CHI Assertion IP
User Guide

Version 2022.06-SP1-1, October 2022

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Preface

This guide discusses the installation, setup, and usage for SystemVerilog Assertion IP(AIP) AMBA CHI, and is meant for design or verification engineers who want to verify the RTL designs with an AMBA CHI interface. Readers are assumed to be familiar with the AMBA CHI protocol, SystemVerilog Assertions and Verilog language.

Guide Organization

The chapters of this guide are organized as follows:

Chapter 1,"Introduction", introduces Synopsys AMBA CHI Assertion IP(AIP) and its features.

Chapter 2, "Installation and Setup", describes system requirements and provides instructions on how to install, configure, and begin using Synopsys AMBA CHI AIP.

Chapter 3, "The CHI AIP in the Formal Verification Environment", introduces the formal tool usage and the CHI AIP in a formal (that is, static verification) environment.

Chapter 4, "The CHI AIP Configuration", describes the programming or user interface ports, list of properties, and behavior of the CHI AIP.

Chapter 5, "The CHI AIP Use Cases", shows how to install and run an example.

Web Resources

The CHI AIP is compliant with the following specifications:

- AMBA specification (ARM IHI 0050A) (ARM IHI 0050B) (ARM IHI 0050C) (ARM IHI 0050D) (ARM IHI 0050E_V8)
- AMBA compliance protocol rules and coverage document
- AMBA FAQ document

Customer Support

To obtain support for your product, choose one of the following:

- Open a case through SolvNet.
  - Go to https://onlinecase.synopsys.com/Support/OpenCase.aspx and provide the requested information, including:
    - **Product L1**: VC Static
    - **Sub Product 1**: Formal

- **Product Version**: 2019.06-SP2-7

  Fill in the remaining fields according to your environment and issue.

- Send an e-mail message to support_center@synopsys.com.

  Include the product name, sub-product name, and product version (as noted above) in your e-mail, so it can be routed correctly.

- Telephone your local support center.

  North America:

  Call 1-800-245-8005 from 7 AM to 5:30 PM Pacific time, Monday through Friday.

  All other countries:

  http://www.synopsys.com/Support/GlobalSupportCenters

1 Introduction

This document describes the CHI protocol SVA checkers available in the CHI Assertion IP (AIP). It also describes all parameters related to configurations, how to configure the CHI AIP, how to instantiate the CHI AIP, and so on.

The CHI AIP is significant in reducing verification effort and improving design quality. Its value comes from the fact that assertions can passively monitor design behavior by simply monitoring a target design, without modifying its RTL. Pre-built assertions from the CHI AIP provides powerful quality criteria for signoff.

This chapter consists of the following sections:

- Prerequisites
- References
- Product Overview
- Language and Methodology Support
- Feature Support
- Features Not Supported

Note
Based on the AMBA Progressive Terminology updates, you must interpret the term Master as Manager and Slave as Subordinate in the AIP documentation and messages.

1.1 Prerequisites

Familiarize with CHI protocol, SystemVerilog Assertion knowledge, and SystemVerilog language concepts.

1.2 References

The CHI AIP is compliant with the following specifications:

- AMBA specification (ARM IHI 0050A) (ARM IHI 0050B) (ARM IHI 0050C) (ARM IHI 0050D)
- AMBA FAQ document (http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.set.amba/index.html)

1.3 Product Overview

The CHI AIP is a suite of SystemVerilog Assertions and SystemVerilog modeling logic that are compatible for use with synthesizable testbenches and the RTL. This AIP is used to verify the RTL with the VC Formal tool.

The CHI AIP consists of the following:

- Assertion properties
- Assume properties
- Cover properties
- Synthesizable modeling logic for the Properties

1.4 Language and Methodology Support

The CHI AIP supports the following languages and methodology:

- SystemVerilog Assertions
- SystemVerilog

1.5 Feature Support

1.5.1 Protocol Features

The CHI AIP currently supports the following protocol features:

- All data widths
- All address widths
- All packet types for requests and snoops
- All types of nodes
- All atomic operations
- All DVM operations
- All slave response types
- Exclusive transactions

1.5.2 Verification Features

The CHI AIP can be used to verify the RTL in configurations where:

- CHI AIP acts as master
- CHI AIP acts as slave
- CHI AIP acts as monitor
- CHI AIP acts as constraint provider

1.6 Features Not Supported

This version of the CHI AIP is fully compatible with the CHI specification for CHI-A, CHI-B, CHI-C, and CHI-D. It also implements a minimal part of the CHI-E protocol spec in that it implements the interface of CHE-E and a very minimal, rudimentary set of CHI-E properties.

2 Installation and Setup

This chapter guides you through installing and setting up the CHI AIP. When you complete the checklist mentioned below, the provided example gets operational and you can use the CHI AIP.

The checklist consists of the following major steps:

- "Verifying Hardware Requirements"
- "Verifying Software Requirements"
- "Preparing for Installation"

2.1 Verifying Hardware Requirements

The CHI AIP requires a Linux workstation configured as follows:

- 400 MB available disk space for installation
- 1 GB available swap space
- 1 GB RAM (physical memory) recommended
- FTP anonymous access to ftp.synopsys.com (optional)

2.2 Verifying Software Requirements

This section lists software that the CHI AIP requires.

- VCS version 2020.03-SP1-1 (Simulator)
- Verdi version 2020.03-SP1-1 (Debugger)
- VCF version 2020.03-SP1-1 (Formal)
- VC version 2020.03-SP1-1 (Verification Compiler Platform)

2.2.1 Platform/OS and Simulator Software

- VC Formal is required

2.2.2 Synopsys Common Licensing (SCL) Software

The CHI AIP requires the following license feature:

```
AIP-CHI-SVA
```

The following topics describe the required environment variables and path settings for the CHI AIP:

2.2.2.1 Running the CHI AIP on the VC Formal Tool

To run the CHI AIP on the VC Formal tool, set the following environment variable:

SNPSLMD_LICENSE_FILE: The absolute path to file(s) that contains the license keys for Synopsys software (AIP and/or other Synopsys Software tools) or the port@host reference to this file.

Example:

```
setenv SNPSLMD_LICENSE_FILE <port>@<server>:${SNPSLMD_LICENSE_FILE}
```

or

```
setenv SNPSLMD_LICENSE_FILE <full path to the license file>:${SNPSLMD_LICENSE_FILE}
```

2.2.2.2 Running the CHI AIP on VCS

To run the CHI AIP on VCS, set the following two environment variables:

- SNPSLMD_LICENSE_FILE
- DW_LICENSE_FILE: The absolute path to file that contains the license keys for the AIP product software or the port@host reference to this file.

Example,

```
setenv SNPSLMD_LICENSE_FILE <port>@<server>:${SNPSLMD_LICENSE_FILE}
setenv DW_LICENSE_FILE <port>@<server>:${DW_LICENSE_FILE}
```

or

```
setenv SNPSLMD_LICENSE_FILE <full path to the license file>:${SNPSLMD_LICENSE_FILE}
setenv DW_LICENSE_FILE <full path to the license file>:${DW_LICENSE_FILE}
```

Table 2-1 AIP Licensing Key Features

Package Name	Feature Keys	Included Titles
VC Formal AIP AMBA APB	AIP-APB-SVA	APB4, APB3, and APB2
VC Formal AIP AMBA AHB	AIP-AHB-SVA	AHB5, AHB and AHB-Lite
VC Formal AIP AMBA AXI	AIP-AXI-SVA	AXI4, AXI4-Lite and AXI3
VC Formal AIP AMBA ACE	AIP-ACE-SVA	ACE, ACE-Lite, AXI4, AXI4-Lite and AXI3
VC Formal AIP AMBA5 AXI	AIP-AXI5-SVA	AXI5 and AXI5-Lite
VC Formal AIP AMBA5 CHI	AIP-CHI-SVA	CHI B, C, D and E

2.2.3 Other Third-Party Software

Adobe Acrobat: The documentation of the CHI AIP is available in Acrobat PDF files. You can get Adobe Acrobat Reader for free from http://www.adobe.com.

- HTML browser: You can view the coverage reports of the CHI AIP in HTML using the following browsers:
  - Microsoft Internet Explorer 6.0 or later (Windows)
  - Firefox 1.0 or later (Windows and Linux)
  - Netscape 7.x (Windows and Linux)

2.3 Preparing for Installation

Ensure that your environment and PATH variables are set correctly. For information on the environment variables and path settings required for the CHI AIP, see "Synopsys Common Licensing (SCL) Software" on page 15.

3 The CHI AIP in the Formal Verification Environment

This chapter describes the simulation environment for the CHI AIP, usage of the VC Formal tool, and the CHI AIP usage in a formal verification environment. This chapter discusses the following topics:

- "Introduction to the VC Formal Tool" on page 19
- "The CHI AIP in a Formal Verification Environment" on page 19

3.1 Introduction to the VC Formal Tool

The VC Formal tool is used to verify assertion properties on a circuit by examining all sequences of possible value combinations for the signals that it monitors. These signal values can be constrained either by the assume properties in the CHI AIP. The VC Formal tool provides the following information:

- Number of proven properties
- Number of falsified properties
- Number of vacuous properties
- Number of covered properties
- Number of witness properties

The VC Formal tool is useful for debugging failing properties by means of its GUI interface. For running the properties in the VC Formal tool, the following information must be provided through the tool's command line interface or through a TCL script:

- The path of the CHI AIP source code
- The path of the RTL source code (if validating the RTL)
- Clock and reset information
- Timeout details

3.2 The CHI AIP in a Formal Verification Environment

The CHI AIP has properties to verify various agents in CHI protocol. These properties are automatically instantiated per AIP configuration. Also, CHI AIP should be configured properly based on DUT specification. The CHI AIP can be configured by setting parameters which are described in Table 4-1. Refer to The CHI AIP Configuration Example for information on how to configure the CHI AIP.

To use the CHI AIP in a formal verification environment, perform the following steps in a sequence:

- Instantiating the CHI AIP using the `bind` statement
- Creating a Tcl file
- Reading and running a Tcl file
- Analyzing results

3.2.1 Instantiating the CHI AIP Using the bind Statement

Create a bind file to bind the CHI AIP with a design. Map modules and port names in the design with those of the CHI AIP in the bind statement. Pass valid values to the configuration parameters of the CHI AIP. The next step is to compile files.

Note

If a signal corresponding to the CHI AIP port does not exist in the DUT, set inactive value or the value expected by the DUT for the port. For example, if the DUT does not have the `SYSCOREQ` signal, set with `1'b0`.

3.2.2 Creating a Tcl File

To compile the DUT and the attached CHI AIP (including RTL files, AIP files, and bind file), create a Tcl file to set the path of the RTL directory, the CHI AIP directory, and the bind file. The DUT clock and reset are initialized with `create_clock` and `create_reset` commands as shown in Table 3-1. VC Formal can report assertion status (proven, falsified, vacuous or inclusive using the `report_fv` command).

Table 3-1 Tcl File Example

```
set AIP_SRC_DIR  \
$::env(VC_STATIC_HOME)/packages/aip/CHI_AIP/src
#set AIP_SRC_DIR ../../../src
set TBH_DIR ../tb

# Options
set design chi_tb
set vcs " \
  +incdir+${AIP_SRC_DIR} \
  ${AIP_SRC_DIR}/snps_amba5_aip_pkg.sv \
  ${AIP_SRC_DIR}/snps_chi_aip.sv \
  ${TBH_DIR}/chi_tb.sv \
  ${TBH_DIR}/bind_chi_aip.sv \
  -assert svaext \
"
#Enable all Formal debug modes
set_fml_appmode FPV

# Enable Witness Trace Generation
set_fml_var fml_witness_on true
```

```
# Enable Coverage Trace Generation
set_fml_var fml_cov_gen_trace on

read_file -sva -top $design -format sverilog -
vcs "$vcs"

create_clock SCLK -period 100

create_reset SRESETn -low

sim_run
sim_save_reset

set_fml_var fml_max_time 20M
check_fv -run_finish {
   report_fv -list > report_chi_aip.txt
}
```

3.2.3 Reading and Running a Tcl File

To read and run a Tcl file, use either of the following two modes:

- "GUI Mode" on page 21
- "Reading and Running Tcl File in Batch Mode" on page 23

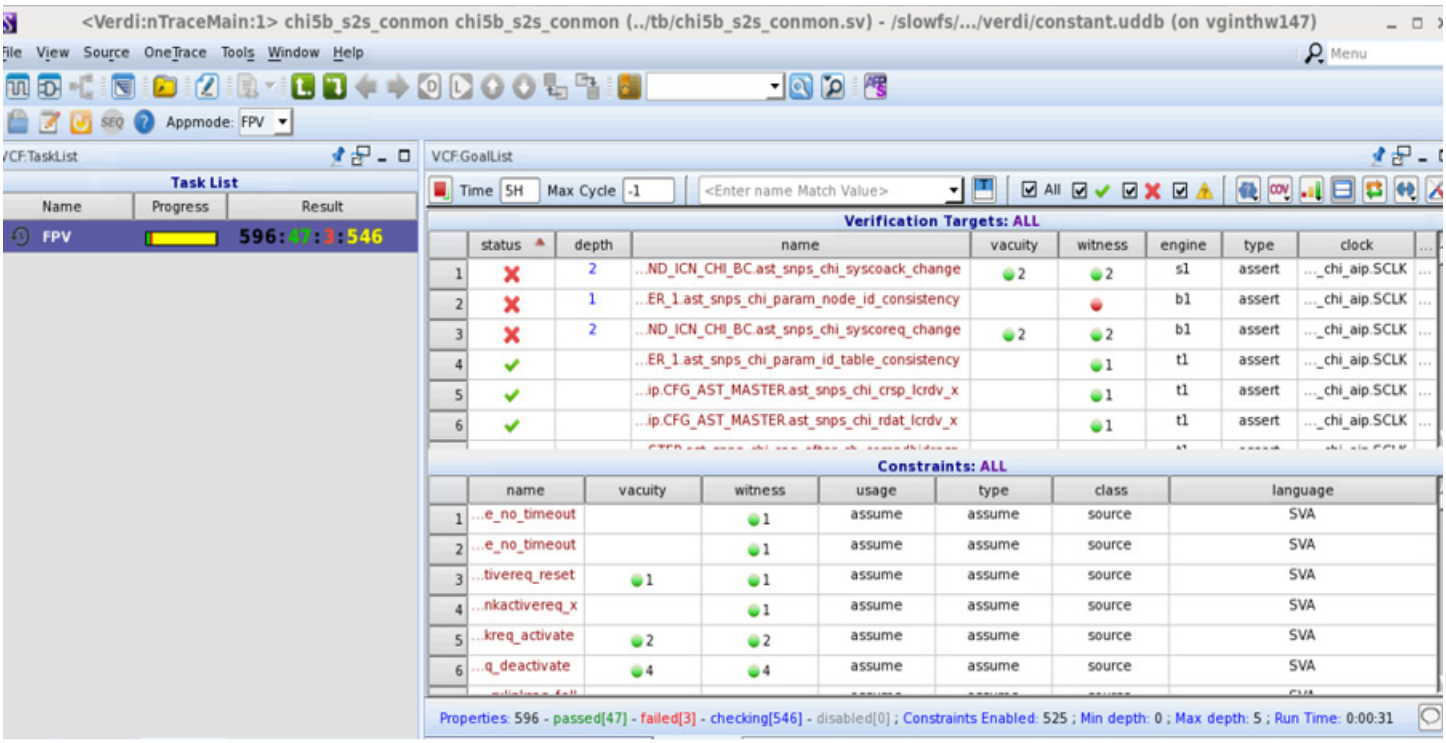
3.2.3.1 GUI Mode

To read a VC Formal Tcl file, invoke the VC Formal tool in the GUI mode and perform the following steps:

1. Navigate to the folder containing the Tcl file.
2. Open VC Formal in the GUI mode using the `vcf -gui -f <tcl file>` command.

