R-Car V4M MCAL

Release Note

1 Introduction

This document describes regarding to product of the R-Car V4M AUTOSAR MCAL.
This software version does not guarantee mass production application.

Contents

2 Overview

This document explains the release information of R-Car V4M AUTOSAR MCAL.

2.1 General Information

2.1.1 Package Information

Table 2-1 General Information

Item	Name	Note
Project	R-Car V4M AUTOSAR MCAL	-
Part Number	RTM8RC779HCMCL5DA0JCDRE	-
Product Release Version	Ver19.0.11	-
Modules supported	CAN, CRC, DIO, EMM, ETH, FLS, GPT, ICCOM, IIC, IPMMU, MCU, PORT, RFSO, SPI, THS, WDG	-
Release Date	22 Jan, 2025	-

2.1.2 Environment

Table 2-2 Environment Information

Item	Name
Devices supported	R-Car V4M
Supported cores	Cortex-R52 CPU
Compiler	ARM Compiler 6.16.2
Operating environment	Renesas R-Car V4M Gray Hawk board
Initial Program Loader	ICUMX IPL Rev.1.55.0

2.2 Release Software

Table 2-3 Release Software information

Component Name	Version	Current Quality Grade	Target Quality Grade	Note
CAN	1.1.17	Beta	ASIL	-
CRC	1.0.10	Beta	ASIL	-
DIO	1.3.9	Beta	ASIL	-
EMM	1.0.12	Beta	ASIL	-
ETH	1.4.10	Beta	ASIL	-
FLS	1.1.11	Beta	QM	-
GPT	1.7.12	Beta	ASIL	-
ICCOM	1.1.11	Beta	ASIL	-
IIC	1.0.13	Beta	ASIL	-
IPMMU	1.0.9	Beta	ASIL	-
MCU	1.1.18	Beta	ASIL	-
PORT	1.1.14	Beta	ASIL	-
RFSO	1.0.8	Beta	ASIL	-
SPI	1.5.12	Beta	ASIL	-
THS	1.0.9	Beta	ASIL	-
WDG	1.4.6	Beta	ASIL	-

2.2.1 COMMON

2.2.1.1 Target Info

Table 2-4 COMMON module target information

Module	COMMON
Module Overview	R-CarS4_V4H_V4M_MCAL_ModuleOverview.pdf
Getting Started	r11uz0309ej0201-rcarv4m-mcal-gs.pdf
Embedded User's Manual	r11uz0306ej0010-rcarv4m-mcal-eum.pdf
Tool User's Manual	r11uz0307ej0012-rcarv4m-mcal-tum.pdf
Appendix	r11uz0310ej0002-rcarv4m-mcal-apx.pdf

2.2.1.2 Release Item

Table 2-5 COMMON module release item

Filename	**Previous version (CY24 CW52)**	**Current version (CY25 CW04)**	**Change Description**
Sample Common File Header for V4M (rel\V4M\common_family\include\arm)			
device_cfg.h	1.0.0	1.0.0	No change.
Interrupt_Cfg.h	1.0.1	1.0.1	No change.
Interrupt_VectorTable.h	1.0.0	1.0.0	No change.
RCar_V4M_0.h	1.0.4	1.0.4	No change.
RCar_FuSa.h	1.0.0	1.0.0	No change.
Sample Common File Source for V4M (rel\V4M\common_family\src\arm)			
device_cfg.c	1.0.0	1.0.0	No change.
Interrupt_VectorTable.c	1.0.0	1.0.0	No change.
RCar_FuSa.c	1.0.0	1.0.0	No change.
Translation Header File for V4M (rel\V4M\common_family\generator\arm)			
V4M_translation.h	1.0.4	1.0.4	No change.
Sample_Application_V4M.trxml	1.0.0	1.0.0	No change.
Sample Common File Header for RCar (rel\common\generic\include\19_11)			
Platform_Types.h	1.0.0	1.0.0	No change.
Sample Common File Header for RCar (rel\common\generic\include\common)			
log.h	1.0.0	1.0.0	No change.
scif.h	1.0.0	1.0.0	No change.
Sample Common File Header for RCar (rel\common\generic\include\common\arm)			
arm_cr.h	1.0.3	1.0.3	No change.
arm_cr_cp15.h	1.0.0	1.0.0	No change.
arm_cr_mpu.h	1.0.0	1.0.0	No change.
arm_cr_reg.h	1.0.0	1.0.0	No change.
arm_gic.h	1.0.1	1.0.1	No change.
Interrupt.h	1.0.1	1.0.1	No change.
utils.h	1.0.0	1.0.0	No change.
Sample Common File Source for RCar (rel\common\generic\src)			
log.c	1.0.0	1.0.0	No change.
scif.c	1.0.2	1.0.2	No change.

Sample Common File Source for RCar (rel\common\generic\src\arm)			
Interrupt.c	1.0.1	1.0.1	No change.
rcar_cfg.c	1.0.2	1.0.2	No change.
start.s	1.0.3	1.0.3	No change.
startup.c	1.0.1	1.0.1	No change.
Sample Common Type File Header for AUTOSAR (common\include\19_11)			
ComStack_Cfg.h	1.0.0	1.0.0	No change.
ComStack_Types.h	1.0.0	1.0.0	No change.
Std_Types.h	1.0.0	1.0.0	No change.
Sample Compiler Header File for V4M (rel\common\generic\compiler\common\arm\include)			
Compiler.h	1.0.4	1.0.4	No change.
Sample Compiler Config Header File for V4M (rel\common\generic\compiler\common\arm\include)			
Compiler_Cfg.h	1.0.6	1.0.6	No change.
Sample Compiler Config Header File Dep for V4M (rel\common\generic\compiler\common\arm\include\cfg)			
Compiler_Cfg_dep.h	1.0.0	1.0.0	No change.
Sample MemMap File – ARM Compiler (rel\common\generic\compiler\19_11\arm\include)			
MemMap_dep.h	1.0.0	1.0.0	No change.
Common Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Common_MemMap.h	1.0.1	1.0.1	No change.
FuSa_MemMap.h	1.0.0	1.0.0	No change.
Generation File (rel\common\generic\generator)			
MCALConfGen.exe	1.2.3	1.2.3	No change.
Stub File (rel\common\generic\stubs\19_11)			
Stubs files for DET, DEM, OS, RTE, <Msn>If, etc.	-	-	-
Module User Manual File (rel/V4M/common_family/docs/user_manual/V4M)			
r11uz0306ej0010-rcarv4m-mcal-eum.pdf	0.09	0.10	Cover, footer and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1.1 2.Reference Documents: - Update references version at Table 2.1 Reference Documents(1/2). 10. ICCOM: - Section 10.2.2: Add information about deinitialization when using Low Power Mode.
r11uz0307ej0012-rcarv4m-mcal-tum.pdf	0.11	0.12	Cover, footer and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1-1, 1-2 - Update Version in Table 1-2. 2.Reference Documents - Update references version at Table 2.1 Reference Documents(1/2).

Appendix File (rel/V4M/common_family/docs/appendix/V4M)			
r11uz0310ej0002-rcarv4m-mcal-apx.pdf	0.02	0.02	No change.
Common User Manual File (rel\common\generic\docs)			
R-CarS4_V4H_V4M_MCAL_ModuleOverview.pdf	2.16	2.17	Cover, footer and colophon: - Update Rev and issue date. Chapter 2. Reference documents: -Update version of reference documents Chapter 5: Section 5.1 Products: - Update MCAL Product Release Version for R-CAR/V4M.
r11uz0309ej0201-rcarv4m-mcal-gs.pdf	2.01	2.01	No change.

2.2.2 CAN

2.2.2.1 Target Info

Table 2-6 CAN module target information

Module	**CAN**
Software Version	1.1.17

2.2.2.2 Release Item

Table 2-7 CAN module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Can_MemMap.h	1.1.10	1.1.10	No change.
Configuration File (rel\modules\can\sample_application\V4M\19_11\config)			
App_CAN_V4M_Sample.arxml	-	-	No change.
RCar_CAN_008.arxml	-	-	No change.
RCar_CAN_014.arxml	-	-	No change.
RCar_CAN_001.arxml	-	-	No change.
RCar_CAN_RC_002.arxml	-	-	No change.
RCar_CAN_009.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
Can.cfgxml	1.3.1	1.3.1	No change.
CanRCAR.dll	1.0.15	1.0.15	No change.
Module Description File (rel\modules\can\generator\V4M)			
R1911_CAN_V4M_BSWMDT.arxml	1.1.17	1.1.17	No change.
Definition File (rel\modules\can\definition\19_11\V4M)			
R1911_CAN_V4M.arxml	1.1.15	1.1.15	No change.
Sample Application Source File (rel\modules\can\sample_application\src)			
App_CAN_Common_Sample.c	1.1.15	1.1.15	No change.
Sample Application Header File (rel\modules\can\sample_application\include)			
App_Can_Common_Sample.h	1.0.5	1.0.5	No change.
V4M Specific Sample Application Source File (rel\modules\can\sample_application\V4M\src\arm)			
App_CAN_V4M_Sample.c	1.1.14	1.1.14	No change.
V4M Specific Sample Application Header File (rel\modules\can\sample_application\V4M\include\arm)			
App_CAN_Device_Sample.h	1.1.14	1.1.14	No change.
Source File (rel\modules\can\src)			
Can.c	1.1.17	1.1.17	No change.
Can_Icom.c	1.1.15	1.1.15	No change.
Can_Irq.c	1.1.15	1.1.15	No change.
Can_MainServ.c	1.1.15	1.1.15	No change.
Can_ModeCntrl.c	1.1.15	1.1.15	No change.
Can_Ram.c	1.1.8	1.1.8	No change.
Can_RamTest.c	1.1.15	1.1.15	No change.
Can_Version.c	1.1.2	1.1.2	No change.
Can_Write.c	1.1.8	1.1.8	No change.

Header File (rel\modules\can\include)			
Can.h	1.1.17	1.1.17	No change.
Can_CommonRegStruct.h	1.1.14	1.1.14	No change.
Can_Icom.h	1.1.9	1.1.9	No change.
Can_Irq.h	1.1.15	1.1.15	No change.
Can_LTTypes.h	1.1.15	1.1.15	No change.
Can_MainServ.h	1.1.14	1.1.14	No change.
Can_ModeCntrl.h	1.1.6	1.1.6	No change.
Can_PBTypes.h	1.1.8	1.1.8	No change.
Can_Ram.h	1.1.8	1.1.8	No change.
Can_Version.h	1.1.14	1.1.14	No change.
Specific Header File (rel\modules\can\include\V4M)			
Can_RegStruct.h	1.1.16	1.1.16	No change.

