NXP Semiconductors
Product Brief

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Real-Time Drivers (RTD) for S32G2 – Product Brief

Contents

Software Product Overview

Real-Time Drivers (RTD) software product offers support for both AUTOSAR® and non AUTOSAR applications. For AUTOSAR applications, a wide range of standard drivers and Complex Device Drivers (CDDs) create a rich ecosystem. For non-AUTOSAR, the low-level drivers are also provided for highly optimized code. Support for Elektrobit tresos (AUTOSAR) and S32CT (non-AUTOSAR) configurators is included.

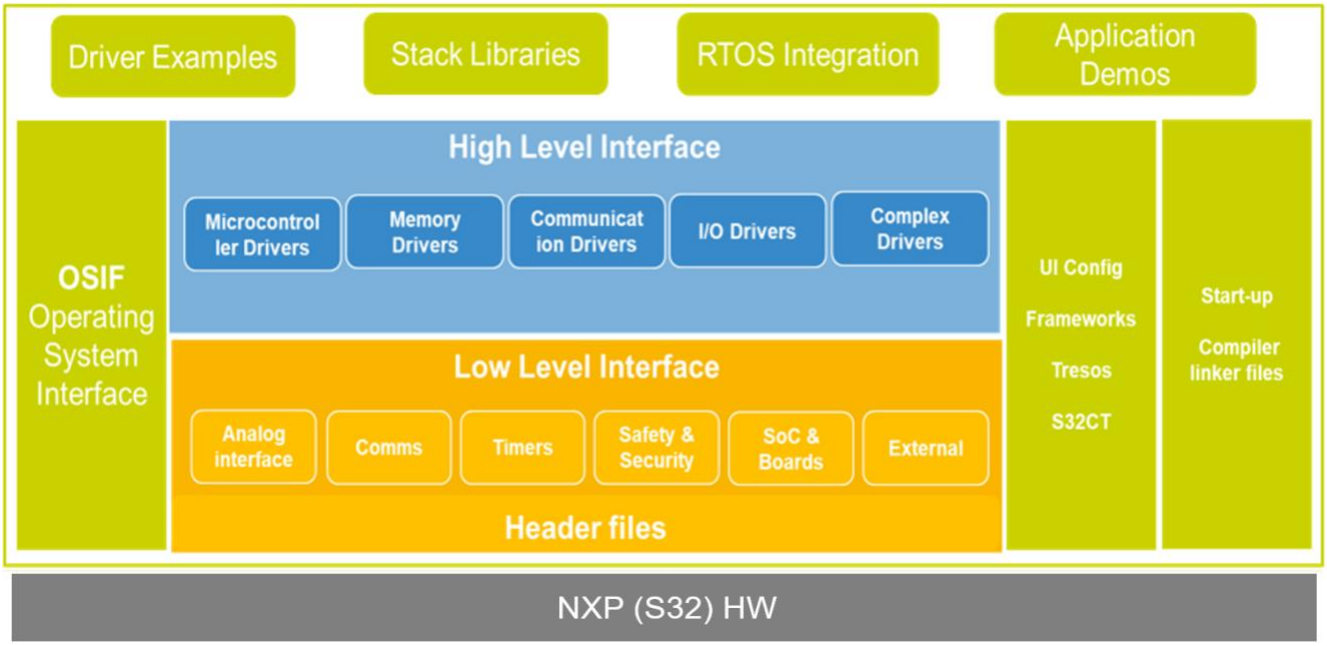

Figure 1. Real-Time Drivers (RTD) software environment

Software Content

The list of high-level drivers (AUTOSAR compliant + extensions) include:

- *Mcu*
- *Cdd_Platform*
- *Mcl*
- *Port*
- *Dio*
- *Fls*
- *Fee*
- *Icu*
- *Ocu*
- *Gpt*
- *Pwm*
- *Cdd_I2c*
- *Eth*
- *Cdd_Uart*
- *Lin*
- *Spi*
- *Can*
- *Adc*
- *Crypto*
- *Wdg*
- *Sent*
- *Dem (stub)*
- *Det (stub)*
- *Ecuc (stub)*
- *Ecum (stub)*
- *Rte (stub)*
- *Os (stub)*
- *Resource*
- *Base*