After all the properties are executed, the VC Formal tool displays the list of properties (see Figure 3-1). In Figure 3-1, the red cross indicates a falsified property and the green tick marks indicate proven properties.

Figure 3-1 VC Formal Tool showing Falsified and Proven Properties



3.2.3.1.1 Analyzing Results for GUI Mode Run

After running a session, its results are dumped into the `vcf.log` file. This log file gives the number of proven, falsified, vacuous, inconclusive, and covered properties. When there are no falsifications, a design is qualified with regard to the parameters configured in a Tcl file.

If properties are falsified, you should debug them to find the root cause. Perform the following steps to debug the falsification:

1. Right-click on any of the failures which you need to debug to view the options, such as View Trace, Explore the Property, Report, and so on.
2. When you select the View Trace option, waveforms are opened, providing signal details and falsification depth. You can dump other signals required for debugging into a wave as well.

You can also explore the options in the VC Formal tool and debug the failure. See the VC Formal User Guide for more information on options. Figure 3-2 and Figure 3-3 shows options to debug falsified properties and waveforms in the GUI mode respectively.

Figure 3-2 VC Formal Tool Showing Options to Debug Failing Properties

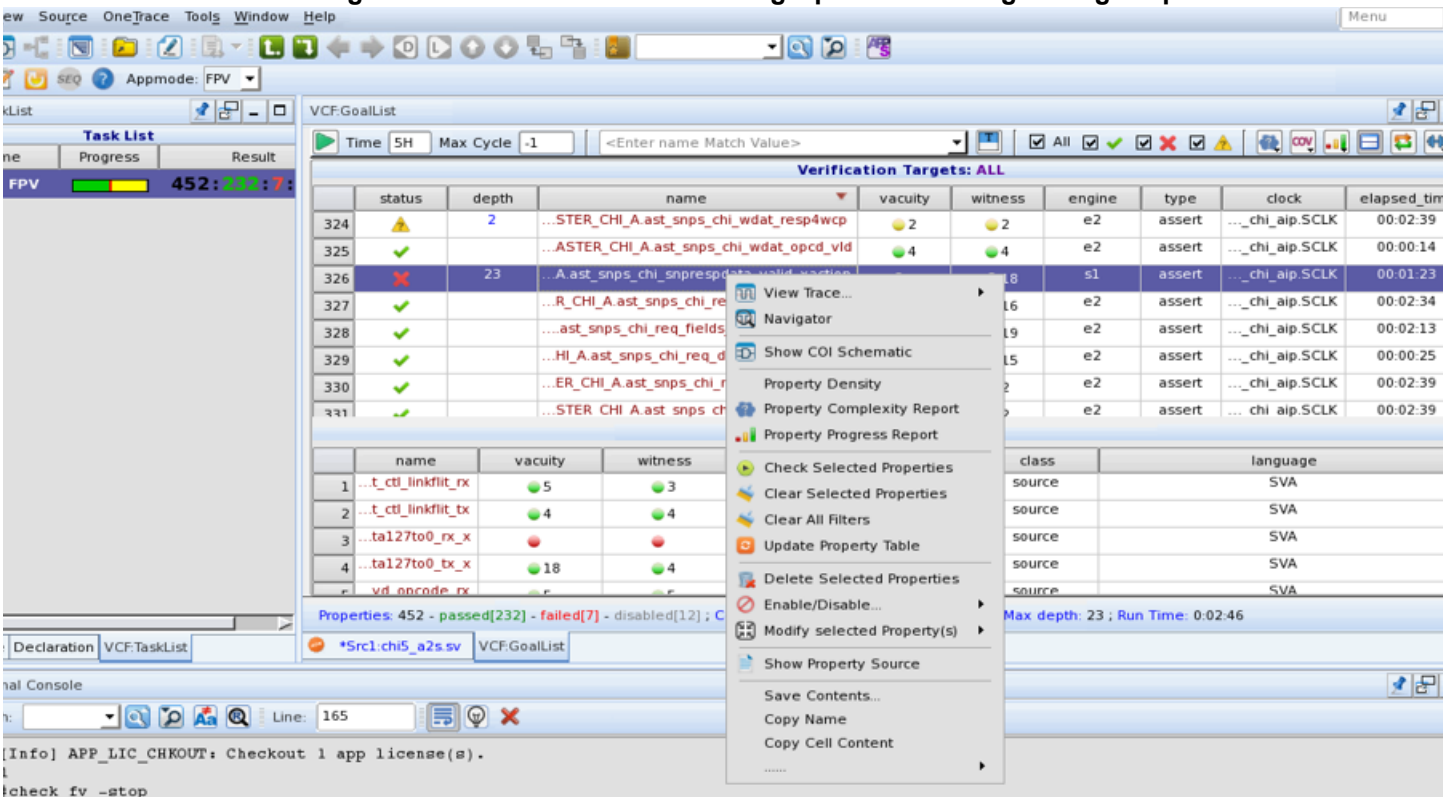
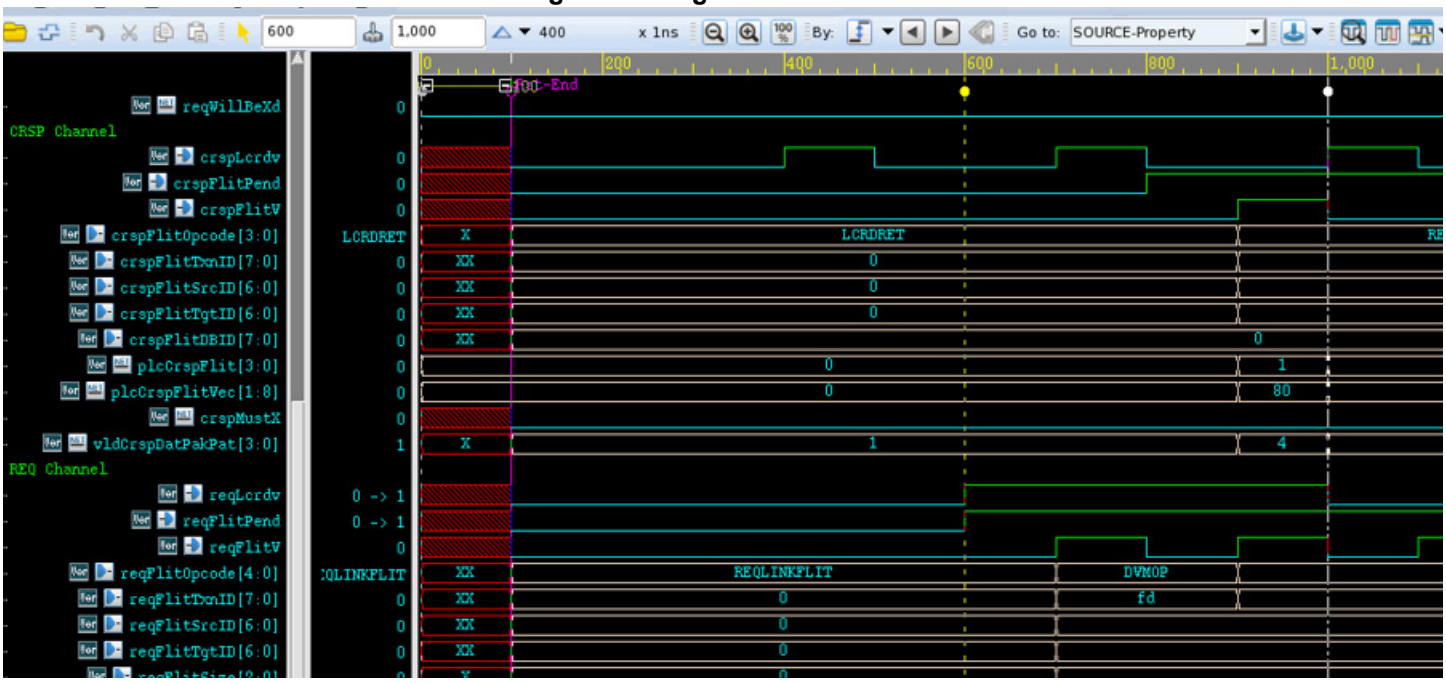


Figure 3-3 Signal Behavior in Waveforms



3.2.3.2 Reading and Running Tcl File in Batch Mode

To read a VC Formal Tcl file using the command line, perform the following steps:

1. Check whether VC Static is installed and exists in PATH. For this, use the following command:

   ```
   % which vcf
   ```

   If the command gives the 'Command not found' error, install the VC Static tool.

2. Run a Tcl file using the following command:

   ```
   % vcf  -f  <tcl file name>
   ```

   For more information on the VC formal command line options, see the VC Formal User Guide.

Once the Tcl file is read, the tool runs a formal session and give results, such as proven or falsified for various properties that are specified in the VC Formal Tcl file.

3.2.3.2.1 Analyzing Results for Batch Mode Run

After running a session, results are dumped into a log file. This log file gives the number of proven, falsified, vacuous, inconclusive, and covered properties. If there are no falsifications, a design is qualified with regard to the parameters configured in a Tcl file.

If properties are falsified, you should debug them to find the root cause. Perform the following steps to debug the falsification

On the VC Formal window, execute the following commands:

1. `get_props -status falsified`

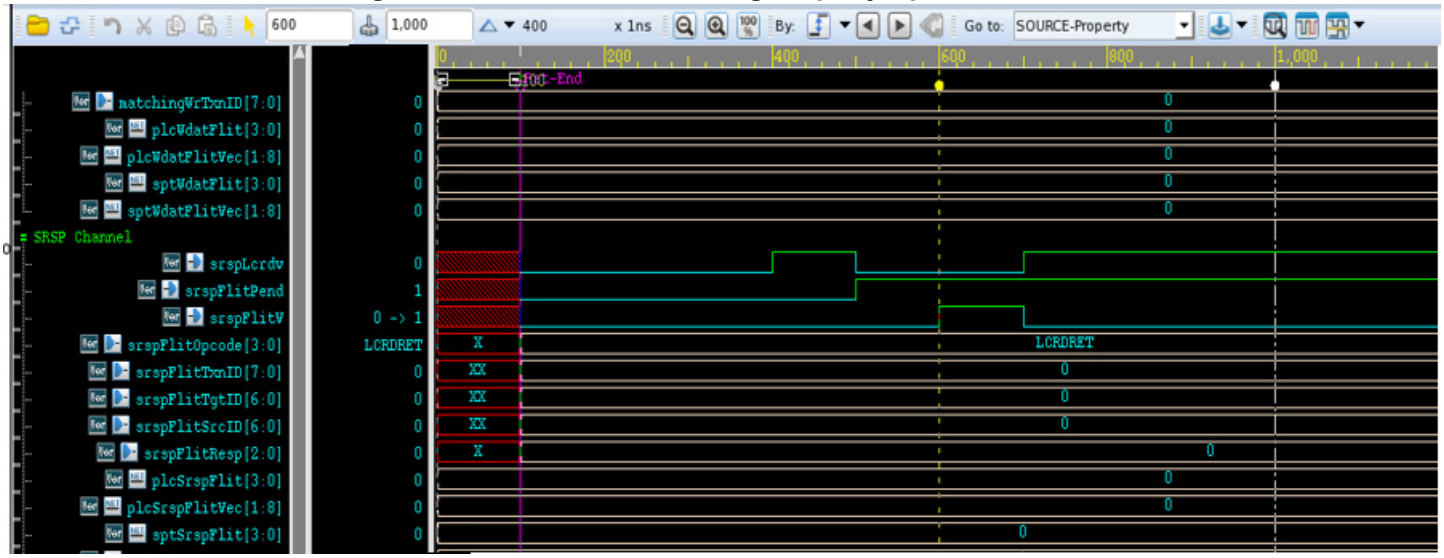
   To display the number of falsified properties.

2. `view_trace -property <property name with path of property shown in get_props command>`

   To open the VC Formal tool and to display the waveforms of a falsified property which you want to debug.

Figure 3-4 shows the waveforms of the falsified property opened in the batch mode for analyzing the results.

