

Intel[®] Firmware Support Package for Intel[®] Atom[™] Processor C2000 Product Family for Communications Infrastructure POSTGOLD4

Release Notes

January 2016



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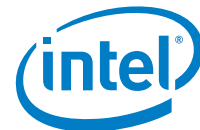
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Copies of documents which have an order number and are referenced in this document may be obtained by calling 1-800-548-4725 or by visiting: <http://www.intel.com/design/literature.htm>

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Revision History

These are the main releases of the Intel® Firmware Support Package (Intel® FSP) for Intel® Atom™ Processor C2000 Product Family:

Date	Revision	Description
January 2016	POSTGOLD4	
September 24, 2015	POSTGOLD4	Post-Gold 004 Release
April 9, 2015	POSTGOLD3	Post-Gold 003 Release
April 2, 2014	POSTGOLD2	Post-Gold 002 Release
December 18, 2013	POSTGOLD1	Post-Gold 001 Release – first public release

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1.0 Introduction

This package contains required binary image(s) and collateral for the Intel® FSP for the Intel® Atom™ Processor C2000 Product Family.

This document provides system requirements, installation instructions, issues and limitations, and legal information.

This Intel® FSP package is compliant with FSP External Architecture Specification 1.0 version.

To learn more about this product, see:

- New features listed in Section [2.0, New in This Release](#) or in Help.
- Reference documentation listed in Section [4.0, Related Documentation, Tools, and Packages](#).
- Installation instructions listed in Section [5.1, How to Install this Release](#).

1.1 Component Information

The software in this release has been developed and validated using the following.

Table 1. Intel® FSP Component Information

FSP Binary Version	POSTGOLD4
Reference Code Version	48.R00
Memory Reference Code Version	1.0.0.48
Microcode Update C2xx0 A1	M01406D000E
Microcode Update C2xx0 B0	M01406D8128

1.2 Limitations

The following are limitations for the Intel® FSP:

- The serial console base address of Intel® Atom™ Processor C2000 Product Family FSP is 0x2F8
- The boot loader must ensure that FsplnitEntry Application Programming Interface (API) is called within one second of returning from TempRamInitEntry API



1.3 Acronyms and Terms

The following acronyms and terms are used in this document (arranged in alphabetic order):

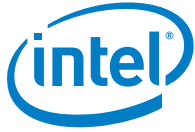
Acronym/Term	Description
API	Application Programming Interface
BCT	Binary Configuration Tool
BSF	Binary Settings File
CRB	Customer Reference Board
FSP	Firmware Support Package
RMT	Rank Margining Tool
SoC	System on a Chip

1.4 Intended Audience

Platform and system developers who intend to use an Intel® Firmware Support Package (FSP)-based boot loader for the firmware solution for their overall design based on the Intel® Atom™ Processor C2000 Product Family. This group includes, but is not limited to, system BIOS developers, boot loader developers, and system integrators.

1.5 Customer Support

Intel offers support for this software at the API level only, defined in the FSP Integration guide and reference manuals listed in [Section 4.0, Related Documentation, Tools, and Packages](#). If your field representative has created an account for you, support requests can be submitted at <https://premier.intel.com>



2.0 ***New in This Release***

2.1 **New Features**

This release includes the following new features and product changes:

- Updated platform reference code to Reference Code Release (48.R00).
- Included workaround for USB issue where the USB device may not be detected at system power-on on some silicon parts.
- SATA3 PHY parameters updated to handle marginal SATA devices transmitting corrupted primitives during link initialization.

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3.0 Intel® Atom™ Processor C2000 Product Family Software - Issues

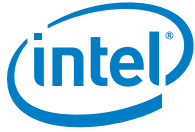
Known and resolved issues relating to Intel® Firmware Support Package are described in this Section.

3.1 Known Issues for Intel® Atom™ Processor C2000 Product Family

[Table 2](#) lists known software-related issues for the Intel® Atom™ Processor C2000 Product Family.

