Annex Sparx Model Report

Version 1

Date/Time Generated: 11/10/2020 5:05:21 PM

Author: Davide Basile (ISTI CNR Italy)

Table of Contents

Model

Root Package

Model
Version Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 11/10/2020. Last modified 11/10/2020

Package1

Package in package 'Model'

Package1
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/28/2020. Last modified 11/10/2020

ContextDefinition diagram

Class diagram in package 'Package1'

The context definition identifies the CSL class that contains references to RBC_USER class and SAI class.

ContextDefinition
Version 1.0
Davide Basile (ISTI CNR Italy) created on 10/1/2020. Last modified 11/10/2020

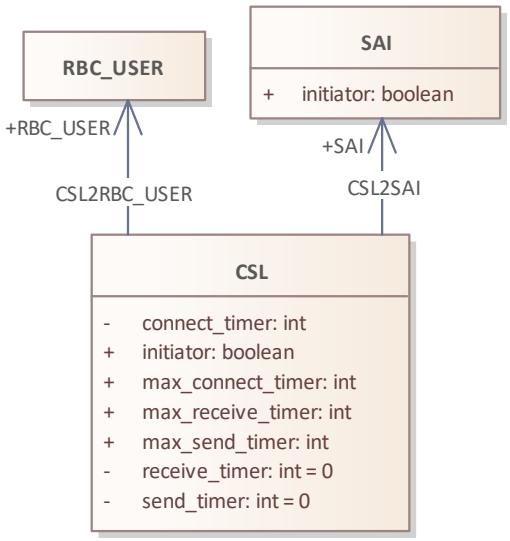

Figure 1: ContextDefinition

RBC2RBC diagram

Class diagram in package 'Package1'

This diagram contains the executable state machine.

RBC2RBC
Version 1.0
Davide Basile (ISTI CNR Italy) created on 9/28/2020. Last modified 11/10/2020

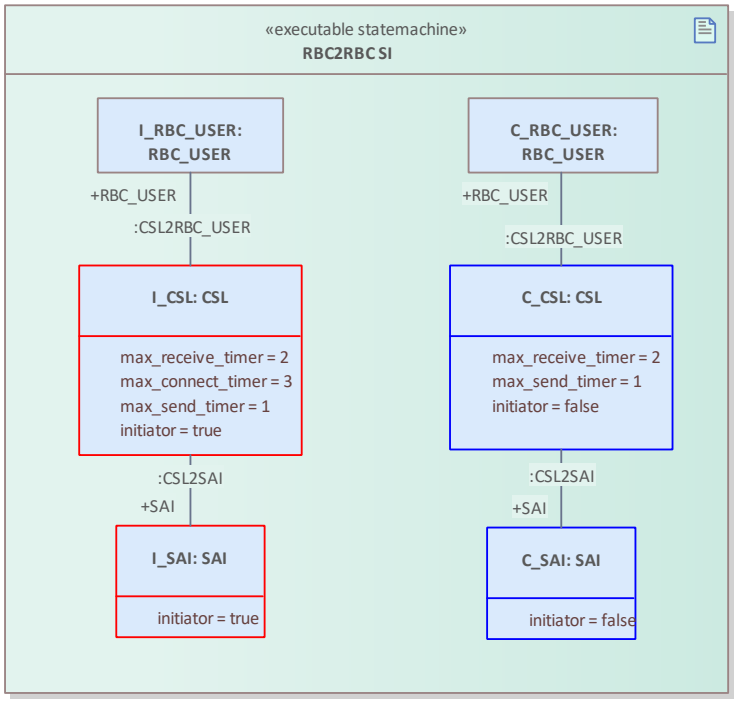

Figure 2: RBC2RBC

Signals

Package in package 'Package1'

Signals
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 9/29/2020

RBC_USER_CONNECT_INDICATION

Trigger in package 'Signals'

Signal used by the CSL to inform the User about successful connection

RBC_USER_CONNECT_INDICATION
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

RBC_USER_DATA_INDICATION

Trigger in package 'Signals'

Signal used by the CSL to inform the User about incoming Data

RBC_USER_DATA_INDICATION
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

RBC_USER_DATA_REQUEST

Trigger in package 'Signals'

