



# Intel® One Boot Flash Update Utility

User Guide

---

*May 2008*

*Version 9.70.3*

## Legal Statements

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS FOR THE PURPOSE OF SUPPORTING INTEL DEVELOPED SERVER BOARDS AND SYSTEMS. 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.

Intel is a trademark of Intel Corporation in the U.S. and other countries.

Microsoft\*, Windows\*, and Vist\* are trademarks, or registered trademarks of Microsoft Corporation\* in the United States and/or other countries.

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

Copyright © 2004–2008 Intel Corporation. All rights reserved.

# Contents

---

<b>Introduction</b>	<b>1</b>
Supported Firmware Components .....	1
When Updates Take Effect .....	1
Supported Operating Systems .....	2
<b>Installation and Removal</b>	<b>4</b>
Installation .....	4
Removal .....	4
<b>Running the Intel® One Boot Flash Update</b>	<b>5</b>
Command Line Syntax.....	5
Updating the Server from a Remote Client .....	6
<b>Error Exit Codes</b>	<b>7</b>
<b>Supported Intel® Server Boards</b>	<b>8</b>
<b>Glossary</b>	<b>9</b>

This page is intentionally left blank.

# Introduction

---

The Intel® One-Boot Flash Update Utility (Intel® OFU) is used to update the BIOS and firmware on the Intel server boards while the operating system is running. The utility may be launched from a command prompt in either the Windows®\* or Linux\* Operating Systems. This utility can also be executed remotely through a secure network connection using a Telnet Client and Terminal Services in Windows\* or using a Telnet Client and Remote Shell under Linux\*.

Intel server boards may also be updated using the Intel® Deployment Assistant. This utility is shipped with each Intel® Server Board and provides an easy to use graphical user interface that may be used to update the BIOS and firmware and configure key BIOS and firmware settings.

Other language versions of this user guide are available on the Intel® System Management Software CD or DVD. This user guide is currently translated into German, Korean, Simplified and Traditional Chinese, French, Spanish, Russian, Italian, Japanese, and Portuguese. The Intel® OFU application is available in English only.

## Supported Firmware Components

The Intel® OFU Utility, with the update package for your platform, can be used to update the following firmware components:

- System BIOS (All supported platforms)
- Baseboard Management Controller (BMC) firmware (All supported platforms with a BMC or integrated BMC)
- Hot-swap Controller (HSC) firmware, except on expander HSC backplanes (Refer to platform documentation for support information)
- Field Replaceable Unit (FRU) firmware (All supported platforms with a BMC)
- Sensor Data Record (SDR) firmware (All supported platforms with a BMC)
- Intel® Local Control Panel (Intel® LCP) firmware (All supported platforms, if the Intel® LCP is present)
- Intel® Remote Management Module (Intel® RMM) firmware (Supported on S5000 and S5400 server families if the Intel® RMM module is installed)

Update packages are available from <http://support.intel.com>.

## When Updates Take Effect

When the firmware update takes effect depends on whether or not the firmware is contained in one or two firmware blocks.

If a firmware component has two blocks, the Intel® OFU utility will update the secondary area while the server continues to operate normally using the firmware in the primary area. In this case, the firmware will switch to the secondary bank on the next reboot.

If the firmware component is contained in a single block, the Intel® OFU utility will update the firmware block and firmware will immediately switch to the updated firmware.

The BMC boot block, Intel® Local Control Panel, HSC, and FRU updates only have one firmware area so the updates will take effect immediately when the utility executes. On some systems, the System BIOS, BMC Op Code, SDR, and BMC Platform Information Area (PIA) updates are programmed into their respective secondary flash areas and the utility sets an internal flag in the BIOS and BMC to indicate that the update occurred. After a system reset, the newer version of the System BIOS, BMC, and SDRs are validated and then activated. Refer to the following table to determine when the firmware update takes effect for each Intel® Server Board.

**Table 1. When Firmware Updates Take Effect by Platform**

Firmware Component	Intel® Server Board				
	S7000FC4UR	S3000AH, S3000PT	S3200SH and X38MLST	S5400SF, S5400RA	S5000PAL, S5000PSL, S5000VCL, S5000XAL, S5000XSL
<b>BIOS</b>	Next Reboot	Immediately	Immediately	Next Reboot	Next Reboot
<b>BMC</b>	Next Reboot	Not supported	Immediately	Next Reboot	Next Reboot
<b>SDR</b>	Next Reboot	Not supported	Immediately	Next Reboot	Next Reboot
<b>FRU</b>	Immediately	Not supported	Immediately	Immediately	Immediately
<b>HSC<sup>†</sup></b>	Immediately	Not supported	Not supported	Immediately	Immediately
<b>Intel® LCP<sup>†</sup></b>	Immediately	Not supported	Not supported	Not supported	Immediately
<b>Intel® RMM<sup>†</sup></b>	Not supported	Not supported	Not supported	Not supported	Immediately
<b>Intel® RMM2<sup>‡</sup></b>	Not supported	Not supported	Not supported	Not supported	Not supported

<sup>†</sup>Some components are optional or configuration dependent and may not be present on all systems. HSC updates are not supported on expander HSC backplanes.