Figure 3-4 Waveforms of Failing Property Opened in the Batch Mode



4 The CHI AIP Configuration

This chapter describes about configuration of the CHI AIP in the following sections:

- "The CHI AIP Configuration Parameters" on page 25
- "Interface Ports" on page 29
- "The CHI AIP Properties" on page 29
- "The CHI AIP Link State Machine Cover Properties" on page 84

4.1 The CHI AIP Configuration Parameters

Table 4-1 shows the user-defined parameters for setting the interface characteristics of the CHI AIP. You can change these parameters to match your design specification.

Table 4-1 The CHI AIP Configuration Parameters

Parameter Name	Parameter Description
AGENT_TYPE	Specify the role of the CHI AIP instance: MASTER, SLAVE, MONITOR, CONSTRAINT
INTF_TYPE	RNF_ICN, RND_ICN, RNI_ICN, ICN_SNF, ICN_SNI
SPEC_VERSION	CHI_A, CHI_B, CHI_C, CHI_D, CHI_E
SPEC_FORM	Particular customer specific CHI Protocol flavor (communicated to customer)
ENABLE_ASSERT	Enable/Disable the Assertions
ENABLE_ASSUME	Enable/Disable the Assumptions
ENABLE_COVER	Enable/Disable the Covers
COMMPAIR_EXPECTED	Enable/Disable the Assumptions and Assertions for valid communication ID pairs
SNP_MAX_NUM	Maximum number of snoops tracked
REQ_MAX_NUM	Maximum Number of Requests tracked
WIDTH_SRCTGT_ID	Bit width of Source/Target ID field

Table 4-1 The CHI AIP Configuration Parameters

Parameter Name	Parameter Description
NODE_ID	The ID of the Non-ICN Node represented by the current CHI AIP instantiation
NUM_NODES	Number of Nodes in the overall CHI system being modeled
NODE_ID_TABLE	The NODE ID of each node in the CHI System modeled
DEVTYPE_TABLE	Device Type of each node in the CHI system modeled
SUPPORT_DMT	Which nodes support Direct Memory Transfer
WIDTH_TXNID	Width of corresponding Field
WIDTH_RETURNTXNID	Width of corresponding Field
WIDTH_DBID	Width of corresponding Field
WIDTH_NODEID	Width of corresponding Field
WIDTH_DAT_DATA	Width of corresponding Field
WIDTH_DAT_BE	Width of corresponding Field
WIDTH_DAT_TAG	Width of corresponding Field in CHI_E
WIDTH_DAT_TU	Width of corresponding Field in CHI_E
WIDTH_DAT_RSVDC	Width of corresponding Field
WIDTH_REQ_RSVDC	Width of corresponding Field
WIDTH_DATA_CHECK	Width of corresponding Field
WIDTH_MPAM	Width of corresponding Field in CHI_D onwards
WIDTH_POISON	Width of corresponding Field
WIDTH_LPID	Width of corresponding Field
WIDTH_PCRDTYPE	Width of corresponding Field
WIDTH_SNPATTR	Width of corresponding Field
WIDTH_REQ_FLIT_OPCOD	Width of corresponding Field
WIDTH_DAT_FLIT_OPCOD	Width of corresponding Field
WIDTH_RSP_FLIT_OPCOD	Width of corresponding Field
WIDTH_REQ_FLIT_ADDR	Width of corresponding Field
WIDTH_SNP_FLIT_OPCOD	Width of corresponding Field
WIDTH_SNP_FLIT_ADDR	Width of corresponding Field
WIDTH_REQ_FLIT	Width of corresponding Field
WIDTH_DAT_FLIT	Width of corresponding Field

Table 4-1 The CHI AIP Configuration Parameters

Parameter Name	Parameter Description
WIDTH_RSP_FLIT	Width of corresponding Field
WIDTH_SNP_FLIT	Width of corresponding Field
DATA_SRC_ENB	Enable/Disable checks for the Data Source field
DATA_SRC_BY_INT	The interconnect is the Data source
LINK_RACE	Enable/Disable Race Condition Properties
MAX_LINK_ACTIVATE	Timeout cycles from LINK Activate to LINK Activate
MAX_LINK_DEACTIVATE	Timeout cycles from LINK Deactivate to LINK Deactivate
MAX_NO_LCREDIT	Link credit should be positive within so many cycles of activation
MAX_RACE_CREDITS	Cover traces up to max cycles for no valid in race state with available L-credits
CHECK_PARAMETER	Check whether given parameters are consistent
CHECK_SIM_END	Whether to perform the checks meant for the End of Simulation
CHECK_DEADLOCK	Enable/Disable the Deadlock Properties
CHECK_MIN_LATENCY	Enable/Disable the Minimum Latency properties
CHECK_EXRD_BFR_EXWR	Check Exclusive Reads before Exclusive Writes
ALLOW_WCP	Allow/Disallow Write Clean Partial
CACHE_STATES	Enable/Disable the modeling of states in Cache Lines
N_RXCOMPDATA	Latency from reqFlitV with Read transaction to the last data of rdatFlitV with CompData
N_TXCOMPACKRSP	Latency from last data of rdatFlitV with CompData for read request with ExpCompAck to srspFlitV with CompAck
N_RXRDRCPT	Latency from reqFlitV with ordered read to crspFlitv with readReceipt
N_RXCOMPRSP	Latency from reqFlitV with Dataless to crspFlitV with Comp
N_RXCOMPDBIDRSP	Latency from reqFlitV nonCopyBackWrite to crspFlitV with CompDBID or DDBID or COMP
N_RXDBIDRSP	Latency from reqFlitV with NonCopyBackWrite and crspFlitV with Comp to crspFlitV with DBID
N_TXWRDATA	Latency from crspFlitV with CompDBID or DBID for NonCopyBack write to srspFlitV with CompAck
N_RXCOMPDBIDRSP_AT	Latency from reqFlitV with AtomicStore to crspFlitV with CompDBIDResp, DBIDResp or Comp
N_RXCOMPRSP_AT	Latency from crspFlitV with Comp to crspFlitV with DBIDResp

Table 4-1 The CHI AIP Configuration Parameters

Parameter Name	Parameter Description
N_RXDBIDRSP_AT	Latency from crspFlitV with CompDBIDResp, DBIDResp or Comp for AtomicStore to crspFlitV with Comp
N_TXDATA	Latency from crspFlitV with DBIDResp or CompDBIDResp for AtomicStore to wdatFlitV for AtomicStore
N_TXCOMPRSP	Latency from wdatFlitV with NonCopyBackWrData for DVMOP to crspFlitV with Comp for DVMOP
N_TXSNPRSP	Latency from snpFlitV with other than DVMOP to srspFlitV with SnpResp
N_TXRETRY	Latency from srspFlitV with RetryAck and PCrdGrant to reqFlitV with P-cred it or return the Credit
N_RETRYACK	Latency from PCrdGrant to RetryAck
N_PCRDGRANT	Latency from RetryAck to PCrdGrant
RDATA_MINLAT	Minimum latency from reqFlitV with Read transaction to the first data of rdatFlitV with CompData
WDATA_MINLAT	Minimum latency for the completion of Write Request
PARITY_VALID_LANE	Check Parity for all byte lanes or only for the valid ones
NUM_HN	Number of Home Nodes in the CHI System we are modeling
HN_FUNC_TABLE	Per HN we list (support for Stashing, Support for DCT)
CHECK_REQ_COMPLETE	Check whether all Requests have completed
MAX_REQ_TR_TIMEOUT	Maximum number of cycles for the completion of a REQ
CHECK_SNP_COMPLETE	Check whether all Snoops have completed
MAX_SNP_TR_TIMEOUT	Maximum number of cycles for the completion of a Snoop
CHECK_SAM_REMAP	Check whether Remapping happened according to the SAM
TGT_ID_REMAP_BY_ICN	Enable/Disable Target ID remapping by the ICN
DVM_COMPLETE_B4SYNC	Check whether DVM transactions have completed before DVM SYNC is issued
NUM_SAM_RANGES	How many address ranges we have in the System Address Map (SAM)
SAM_START	The starting address of each range
SAM_END	The Ending Address of each range
SAM_TGT_ID	The Target ID for the Agent of that Address Range
LINK_COVER	Enable/1 or Disable/0 corresponding cover properties
SACTIVE_COV	Enable/1 or Disable/0 corresponding cover properties
RACE_COV	Enable/1 or Disable/0 corresponding cover properties

Table 4-1 The CHI AIP Configuration Parameters

Parameter Name	Parameter Description
LASTATE_COV	Enable/1 or Disable/0 corresponding cover properties
SYSCO_COV	Enable/1 or Disable/0 corresponding cover properties
DELAY_COV	Enable/1 or Disable/0 corresponding cover properties
ACTIVITY_COV	Enable/1 or Disable/0 corresponding cover properties
LINKACT_MAX_DELAY	LinkActive Maximum delay counts
MAX_FLIT_CONSEC	Maximum number of cycles of consecutive reqFlitV
MAX_SPEC_SACTIVE	Maximum number of cycles of speculative (TX/RX)SACTIVE
REQ_NUM_REPLIC_INTFS	The number of replicated channels on REQ interface, default is 1 (no replicated channels)
WDAT_NUM_REPLIC_INTFS	The number of replicated channels on WDAT interface, default is 1 (no replicated channels)
SRSP_NUM_REPLIC_INTFS	The number of replicated channels on SRSP interface, default is 1 (no replicated channels)
CRSP_NUM_REPLIC_INTFS	The number of replicated channels on CRSP interface, default is 1 (no replicated channels)
RDAT_NUM_REPLIC_INTFS	The number of replicated channels on RDAT interface, default is 1 (no replicated channels)
SNP_NUM_REPLIC_INTFS	The number of replicated channels on SNP interface, default is 1 (no replicated channels)

4.2 Interface Ports

The interface of the CHI AIP includes the channels from the CHI specification documentation, that is, REQ, SNP, WDAT, RDAT, SRSP and CRSP. It also includes the link activation signals and the global clock and reset signals as specified by the relevant ARM documentation.

4.3 The CHI AIP Properties

Table 4-2 describes the CHI AIP channel properties.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_reqFlitpend_1clkB4_reqFlitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_wdatFlitpend_1clkB4_wdatFlitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_srspFlitpend_1clkB4_srspFlitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_excl_snpabl_vld_reqs	
p_snps_chi_req_ctl_linkflit	ReqLCrdReturn Req Flit must have TxnID with 0
p_snps_chi_req_ctl_rdsh	ReadShared Req Flit must have specific control fields
p_snps_chi_req_ctl_rdcl	ReadClean Req Flit must have specific control fields
p_snps_chi_req_ctl_rd1nce	ReadOnce Req Flit must have specific control fields
p_snps_chi_req_ctl_rduniq	ReadUnique Req Flit must have specific control fields
p_snps_chi_req_ctl_clnshrd_chia	CleanShared Req Flit must have specific control fields
p_snps_chi_req_ctl_clnshrd_chib	CleanShared Req Flit must have specific control fields
p_snps_chi_req_ctl_clninvld_chia	CleanInvalid Req Flit must have specific control fields
p_snps_chi_req_ctl_clninvld_chib	CleanInvalid Req Flit must have specific control fields
p_snps_chi_req_ctl_mkinvld_chia	MakeInvalid Req Flit must have specific control fields
p_snps_chi_req_ctl_mkinvld_chib	MakeInvalid Req Flit must have specific control fields
p_snps_chi_req_ctl_clnuniq	CleanUnique Req Flit must have specific control fields
p_snps_chi_req_ctl_mkuniq	MakeUnique Req Flit must have specific control fields
p_snps_chi_req_ctl_wruniqptlstsh	WriteUniquePtlStash Req Flit must have specific control fields
p_snps_chi_req_ctl_wruniqfullstsh	WriteUniqueFullStash Req Flit must have specific control fields
p_snps_chi_req_ctl_stash1nceshrd	StashOnceShared Req Flit must have specific control fields
p_snps_chi_req_ctl_stash1nceunq	StashOnceUnique Req Flit must have specific control fields
p_snps_chi_req_ctl_prefetchtgt	PreFetchTgt Req Flit must have specific control fields
p_snps_chi_req_ctl_wruniqptl	WriteUniquePtl Req Flit must have specific control fields
p_snps_chi_req_ctl_wruniqfull	WriteUniqueFull Req Flit must have specific control fields
p_snps_chi_req_ctl_evict	Evict Req Flit must have specific control fields
p_snps_chi_req_ctl_wrevictfull	WriteEvictFull Req Flit must have specific control fields
p_snps_chi_req_ctl_wrcleanptl	WriteCleanPtl Req Flit must have specific control fields
p_snps_chi_req_ctl_wrclnfull	WriteCleanFull Req Flit must have specific control fields
p_snps_chi_req_ctl_wrbackptl	WriteBackPtl Req Flit must have specific control fields
p_snps_chi_req_ctl_wrbackfull	WriteBackFull Req Flit must have specific control fields
p_snps_chi_req_ctl_wrnosnpptl	WriteNoSnpPtl Req Flit must have specific control fields
p_snps_chi_req_ctl_eobarrier	EOBarrier Req Flit must have specific control fields

