



Intel® One Boot Flash Update Utility

User Guide

March 2011

Document Number: E71543-003

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 Vista* 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 © 2004–2011 Intel Corporation. All rights reserved.

Contents

Legal Statements	ii
Introduction	1
Supported Firmware Components	1
When Updates Take Effect	2
Supported Operating Systems	3
Installation and Uninstallation	4
Installing Intel® OFU	4
Uninstalling Intel® OFU	5
Running the Intel® One Boot Flash Update	6
Command Line Syntax	6
Updating the Server from a Remote Client.....	7
Error Exit Codes	8
Supported Intel® Server Boards	9
Glossary	10

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.

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) integrated firmware (S1200BT and other follow on platforms with a BMC or integrated BMC)
- Field Replaceable Unit (FRU) firmware (S1200BT and follow on platforms with a BMC)
- Sensor Data Record (SDR) firmware (All supported platforms with a BMC)
- Intel® Remote Management Module 3 (Intel® RMM4) firmware (Supported on S1200BT server families if the Intel® RMM4 module is installed)
- Management Engine (ME) firmware (Supported on S1200BT server families)

Firmware Update Package (for IDA, OFU, WinPE* & EFI) is available from <http://support.intel.com> under each platform.

When Updates Take Effect

Starting with S1200BT platforms, the Intel® OFU utility updates the FW and BIOS images passively via BMC controller or BIOS. The utility hands off the required image files to BMC Controller or to BIOS. After verification of the images (signature verification and/or authenticity verification), the Base Board Management Controller FW or BIOS, would update the images by their own. After firmware update the firmware will immediately switch to updated firmware; while the effect of the BIOS update would be seen in the next reboot.

FRU updates only have one firmware area so the updates will take effect immediately when the utility executes. In some cases, the System BIOS, BMC FW, SDR 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.

Table 1. When Firmware Updates Take Effect by Platform

Firmware Component	Intel® Server Board
	Intel® S1200BT
BIOS	Immediate
BMC	Immediate
SDR	Immediate
FRU	Immediate
HSC/PSoC†	Depending on platform; mostly next boot
Intel® RMM4	Depending on platform; mostly next boot
ME Firmware Update	Depending on platform

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

Operating System	Supported Platforms
Windows® Server® 2008 R2 SP1 x64	S1200BT
Windows® Server® 2008 SP2 x64 & x32	S1200BT
SuSE® Linux Enterprise Server 11 SP1	S1200BT
Red Hat® Enterprise Linux 6.0 x64 & x32	S1200BT

Installation and Uninstallation

Installing Intel® OFU

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

On Windows** Operating Systems

1. Unzip the Flashupdt.zip and copy the contents to local folder.
3. Go to the Drivers\Win folder, choose x86 or x64 (depending on the operating system).
4. Run install.cmd to install the drivers.
5. Go to win_x86 folder.
6. Now run Flashupdt.exe.

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

1. Unzip the Flashupdt.zip and copy the contents to local folder.
3. Run install.sh after chmod
4. Go to the RHEL or SLES directory (based on operating system).
5. chmod +x *
6. Now run Flashupdt.