Signal used by the User to request the User send a data request to partner RBC (via SAI)

RBC_USER_DATA_REQUEST
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

RBC_USER_DISCONNECT_INDICATION

Trigger in package 'Signals'

Signal used by the User to request the User send a data request to partner RBC (via SAI)

RBC_USER_DISCONNECT_INDICATION
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

SAI_CONNECT_CONFIRM

Trigger in package 'Signals'

Signal used by initiator SAI to inform initiator CSL about confirmation of connection

SAI_CONNECT_CONFIRM
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

SAI_CONNECT_INDICATION

Trigger in package 'Signals'

Signal used by called SAI to inform called CSL about connection with partner RBC

SAI_CONNECT_INDICATION
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

SAI_CONNECT_REQUEST

Trigger in package 'Signals'

Signal used by initiator CSL to ask to initiator SAI to open a connection with partner RBC

SAI_CONNECT_REQUEST
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

SAI_DATA_INDICATION

Trigger in package 'Signals'

Signal used by SAI to inform CSL about data received from partner RBC

SAI_DATA_INDICATION
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

SAI_DATA_REQUEST

Trigger in package 'Signals'

Signal used by CSL to request to SAI to send data to partner RBC

SAI_DATA_REQUEST
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

SAI_DISCONNECT_INDICATION

Trigger in package 'Signals'

Signal used by SAI to notify the CSL the disconnection

SAI_DISCONNECT_INDICATION
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

SAI_DISCONNECT_REQUEST

Trigger in package 'Signals'

Signal used by CSL to request to SAI to disconnect

SAI_DISCONNECT_REQUEST
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

SAI_ERROR_REPORT

Trigger in package 'Signals'

Signal used by SAI to report an error to CSL

SAI_ERROR_REPORT
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

sig

Signal in package 'Signals'

Generic type signal used for typing all signals in the model

sig
Version 1.0 Phase 1.0 Proposed

Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

ATTRIBUTES

arg : String Private

The payload of the signal. In this model the payload is only one argument.

[Is static True. Containment is Not Specified.]

TICK

Trigger in package 'Signals'

Signal used to encode the completion of a clock cycle

TICK
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/28/2020. Last modified 11/10/2020

CSL

Class in package 'Package1'

The Communication Supervision Layer class.

CSL
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/28/2020. Last modified 11/10/2020

ELEMENTS OWNED BY CSL

CSL : StateMachine

ATTRIBUTES

connect_timer : int Private

Accumulating time since last SAI_CONNECT_REQUEST.

[Is static True. Containment is Not Specified.]

initiator : boolean Public

The attribute initiator is used to distinguish the initiator SAI from the called SAI

[Is static True. Containment is Not Specified.]

max_connect_timer : int Public

This attribute represents the maximum amount of time that CSL waits after the last connection request issued to the SAI, before issuing a new one.

[Is static True. Containment is Not Specified.]

ATTRIBUTES

max_receive_timer : int Public

The maximum amount of time the CSL waits for a message from SAI before closing the connection.

[Is static True. Containment is Not Specified.]

max_send_timer : int Public

The maximum amount of time in which the CSL sends a message to underlying layer SAI. When this threshold is reached, the CSL will issue a LifeSign message.

[Is static True. Containment is Not Specified.]

receive_timer : int Private = 0

Accumulating time since last message received from SAI.

[Is static True. Containment is Not Specified.]

send_timer : int Private = 0

Accumulating time since last message.

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Source -> Destination) CSL2RBC_USER

Each CSL has a reference to its own RBC_USER for sending signals

Source: Public (Class) CSL

Target: Public RBC_USER (Class) RBC_USER

Association (direction: Source -> Destination) CSL2SAI

Each CSL has a reference to its own SAI for sending signals

Source: Public (Class) CSL

Target: Public SAI (Class) SAI

CSL

StateMachine owned by 'CSL', in package 'Package1'

The CSL state machine

CSL
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

ELEMENTS OWNED BY CSL

COMMS : State

ELEMENTS OWNED BY CSL
NOCOMMS : State
Initial : Initial State

CSL diagram

StateMachine diagram in package 'Package1'