2.2.3 CRC

2.2.3.1 Target Info

Table 2-8 CRC module target information

Module	CRC
Software Version	1.0.10

2.2.3.2 Release Item

Table 2-9 CRC module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
CddCrc_MemMap.h	1.0.2	1.0.2	No change.
Configuration File (rel\modules\cddcrc\sample_application\V4M\19_11\config)			
App_CDD_CRC_V4M_Sample.arxml	-	-	No change.
RCar_CddCrc_003.arxml	-	-	No change.
RCar_CddCrc_001.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
CddCrc.cfgxml	1.0.0	1.0.0	No change.
CddCrcRCAR.dll	1.0.6	1.0.6	No change.
Module Description File (rel\modules\cddcrc\generator\V4M)			
R1911_CDD_CRC_V4M_BSWMDT.arxml	1.0.1	1.0.1	No change.
Definition File (rel\modules\cddcrc\definition\19_11\V4M)			
R1911_CDD_CRC_V4M.arxml	1.0.0	1.0.0	No change.
Sample Application Source File (rel\modules\cddcrc\sample_application\src)			
App_CDD_CRC_Common_Sample.c	1.0.8	1.0.8	No change.
Sample Application Header File (rel\modules\cddcrc\sample_application\include)			
App_CDD_CRC_Common_Sample.h	1.0.0	1.0.0	No change.
V4M Specific Sample Application Source File (rel\modules\cddcrc\sample_application\V4M\src\arm)			
App_CDD_CRC_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\cddcrc\sample_application\V4M\include\arm)			
App_CDD_CRC_V4M_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\cddcrc\src)			
CDD_Crc.c	1.0.6	1.0.6	No change.
CDD_Crc_Irq.c	1.0.10	1.0.10	No change.
CDD_Crc_Ram.c	1.0.8	1.0.8	No change.
CDD_Crc_Version.c	1.0.8	1.0.8	No change.
Source File (rel\modules\cddcrc\src\CRC)			
CDD_Crc_LLDriver.c	1.0.8	1.0.8	No change.
Source File (rel\modules\cddcrc\src\KCRC)			
CDD_Crc_KCRC_LLDriver.c	1.0.8	1.0.8	No change.
Source File (rel\modules\cddcrc\src\WCRC)			
CDD_Crc_WCRC_LLDriver.c	1.0.8	1.0.8	No change.

Header File (rel\modules\cddcrc\include)			
CDD_Crc.h	1.0.10	1.0.10	No change.
CDD_Crc_Irq.h	1.0.10	1.0.10	No change.
CDD_Crc_PBTypes.h	1.0.7	1.0.7	No change.
CDD_Crc_Ram.h	1.0.6	1.0.6	No change.
CDD_Crc_RegAccess.h	1.0.1	1.0.1	No change.
CDD_Crc_Types.h	1.0.2	1.0.2	No change.
CDD_Crc_Version.h	1.0.0	1.0.0	No change.
Header File (rel\modules\cddcrc\include\CRC)			
CDD_Crc_LLDriver.h	1.0.0	1.0.0	No change.
Header File (rel\modules\cddcrc\include\KCRC)			
CDD_Crc_KCRC_LLDriver.h	1.0.1	1.0.1	No change.
Header File (rel\modules\cddcrc\include\WCRC)			
CDD_Crc_WCRC_LLDriver.h	1.0.6	1.0.6	No change.

2.2.4 DIO

2.2.4.1 Target Info

Table 2-10 DIO module target information

Module	DIO
Software Version	1.3.9

2.2.4.2 Release Item

Table 2-11 DIO module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Dio_MemMap.h	1.3.8	1.3.8	No change.
Configuration File (rel\modules\dio\sample_application\V4M\19_11\config)			
App_DIO_V4M_Sample.arxml	-	-	No change.
RCar_Dio_008.arxml	-	-	No change.
RCar_Dio_007.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
Dio.cfgxml	1.0.1	1.0.1	No change.
DioRCAR.dll	1.0.8	1.0.8	No change.
Module Description File (rel\modules\dio\generator\V4M)			
R1911_DIO_V4M_BSWMDT.arxml	1.0.0	1.0.0	No change.
Definition File (rel\modules\dio\definition\19_11\V4M)			
R1911_DIO_V4M.arxml	1.0.0	1.0.0	No change.
V4M Specific Sample Application Source File (rel\modules\dio\sample_application\V4M\src\arm)			
App_DIO_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\dio\sample_application\V4M\include\arm)			
App_DIO_V4M_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\dio\src)			
Dio.c	1.3.8	1.3.8	No change.
Dio_Version.c	1.3.7	1.3.7	No change.
Source File (rel\modules\dio\src\PFC)			
Dio_PFC_LLDriver.c	1.3.8	1.3.8	No change.
Header File (rel\modules\dio\include)			
Dio.h	1.3.9	1.3.9	No change.
Dio_LTTypes.h	1.3.7	1.3.7	No change.
Dio_Version.h	1.3.1	1.3.1	No change.
Header File (rel\modules\dio\include\PFC)			
Dio_PFC_LLDriver.h	1.3.8	1.3.8	No change.

2.2.5 EMM

2.2.5.1 Target Info

Table 2-12 EMM module target information

Module	EMM
Software Version	1.0.12

2.2.5.2 Release Item

Table 2-13 EMM module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
CddEmm_MemMap.h	1.0.1	1.0.1	No change.
Configuration File (rel\modules\cddemm\sample_application\V4M\19_11\config)			
App_CDD_EMM_V4M_Sample.arxml	-	-	No change.
RCar_CddEmm_018.arxml	-	-	No change.
RCar_CddEmm_019.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
CddEmm.cfgxml	-	-	No change.
CddEmmRCAR.dll	1.0.13	1.0.13	No change.
Module Description File (rel\modules\cddemm\generator\V4M)			
R1911_CDD_EMM_V4M_BSWMDT.arxml	1.0.12	1.0.12	No change.
Module Description File (rel\modules\cddemm\description\V4M)			
R1911_CDD_EMM_V4M_BSWMD.arxml	1.0.12	1.0.12	No change.
R1911_CDD_EMM_V4M_DataTypes.arxml	1.0.10	1.0.10	No change.
R1911_CDD_EMM_V4M_Interfaces.arxml	1.0.10	1.0.10	No change.
R1911_CDD_EMM_V4M_SWCD.arxml	1.0.10	1.0.10	No change.
Definition File (rel\modules\cddemm\definition\19_11\V4M)			
R1911_CDD_EMM_V4M.arxml	1.0.12	1.0.12	No change.
Sample Application Source File (rel\modules\cddemm\sample_application\src)			
App_CDD_EMM_Common_Sample.c	1.0.12	1.0.12	No change.
Sample Application Header File (rel\modules\cddemm\sample_application\include)			
App_CDD_EMM_Common_Sample.h	1.0.1	1.0.1	No change.
V4M Specific Sample Application Source File (rel\modules\cddemm\sample_application\V4M\src\arm)			
App_CDD_EMM_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\cddemm\sample_application\V4M\include\arm)			
App_CDD_EMM_V4M_Sample.h	1.0.0	1.0.0	No change.

Source File (rel\modules\cddemm\src)			
CDD_Emm.c	1.0.11	1.0.11	No change.
CDD_Emm_Internal.c	1.0.11	1.0.11	No change.
CDD_Emm_Irq.c	1.0.9	1.0.9	No change.
CDD_Emm_Ram.c	1.0.11	1.0.11	No change.
CDD_Emm_Version.c	1.0.5	1.0.5	No change.
Header File (rel\modules\cddemm\include)			
CDD_Emm.h	1.0.12	1.0.12	No change.
CDD_Emm_Internal.h	1.0.9	1.0.9	No change.
CDD_Emm_Irq.h	1.0.9	1.0.9	No change.
CDD_Emm_PBTypes.h	1.0.11	1.0.11	No change.
CDD_Emm_Ram.h	1.0.11	1.0.11	No change.
CDD_Emm_RegReadWrite.h	1.0.9	1.0.9	No change.
CDD_Emm_Types.h	1.0.11	1.0.11	No change.
CDD_Emm_Version.h	1.0.5	1.0.5	No change.

2.2.6 ETH

2.2.6.1 Target Info

Table 2-14 ETH module target information

Module	ETH
Software Version	1.4.10

2.2.6.2 Release Item

Table 2-15 ETH module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Eth_MemMap.h	1.0.2	1.0.2	No change.
Configuration File (rel\modules\eth\sample_application\V4M\19_11\config)			
App_ETH_V4M_Sample.arxml	-	-	No change.
RCar_Eth_011.arxml	-	-	No change.
RCar_Eth_012.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
Eth.cfgxml	1.2.1	1.2.1	No change.
EthRCar.dll	1.1.2	1.1.2	No change.
Module Description File (rel\modules\eth\generator\V4M)			
R1911_ETH_V4M_BSWMDT.arxml	1.0.0	1.0.0	No change.
Definition File (rel\modules\eth\definition\19_11\V4M)			
R1911_ETH_V4M.arxml	1.0.0	1.0.0	No change.
Sample Application Source File (rel\modules\eth\sample_application\src)			
App_ETH_Common_Sample.c	1.4.6	1.4.6	No change.
Sample Application Header File (rel\modules\eth\sample_application\include)			
App_ETH_Common_Sample.h	1.4.2	1.4.2	No change.
V4M Specific Sample Application Source File (rel\modules\eth\sample_application\V4M\src\arm)			
App_ETH_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\eth\sample_application\V4M\include)			
App_ETH_Device_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\eth\src)			
Eth.c	1.4.10	1.4.10	No change.
Eth_Filter.c	1.4.10	1.4.10	No change.
Eth_Util.c	1.4.10	1.4.10	No change.
Eth_Version.c	1.4.2	1.4.2	No change.
Source File (rel\modules\eth\src\AVB)			
Eth_AVB_Dma.c	1.4.10	1.4.10	No change.
Eth_AVB_Irq.c	1.4.10	1.4.10	No change.
Eth_AVB_LLDriver.c	1.4.10	1.4.10	No change.
Eth_AVB_Ram.c	1.4.10	1.4.10	No change.

Header File (rel\modules\eth\include)			
Eth.h	1.4.10	1.4.10	No change.
Eth_Common_LLDriver.h	1.4.7	1.4.7	No change.
Eth_Filter.h	1.4.3	1.4.3	No change.
Eth_Types.h	1.4.7	1.4.7	No change.
Eth_Util.h	1.4.7	1.4.7	No change.
Eth_Version.h	1.4.2	1.4.2	No change.
Header File (rel\modules\eth\include\AVB)			
Eth_AVB_Dma.h	1.4.10	1.4.10	No change.
Eth_AVB_Irq.h	1.4.10	1.4.10	No change.
Eth_AVB_LLDriver.h	1.4.10	1.4.10	No change.
Eth_AVB_Ram.h	1.4.10	1.4.10	No change.

2.2.7 FLS

2.2.7.1 Target Info

Table 2-16 FLS module target information

Module	FLS
Software Version	1.1.11

2.2.7.2 Release Item

Table 2-17 FLS module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Fls_MemMap.h	1.1.8	1.1.8	No change.
Configuration File (rel\modules\fls\sample_application\V4M\19_11\config)			
App_FLS_V4M_Sample.arxml	-	-	No change.
RCar_Fls_124.arxml	-	-	No change.
RCar_Fls_138.arxml	-	-	No change.
RCar_Fls_123.arxml	-	-	No change.
RCar_Fls_140.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
Fls.cfgxml	1.0.0	1.0.0	No change.
FlsRCAR.dll	1.0.12	1.0.12	No change.
Module Description File (rel\modules\fls\generator\V4M)			
R1911_FLS_V4M_BSWMDT.arxml	1.1.11	1.1.11	No change.
Definition File (rel\modules\fls\definition\19_11\V4M)			
R1911_FLS_V4M.arxml	1.0.0	1.0.0	No change.
Sample Application Source File (rel\modules\fls\sample_application\src)			
App_FLS_Common_Sample.c	1.1.10	1.1.10	No change.
Sample Application Header File (rel\modules\fls\sample_application\include)			
App_FLS_Common_Sample.h	1.1.7	1.1.7	No change.
V4M Specific Sample Application Source File (rel\modules\fls\sample_application\V4M\src)			
App_FLS_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\fls\sample_application\V4M\include)			
App_FLS_Device_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\fls\src)			
Fls.c	1.1.10	1.1.10	No change.
Fls_Control.c	1.1.10	1.1.10	No change.
Fls_LLDriver.c	1.1.11	1.1.11	No change.
Fls_Ram.c	1.1.8	1.1.8	No change.
Fls_Version.c	1.1.7	1.1.7	No change.