Table 2. Known Software-related Issues

Title	Reboot occurring when PUNIT watchdog timer times out.
Problem	The PUNIT has a watchdog timer that provides a window of approximately one second to complete initial programming of power management related registers.
Implication	Failure to feedback the status to the PUNIT within 1 second of a microcode update will result in the system requesting a reboot.
Workaround	The boot loader must ensure that FsplnitEntry API is called within one second of returning from TempRamInitEntry API. For designs that do not use an RTC battery, it is recommended that the RtcPowerFailureHandler() routine should be executed after the call to FsplnitEntry API to ensure that the 1 second PUNIT timeout window is not violated.



3.2 Resolved Issues for Intel® Atom™ Processor C2000 Product Family

[Table 3](#) lists known resolved software-related for the Intel® Atom™ Processor C2000 Product Family.

Table 3. Resolved Software-related Issues

Title	USB 2.0 Device May Not be Detected at System Power-On
Problem	Certain internal conditions may cause one or more USB ports to fail at system power-on.
Implication	When this erratum occurs, a USB device attached to the affected port will not function. In addition, the OS may report problems with the USB port.

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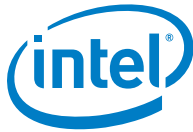
4.0 Related Documentation, Tools, and Packages

[Table 4](#) lists Intel® FSP for Intel® Atom™ Processor C2000 Product Family Platform documentation.

Table 4. Intel® Firmware Support Package Documentation

Document Name	Document No./Location
<i>Intel® Firmware Support Package for Intel® Atom™ Processor C2000 Product Family Integration Guide</i>	www.intel.com/fsp
<i>Intel® Atom™ Processor C2000 Product Family Custom Reference Board Platform Guide</i>	www.intel.com/fsp
<i>Binary Configuration Tool (BCT) for Intel® FSP</i>	www.intel.com/fsp

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5.0 Where to Find the Release

This package can be found on www.intel.com/fsp

5.1 How to Install this Release

This release can be installed on either a Windows or a Linux* system.

For Windows:

1. Download the Windows `.exe` file from www.intel.com/fsp
2. Run the `.exe` file to perform the installation.

For Linux*:

1. Download the Linux* `.tgz` file from www.intel.com/fsp
2. Extract the contents of the `.tgz` file.
3. See the `Readme_Extract.txt` file for further instructions to complete the installation.

Note: For information about adding the Intel® FSP APIs into the boot loader code, refer to *Intel® Atom™ Processor C2000 Product FSP Integration Guide*.

Note: For information about compiling the boot loader together with the Intel® FSP binary, refer to *Intel® Atom™ Processor C2000 Product Family Custom Reference Board Platform Guide*.

5.2 Debug

Debug messages are the primary way of debugging the Intel® FSP. This requires enabling the debug messages into the serial port. The steps to enable the serial debug messages can be found in **How to Enable Serial Debug Messages** in the *Intel® Atom™ Processor C2000 Product Family Custom Reference Board Platform Guide*.

5.3 Validation

The Rank Margining Tool (RMT) can flag areas of concern for platform developers. The steps to enable RMT is described in detail in **How to Enable the Rank Margining Tool** in the *Intel® Atom™ Processor C2000 Product Family Custom Reference Board Platform Guide*.



6.0 Release Content

This release package contains the following:

