



S32 SDK for Power Architecture Release Notes

Version 0.8.0 EAR



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1. Description

The S32 Software Development Kit (S32 SDK) is an extensive suite of peripheral drivers, RTOS, stacks and middleware designed to simplify and accelerate application development on NXP Power MPC5748G and MPC5746C microcontrollers.

All software included in this release has EAR quality level in terms of features, testing and quality documentation, according to NXP software release criteria.

This SDK can be used as is (see Documentation) or it can be used with S32 Design Studio IDE.

Refer to *License(License.txt)* for licensing information and *Software content register(SW-Content-Register-S32-SDK.txt)* for the Software contents of this product. The files can be found in the root of the installation directory.

For support and issue reporting use the following ways of contact:

- Email to support@nxp.com
- NXP Community <https://community.nxp.com/>



2. Software Contents

1. Drivers

- ADC
- CLOCK
- CPU
- DMA
- DSPI
- EMIOS
- ENET
- FLASH
- FLEXCAN
- HEADER FILE
- INTERRUPT
- LINFLEX
- OSIF
- PINS
- PIT
- RTC
- SEMA42
- STM
- SWT
- WKPU

2. RTOS

- FreeRTOS version 8.2.3

3. Documentation

- Quick start guide available in “doc” folder
- User and integration manual available at “doc\Start_here.html”.
- Driver user manuals available in “doc” folder.



4. Examples

Type	Name	Description
Driver examples	adc	Shows the usage of the ADC MPC574xx.
	dspi_master	Shows the usage of the DSPI/SPI module
	emios_pwm	Shows the usage of the eMIOS PWM functionality
	enet_ping	Shows the usage of the ENET module by implementing an application which responds to ping requests.
	linflexd_uart	Shows the usage of LINFlexD_UART driver in interrupt based mode.
	flash_program_erase	This folder contains flash examples and shows the usage of the flash driver how to program or erase the flash memory.
	swt_interrupt	Shows the usage of the SWT
	wkpu_interrupt	Shows the usage of the WKPU
	pit	Shows the usage of the PIT
	rtc_alarm	Shows the usage of the RTC
	stm	Shows the usage of the STM
Demos	hello_world	This is a simple application created to show the basic configuration with S32DS
	hello_world_mkf	This is a simple application created to show the basic configuration with makefile for the supported compilers
	flexcan	Shows the usage of FlexCAN driver configured as both bus master and slave.
	freertos	Shows the usage of the FreeRTOS MPC574xx.



5. Supported hardware and compatible software

CPUs

- MPC5748G - 0N78S (Cut 3.0)
- MPC5746C - 1N84S (Cut 2.1)

The following processor reference manual has been used to add support:

- MPC5748GRM Rev. 5, 12/2016
- MPC5746CRM Rev. 4.1, 02/2017

Compiler and IDE versions:

- GCC E200 VLE GNU Compiler 4.9.4-20170412
 - included in S32 Design Studio for Power Architecture v1.2
- Green Hills Multi 7.1.4 / Compiler 2015.1.6
- Windriver DIAB Compiler v5.9.6.2

6. Known issues and limitations

1. S32 Design Studio integration

- Warnings are observed after project creation or import
- After new project creation, the SDK path is reported as being incorrect in the Problems view
- Project dsp_i_master_mpc5746c has incorrect device in debug configuration
- Debug connection is lost when executing project dsp_i_master_mpc5748g on target
- Component repository is incorrectly named SDK_MPC5748G_01
- Not all projects in New project wizard from Example have description

2. Drivers

ALL

- Multicore execution is not fully supported.
- Integration with S32 Design Studio was not completed and some IDE and Graphical Configurator related features may not be fully functional.

ADC

- PEx configurator cannot generate adc_chain_config_t structs properly. Application writers should write the structure without PEx.

DSPi

- For slave mode, send process does not work
- Blocking methods can cause the application to hang in an infinite loop. Application should use non-blocking methods and callbacks.
- SPI transfers with DMA are not supported. SPI supports only interrupt base transfers.

EMIOS

- DAOC (Double Action Output Compare) mode is not supported.

FLASH



- The driver is designed to support asynchronous for program or erase operation.
- It is recommended that the D-cache of the core should be disabled at the initialization code to make sure the program or erase functions work properly.
- Flash controller buffer shall be disabled in the beginning of application for reading and writing to flash.
- The driver does not support an interrupt request when the high voltage operation is set.

FreeRTOS

- Works only when executing from RAM because the interrupt table is expected to be placed in RAM, but in flash configuration it will be placed flash.

HEADER FILES

- Not all interrupts are declared in the header file.

INTERRUPT

- Install Handler API is not supported in flash targets.
- Core 0 is assumed for interrupt configuration and routing

OSIF

- Current bare metal implementation uses PIT channel 15 for internal timing. Applications should not attempt to use this channel

PINS

- Generation of the pin configuration using the PEx component is slow.

SWT

- The driver does not support timer reset in Fixed Execution Address mode and Incremental Execution Address mode (The watchdog is serviced by executing code at the address loaded into the designated IAC register)

3. Examples

- ADC and FreeRTOS examples are available only for MPC5748G.
- WKPU example runs in FLASH only if the reset button is pressed after the download to the target.

7. Compiler options

Please refer to the compiler options used in the examples.



8. Acronyms

Acronym	Description
EAR	Early Access Release
JRE	Java Runtime Environment
EVB	Evaluation board
HAL	Hardware Abstraction Layer
RTOS	Real Time Operating System
PEX	Processor Expert Configurator
PD	Peripheral Driver
S32DS	S32 Design Studio IDE
SDK	Software Development Kit
SOC	System-on-Chip

9. Version Tracking

Date (dd-Mmm-YYYY)	Version	Comments	Author
28-Apr-2017	1.0	Initial version for EAR 0.8.0	Iulian T.
15-Jun-2017	1.1	Updated known integration issues	Iulian T.