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_ctl_ecbarrier	ECBarrier Req Flit must have specific control fields
p_snps_chi_req_ctl_pcrdreturn	PCrdReturn Req Flit must have specific control fields
p_snps_chi_req_wrnosnpf_dev_addr_algn	WriteNoSnoopFull Req Flits to device Memory must have addresses that are cache-line size aligned
p_snps_chi_req_ctl_memdev_invld	Illegal Control Combination for Device Memory Type Req Flits
p_snps_chi_req_mem_dev_cacheable	MemAttr[Device] asserted necessitates MemAttr[Cacheable] deasserted.
p_snps_chi_req_memattr_ilgl_d100	Illegal Memory Attribute combination D100
p_snps_chi_req_memattr_ilgl_100d	Illegal Memory Attribute combination 100D
p_snps_chi_req_mem_attr2_noeo_invld	Req Flits with MemAttr=4'b0010 and no Endpoint Ordering are not allowed
p_snps_chi_req_mem_nrml_eo_invld	Req Flits with Normal memory type and Endpoint Ordering are illegal
p_snps_chi_req_devmem_vld_opcd_chia	Only WriteNoSnoops and ReadNoSnoops are allowed to Device Memory.
p_snps_chi_req_devmem_vld_opcd_chib	CMO and Atomic transactions are permitted to Device Memory
p_snps_chi_req_order_no_launch	A second ordered request cannot be issued until the first one has received a ReadReceipt or DBIDResp
p_snps_chi_req_bar_only_after_comps	Barrier Request must be launched only after prior transactions have gotten their COMP responses
p_snps_chi_req_bar_only_after_wr	It is recommended that an EOBarrier or ECBarrier is issued only after a Normal Non-cacheable or Device type memory write request is issued after any previously completed EOBarrier or ECBarrier.
p_snps_chi_req_one_dvm_sync	A request agent should not issue more than one DVM sync message at a time
p_snps_chi_req_dvm_sync_after_dvm_comp	Before an RN can issue a DVM_Sync, all previous DVMOp requests must have received a Comp
p_snps_chi_req_after_cb_compdbidresp	Before issuing a request to a given cache line, you must make certain that all outstanding CopyBack transactions to that cache line have received their CompDBIDResp(onses).
p_snps_chi_req_ctl_atmc_load	Atomic Load Req Flits must have specific control fields
p_snps_chi_req_ctl_atmc_store	Atomic Store Req Flits must have specific control fields
p_snps_chi_req_ctl_atmc_compare	Atomic Compare Req Flits must have specific control fields
p_snps_chi_req_ctl_atmc_swap	Atomic Swap Req Flits must have specific control fields

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_ctl_rdnosd	ReadNotSharedDirty Req Flits must have specific control fields
p_snps_chi_req_ctl_clnshrdpersist	CleanSharedPersit Req Flits must have specific control fields
p_snps_chi_req_ctl_rd1nceclninv	ReadOnceCleanInvalid Req Flits must have specific control fields
p_snps_chi_req_ctl_rd1ncemkinv	ReadOnceMakeInvalid Req Flits must have specific control fields
p_snps_chi_req_pcrdrtn_type_granted	When a request gets launched with pre-allocated credit, then it must use a credit type that has indeed been granted already with PCrdGrant. Similarly, if pcredit is returned, then the type must have been pre-allocated.
p_snps_chi_req_retried_matches	If a request is being retried with pre-allocated credit then its payload must match a transaction that had previously received a retry.
p_snps_chi_req_nortry_pcrdtype_granted	When a request gets launched with pre-allocated credit then it must use a credit type that has indeed been granted already with PCrdGrant. Similarly, if pcredit is returned, then the type must have been pre-allocated.
p_snps_chi_req_fields_dvm_rsvd_type	Invalid message type field for REQ channel DVM commands
p_snps_chi_req_fields_dvm_sync	Invalid combinations of GuestOS_Hypervisor, Security, VMID_Valid, ASID_Valid, LEAF, S2-S1 & VA_Valid in REQ channel DVM SYNC
p_snps_chi_req_fields_dvm_tlbi_guest_ns	Invalid combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1 and VA_Valid for REQ DVM TLBI with GuestOS, Non-secure Transactions
p_snps_chi_req_fields_dvm_tlbi_guest_s	For REQ DVM TLBI with GuestOS, Secure, invalid combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1 and VA_Valid
p_snps_chi_req_fields_dvm_tlbi_hyp_ns_chia	For REQ DVM TLBI with Hypervisor, Non-Secure invalid combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1 and VA_Valid
p_snps_chi_req_fields_dvm_tlbi_hyp_ns_chib	For REQ DVM TLBI with Hypervisor, Non-Secure, invalid encoding combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1 and VA_Valid
p_snps_chi_req_fields_dvm_tlbi_el3_s	For REQ DVM TLBI with EL3, Secure invalid encoding combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1 and VA_Valid
p_snps_chi_req_fields_dvm_tlbi_both_guest_hyp	The REQ DVM message (TLBI, Both GuestOS and Hypervisor) combination is unsupported
p_snps_chi_req_fields_dvm_tlbi_both_ns_s	The REQ DVM message (TLBI, Both Non-Secure and Secure) combination is unsupported

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_fields_dvm_tlbi_no_hyp_s	The REQ DVM message (TLBI, Hypervisor, Secure) combination is unsupported
p_snps_chi_req_fields_dvm_tlbi_no_el3_ns	The REQ DVM message (TLBI, EL3, Non-Secure) combination is unsupported
p_snps_chi_req_fields_dvm_bpi	For REQ DVM BPI,invalid combination of ASID_Valid, VMID_Valid, LEAF, S2-S1, VA_Valid Security, Guest_OS
p_snps_chi_req_fields_dvm_pici	For REQ DVM PICI (Physical Insn $ Inv), invalid combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1, VA_Valid Security, Guest_OS
p_snps_chi_req_fields_dvm_vici_chia	For REQ DVM VICI (Virtual Insn $ Inv) , invalid combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1, VA_Valid Security, Guest_OS
p_snps_chi_req_fields_dvm_vici_chib	For REQ DVM VICI (Virtual Insn $ Inv), invalid combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1, VA_Valid Security, Guest_OS
p_snps_chi_req_fields_dvm_s2s1	For REQ channel DVM the Stage2/Stage1 field encoding 2'b11 is reserved.
p_snps_chi_req_fields_dvm_ns	For REQ channel DVM commands the Secure field encoding 2'b01 is reserved
p_snps_chi_req_fields_dvm_addr_lsbits_0	For REQ channel DVM commands, the address bits [2:0] are reserved and should be zero
p_snps_chi_req_dvmop_vld_ctl	A DVM Req Flit must have specific control fields
p_snps_chi_pcrdrtn_req_allowretry	A Protocol Credit Return REQ must have AllowRetry deasserted
p_snps_chi_req_ctl_wrnosnpfull	WriteNoSnpFull REQ Flits must have LikelyShared = 1'b0, SnoopAttr[SnoopDomain,Snoopable] = 2'b00, Size= 64B & ExpCompAck = 1'b0
p_snps_chi_req_ctl_rdnosnp	ReadNoSnp REQ Flits must have LikelyShared = 1'b0, SnoopAttr[SnoopDomain,Snoopable] = 2'b00 (CHI-A) and SnpAttr=1'b0 (CHI-B)
p_snps_chi_illegal_req_order_chia	Request flit ORDER value 2'b01 is illegal/reserved.
p_snps_chi_illegal_req_order_chib	Request flit ORDER value 2'b01 is illegal/reserved except for Read request from HN-F to SN-F, and HN-I to SN-I
p_snps_chi_illegal_req_snpattr	Request flit SnpAttr value 2'b10 is illegal/reserved.
p_snps_chi_illegal_req_size	Request flit SIZE value 3'b111 is illegal/reserved.
p_snps_chi_illegal_req_opcd_chia	Request flit Opcode value is illegal/reserved.
p_snps_chi_illegal_req_opcd_chib	Request flit Opcode value is illegal/reserved.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_excl_vld_opcd	Only the following opcodes support exclusive transactions: ReadClean, ReadShared, CleanUnique, ReadNoSnp, WriteNoSnpPtl and WriteNoSnpFull
p_snps_chi_req_uniq_txnid	REQ TxnID must be UNIQUE
p_snps_chi_req_no_flood	Requests will not overflow internal Data Structures
p_snps_chi_wdat_has_req	There is a REQ matching ID
p_snps_chi_wdat_matching_ccid	The CCID field of WDAT must equal bits 5:4 of the transaction's address. For DVMOp transactions CCID is allowed to be 'b0.
p_snps_chi_wdat_resp4dvm	The WDAT Flit for a DVMop must have a RESP field indicating a $state of I
p_snps_chi_wdat_resp4wef	The WDAT Flit for a WriteEvictFull must have a RESP field indicating a $state of I or SC or UC
p_snps_chi_wdat_resp4wcp	The WDAT Flit for a WriteCleanPartial must have a RESP field indicating a $state of I or UD_PD
p_snps_chi_wdat_resp4wbp	The WDAT Flit for a WriteBackPartial must have a RESP field indicating a $state of I or UD_PD
p_snps_chi_wdat_resp4wup	The WDAT Flit for a WriteUniquePartial must have a RESP field indicating a $state of I
p_snps_chi_wdat_resp4wuf	The WDAT Flit for a WriteUniqueFull must have a RESP field indicating a $state of I
p_snps_chi_wdat_resp4wnsp	The WDAT Flit for a WriteNoSnpPartial must have a RESP field indicating a $state of I
p_snps_chi_wdat_respErr4dvm	The WDAT Flit for a DVMop must have a RespErr field of OK
p_snps_chi_wdat_respErr4CB	The WDAT Flit for a CopyBack must have a RespErr field of OK or DERR
p_snps_chi_wdat_respErr4Write	The WDAT Flit for a Write must have a RespErr field of OK or DERR
p_snps_chi_wdat_resp4Atomic	The WDAT Flit for an ATOMIC must have a RESP field indicating a $state of I
p_snps_chi_wdat_resp4wnsf	The WDAT Flit for a WriteNoSnpFull must have a RESP field indicating a $state of I
p_snps_chi_wdat_opcd_vld_chia	DAT Flit Opcode[2:0] 0x6 and 0x7 are Reserved
p_snps_chi_wdat_opcd_vld_chib	DAT Flit Opcode[2:0] 0x6 and 0x7 are Reserved
p_snps_chi_wdat_ctl_linkflit	DAT Flit TxnID must be 0 when Opcode is LcrdReturn.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_wdat_ctl_snprespdatfwd	SRSP flits with opcode OPCD_RSP_SNPRESPFWDED must have all zero PCrdType Field
p_snps_chi_wdat_wdc_valid_wnsp	WDAT flits with opcode OPCD_DAT_WRITEDATACANCEL cannot be used in WriteNoSnpPtl transactions with DEVICE TYPE = MEMORY
p_snps_chi_wdat_wdc_valid_txns	Can be used in WriteUniquePtl, WriteUniquePtlStash and WriteNoSnpPtl transactions only
p_snps_chi_wdat_compdata_resp_illegal	For CopyBackWrData and NonCopyBackWrData Flits the values 3'b011, 3'b100 and 3'b101 in the Resp Field are illegal
p_snps_chi_wdat_cbw_DBID	For CopyBackWrData Flits, you must have DBID = 'b0 or the TxnID of the originating request
p_snps_chi_wdat_ncbw_DBID	For NonCopyBackWrData Flits which are not meant for DVM, you must have DBID = 'b0 or the TxnID of the originating request
p_snps_chi_wdat_ncbw_for_wns	The WDAT packets of WriteNoSnp* transactions must be NonCopyBackWrData
p_snps_chi_wdat_ncbw_for_wu	The WDAT packets of WriteUnique* transactions must be NonCopyBackWrData
p_snps_chi_wdat_cbw_for_wbpwbf	The WDAT packets of WriteBack* transactions must be CopyBackWrData.
p_snps_chi_wdat_cbw_for_wef	The WDAT packets of WriteEvictFull transactions must be CopyBackWrData
p_snps_chi_wdat_cbw_for_wcfwcp	The WDAT packets of WriteClean* (that is, Full, Partial) transactions must be CopyBackWrData
p_snps_chi_wdat_after_comp_dbid_resp	NonCopyBackWrData and CopyBackWrData WDAT packets must be sent only after DBIDResp or CompDBIDResp
p_snps_chi_wdat_wrBEs_ok	The WDAT Flit Byte Enables must be valid with respect to the original parameters of the corresponding REQ
p_snps_chi_wdat_dataid_ok	The WDAT Flit DATAID field must be valid with respect to the original parameters of the corresponding REQ
p_snps_chi_snprespdata_valid_xaction_chia	The SnpRespData WDAT Flit must correspond to a valid SNP xaction
p_snps_chi_snprespdata_valid_xaction_chib	The SnpRespData WDAT Flit must correspond to a valid SNP xaction
p_snps_chi_wdat_resp4ss	The SnpRespData WDAT Flit for a SnpShared must have a RESP field indicating a $state of I, SC, SD, I_PD or SC_PD
p_snps_chi_wdat_resp4sc	The SnpRespData WDAT Flit for a SnpClean must have a RESP field indicating a $state of I, SC, SD, I_PD or SC_PD

