

Safe Watchdog Manager

Release Notes

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TTTech Automotive GmbH

Schoenbrunner Str. 7, A-1040 Vienna, Austria, Tel. + 43 1 585 34 34-0, Fax +43 1 585 34 34-90, office@tttech-automotive.com

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Approval

Name	Function	Signature
PPU	Project Manager	
TGA	Head of Software Department	
MAL	Quality Manager	

Revision Chart

A revision is a new edition of the document and affects all sections of this document.

Document Version	Date	Responsible Person	Modification
0.9.0	09.06.2011	PPU	Version for Series Release 0.9
0.9.1	17.06.2011	PPU	Integration with DaVinci tool chain.
1.0.0	15.07.2011	PPU	Integration with DaVinci tool chain.
1.1.0	19.08.2011	PPU	Version for Series Release 1.1
1.2.0	07.09.2011	PPU	Version 1.2.0, TMP570LS3xx related release
1.3.0	16.09.2011	PPU	Version 1.3.0, MPC56xx (MPC5604B) release
1.3.1	06.12.2011	PPU	Version 1.3.1, Wdg_MPC56xx_bswmd.arxml changed only
1.4.0	14.12.2011	PPU	New software release and document split. Watchdog Manager, Interface and Driver becomes own Release documents.
1.5.0	10.02.2012	PPU	Version 1.5.0
1.6.0	08.03.2012	PPU	Release 1.6.0
1.7.0	13.04.2012	PPU	Release 1.7.0
1.8.0	21.11.2014	PPU	Release 1.8.0
1.8.1	12.06.2012	PPU	Release 1.8.1 did not contain WdgM module. It contains the MPC56xx driver only.
1.8.2	13.07.2012	PPU	Release 1.8.2, BugFixes, Manager release only

1.9.0	07.09.2012	PPU	Release 1.9.0, Code only
1.9.1	15.09.2012	PPU	Release 1.9.1, Documentation only
1.9.2	21.09.2012	PPU	Release 1.9.2, Style sheet update
1.9.3	02.10.2012	PPU	Release 1.9.3, S-WdgM Verifier - update, S-WdgM_UserManual - document update S-WdgM_Stack_SafetyCase - document new
2.0.7	25.10.2012	PPU	Test release 2.0.7 to check the delivery structure. This is NOT a customer release!
3.0.3	16.11.2012	PPU	Cumulative module update. (The major version changed to 3 because of the API change in function (WdgIf_GetTickCount()))
3.1.0	11.01.2013	PPU	Release 1.11.0, embedded code not changed
3.1.1	27.02.2013	PPU	Release 1.13.0, Verifier update only
3.2.0	05.04.2013	JDU	Release 1.14.0, generator update only
3.3.2	29.11.2013	PPU	Release 1.21.0, generator only
3.4.0	19.02.2014	PPU	Autosar 4 update and bug fixes, beta version
3.4.1	21.03.2014	PPU	Update and bug fixes for Autosar 4 environment compatibility. Backward compatibility to Autosar 3.1 environment added too.
3.4.2	10.04.2014	PPU	Generator bug fix for Autosar compatible driver
3.4.3	27.05.2014	PPU	Release for the AUTOSAR 4.0 and AUTOSAR 3.1 compatible S-WdgM module
3.4.4	14.08.2014	PPU	Safety Case document for previous version 3.4.3 released only.
3.4.5	04.11.2014	PPU	S-WdgM Generator correction only
3.4.6	21.11.2014	PPU	S-WdgM Generator correction only

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1 Overview

The **Safe Watchdog Manager (S-WdgM)** is upper software layer of the **Safe Watchdog Manager Stack**. The S-WdgM Stack is part of the service layer of the AUTOSAR architecture. The S-WdgM monitors the program flow and timing constraints of so-called Supervised Entities. When it detects a violation of the pre-configured program flow and timing values, it takes a number of configurable actions to recover from this state.

The **Safe Watchdog Manager Stack** consists of the following embedded software modules:

- **Safe Watchdog Manager** software module (hardware independent)
- **Safe Watchdog Interface** software module (hardware independent)
- **Safe Watchdog Driver** software module (hardware dependent),

and the Safe Watchdog Manager Stack configuration generators:

- **Safe Watchdog Manager configuration generator** (hardware independent)
- **Safe Watchdog Interface configuration generator** (hardware independent)
- **Safe Watchdog Driver configuration generator** (hardware dependent)

and the Safe Watchdog Manager Stack configuration verifier

- **Safe Watchdog Manager configuration verifier** (hardware independent)

This document represents the release notes for the **Safe Watchdog Manager** module only.