A mapping of hardware IPs to software drivers for S32G2 devices:

Table 1. Hardware IPs to software drivers mapping for S32G2 devices

Hardware (HW) Module	S32G2	Software (SW) Module where the IP is enabled
IOMUX	Y	n/a for RTD
MCM	Y	CDD_PLATFORM
MSCM	Y	CDD_PLATFORM
A53_GPR	Y	n/a for RTD
CM7_GPR	Y	n/a for RTD
VIRT_WRAPPER	n/a	
SIUL2	Y	DIO/PORT/MCU
TSPC	n/a	DIO
AXBS_Lite	Y	CDD_RM
AIPS_Lite	Y	n/a for RTD
DMAMUX	Y	MCL
eDMA	Y	MCL
DMA_CRC	Y	MCL
INTM	n/a	
SEMA42	Y	CDD_RM
XBIC	n/a	
XRDC	Y	CDD_RM
FastDMA	n/a	
SRC	Y	CDD_PLATFORM
SRC_0	n/a	
SRC_1	n/a	
Main GPRs	Y	n/a for RTD

Hardware (HW) Module	S32G2	Software (SW) Module where the IP is enabled
Stby GPRs	Y	n/a for RTD
c40asf	n/a	
PFLASH	n/a	
PRAMC	n/a	
DFS	Y	MCU
MC_CGM	Y	MCU
MC_CGM_0	Y	MCU
MC_CGM_1	Y	MCU
MC_CGM_2	Y	MCU
MC_CGM_5	Y	MCU
FIRC	Y	MCU
SIRC	Y	MCU
FXOSC	Y	MCU
SXOSC	n/a	
PLLDIG	Y	MCU
ACCEL_PLL	Y	MCU
CORE_PLL	Y	MCU
DDR_PLL	Y	MCU
SRAMC	Y	MCU
DDR	Y	n/a for RTD
DDR_GPR	Y	n/a for RTD
PERIPH_PLL	Y	MCU
MC_RGM	Y	MCU
RDC	n/a	
POR_WDG	n/a	
FUSE_LC	n/a	
DCF	n/a	
DCM	n/a	
MU	Y	CRYPTO
OCOTP	Y	CDD_OCOTP
PMC	Y	MCU
MC_ME	Y	MCU
MC_PCU	Y	n/a for RTD
WKPU	Y	ICU
EIM	Y	n/a for RTD
ERM	Y	n/a for RTD
FCCU	Y	n/a for RTD
SELFTEST_GPR	Y	n/a for RTD
SELFTEST_GPR_0	n/a	
SELFTEST_GPR_1	n/a	
SELFTEST_GPR_TOP	Y	n/a for RTD

Hardware (HW) Module	S32G2	Software (SW) Module where the IP is enabled
STCU2	Y	n/a for RTD
SBSW	Y	n/a for RTD
CMU_FC	Y	MCU
CMU_FM	Y	MCU
REG_PROT	Y	BASE
CRC	Y	CRC
SAR_ADC	Y	ADC
LPCMP	n/a	
LCU	n/a	
EMIOS	n/a	
BCTU	n/a	
TRGMUX	n/a	
SWT	Y	WDG
STM	Y	GPT
PIT	Y	GPT
RTC	Y	GPT
LPSPI	Y	SPI
LPI2C	n/a	
FlexIO	n/a	
FlexCAN	Y	CAN
SAI	n/a	
EMAC	n/a	
ENET	n/a	
LPUART	n/a	
QuadSPI	Y	FLS
TAP	n/a	
DAP TAP	n/a	
System JTAGC	n/a	
JTAGC	Y	n/a for RTD
CJTAG	Y	n/a for RTD
IPG	n/a	
Debug	Y	n/a for RTD
Trace	Y	n/a for RTD
ECT	Y	n/a for RTD
MDM_AP	Y	n/a for RTD
SDA_AP	n/a	
JTAG_C	n/a	
JDC	Y	n/a for RTD
MEMU	n/a	
TempSense	n/a	
uSDHC	Y	EEP

