SDSoC 2016.1 Release Notes

For licensing and installation information, refer to the document An Introduction to the *SDSoC Environment*, (UG1028) `<sdsoc_install_root>/docs/ug1028-intro-to-sdsoc.pdf`. The Tutorial Labs in UG1028 provide a hands-on introduction to the SDSoC Environment. Additional reference and tutorial information is contained in *SDSoC Environment User Guide*, (UG1027).

If you originally installed SDSoC 2016.1 (SW Build on May 9, 2016), download and install the latest SDSoC 2016.1 (SW Build on May 20, 2016). The latest SDSoC release includes recommended corrections. To see which software build of SDSoC 2016.1 is installed, type the command `sdsoc -version` in an SDSoC 2016.1 terminal or in a shell running the SDSoC environment. See [Xilinx Answer 67204](#) for known issues in SDSoC 2016.1.

Release Summary

2016.1 (May 11, 2016)

- Integrated installer including SDSoC 2016.1 and the Vivado Design Suite 2016.1 (System Edition with Vivado® HLS) for Zynq®-7000 and Zynq UltraScale+™ families
  - Complete installation environment containing tools, data files, and patches for supported targets
  - Web-based installer option
- Windows 64-bit support
  - Windows 7.1 and 10.0 Professional (64-bit), English
- Linux 64-bit host support
  - Red Hat Enterprise Workstation 6.6-6.7 and 7.0-7.1 (64-bit)
  - Ubuntu Linux 14.04.3 LTS (64-bit)
- ARM compiler toolchain support
  - Linaro-based gcc 4.9.2 32-bit and 64-bit toolchains
- Target OS support
  - Linux (kernel 4.4, Xilinx branch Xilinx-v2016.1.0x), bare-metal, and FreeRTOS 8.2.3
  - Example PetaLinux BSP for ZC702 platform with documentation in *SDSoC Environment User Guide: Platforms and Libraries* (UG1146)
- Updated documentation, including tutorial labs and a platform and libraries methodology guide

- o *SDSoC Environment User Guide*, (UG1027), HTML version in Eclipse and `<sds_install_root>/docs/ug1027-user-guide.pdf`. Includes updated content on system optimization and pragmas, and hardware/software event trace.

- o *SDSoC Environment User Guide: An Introduction to the SDSoC Environment,* (UG1028), Tutorial Labs 1-7, HTML version in Eclipse and `<sds_install_root>/docs/ug1028-intro-to-sdsoc.pdf`. Includes new tutorials for hardware/software event trace and C-callable libraries.

- o *SDSoC Environment User Guide: Platforms and Libraries,* (UG1146), HTML version in Eclipse and `<sds_install_root>/docs/ug1146-sdsoc-platforms-and-libraries.pdf`. Updated `template.xml` metadata for applying project settings during creation.

- SDSoC Eclipse UI with project creation, implementation, and debug

  - o User-defined build configurations with independent project settings, including performance estimation (SDEstimate build configuration is no longer created)

  - o Hardware/software event trace build, data collection, and visualization

  - o Usability updates

    - – SDSoC Project Overview with build settings and configuration select

    - – Project creation with build settings applied automatically when using template designs

    - – Consistent build, run, and debug flows across build configurations

    - – Performance estimation available for any build configuration

    - – Eclipse platform and tools updated to the Mars (4.5) release

  - o Online SDSoC help

- Compiler enhancements

  - o Support data motion resource sharing

  - o Enhanced data size analysis and checking

- Flow enhancements

  - o Reduced build times using Vivado IP synthesis caching for a speed-up of up to 50%

- Platform updates

  - o The zc706_mem, zc702_osd, and zedboard_osd platforms are now available only as separate downloads on `www.xilinx.com/sdsoc`

- Enhanced user-defined platform support

  - o Updated `template.xml` metadata for applying project settings when creating SDSoC template projects

  - o Updated step-by-step tutorials for platform creation in UG1146

  - o Improved error checking for hardware platform XML files

- New and updated sample applications

- Bug fixes and infrastructure updates

  - o Improved stability and ease of use, including improved error checking

o Updated and enhanced accelerator driver API software

o Enhanced error messaging when timing violations occur

Zynq ARM Toolchain Changes

SDSoC 2016.1 provides a Linaro-based 32-bit GCC compiler toolchain for the Zynq Cortex™-A9 processor. When compiling and linking applications, use only object files and libraries built using the same compiler toolchain and options used by sdscc, sds++, and SDSoC provided software libraries and software components (Linux kernel and root file system, BSP libraries, and other pre-built libraries). Object files and libraries created with SDSoC 2015.4 must be recompiled using SDSoC 2016.1.