The **Safe Watchdog Manager** is compatible to the WdgM module as specified in the AUTOSAR 4.0 and AUTOSAR 3.1 specifications but not fully compliant. For deviations and justifications please see the S-WdgM User Manual.

2 Content of the Module Release

Title	Version*)	Author	Description
WdgM/	3.4.6		S-WdgM Module
S-WdgM_ReleaseNotes.pdf			
Description/	3.3.3	TTTech	
WdgM_Bswmd_A4.arxml			For AUTOSAR 4.0.x environment
WdgM_Bswmd.arxml			For AUTOSAR 3.1.y environment
Doc_SafetyManual/	2.3.28		
S-WdgM_SafetyManual.pdf			
Doc_SafetyCase/	1.1.0		
S-WdgM_SafetyCase.pdf			
Doc_TechRef/	3.3.1	TTTech	
S-WdgM_UserManual.pdf			User Manual
Generator/	3.3.15	TTTech	
LICENSE			
Wdg_Mgr_Cfg_Gen.exe			
GenTool_Ead/	2.0.12	TTTech	
SWC_WdgM_A4.xsl			For AUTOSAR 4.0.x environment
SWC_WdgM.xsl			For AUTOSAR 3.1.y environment
Identifier.xml			
Generation.xml			
Generation_A4.xml			
Implementation/	3.3.3	TTTech	
WdgM.c			Watchdog Manager - Main
WdgM_Checkpoint.c			Watchdog Manager - Checkpoint
WdgM_Cfg.h			Watchdog Manager - Configuration structures
WdgM.h			Watchdog Manager - API declaration
Verifier/	1.2.11	TTTech	
wdgm_verifier.dll			S-WdgM Configuration Verifier
libwdgm_verifierdll.a			S-WdgM Configuration Verifier lib
wdgm_verifier.h			S-WdgM Configuration Verifier
wdgm_verifier_types.h			S-WdgM Configuration Verifier
wdgm_verifier_version.h			S-WdgM Configuration Verifier
verify_wdgm_header.xsl			S-WdgM Configuration Verifier
verify_wdgm_source.xsl			S-WdgM Configuration Verifier
VerifierTools/	1.0.0		

MinGW/	5.1.6	MinGW	
w32api-3.13-mingw32-dev.tar.gz			
mingwrt-3.15.2-mingw32-dll.tar.gz			
mingwrt-3.15.2-mingw32-dev.tar.gz			
MinGW-5.1.6.exe			
mingw.ini			
gcc-core-3.4.5-20060117-3.tar.gz	3.4.5		
binutils-2.19.1-mingw32-bin.tar.gz			
xsltproc/	1.0.0	xsltproc	
zlib1.dll			
xsltproc.exe			
libxslt.dll			
libxml2.dll			
libexslt.dll			
iconv.dll			

*) **Bold** version numbers are new artefacts in this release. The non-bold artefacts are the previously released compatible artifacts. All artefacts listed here are consistent.

3 Change history

This chapter describes the changes in each released version.

3.1 Changes with version 3.4.6

Issue Nr.	Area	Found Wk	Issue title	Release status
69689	G	wk47	`WdgM_PBcfg.h` shall #include `WdgM_Cfg.h`	S

The issue description (issue69689):

The file `WdgM_PBcfg.h` uses a type `WdgM_ConfigType` but does not #include the header file where that type is defined. This situation causes normally no problems because the corresponding C source file `WdgM_PBcfg.h` has the following #include directive:

```
#include "WdgM.h"
#include "WdgM_PBcfg.h"
```

Where "WdgM.h" includes the necessary `WdgM_Cfg.h`.

The current release improved this point and the `WdgM_PBcfg.h` includes the `WdgM_Cfg.h` directly.

3.2 Changes with version 3.4.5

S-WdgM module was not changed in this release, the Safety Case document was added only.