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_wdat_resp4so	The SnpRespData WDAT Flit for a SnpOnce must have a RESP indicating a $state of I, SC, UC, SD, I_PD or SC_PD
p_snps_chi_wdat_resp4su	The SnpRespData WDAT Flit for a SnpUnique must have a RESP indicating a $state of I, or I_PD
p_snps_chi_wdat_resp4scs	The SnpRespData WDAT Flit for a SnpCleanShared must have a RESP indicating a $state of UC_PD, I_PD or SC_PD
p_snps_chi_wdat_resp4sci	The SnpRespData WDAT Flit for a SnpCleanInvalid must have a RESP indicating a $state of I_PD
p_snps_chi_wdat_resp4snsd	The SnpRespData WDAT Flit for a SnpNotSharedDirty must have a RESP field indicating a $state of I, SC, SD, I_PD or SC_PD
p_snps_chi_wdat_resp4sust	The SnpRespData WDAT Flit for a SnpUniqueStash must have a RESP field indicating a $state of I or I_PD
p_snps_chi_wdat_snprespdata_resperr	SnpRespData* WDAT Flits of a SNOOP must have a RespErr of OK or DERR.
p_snps_chi_wdat_beats_same_resp	Resp field values must be the same for all WDAT flits of a transaction
p_snps_chi_wdat_copyback_cancel_data	The cache state in the WriteData response after CopyBack cancellation must be I and all byte enables must be deasserted. If all the byte enables are deasserted then the data must be zeroed.
p_snps_chi_wdat_writedatacancel_fields	wdatFlit should have valid fields for WriteDataCancel.
p_snps_chi_wdat_data_for_be_zero	In Write data, a byte enable value of zero must set the associated data byte value to zero.
p_snps_chi_srsp_data_for_be_zero	In Snoop response data, a byte enable value of zero must set the associated data byte value to zero.
p_snps_chi_wdat_snpfwd_compdata_id	The TgtID, TxnID, HomeNID and DBID fields of the forwarded CompData flit must match the FwdNID, FwdTxnID, SrcID and TxnID of the Forward type Snoop request.
p_snps_chi_wdat_snprespdatafwd_compdata_data	The data in the SnpRespDataFwded response matches with the data in the CompData response sent for a Forward type Snoop transaction.
p_snps_chi_wdat_datacheck_parity	For transactions involving write data, datacheck is set appropriately such that ODD Byte parity is generated.
p_snps_chi_snp_datacheck_parity	For Snoop transactions involving data transfer, datacheck is set appropriately such that ODD Byte parity is generated.
p_snps_chi_rdat_datacheck_parity	For transactions involving read data, datacheck is set appropriately such that ODD Byte parity is generated.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_snp_stash_fwd_from_hn_to_rf	Stash and Forward type snoops are expected to be received only by a CHI-B compliant RN-F, when Stashing and DCT features are enabled in the corresponding HN, respectively.
p_snps_chi_srsp_snp_shar_resp	The Resp field in an SRESP of a Snoop Shared must be I or SC
p_snps_chi_srsp_snp_clean_resp	The Resp field in an SRESP of a Snoop CLEAN must be I or SC
p_snps_chi_srsp_snp_once_resp	The Resp field in an SRESP of a Snoop-ONCE must be I or SC or UC,UD
p_snps_chi_srsp_snp_uniq_resp	The Resp field in an SRESP of a Snoop-UNIQUE must be I
p_snps_chi_srsp_snp_clean_shar_resp	The Resp field in an SRESP of a Snoop CLEAN-SHARED must be I or SC or UC, UD
p_snps_chi_srsp_snp_clean_inv_resp	The Resp field in an SRESP of a Snoop CLEAN-INVALID must be I
p_snps_chi_srsp_snp_mkinv_resp	The Resp field in an SRESP of a Snoop MAKE-INVALID must be I
p_snps_chi_srsp_snp_dvm_resp	The Resp field in an SRESP of a DVM-OP must be I
p_snps_chi_srsp_snp_fwd_state_valid	The FwdState indicated in the SnpRespFwded or SnpRespDataFwded response must indicate the state in the CompData sent from the Snoopee to the Requester
p_snps_chi_srsp_snp_cleanfwd_resp	The cache state in the associated response of a SnpCleanFwd transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_srsp_snp_notshardirtyfwd_resp	The cache state in the associated response of a SnpNotSharedDirtyFwd transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_srsp_snp_oncefwd_resp	The cache state in the associated response of a SnpOnceFwd transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_srsp_snp_sharedfwd_resp	The cache state in the associated response of a SnpSharedFwd transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_srsp_snp_uniquefwd_resp	The cache state in the associated response of a SnpUniqueFwd transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_srsp_snp_mkinvstash_resp	The cache state in the associated response of a SnpMakeInvalidStash transaction should indicate a valid value when the RespErr field does not indicate any error.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_srsp_snp_uniquestash_resp	The cache state in the associated response of a SnpUniqueStash transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_crsp_stashonceshared_resp	The cache state in the associated comp response packet of a StashOnceShared transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_crsp_stashonceunique_resp	The cache state in the associated comp response packet of a StashOnceUnique transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_snprespfwded_causality	Data Forwarding must have been caused by a valid transaction
p_snps_chi_wdat_wruniqfullstash_resp	The cache state in the associated Write data flits of a WriteUniqueFullStash transaction should indicate a valid value when the RespErr field does not indicate any errors.
p_snps_chi_wdat_wruniqptlstash_resp	The cache state in the associated Write data flits of a WriteUniquePtlStash transaction should indicate a valid value when the RespErr field does not indicate any errors.
p_snps_chi_snp_resp_fwded_no_ret2src	A SnpRespFwded response cannot correspond to a Snoop request with RetToSrc set to 1, because in that case a SnpRespDataFwded should have been returned, since Ret2Src necessitates that data is returned to the Src.
p_snps_chi_srsp_resperr	The RespErr field of a SnpResp message Flit resulting from a SNP transaction must be OK or NDERR
p_snps_chi_snp_srsp_wdat_mutex	For a SNOOP either I will get an SRSP or a SNPRESPWDATA.
p_snps_chi_srsp_snpresp_rsvd	SnpResp SRSP Flits must NOT have Resp field value 3'b111
p_snps_chi_srsp_compack_causal_rdat	An SRSP COMPACK must only be issued after all data for RDAT packets.
p_snps_chi_srsp_compack_causal_comp	An SRSP COMPACK must only be issued after all data for RDAT packets.
p_snps_chi_srsp_has_txn	SRSP must correspond to some R/W or SNOOP Request
p_snps_chi_srsp_compack_fields	CompAck SRSP flits must have RespErr = 'b0, Resp = 'b0 and PCrdType = 'b0
p_snps_chi_srsp_ctl_linkflit	RSP Flit TxnID must be 0 when Opcode is LcrdReturn
p_snps_chi_srsp_ctl_snprespfwded	SRSP flits with opcode OPCD_RSP_SNPRESPFWDED must have all zero PCrdType Field
p_snps_chi_wdat_resp_rsvd	CompData WDAT Flits must NOT have Resp field values 3'b011, 3'b100 and 3'b101

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_wdat_copybackwrdata_resp_vld	CopyBackWrData WDAT transaction must have Resp field values 2'b00 or 2'b10.
p_snps_chi_wdat_snp_fwd_state_valid	The cache state forwarded by the data must match the state forwrded by the response
p_snps_chi_wdat_data_src_snp_legal	The DataSource field in the related data packets must have a valid value
p_snps_chi_wdat_snprespdata_rsvd	SnpRespData WDAT Flits must NOT have Resp field value 3'b111
p_snps_chi_rdat_lcrdv_x	A value of X is not allowed on rdatLcrdv.
p_snps_chi_snp_lcrdv_x	A value of X is not allowed on snpLcrdv.
p_snps_chi_crsp_lcrdv_x	A value of X is not allowed on crspLcrdv.
p_snps_chi_req_flitPend_x	A value of X is not allowed on reqFlitPend.
p_snps_chi_srsp_flitPend_x	A value of X is not allowed on srspFlitPend.
p_snps_chi_wdat_flitPend_x	A value of X is not allowed on wdatFlitPend.
p_snps_chi_req_flitv_x	A value of X is not allowed on reqFlitV.
p_snps_chi_srsp_flitv_x	A value of X is not allowed on srspFlitV.
p_snps_chi_wdat_flitv_x	A value of X is not allowed on wdatFlitV.
p_snps_chi_req_flit_x	A value of X is not allowed on reqFlit.
p_snps_chi_wdat_flit_wo_data_x	A value of X is not allowed on wdatFlit except for Data.
p_snps_chi_wdat_flit_data_x	A value of X is not allowed on active Data field in wdatFlit.
p_snps_chi_srsp_flit_x	A value of X is not allowed on srspFlit.
p_snps_chi_req_flitv_reset	reqFlitV should be Low during Reset.
p_snps_chi_wdat_flitv_reset	wdatFlitV should be Low during Reset.
p_snps_chi_srsp_flitv_reset	srspFlitV should be Low during Reset.
p_snps_chi_rdat_lcrdv_reset	rdatLcrdv should be Low during Reset.
p_snps_chi_snp_lcrdv_reset	snpLcrdv should be Low during Reset.
p_snps_chi_crsp_lcrdv_reset	crspLcrdv should be Low during Reset.
p_snps_chi_req_flitv_lcredits	To transfer one flit from the transmitter to the receiver the transmitter must have obtained an L-Credit.
p_snps_chi_wdat_flitv_lcredits	To transfer one flit from the transmitter to the receiver the transmitter must have obtained an L-Credit.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_srsp_flitv_lcredits	To transfer one flit from the transmitter to the receiver the transmitter must have obtained an L-Credit.
p_snps_chi_rdat_lcrdv_lcredits	The maximum number of L-Credits that a receiver can provide is 15.
p_snps_chi_crsp_lcrdv_lcredits	The maximum number of L-Credits that a receiver can provide is 15.
p_snps_chi_snp_lcrdv_lcredits	The maximum number of L-Credits that a receiver can provide is 15.
p_snps_chi_crsp_lcrdv_linkactive	The receiver can send LCRDV only when RUN state (both LINKACTIVEREQ and LINKACTIVEACK are High)
p_snps_chi_rdat_lcrdv_linkactive	The receiver can send LCRDV only when RUN state (both LINKACTIVEREQ and LINKACTIVEACK are High)
p_snps_chi_snp_lcrdv_linkactive	The receiver can send LCRDV only when RUN state (both LINKACTIVEREQ and LINKACTIVEACK are High)
p_snps_chi_req_lcrdv_linkactive	The receiver can send LCRDV only when RUN state (both LINKACTIVEREQ and LINKACTIVEACK are High)
p_snps_chi_wdat_lcrdv_linkactive	The receiver can send LCRDV only when RUN state (both LINKACTIVEREQ and LINKACTIVEACK are High)
p_snps_chi_srsp_lcrdv_linkactive	The receiver can send LCRDV only when RUN state (both LINKACTIVEREQ and LINKACTIVEACK are High)
p_snps_chi_req_flitpend_before_flitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_wdat_flitpend_before_flitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_srsp_flitpend_before_flitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_req_protocol_flit_tx_srcid	Request Flit SrcID should represent its nodeID.
p_snps_chi_req_protocol_flit_tx_tgtid	Request Flit TgtID should be one of destination nodeID.
p_snps_chi_wdat_protocol_flit_tx_srcid	WDat Flit SrcID should represent its nodeID.
p_snps_chi_wdat_protocol_flit_tx_tgtid	WDat Flit TgtID should be one of destination nodeID.
p_snps_chi_srsp_protocol_flit_tx_srcid	Srsp Flit SrcID should represent its nodeID.
p_snps_chi_srsp_protocol_flit_tx_tgtid	Srsp Flit TgtID should be one of destination nodeID.
p_snps_chi_crsp_protocol_flit_rx_srcid	Crsp Flit SrcID should be one of source nodeID.
p_snps_chi_crsp_protocol_flit_rx_tgtid	Crsp Flit TgtID should present its nodeID.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_rdat_protocol_flit_rx_srcid	RDat Flit SrcID should be one of source nodeID.
p_snps_chi_rdat_protocol_flit_rx_tgtid	RDat Flit TgtID should present its nodeID.
p_snps_chi_srsp_txnid_opcd_lcrdreturn	RSP Flit TxnID must be 0 when Opcode is LcrdReturn.
p_snps_chi_wdat_txnid_opcd_lcrdreturn	DAT Flit TxnID must be 0 when Opcode is LcrdReturn.
p_snps_chi_req_readnosnp_vld_comm_pairs	Communicating node pairs for ReadNoSnp should be either RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_readonce_vld_comm_pairs	Communicating node pairs for ReadOnce should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_readclean_vld_comm_pairs	Communicating node pairs for ReadClean should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_readshared_vld_comm_pairs	Communicating node pairs for ReadShared should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_readunique_vld_comm_pairs	Communicating node pairs for ReadUnique should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_cleanunique_vld_comm_pairs	Communicating node pairs for CleanUnique should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_makeunique_vld_comm_pairs	Communicating node pairs for MakeUnique should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_evict_vld_comm_pairs	Communicating node pairs for Evict should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_writenosnpfull_vld_comm_pairs	Communicating node pairs for WriteNoSnpFull shoule be RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_writenosnpptl_vld_comm_pairs	Communicating node pairs for WriteNoSnpPtl should be RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_writeuniquefull_vld_comm_pairs	Communicating node pairs for WriteUniqueFull should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_writeuniqueptl_vld_comm_pairs	Communicating node pairs for WriteUniquePtl should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_writebackfull_vld_comm_pairs	Communicating node pairs for WriteBackFull should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_writebackptl_vld_comm_pairs	Communicating node pairs for WriteBackPtl should be RNF to ICN(HNF), ICN(HNI).