The CSL state machine

CSL
Version 1.0
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

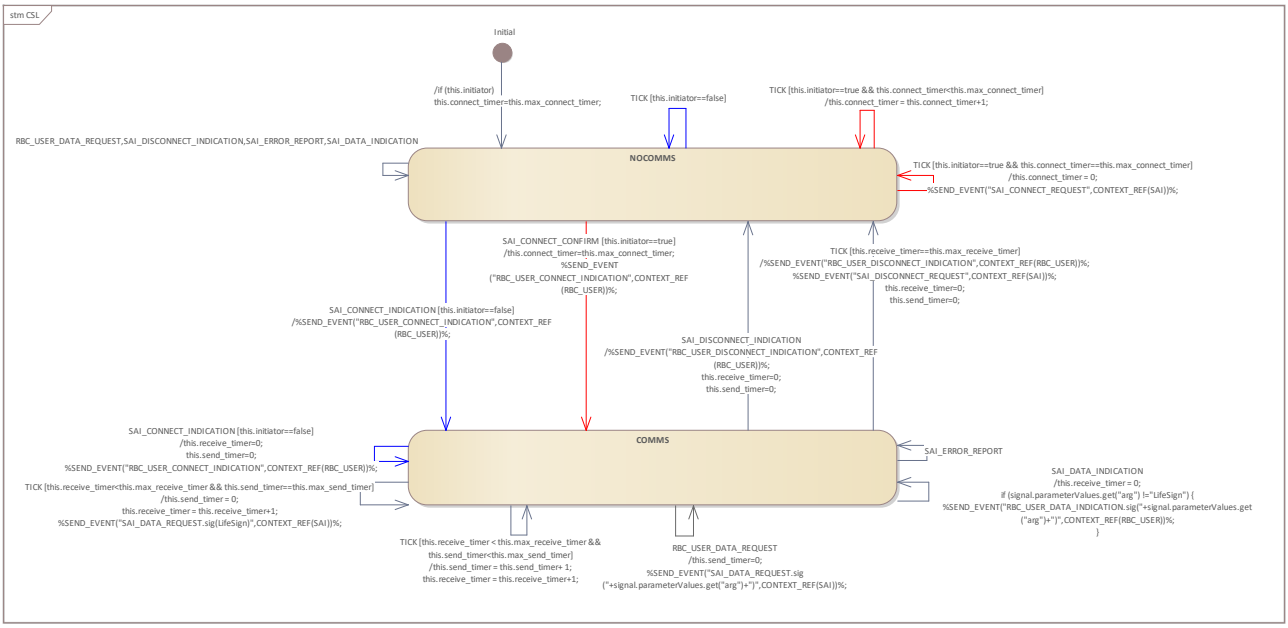

Figure 3: CSL

COMMS

State owned by 'CSL', in package 'Package1'

The CSL state machine COMMS state, where the connection is established

COMMS
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

OUTGOING BEHAVIORAL RELATIONSHIPS

Transition from COMMS to NOCOMMS
Effect: %SEND_EVENT("RBC_USER_DISCONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;
this.receive_timer=0;
this.send_timer=0;

OUTGOING BEHAVIORAL RELATIONSHIPS

Triggers:
SAI_DISCONNECT_INDICATION Signal

Mapping to UMC rules:
R16_ICSL_IRBC_rbcuserdisconnectindication
R16_CCSL_IRBC_rbcuserdisconnectindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS
Effect: this.send_timer=0;
%SEND_EVENT("SAI_DATA_REQUEST.sig("+signal.parameterValues.get("arg")+")",CONTEXT_REF(SAI))%;

Triggers:
RBC_USER_DATA_REQUEST Signal sig

Mapping to UMC rules:
R10_ICSL_ISAI_saidatarequest
R10_CCSL_CSAI_saidatarequest

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS
Effect: this.receive_timer = 0;
if (signal.parameterValues.get("arg") !="LifeSign") {
%SEND_EVENT("RBC_USER_DATA_INDICATION.sig("+signal.parameterValues.get("arg")+")",CONTEXT_REF(RBC_USER))%;
}

Triggers:
SAI_DATA_INDICATION Signal sig

Mapping to UMC rules:
R13_ICSL_IRBC_rbcuserdataindication
R14_ICSL_handle_lifesign
R13_CCSL_CRBC_rbcuserdataindication
R14_CCSL_handle_lifesign

