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1 SWS_XCP

1.1 Specification Item ECUC_Xcp_00020

Trace References:

none

Content:

Container Name	XcpConfigXcpConfig
Description	This container contains the configuration parameters and sub containers of the AUTOSAR Xcp module.
Configuration Parameters	

Included parameters:

No Included Parameters

Included containers:

Included Containers		
Container Name	Multiplicity	Scope / Dependency
XcpCommunicationChannel	0..*	This container represents the configuration of the communication channel of XCP.
XcpDaqList	1..*	This container contains the configuration of the DAQs.
XcpEventChannel	1..*	This container contains the configuration of event channels on the XCP slave.
XcpPdu	1..*	Contains PDU information. A PDU may be either a transmission PDU or a reception PDU.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #74995: [XCP] Clean up Chapters 8 and 10

Problem description:

XCP lacks the possibility to associate Rx-PDUs with Tx-PDUs of the same bus. Besides, a reference to a ComMChannel is missing in the EcuC that is used as an argument to Xcp_SetTransmissionMode() (which by the way is in the wrong section).

Agreed solution:

SWS XCP:

Regarding the XCP configuration must be adapted such that there is a link between the Rx and Tx PDUs (XcpRxPdu/XcpTxPdu) that are used for request/response from one master.

- Xcp_SetTransmissionMode() has a ComM channel as an argument, but the XCP does not know which PDUs belong to which ComM channel (or at least that is quite complicated to find out).

The PS

- Introduction of a new container (XcpCommunicationChannel) which references the corresponding Tx and Rx PDU (Tx PDU is mandatory, Rx PDU is optional) and the ComM channel they belong to.

- Move Xcp_SetTransmissionMode() Spec Items SWS_Xcp_00844, SWS_Xcp_00848, SWS_Xcp_00849 and SWS_Xcp_00850 from section 8.4 to section 8.3.

Create new CR for ECUC XML:

Create new XCP configuration container:

Container name: XcpCommunicationChannel

Container Parameter:

- XcpChannelTxPduRef: TX PDU (XcpTxPdu) reference (mandatory)
- XcpChannelRxPduRef: RX PDU (XcpRxPdu) reference (optional)
- XcpComMChannel: ComM channel (ComMChannel) reference (mandatory): which define what ComM channel which XCP belong to.

SysT:

- Introduce a new ARElement "GeneralPurposeConnection" that references to * PduTriggerings.
- Introduce a new category "XcpChannel" for "GeneralPurposeConnection" and define that in case of an "XcpChannel" the "GeneralPurposeConnection" is allowed to reference exactly two PduTriggerings (one TX and one RX Pdu).
- Introduce a constraint that defines that the PduTriggerings that are referenced by a "GeneralPurposeConnection" are defined on the same PhysicalChannel.
- Introduce a constraint that defines that the PduTriggerings that are referenced by "GeneralPurposeConnection" of category "XcpChannel" shall refer to Pdus of type "GeneralPurposeIPdu" with category "XCP"

In addition the following changes shall be done in the specification:

- Remove footnote on the first page of Section 6.3.
- Rework the first paragraph of Section 6.3 to the following: "The PDU Router is responsible only for the routing of IPdus (i.e., other types of Pdus are not routed by the PDU Router)."

- Remove footnote in Section 6.8.2.
- Last change on issue 74995 comment 25–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.2 Specification Item ECUC_Xcp_00183

Trace References:

none

Content:

Container Name	XcpCommunicationChannelXcpCommunicationChannel
Description	This container represents the configuration of the communication channel of XCP.
Configuration Parameters	

Included parameters:

Included Parameters	
Parameter Name	SWS Item ID
XcpChannelRxPduRef	ECUC_Xcp_00185
XcpChannelTxPduRef	ECUC_Xcp_00184
XcpComMChannelRef	ECUC_Xcp_00186

Included containers:

No Included Containers

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #74995: [XCP] Clean up Chapters 8 and 10

Problem description:

XCP lacks the possibility to associate Rx-PDUs with Tx-PDUs of the same bus. Besides, a reference to a ComMChannel is missing in the EcuC that is used as an argument to Xcp_SetTransmissionMode() (which by the way is in the wrong section).

Agreed solution:**SWS XCP:**

Regarding the XCP configuration must be adapted such that there is a link between the Rx and Tx PDUs (XcpRxPdu/XcpTxPdu) that are used for request/response from one master.

- Xcp_SetTransmissionMode() has a ComM channel as an argument, but the XCP does not know which PDUs belong to which ComM channel (or at least that is quite complicated to find out).

The PS

- Introduction of a new container (XcpCommunicationChannel) which references the corresponding Tx and Rx PDU (Tx PDU is mandatory, Rx PDU is optional) and the ComM channel they belong to.

