

# 用于S32G2的实时驱动（RTD） ——产品简介

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## 软件产品概述

实时驱动（RTD）软件产品为AUTOSAR®和非AUTOSAR应用提供支持。对于AUTOSAR应用，广泛的标准驱动程序和复杂设备驱动程序（CDD）创建一个丰富的生态系统。对于非AUTOSAR应用，RTD也为高度优化的代码提供了低层驱动程序。对Elektrobit tresos（AUTOSAR）和S32CT（非AUTOSAR）配置器的支持也包括在RTD中。

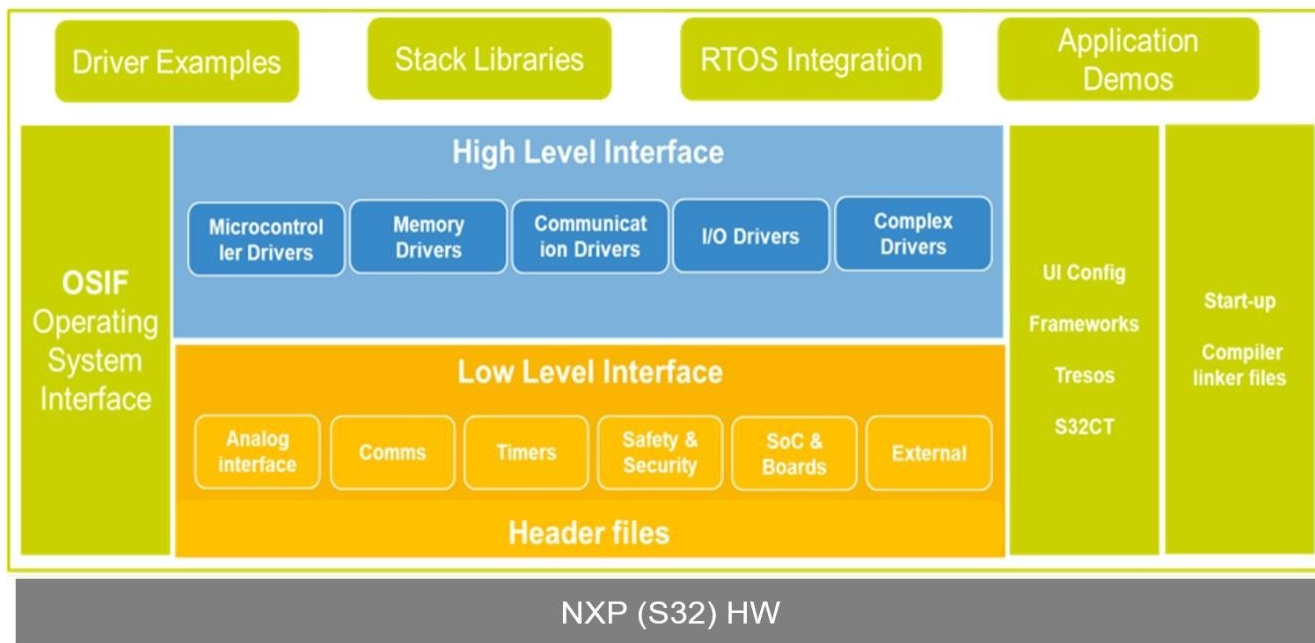


图1. 实时驱动 (RTD) 软件环境

## 软件内容

高层驱动程序（符合AUTOSAR标准+扩展）的清单包括：

- *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*

S32G2器件的硬件IP与软件驱动的对对应关系。

表1. S32G2器件的硬件IP到软件驱动的对对应关系

硬件 ( HW ) 模块	S32G2	软件 ( SW ) 模块, 其中IP被启用
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

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硬件 ( HW ) 模块	S32G2	软件 ( SW ) 模块, 其中IP被启用
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

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硬件 ( HW ) 模块	S32G2	软件 ( SW ) 模块, 其中IP被启用
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

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硬件 ( HW ) 模块	S32G2	软件 ( SW ) 模块, 其中IP被启用
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	

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硬件 ( HW ) 模块	S32G2	软件 ( SW ) 模块, 其中IP被启用
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	

## 支持的目标

本文件中描述的软件用于恩智浦半导体的S32G2器件。



## 质量、符合的标准和测试方法

RTD是根据“恩智浦软件开发流程”开发的，符合Automotive-SPICE、ISO 26262、IATF16949和ISO 9001标准。

实时驱动（从Beta版开始）包含作为eclipse插件用在Elektrobit tresos或S32 Design Studio的驱动程序。

- 对于每个驱动程序
  - 源代码+配置模板
  - 驱动程序用户手册
  - 驱动程序集成手册
  - 驱动程序示例应用
- 对于整个程序包：
  - 发布说明

实时驱动（从Beta版开始）附有软件质量包，包含以下交付文件：

- 对于每个RTD驱动程序
  - 驱动程序测试规范
  - 驱动程序测试总结报告
  - 驱动程序MISRA总结报告
  - 驱动程序代码覆盖率总结报告
  - 驱动程序可追溯性矩阵
  - 驱动程序VSMD报告
  - 驱动程序分析报告
  - 驱动程序代码大小、栈大小、RAM大小报告
  - 驱动程序静态分析报告（仅根据客户要求添加）
- 对于整个RTD程序包：
  - 测试总结报告
  - 质量矩阵
  - 变更列表

软件（SW）测试方法记录在RTD测试策略文件中，其中包含以下信息，可以根据客户的要求与客户分享。

- 测试范围和目标
- 测试级别：单元测试、单元集成测试
- 测试类型：功能性、非功能性、回归测试、鲁棒性、性能测试、一致性测试
- 测试技术：白盒、黑盒测试
- 测试用例的组织和优先级
- 测试交付文件（测试报告、测试规范、代码覆盖率报告、可追溯性矩阵、静态分析报告）

# 文档信息

表2. 修订记录

版本号	日期	实质性变更
1.0	2021年10月	初版发布

**How to Reach Us**[nxp.com/RTD](http://nxp.com/RTD)**Web Support:**[nxp.com/support](http://nxp.com/support)

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