Issue Nr.	Area	Found Wk	Issue title	Release status
68941	G	44 /2014	Safe Execution - Remove Cross Cutting Checks in the WdgM Config Generator	S
68932	G	44/ 2014	Wdg Config Generator RH850P1x_TLE4473 missing paramterers	S

The change description (issue68941):

The cross-cutting checks are removed from S-WdgM Generator. The Watchdog Manager Config Generator should not attempt to verify the Watchdog Driver's data because this is on this level not necessary. The removed cross-check parameters are the following:

- WdgGeneral/WdgInitialTimeout
- WdgSettingsConfig/WdgWindowStart
- WdgSettingsConfig/WdgSlowModeMax
- WdgSettingsConfig/WdgFastModeMax

Release status:

S ... solved, O ... open, C ... Closed as obsolete

Area:

E ... embedded, G ... generator, V ... verifier, SWC ... SWC/bswmd file, T ... Tests
D ... documentation

3.3 Changes with version 3.4.4

S-WdgM module was not changed in this release, the Safety Case document was added only.

Issue Nr.	Area	Found Wk	Issue title	Release status
65369	D		Release Management Tasks for 1.26.1 CW 31/2014	S

3.4 Changes with version 3.4.3

S-WdgM module changes and corrections

Issue Nr.	Area	Found Wk	Issue title	Release status
62326	all		Safe Execution Release 1.26.0 - Release Management Tasks (include collection of issues for this release)	S

3.5 Changes with version 3.4.2

S-WdgM module changes and corrections

Issue Nr.	Area	Found Wk	Issue title	Release status
61768	G	Wk15	SafeExecution - Deactivate cross-cutting tests to avoid problems with AS3-compatible Third-Party Drivers	S

3.6 Changes with version 3.4.1

S-WdgM module changes and corrections

Issue Nr.	Area	Found Wk	Issue title	Release status
61023	G+E		Issue collection for Autosar4.x S-WdgM issues and Autosar compatibility of the S-WdgM module.	S

3.7 Changes with version 3.4.0

S-WdgM module changes and corrections

Issue Nr.	Area	Found Wk	Issue title	Release status
59931	G+E		API and generator points for AUTOSAR 4, reported by Vector	S

3.8 Changes with version 3.3.2

S-WdgM module changes and corrections

Issue Nr.	Area	Found Wk	Issue title	Release status
58478	G	Wk 48	MPC5643L_ATA5021 is no "third-party" driver	S
58479	G	Wk 48	Add hint re need to provide driver data in EDF	S

3.9 Changes with version 3.2.0

S-WdgM module changes and corrections:

Issue Nr.	Area	Found Wk	Issue title	Release status
51893	G	Wk 6	Different checks for third-party drivers	S
51859	G	Wk 6	Use symbolic IDs for SEs and CPs	S
52428	G	Wk 10	#define constants moved from source to header file	S
52577	G	Wk 11	Do not assume system-wide unique CP names	S

Release status:

S ... solved, O ... open, C ... Closed as obsolete

Area:

E ... embedded, G ... generator, V ... verifier, SWC ... SWC/bswmd file, T ... Tests

D ... documentation

3.10 Changes with version 3.1.2

Issue Nr.	Area	Found in Wk	Issue title	Release status
52577	G	Wk6	"Do not assume system-wide unique CP names": If there are 2 or more checkpoints with the same name in different Supervised Entities then the generator can generate wrong configurations.	O

3.11 Changes with version 3.1.1

S-WdgM module changes and corrections:

Issue Nr.	Area	Found in Wk	Issue title	Release status
52281	V	Wk08	Deactivate the test 36. The test is obsolete.	S

Release status:

S ... solved, O ... open, C ... Closed as obsolete

Area:

E ... embedded, G ... generator, V ... verifier, SWC ... SWC/bswmd file, T ... Tests

D ... documentation

3.12 Changes with version 3.1.0

S-WdgM module changes and corrections:

Issue Nr.	Area	Found in Wk	Issue title	Release status
50917	V		Test 73, The Verifier doesn't read the WDG_STATE_CHANGE_NOTIFICATION Correctly.	S
50131	G	Wk45	WdgM and WdgIf config generators must work together with unsupported Wdg Drivers	S
49656	V		Verifier - Sorting of parameters might make test results wrong.	S