Header File (rel\modules\fls\include)			
Fls.h	1.1.11	1.1.11	No change.
Fls_Control.h	1.1.8	1.1.8	No change.
Fls_LLDriver.h	1.1.11	1.1.11	No change.
Fls_PBTypes.h	1.1.8	1.1.8	No change.
Fls_Ram.h	1.1.8	1.1.8	No change.
Fls_RegReadWrite.h	1.1.8	1.1.8	No change.
Fls_RpcRegValue.h	1.1.3	1.1.3	No change.
Fls_Types.h	1.1.7	1.1.7	No change.
Fls_Version.h	1.1.7	1.1.7	No change.

2.2.8 GPT

2.2.8.1 Target Info

Table 2-18 GPT module target information

Module	GPT
Software Version	1.7.12

2.2.8.2 Release Item

Table 2-19 GPT module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Gpt_MemMap.h	1.3.2	1.3.2	No change.
Configuration File (rel\modules\gpt\sample_application\V4M\19_11\config)			
App_GPT_V4M_Sample.arxml	-	-	No change.
RCar_Gpt_013.arxml	-	-	No change.
RCar_Gpt_014.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
Gpt.cfgxml	1.0.1	1.0.1	No change.
GptRCAR.dll	1.0.10	1.0.10	No change.
Module Description File (rel\modules\gpt\generator\V4M)			
R1911_GPT_V4M_BSWMDT.arxml	1.0.0	1.0.0	No change.
Definition File (rel\modules\gpt\definition\19_11\V4M)			
R1911_GPT_V4M.arxml	1.0.0	1.0.0	No change.
Sample Application Source File (rel\modules\gpt\sample_application\src)			
App_GPT_Common_Sample.c	1.7.12	1.7.12	No change.
Sample Application Header File (rel\modules\gpt\sample_application\include)			
App_GPT_Common_Sample.h	1.0.0	1.0.0	No change.
V4M Specific Sample Application Source File (rel\modules\gpt\sample_application\V4M\src\arm)			
App_GPT_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\gpt\sample_application\V4M\include\arm)			
App_GPT_Device_Sample.h	1.0.0	1.0.0	No change.
App_GPT_V4M_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\gpt\src)			
Gpt.c	1.7.12	1.7.12	No change.
Gpt_Ram.c	1.7.9	1.7.9	No change.
Gpt_Version.c	1.5.0	1.5.0	No change.
Source File (rel\modules\gpt\src\HWIP\TMU)			
Gpt_TMU_Irq.c	1.7.12	1.7.12	No change.
Gpt_TMU_LLDriver.c	1.7.12	1.7.12	No change.
Gpt_TMU_Ram.c	1.7.9	1.7.9	No change.

Header File (rel\modules\gpt\include)			
Gpt.h	1.7.12	1.7.12	No change.
Gpt_MultiInstance.h	1.3.0	1.3.0	No change.
Gpt_PBTypes.h	1.7.11	1.7.11	No change.
Gpt_Ram.h	1.7.11	1.7.11	No change.
Gpt_Types.h	1.7.11	1.7.11	No change.
Gpt_Version.h	1.7.11	1.7.11	No change.
Header File (rel\modules\gpt\include\HWIP\TMU)			
Gpt_TMU_Irq.h	1.7.11	1.7.11	No change.
Gpt_TMU_LLDriver.h	1.7.11	1.7.11	No change.
Gpt_TMU_PBTypes.h	1.7.11	1.7.11	No change.
Gpt_TMU_Ram.h	1.7.11	1.7.11	No change.

2.2.9 ICCOM

2.2.9.1 Target Info

Table 2-20 ICCOM module target information

Module	ICCOM
Software Version	1.1.11

2.2.9.2 Release Item

Table 2-21 ICCOM module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
CddIccom_MemMap.h	1.1.9	1.1.9	No change.
Configuration File (rel\modules\cddiccom\sample_application\V4M\19_11\config)			
App_CDD_ICCOM_V4M_Sample.arxml	-	-	No change.
RCar_CddIccom_092.arxml	-	-	No change.
RCar_CddIccom_091.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
CddIccom.cfgxml	-	-	No change.
CddIccomRCAR.dll	1.0.12	1.0.12	No change.
Module Description File (rel\modules\cddiccom\generator\V4M)			
R1911_CDD_ICCOM_V4M_BSWMDT.arxml	1.1.11	1.1.11	No change.
Module Description File (rel\modules\cddiccom\description\V4M)			
R1911_CDD_ICCOM_V4M_BSWMD.arxml	1.1.11	1.1.11	No change.
R1911_CDD_ICCOM_V4M_DataTypes.arxml	1.0.0	1.0.0	No change.
R1911_CDD_ICCOM_V4M_Interfaces.arxml	1.0.0	1.0.0	No change.
R1911_CDD_ICCOM_V4M_SwcBswMap.arxml	1.0.0	1.0.0	No change.
R1911_CDD_ICCOM_V4M_SWCD.arxml	1.0.0	1.0.0	No change.
Definition File (rel\modules\cddiccom\definition\19_11\V4M)			
R1911_CDD_ICCOM_V4M.arxml	1.1.11	1.1.11	No change.
Sample Application Source File (rel\modules\cddiccom\sample_application\src)			
App_CDD_ICCOM_Common_Sample.c	1.1.12	1.1.12	No change.
Sample Application Header File (rel\modules\cddiccom\sample_application\include)			
App_CDD_ICCOM_Common_Sample.h	1.1.5	1.1.5	No change.
V4M Specific Sample Application Source File (rel\modules\cddiccom\sample_application\V4M\src\arm)			
App_CDD_ICCOM_V4M_Sample.c	1.0.0	1.0.0	No change.

V4M Specific Sample Application Header File (rel\modules\cddiccom\sample_application\V4M\include\arm)			
App_CDD_ICCOM_V4M_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\cddiccom\src)			
CDD_Iccom.c	1.1.10	1.1.10	No change.
CDD_Iccom_MainServ.c	1.1.11	1.1.11	No change.
CDD_Iccom_Ram.c	1.1.8	1.1.8	No change.
CDD_Iccom_Version.c	1.1.10	1.1.10	No change.
Source File (rel\modules\cddiccom\src\MFIS)			
CDD_Iccom_MFIS_Irq.c	1.1.10	1.1.10	No change.
CDD_Iccom_MFIS_LLDriver.c	1.1.10	1.1.10	No change.
Header File (rel\modules\cddiccom\include)			
CDD_Iccom.h	1.1.11	1.1.11	No change.
CDD_Iccom_MainServ.h	1.1.5	1.1.5	No change.
CDD_Iccom_PBTypes.h	1.1.11	1.1.11	No change.
CDD_Iccom_Ram.h	1.1.8	1.1.8	No change.
CDD_Iccom_Types.h	1.1.11	1.1.11	No change.
CDD_Iccom_Version.h	1.1.5	1.1.5	No change.
Header File (rel\modules\cddiccom\include\MFIS)			
CDD_Iccom_MFIS_Irq.h	1.1.5	1.1.5	No change.
CDD_Iccom_MFIS_LLDriver.h	1.1.5	1.1.5	No change.

2.2.10 IIC

2.2.10.1 Target Info

Table 2-22 IIC module target information

Module	IIC
Software Version	1.0.13

2.2.10.2 Release Item

Table 2-23 IIC module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
CddIic_MemMap.h	1.0.1	1.0.1	No change.
Configuration File (rel\modules\cddiic\sample_application\V4M\19_11\config)			
App_CDD_IIC_V4M_Sample.arxml	-	-	No change.
RCar_CddIic_148.arxml	-	-	No change.
RCar_CddIic_144.arxml	-	-	No change.
RCar_CddIic_143.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
CddIic.cfgxml	1.0.0	1.0.0	No change.
CddIicRCAR.dll	1.0.10	1.0.10	No change.
Module Description File (rel\modules\cddiic\generator\V4M)			
R1911_CDD_IIC_V4M_BSWMDT.arxml	1.0.0	1.0.0	No change.
Module Description File (rel\modules\cddiic\description\V4M)			
R1911_CDD_IIC_V4M_BSWMD.arxml	1.0.0	1.0.0	No change.
R1911_CDD_IIC_V4M_Interfaces.arxml	1.0.0	1.0.0	No change.
Definition File (rel\modules\cddiic\definition\19_11\V4M)			
R1911_CDD_IIC_V4M.arxml	1.0.0	1.0.0	No change.
Sample Application Source File (rel\modules\cddiic\sample_application\src)			
App_CDD_IIC_Common_Sample.c	1.0.13	1.0.13	No change.
Sample Application Header File (rel\modules\cddiic\sample_application\include)			
App_CDD_IIC_Common_Sample.h	1.0.12	1.0.12	No change.
V4M Specific Sample Application Source File (rel\modules\cddiic\sample_application\V4M\src\arm)			
App_CDD_IIC_V4M_Sample.c	1.0.1	1.0.1	No change.
V4M Specific Sample Application Header File (rel\modules\cddiic\sample_application\V4M\include\arm)			
App_CDD_IIC_V4M_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\cddiic\src)			
CDD_Iic.c	1.0.12	1.0.12	No change.
CDD_Iic_Ram.c	1.0.12	1.0.12	No change.
CDD_Iic_Version.c	1.0.12	1.0.12	No change.

Source File (rel\modules\cddiic\src\IIC)			
CDD_Iic_HalDriver.c	1.0.12	1.0.12	No change.
CDD_Iic_Internal.c	1.0.12	1.0.12	No change.
CDD_Iic_Irq.c	1.0.12	1.0.12	No change.
Header File (rel\modules\cddiic\include)			
CDD_Iic.h	1.0.13	1.0.13	No change.
CDD_Iic_PBTypes.h	1.0.12	1.0.12	No change.
CDD_Iic_Ram.h	1.0.12	1.0.12	No change.
CDD_Iic_Types.h	1.0.13	1.0.13	No change.
CDD_Iic_Version.h	1.0.12	1.0.12	No change.
Header File (rel\modules\cddiic\include\IIC)			
CDD_Iic_HalDriver.h	1.0.12	1.0.12	No change.
CDD_Iic_Internal.h	1.0.12	1.0.12	No change.
CDD_Iic_Irq.h	1.0.12	1.0.12	No change.