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_writeevictfull_vld_comm_pairs	Communicating node pairs for WriteEvictFull should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_writecleanfull_vld_comm_pairs	Communicating node pairs for WriteCleanFull should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_dvmop_vld_comm_pairs	Communicating node pairs for DVMOp should be RNF, RND to ICN(MN).
p_snps_chi_req_pcrdreturn_vld_comm_pairs	Communicating node pairs for PcrdReturn should be RNF, RND, RNI to ICN(HNF, HNI, MN) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_cleanshared_vld_comm_pairs_a	Communicating node pairs for CleanShared should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_cleaninvalid_vld_comm_pairs_a	Communicating node pairs for CleanInvalid should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_makeinvalid_vld_comm_pairs_a	Communicating node pairs for MakeInvalid should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_writecleanptl_vld_comm_pairs	Communicating node pairs for WriteCleanPtl should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_eobarrier_vld_comm_pairs	Communicating node pairs for EOBARRIER should be RNF, RND, RNI to ICN(MN) or ICN(HNI) to SNI.
p_snps_chi_req_ecbarrier_vld_comm_pairs	Communicating node pairs for ECBARRIER should be RNF, RND, RNI to ICN(MN) or ICN(HNI) to SNI.
p_snps_chi_req_readoncecleaninvalid_vld_comm_pairs	Communicating node pairs for ReadOnceCleanInvalid should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_readoncemakeinvalid_vld_comm_pairs	Communicating node pairs for ReadOnceCleanInvalid should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_readnotshareddirty_vld_comm_pairs	Communicating node pairs for ReadNotSharedDirty should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_stashonceunique_vld_comm_pairs	Communicating node pairs for StashOnceUnique should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_stashonceshared_vld_comm_pairs	Communicating node pairs for StashOnceShared should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_cleansharedpersist_vld_comm_pairs	Communicating node pairs for CleanSharedPersist should be RNF, RND, RNI to ICN(HNF) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_cleanshared_vld_comm_pairs_b	Communicating node pairs for CleanShared should be RNF, RND, RNI to ICN(HNF) or ICN(HNF) to SNF or ICN(HNI) to SNI.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_cleaninvalid_vld_comm_pairs_b	Communicating node pairs for CleanInvalid should be RNF, RND, RNI to ICN(HNF) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_makeinvalid_vld_comm_pairs_b	Communicating node pairs for MakeInvalid should be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_writeuniquefullstash_vld_comm_pairs	Communicating node pairs for WriteUniqueFullStash should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_writeuniqueptlstash_vld_comm_pairs	Communicating node pairs for WriteUniquePtlStash should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_atomicstore_vld_comm_pairs	Communicating node pairs for AtomicStore should be RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_atomicload_vld_comm_pairs	Communicating node pairs for AtomicLoad should be RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_atomicswap_vld_comm_pairs	Communicating node pairs for AtomicSwap should be RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_atomiccompare_vld_comm_pairs	Communicating node pairs for AtomicCompare should be RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_prefetchtgt_vld_comm_pairs	Communicating node pairs for PrfetchTgt should be RNF, RND, RNI to SNF.
p_snps_chi_req_readclean_vld_comm_pairs_expected	Communicating node pairs for ReadClean expected to be RNF to ICN(HNF).
p_snps_chi_req_readshared_vld_comm_pairs_expected	Communicating node pairs for ReadShared expected to be RNF to ICN(HNF).
p_snps_chi_req_readunique_vld_comm_pairs_expected	Communicating node pairs for ReadUnique expected to be RNF to ICN(HNF).
p_snps_chi_req_cleanunique_vld_comm_pairs_expected	Communicating node pairs for CleanUnique expected to be RNF to ICN(HNF).
p_snps_chi_req_makeunique_vld_comm_pairs_expected	Communicating node pairs for MakeUnique expected to be RNF to ICN(HNF).
p_snps_chi_req_evict_vld_comm_pairs_expected	Communicating node pairs for Evict expected to be RNF to ICN(HNF).
p_snps_chi_req_writebackfull_vld_comm_pairs_expected	Communicating node pairs for WriteBackFull expected to be RNF to ICN(HNF).
p_snps_chi_req_writebackptl_vld_comm_pairs_expected	Communicating node pairs for WriteBackPtl expected to be RNF to ICN(HNF).

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_writeevictfull_vld_comm_pairs_expected	Communicating node pairs for WriteEvictFull expected to be RNF to ICN(HNF).
p_snps_chi_req_writecleanfull_vld_comm_pairs_expected	Communicating node pairs for WriteCleanFull expected to be RNF to ICN(HNF).
p_snps_chi_req_readonce_vld_comm_pairs_expected	Communicating node pairs for ReadOnce expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_writeuniquefull_vld_comm_pairs_expected	Communicating node pairs for WriteUniqueFull expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_writeuniqueptl_vld_comm_pairs_expected	Communicating node pairs for WriteUniquePtl expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_cleanshared_vld_comm_pairs_a_expected	Communicating node pairs for CleanShared expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_cleaninvalid_vld_comm_pairs_a_expected	Communicating node pairs for CleanInvalid expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_makeinvalid_vld_comm_pairs_a_expected	Communicating node pairs for MakeInvalid expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_writecleanptl_vld_comm_pairs_expected	Communicating node pairs for WriteCleanPtl expected to be RNF to ICN(HNF).
p_snps_chi_req_readnotshareddirty_vld_comm_pairs_expected	Communicating node pairs for ReadNotSharedDirty expected to be RNF to ICN(HNF).
p_snps_chi_req_readoncecleaninvalid_vld_comm_pairs_expected	Communicating node pairs for ReadOnceCleanInvalid expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_readoncemakeinvalid_vld_comm_pairs_expected	Communicating node pairs for ReadOnceCleanInvalid expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_stashonceunique_vld_comm_pairs_expected	Communicating node pairs for StashOnceUnique expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_stashonceshared_vld_comm_pairs_expected	Communicating node pairs for StashOnceShared expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_writeuniquefullstash_vld_comm_pairs_expected	Communicating node pairs for WriteUniqueFullStash expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_writeuniqueptlstash_vld_comm_pairs_expected	Communicating node pairs for WriteUniquePtlStash expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_srsp_compack_vld_comm_pairs	Communicating node pairs for CompAck should be RNF, RND, RNI to HNF, HNI.
p_snps_chi_srsp_snpresp_vld_comm_pairs	Communicating node pairs for SnpResp should be RNF to HNF or RNF, RND to MN.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_srsp_snprespfwded_vld_comm_pairs	Communicating node pairs for SnpRespFwded should be RNF to HNF.
p_snps_chi_srsp_downstream_opcode_a	Downstream RespFlit Opcode should be either CompAck or SnpResp.
p_snps_chi_srsp_downstream_opcode_b	Downstream RespFlit Opcode should be either CompAck, SnpResp or SnpRespFwded.
p_snps_chi_wdat_copybackwrdata_vld_comm_pairs	Communicating node pairs for CopyBackWrData should be RNF to HNF, HNI or RNF to HNF, HNI.
p_snps_chi_wdat_copybackwrdata_vld_comm_pairs_expected	Communicating node pairs for CopyBackWrData expected to be RNF to HNF, HNI or RNF to HNF.
p_snps_chi_wdat_noncopybackwrdata_vld_comm_pairs	Communicating node pairs for NonCopyBackWrData should be RNF, RND, RNI to HNF, HNI or RNF, RND to MN or HNF to SNF or HNI to SNI.
p_snps_chi_wdat_writedatacancel_vld_comm_pairs	Communicating node pairs for WriteDataCancel should be RNF, RND, RNI to HNF, HNI or HNF to SNF or HNI to SNI.
p_snps_chi_wdat_snprespdata_vld_comm_pairs	Communicating node pairs for SnpRespData should be RNF to HNF.
p_snps_chi_wdat_snprespdataptl_vld_comm_pairs	Communicating node pairs for SnpRespDataPtl should be RNF to HNF.
p_snps_chi_wdat_snprespdatafwded_vld_comm_pairs	Communicating node pairs for SnpRespDataFwded should be RNF to HNF.
p_snps_chi_wdat_compdata_vld_comm_pairs	Communicating node pairs for CompData should be RNF to RNF, RND or RNI (Snoop).
p_snps_chi_wdat_downstream_opcode	Downstream DatFlit Opcode should not be CompData.
p_snps_chi_legal_srsp_opcd_chia	RSP Flit Opcode[3:0] from 0x9 to 0xf are Reserved.
p_snps_chi_legal_srsp_opcd_chib	RSP Flit Opcode[3:0] from 0x9 to 0xf are Reserved.
p_snps_chi_crsp_comp_resp4wef	The CompDBIDResp must have a RESP of I for a transaction of WriteEvictFull
p_snps_chi_crsp_comp_resp4wcf	The CompDBIDResp must have a RESP of I for a transaction of WriteCleanFull
p_snps_chi_crsp_comp_resp4wcp	The CompDBIDResp must have a RESP of I for a transaction of WriteCleanPartial
p_snps_chi_crsp_comp_resp4wuf	The Comp/CompDBIDResp must have a ESP of I for a transaction of WriteUniqFull
p_snps_chi_crsp_comp_resp4wup	The Comp/CompDBIDResp must have a RESP of I for a transaction of WriteUniqPartial

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_comp_resp4wnsf	The Comp/CompDBIDResp must have a RESP of I for a transaction of WriteNoSnoopFull
p_snps_chi_crsp_comp_resp4wnsp	The Comp/CompDBIDResp must have a RESP of I for a transaction of WriteNoSnoopPartial
p_snps_chi_crsp_comp_resp4wbf	The CompDBIDResp must have a RESP of I for a transaction of WriteBackFull
p_snps_chi_crsp_comp_resp4wbp	The CompDBIDResp must have a RESP of I for a transaction of WriteBackPartial
p_snps_chi_crsp_comp_resp4cspers	The COMP for a CLEAN-SHARED-PERSIST must have a RESP of I, SC, UC when the RespErr field indicates no Error
p_snps_chi_crsp_comp_resp4cs	The COMP for a CLEAN-SHARED must have a RESP of I, SC, UC.when the RespErr field indicates no Error
p_snps_chi_crsp_comp_resp4ci	The COMP for a CLEAN-INVALID must have a RESP of I
p_snps_chi_crsp_comp_resp4cu	The COMP for a CLEAN-UNIQUE must have a RESP UC
p_snps_chi_crsp_comp_resp4mi	The COMP for a MAKE-INVALID must have a RESP of I
p_snps_chi_crsp_comp_resp4mu	The COMP for a MAKE-UNIQUE must have a RESP UC
p_snps_chi_crsp_comp_resp4e	The COMP for a EVICT must have a RESP of I
p_snps_chi_crsp_comp_resp4eob	The COMP for a EOBarrier must have a RESP of I
p_snps_chi_crsp_comp_resp4ecb	The COMP for a ECBarrier must have a RESP of I
p_snps_chi_crsp_comp_resp4dvm	The COMP for a DVM must have a RESP of I
p_snps_chi_crsp_comp_respErr4cspers	The COMP for a CLEAN-SHARED-PERSIST must have a RespErr field that is different from EXOK
p_snps_chi_crsp_comp_respErr4cs	The COMP for a CLEAN-SHARED must have a RespErr field that is different from EXOK
p_snps_chi_crsp_comp_respErr4ci	The COMP for a CLEAN-INVALID must have a RespErr field that is different from EXOK
p_snps_chi_crsp_comp_respErr4mi	The COMP for a MAKE-INVALID must have a RespErr field that is different from EXOK
p_snps_chi_crsp_comp_respErr4mu	The COMP for a MAKE-UNIQUE must have a RespErr field that is different from EXOK
p_snps_chi_crsp_comp_respErr4e	The COMP for a EVICT must have a RespErr field that is different from EXOK
p_snps_chi_crsp_comp_respErr4Barr	The COMP for a EOBarrier / ECBarrier must have a RespErr field of OK

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_comp_respErr4DVM	The COMP for a DVMop must have a RespErr field of OK or NDERR
p_snps_chi_crsp_comp_resp4atomic	The COMP for an ATOMIC must have a RESP of I
p_snps_chi_crsp_dvm_comp_after_wdats	The COMP for a DVMop must come only after all the Data Beats have completed.
p_snps_chi_crsp_comp_dbid_reserved	For Comp and CompDBIDResp packets/flits (that is, on the CRSP channel for Write CMD Responses), the Resp field values 3'b011, 3'b100 and 3'b101 are reserved
p_snps_chi_crsp_retryack_fields	RetryAck CRSP flits must have RespErr = 'b0 and Resp = 'b0
p_snps_chi_crsp_comp_pcrdtype	Crsp COMP flits must have PCrdType = 'b0 Comp could come before DBID value so if this is the first response ignore DBID check
p_snps_chi_crsp_compdbidresp_pcrdtype	Crsp CompDBIDResp flits must have PCrdType = 'b0
p_snps_chi_crsp_dbidresp_fields	Crsp DBIDResp flits must have RespErr = 'b0, Resp = 'b0 and PCrdType = 'b0
p_snps_chi_crsp_dbidresp_dbid	Response flits with opcode DBIDResp must have DBID equal to value in previous Comp
p_snps_chi_crsp_comp_dbidresp_not4wewcwb_chia	CRSP channel Comp and DBIDResp flits are not valid responses for WriteEvictFull, WriteClean* or WriteBack* transactions
p_snps_chi_crsp_comp_dbidresp_not4wewcwb_chib	CRSP channel Comp and DBIDResp flits are not valid responses for WriteEvictFull, WriteClean* or WriteBack* transactions
p_snps_chi_crsp_dbid_vld	The DBID on CRSP Flits should be allocated correctly, that is, the value allocated must not have been allocated for something else previously to another transaction Correlated with p_snps_chi_crsp_dbidresp_dbid in terms of a valid DBID allocation/usage
p_snps_chi_crsp_rdreceipt_4rorns	CRSP channel ReadReceipt flits are valid responses ONLY for READONCE and READNOSNP transactions
p_snps_chi_crsp_dbidresp_4wnsdvmwu_chia	CRSP channel DBIDResp flits are valid responses ONLY for DVM, WriteNoSnp* and WriteUnique* transactions.
p_snps_chi_crsp_dbidresp_4wnsdvmwu_chib	CRSP channel DBIDResp flits are valid responses ONLY for DVM, WriteNoSnp* and WriteUnique* transactions.
p_snps_chi_crsp_rdreceipt_4order	CRSP channel ReadReceipt flits must not be launched for READONCE and READNOSNP transactions that did not request ordering.
p_snps_chi_crsp_pcrdgrant_fields	PCrdGrant flits on CRSP must have TxnID = 'b0, RespErr = 'b0, Resp = 'b0 and DBID = 'b0