48637	G	Wk36	CP ID is used as CFG array ID, (when the CP ID's are not sorted, then the generator stops generating)	S
51164	D	Wk02	Safety Manual update	S
51222	D	Wk02	Safety Case update (version numbers)	S

Release status:

S ... solved, O ... open, C ... Closed as obsolete

Area:

E ... embedded, G ... generator, V ... verifier, SWC ... SWC/bswmd file, T ... Tests
D ... documentation

3.13 Changes with version 3.0.3

S-WdgM module changes and corrections:

Issue Nr.	Area	Found in Wk	Issue title	Release status
50131	G	Wk45	WdgM and WdgIf config generators must work together with unsupported Wdg Drivers	S partly
49950	E	Wk45	WdgM: line 792: warning (dcc:1516): parameter CallerID is never used	S
49735	E	Wk44	WdgM: The WdgM_GlobalSuspendInterrupts() should be defined "extern" and renamed to GlobalSuspendInterrupts()	S
49837	E	Wk44	Common Suspend/Restore Interrupt routines shall be used	S
48420	E	Wk44	Deactivating an active SE should rise in some cases DET report	S
48667	G	Wk43	Generator shall generate constants with 'u' suffix	S
48637	G	Wk 36 Change request	The CP and SE IDs must be strict ordered. Otherwise the Generator rises an error.	O
48601	SWC		Uneven implementation of port defined argument values for port interface <WdgM_GlobalMode>	S
48993	E		WdgIf_GetTickCount() writes to WdgM global memory	S
48818	G		S-WdgM Code segment fixed in the WdgM_MemMap.h file	S

Release status:

S ... solved, O ... open, C ... Closed as obsolete

Area:

E ... embedded, G ... generator, V ... verifier, SWC ... SWC/bswmd file, T ... Tests

3.14 Changes with version 2.0.7

Test release for new versioning and delivery structure. This is not a customer version. Used internally only.

S-WdgM module changes and corrections:

Embedded Code changes:

- none

Generator changes:

- none

Verifier changes:

- none

Documentation changes:

- none

DaVinci interface changes:

- None

3.15 Changes with TTTech Release 1.9.3: S-WdgM Subpackage 2.0.6

This release contains an update of the Watchdog Manager Configuration Verifier. The release is compatible with the embedded code basis of the release 1.9.0 and documentation release 1.9.1 and 1.9.2

Embedded Code changes:

- none

Generator changes:

- none

Verifier changes:

- Report file header corrected ("TTTech Internal Use only" removed).
- [46858] Verify all relevant WdgM global settings
- [48716] Detect NULL pointers

Documentation changes:

- S-WdgM User Manual - update
- S-WdgM Stack Safety Case - new

DaVinci interface changes:

- None

Open issues in this release:

Issue Nr.	Area	Issue title	Release 1.9.3
48993	E	WdgIf_GetTickCount() writes to WdgM global memory	O
48818	G	S-WdgM Code segment fixed in the WdgM_MemMap.h file	O
48601	SWC	Uneven implementation of port defined argument values for port interface <WdgM_GlobalMode>	O

Release:

S ... solved, O ... open, C ... Closed as obsolete

Area:

E ... embedded, G ... generator, V ... verifier, SWC ... SWC/bswmd file, T ... Tests

3.16 Changes with TTTech Release 1.9.2: S-WdgM Subpackage 2.0.5

This release contains an update of the Watchdog Manager SWC_WdgM.xsl file only. The release is compatible with the embedded code basis of the release 1.9.0 and documentation release 1.9.1

Embedded Code changes:

- none

Generator changes:

- none

Verifier changes:

- none

Documentation changes:

- none

DaVinci interface changes:

- [47956] SWC_WdgM.xsl file changed because of problem with the `WdgMTimebaseSource` parameter. The selection of the `WDGM_INTERNAL_HARDWARE_TICK` was not possible.