2.2.11 IPMMU

2.2.11.1 Target Info

Table 2-24 IPMMU module target information

Module	IPMMU
Software Version	1.0.9

2.2.11.2 Release Item

Table 2-25 IPMMU module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
CddIpmmu_MemMap.h	1.0.1	1.0.1	No change.
Configuration File (rel\modules\cddipmmu\sample_application\V4M\19_11\config)			
App_CDD_IPMMU_V4M_Sample.arxml	-	-	No change.
RCar_CddIpmmu_041.arxml	-	-	No change.
RCar_CddIpmmu_040.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
CddIpmmu.cfgxml	-	-	No change.
CddIpmmuRCAR.dll	1.0.9	1.0.9	No change.
Module Description File (rel\modules\cddipmmu\generator\V4M)			
R1911_CDD_IPMMU_V4M_BSWMDT.arxml	1.0.0	1.0.0	No change.
Module Description File (rel\modules\cddipmmu\description\V4M)			
R1911_CDD_IPMMU_V4M_BSWMD.arxml	1.0.0	1.0.0	No change.
R1911_CDD_IPMMU_V4M_DataTypes.arxml	1.0.0	1.0.0	No change.
R1911_CDD_IPMMU_V4M_Interfaces.arxml	1.0.0	1.0.0	No change.
R1911_CDD_IPMMU_V4M_SWCD.arxml	1.0.0	1.0.0	No change.
Definition File (rel\modules\cddipmmu\definition\19_11\V4M)			
R1911_CDD_IPMMU_V4M.arxml	1.0.1	1.0.1	No change.
Sample Application Source File (rel\modules\cddipmmu\sample_application\src)			
App_CDD_IPMMU_Common_Sample.c	1.0.4	1.0.4	No change.
Sample Application Header File (rel\modules\cddipmmu\sample_application\include)			
App_CDD_IPMMU_Common_Sample.h	1.0.0	1.0.0	No change.
V4M Specific Sample Application Source File (rel\modules\cddipmmu\sample_application\V4M\src\arm)			
App_CDD_IPMMU_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\cddipmmu\sample_application\V4M\include\arm)			
App_CDD_IPMMU_V4M_Sample.h	1.0.0	1.0.0	No change.

Source File (rel\modules\cddipmmu\src)			
CDD_Ipmmu.c	1.0.5	1.0.5	No change.
CDD_Ipmmu_Ctr.c	1.0.9	1.0.9	No change.
CDD_Ipmmu_Irq.c	1.0.9	1.0.9	No change.
CDD_Ipmmu_Ram.c	1.0.6	1.0.6	No change.
CDD_Ipmmu_Version.c	1.0.4	1.0.4	No change.
Header File (rel\modules\cddipmmu\include)			
CDD_Ipmmu.h	1.0.9	1.0.9	No change.
CDD_Ipmmu_Ctr.h	1.0.8	1.0.8	No change.
CDD_Ipmmu_Irq.h	1.0.3	1.0.3	No change.
CDD_Ipmmu_PBTypes.h	1.0.4	1.0.4	No change.
CDD_Ipmmu_Ram.h	1.0.4	1.0.4	No change.
CDD_Ipmmu_Reg.h	1.0.4	1.0.4	No change.
CDD_Ipmmu_Types.h	1.0.9	1.0.9	No change.
CDD_Ipmmu_Version.h	1.0.3	1.0.3	No change.

2.2.12 MCU

2.2.12.1 Target Info

Table 2-26 MCU module target information

Module	MCU
Software Version	1.1.18

2.2.12.2 Release Item

Table 2-27 MCU module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Mcu_MemMap.h	1.1.8	1.1.8	No change.
Configuration File (rel\modules\mcu\sample_application\V4M\19_11\config)			
App_MCU_V4M_Sample.arxml	-	-	No change.
RCar_Mcu_009.arxml	-	-	No change.
RCar_Mcu_017.arxml	-	-	No change.
RCar_Mcu_010.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
Mcu.cfgxml	1.3.1	1.3.1	No change.
McuRCAR.dll	1.1.18	1.1.18	No change.
Module Description File (rel\modules\mcu\generator\V4M)			
R1911_MCU_V4M_BSWMDT.arxml	1.1.18	1.1.18	No change.
Definition File (rel\modules\mcu\definition\19_11\V4M)			
R1911_MCU_V4M.arxml	1.1.18	1.1.18	No change.
V4M Specific Sample Application Source File (rel\modules\mcu\sample_application\V4M\src\arm)			
App_MCU_V4M_Sample.c	1.1.18	1.1.18	No change.
V4M Specific Sample Application Header File (rel\modules\mcu\sample_application\V4M\include\arm)			
App_MCU_V4M_Sample.h	1.1.18	1.1.18	No change.
Source File (rel\modules\mcu\src)			
Mcu.c	1.1.18	1.1.18	No change.
Mcu_Ram.c	1.1.18	1.1.18	No change.
Mcu_Version.c	1.1.6	1.1.6	No change.
Source File (rel\modules\mcu\src\CPG)			
Mcu_CPG_LLDriver.c	1.1.14	1.1.14	No change.
Source File (rel\modules\mcu\src\RAM)			
Mcu_RAM_LLDriver.c	1.1.15	1.1.15	No change.
Source File (rel\modules\mcu\src\RST)			
Mcu_RST_LLDriver.c	1.1.15	1.1.15	No change.
Source File (rel\modules\mcu\src\STB)			
Mcu_STB_LLDriver.c	1.1.18	1.1.18	No change.

Header File (rel\modules\mcu\include)			
Mcu.h	1.1.18	1.1.18	No change.
Mcu_PBTypes.h	1.1.8	1.1.8	No change.
Mcu_Ram.h	1.1.18	1.1.18	No change.
Mcu_Types.h	1.1.18	1.1.18	No change.
Mcu_Version.h	1.1.6	1.1.6	No change.
Header File (rel\modules\mcu\include\CPG)			
Mcu_CPG_LLDriver.h	1.1.13	1.1.13	No change.
Header File (rel\modules\mcu\include\RAM)			
Mcu_RAM_LLDriver.h	1.1.13	1.1.13	No change.
Header File (rel\modules\mcu\include\RST)			
Mcu_RST_LLDriver.h	1.1.13	1.1.13	No change.
Header File (rel\modules\mcu\include\STB)			
Mcu_STB_LLDriver.h	1.1.18	1.1.18	No change.

2.2.13 PORT

2.2.13.1 Target Info

Table 2-28 PORT module target information

Module	PORT
Software Version	1.1.14

2.2.13.2 Release Item

Table 2-29 PORT module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Port_MemMap.h	1.3.4	1.3.4	No change.
Configuration File (rel\modules\port\sample_application\V4M\19_11\config)			
App_PORT_V4M_Sample.arxml	-	-	No change.
RCar_Port_019.arxml	-	-	No change.
RCar_Port_014.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
Port.cfgxml	1.1.0	1.1.0	No change.
PortRCAR.dll	1.0.16	1.0.16	No change.
Module Description File (rel\modules\port\generator\V4M)			
R1911_PORT_V4M_BSWMDT.arxml	1.1.14	1.1.14	No change.
Definition File (rel\modules\port\definition\19_11\V4M)			
R1911_PORT_V4M.arxml	1.0.1	1.0.1	No change.
V4M Specific Sample Application Source File (rel\modules\port\sample_application\V4M\src\arm)			
App_PORT_V4M_Sample.c	1.0.2	1.0.2	No change.
V4M Specific Sample Application Header File (rel\modules\port\sample_application\V4M\include\arm)			
App_PORT_V4M_Sample.h	1.0.1	1.0.1	No change.
Source File (rel\modules\port\src)			
Port.c	1.1.14	1.1.14	No change.
Port_Ram.c	1.1.9	1.1.9	No change.
Port_Version.c	1.1.9	1.1.9	No change.
Source File (rel\modules\port\src\PFC)			
Port_PFC_LLDriver.c	1.1.14	1.1.14	No change.
Header File (rel\modules\port\include)			
Port.h	1.1.14	1.1.14	No change.
Port_PBTypes.h	1.1.9	1.1.9	No change.
Port_Ram.h	1.1.8	1.1.8	No change.
Port_Types.h	1.1.9	1.1.9	No change.
Port_Version.h	1.1.6	1.1.6	No change.
Header File (rel\modules\port\include\PFC)			
Port_PFC_LLDriver.h	1.1.9	1.1.9	No change.

2.2.14 RFSO

2.2.14.1 Target Info

Table 2-30 RFSO module target information

Module	RFSO
Software Version	1.0.8

2.2.14.2 Release Item

Table 2-31 RFSO module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
CddRfso_MemMap.h	1.0.1	1.0.1	No change.
Configuration File (rel\modules\cddrfso\sample_application\V4M\19_11\config)			
App_CDD_RFSO_V4M_Sample.arxml	-	-	No change.
RCar_Cddrfso_025.arxml	-	-	No change.
RCar_Cddrfso_011.arxml	-	-	No change.
RCar_Cddrfso_012.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
CddRfso.cfgxml	1.0.0	1.0.0	No change.
CddRfsoRCAR.dll	1.0.7	1.0.7	No change.
Module Description File (rel\modules\cddrfso\generator\V4M)			
R1911_CDD_RFSO_V4M_BSWMDT.arxml	1.0.0	1.0.0	No change.
Module Description File (rel\modules\cddrfso\description\V4M)			
R1911_CDD_RFSO_V4M_BSWMD.arxml	1.0.0	1.0.0	No change.
R1911_CDD_RFSO_V4M_DataTypes.arxml	1.0.0	1.0.0	No change.
R1911_CDD_RFSO_V4M_Interfaces.arxml	1.0.0	1.0.0	No change.
R1911_CDD_RFSO_V4M_SWCD.arxml	1.0.0	1.0.0	No change.
Definition File (rel\modules\cddrfso\definition\19_11\V4M)			
R1911_CDD_RFSO_V4M.arxml	1.0.0	1.0.0	No change.
Sample Application Source File (rel\modules\cddrfso\sample_application\src)			
App_CDD_RFSO_Common_Sample.c	1.0.4	1.0.4	No change.
Sample Application Header File (rel\modules\cddrfso\sample_application\include)			
App_CDD_RFSO_Common_Sample.h	1.0.0	1.0.0	No change.
V4M Specific Sample Application Source File (rel\modules\cddrfso\sample_application\V4M\src\arm)			
App_CDD_RFSO_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\cddrfso\sample_application\V4M\include\arm)			
App_CDD_RFSO_V4M_Sample.h	1.0.0	1.0.0	No change.

Source File (rel\modules\cddrfso\src)			
CDD_Rfso.c	1.0.9	1.0.9	No change.
CDD_Rfso_Ram.c	1.0.8	1.0.8	No change.
CDD_Rfso_Version.c	1.0.8	1.0.8	No change.
Source File (rel\modules\cddrfso\src\RFSO)			
CDD_Rfso_Ctr.c	1.0.9	1.0.9	No change.
CDD_Rfso_Irq.c	1.0.8	1.0.8	No change.
Header File (rel\modules\cddrfso\include)			
CDD_Rfso.h	1.0.8	1.0.8	No change.
CDD_Rfso_PBTypes.h	1.0.1	1.0.1	No change.
CDD_Rfso_Ram.h	1.0.1	1.0.1	No change.
CDD_Rfso_Reg.h	1.0.1	1.0.1	No change.
CDD_Rfso_Types.h	1.0.1	1.0.1	No change.
CDD_Rfso_Version.h	1.0.2	1.0.2	No change.
Header File (rel\modules\cddrfso\include\RFSO)			
CDD_Rfso_Ctr.h	1.0.8	1.0.8	No change.
CDD_Rfso_Irq.h	1.0.1	1.0.1	No change.