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_readreceipt_fields	ReadReceipt flits on CRSP must have RespErr = 'b0, Resp = 'b0 and PCrdType = 'b0
p_snps_chi_crsp_exokay_causality	A CRESP with EXOKAY asserted is only permitted if the original WR REQwas launched as EXCL.
p_snps_chi_crsp_vld_opcd	Invalid opcode value for CRSP
p_snps_chi_crsp_resperr_for_writeunique	The associated Comp and CompDBIDResp should not take EXOK value whereas data packet should not take EXOK or NDERR resp_err value for WriteUnique transaction.
p_snps_chi_crsp_resperr_for_atomic	The associated Comp or CompDBIDResp should not take EXOK value whereas the data packets should not take EXOK or NDERR resp_err value for Atomic transaction.
p_snps_chi_crsp_resperr_for_stashonceshared	The associated Comp should not take EXOK for StashOnceShared transaction.
p_snps_chi_crsp_resperr_for_stashonceunique	The associated Comp should not take EXOK for StashOnceUnique transaction.
p_snps_chi_crsp_resperr_for_wruniqfullstash	The associated Comp and CompDBIDResp should not take EXOK value whereas data packet should not take EXOK or NDERR resp_err value for WriteUniqueFullStash transaction.
p_snps_chi_crsp_resperr_for_wruniqptlstash	The associated Comp and CompDBIDResp should not take EXOK value whereas data packet should not take EXOK or NDERR resp_err value for WriteUniquePtlStash transaction.
p_snps_chi_wdat_resperr_for_wruniqfullstash	The associated Comp and CompDBIDResp should not take EXOK value whereas data packet should not take EXOK or NDERR resp_err value for WriteUniqueFullStash transaction.
p_snps_chi_wdat_resperr_for_wruniqptlstash	The associated Comp and CompDBIDResp should not take EXOK value whereas data packet should not take EXOK or NDERR resp_err value for WriteUniquePtlStash transaction.
p_snps_chi_srsp_resperr_for_snpcleanfwd	The associated SnpResp should not take EXOK or DERR resp_err value for SnpCleanFwd transaction.
p_snps_chi_srsp_fwd_resperr_for_snpcleanfwd	The associated SnpRespFwded should not take EXOK resp_err value for SnpCleanFwd transaction.
p_snps_chi_wdat_resperr_for_snpcleanfwd	The associated SnpRespData, SnpRespDataFwded or CompData packet should not take EXOK or NDERR resp_err value for SnpCleanFwd transaction.
p_snps_chi_srsp_resperr_for_snpnotshardirtyfwd	The associated SnpResp should not take EXOK or DERR resp_err value for SnpNotSharedDirtyFwd transaction.
p_snps_chi_srsp_fwd_resperr_for_snpnotshardirtyfwd	The associated SnpRespFwded should not take EXOK resp_err value for SnpNotSharedDirtyFwd transaction.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_wdat_resperr_for_snpnotshardirtyfwd	The associated SnpRespData, SnpRespDataFwded or CompData packet should not take EXOK or NDERR resp_err value for SnpNotSharedDirtyFwd transaction.
p_snps_chi_srsp_resperr_for_snponcefwd	The associated SnpResp should not take EXOK or DERR resp_err value for SnpOnceFwd transaction.
p_snps_chi_srsp_fwd_resperr_for_snponcefwd	The associated SnpRespFwded should not take EXOK resp_err value for SnpOnceFwd transaction.
p_snps_chi_wdat_resperr_for_snponcefwd	The associated SnpRespData, SnpRespDataFwded or CompData packet should not take EXOK or NDERR resp_err value for SnpOnceFwd transaction.
p_snps_chi_srsp_resperr_for_snpsharedfwd	The associated SnpResp should not take EXOK or DERR resp_err value for SnpSharedFwd transaction.
p_snps_chi_srsp_fwd_resperr_for_snpsharedfwd	The associated SnpRespFwded should not take EXOK resp_err value for SnpSharedFwd transaction.
p_snps_chi_wdat_resperr_for_snpsharedfwd	The associated SnpRespData, SnpRespDataFwded or CompData packet should not take EXOK or NDERR resp_err value for SnpSharedFwd transaction.
p_snps_chi_srsp_resperr_for_snpuniquefwd	The associated SnpResp should not take EXOK or DERR resp_err value for SnpUniqueFwd transaction.
p_snps_chi_srsp_fwd_resperr_for_snpuniquefwd	The associated SnpRespFwded should not take EXOK resp_err value for SnpUniqueFwd transaction.
p_snps_chi_wdat_resperr_for_snpuniquefwd	The associated SnpRespData, SnpRespDataFwded or CompData packet should not take EXOK or NDERR resp_err value for SnpUniqueFwd transaction.
p_snps_chi_srsp_resperr_for_snpuniquestash	The associated SnpResp should not take EXOK or DERR resp_err value for SnpUniqueStash transaction.
p_snps_chi_wdat_resperr_for_snpuniquestash	The associated SnpRespData packet should not take EXOK or NDERR resp_err value for SnpUniqueStash transaction.
p_snps_chi_srsp_resperr_for_snpmkinvstash	The associated SnpResp should not take EXOK or DERR resp_err value for SnpMakeInvalidStash transaction.
p_snps_chi_srsp_resperr_for_snpstashshared	The associated SnpResp should not take EXOK or DERR resp_err value for SnpStashShared transaction.
p_snps_chi_srsp_resperr_for_snpstashunique	The associated SnpResp should not take EXOK or DERR resp_err value for SnpStashUnique transaction.
p_snps_chi_simul_compdat_rdreceipt_same_src	CompData and ReadReceipt for the for the same REQ come from the same Source
p_snps_chi_crsp_ctl_linkflit	RSP Flit TxnID must be 0 when Opcode is LcrdReturn.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_not_after_launch	Retry Does not happen after REQ has been launched
p_snps_chi_rdat_has_req	RDAT traffic must correspond to some REQ
p_snps_chi_rdat_matching_ccid	The CCID field of RDAT must equal bits 5:4 of the transaction's address.
p_snps_chi_rdat_valid_opcd	RDAT opcode fields must be valid
p_snps_chi_rdat_ctl_linkflit	DAT Flit TxnID must be 0 when Opcode is LcrdReturn.
p_snps_chi_compdata_valid_xaction_chia	COMPDATA must appear for the correct type of REQ
p_snps_chi_compdata_valid_xaction_chib	COMPDATA must appear for the correct type of REQ
p_snps_chi_rdat_resp4rs	The CompData for a ReadShared must have a Resp of SC, UC, UD_PD or SD_PD
p_snps_chi_rdat_resp4rnosd	The CompData for a ReadNotSharedDirty must have a Resp of SC, UC, UD_PD
p_snps_chi_rdat_resp4rc	The CompData for a ReadClean must have a Resp of SC, or UC
p_snps_chi_rdat_resp4roci	The CompData for a ReadOnceCleanInvalid must have a Resp of I like in the case of ReadOnce
p_snps_chi_rdat_resp4romi	The CompData for a ReadOnceMakeInvalid must have a Resp of I like in the case of ReadOnce
p_snps_chi_rdat_resp4ro_chia	The CompData for a ReadOnce must have a reesp of I like in the case of RNS
p_snps_chi_rdat_resp4ro_chib	The CompData for a ReadOnce must have a reesp of I like in the case of RNS
p_snps_chi_rdat_resp4ru	The CompData for a ReadUnique must have a Resp of UC or UD_PD.
p_snps_chi_rdat_resp4rns_chia	The CompData for a ReadNoSnoop must have a Resp of I
p_snps_chi_rdat_resp4rns_chib	The CompData for a ReadNoSnoop must have a Resp of I
p_snps_chi_rdat_respErr4ro	The CompData for a ReadOnce must have a RespErr of OK, DERR or NDERR
p_snps_chi_rdat_respErr4roclninv	The CompData for a ReadOnceCleanInvalid must have a respErr of OK, DERR or NDERR
p_snps_chi_rdat_respErr4romkinv	The CompData for a ReadOnceMakeInvalid must have a RespErr of OK, DERR or NDERR
p_snps_chi_rdat_respErr4ru	The CompData for a ReadUnique must have a RespErr of OK, DERR or NDERR

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_rdat_compdata_resp_illegal	For CompData Flits the values 3'b011, 3'b100 and 3'b101 in the Resp Field are illegal
p_snps_chi_rdat_dataid_ok	The RDAT Flit DATAID field must be valid with respect to the original parameters of the corresponding REQ
p_snps_chi_rdat_exok_causality	The EXOKAY response found in the COMPDATA of various Read Requests is only permitted if the original requests had EXCL asserted
p_snps_chi_rdat_4rorcrns_no_dirty	Data flits for ReadClean, ReadOnce and ReadNoSnp cannot be passed dirty
p_snps_chi_rdat_same_hnid_beats	In the COMPDATA packets corresponding to the same Read Request, the HomeNID must remain constant
p_snps_chi_rdat_dbid_vld	The DBID on RDAT CompData Flits should be allocated correctly.That is, the value allocated must not have been allocated for something else previously to another transaction Correlated with property p_snps_chi_crsp_dbid_vld about DBID Allocation for Write Requests
p_snps_chi_crsp_rdat_dbid_vld	Invalid COMP on CRESP
p_snps_chi_comp_valid_txn_chia	Invalid COMP on CRESP
p_snps_chi_comp_valid_txn_chib	Invalid DBIDResp on CRESP
p_snps_chi_dbidresp_valid_txn_chia	Invalid DBIDResp on CRESP
p_snps_chi_dbidresp_valid_txn_chib	COMPDBIDResp on CRESP must match either a CopyBack Write or a WriteNoSnoop or a WriteUnique
p_snps_chi_compdbidresp_valid_txn_chia	COMPDBIDResp on CRESP must match either a CopyBack Write or a WriteNoSnoop or a WriteUnique
p_snps_chi_compdbidresp_valid_txn_chib	CRSP must correspond to some R/W Transaction
p_snps_chi_crsp_has_txn	CRSP must correspond to some R/W Transaction
p_snps_chi_snpFlitpend_1clkB4_snpFlitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_rdatFlitpend_1clkB4_rdatFlitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_crspFlitpend_1clkB4_crspFlitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_rdat_compdata_src_legal	For compdata the SrcID field must be legal, in-terms for the Interconnect and the non-zero ID
p_snps_chi_rdat_resp_rsvd	CompData RDAT Flits must NOT have Resp field values 3'b011, 3'b100 and 3'b101

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_snp_dvmop_ns	Snoop DVMOP Flits must have a 0 NS bit, indicating a Secure Access
p_snps_chi_snp_ctl_linkflit	Snoop Link Flits must have an all 0 TxnID
p_snps_chi_snp_fields_dvm_sync	Snoop DVM SYNC permitted combinations of GuestOS_Hypervisor, Security, VMID_Valid, ASID_Valid, LEAF, S2-S1 & VA_Valid
p_snps_chi_snp_fields_dvm_tlbi_guest_ns	Unsupported encoding combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1, and VA_Valid for Snoop DVM TLBI with GuestOS and Non-Secure transaction
p_snps_chi_snp_fields_dvm_tlbi_guest_s	Unsupported encoding combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1, and VA_Valid for Snoop DVM TLBI with GuestOS and Secure transaction
p_snps_chi_snp_fields_dvm_tlbi_hyp_ns	Unsupported encoding combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1, and VA_Valid for Snoop DVM TLBI with Hypervisor, Non-Secure transaction
p_snps_chi_snp_fields_dvm_tlbi_el3_s	Unsupported encoding combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1, and VA_Valid for Snoop DVM TLBI with Hypervisor, Secure transaction
p_snps_chi_snp_fields_dvm_tlbi_both_guest_hyp	The snoop DVM message (TLBI, Both GuestOS and Hypervisor) combination is unsupported
p_snps_chi_snp_fields_dvm_tlbi_both_ns_s	The snoop DVM message (TLBI, Both Non-Secure and Secure) combination is unsupported
p_snps_chi_snp_fields_dvm_tlbi_no_hyp_s	The snoop DVM message (TLBI, Hypervisor, Secure) combination is unsupported
p_snps_chi_snp_fields_dvm_tlbi_no_el3_ns	The snoop DVM message (TLBI, EL3, Non-Secure) combination is unsupported
p_snps_chi_snp_fields_dvm_bpi	For Snoop DVM BPI, the supported field combinations are ASID_Valid, VMID_Valid, LEAF, S2-S1, VA_Valid Security, and Guest_OS
p_snps_chi_snp_fields_dvm_pici	For Snoop DVM PICI (Physical Insn $ Inv) the supported field combinations are ASID_Valid, VMID_Valid, LEAF, S2-S1, VA_Valid Security, and Guest_OS
p_snps_chi_snp_fields_dvm_vici	For Snoop DVM VICI (Virtual Insn $ Inv) the supported field combinations are ASID_Valid, VMID_Valid, LEAF, S2-S1, VA_Valid Security, and Guest_OS
p_snps_chi_snp_dvm_valid_typ	For SnpDVMOp Flits the Type field encodings 3'b101, 3'b110 and 3'b111 are reserved/illegal