- Move Xcp_SetTransmissionMode() Spec Items SWS_Xcp_00844, SWS_Xcp_00848, SWS_Xcp_00849 and SWS_Xcp_00850 from section 8.4 to section 8.3.

Create new CR for ECUC XML:

Create new XCP configuration container:

Container name: XcpCommunicationChannel

Container Parameter:

- XcpChannelTxPduRef: TX PDU (XcpTxPdu) reference (mandatory)
- XcpChannelRxPduRef: RX PDU (XcpRxPdu) reference (optional)
- XcpComMChannel: ComM channel (ComMChannel) reference (mandatory): which define what ComM channel which XCP belong to.

SysT:

- Introduce a new ARElement "GeneralPurposeConnection" that references to * PduTriggerings.
- Introduce a new category "XcpChannel" for "GeneralPurposeConnection" and define that in case of an "XcpChannel" the "GeneralPurposeConnection" is allowed to reference exactly two PduTriggerings (one TX and one RX Pdu).
- Introduce a constraint that defines that the PduTriggerings that are referenced by a "GeneralPurposeConnection" are defined on the same PhysicalChannel.
- Introduce a constraint that defines that the PduTriggerings that are referenced by "GeneralPurposeConnection" of category "XcpChannel" shall refer to Pdus of type "GeneralPurposeIPdu" with category "XCP"

In addition the following changes shall be done in the specification:

- Remove footnote on the first page of Section 6.3.
- Rework the first paragraph of Section 6.3 to the following: "The PDU Router is

responsible only for the routing of IPdus (i.e., other types of Pdus are not routed by the PDU Router)."

- Remove footnote in Section 6.8.2.

–Last change on issue 74995 comment 25–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.3 Specification Item ECUC_Xcp_00184

Trace References:

none

Content:

Name	XcpChannelTxPduRefXcpCommunicationChannel.XcpChannelTxPduRef		
Description	Reference to the XCP Tx PDU.		
Multiplicity	1		
Type	Reference to [XcpTxPdu]		
Post-Build Variant Value	true		
Value Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	–	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: ECU		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #74995: [XCP] Clean up Chapters 8 and 10

Problem description:

XCP lacks the possibility to associate Rx-PDUs with Tx-PDUs of the same bus. Besides, a reference to a ComMChannel is missing in the EcuC that is used as an argument to Xcp_SetTransmissionMode() (which by the way is in the wrong section).

Agreed solution:

SWS XCP:

Regarding the XCP configuration must be adapted such that there is a link between

the Rx and Tx PDUs (XcpRxPdu/XcpTxPdu) that are used for request/response from one master.

- Xcp_SetTransmissionMode() has a ComM channel as an argument, but the XCP does not know which PDUs belong to which ComM channel (or at least that is quite complicated to find out).

The PS

- Introduction of a new container (XcpCommunicationChannel) which references the corresponding Tx and Rx PDU (Tx PDU is mandatory, Rx PDU is optional) and the ComM channel they belong to.

- Move Xcp_SetTransmissionMode() Spec Items SWS_Xcp_00844, SWS_Xcp_00848, SWS_Xcp_00849 and SWS_Xcp_00850 from section 8.4 to section 8.3.

Create new CR for ECUC XML:

Create new XCP configuration container:

Container name: XcpCommunicationChannel

Container Parameter:

- XcpChannelTxPduRef: TX PDU (XcpTxPdu) reference (mandatory)
- XcpChannelRxPduRef: RX PDU (XcpRxPdu) reference (optional)
- XcpComMChannel: ComM channel (ComMChannel) reference (mandatory): which define what ComM channel which XCP belong to.

SysT:

- Introduce a new ARElement "GeneralPurposeConnection" that references to * PduTriggerings.
- Introduce a new category "XcpChannel" for "GeneralPurposeConnection" and define that in case of an "XcpChannel" the "GeneralPurposeConnection" is allowed to reference exactly two PduTriggerings (one TX and one RX Pdu).
- Introduce a constraint that defines that the PduTriggerings that are referenced by a "GeneralPurposeConnection" are defined on the same PhysicalChannel.
- Introduce a constraint that defines that the PduTriggerings that are referenced by "GeneralPurposeConnection" of category "XcpChannel" shall refer to Pdus of type "GeneralPurposeIPdu" with category "XCP"

In addition the following changes shall be done in the specification:

- Remove footnote on the first page of Section 6.3.
- Rework the first paragraph of Section 6.3 to the following: "The PDU Router is responsible only for the routing of IPdus (i.e., other types of Pdus are not routed by the PDU Router)."
- Remove footnote in Section 6.8.2.