2.2.15 SPI

2.2.15.1 Target Info

Table 2-32 SPI module target information

Module	SPI
Software Version	1.5.12

2.2.15.2 Release Item

Table 2-33 SPI module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Spi_MemMap.h	1.5.7	1.5.7	No change.
Configuration File (rel\modules\spi\sample_application\V4M\19_11\config)			
App_SPI_V4M_Sample.arxml	-	-	No change.
RCar_Spi_067.arxml	-	-	No change.
RCar_Spi_060.arxml	-	-	No change.
RCar_Spi_061.arxml	-	-	No change.
RCar_Spi_003.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
Spi.cfgxml	1.2.0	1.2.0	No change.
SpiRCAR.dll	1.0.9	1.0.9	No change.
Module Description File (rel\modules\spi\generator\V4M)			
R1911_SPI_V4M_BSWMDT.arxml	1.5.12	1.5.12	No change.
Definition File (rel\modules\spi\definition\19_11\V4M)			
R1911_SPI_V4M.arxml	1.5.12	1.5.12	No change.
Sample Application Source File (rel\modules\spi\sample_application\src)			
App_SPI_Common_Sample.c	1.5.7	1.5.7	No change.
Sample Application Header File (rel\modules\spi\sample_application\include)			
App_SPI_Common_Sample.h	1.5.1	1.5.1	No change.
App_SPI_Cbk.h	1.2.0	1.2.0	No change.
V4M Specific Sample Application Source File (rel\modules\spi\sample_application\V4M\src)			
App_SPI_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\spi\sample_application\V4M\include)			
App_SPI_Device_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\spi\src)			
Spi.c	1.5.11	1.5.11	No change.
Spi_Ram.c	1.5.6	1.5.6	No change.
Spi_Scheduler.c	1.5.6	1.5.6	No change.
Spi_Version.c	1.5.7	1.5.7	No change.
Source File (rel\modules\spi\src\MSIOF)			
Spi_MSIOF_Irq.c	1.5.11	1.5.11	No change.
Spi_MSIOF_LLDriver.c	1.5.11	1.5.11	No change.
Source File (rel\modules\spi\src\SYSDMAC)			

Spi_SYSDMAC_Irq.c	1.5.7	1.5.7	No change.
Spi_SYSDMAC_LLDriver.c	1.5.6	1.5.6	No change.
Header File (rel\modules\spi\include)			
Spi.h	1.5.12	1.5.12	No change.
Spi_Irq.h	1.2.1	1.2.1	No change.
Spi_LTTypes.h	1.5.6	1.5.6	No change.
Spi_MultiInstance.h	1.5.3	1.5.3	No change.
Spi_PBTypes.h	1.5.7	1.5.7	No change.
Spi_Ram.h	1.5.6	1.5.6	No change.
Spi_RegWrite.h	1.5.5	1.5.5	No change.
Spi_Scheduler.h	1.2.2	1.2.2	No change.
Spi_Types.h	1.5.6	1.5.6	No change.
Spi_Version.h	1.2.1	1.2.1	No change.
Header File (rel\modules\spi\include\MSIOF)			
Spi_MSIOF_Irq.h	1.0.1	1.0.1	No change.
Spi_MSIOF_LLDriver.h	1.5.10	1.5.10	No change.
Header File (rel\modules\spi\include\SYSDMAC)			
Spi_SYSDMAC_Irq.h	1.0.0	1.0.0	No change.
Spi_SYSDMAC_LLDriver.h	1.0.2	1.0.2	No change.

2.2.16 THS

2.2.16.1 Target Info

Table 2-34 THS module target information

Module	THS
Software Version	1.0.9

2.2.16.2 Release Item

Table 2-35 THS module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
CddThs_MemMap.h	1.0.1	1.0.1	No change.
Configuration File (rel\modules\cddths\sample_application\V4M\19_11\config)			
App_CDD_THS_V4M_Sample.arxml	-	-	No change.
RCar_CddThs_030.arxml	-	-	No change.
RCar_CddThs_031.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
CddThs.cfgxml	1.0.0	1.0.0	No change.
CddThsRCAR.dll	1.0.3	1.0.3	No change.
Module Description File (rel\modules\cddths\generator\V4M)			
R1911_CDD_THS_V4M_BSWMDT.arxml	1.0.0	1.0.0	No change.
Module Description File (rel\modules\cddths\description\V4M)			
R1911_CDD_THS_V4M_BSWMD.arxml	1.0.0	1.0.0	No change.
R1911_CDD_THS_V4M_DataTypes.arxml	1.0.0	1.0.0	No change.
R1911_CDD_THS_V4M_Interfaces.arxml	1.0.0	1.0.0	No change.
R1911_CDD_THS_V4M_SWCD.arxml	1.0.0	1.0.0	No change.
Definition File (rel\modules\cddths\definition\19_11\V4M)			
R1911_CDD_THS_V4M.arxml	1.0.0	1.0.0	No change.
Sample Application Source File (rel\modules\cddths\sample_application\src)			
App_CDD_THS_Common_Sample.c	1.0.3	1.0.3	No change.
Sample Application Header File (rel\modules\cddths\sample_application\include)			
App_CDD_THS_Common_Sample.h	1.0.9	1.0.9	No change.
V4M Specific Sample Application Source File (rel\modules\cddths\sample_application\V4M\src\arm)			
App_CDD_THS_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\cddths\sample_application\V4M\include\arm)			
App_CDD_THS_V4M_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\cddths\src)			
CDD_Ths.c	1.0.10	1.0.10	No change.
CDD_Ths_Ram.c	1.0.5	1.0.5	No change.
CDD_Ths_Version.c	1.0.9	1.0.9	No change.
Source File (rel\modules\cddths\src\THS)			
CDD_Ths_THS_LLDriver.c	1.0.9	1.0.9	No change.

Header File (rel\modules\cddths\include)			
CDD_Ths.h	1.0.9	1.0.9	No change.
CDD_Ths_PBTypes.h	1.0.6	1.0.6	No change.
CDD_Ths_Ram.h	1.0.6	1.0.6	No change.
CDD_Ths_Types.h	1.0.4	1.0.4	No change.
CDD_Ths_Version.h	1.0.3	1.0.3	No change.
Header File (rel\modules\cddths\include\THS)			
CDD_Ths_THS_LLDriver.h	1.0.5	1.0.5	No change.

2.2.17 WDG

2.2.17.1 Target Info

Table 2-36 WDG module target information

Module	WDG
Software Version	1.4.6

2.2.17.2 Release Item

Table 2-37 WDG module release items

Filename	Previous version (CY24 CW52)	Current version (CY25 CW04)	Change Description
Module Sample MemMap File (rel\common\generic\compiler\19_11\arm\include)			
Wdg_MemMap.h	1.4.5	1.4.5	No change.
Configuration File (rel\modules\wdg\sample_application\V4M\19_11\config)			
App_WDG_V4M_Sample.arxml	-	-	No change.
RCAR_Wdg_030.arxml	-	-	No change.
RCAR_Wdg_029.arxml	-	-	No change.
Generation File (rel\common\generic\generator)			
Wdg.cfgxml	1.2.1	1.2.1	No change.
WdgRCAR.dll	1.0.6	1.0.6	No change.
Module Description File (rel\modules\wdg\generator\V4M)			
R1911_WDG_V4M_BSWMDT.arxml	1.0.0	1.0.0	No change.
Definition File (rel\modules\wdg\definition\19_11\V4M)			
R1911_WDG_V4M.arxml	1.0.0	1.0.0	No change.
Sample Application Source File (rel\modules\wdg\sample_application\src)			
App_WDG_Common_Sample.c	1.2.5	1.2.5	No change.
Sample Application Header File (rel\modules\wdg\sample_application\include)			
App_WDG_Common_Sample.h	1.2.2	1.2.2	No change.
V4M Specific Sample Application Source File (rel\modules\wdg\sample_application\V4M\src)			
App_WDG_V4M_Sample.c	1.0.0	1.0.0	No change.
V4M Specific Sample Application Header File (rel\modules\wdg\sample_application\V4M\include)			
App_WDG_Device_Sample.h	1.0.0	1.0.0	No change.
Source File (rel\modules\wdg\src)			
Wdg.c	1.4.6	1.4.6	No change.
Wdg_Ram.c	1.4.4	1.4.4	No change.
Wdg_Version.c	1.2.2	1.2.2	No change.
Source File (rel\modules\wdg\src\RWDT)			
Wdg_RWDT_LLDriver.c	1.4.6	1.4.6	No change.
Header File (rel\modules\wdg\include)			
Wdg.h	1.4.6	1.4.6	No change.
Wdg_MultiInstance.h	1.2.2	1.2.2	No change.
Wdg_PBTypes.h	1.4.2	1.4.2	No change.
Wdg_Ram.h	1.4.4	1.4.4	No change.
Wdg_Types.h	1.4.4	1.4.4	No change.
Wdg_Version.h	1.2.2	1.2.2	No change.

Header File (rel\modules\wdg\include\RWDT)			
Wdg_RWDT_LLDriver.h	1.4.3	1.4.3	No change.
Wdg_RWDT_PBTypes.h	1.4.3	1.4.3	No change.

2.3 Driver Component Makefile

The Makefile provided with the Driver Component consists of the GNU Make compatible script to build the Driver Component in case of any change in the configuration. It can be used in the upper-level Makefile (of the application) to link and build the final application executable.

2.4 Folder Structure

In this section, the folder structure of the Driver Component is explained.

- Top of Folder Structure

```
\---Install_destination
|  +---common
|  \---rel
|  |   +---common
|  |   +---modules
|  |   +---V4M
```

Figure 2-1 Top of Folder Structure

- common

```
\---Install_destination
|  +---common
|  |  +---include
|  |  |  \---<AR>
|  |  |         ComStack_Cfg.h
|  |  |         ComStack_Types.h
|  |  |         Std_Types.h
|  |  |
|  |  \---make
|  |     \---<AR>
|  |           autosartypes_r<AR>_defs.mak
|  |
```

Note <AR>: 19_11

Figure 2-2 common Folder Structure

- rel/common

```
\---Install_destination
|  \---rel
|  |  +---common
|  |  |  \---generic
|  |  |      +---compiler
|  |  |      |  +---<AR>
|  |  |      |  |  \---arm
|  |  |      |  |      +---include
|  |  |      |  |      |      <Msn>_MemMap.h
|  |  |      |  |      |      MemMap_dep.h
|  |  |      |  |      |
|  |  |      |  |      \---make
|  |  |      |  \---common
|  |  |      |      \---arm
|  |  |      |          +---include
|  |  |      |          |  |  Compiler.h
|  |  |      |          |  |  Compiler_Cfg.h
|  |  |      |          |  |
|  |  |      |          |  \---cfg
|  |  |      |          \---make
|  |  |      |                  arm_rcar_rules.mak
|  |  |      |
|  |  |      +---docs
|  |  |      |  +---Getting_Started
|  |  |      |  \---Module_Overview
|  |  |      +---generator
|  |  |      |  |  Generator Files
|  |  |      |
|  |  |      +---include
|  |  |      |  +---<AR>
|  |  |      |  |      Platform_Types.h
|  |  |      |  |
|  |  |      |  \---common
|  |  |      |      |  log.h
|  |  |      |      |  scif.h
|  |  |      |      |
|  |  |      |      \---arm
|  |  |      |              ARM core Header Files
|  |  |      |
|  |  |      +---make
|  |  |      |  +---<AR>
|  |  |      |  |      platformtypes_r<AR>_defs.mak
|  |  |      |  |
|  |  |      |  \---common
|  |  |      |          platformtypes_common_defs.mak
```

```
| | |     |
| | |     +---src
| | |     | |  log.c
| | |     | |  scif.c
| | |     | |
| | |     | \---arm
| | |     |         Interrupt.c
| | |     |         rcar_cfg.c
| | |     |         start.s
| | |     |        startup.c
| | |     |
| | |     \---stubs
| | |         \---<AR>
| | |             Stub Files
```

Note

<AR>: 19_11

<Msn>: Can, CddCrc, CddEmm, CddIccom, CddIic, CddIpmmu, CddRfso, CddThs, Common, Dio, Eth, Fls, Gpt, Mcu, Port, Spi, Wdg.

