



Release Notes for EV-SC84x EZ-KIT®

Rel.1.0.0.b.1

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2 Introduction

Thank you for installing the EV-SC84x EZ-KIT® Board Support Package (BSP) Rel.1.0.0.b.1 (Beta release). The BSP provides software and documentation in support of the EV-SC84x EZ-KIT®. The EV-SC84x EZ-KIT is designed for use with CrossCore® Embedded Studio (CCES) for Analog Devices Processors software development tools.

 The "b.1" in version "1.0.0.b.1" is a quality level and indicates Beta release of the BSP.

The CCES development environment aids advanced application code development and debug, such as:

- Create, compile, assemble, and link application programs written in C++, C, and assembly.
- Load, run, step, halt, and set breakpoints in application programs
- Read and write data and program memory
- Read and write core and peripheral registers
- Plot memory.

For more details on CCES, please visit www.analog.com/cces.

For details regarding ADSP-SC84x application development with CCES, Refer to "*CrossCoreEmbeddedStudio_SHARC-FX_Getting_Started_Guide*" in the docs sub-directory of CCES installation.

The EV-SC84x EZ-KIT® BSP provides comprehensive software support for the EV-SC84x EZ-KIT® (ADSP-SC846). In this release, various examples are provided to demonstrate the on-chip drivers and services.

3 Release Dependencies:

- Tested with CrossCore® Embedded Studio version 3.1.0-ga
- Tested with EV-SC846-SOM EZ-KIT® Rev B
- Tested with EV-SOMCRR2-EZ-KIT® Rev B

4 Release Limitations and Validation Information :

- This is a **Beta release 1.0.0.b.1** of **EV-SC84x EZ-KIT® BSP** and should not be used for production.
- This EV-SC84x EZ-KIT® BSP v1.0.0.b.1 Beta release is primarily intended to deliver initial software support for the ADSP-SC846 processor family Silicon Revision 0.1.
- This **EV-SC84x EZ-KIT® BSP v1.0.0.b.1 Beta release** has been developed and validated using **re-worked EV-SC846-SOM (Rev-B)** and **EV-SOMCRR2-EZ-KIT (Rev-B)** hardware platforms
 - Rework details on EV-SOMCRR2 EZKIT Rev-B Board. : U30 and U31 ICs are replaced with NXU0104GU12-Q100X single directional level shifters. R129, R130, R131, R132 also removed.
- This **EV-SC84x EZ-KIT® BSP v1.0.0.b.1 Beta release has not been formally validated** on the **EV-SC846-SOM (Rev-C)** and **EV-SOMCRR2-EZ-KIT (Rev-C)** hardware revisions. Based on the current hardware assessment, the BSP is expected to function on these board revisions without significant limitations.
 - However, users should note that **xSPI-based examples are not expected to function correctly on the EV-SC846-SOM (Rev-C)** due to a hardware change in the onboard **xSPI flash device** compared to earlier board revisions due to part availability in the current market conditions.
- As a Beta release, Limited testing has been performed and certain examples/features may not function properly.
- This BSP is tested with CrossCore® Embedded Studio version 3.1.0-ga.
 - Few examples may get some build warnings/functional issues in case of using CrossCore® Embedded Studio version 3.1.0.b-2/b-3 or any other previous version.

5 Installation directory & Example imports

- Install CCES-3.1.0 followed by installation of EV-SC84x EZ-KIT® BSP.
- Upon installation, users can find all the BSP examples at default installation path of the EV-SC84x EZ-KIT BSP : "C:\Analog Devices\EV-SC84x_EZ-KIT-Rel1.0.0\EV-SC84x_EZ-KIT\Examples"
- To import the EV-SC84x EZ-KIT® BSP examples into CCES-3.1.0 workspace, either of the following options can be used :
 - a. By using "*Browse Examples*" utility option under "*Help*" tab of CCES-3.1.0. Select "EV-SC84x EZ KIT v1.0.0 [1.0.0]" as product under filters section.
 - b. By directly importing the example projects into CCES-3.1.0 workspace using the default installation directory path "C:\Analog Devices\EV-SC84x_EZ-KIT-Rel1.0.0\EV-SC84x_EZ-KIT\Examples"

6 Example Project Structure

- Each example contains application projects for Cortex-A55 core and SHARC-FX core of ADSP-SC84x.
- Example projects follow below naming convention for single core (Cortex-A55/SHARC-FX) applications :

Application Core	Example Project Name Convention	Details
Cortex-A55	<project_name>_SC846_A55_Core0	Contains the application targeted for Cortex-A55 Core 0
SHARC-FX	<project_name>_SC846_SH_FX_Core0	Cortex A55 (Core-0) application to enable SHARC-FX (Core 1)
	<project_name>_SC846_SH_FX_Core1	Contains the application targeted for SHARC-FX Core 1
	<project_name>_SC846_SH_FX_Core2	Cortex A55 (Core-2) dummy application

- Example projects for multi-core application can be found at : "C:\Analog Devices\EV-SC84x_EZ-KIT-Rel1.0.0\EV-SC84x_EZ-KIT\Examples\Multi-core"

7 List of Examples :

7.1 Power_On_Self_Test:

This example allows the user to test many peripherals of the EV-SC84x EZ-KIT®. Readme is provided in the POST example to understand how these tests are run.