—Last change on issue 74995 comment 25—

BW-C-Level:

Application	Specification	Bus
1	1	1

1.4 Specification Item ECUC_Xcp_00185

Trace References:

none

Content:

Name	XcpChannelRxPduRefXcpCommunicationChannel.XcpChannelRxPduRef		
Description	Optional reference to the XCP Rx PDU.		
Multiplicity	0..1		
Type	Reference to [XcpRxPdu]		
Post-Build Variant Value	true		
Value Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	–	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: ECU		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #74995: [XCP] Clean up Chapters 8 and 10

Problem description:

XCP lacks the possibility to associate Rx-PDUs with Tx-PDUs of the same bus. Besides, a reference to a ComMChannel is missing in the EcuC that is used as an argument to Xcp_SetTransmissionMode() (which by the way is in the wrong section).

Agreed solution:**SWS XCP:**

Regarding the XCP configuration must be adapted such that there is a link between the Rx and Tx PDUs (XcpRxPdu/XcpTxPdu) that are used for request/response from one master.

- Xcp_SetTransmissionMode() has a ComM channel as an argument, but the XCP does not know which PDUs belong to which ComM channel (or at least that is quite complicated to find out).

The PS

- Introduction of a new container (XcpCommunicationChannel) which references the corresponding Tx and Rx PDU (Tx PDU is mandatory, Rx PDU is optional) and the ComM channel they belong to.

- Move Xcp_SetTransmissionMode() Spec Items SWS_Xcp_00844, SWS_Xcp_00848, SWS_Xcp_00849 and SWS_Xcp_00850 from section 8.4 to section 8.3.

Create new CR for ECUC XML:

Create new XCP configuration container:

Container name: XcpCommunicationChannel

Container Parameter:

- XcpChannelTxPduRef: TX PDU (XcpTxPdu) reference (mandatory)
- XcpChannelRxPduRef: RX PDU (XcpRxPdu) reference (optional)
- XcpComMChannel: ComM channel (ComMChannel) reference (mandatory): which define what ComM channel which XCP belong to.

SysT:

- Introduce a new ARElement "GeneralPurposeConnection" that references to * PduTriggerings.
- Introduce a new category "XcpChannel" for "GeneralPurposeConnection" and define that in case of an "XcpChannel" the "GeneralPurposeConnection" is allowed to reference exactly two PduTriggerings (one TX and one RX Pdu).
- Introduce a constraint that defines that the PduTriggerings that are referenced by a "GeneralPurposeConnection" are defined on the same PhysicalChannel.
- Introduce a constraint that defines that the PduTriggerings that are referenced by "GeneralPurposeConnection" of category "XcpChannel" shall refer to Pdus of type "GeneralPurposeIPdu" with category "XCP"

In addition the following changes shall be done in the specification:

- Remove footnote on the first page of Section 6.3.
 - Rework the first paragraph of Section 6.3 to the following: "The PDU Router is responsible only for the routing of IPdus (i.e., other types of Pdus are not routed by the PDU Router)."
 - Remove footnote in Section 6.8.2.
- Last change on issue 74995 comment 25—

BW-C-Level:

Application	Specification	Bus
1	1	1

1.5 Specification Item ECUC_Xcp_00186

Trace References:

none

Content:

Name	XcpComMChannelRefXcpCommunicationChannel.XcpComMChannelRef		
Description	Reference to the ComM channel the PDUs belong to.		
Multiplicity	1		
Type	Reference to [ComMChannel]		
Post-Build Variant Value	true		
Value Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	–	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: ECU		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #74995: [XCP] Clean up Chapters 8 and 10

Problem description:

XCP lacks the possibility to associate Rx-PDUs with Tx-PDUs of the same bus. Besides, a reference to a ComMChannel is missing in the EcuC that is used as an argument to Xcp_SetTransmissionMode() (which by the way is in the wrong section).

Agreed solution:

SWS XCP:

Regarding the XCP configuration must be adapted such that there is a link between the Rx and Tx PDUs (XcpRxPdu/XcpTxPdu) that are used for request/response from one master.

- Xcp_SetTransmissionMode() has a ComM channel as an argument, but the XCP does not know which PDUs belong to which ComM channel (or at least that is quite complicated to find out).

The PS

- Introduction of a new container (XcpCommunicationChannel) which references the corresponding Tx and Rx PDU (Tx PDU is mandatory, Rx PDU is optional) and the ComM channel they belong to.

- Move Xcp_SetTransmissionMode() Spec Items SWS_Xcp_00844,

SWS_Xcp_00848, SWS_Xcp_00849 and SWS_Xcp_00850 from section 8.4 to section 8.3.

Create new CR for ECUC XML:

Create new XCP configuration container:

Container name: XcpCommunicationChannel

Container Parameter:

- XcpChannelTxPduRef: TX PDU (XcpTxPdu) reference (mandatory)
- XcpChannelRxPduRef: RX PDU (XcpRxPdu) reference (optional)
- XcpComMChannel: ComM channel (ComMChannel) reference (mandatory): which define what ComM channel which XCP belong to.