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS
Guard: this.receive_timer<this.max_receive_timer && this.send_timer==this.max_send_timer
Effect: this.send_timer = 0;
this.receive_timer = this.receive_timer+1;

%SEND_EVENT("SAI_DATA_REQUEST.sig(LifeSign)",CONTEXT_REF(SAI))%;

Triggers:
TICK Signal

OUTGOING BEHAVIORAL RELATIONSHIPS

Mapping to UMC rules:
R12_ICSL_Timer_okicsl_ISAI_saidatarequest
R12_CCSL_Timer_okccsl_CSAI_saidatarequest

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to NOCOMMS
Guard: this.receive_timer==this.max_receive_timer
Effect: %SEND_EVENT("RBC_USER_DISCONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;
%SEND_EVENT("SAI_DISCONNECT_REQUEST",CONTEXT_REF(SAI))%;
this.receive_timer=0;
this.send_timer=0;

Triggers:
TICK Signal

Mapping to UMC rules:
R17_ICSL_Timer_okicsl_IRBC_rbcuserdisconnectindication_ISAI_saidisconnectrequest
R17_CCSL_Timer_okccsl_CRBC_rbcuserdisconnectindication_CSAI_saidisconnectrequest

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS
Guard: this.initiator==false
Effect: this.receive_timer=0;
this.send_timer=0;
%SEND_EVENT("RBC_USER_CONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;

Triggers:
SAI_CONNECT_INDICATION Signal

Mapping to UMC rules:
R9_CCSL_CRBC_rbcuserconnectindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS

Triggers:
SAI_ERROR_REPORT Signal

Mapping to UMC rules:
R15_ICSL_IRBC_rbcusererrorindication
R15_CCSL_CRBC_rbcusererrorindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS
Guard: this.receive_timer < this.max_receive_timer && this.send_timer<this.max_send_timer

OUTGOING BEHAVIORAL RELATIONSHIPS

Effect: this.send_timer = this.send_timer+ 1;
this.receive_timer = this.receive_timer+1;

Triggers:
TICK Signal

Mapping to UMC rules:
R11_ICSL_Timer_okicsl
R11_CCSL_Timer_okccsl

Mapping to Requirements:
(see mapping from UMC rules to requirements)

INCOMING BEHAVIORAL RELATIONSHIPS

Transition from COMMS to COMMS
Effect: this.send_timer=0;
%SEND_EVENT("SAI_DATA_REQUEST.sig("+signal.parameterValues.get("arg")+")",CONTEXT_REF(SAI))%;

Triggers:
RBC_USER_DATA_REQUEST Signal sig

Mapping to UMC rules:
R10_ICSL_ISAI_saidatarequest
R10_CCSL_CSAI_saidatarequest

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS
Effect: this.receive_timer = 0;
if (signal.parameterValues.get("arg") !="LifeSign") {
%SEND_EVENT("RBC_USER_DATA_INDICATION.sig("+signal.parameterValues.get("arg")+")",CONTEXT_REF(RBC_USER))%;
}

Triggers:
SAI_DATA_INDICATION Signal sig

Mapping to UMC rules:
R13_ICSL_IRBC_rbcuserdataindication
R14_ICSL_handle_lifesign
R13_CCSL_CRBC_rbcuserdataindication
R14_CCSL_handle_lifesign

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS
Guard: this.receive_timer<this.max_receive_timer && this.send_timer==this.max_send_timer
Effect: this.send_timer = 0;
this.receive_timer = this.receive_timer+1;

INCOMING BEHAVIORAL RELATIONSHIPS

%SEND_EVENT("SAI_DATA_REQUEST.sig(LifeSign)",CONTEXT_REF(SAI))%;

Triggers:
TICK Signal

Mapping to UMC rules:
R12_ICSL_Timer_okicsl_ISAI_saidatarequest
R12_CCSL_Timer_okccsl_CSAI_saidatarequest

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS
Guard: this.initiator==false
Effect: this.receive_timer=0;
this.send_timer=0;
%SEND_EVENT("RBC_USER_CONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;