7.2 Drivers/Services:

The following Device Driver and System Service examples are provided for EV-SC84x EZ-KIT® Board Support Package (BSP):

Device Drivers

- ASRC
- ADC-DAC
- CAN-FD
- CRC
- Crypto (PKTE, TRNG)
- EMAC
- EMSI
- FIR
- IIR
- Linkport
- SPDIF
- SPI
- SPORT
- TMU
- TWI
- UART
- xSPI

System Services

- ARM-TMR
- DAI/DRU
- DMA (MDMA, EMDMA)
- FPLL
- GPIO
- L2CTL
- OTP
- PMU
- PWR
- RCU
- SMPU
- SWU
- TMR
- TRU
- WD

7.3 Boot

- Boot XSPI ROM API

7.4 DMC

- DMC Sweep

7.5 Multi-Core :

- INT
- TRU

7.6 Device Programmer

- xSPI NOR Flash
- OTP
- EMSI-EMMC
- SPI-ISSI Flash

8 Emulator and Debug Compatibility — ADSP-SC84x and ADSP-2184x

Please be advised that the ADSP-SC84x and ADSP-2184x processor families do not support all JTAG emulators. To establish a reliable debug connection, one of the supported configurations described below must be used.

✗ ICE-1000/ICE-1500 Voltage with ADSP-SC84x/ADSP-2184x

Update the voltage to 1.8v by changing a jumper when using the ICE-1000 or ICE-1500 debug probes. Consult the ICE-1000 user guide or ICE-1500 user guide for more detailed information on changing the jumper.

Fully supported

- **On-board debug agent** — The EV-SOMCRR2-EZKIT integrated debugger is fully supported and provides the most straightforward and reliable means of connection.
- **ICE-1500 emulator** — Fully supported for external JTAG and debug operations, and is the recommended option where an external emulator is required.

Supported with limitations

- **ICE-1000 emulator** — Supported only when connected directly to the SOM board. Connection through any other point, such as a carrier or baseboard, is not reliable and is therefore not supported.

Not supported

- **ICE-2000 emulator** — Not compatible with the ADSP-SC84x and ADSP-2184x families and must not be used with these devices.

8.1 Compatibility Summary

Debug connection	Status	Notes
On-board debug agent	Fully supported	Recommended
ICE-1500	Fully supported	Recommended for external JTAG
ICE-1000	Supported with limitations	Reliable only when connected directly to the SOM board
ICE-2000	Not supported	Not compatible with ADSP-SC84x / ADSP-2184x

Refer to "CrossCoreEmbeddedStudio_SHARC-FX_Getting_Started_Guide" in the docs sub-directory of your CCES installation for further details regarding debug configurations.

9 Known Issues/Disclaimers:

- ADC- DAC Audio Talkthrough terminal based example is not functional in this release.
- The MDMA MemCopy List On-Demand example has been observed to work intermittently when executed on the A55 core.
- The SPI XIP example will fail to build when the BSP is installed in a non-standard directory path. Use the default/recommended installation path to avoid this issue.
- The EMSI CmdQueue example has been observed to operate successfully in Release builds but may fail intermittently when executed in Debug mode
- While creating LDR (Loader) files in order to boot any example project, re-compile the application by removing/commenting out all printf() calls from the example project and then build the LDR (loader) file.
- xSPI Device has been updated on Rev-C of EV-SC846-SOM boards. The xSPI examples provided with this beta revision of EV-SC84x-BSP (1.0.0.b.1), may not function as expected on Rev-C of EV-SC846-SOM/EV-SOMCRR2-EZKIT
- ADC-DAC Audio Talkthrough I2S and TDM mode examples :Below mentioned Re-work is done on Rev-B of EV-SOMCRR2-EZKIT, which will be fixed/taken care of in Rev-C of EV-SOMCRR2-EZKIT.
 - Ensure that U30 and U31 ICs are replaced with NXU0104GU12-Q100X single directional level shifters on EV-SOMCRR2-EZKIT Rev B to yield clear audio without any distortion.

10 CCES License Keys for Evaluation

The purchase of many of the evaluation boards supported by CrossCore Embedded Studio (CCES) includes a complimentary EZK license key to enable use of CCES. These EZK license keys provide access to CrossCore Embedded Studio (CCES) and related development tools for your specific hardware platform to allow use of the evaluation board if you do not otherwise have a full CCES license. The various EZK license keys are copied below as a convenient reference.

10.1 EZK License Keys

The following supported license keys:

- EZK-CCES-CJB5-EF38-VQAV-FHRY-NXBQ-6B8U-IW01 (ADSP-21846W SOM)
- EZK-CCES-JIFW-68GQ-XEW7-A5QN-BCGB-IY6Y-UN01 (ADSP-SC846W SOM)

NOTE: Each license key is tied to specific hardware and may have different licensing terms. Please use the appropriate serial number that corresponds to your purchased hardware. For questions about licensing or activation, please contact technical support - **processor.tools.support@analog.com**