<sup>‡</sup>Intel® RMM2 firmware is updated using update utilities provided with the Intel® RMM2 firmware updates.

## Supported Operating Systems

The Intel® OFU utility runs on the Microsoft Windows®, Red Hat® Enterprise Linux, and SuSE Linux Enterprise Server operating systems unless otherwise noted in the *Intel® OFU Release Notes* or the *Supported Operating System List* for your specific Intel server platform. Both IA-32 and Intel® 64 Architecture versions are supported for the operating systems listed below. The following list shows the supported operating systems and platforms when this document was published.

**Table 2. Supported Operating Systems**

<b>Operating System</b>	<b>Supported Platforms</b>
Windows* Server® 2003 Enterprise Edition SP2	All Platforms (See Page 8)
Windows* Server® 2003 R2 Enterprise Edition	All Platforms (See Page 8)
Windows* Server® 2008	All Platforms (See Page 8)
Windows* XP Professional Edition SP2	Intel® Workstation Board S5000XVN
SuSE* Linux Enterprise Server 9 SP3	All Platforms (See Page 8)
SuSE* Linux Enterprise Server 10 SP1	All Platforms (See Page 8)
Red Hat* Enterprise Linux 4 Update 4	All Platforms (See Page 8)
Red Hat* Enterprise Linux 4 Update 6	All Platforms (See Page 8)
Red Hat* Enterprise Linux 5.0	All Platforms (See Page 8)
Red Hat* Enterprise Linux 5.1	All Platforms (See Page 8)

# Installation and Removal

---

## Installation

Install Intel® OFU on the Intel server that you want to install the BIOS and firmware updates on.

To install Intel® OFU from the Intel® System Management Software 2.0 DVD or CD set, follow the installation instructions found in the *Intel® Utilities Installation Instructions* located on the DVD or CD for the Intel Utilities.

If you downloaded the Intel® OFU package from the Intel support website, use one of the following procedures:

### **On Windows®\* Operating System**

1. Open a Command Window.
2. Unzip the Intel® OFU package. Locate the directory containing Setup\_Win.exe.
3. Run the Setup\_Win.exe installation script.
4. Press “Y” to accept Intel’s End User Software License Agreement, or any other key to decline the license and abort the installation.
5. The installation script will copy the files to %ProgramFiles%\Intel\Flashupdt.

### **On Red Hat\* Enterprise Linux or SuSE\* Enterprise Server Linux Operating Systems**

1. Verify that the w3c-libwww and kernel source packages are installed before running the installation script. Intel® OFU will verify that the required libraries are present and alert you if the required libraries are not present.
2. Open a command shell.
3. Unzip the package containing the Intel® OFU utility.
4. Change to the directory containing the installation script setup\_linux.
5. Run ./setup\_linux.
6. Press Y to accept Intel’s End User Software License Agreement, or any other key to decline the license and abort the installation.
7. The installation script will copy the files to /usr/local/flashupdt directory.

To run Intel® OFU (Flashupdt is the executable), set the working directory to /usr/local/flashupdt.

## Removal

In the Windows®\* Operating System, go to the %ProgramFiles%\Intel\Flashupdt directory and run Setup\_Win.exe /u.

In the Linux\* Operating System, go to the /usr/local/flashupdt directory and run ./setup\_linux /u.

# Running the Intel® One Boot Flash Update

The Intel® OFU utility is run by executing the flashupd command from a command prompt.

## NOTES

*In order to run this utility, you must first set the working directory to the directory where the utility is installed. This is required because the utility depends on certain files that are expected to be located in the working directory.*

*Intel® OFU requires Windows\* administrative or Linux\* root permissions.*

## Command Line Syntax

### Syntax:

```
flashupd [-i] [-u <URL or path>] [-c] [-h|?]
```

### Description:

Updates the System BIOS or firmware on the local server with the System BIOS or firmware specified in the Intel® OFU configuration file provided with the update package.