Triggers:
SAI_CONNECT_INDICATION Signal

Mapping to UMC rules:
R9_CCSL_CRBC_rbcuserconnectindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from NOCOMMS to COMMS
Guard: this.initiator==true
Effect: this.connect_timer=this.max_connect_timer;

%SEND_EVENT("RBC_USER_CONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;

Triggers:
SAI_CONNECT_CONFIRM Signal

Mapping to UMC rules:
R8_ICSL_IRBC_rbcuserconnectindication
Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from NOCOMMS to COMMS
Guard: this.initiator==false
Effect: %SEND_EVENT("RBC_USER_CONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;

Triggers:
SAI_CONNECT_INDICATION Signal

Mapping to UMC rules:
R8_CCSL_CRBC_rbcuserconnectindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

INCOMING BEHAVIORAL RELATIONSHIPS

Transition from COMMS to COMMS

Triggers:
SAI_ERROR_REPORT Signal

Mapping to UMC rules:
R15_ICSL_IRBC_rbcusererrorindication
R15_CCSL_CRBC_rbcusererrorindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to COMMS
Guard: this.receive_timer < this.max_receive_timer && this.send_timer<this.max_send_timer
Effect: this.send_timer = this.send_timer+ 1;
this.receive_timer = this.receive_timer+1;

Triggers:
TICK Signal

Mapping to UMC rules:
R11_ICSL_Timer_okicsl
R11_CCSL_Timer_okccsl

Mapping to Requirements:
(see mapping from UMC rules to requirements)

NOCOMMS

State owned by 'CSL', in package 'Package1'

The CSL state machine NOCOMMS state, where the connection is not established

NOCOMMS
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/29/2020. Last modified 11/10/2020

OUTGOING BEHAVIORAL RELATIONSHIPS

Transition from NOCOMMS to COMMS
Guard: this.initiator==true
Effect: this.connect_timer=this.max_connect_timer;

%SEND_EVENT("RBC_USER_CONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;

Triggers:
SAI_CONNECT_CONFIRM Signal

Mapping to UMC rules:
R8_ICSL_IRBC_rbcuserconnectindication
Mapping to Requirements:
(see mapping from UMC rules to requirements)

OUTGOING BEHAVIORAL RELATIONSHIPS

Transition from NOCOMMS to COMMS
Guard: this.initiator==false
Effect: %SEND_EVENT("RBC_USER_CONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;

Triggers:
SAI_CONNECT_INDICATION Signal

Mapping to UMC rules:
R8_CCSL_CRBC_rbcuserconnectindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from NOCOMMS to NOCOMMS
Guard: this.initiator==false

Triggers:
TICK Signal

Mapping to UMC rules:
R7_CCSL_Timer_okccsl

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from NOCOMMS to NOCOMMS
Guard: this.initiator==true && this.connect_timer<this.max_connect_timer
Effect: this.connect_timer = this.connect_timer+1;

Triggers:
TICK Signal

Mapping to UMC rules:
R7_ICSL_Timer_okicsl

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from NOCOMMS to NOCOMMS
Guard: this.initiator==true && this.connect_timer==this.max_connect_timer
Effect: this.connect_timer = 0;

%SEND_EVENT("SAI_CONNECT_REQUEST",CONTEXT_REF(SAI))%;

Triggers:
TICK Signal

Mapping to UMC rules:
R6_ICSL_Timer_okicsl_ISAI_connectrequest

Mapping to Requirements:
(see mapping from UMC rules to requirements)

OUTGOING BEHAVIORAL RELATIONSHIPS

Transition from NOCOMMS to NOCOMMS

Triggers:
RBC_USER_DATA_REQUEST Signal sig
SAI_DISCONNECT_INDICATION Signal
SAI_ERROR_REPORT Signal
SAI_DATA_INDICATION Signal sig

Mapping to UMC rules:
R1_ICSL_discard_userdata,
R2_ICSL_discard_dsconnectindication,
R3_ICSL_discard_errorreport,
R4_ICSL_discard_dataindication,
R1_CCSL_discard_userdata,
R2_CCSL_discard_dsconnectindication,
R3_CCSL_discard_errorreport,
R4_CCSL_discard_dataindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

INCOMING BEHAVIORAL RELATIONSHIPS

Transition from COMMS to NOCOMMS
Effect: %SEND_EVENT("RBC_USER_DISCONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;
this.receive_timer=0;
this.send_timer=0;

