Intel® Manycore Platform Software Stack (Intel® MPSS)

Readme for Windows*

April 2017
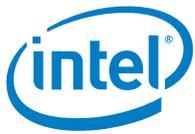
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Revision: 4.4.0

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Revision history

Revision Number	Description	Revision Date
4.4.0	Document update for the release of the Intel® MPSS 4.4.0	March 2017
4.3.3	Document update for the release of the Intel® MPSS 4.3.3	February 2017
4.3.2	Document update for the release of the Intel® MPSS 4.3.2	December 2016
4.3.1	Document update for the release of the Intel® MPSS 4.3.1	November 2016
4.3.0	Document update for the release of the Intel® MPSS 4.3.0	October 2016
4.2.2	Document update for the release of the Intel® MPSS 4.2.2	September 2016
4.2.1	Document update for the release of the Intel® MPSS 4.2.1	August 2016
4.2.0	Document update for the release of the Intel® MPSS 4.2.0	June 2016
4.1.3	Added information on updating coprocessor's flash and firmware.	April 2016
4.1.2	Initial draft of the readme document for Windows*.	April 2016

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1   *About this document*

This document is intended to provide a quick reference for installing and running the Intel® Manycore Platform Software Stack (Intel® MPSS) for Windows*.

This document is pertained for systems containing at least one Intel® Xeon Phi™ coprocessor x200. Please note that utilizing systems with both Intel® Xeon Phi™ coprocessor x200 and x100 is not supported.

1.1   Notational conventions

This document uses the following notational conventions.

micctrl --start	Commands and their arguments in prose sections are *italicized*.
/etc/mpss/default.conf	Files and directories in prose sections are *italicized.*
micN	Indicates any coprocessor name – mic0, mic1, mic2 etc. where N=0, 1, 2 … 255 (e. g. file *micN.conf* is any of the files *mic0.conf, mic1.conf* etc.).
`COURIER text`	Code and commands entered by the user. A backslash symbol: \ indicates that command is continued in the next line.
Italic COURIER text	Terminal output by the computer.
`"User>"`	Command entered on the host with user privileges.
`"Admin>"`	Command entered on the host with administrator privileges.
`"[micN]$"`	Command entered on a coprocessor with user or root privileges.
`"[micN]#"`	Command entered on a coprocessor with root privileges.

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2 *Installation instructions*

This section describes in steps how to install the Intel® MPSS for Windows*. Refer to the Intel® MPSS User's Guide for Windows* (*MPSS_Users_Guide-windows.pdf*) for detailed information on configuring and using the software stack.

Note: Administrator privileges are required to install the software stack.

2.1 Hardware and software prerequisites

2.1.1 Host system HW

Each coprocessor has to be installed in a 64-bit PCIe slot with x16 electrical connections and 75W power output capability. Refer to your motherboard's manual to identify compatible slots.

Note: Installing more than 8 coprocessors in a single host platform is not supported.

Note: Host platform with more than 256GB is not supported yet. That limitation will be removed in upcoming release.

2.1.2 Coprocessor physical installation

An important factor is that when PCIe devices are plugged into different IO hubs of different CPU sockets, they will communicate across the Quick Path Interconnect. The bandwidth of this communication will typically be lower than communication bandwidth between two devices plugged into the same IO hub.

2.1.3 BIOS configuration

1. Enable Large Base Address Registers (BAR) Support in the Host Platform BIOS

   BIOS and OS support for large (32+GB) Memory Mapped I/O Base Address Registers (MMIO BAR's) above the 4GB address limit *must* be enabled.

2. Enable Intel® Turbo Boost on the Host Platform

   For best performance, it is recommended that Intel® Turbo Boost be enabled.

2.1.4 Supported host operating systems

Intel® MPSS 4.4.0 has been validated against specific versions of Microsoft Windows* as the host operating system. Table 1 lists the supported versions of these operating systems.

Table 1 Supported host operating systems

Supported Host OS	Version
Microsoft* Windows*	8.1
Microsoft* Windows*	10
Microsoft* Windows* Server	2012 R2
Microsoft* Windows* Server	2016

2.1.5 Software prerequisites

The software stack requires the following software to be installed on the host system:

- Microsoft* .NET Framework* 4.5 or higher
- Python* 2.7.5 x86-64 or higher (Python* 3.x is not supported)
- *Pywin32* build 220 or higher (https://sourceforge.net/projects/pywin32)

2.2 Installation

This section outlines how to install, upgrade, and uninstall the software stack.