### Options:

[-i]	Displays the version information for the currently running System BIOS, BMC, and SDR. If the <code>-i</code> option is specified with the <code>-u</code> option, the utility displays the version information of the update package files.
[-u]	Performs the System BIOS and firmware update. The <code>&lt;URL or path&gt;</code> parameter specifies the location where the files required for the update are located. The value of <code>&lt;URL or path&gt;</code> can be a local file system path, an FTP server, or an HTTP server. Examples of using the <code>-u</code> option:  <code>-u</code> Specifies the current local directory. <code>-u http://&lt;IP address or URL&gt;/&lt;path&gt;</code> Specifies an HTTP server. <code>-u ftp://&lt;login:password&gt;@&lt;server name or IP address&gt;/&lt;path&gt;</code> Specifies an FTP server.  If <code>-u</code> is used in conjunction with <code>-i</code> , no update is performed. Only the package information is displayed.
[-c]	Cancels all pending Intel OFU update operations of the BIOS, BMC and SDR. The utility resets the internal flags in the BIOS, BMC and SDR to cancel the update operation (whether there is one or not). FRU updates take effect immediately and cannot be cancelled. This option is not supported on platforms with the integrated BMC (Intel® Server Boards X38ML and S3200SH).
[-h ?]	Displays command line help information.

**Syntax examples:**

```
flashupdt -u ftp://ftp.example.com/UpdatePkg/ServerName/flashupdt.cfg
```

```
flashupdt -u ftp://Kevin:87w09@ftp.example.com/UpdatePkg/ServerName/flashupdt.cfg
```

For Windows:

```
flashupdt -u flashupdt.cfg
```

For Linux:

```
flashupdt -u /flashupdt.cfg
```

## Updating the Server from a Remote Client

This utility can be executed remotely via a secure network connection using a Telnet Client and Terminal Services in Windows, or using a Telnet Client and Remote Shell under Linux. See your operating system documentation for further information on remotely logging-in and executing commands.

Once you have logged-in remotely, you can use the syntax described above. This process can be scripted to allow remote updates of multiple servers.

## Error Exit Codes

---

The following error codes may be used when the Intel® OFU utility is run from a script.

**Note:** the update configuration file (.cfg) may use the ERRORLEVEL command to override these values.

Value	Description
0	Successful termination
1	Invalid invocation or unknown command line argument
2	File was not found
3	Unable to read a file
4	The file update package is incompatible with the target server
5	A file in the update package is invalid or unsupported
6	Firmware interface failure (an error occurred when reading or writing to the BMC, setting the update notification, or updating the BMC, FRU, HSC, Intel® Local Control Panel, or SDR)
7	BIOS interface failure (an error occurred when reading the BIOS ID, setting the update notification, or updating the System BIOS)
8	Insufficient rights (the user must have Administrator or root rights)
9	Utility is already running in another process
10	Utility initialization failed

# Supported Intel® Server Boards

---

This version of the Intel® OFU utility supports the Intel® Server Boards listed below. (Intel® Server Systems based on the Intel® Server Boards listed below are also supported unless otherwise noted in the product documentation for the Intel® Server System.)

## **Multi-Core Intel® Xeon® Processor 3000 Sequence-based Servers:**

- Intel® Server Board S3000AH
- Intel® Server Board S3000PT
- Intel® Server Board S3200SH
- Intel® Server Board X38ML

## **Multi-Core Intel® Xeon® Processor 5000 Sequence-based Servers:**

- Intel® Server Board S5000PAL
- Intel® Server Board S5000PSL
- Intel® Server Board S5000VCL
- Intel® Server Board S5000VSA
- Intel® Server Board S5000XAL
- Intel® Server Board S5000XSL
- Intel® Server Board S5400SF
- Intel® Server Board SC5400RA

## **Multi-Core Intel® Xeon® Processor MP 7000 Sequence-based Servers:**

- Intel® Server Board S7000FC4UR

To find the latest Intel® OFU update package for your server, refer to <http://support.intel.com/motherboards/server/>.

# Glossary

---

The following abbreviations are used in this document:

<b>Term</b>	<b>Description</b>
BMC	Baseboard Management Controller
Firmware	In this document, firmware refers to the BMC, FRU, Intel® LCP, HSC, Intel® RMM and SDR components
FRU	Field Replaceable Unit
HSC	Hot-swap backplane controller (for hot-swap hard disk drives)
Intel® LCP	Intel® Local Control Panel
Intel® RMM	Intel® Remote Management Module
IPMI	Intelligent Platform Management Interface
PIA	Platform Information Area
SDR	Sensor Data Records