Triggers:
SAI_DISCONNECT_INDICATION Signal

Mapping to UMC rules:
R16_ICSL_IRBC_rbcuserdisconnectindication
R16_CCSL_IRBC_rbcuserdisconnectindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from COMMS to NOCOMMS
Guard: this.receive_timer==this.max_receive_timer
Effect: %SEND_EVENT("RBC_USER_DISCONNECT_INDICATION",CONTEXT_REF(RBC_USER))%;
%SEND_EVENT("SAI_DISCONNECT_REQUEST",CONTEXT_REF(SAI))%;
this.receive_timer=0;
this.send_timer=0;

Triggers:
TICK Signal

Mapping to UMC rules:
R17_ICSL_Timer_okicsl_IRBC_rbcuserdisconnectindication_ISAI_saidisconnectrequest
R17_CCSL_Timer_okccsl_CRBC_rbcuserdisconnectindication_CSAI_saidisconnectrequest

INCOMING BEHAVIORAL RELATIONSHIPS

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from Initial to NOCOMMS
Effect: if (this.initiator) this.connect_timer=this.max_connect_timer;

Initially the connect_timer is reset to max_connect_timer for the initiator CSL, such that the request for connection is immediate

Transition from NOCOMMS to NOCOMMS
Guard: this.initiator==false

Triggers:
TICK Signal

Mapping to UMC rules:
R7_CCSL_Timer_okccsl

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from NOCOMMS to NOCOMMS
Guard: this.initiator==true && this.connect_timer<this.max_connect_timer
Effect: this.connect_timer = this.connect_timer+1;

Triggers:
TICK Signal

Mapping to UMC rules:
R7_ICSL_Timer_okicsl

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from NOCOMMS to NOCOMMS
Guard: this.initiator==true && this.connect_timer==this.max_connect_timer
Effect: this.connect_timer = 0;

%SEND_EVENT("SAI_CONNECT_REQUEST",CONTEXT_REF(SAI))%;

Triggers:
TICK Signal

Mapping to UMC rules:
R6_ICSL_Timer_okicsl_ISAI_connectrequest

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Transition from NOCOMMS to NOCOMMS

INCOMING BEHAVIORAL RELATIONSHIPS

Triggers:
RBC_USER_DATA_REQUEST Signal sig
SAI_DISCONNECT_INDICATION Signal
SAI_ERROR_REPORT Signal
SAI_DATA_INDICATION Signal sig

Mapping to UMC rules:
R1_ICSL_discard_userdata,
R2_ICSL_discard_dsconnectindication,
R3_ICSL_discard_errorreport,
R4_ICSL_discard_dataindication,
R1_CCSL_discard_userdata,
R2_CCSL_discard_dsconnectindication,
R3_CCSL_discard_errorreport,
R4_CCSL_discard_dataindication

Mapping to Requirements:
(see mapping from UMC rules to requirements)

Initial

Initial State owned by 'CSL', in package 'Package1'

The CSL state machine initial state

OUTGOING BEHAVIORAL RELATIONSHIPS

Transition from Initial to NOCOMMS
Effect: if (this.initiator) this.connect_timer=this.max_connect_timer;

Initially the connect_timer is reset to max_connect_timer for the initiator CSL, such that the request for connection is immediate

RBC_USER

Class in package 'Package1'

The RBC_USER class is only a stub.

RBC_USER
Version 1.0 Phase 1.0 Proposed
DavideDavide Basile (ISTI CNR Italy) created on 10/1/2020. Last modified 11/10/2020

ELEMENTS OWNED BY RBC_USER

RBC_USER : StateMachine

ASSOCIATIONS

ASSOCIATIONS
Association (direction: Source -> Destination) CSL2RBC_USER Each CSL has a reference to its own RBC_USER for sending signals Source: Public (Class) CSL Target: Public RBC_USER (Class) RBC_USER

RBC_USER

StateMachine owned by 'RBC_USER', in package 'Package1'

The RBC_USER state machine

RBC_USER
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 10/1/2020. Last modified 11/10/2020

ELEMENTS OWNED BY RBC_USER
Stub : State
Initial : Initial State

RBC_USER diagram

StateMachine diagram in package 'Package1'