2.2.1 Intel® MPSS installation

1. Extract the *mpss-<version>-windows.zip* file.

2. Double-click the *mpss-<version>.exe* file.

3. Follow the instructions on screen to complete the installation

4. The default installation path is *C:\Program Files\Intel\MPSS\.* It can be changed during installation.

Note: If a Windows* security prompt appears, allow the installation of the driver and software to proceed.

2.2.1.1 Unattended installation

1. In a command window, navigate to the directory that contains the setup files. For example:

   ```
   User> cd C:\Users\<username>\Downloads\mpss-<version>
   ```

2. Enter the following command:

   ```
   User> "mpss-<version>.exe" /s /v /qn /V"/quiet /norestart"
   ```

Completing the unattended installation may take several minutes.

2.2.2   Upgrade instructions

Upgrading the Intel® MPSS can be achieved by following instructions in Section 2.2.1. Users may choose to manually uninstall the previous version or let the installer automatically search and remove previous release prior to installing the latest one.

Note: Upgrading the software stack may restore the default configuration, it is recommended to back up your configuration files and system images before performing the upgrade.

2.2.3   Updating coprocessor's firmware

It is required to update coprocessor's firmware after each installation or update of the software stack. Current firmware is distributed with the software stack installation and has the following versions:

- **BIOS Revision:** GVPRCRB8.86B.0014.D18.1703092150
- **ME Version:** 3.2.2.8
- **SMC Firmware Version (Fab version A):** 121.31.10447
- **SMC Firmware Version (Fab version B):** 121.31.10446

Note: Running Intel® MPSS with incorrect firmware version is not supported and may lead to erratic behavior.

Follow the instructions below to update the coprocessor.

1. Check the status of each coprocessor.

   ```
   Admin> micctrl -s
   ```

   If the status of every coprocessor is *ready to boot*, proceed to step 2; otherwise, reset the coprocessors*.*

   ```
   Admin> micctrl -rw
   ```

2. Verify the version of firmware installed on the coprocessor:

   ```
   Admin> micfw device-version
   ```

   If the versions are the same as versions listed above, the next steps might be skipped.

Note: When firmware installed is below to Intel® MPSS 4.3.2 version, step 3 has to be executed twice to complete the SMC firmware update.

3. Update the firmware of each coprocessor:

   ```
   Admin> micfw update all
   ```

   Or update only a specified coprocessor:

   ```
   Admin> micfw update micN
   ```

Once the update process completes the state of coprocessors will be changed to *ready to boot*.

Note: Do not execute any other applications or modify any coprocessor's state while *micfw* is executing.

Note: *micfw* might fail to update coprocessor's firmware if it hadn't been consequently updated with each subsequent version of the software stack.

4. Perform the cold host system reboot to apply all changes.

2.2.4 Installing Windows* cross-SDK

1. Extract the *mpss-<version>-windows.zip* file.

2. Install the software stack as in .

3. Install *mpss-essentials-<version>.exe*.

Installing the SDK is mandatory when using offload programming directive or a cross compiler. The Windows SDK does not contain header files necessary for cross-compiling Linux* kernel netfliter modules.

It is not necessary to manually uninstall previous versions of the software. The installer will automatically search for a previously installed version and remove it prior to installing current version.

2.2.5 Uninstalling Intel® MPSS

To uninstall the software stack open the Control Panel, choose Programs and features and remove the **"Intel(R) Xeon Phi(TM) coprocessor"** application.

2.3 Booting the coprocessor

Complete the installation by manually booting the coprocessor; execute the following command as an administrator:

```
Admin> micctrl --start
```

The call to *micctrl* will exit when it determines the coprocessors have either booted successfully or failed to boot.

Note: The default configuration specifies that each coprocessor is booted when the host driver is loaded. This means that the coprocessor will boot when the host system restarts.

You can check the status of the coprocessor to verify whether the booting was successful. The command below should output *Online*, which indicates that the coprocessor was successfully booted*.

```
Admin> micctrl –s
```