SysT:

- Introduce a new ARElement "GeneralPurposeConnection" that references to * PduTriggerings.
- Introduce a new category "XcpChannel" for "GeneralPurposeConnection" and define that in case of an "XcpChannel" the "GeneralPurposeConnection" is allowed to reference exactly two PduTriggerings (one TX and one RX Pdu).
- Introduce a constraint that defines that the PduTriggerings that are referenced by a "GeneralPurposeConnection" are defined on the same PhysicalChannel.
- Introduce a constraint that defines that the PduTriggerings that are referenced by "GeneralPurposeConnection" of category "XcpChannel" shall refer to Pdus of type "GeneralPurposeIPdu" with category "XCP"

In addition the following changes shall be done in the specification:

- Remove footnote on the first page of Section 6.3.
- Rework the first paragraph of Section 6.3 to the following: "The PDU Router is responsible only for the routing of IPdus (i.e., other types of Pdus are not routed by the PDU Router)."
- Remove footnote in Section 6.8.2.
- Last change on issue 74995 comment 25-

BW-C-Level:

Application	Specification	Bus
1	1	1

1.6 Specification Item SWS_Xcp_00840

Trace References:

none

Content:

If development error detection for the XCP module is enabled: if the function

Xcp_<Lo>TxConfirmation is called before the XCP was initialized successfully, the function Xcp_<Lo>TxConfirmation shall raise the development error XCP_E_ **NOT_INITIALIZED UNINIT** and return.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #59085: Rollout of 'Runtime errors'

Problem description:

Inconsistencies in SWS with semantics of Default errors
–Last change on issue 59085 comment 26–

Agreed solution:

solution in Column "G" of the new attachment
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

*** BSW UML Model ***

SWS_CanNm:

Chapter 8.6.1 Optional Interfaces:

Add within SWS_CanNm_00325 the API function Det_ReportRunTimeError

SWS_LinIf:

SWS_LinIf_00359: add Det_ReportRuntimeError

SWS_UdpNm:

Replace UDPNM_E_NO_INIT with UDPNM_E_UNINIT in description of API
UdpNm_MainFunction_<Instance Id> (SWS_UdpNm_00234)

*** ECUC XML ***

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.7 Specification Item SWS_Xcp_00842

Trace References:

none

Content:

If development error detection for the XCP module is enabled: if the function

Xcp_<Lo>TriggerTransmit is called before the XCP was initialized successfully, the function Xcp_<Lo>TriggerTransmit shall raise the development error XCP_E_ **NOT_INITIALIZED UNINIT** and return E_NOT_OK.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #59085: Rollout of 'Runtime errors'

Problem description:

Inconsistencies in SWS with semantics of Default errors

–Last change on issue 59085 comment 26–

Agreed solution:

solution in Column "G" of the new attachment
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

*** BSW UML Model ***

SWS_CanNm:

Chapter 8.6.1 Optional Interfaces:

Add within SWS_CanNm_00325 the API function Det_ReportRuntimeError

SWS_LinIf:

SWS_LinIf_00359: add Det_ReportRuntimeError

SWS_UdpNm:

Replace UDPNM_E_NO_INIT with UDPNM_E_UNINIT in description of API UdpNm_MainFunction_<Instance Id> (SWS_UdpNm_00234)

*** ECUC XML ***

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.8 Specification Item SWS_Xcp_00847

Trace References:

none

Content:

The callback function Xcp_<Lo>RxIndication shall inform the DET, if development error detection is enabled (XCP_DEV_ERROR_DETECT is set to TRUE) and if function call has failed because of the following reasons:

- Xcp was not initialized (XCP_E_NOT_INITIALIZEDUNINIT)
- PduInfoPtr equals NULL_PTR (XCP_E_PARAM_POINTER)
- Invalid PDUID (XCP_E_INVALID_PDUID)

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #59085: Rollout of 'Runtime errors'

Problem description:

Inconsistencies in SWS with semantics of Default errors

–Last change on issue 59085 comment 26–

Agreed solution:

solution in Column "G" of the new attachment
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

***** BSW UML Model *****

SWS_CanNm:

Chapter 8.6.1 Optional Interfaces:

Add within SWS_CanNm_00325 the API function Det_ReportRunTimeError

SWS_LinIf:

SWS_LinIf_00359: add Det_ReportRuntimeError

SWS_UdpNm:

Replace UDPNM_E_NO_INIT with UDPNM_E_UNINIT in description of API
UdpNm_MainFunction_<Instance Id> (SWS_UdpNm_00234)

***** ECUC XML *****

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

BW-C-Level:

Application	Specification	Bus
1	4	1