The RBC_USER state machine

RBC_USER
Version 1.0
Davide Basile (ISTI CNR Italy) created on 10/1/2020. Last modified 11/10/2020

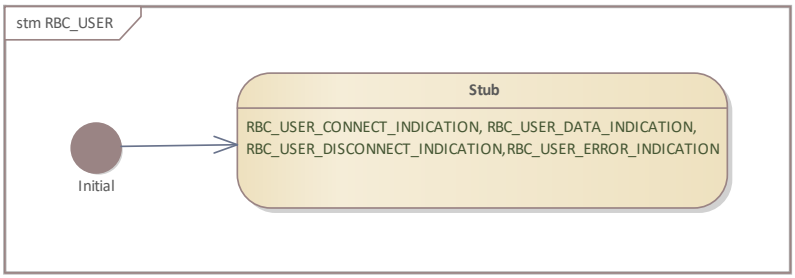

Figure 4: RBC_USER

Stub

State owned by 'RBC_USER', in package 'Package1'

The RBC_USER state machine stub state

Stub

Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 10/1/2020. Last modified 11/10/2020

OUTGOING BEHAVIORAL RELATIONSHIPS

Transition from Stub to Stub

Triggers:
RBC_USER_CONNECT_INDICATION Signal
RBC_USER_DATA_INDICATION Signal sig
RBC_USER_DISCONNECT_INDICATION Signal

INCOMING BEHAVIORAL RELATIONSHIPS

Transition from Stub to Stub

Triggers:
RBC_USER_CONNECT_INDICATION Signal
RBC_USER_DATA_INDICATION Signal sig
RBC_USER_DISCONNECT_INDICATION Signal

Transition from Initial to Stub

Initial

Initial State owned by 'RBC_USER', in package 'Package1'

The RBC_USER state machine initial state

OUTGOING BEHAVIORAL RELATIONSHIPS

Transition from Initial to Stub

SAI

Class in package 'Package1'

The Safety Application Intermediate sub-layer class. This class is now only a stub.

SAI
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/28/2020. Last modified 11/10/2020

ELEMENTS OWNED BY SAI

SAI : StateMachine

ATTRIBUTES

ATTRIBUTES

initiator : boolean Public

The attribute initiator is used to distinguish the initiator SAI from the called SAI

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Source -> Destination) CSL2SAI

Each CSL has a reference to its own SAI for sending signals

Source: Public (Class) CSL

Target: Public SAI (Class) SAI

SAI

StateMachine owned by 'SAI', in package 'Package1'

The SAI state machine

SAI
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/30/2020. Last modified 11/10/2020

ELEMENTS OWNED BY SAI

Stub : State

Initial : Initial State

SAI diagram

StateMachine diagram in package 'Package1'

The SAI state machine

SAI
Version 1.0
Davide Basile (ISTI CNR Italy) created on 9/30/2020. Last modified 11/10/2020

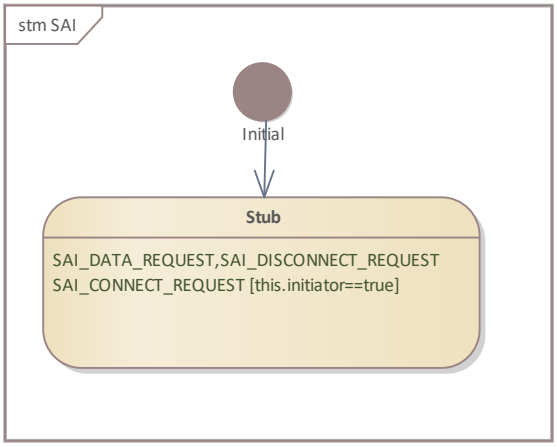

Figure 5: SAI

Stub

State owned by 'SAI', in package 'Package1'

The stub state of the SAI state machine

Stub
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/30/2020. Last modified 11/10/2020