3.17 Changes with Release 1.9.1: S-WdgM Subpackage 2.0.4

This release contains S-WdgM documentation and S-WdgM Verifier only. The documentation in this release is compatible with the embedded code basis of the release 1.9.0 (Subpackage 2.0.3)

Embedded Code changes:

- none

Generator changes:

- none

Verifier issues:

- See the chapter “Known issues, limitations, updates”

Documentation changes:

- [48745] S-WdgM Safety Manual Formal Review
- [48722] S-WdgM User Manual Review

3.18 Changes with Release 1.9.0: S-WdgM Subpackage 2.0.3

Open issues in this release:

Issue Nr.	Area	Issue title	Release 1.9.0
48624	E	MPC56xx Driver – MISRA issues.	S
48607	E	WdgIf Interface – MISRA issues.	S
48583	E	WdgM Manager – MISRA issues.	S
47956	SWC	Removed unused runnable entities.	S
47459	E	WdgM_MainFunction should have a reentrancy check.	O
47828	E	Service IDs of an API function differ from AUTOSAR	S
47832	E	A global transition to a deactivated SE doesn't produce a error response.	O
48320	E, G	The first Supervision cycle should have definable Alive test.	S
48320]	E	The ProgramFlowViolationCnt is wrongly incremented	S
48298	E, G	The OS Partition Reset makes compile warning problem	S
46101	T	WdgM: Unit test for the Autosar 3.1 compatibility	S
46382	V	Defines are not checked for correct value (STD_ON, STD_OFF)	S
46977	SWC	WdgM: Each Entity may have zero or more End Checkpoints	S
47905	SWC	Location of xxx_SEC_CONST_UNSPECIFIED + xxx_SEC_CODE	S

47386	SWC	Special Handling for Callback in Service Component Description	O
47990	SWC	The WdgM_SetMode() need to be added to the 3.1 compatibility mode	S
47956	SWC	WdgM Generator creates runnable trigger which is not configured	S
42841	SWC	Service Component always has all version's APIs	S
47328	E	S-WdgM: initialize uninitialized local variable,	S
47131	E	Cover combined X-Y-Monitoring violations in status FAILED	S
44842	E	WdgM: Magic constants should not be used when not necessary (Disable automatically generated typedefs)	O
45280	G	WdgM: The RAM sections of WdgM, Wdg should be related to an Application only	S
45566	E	WdgM: Configuration checks only if WdgMDevErrorDetect is off	O
45709	E	Safe WdgM - Alive Counter overrun	S
45814	E	WdgM: Update Copyright information in embedded codes	S
45827	E	WdgM: Add AUTOSAR _AR_ Version macros	S
46044	E	S-WdgM: protect sensitive data accesses from interrupts	S
46383	E	ascSC is assumed to be defined but this is not checked	S
46388	E	INVALID_OSAPPLICATION is not necessarily 0xFF in Os.h	S
46464	E	WdgM: remove not used code when API_3_1 selected	O
46816	E	Safe WdgM - error from WdgM during initialization	C
46819	G	S-WdgM: 0xFFFF tolerance values prevent from going to EXPIRED	S
46820	E	WdgM: AUTOSAR Compiler abstraction	S
46993	E	WdgM: Fixing the external function names	S
46574	G	avoid division by zero if Ticks/second = 0	S
46794	G	reject multiple DM elements for one transition	S
46920	G	checkpoint attribute "startsAGlobalTransition" is now correctly computed	S
44628	G	remove compiler warning ({0}, {1}, ...) instead of {0, 1}	S
47177	G	reject configurations not having a 1:1:1 relationship for driver/interface/watchdog	S
47058	G	disable OS Partition Reset in generator	S

Release:

S ... solved, O ... open, C ... Closed as obsolete

Area:

E ... embedded, G ... generator, V ... verifier, SWC ... SWC/bswmd file, T ... Tests

3.19 Changes with Release 1.8.2: S-WdgM Subpackage 1.8.2

Embedded Code BugFixies:

- [47131] - Cover combined X-Y-Monitoring violations in status FAILED
- [45709] - Safe WdgM - Alive Counter overrun
- [45827] - WdgM: Add AUTOSAR _AR_ Version macros
- [46044] - S-WdgM: protect sensitive data accesses from interrupts
- [45280] - Wdgx: The RAM sections of WdgM, Wdg should be related to an Application only
- [47328] - S-WdgM: initialize uninitialized local variables

Configuration Generator BugFixies:

- [46574]: avoid division by zero if Ticks/second = 0
- [46794]: reject multiple DM elements for one transition
- [46920]: checkpoint attribute "startsAGlobalTransition" is now correctly computed
- [44628]: remove compiler warning ({0}, {1}, ..) instead of {0, 1}
- [47177]: reject configurations not having a 1:1:1 relationship for driver/interface/watchdog
- [47058]: disable OS Partition Reset in generator