Figure 2-3 rel/common Folder Structure

- rel/modules

```
\---Install_destination
  |  \---rel
  |  |  +---modules
  |  |  |  +---<msn>
  |  |  |  |  +---definition
  |  |  |  |  |  \---<AR>
  |  |  |  |  |      \---<Device>
  |  |  |  |  |             Parameter Definition Files
  |  |  |  |  |
  |  |  |  |  +---generator
  |  |  |  |  |  \---<Device>
  |  |  |  |  |         BSWMDT Files
  |  |  |  |  |
  |  |  |  |  +---description
  |  |  |  |  |  \---<Device>
  |  |  |  |  |         CDD modules Description Files
  |  |  |  |  |
  |  |  |  |  +---include
  |  |  |  |  |     Header Files of <msn> driver
  |  |  |  |  |
  |  |  |  |  +---make
  |  |  |  |  |      renesas_<msn>_check.mak
  |  |  |  |  |      renesas_<msn>_defs.mak
  |  |  |  |  |      renesas_<msn>_rules.mak
  |  |  |  |  |
  |  |  |  |  +---sample_application
  |  |  |  |  |  +---include
  |  |  |  |  |  |      Sample Application Header Files
  |  |  |  |  |  |
  |  |  |  |  |  +---make
  |  |  |  |  |  |  \---arm
  |  |  |  |  |  +---<Device>
  |  |  |  |  |  |  +---<AR>
  |  |  |  |  |  |  |  \---config
  |  |  |  |  |  |  +---include
  |  |  |  |  |  |  |  \---arm
  |  |  |  |  |  |  |          Sample Application Header Files of <Device>
  |  |  |  |  |  |  \---src
  |  |  |  |  |  |      \---arm
  |  |  |  |  |  |             Sample Application Source Files of <Device>
  |  |  |  |  |  |
  |  |  |  |  |  \---src
  |  |  |  |  |        Sample Application Source Files
  |  |  |  |  |
```

```
| | | | \---src
| | | | |    Source Files of <msn> driver
| | | | |
```

Note

<msn>: can, cddcrc, cddemm, cddiccom, cddiic, cddipmmu, cddrfso, cddths, dio, eth, fls, gpt, mcu, port, spi, wdg.

<AR>: 19_11

<Device>: V4M

Figure 2-4 rel/modules Folder Structure

- rel/V4M

```
\---Install_destination
|  \---rel
|  |  \---<Device>
|  |  |  \---common_family
|  |  |  |  +---config
|  |  |  |  |  \---<Device>
|  |  |  |  |      \---<AR>
|  |  |  |  |            Configuration ARMXL files
|  |  |  |  |
|  |  |  |  +---docs
|  |  |  |  |  \---appendix
|  |  |  |  |  \---user_manual
|  |  |  |  +---generator
|  |  |  |  |  \---arm
|  |  |  |  |        <Device>_translation.h
|  |  |  |  |        Sample_Application_<Device>.trxml
|  |  |  |  |
|  |  |  |  +---include
|  |  |  |  |  |  pfcmap.h
|  |  |  |  |  |
|  |  |  |  |  \---arm
|  |  |  |  |        device_cfg.h
|  |  |  |  |        Interrupt_Cfg.h
|  |  |  |  |        Interrupt_VectorTable.h
|  |  |  |  |        RCar_FuSa.h
|  |  |  |  |        RCar_<Device>_0.h
|  |  |  |  |
|  |  |  |  +---make
|  |  |  |  |  \---arm
|  |  |  |  |        App_Sample.scat
|  |  |  |  |        App_Sample_db.scat
|  |  |  |  |        Common.mak
|  |  |  |  |        SampleApp.bat
|  |  |  |  |        startup_arm_<Device>_defs.mak
|  |  |  |  |        startup_arm_<Device>_rules.mak
```

```
| | | | |
| | | | \---src
| | | |     \---arm
| | | |           device_cfg.c
| | | |           Interrupt_VectorTable.c
| | | |           RCar_FuSa.c
| | | |
```

Note

<AR>: 19_11

<Device>: V4M

Figure 2-5 rel/V4M Folder Structure

2.4.1 Source Code File

2.4.1.1 Common Source Code File

Table 2-38 shows the list of Source Code file.

Table 2-38 Common Header Files

Location: rel\common\generic\src		Description
arm		-
	Interrupt.c	R-Car interrupt controller.
	rcar_cfg.c	Configuration for R-Car.
	start.s	Startup code for R-Car devices (ARMv8).
	startup.c	Startup code for R-Car devices.
log.c		This tile provides debug prints function to Console.
scif.c		This tile provides function for debug prints function.

2.4.2 Header File

2.4.2.1 Common Header File

Table 2-39 Common Header Files shows the list of Translation Header file.

Table 2-39 Common Header Files

Location: rel\common\generic			Description
compiler			-
<AR>\			-
arm\			-
Include\			-
	<Msn>_MemMap.h		This file allows mapping variables, constants, and code of modules to individual memory sections. Memory mapping can be modified as per ECU's specific needs.
common\			-
arm\			-
Include\			-
	Compiler.h		Provides compiler-specific (non-ANSI) keywords. All mappings of keywords, which are not standardized, and/or compiler-specific are placed and organized in this compiler-specific header.
	Compiler_Cfg.h		This file contains the memory and pointer classes.
	cfg\		-
		Compiler_Cfg_dep.h	This file contains compiler attribute definition for ARM compiler
include			-
<AR>\			-
	Platform_Types.h		This file provides provision for defining platform and compiler dependent types.
common\			-
	log.h		This tile provides debug prints function to Console.
	scif.h		This tile provides function prototypes for debug prints function.
	arm\		-
		arm_cr.h	Macros for ARM Cortex-R.
		arm_cr_cp15.h	
		arm_cr_mpu.h	
		arm_cr_reg.h	

	arm_gic.h	
	Interrupt.h	R-Car interrupt controller.
	utils.h	Utilities support.

Note

<AR>: 19_11

<Msn>: Can, CddCrc, CddEmm, CddIccom, CddIic, CddIpmmu, CddRfso, CddThs, Common, Dio, Eth, Fls, Gpt, Mcu, Port, Spi, Wdg.

2.4.2.2 Translation Header File

Table 2-40 shows the list of Translation Header file.

Table 2-40 Translation Header Files

Location	Files
rel\V4M\common_family\generator\arm	V4M_translation.h

2.4.3 BSWMDT File

The BSWMDT file target is Sample Application.

When user use BSWMDT file for user application, refer to Msn Driver Component Embedded User's Manual and please modify it as per user application.

Table 2-41 shows the list of BSWMDT file.

Table 2-41 BSWMDT Files

Location: rel\modules\<msn>\generator\<Device_Name>	
<Device_Name>	**Files**
V4M	R1911_<MSN>_<Device_Name >_BSWMDT.arxml
	R1911_CDD_<MSN_CDD>_<Device_Name>_BSWMDT.arxml

Note

<msn>: dio, port, can, eth, gpt, spi, wdg, mcu, fls

<MSN>: DIO, PORT, CAN, ETH, GPT, SPI, WDG, MCU, FLS

<MSN_CDD>: ICCOM, IIC, RFSO, THS, IPMMU, EMM, CRC

<Device_Name>: V4M

2.4.4 Make File

Table 2-42 shows the list of Make file.

Table 2-42 Make Files

Location	Files
rel\modules\<msn>\make\	renesas_<msn>_check.mak renesas_<msn>_defs.mak renesas_<msn>_rules.mak

Note

<msn>: can, cddcrc, cddemm, cddiccom, cddiic, cddipmmu, cddrfso, cddths, dio, eth, fls, gpt, mcu, port, spi, wdg.

2.4.5 Generator File

Table 2-43 shows the list of Generator File by C# of DIO, PORT, CAN, ETH, GPT, SPI, WDG, MCU, CDDCRC, CDDICCOM, CDDEMM, CDDTHS, CDDIIC, CDDRFSO, CDDIPMMU and FLS module.

Table 2-43 Generator File by C# of Dio, Port, Can, Eth, Gpt, Spi, Wdg, Mcu, CddCrc, CddIccom, CddEmm, CddThs, CddIic, CddRfso, CddIpmmu and Fls module

Location: rel\common\generic\generator	**Files**
	<Msn>.cfgxml
	MCALConfGen.exe
dlls\	-
<msn>	<Msn>RCAR.dll

Note

<msn>: dio, port, can, eth, gpt, spi, wdg, mcu, cddcrc, cddiccom, cddemm, cddths, cddiic, cddrfso, cddipmmu and fls.

<Msn>: Dio, Port, Can, Eth, Gpt, Spi, Wdg, Mcu, CddCrc, CddIccom, CddEmm, CddThs, CddIic, CddRfso, CddIpmmu and Fls.

2.5 License

Proprietary license

2.6 Restrictions

None.

3 Upgrade information

3.1 Ver19.0.1

This version is to release DIO, PORT, ICCOM, IIC, SPI, FLS, GPT, MCU, WDG, CAN, ETH, THS, IPMMU, EMM, RFSO, and CRC module for V4M.

3.2 Ver19.0.2

This version is same as software with Ver19.0.1.

3.3 Ver19.0.3

Module	Classification	Description
CAN	Driver code	- Increase SW version to 1.1.16. - Update value of CAN_RSCAN_TXBUFFER_PER_CH
CRC	-	No update.
EMM	Driver code	- Update SW-VERSION to 1.0.11 - Change name of container. - Update number of ECMERRSTSR, ECMERRTGTR, ECMERRCNTR for V4M - Update condition for pointer pErrorCountInitialSetting in function CddEmm_Init - Update condition in function CddEmm_GetCurrentErrorCountUpValue - Update condition for initialize error count register in fucntion CddEmm_GlobalDataInit - Update condition for global array CddEmm_GaaErrorCountRegAddr and global pointer CddEmm_GpErrorCount - Update value of CDDEMM_SW_PATCH_VERSION to 11U - Update condition for function CddEmm_GetCurrentErrorCountUpValue - Update condition for type STag_CddEmm_ErrorCountInitialSettingType and array CddEmm_GstErrorCountInitialSetting - Update condiiton for type CddEmm_GetErrorCountType and pointer pErrorCountInitialSetting
	Sample App Code	Update condition and error signals for domain 5, 8, 12, 13, 16..36, 38..42 of device V4M Add condition and update error signals for domain of device V4M
	Generation tool	Apply HW-UM 0.50.
	User manual	Embedded User's Manual: Section 17.2.2, 17.5.3.1, 17.6.2, 17.9.1.2: - Update number of domains to n = 0..12, 16..36, 38..42 Section 17.5.3.7: - Update error count registers to 1, 3..22, 25, 26, 28..40 Tool User's Manual: Section 16.6.1: - Update number of domains in note for ERR255004.