OUTGOING BEHAVIORAL RELATIONSHIPS

Transition from Stub to Stub
Guard: this.initiator==true

Triggers:
SAI_CONNECT_REQUEST Signal

Transition from Stub to Stub

Triggers:
SAI_DATA_REQUEST Signal sig
SAI_DISCONNECT_REQUEST Signal

INCOMING BEHAVIORAL RELATIONSHIPS

Transition from Initial to Stub

Transition from Stub to Stub
Guard: this.initiator==true

Triggers:
SAI_CONNECT_REQUEST Signal

Transition from Stub to Stub

INCOMING BEHAVIORAL RELATIONSHIPS
Triggers: SAI_DATA_REQUEST Signal sig SAI_DISCONNECT_REQUEST Signal

Initial

Initial State owned by 'SAI', in package 'Package1'

The initial state of the SAI state machine

OUTGOING BEHAVIORAL RELATIONSHIPS
Transition from Initial to Stub

RBC2RBC SI

Artifact «executable statemachine» in package 'Package1'

This executable state machine represents a composition of an initiator RBC with called RBC. Only the CSL classes are developed, whilst each RBC_USER and SAI acts as environment to own CSL.

RBC2RBC SI
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/28/2020. Last modified 11/10/2020

STRUCTURAL PART OF RBC2RBC SI
C_CSL : Property The Called CSL
C_SAI : Property The called SAI
I_SAI : Property the initiator SAI
C_RBC_USER : Property The called RBC_USER
I_CSL : Property the initiator CSL

STRUCTURAL PART OF RBC2RBC SI
I_RBC_USER : Property The initiator RBC_USER

C_CSL

Property owned by 'RBC2RBC SI', in package 'Package1'

The Called CSL

C_CSL
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 10/14/2020. Last modified 10/29/2020

OUTGOING STRUCTURAL RELATIONSHIPS
Connector from C_CSL to C_RBC_USER [Direction is 'Unspecified'.]
Connector from C_CSL to C_SAI [Direction is 'Unspecified'.]

RUN STATES	OPERATOR	VALUE	NOTES
initiator	=	false	The called CSL
max_send_timer	=	1	these values are not significant, they are just a possible set-up of parameters
max_receive_timer	=	2	these values are not significant, they are just a possible set-up of parameters

C_SAI

Property owned by 'RBC2RBC SI', in package 'Package1'

The called SAI

C_SAI
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 10/16/2020. Last modified 10/29/2020

INCOMING STRUCTURAL RELATIONSHIPS
Connector from C_CSL to C_SAI [Direction is 'Unspecified'.]

RUN STATES	OPERATOR	VALUE	NOTES
initiator	=	false	The called SAI

I_SAI

Property owned by 'RBC2RBC SI', in package 'Package1'

the initiator SAI

I_SAI
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 10/16/2020. Last modified 10/29/2020

INCOMING STRUCTURAL RELATIONSHIPS
Connector from I_CSL to I_SAI [Direction is 'Unspecified'.]

RUN STATES	OPERATOR	VALUE	NOTES
initiator	=	true	The initiator SAI

C_RBC_USER

Property owned by 'RBC2RBC SI', in package 'Package1'

The called RBC_USER

C_RBC_USER
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 10/1/2020. Last modified 10/29/2020

INCOMING STRUCTURAL RELATIONSHIPS
Connector from C_CSL to C_RBC_USER [Direction is 'Unspecified'.]

I_CSL

Property owned by 'RBC2RBC SI', in package 'Package1'

the initiator CSL

I_CSL
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 9/28/2020. Last modified 10/29/2020

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS
Connector from I_CSL to I_RBC_USER [Direction is 'Unspecified'.]
Connector from I_CSL to I_SAI [Direction is 'Unspecified'.]

RUN STATES	OPERATOR	VALUE	NOTES
initiator	=	true	The initiator CSL
max_send_timer	=	1	these values are not significant, they are just a possible set-up of parameters
max_connect_timer	=	3	these values are not significant, they are just a possible set-up of parameters
max_receive_timer	=	2	these values are not significant, they are just a possible set-up of parameters

I_RBC_USER

Property owned by 'RBC2RBC SI', in package 'Package1'

The initiator RBC_USER

I_RBC_USER
Version 1.0 Phase 1.0 Proposed
Davide Basile (ISTI CNR Italy) created on 10/1/2020. Last modified 10/29/2020

INCOMING STRUCTURAL RELATIONSHIPS
Connector from I_CSL to I_RBC_USER [Direction is 'Unspecified'.]