3.20 Changes with Release 1.8.0: S-WdgM Subpackage 1.8.0

- The Safety Manual revoked, the not safety related informations are moved to the User Manual.
- [45700] Trigger Mode implemented (Simplified SetMode() function)
- [45927] RememberedEntityId replaced by global transition flags
- [45959] Periodicity of deadline and program flow tolerances repaired
- [46206] Minor changes to increase test coverage

3.21 Changes with Release 1.7.0: S-WdgM Subpackage 1.7.0

- [45210] Hardware TickCounter implemented
- [45572] WdgM_GetLocalStatus() adapted, WdgMEnableEntityDeactivation flag was moved
- [45663] tick_count_diff calculation repaired
- [45388] Mcu_PerformReset() removed from WdgM_MainFunciton.

3.22 Changes with Release 1.6.0: S-WdgM Subpackage 1.6.0

- [44418] Checksum for configuration added
- [44978] SE deactivation/activation variable protection in the GS memory added
- [45008] Partition reset partly corrected, the Entity reset was added.

- [45066] Refactoring, MISRA check corrections

3.23 Changes with Release 1.5.0: S-WdgM Subpackage 1.5.0

- [43770] The write access of the MainFunction() to the entity memory removed.
- [44107] Deadline, Program flow monitoring debouncing parameters optimization
- [43913] MainFunction() interrupted by Checkpoint() corrections
- [44257] Check for Number of S-WdgM Ticks in SupervisionCycle added
- [43912] The direct reset (hardware reg. access) was removed from CheckpointReached()

3.24 Changes with Release 1.4.0: S-WdgM Subpackage 1.4.0

- The documentation structure was changed. Each module (Manager, Interface and Driver) has now an own User Manual, Safety Manual and Release Notes. The changes mentioned in this chapter represents the S-WdgM changes only.
- [42537] WDG_M_DEM_SUPERVISION_REPORT define moved to WdgM_Cfg_Feature.h file
- [42797] Compiler warnings removed, the SE deactivation/activation simplified
- [42943] SE Deactivation/Activation issue removed
- [43092] global transitions repaired – internal global transition flag introduced
- [43881] Unused variable removed

3.25 Changes with Release 1.3.1: WdgM Subpackage 1.3.1

The Wdg_MPC56xx_bswmd.arxml file was changed only. The xml element Wdg_Impl was removed from the file by Mr. Kalmbach at Vector. The element causes a problem in GENy.

3.26 Changes with Release 1.3.0

Embedded code:

- [42477] Notification in GLOBAL_STATE_STOPPED was not necessary and was removed
- [42503] Error message to DEM in GLOBAL_STATE_STOPPED is now reported correctly
- [42509] Check for a valid global transition repaired in the case of a local initial checkpoint.
- [42249] Added the new MPC56xx family platform, new S-Wdg driver created

Generators:

- Added new MPC56xx family platform

3.27 Changes with Release 1.2.0: WdgM Subpackage 1.2.0

Embedded code:

- For the global Disable/Enable interrupts the AUTOSAR Schedule Manager interface is now used instead of the operating system interface. (Now the SchM_WdgM.h needs to be included)
- When the RTE is used, then the S-WdgM uses the defines and typedefs generated by RTE instead of the S-WdgM internal typedefs and defines (switchable with WDGM_USE_RTE)
- Primary Reset path instead of Secondary reset path is used when the WDGM_IMMEDIATE_RESET==STD_ON is selected. This change was done to guarantee safe reset. (The previously used external Mcu_PerformReset() function is a QM function)
- The Timebase Tick counter check (stuck-in and negative count) was corrected in the WdgM_MainFunction()
- Similar to the S-WdgM the S-Wdg has now a Wdg_MemMap.h file. So it is possible to place the Wdg variables to a memory section predefined by DaVinci Configurator.

