read from file - Device Error" after completing the flashing process. This only occurs when the BIOS is updated to 01.01.30.

Workaround: Manually execute the following command to update the BIOS:

```
afuefix64.efi BIOS.ROM /p /b /x
```

Resolution: This issue may be addressed in a future release.

Issue No: RSYS00048923

BIOS intermittently shows "Current BIOS Flash" as "Unknown" in the BIOS boot menu

"Current BIOS Flash" in the BIOS menu intermittently shows "Unknown." The situation occurs because the IPMC is busy with other management events and is not able to complete the IPMI command successfully when the BIOS queries the active boot flash.

Workaround: Manually query the booting BIOS flash using the OEM IPMI command (Get Active Boot Flash command).

Resolution: This issue may be addressed in a future release.

Issue No: RSYS00048924

Documented RTM Outlet Temp sensor LC and LNC values do not match the measured values

The documented LC and LNC values for the Outlet Temp sensor on the ATCA-5400 RTM do not match the actual measured values. The *ATCA-5400 RTM Reference* lists LC with a value of 1 and LNC with a value of 2 for the Outlet Temp sensor. The measured value for LC is 1.96 and the measured value for LNC is 2.94.

Workaround: None.

Resolution: This issue will be addressed in a future release.

Issue No: RSYS00048969

Product compatibility issues

This section describes compatibility issues with other modules that may affect the operation of the ATCA-4500 CPM.

Shelf Managers

Some Shelf Managers have difficulty with the large number of sensors on the ATCA-4500. This is especially true in systems with many modules installed. As a result, the Shelf Manager may not power up all modules in a quick, repeatable order on chassis power-up. This issue has been seen with the RadiSys Dutch Harbor platform.

The workarounds for this issue include:

- Enabling progressive boot in the ATCA-4500 BIOS setup. This enables the BIOS to continually retry the boot devices if one fails.
- Enabling the OS watchdog timer in the ATCA-4500 BIOS. This is helpful if, for example, the ATCA-4500 gets an IP address via PXE but is unable to load the kernel or file system.
- Disabling additional processes on the Shelf Manager. For example, disabling the hpiSubagent on the ATCA-2210 allows the Promentum Shelf Manager to bring up modules quicker.

The workarounds may cause the ATCA-4500 to reboot or retry the boot process multiple times before coming up.

Sensors

- An ATCA-7100 chassis management module (CMM) running 7.1.x software does not support the ATCA-4500 sensor types for sensor 0xFF (System Firmware Progress) and 0x03 (Version Change).
- The ATCA-7100 CMM cannot interpret the OEM sensor types for the ATCA-4500. When the CMM receives an event with the OEM sensor type, the CMM event description is "oem sensor type sensor event description unknown."