		Module overview: Section 3.4.6 EMM Driver Component: - Add information of V4M Sample App to 3.4.6.9
ICCOM	-	No update.
IIC	-	No update.
IPMMU	-	No update.
RFSO	-	No update.
THS	User manual	Tool User's Manual: Sections 15.6 and 15.7: - Update reference to "R-Car Gen4 AUTOSAR R19-11 MCAL User's Manual Getting Started".
DIO	-	No update.
ETH	Driver code	Update to support interrupt mode for V4M device
FLS	Driver code	- Inscrease SW-VERSION to 1.1.11 - Update precondition for functions: Fls_SfCompareDataManualMode, Fls_SfManualModeCompare, Fls_HfManualModeCompare, Fls_HfCompareDataManualMode and Fls_HfSwitchCompareMode. - Update precondition for declaration of functions: Fls_SfManualModeCompare, Fls_HfManualModeCompare and Fls_HfCompareDataManualMode. - Increase FLS_SW_PATCH_VERSION to 11.
GENERIC	User manual	Cover, footer and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1.1 2.Reference Documents - Update references version at Table 2.1 Reference Documents(1/2).
GPT	-	No update.
MCU	Driver code	Support Core Power Down mode for V4M: - Increase SW-VERSION to 1.1.16 - Add introduction for clocks: McuZR1Clk, McuZR2Clk, McuZC0Clk, McuZC1Clk, McuZC2Clk, McuZC3Clk, McuZDClk, McuZGClk, McuMSOClk, McuCSIClk, McuDSIEXTClk, McuZXClk, McuSVVIPClk, McuSVIRClk, McuS0VCClk, McuS0VIOClk. - Add new clocks: McuIMPASRCClk, McuIMPBSRCClk, McuVIOSRCClk, McuVCSRCClk, McuFRAYClk, McuADGHClk. - Add parameter McuClockCtrlSel to containers: McuZXClk, McuSVVIPClk, McuSVIRClk, McuS0VCClk, McuS0VIOClk. -Remove McuWakeUpFactorName. - Update introduction of McuWakeUpFactor. - Add DEM MCU_E_MODE_TRANSITION_FAILURE - Add global pointer variable Mcu_GpPwCtrHwInfo - Add element pPwCtrHwInfo in structure Mcu_ConfigType - Update structure Mcu_ModeSettingType - Add structure Mcu_PowerControlHwInfoType

		- Remove structure Mcu_WakeUpRegsType - Add macro for Cortex-R52 Power Control register value
	Sample App Code	- Update the checkpoints verification style - Add definition to support Core Power Down mode - Update value of RAMTEST_LENGTH
	Generation tool	- Support Core Power Down mode - Update GetMandatoryParamsList to support ERR101004 for new mandatory paramter - Update method ValidateERR101025
PORT	Driver code	- Increase SW-VERSION to 1.1.14 - Update PortPinInitialMode of PortGroup2/PortPin17 is CANFD4_RX_ALT0_IN_* to CANFD1_TX_ALT0_OUT_ - Update PortPinInitialMode of PortGroup2/PortPin19 is CANFD7_RX_ALT0_IN_* to CANFD1_RX_ALT0_IN_ - Add V4M device name to Port_UnintendedModuleStopCheck, Port_FUSEMonitoring, Port_HWUnintendedModuleStopCheck, Port_CheckExpectedFUSEValue
	Sample App Code	- Support 2 SM functions Port_UnintendedModuleStopCheck, Port_FUSEMonitoring
	Generation tool	- Remove CANFD5_TX_ALT3_OUT_GPSR1_BIT8_IP1SR1_BIT0 in PortConfigSet_PortGroup1_PortPin8 - Remove PortConfigSet_PortGroup2_PortPin18 - Update CANFD4_RX_ALT0_IN_* to CANFD1_TX_ALT0_OUT_* in PortConfigSet_PortGroup2_PortPin17 - Update CANFD7_RX_ALT0_IN_* to CANFD1_RX_ALT0_IN_* in PortConfigSet_PortGroup2_PortPin19 - Support Msg ERR124021 - Increase dll version to 1.0.15
SPI	Driver code	- Remove SPI_DMA1_08_ISR/SPI_DMA1_08_CAT2_ISR to SPI_DMA1_15_ISR/SPI_DMA1_15_CAT2_ISR - Increase SW-VERSION to 1.5.12 - SpiRxDmaChannel: Remove SDMA1_08 -> SDMA1_15 - SpiTxDmaChannel: Remove SDMA1_08 -> SDMA1_15 - SpiPortPinSelect: Apply specify of V4M device, update range to SYNC, SS1, SS2, GP0_00 -> GP0_18, GP1_00 -> GP1_29, GP2_00 -> GP2_19, GP3_00 -> GP3_31, GP4_00 -> GP4_24, GP5_00 -> GP5_20, GP6_00 -> GP6_20, GP7_00 -> GP7_20
	User manual	Embedded User's Manual: Section 13.6.2, 13.9.2: - Updated range of SPI_DMAj_nn_ISR, SPI_DMAj_nn_CAT2_ISR to "With j=0, nn: 00..15,with j=1, nn:00..07".
WDG	-	No update.

3.4 Ver19.0.4

Module	Classification	Description
CAN	Driver code	- Increase SW version to 1.1.17. - Fix QAC message 4461 in function Can_GetControllerTxErrorCounter, Can_GetControllerRxErrorCounter. - Update CAN_SW_PATCH_VERSION
	Generation tool	- Update method ComputeCan_GaaHohConfig to gen usBufferIndex for Txbuffer mode. - Update method CheckERR080137 to check for V4M.
CRC	-	No update.
EMM	Driver code	- Update SW-VERSION to 1.0.12. - Change name of bit CddEmmBit7FSVIPHierarchyDULTimeoutErr to CddEmmBit7FBPAPTimeoutErr, CddEmmBit7FSSVIPHierarchyDULFailErr to CddEmmBit7FBPAPFailErr and CddEmmBit7FSSVIPHierarchyDULSCanAXiBusErr to CddEmmBit7FBPAPSCanAXiBusErr Update description of bit 6,7,9,11,15 in domain24, bit 6,7,9,11,15 in domain27 and bit 7 in domain30
	Sample Code	Change bits name: - CddEmmBit7FSVIPHierarchyDULTimeoutErr to CddEmmBit7FBPAPTimeoutErr - CddEmmBit7FSSVIPHierarchyDULFailErr to CddEmmBit7FBPAPFailErr - CddEmmBit7FSSVIPHierarchyDULSCanAXiBusErr to CddEmmBit7FBPAPSCanAXiBusErr
	Generation tool	Change CddEmmBit7FSVIPHierarchyDULTimeoutErr to CddEmmBit7FBPAPTimeoutErr CddEmmBit7FSSVIPHierarchyDULFailErr to CddEmmBit7FBPAPFailErr and CddEmmBit7FSSVIPHierarchyDULSCanAXiBusErr to CddEmmBit7FBPAPSCanAXiBusErr in method ConfigName
ICCOM	-	No update.
IIC	-	No update.
IPMMU	-	No update.
RFSO	-	No update.
THS	-	No update.
DIO	-	No update.
ETH	-	No update.
FLS	-	No update.
GENERIC	-	No update.
GPT	-	No update.
MCU	Driver code	- Increase SW-VERSION to 1.1.17 - Update reference ID for Mcu_Init

		- Update Reference ID and Description for Mcu_STBWriteCR - Update comment for elements of structure Mcu_PowerControlHwInfoType
	Generation tool	Update reference ID and description of method GenerateMacroDeviceDiff, GenerateGeneralParams, ComputeMcuGaaClkSetting. Update reference ID for ValidateERR101025. Update the mandatory parameter list for McuModeSettingConf.
	User manual	Embedded User's Manual: Section 11.2.1 General - Update information about MCU module power save mode Section 11.6.2 MCU Driver Component Production Errors - Update the table DEM Errors Generated by MCU Driver Component Tool User's Manual: Section 10.6.1 Specific Error Messages: - Update table "The list of mandatory parameters" - Update table "The Parameters List of DEM Container"
PORT	Generation tool	Add Reference ID PORT_TUD_CLS_003_005 for method GenMisraWarning
SPI	-	No update.
WDG	-	No update.

3.5 Ver19.0.5

Module	Classification	Description
CAN	Generation tool	- Update to increase tool version. - Changed COMFIFO and Buffer Pool size as confirmation from HW-team, so that CAN module can work with 32 TX buffer per channel as mentioned in V4M HW-UM section 102.1.1. By updating value of MaxSharedBuffer, MaxSharedRecvRule, MaxRecvRule of V4M: + RSCANFD max shared buffer. + RSCANFD max shared receive rule. + RSCANFD max receive rule.
CRC	-	No update.
EMM	-	No update.
ICCOM	-	No update.
IIC	-	No update.
IPMMU	-	No update.
RFSO	-	No update.
THS	-	No update.
DIO	-	No update.
ETH	-	No update.
FLS	-	No update.
GENERIC	-	No update.
GPT	-	No update.
MCU	-	No update.
PORT	-	No update.
SPI	User manual	Embedded User's Manual: 13.SPI: Section 13.2.2 Preconditions: - Add limitation and workaround related to SpiSupportConcurrentSyncTransmit. - Add limitation inconsistent name of SYS-DMAC channels instance and register name.
WDG	-	No update.

3.6 Ver19.0.6

Module	Classification	Description
CAN	Sample code	Add initial version of configuration files is used for measurement in Appendix.
	User manual	Embedded User's Manual: Section 5.5.2 Type Definitions: - Remove Can_ControllerStateType information as redundant.
CRC	Sample code	Add initial version of configuration files is used for measurement in Appendix.
EMM	Sample code	Add initial version of configuration files is used for measurement in Appendix.
ICCOM	Sample code	Add initial version of configuration files is used for measurement in Appendix.
IIC	Sample code	Add initial version of configuration files is used for measurement in Appendix.
IPMMU	Sample code	Add initial version of configuration files is used for measurement in Appendix.
RFSO	Sample code	Add initial version of configuration files is used for measurement in Appendix.
THS	Sample code	Add initial version of configuration files is used for measurement in Appendix.
DIO	Sample code	Add initial version of configuration files is used for measurement in Appendix.
ETH	Sample code	Add initial version of configuration files is used for measurement in Appendix.
FLS	Sample code	Add initial version of configuration files is used for measurement in Appendix.