Generators:

- better error handling
- XSLT Stylesheet now includes `WdgM_MainFunction` and `WdgM_UpdateTickCount` as runnables.
- Drivers/platforms now can be identified correctly regardless of the SHORT-NAMEs chosen by users

ECU description file change:

Release 1.2.0 uses SUB-PACKAGES for organizing platform-related data inside ECU description file. ECU description files created for previous versions have to be adapted slightly - otherwise the code generators may not be able to find the platform data. Please follow these steps:

1. Open the ECU Description file with a text editor
2. Find <DEFINITION-REF> elements in the ECU description file containing `/TTTECH/Wdg` or `/TTTECH/WdgImpl`
3. Replace the `TTTECH/Wdg` substring with `TTTech/TMS570LS3x/Wdg` and `/TTTECH/WdgImpl` with `/TTTECH/TMS570LS3x/WdgImpl`
4. Save your changes

3.28 Changes with Release 1.1.0: WdgM Subpackage 1.1.0

Embedded code:

- The AUTOSAR 3.1 functionality Deactivate / Activate entity was implemented.
- The Callback Notification was implemented.
- The entities initialization in the WdgM_Init() was corrected.
- The Timebase Tick overrun correction was removed on places where it wasn't necessary
- The MPC5604B Safe Watchdog driver was implemented
 - Note: the MPC5604B internal watchdog's registers (module SWT) can only be accessed in one of the supervisor modes. This means that the WdgM_MainFunction(), which periodically triggers the watchdog, must run in a supervisor mode!
 - This first version of the MPC5604B Safe Watchdog driver was developed and tested using the Freescale CodeWarrior Compiler 5.9.0.
 - Following configuration sets were verified: fSIRCKhz=128, interruptThenReset=false, hardLock=false, stopModeControl=true, debugModeControl=true, WdgDevErrorDetect=true, WdgDemReport=true, WdgDisableAllowed=true, WdgVersionInfoApi=true.

Generators:

Wdg_Mgr_Cfg_Gen.exe generates code to support supervised entity activation/deactivation and callback notifications.

Wdg_If_Cfg_Gen.exe generates code for the MPC5604B driver and corresponding interface.

3.29 Changes with Release 1.0.0: WdgM Subpackage 1.0.0

- The Safe Watchdog Interface embedded code was split in to two modules:
 1. Safe Watchdog Interface, is now hardware independent
 2. Safe Watchdog Driver, is hardware dependent
- The Mode switch through the WdgM_Init was removed.
- There is now possibility to disable interrupts while the Global shared data are manipulated
- Some enum definitions in the S-WdgM API (like LOCAL_STATUS_OK) was changed to AUTOSAR specified #defines
- Changes in the generators:
 - The generators generates now additionally WdgM_Cfg_Features.h, WdgIf_Cfg_Features.h, Wdg_TMS570LS3x_Cfg_Features.h files.
 - The generators generates now additionally WdgM_MemMap.f file.
- Changes in the bswmd and swc files:
 - Feature definitions are added (defined in the ...Cfg_Features.h files)
 - Software version and vendor info was added
 - Obsolete 3.1 items was deleted
 - DEFINITION-REF elements now contains paths beginning with TTTECH instead of AUTOSAR
 - The bswmd files are now schema compliant.
 - At typedefs WdgM_CheckpointIdType, WdgM_SupervisedEntityIdType was the maximum value changed to 65535.

4 Test status

The S-WdgM integration tests based on the issue 69689 were performed. No findings.

All test results are positive.

5 Known issues, limitations, updates

Known issues:

For known issues please see the chapter “Change history” above.

Functional limitations of current version:

Not known.

Updates:

Current release represents a S-WdgM module for AUTOSAR 4.0.x and AUTOSAR 3.1.y.

Note, that the S-WdgM Configuration generator reads the AUTOSAR version from ECU description file and generates a define `#define WDG_M_AUTOSAR_4_x STD_ON` in case of Autosar 4.x. Dependent on this define the embedded code uses the appropriate Autosar 4.0.x functionality.

6 Abbreviation and glossary

Acronym / Term	Meaning
CP	Checkpoint
EDF	ECU Description File (.arxml file used as input to the configuration generator)
SE	Supervised Entity
OS	Operating System
SCx	Scalability Class (of an Operating System)
S-WdgM	Safe Watchdog Manager (TTTech product, platform independent part)
S-WdgIf	Safe Watchdog Interface (TTTech product, is the platform independent part)
S-Wdg	Safe Watchdog Driver (TTTech product, is the platform dependent part)
WdgM	Watchdog Manager (module according AUTOSAR specification)
[xxxxx]	TTTech internal issue tracking number.