The table below summarizes changes related to the Zynq compiler toolchain.

Usage	SDSoC 2015.4	SDSoC 2016.1
Zynq ARM bare-metal compiler and linker options	(built-in option: soft floating point ABI)	-mcpu=cortex-a9 -mfpu=vfpv3 -mfloat-abi=hard
Zynq ARM bare-metal linker options	(built-in option)	-WI,--build-id=none -specs=<specfile> where the <specfile> contains *startfile: crti%O%s crtbegin%O%s
Zynq ARM bare-metal compiler	${SDSOC_install}/SDK/2015.4/gnu/arm/<host>/bin Toolchain prefix: arm-xilinx-eabi gcc executable: arm-xilinx-eabi-gcc g++ executable: arm-xilinx-eabi-g++	${SDSOC_install}/SDK/2016.1/gnu/aarch32/<host>/gcc-arm-none-eabi/bin Toolchain prefix: arm-none-eabi gcc executable: arm-none-eabi-gcc g++ executable: arm-none-eabi-g++
Zynq SDSoC bare-metal software (lib, include)	${SDSOC_install}/arm-xilinx-eabi	${SDSOC_install}/aarch32-none
Zynq ARM Linux compiler	${SDSOC_install}/SDK/2015.4/gnu/arm/<host>/bin Toolchain prefix: arm-xilinx-linux-gnueabi- gcc executable: arm-xilinx-linux-gnueabi-gcc g++ executable: arm-xilinx-linux-gnueabi-g++	${SDSOC_install}/SDK/2016.1/gnu/aarch32/<host>/gcc-arm-linux-gnueabi/bin Toolchain prefix: arm-linux-gnueabihf- gcc executable: arm-linux-gnueabihf-gcc g++ executable: arm-linux-gnueabihf-g++
Zynq SDSoC Linux software (lib, include)	${SDSOC_install}/arm-xilinx-linux-gnueabi	${SDSOC_install}/aarch32-linux

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Send Feedback

Known Issues (to be addressed in future releases)

1. On Linux hosts, the SDSoC IDE Welcome screen does not display all information (refer to Help Contents).

2. On RHEL Linux, connecting to a serial port from the Terminal View will crash SDSoC IDE. To work around the issue, use the SDK Terminal view or a separate terminal program to connect to your board.

3. If you cancel a build in the SDSoC IDE, you must delete the build target directory for the current build configuration (e.g., SDDebug, SDRelease) before rebuilding. Otherwise the behavior of the build is indeterminate.

4. If you encounter an "error copying" message on a Windows host, the SDSoC install directory or your workspace has a pathname that causes file pathnames generated by SDSoC to exceed the Windows limit of 260 characters. To mitigate this issue, you can choose short names for the install and workspace directories, e.g., "`C:\i`" or "`C:\w`".

5. In performance estimation flows, do not use variables named clock_start and clock_end in a function marked for acceleration or the performance root function, otherwise a conflict occurs with variables created for the flow.

6. Standalone applications cannot write the file system on an SD card due to a bug in the `f_write()` function in the `xilffs` library.

7. The following critical warning can be ignored:

   ```
   CRITICAL WARNING: [Pfi 67-13] Hardware Handoff file zc702_processing_system7_1_0.hwdef does not
   exist for instance zc702_i/ps7/inst
   ```

Revision History

The following table shows the revision history for this document:

Date	Version	Revisions
06/01/2016	2016.1	Added paragraph instructing user to download the latest SDSoC 2016.1 SW build because it includes recommended corrections.
05/11/2016	2016.1	Updated entire text for current release.

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