Uninstalling Intel® OFU

In Windows* -

1. Run uninstall.cmd to uninstall all the drivers.
2. Remove the flashupdt folder structure.

In Linux* -

1. Remove the flashupdt folder structure.

Running the Intel® One Boot Flash Update

The Intel® OFU utility is run by executing the flashupdt 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:

```
flashupdt [-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 -i option is specified with the -u option, the utility displays the version information of the update package files.										
[-u]	<p>Performs the System BIOS and firmware update. The <URL or path> parameter specifies the location where the files required for the update are located. The value of <URL or path> can be a local file system path, an FTP server, or an HTTP server. Examples of using the -u option:</p> <table><tr><td>-u</td><td>Specifies the current local directory.</td></tr><tr><td>-u http://<IP address or URL>/<path></td><td>Specifies an HTTP server.</td></tr><tr><td>-u ftp://<login:password>@<server name or IP address>/<path></td><td>Specifies an FTP server.</td></tr></table> <p>If -u is used in conjunction with -i, no update is performed. Only the package information is displayed.</p>	-u	Specifies the current local directory.	-u http://<IP address or URL>/<path>	Specifies an HTTP server.	-u ftp://<login:password>@<server name or IP address>/<path>	Specifies an FTP server.				
-u	Specifies the current local directory.										
-u http://<IP address or URL>/<path>	Specifies an HTTP server.										
-u ftp://<login:password>@<server name or IP address>/<path>	Specifies an FTP server.										
[-h ?]	Displays command line help information.										
[-set]	<p>Sets different FRU area as below (for BMC systems) flashupdt /set "area name" "frufield" "value" Where areaname can be "product" or "chassis" depending on the FRU area to be modified. The following are the frufield parameters.</p> <table><tr><td>Pn</td><td>- indicates product name</td></tr><tr><td>Pnum</td><td>- indicates the part number</td></tr><tr><td>Snum</td><td>- indicates the serial number</td></tr><tr><td>Mn</td><td>- indicates the manufacturer name</td></tr><tr><td>At</td><td>- asset tag</td></tr></table> <p>Note: For the chassis area, the fields "at" and "pn" are not supported.</p>	Pn	- indicates product name	Pnum	- indicates the part number	Snum	- indicates the serial number	Mn	- indicates the manufacturer name	At	- asset tag
Pn	- indicates product name										
Pnum	- indicates the part number										
Snum	- indicates the serial number										
Mn	- indicates the manufacturer name										
At	- asset tag										

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
```

Note: flashupdt.cfg can be found from Firmware Update Package for IDA, OFU, WinPE* & EFI under <http://support.intel.com> for each platform.

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.

Note to Users:

1. After performing CFG based update using flashupdt utility, it is highly recommended to perform a power cycle. Continuous updates through CFG file without power cycle / reboot in between could cause system instability.
2. Starting from S1200BT platforms the flashupdt utility or otherwise known as OFU utility supports preserving OEM data through CFG file based update. For details of usage and command please refer to the white paper "Supporting OEM Activation 2.x on Intel Server Boards".
3. For CFG based update it is assumed that the HTTP/FTP server does not require any user name password. In order to access password protected servers, please change the chaff2l.sh or the batch file and include the username/password.

The default in the .sh file -

```
./curl $1 -o $2 -s
```

For password protected server please change the above as below -

```
./curl $1 --user admin:pwd -o $2 -s
```

where admin & pwd are the username and password respectively.

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)
11	Unknown error

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.)

- Intel® Server Board S1200BT

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:

Term	Definition
BCD	Binary Coded Decimal
BIOS	Basic Input Output System
BMC	Baseboard Management Controller. The primary microcontroller that controls the operation of the Intel® server management subsystem.
CFG	Configuration (file).
CHAFF2L	Copy HTTP And FTP Files To Local – program used by the One-Boot Flash Update utility to download files from http and ftp servers.
EPS	External Product Specification
FRU	Field Replaceable Unit
FUD	Flash Update Driver
FW	Firmware
HSC	Hot-Swap Controller
HW	Hardware
IA	Intel® Architecture
ID	Identification
IMB	Intelligent Management Bus
IPMB	Intelligent Platform Management Bus. Name for the architecture, protocol, and implementation of a special bus that interconnects the baseboard and chassis electronics and provides a communications media for system platform management information.
IPMI	Intelligent Platform Management Interface
ME	Management Engine
OEM	Original Equipment Manufacturer
Op Code	Operational Code
PIA	Platform Information Area
POST	Power On Self Test
RPM	Red Hat Package Manager
SDR	Sensor Data Record
SEL	System Event Log
SM	Server Management
SMS	Server Management Software
URL	Universal Resource Locator