GENERIC	User manual	Embedded User's Manual: Cover, footer, and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1.1 2.Reference Documents: - Update references version at Table 2.1 Reference Documents (1/2) Tool User's Manual: Cover, footer, and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1.1, 1.2 2.Reference Documents - Update references version at Table 2.1 Reference Documents (1/2). Module Overview: Cover, footer and colophon: - Update Rev and issue date. Chapter 2. Reference documents: -Update version of reference documents Chapter 3.2 Folder Structure - Improve table content of Table 3 2 Variant of Folder and File Name. - Replace "<Device>" to "<Device_name>". Chapter 5: Section 5.1 Products: - Update MCAL Product Release Version for R-CAR/V4M. Appendix: Initial version.
GPT	Sample code	Add initial version of configuration files is used for measurement in Appendix.
MCU	Sample code	Add initial version of configuration files is used for measurement in Appendix.
PORT	Sample code	Add initial version of configuration files is used for measurement in Appendix.
SPI	Sample code	Add initial version of configuration files is used for measurement in Appendix.
WDG	Sample code	Add initial version of configuration files is used for measurement in Appendix.

3.7 Ver19.0.7

Module	Classification	Description
CAN	-	No update.
CRC	-	No update.
EMM	-	No update.
ICCOM	-	No update.
IIC	-	No update.
IPMMU	-	No update.
RFSO	-	No update.
THS	-	No update.
DIO	-	No update.
ETH	-	No update.
FLS	-	No update.
GENERIC	-	No update.
GPT	-	No update.
MCU	-	No update.
PORT	-	No update.
SPI	Generation tool	- SpiPortPinSelect: Remove redundant values: GP2_16, GP2_18, GP4_16 -> GP4_20, GP4_22 and correct name of values following naming rule GPx_xx. - Update default value of SpiTimeoutWaitingTime. - Update Reference ID.
WDG	-	No update.

3.8 Ver19.0.8

Module	Classification	Description
CAN	Generation tool	Update the calculation in the function to check ERR080137 and remove the unexpected raised error message that occurs when configuring the maximum number of transmit queue buffers depth on each CanController.
CRC	-	No update.
EMM	-	No update.
ICCOM	-	No update.
IIC	-	No update.
IPMMU	-	No update.
RFSO	-	No update.
THS	-	No update.
DIO	-	No update.
ETH	-	No update.
FLS	-	No update.
GENERIC	User manual	**Tool User's Manual:** Cover, footer and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1-1, 1-2 - Update Version in Table 1-2. 2.Reference Documents - Update references version at Table 2.1 Reference Documents(1/2). 4.CAN: - Section 4.6.1 Specific Error Messages: update information of message ERR080137. **Module Overview:** Cover, footer and colophon: - Update Rev and issue date. Chapter 2. Reference documents: -Update version of reference documents Chapter 5: Section 5.1 Products: - Update MCAL Product Release Version for R-CAR/V4M. Section 5.2 Compiler: - Update arm compiler version to 6.16.2.
GPT	-	No update.
MCU	-	No update.
PORT	-	No update.
SPI	-	No update.
WDG	-	No update.

3.9 Ver19.0.9

Module	Classification	Description
CAN	-	No update.
CRC	-	No update.
EMM	-	No update.
ICCOM	-	No update.
IIC	-	No update.
IPMMU	-	No update.
RFSO	-	No update.
THS	-	No update.
DIO	-	No update.
ETH	-	No update.
FLS	-	No update.
GENERIC	User manual	**Embedded User's Manual:** Cover, footer and colophon: - Update Rev and issue date. 5.CAN: - Section 5.9.2: Add "Multi-Core / Multi-Instantiation" section. 6.DIO: - Section 6.9.1: Update "Multi-Core / Multi-Instantiation" information 7.PORT: - Section 7.9.2: Add "Multi-Core / Multi-Instantiation" section. 8.ETH: - Section 8.9.2: Add "Multi-Core / Multi-Instantiation" section. 9.FLS: - Section 9.10.2: Add "Multi-Core / Multi-Instantiation" section. 10.GPT: - Section 10.9.1: Update "Multi-Core / Multi-Instantiation" section. 11.ICCOM: - Section 11.9.2: Add "Multi-Core / Multi-Instantiation" section. 12.MCU: - Section 12.9.2: Add "Multi-Core / Multi-Instantiation" section. 13.IIC: - Section 13.9.2: Add "Multi-Core / Multi-Instantiation" section. 14.SPI: - Section 14.9.1: Add "Multi-Core / Multi-Instantiation" section (Remove "Inter Core Exclusive Control" section) 15.WDG: - Section 15.9.2: Add "Multi-Core / Multi-Instantiation" section. 16.THS: - Section 16.9.3: Add "Multi-Core / Multi-Instantiation" section. 17.IPMMU: - Section 17.9.2: Add "Multi-Core / Multi-Instantiation" section. 18.EMM:

		- Section 18.9.2: Add “Multi-Core / Multi-Instantiation” section. 19.RFSO: - Section 19.9.2: Add “Multi-Core / Multi-Instantiation” section. 20.CRC: - Section 20.9.2: Add “Multi-Core / Multi-Instantiation” section. **Tool User’s Manual**: Cover, footer and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1-1, 1-2 - Update Version in Table 1-2. 2.Reference Documents - Update references version at Table 2.1 Reference Documents(1/2). **Module Overview:** Cover, footer and colophon: - Update Rev and issue date. Chapter 2. Reference documents: -Update version of reference documents Chapter 5: Section 5.1 Products: - Update MCAL Product Release Version for R-CAR/V4M.
	Sample code	Update arm compiler path in sample app to use arm compiler version 6.16.2.
GPT	-	No update.
MCU	-	No update.
PORT	-	No update.
SPI	-	No update.
WDG	-	No update.

3.10 Ver19.0.10

Module	Classification	Description
CAN	-	No update.
CRC	-	No update.
EMM	-	No update.
ICCOM	Driver code	- Update to support receive De-init Signal from AP cores in V4M. - Increase SW-Version. - Add parameter: CDDICCOM_E_DEINIT_NEGOTIATION and related information.
	Generation tool	- Increase SW-Version. - Update to support CDDICCOM_E_DEINIT_NEGOTIATION.
	User manual	* Appendix: - Update throughput measurement value.
	Sample code	- Increase SW-Version. - Reload configuration file as latest parameter definition file. - Add checkpoint to check the operation when receiving the De-init signal from AP core supporting for V4M.

IIC	-	No update.
IPMMU	-	No update.
RFSO	-	No update.
THS	-	No update.
DIO	-	No update.
ETH	-	No update.
FLS	-	No update.
GENERIC	Driver code	- Add new registers to support Low Power Mode.
	User manual	**Embedded User's Manual:** Cover, footer and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1.1 2.Reference Documents: - Update references version at Table 2.1 Reference Documents(1/2). 10. ICCOM: - Section 10.6.2: Add error CDDICCOM_E_DEINIT_NEGOTIATION to handle for De-Init Signal 11.MCU: - Section 11.2.1: Add guideline related to C4 Low Power Mode. **Tool User's Manual**: Cover, footer and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1-1, 1-2 - Update Version in Table 1-2. 2.Reference Documents - Update references version at Table 2.1 Reference Documents(1/2). 9. ICCOM: - Section 9.6: Add CDDICCOM_E_DEINIT_NEGOTIATION to parameter list of error ERR255004, ERR255012, ERR255016 10. MCU: - Section 10.6.1 Specific Error Messages: change parameter name from McuWakeUpFactor to McuPSOWakeUpFactor, add 2 parameters: McuC4PowerOn, McuTimeOutC4ModeChange. **Module Overview:** Cover, footer and colophon: - Update Rev and issue date. Chapter 2. Reference documents: -Update version of reference documents Chapter 5: Section 5.1 Products: - Update MCAL Product Release Version for R-CAR/V4M.
GPT	-	No update.
MCU	Driver code	- Updated to support low power mode. - Increase SW-VERSION. * Parameter defination file:

		- Update the INTRODUCTION of containers: McuZC0Clk, McuZC1Clk, McuZC2Clk, McuZC3Clk. - Parameter McuTimeOutC4ModeChange: change default value to 420000. - Change minimum range of parameter McuClockValue of containers: McuZC0Clk, McuZC1Clk, McuZC2Clk, McuZC3Clk - Add DEM MCU_E_SOFTWARE_RESET_FAILURE. - Add new parameters: McuC4PowerOn, McuTimeOutC4ModeChange. - Rename parameter McuWakeUpFactor to McuPSOWakeUpFactor. - Update multiplicity value of McuModeSettingConf.
	Generation tool	- Update the calculation to support low power mode. - Increase SW-VERSION.
	User manual	* Appendix: - Update throughput measurement value.
	Sample code	- Support for Low Power Mode. - Increase SW-VERSION.
PORT	-	No update.
SPI	-	No update.
WDG	-	No update.

3.11 Ver19.0.11

Module	Classification	Description
CAN	-	No update.
CRC	-	No update.
EMM	-	No update.
ICCOM	-	No update.
IIC	-	No update.
IPMMU	-	No update.
RFSO	-	No update.
THS	-	No update.
DIO	-	No update.
ETH	-	No update.
FLS	-	No update.

GENERIC	User manual	**Embedded User's Manual:** Cover, footer and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1.1 2.Reference Documents: - Update references version at Table 2.1 Reference Documents(1/2). 10. ICCOM: - Section 10.2.2: Add information about deinitialization when using Low Power Mode. **Tool User's Manual**: Cover, footer and colophon: - Update Rev and issue date. 1.Introduction: - Update Release Version in Table 1-1, 1-2 - Update Version in Table 1-2. 2.Reference Documents - Update references version at Table 2.1 Reference Documents(1/2). **Module Overview:** Cover, footer and colophon: - Update Rev and issue date. Chapter 2. Reference documents: -Update version of reference documents Chapter 5: Section 5.1 Products: - Update MCAL Product Release Version for R-CAR/V4M.
GPT	-	No update.
MCU	-	No update.
PORT	-	No update.
SPI	-	No update.
WDG	-	No update.

4 Known Issues List (KIL)

Table 4-1 Known Issue List

Issue Number	Description of the issue	Work around
NA	NA	NA

5 Fix Issues List (FIL)

Table 5-1 Fix Issue List

Issue Number	Description of the issue
NA	NA

6 Revision History

Rev.	Date	Description	
		Page	**Summary**
0.0.1	27 Oct, 2023	-	New Created.
0.0.2	28 Nov, 2023	-	- Update 2.6 restriction - Update Upgrade information - All other parts are the same as Ver 19.0.1. So Previous version means "CY23CW43" and Current version means "CY23CW48".
0.0.3	25 Dec, 2023	-	Update release note for release Ver19.0.3
0.0.4	29 Jan, 2024	-	Update release note for release Ver19.0.4
0.0.5	27 Feb, 2024	-	- Update release note for release Ver19.0.5. - Remove restriction of CAN module.
0.0.6	27 Mar, 2024	-	- Update release note for release Ver19.0.6. - Change Alpha release to Beta release. - Update IPL version to 1.44.0
0.0.7	26 Jun, 2024	-	- Update release note for release Ver19.0.7.
0.0.8	26 Sep, 2024	-	- Update release note for release Ver19.0.8.
0.0.9	29 Oct, 2024	-	- Update release note for release Ver19.0.9.
0.0.10	23 Dec, 2024	-	- Update release note for release Ver19.0.10.
0.0.11	22 Jan, 2025	-	- Update release note for release Ver19.0.11.

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)
   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.
2. Processing at power-on
   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.
3. Input of signal during power-off state
   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.
4. Handling of unused pins
   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.
5. Clock signals
   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.
6. Voltage application waveform at input pin
   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).
7. Prohibition of access to reserved addresses
   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.
8. Differences between products
   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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