Hardware (HW) Module	S32G2	Software (SW) Module where the IP is enabled
FTM	Y	GPT, PWM, ICU, OCU
I2C	Y	CDD_I2C
GMAC	Y	ETH
PFE	Y	ETH
FlexRayTM	Y	FR
LINFlexD	Y	LIN, CDD_UART
SPI	Y	SPI
SERDES_GPR	Y	n/a for RTD
SERDES_GPR_0	n/a	
SERDES_GPR_1	n/a	
LLCE	Y	CAN, LIN, FR
USBOTG	Y	n/a for RTD
TMU	Y	CDD_TMU
JTAGM	n/a	
FBXC	Y	CDD_OCOTP
SPT	n/a	
BBE32EPDSP	n/a	
CTE	n/a	
MIPICSI2	n/a	
LAX	n/a	
CTU	n/a	
I3C	n/a	
HSE-H	Y	CRYPTO
HSE-B	n/a	
Arm® Cortex®-A53	Y	n/a for RTD
Arm Cortex-M7	Y	CDD_RM, MCL, CDD_PLATFORM
System NoC	Y	n/a for RTD
Accelerator NoC	Y	n/a for RTD
Ncore	Y	n/a for RTD
SDP	Y	n/a for RTD
OTFAD	Y	n/a for RTD
PCIe	Y	n/a for RTD
PCIe Gen3 PHY	Y	n/a for RTD
USB	Y	n/a for RTD
OCPSRAMC	Y	MCU
RCCU	Y	n/a for RTD
CMU	Y	MCU
ATP	Y	n/a for RTD
PLL (Aurora)	Y	n/a for RTD
PLL	n/a	
IVT	n/a	

Hardware (HW) Module	S32G2	Software (SW) Module where the IP is enabled
DCD	n/a	
UART	n/a	
e200z7	n/a	
e200z4	n/a	
SPE	n/a	
AXBS	n/a	
SMPU	n/a	
DTS	n/a	
INTC	n/a	
PCM	n/a	
MCB	n/a	
eTimer	n/a	
FlexPWM	n/a	
Zipwire	n/a	
SIPI	n/a	
LFAST	n/a	
JTAG2IPS	n/a	
NXMC	n/a	
NPC	n/a	
NAL	n/a	
ATP_PHY	n/a	

Supported Targets

The software described in this document is intended to be used with NXP Semiconductors S32G2 devices.

Quality, Standards Compliance and Testing Approach

RTD is developed according to NXP Software Development Processes that are Automotive-SPICE, ISO 26262, IATF16949 and ISO 9001 compliant.

Real-Time Drivers (starting with Beta releases) contain drivers as eclipse plugins for Elektrobit tresos or S32 Design Studio.

- For each driver:
  - Source code + configuration templates
  - Driver User Manual
  - Driver Integration Manual
  - Driver Example Application
- For the entire package:
  - RTD Release Note

Real-Time Drivers (starting with Beta releases) are accompanied by software quality packages containing the following deliverables:

- For each RTD driver:
  - Driver Test Specification
  - Driver Test Summary Report
  - Driver MISRA Summary Report
  - Driver Code Coverage Summary Report
  - Driver Traceability Matrix
  - Driver VSMD Report
  - Driver Profiling Report
  - Driver Code size, Stack size, RAM size Reports
  - Driver Static analysis Report (added only on customer request)
- For the entire RTD package:
  - RTD Test Summary Report
  - RTD Quality Matrix
  - List of changes

SW Testing approach is documented in RTD Test Strategy document that contain the following information and can be shared with customers in request.

- Testing scope and objectives
- Test levels: unit tests, unit integration tests
- Test types: functional, non-functional, regression tests, robustness, performance tests, conformance testing
- Test techniques: white-box, black-box tests
- Test cases organization and prioritization
- Test deliverables (test report, test specification, code coverage report, traceability matrix, static analysis report)

Document Information

Table 2. Revision History

Revision number	Date	Substantive changes
1.0	10/2021	Initial release

How to Reach Us

nxp.com/RTD

Web Support:
nxp.com/support