Upgrading Intel® AMT 5.0 drivers to Intel® AMT 6.0 and Linux kernel v2.6.32
For Intel® Q57 and Intel® QM57 based embedded platforms

July 2010
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Implementation</td>
<td>6</td>
</tr>
<tr>
<td>Applying the patches</td>
<td>6</td>
</tr>
<tr>
<td>HECI 5.0.0.30 patch</td>
<td>6</td>
</tr>
<tr>
<td>LMS 5.0.0.30 patch</td>
<td>6</td>
</tr>
<tr>
<td>Building and Installing</td>
<td>6</td>
</tr>
<tr>
<td>Verifying the Drivers</td>
<td>6</td>
</tr>
<tr>
<td>Resources</td>
<td>7</td>
</tr>
</tbody>
</table>
Introduction

The Intel® Active Management Technology (Intel® AMT) is a hardware based solution that provides Out of Band (OOB) remote manageability functions independent of a system’s power and operating system (OS) state. The following versions of Intel® AMT apply to this document:

| Intel® AMT 6.0 | Intel® Q57 Express Chipset, Intel® QM57 Express Chipset |

Two main components of Intel® AMT allow interaction between the Intel® AMT client and the OS: the Intel® Manageability Engine Interface (MEI) device driver and the Intel® Local Manageability Service (LMS).

The MEI driver, also known as the Host Embedded Controller Interface (HECI) allows applications to access the Intel® AMT firmware via a host interface (as opposed to a network interface). The LMS allows applications to access the Intel® AMT firmware via the local MEI interface.

This document outlines the steps to upgrade the Intel® AMT 5.0 MEI and LMS drivers to build and run on Linux kernel 2.6.32. It also includes a patch of MEI 5.0.0.30 and LMS 5.0.0.30 to enable compilation of the MEI driver and LMS on kernel 2.6.32 respectively. The MEI and LMS 5.0.0.30 drivers can be downloaded from http://sourceforge.net/.

Note: The document assumes that the user is familiar with Intel® Active Management Technology MEI and LMS drivers to support local OS access to Intel hardware manageability features. Refer to http://www.openamt.org/ for more information.

Supported Hardware

- Intel® Core™ i5, i7 processor and Intel® QM57 Express Chipset
- Intel® Core™ i5, i7 processor and Intel® Q57 Express Chipset
Important Legal Notice

Please read the following notice carefully before applying the patches mentioned in this document.

Any software source code reprinted in this document is furnished under a software license and may only be used or copied in accordance with the terms of that license.

The software license of the source code reprinted in this document is the following:

/*******************************************************************************
* Copyright (C) 2004-2010 Intel Corp. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions are met:
* 
* - Redistributions of source code must retain the above copyright notice,
*   this list of conditions and the following disclaimer.
* 
* - Redistributions in binary form must reproduce the above copyright notice,
*   this list of conditions and the following disclaimer in the documentation
*   and/or other materials provided with the distribution.
* 
* - Neither the name of Intel Corp. nor the names of its
*   contributors may be used to endorse or promote products derived from this
*   software without specific prior written permission.
* 
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
* "AS IS"
* AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL Intel Corp. OR THE CONTRIBUTORS
* BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
*
SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF SUCH DAMAGE.

********************************************************************
***********/
Installation

Applying the patches

It is recommended to backup the source tree before applying any of the patches.

HECI 5.0.0.30 patch

In order to upgrade HECI 5.0.0.30 to allow build and run on kernel 2.6.32, apply the heci_amt6 patch using the following instructions:

1. Download heci_amt6.patch to same location as the HECI 5.0.0.30 source
2. cd into HECI-5.0.0.30
3. Use the command “patch –p1 < heci_amt6.patch”

LMS 5.0.0.30 patch

In order to upgrade LMS 5.0.0.30 to allow build and run on kernel 2.6.32, apply the lms_amt6 patch using the following instructions:

1. Download lms_amt6.patch to same location as the LMS 5.0.0.30 source
2. cd into LMS-5.0.0.30
3. Use the command “patch –p1 < lms_amt6.patch”

Building and Installing

To build and install the MEI driver, run “make install” from the source directory. Load the MEI driver using “modprobe heci”.

To build and install the LMS driver, at the driver source directory call “./configure” and then “make install”. This also ensures that the driver will load upon startup.

Verifying the Drivers

There are many ways to verify the functionality of the drivers. Once the Intel(R) Manageability Engine Interface driver is running, an application can open a file to it, connect to an application on the firmware side, and send and
receive messages to that application. This document uses the Intel General Info Interface which is a sample application provided in the Intel® Software Development Kit (SDK). LMS uses the General Info Interface to expose standard AMT functionality on local or remote Intel® AMT clients by retrieving information about the client. Download the Intel® SDK and run the application using “make” command from the General Info source directory. Make sure the Intel® AMT client is activated and the drivers are loaded on the client. Use the following command to retrieve information about the client:

```bash
./generalInfo http://localhost:16992/GeneralInfoService -user <user> -pass <pwd>
```

where user and pwd are username and password for the Intel® AMT client Management Engine BIOS Extension setup (MEBx).

Confirm information on the client is displayed. Refer to the resources section of this document for more information on Intel® SDK and General Info Interface.

**Resources**


**Author**

Zerene Sangma is a Platform Application Engineer with Embedded and Communications Group at Intel Corporation.
Upgrading Intel® AMT 5.0 Linux drivers to Intel® AMT 6.0 and kernel v2.6.32

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS OTHERWISE AGREED IN WRITING BY INTEL, THE INTEL PRODUCTS ARE NOT DESIGNED NOR INTENDED FOR ANY APPLICATION IN WHICH THE FAILURE OF THE INTEL PRODUCT COULD CREATE A SITUATION WHERE PERSONAL INJURY OR DEATH MAY OCCUR.

Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined." Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information.

The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.

Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or go to:
http://www.intel.com/#/en_US_01

Intel® Active Management Technology requires the computer system to have an Intel(R) AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications of implementation of new business processes. With regard to notebooks, Intel AMT may not be available or certain capabilities may be limited over a host OS-based VPN or when connecting wirelessly, on battery power, sleeping, hibernating or powered off. For more information, see here

*Other names and brands may be claimed as the property of others.

Copyright © 2010 Intel Corporation. All rights reserved.