Table 4. Package Contents

Description	Filename	Path
FSP kit License file	FSP Kit Production RULAC click-through License.pdf	RANGELEY_FSP_KIT
FSP Binary File	RANGELEY_POSTGOLD4_FSP_004_20150924.fd	RANGELEY_FSP_KIT/FSP
Boot Setting File (BSF)	RangeleyFsp.bsf	RANGELEY_FSP_KIT/FSP
FSP Integration Guide	C2000_FSP_Integration_Guide_Rev1_2.pdf	RANGELEY_FSP_KIT/DOCUMENTATION
Release Notes	ReleaseNotes.pdf	RANGELEY_FSP_KIT/DOCUMENTATION
Text file copy of FSP kit license file (Linux* only)	license.txt	RANGELEY_FSP_KIT/DOCUMENTATION
Intel® Atom™ Processor C2000 SoC Microcode	microcode-m01406d000e.h microcode-m01406d8128.h	RANGELEY_FSP_KIT/Microcode
*.h	FSP header files	RANGELEY_FSP_KIT/FSP/include
*.c	FSP source files	RANGELEY_FSP_KIT/FSP/srx

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7.0 Hardware and Software Compatibility

7.1 Supported Hardware

The FSP included in this release is specifically targeted for the Intel® Atom™ Processor C2000 Product Family System on a Chip (SoC).

7.2 Supported Operating Systems

This release installs on either a Windows or a Linux* system. However, the FSP binary itself can be used with any software development environment to generate a complete boot loader solution.

The software in this release has been validated against the operating systems given in the following table on the Customer Reference Boards (CRBs) for the following products:

- Intel® Atom™ Processor C2000 Product Family

Note: While the Intel® Firmware Support Package is validated on Coreboot and Fedora* on the respective platforms, it is designed to work without change on some other Bootloader and OS.

Table 5. Operating System/BootLoader Support

Product Family	BootLoader	Operating System
Processor C2000 Product Family for Communications Infrastructure	Coreboot + u-boot payload	Yocto Project 1.4 Reference Distro (Poky 9.0)

The initial coreboot distribution was taken from coreboot.org:

```
coreboot 4.0, 2014-08-04, Commit-Id:  
18fe07ed22e81c6315c199d5ae71b689163bac46
```

Note: Do not integrate this FSP binary with coreboot versions greater than 4.1.



8.0 Configuration

A Binary Configuration Tool (BCT) for the Intel® FSP is provided as a companion tool and is intended to be used to:

- Customize the FSP binary configuration options based on the Boot Setting File (BSF).
- Rebase the FSP binary to a different base address (the default base address of the Intel® FSP for Intel® Atom™ Processor C2000 Product Family is 0xFFF80000).

It's recommended to use latest BCT with this release.

Please refer to the BCT User Guide for the usage instructions. See Section [4.0, Related Documentation, Tools, and Packages](#), to obtain the BCT.

8.1 Intel® Firmware Support Package Information

To obtain the Intel® FSP binary information:

1. Run the Binary Configuration Tool.
2. Click the Show Binary Description command button.
3. Select the Intel® FSP binary. For this release, the binary included is named as RANGELEY_POSTGOLD4_FSP_004_20150924.fd
4. Click Open. Another window, shown in [Figure 1](#), will pop out to show the Intel® FSP binary information.
5. Click OK to close the window.

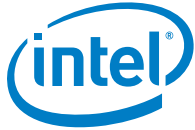
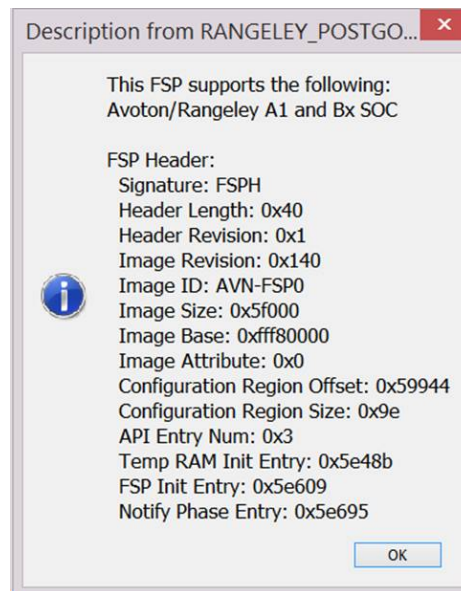


Figure 1. Intel® FSP Binary Information



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