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_snp_dvm_valid_s2s1	For SnpDVMOp Part1 Flits the 2'b11 value for the S2S1 field is reserved/illegal
p_snps_chi_snp_dvm_valid_ns	For SnpDVMOp Part1 Flits the 2'b11 value for the S2S1 field is reserved/illegal
p_snps_chi_snp_no_flood	We should not have more snoops than what we can monitor
p_snps_chi_snp_dvmop_dupl_p1p2	No duplication of Part 1 or 2 in DVM Ops
p_snps_chi_snp_dvmop_single_sync	An RN cannot receive more than one DVM SYNC at a time.
p_snps_chi_snp_uniq_addr	An RN cannot be hit with more than 1 snoop for a cache line at the same time.
p_snps_chi_snp_uniq_txnid	SNP TxnID must be UNIQUE
p_snps_chi_snp_valid_opcd	Snoop flit opcode values 0x4, 0x5, 0x6, 0xB, 0xC, 0xE and 0xF are illegal/reserved
p_snps_chi_snp_opcd_chia	Snoop flit opcode values 0x4, 0x5, 0x6, 0xB, 0xC, 0xE and 0xF are illegal/reserved
p_snps_chi_snp_opcd_chib	Snoop flit opcode values 0xE, 0xF, 0x10, 0x15, 0x16, 0x18 and after are illegal/reserved
p_snps_chi_req_lcrdv_x	A value of X is not allowed on reqLcrdv.
p_snps_chi_wdat_lcrdv_x	A value of X is not allowed on wdatLcrdv.
p_snps_chi_srsp_lcrdv_x	A value of X is not allowed on srspLcrdv.
p_snps_chi_rdat_flitPend_x	A value of X is not allowed on rdatFlitPend.
p_snps_chi_snp_flitPend_x	A value of X is not allowed on snpFlitPend.
p_snps_chi_crsp_flitPend_x	A value of X is not allowed on crspFlitPend.
p_snps_chi_rdat_flitv_x	A value of X is not allowed on rdatFlitV.
p_snps_chi_snp_flitv_x	A value of X is not allowed on snpFlitV.
p_snps_chi_crsp_flitv_x	A value of X is not allowed on crspFlitV.
p_snps_chi_rdat_flit_x	A value of X is not allowed on rdatFlit.
p_snps_chi_snp_flit_x	A value of X is not allowed on snpFlit.
p_snps_chi_crsp_flit_x	A value of X is not allowed on crspFlit.
p_snps_chi_rdat_flitv_reset	rdatFlitV should be Low during Reset.
p_snps_chi_snp_flitv_reset	snpFlitV should be Low during Reset.
p_snps_chi_crsp_flitv_reset	crspFlitV should be Low during Reset.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_lcrdv_reset	reqLcrdv should be Low during Reset.
p_snps_chi_wdat_lcrdv_reset	wdatLcrdv should be Low during Reset.
p_snps_chi_srsp_lcrdv_reset	srspLcrdv should be Low during Reset.
p_snps_chi_rdat_flitv_lcredits	To transfer one flit from the transmitter to the receiver the transmitter must have obtained an L-Credit.
p_snps_chi_snp_flitv_lcredits	To transfer one flit from the transmitter to the receiver the transmitter must have obtained an L-Credit.
p_snps_chi_crsp_flitv_lcredits	To transfer one flit from the transmitter to the receiver the transmitter must have obtained an L-Credit.
p_snps_chi_req_lcrdv_lcredits	The maximum number of L-Credits that a receiver can provide is 15.
p_snps_chi_wdat_lcrdv_lcredits	The maximum number of L-Credits that a receiver can provide is 15.
p_snps_chi_srsp_lcrdv_lcredits	The maximum number of L-Credits that a receiver can provide is 15.
p_snps_chi_rdat_flitpend_before_flitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_crsp_flitpend_before_flitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_snp_flitpend_before_flitv	It is required that the flitPend signal is asserted exactly one cycle before a flit is sent from the transmitter.
p_snps_chi_rdat_protocol_flit_tx_srcid	RDat Flit SrcID should represent its nodeID.
p_snps_chi_rdat_protocol_flit_tx_tgtid	RDat Flit TgtID should be one of destination nodeID.
p_snps_chi_crsp_protocol_flit_tx_srcid	Crsp Flit SrcID should represent its nodeID.
p_snps_chi_crsp_protocol_flit_tx_tgtid	Crsp Flit TgtID should be one of destination nodeID.
p_snps_chi_snp_protocol_flit_tx_srcid	Snoop Flit SrcID should represent its nodeID.
p_snps_chi_req_protocol_flit_rx_srcid	Request Flit SrcID should be one of source nodeID.
p_snps_chi_req_protocol_flit_rx_tgtid	Request Flit DstID should represent its nodeID.
p_snps_chi_wdat_protocol_flit_rx_srcid	WDat Flit SrcID should be one of source nodeID.
p_snps_chi_wdat_protocol_flit_rx_tgtid	WDat Flit DstID should represent its nodeID.
p_snps_chi_crsp_txnid_opcd_lcrdreturn	RSP Flit TxnID must be 0 when Opcode is LcrdReturn.
p_snps_chi_rdat_txnid_opcd_lcrdreturn	DAT Flit TxnID must be 0 when Opcode is LcrdReturn.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_opcd_rsvd	RSP Flit Opcode[3:0] from 0x9 to 0xf are Reserved.
p_snps_chi_rdat_opcd_rsvd_a	DAT Flit Opcode[2:0] 0x6 and 0x7 are Reserved.
p_snps_chi_snp_dvmop_vld_comm_pairs	Communicating node pairs for DVMOp should be ICN(MN) to RNF or RND.
p_snps_chi_snp_nondvmop_vld_comm_pairs_a	Communicating node pairs for Non DVMOp should be ICN(HNF) to RNF.
p_snps_chi_snp_nondvmop_vld_comm_pairs_b	Communicating node pairs for Non DVMOp should be ICN(HNF) to RNF.
p_snps_chi_crsp_retryack_vld_comm_pairs	Communicating node pairs for RetryAck should be HNF, HNI, MN to RNF, RND, RNI or SNF to HNF or SNI to HNI.
p_snps_chi_crsp_dbidresp_vld_comm_pairs	Communicating node pairs for DBIDResp should be HNF, HNI, MN to RNF, RND, RNI or SNF to HNF or SNI to HNI.
p_snps_chi_crsp_pcrdgrant_vld_comm_pairs	Communicating node pairs for PCrdGrant should be HNF, HNI, MN to RNF, RND, RNI or SNF to HNF or SNI to HNI.
p_snps_chi_crsp_comp_vld_comm_pairs	Communicating node pairs for Comp should be HNF, HNI, MN to RNF, RND, RNI or SNF to HNF or SNI to HNI.
p_snps_chi_crsp_compdbidresp_vld_comm_pairs	Communicating node pairs for CompDBIDResp should be HNF, HNI to RNF, RND, RNI or SNF to HNF or SNI to HNI.
p_snps_chi_crsp_readreceipt_vld_comm_pairs_a	Communicating node pairs for CompDBIDResp should be HNF, HNI to RNF, RND, RNI or SNI to HNI.
p_snps_chi_crsp_readreceipt_vld_comm_pairs_b	Communicating node pairs for CompDBIDResp should be HNF, HNI to RNF, RND, RNI or SNF to HNF or SNI to HNI.
p_snps_chi_crsp_upstream_opcode_a	Upstream RespFlit Opcode should not be CompAck nor SnpResp.
p_snps_chi_crsp_upstream_opcode_b	Upstream RespFlit Opcode should not be CompAck, SnpResp nor SnpRespFwded.
p_snps_chi_rdat_compdata_vld_comm_pairs_a	Communicating node pairs for CompData should be HNF, HNI to RNF, RND, RNI or SNF to HNF or SNI to HNI.
p_snps_chi_rdat_compdata_vld_comm_pairs_b	Communicating node pairs for CompData should be HNF, HNI to RNF, RND, RNI or SNF to RNF, RND, RNI, HNF or SNI to RNF, RND, RNI, HNI.
p_snps_chi_rdat_upstream_opcode	Upstream DatFlit Opcode should not CompData.
p_snps_chi_txlinkactivereq_reset	TXLINKACTIVEREQ should be Low during Reset.
p_snps_chi_txlinkactivereq_reset	TXLINKACTIVEREQ should be Low during Reset.
p_snps_chi_rxlinkactiveack_reset	RXLINKACTIVEACK should be Low during Reset.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_rxlinkactiveack_reset	RXLINKACTIVEACK should be Low during Reset.
p_snps_chi_rxlinkactivereq_reset	RXLINKACTIVEREQ should be Low during Reset.
p_snps_chi_rxlinkactivereq_reset	RXLINKACTIVEREQ should be Low during Reset.
p_snps_chi_txlinkactiveack_reset	TXLINKACTIVEACK should be Low during Reset.
p_snps_chi_txlinkactiveack_reset	TXLINKACTIVEACK should be Low during Reset.
p_snps_chi_txlinkactivereq_x	A value of X is not allowed on TXLINKACTIVEREQ.
p_snps_chi_txlinkactivereq_x	A value of X is not allowed on TXLINKACTIVEREQ.
p_snps_chi_rxlinkactiveack_x	A value of X is not allowed on RXLINKACTIVEACK.
p_snps_chi_rxlinkactiveack_x	A value of X is not allowed on RXLINKACTIVEACK.
p_snps_chi_rxlinkactivereq_x	A value of X is not allowed on RXLINKACTIVEREQ.
p_snps_chi_rxlinkactivereq_x	A value of X is not allowed on RXLINKACTIVEREQ.
p_snps_chi_txlinkactiveack_x	A value of X is not allowed on TXLINKACTIVEACK.
p_snps_chi_txlinkactiveack_x	A value of X is not allowed on TXLINKACTIVEACK.
p_snps_chi_txsactive_x	A value of X is not allowed on TXSACTIVE.
p_snps_chi_txsactive_x	A value of X is not allowed on TXSACTIVE.
p_snps_chi_rxsactive_x	A value of X is not allowed on RXSACTIVE.
p_snps_chi_rxsactive_x	A value of X is not allowed on RXSACTIVE.
p_snps_chi_lcrd_txlink_deactivate	The transmitter must return all credits before going to STOP state during DEACTIVATE state, LINKACTIVEACK must wait until all credits are returned before going to STOP state.
p_snps_chi_lcrd_rxlink_deactivate	The transmitter must return all credits before going to STOP state during DEACTIVATE state, LINKACTIVEACK must wait until all credits are returned before going to STOP state.
p_snps_chi_txlinkack_stop	TXLINKACTIVEACK should not be asserted when STOP state.
p_snps_chi_txlinkack_stop	TXLINKACTIVEACK should not be asserted when STOP state.
p_snps_chi_txlinkreq_activate	TXLINKACTIVEREQ should not be deasserted when ACTIVATE state.
p_snps_chi_txlinkreq_activate	TXLINKACTIVEREQ should not be deasserted when ACTIVATE state.
p_snps_chi_txlinkack_run	TXLINKACTIVEACK should not be deasserted when RUN state.
p_snps_chi_txlinkack_run	TXLINKACTIVEACK should not be deasserted when RUN state.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_txlinkreq_deactivate	TXLINKACTIVEACK should not be asserted when DEACTIVATE state.
p_snps_chi_txlinkreq_deactivate	TXLINKACTIVEACK should not be asserted when DEACTIVATE state.
p_snps_chi_rxlinkack_stop	RXLINKACTIVEACK should not be asserted when STOP state.
p_snps_chi_rxlinkack_stop	RXLINKACTIVEACK should not be asserted when STOP state.
p_snps_chi_rxlinkreq_activate	RXLINKACTIVEREQ should not be deasserted when ACTIVATE state.
p_snps_chi_rxlinkreq_activate	RXLINKACTIVEREQ should not be deasserted when ACTIVATE state.
p_snps_chi_rxlinkack_run	RXLINKACTIVEACK should not be deasserted when RUN state.
p_snps_chi_rxlinkack_run	RXLINKACTIVEACK should not be deasserted when RUN state.
p_snps_chi_rxlinkreq_deactivate	RXLINKACTIVEACK should not be asserted when DEACTIVATE state.
p_snps_chi_rxlinkreq_deactivate	RXLINKACTIVEACK should not be asserted when DEACTIVATE state.
p_snps_chi_txlinkreq_rose	TXLINKACTIVEREQ should transit from Low to High only when STOP state.
p_snps_chi_txlinkreq_rose	TXLINKACTIVEREQ should transit from Low to High only when STOP state.
p_snps_chi_txlinkack_rose	TXLINKACTIVEACK should transit from Low to High only when ACTIVATE state.
p_snps_chi_txlinkack_rose	TXLINKACTIVEACK should transit from Low to High only when ACTIVATE state.
p_snps_chi_txlinkreq_fell	TXLINKACTIVEREQ should transit from High to Low only when RUN state.
p_snps_chi_txlinkreq_fell	TXLINKACTIVEREQ should transit from High to Low only when RUN state.
p_snps_chi_txlinkack_fell	TXLINKACTIVEACK should transit from High to Low only when DEACTIVATE state.
p_snps_chi_txlinkack_fell	TXLINKACTIVEACK should transit from High to Low only when DEACTIVATE state.
p_snps_chi_rxlinkreq_rose	RXLINKACTIVEREQ should transit from Low to High only when STOP state.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_rxlinkreq_rose	RXLINKACTIVEREQ should transit from Low to High only when STOP state.
p_snps_chi_rxlinkack_rose	RXLINKACTIVEACK should transit from Low to High only when ACTIVATE state.
p_snps_chi_rxlinkack_rose	RXLINKACTIVEACK should transit from Low to High only when ACTIVATE state.
p_snps_chi_rxlinkreq_fell	RXLINKACTIVEREQ should transit from High to Low only when RUN state.
p_snps_chi_rxlinkreq_fell	RXLINKACTIVEREQ should transit from High to Low only when RUN state.
p_snps_chi_rxlinkack_fell	RXLINKACTIVEACK should transit from High to Low only when DEACTIVATE state.
p_snps_chi_rxlinkack_fell	RXLINKACTIVEACK should transit from High to Low only when DEACTIVATE state.
p_snps_chi_link_txrunp_rxstop	RXLINKACTIVEREQ should be asserted immediately in TxRunP RxStop state.
p_snps_chi_link_txdeactp_rxact	RXLINKACTIVEACK should be asserted immediately in TxDeactP RxAct state.
p_snps_chi_link_txstopp_rxrun	RXLINKACTIVEREQ should be de-asserted immediately in TxStopP RxRun state.
p_snps_chi_link_txactp_rxdeact	RXLINKACTIVEACK should be de-asserted immediately in TxActP RxDeact state.
p_snps_chi_link_txstop_rxrunp	TXLINKACTIVEREQ should be asserted immediately in TxStop RxRunP state.
p_snps_chi_link_txact_rxdeactp	TXLINKACTIVEACK should be asserted immediately in TxRun RxStopP state.
p_snps_chi_link_txrun_rxstopp	TXLINKACTIVEREQ should be de-asserted immediately in TxRun RxStopP state.
p_snps_chi_link_txdeact_rxactp	TXLINKACTIVEACK should be de-asserted immediately in TxDeact RxActP state.
p_snps_chi_link_txstop_rxact_no_race	In case of no race condition, the path to TxStop RxRun+ state is not allowed.
p_snps_chi_link_txrun_rxdeact_no_race	In case of no race condition, the path to TxAct RxStop+ state is not allowed.
p_snps_chi_link_txrun_rxact_no_race	In case of no race condition, the path to TxDeact+ RxAct state is not allowed.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_link_txstop_rxdeact_no_race	In case of no race condition, the path to TxStop RxRun+ state is not allowed.
p_snps_chi_link_txact_rxstop_no_race	In case of no race condition, the path to TxAct+ RxDeact state is not allowed.
p_snps_chi_link_txdeact_rxrun_no_race	In case of no race condition, the path to TxStop+ RxRun state is not allowed.
p_snps_chi_link_txact_rxrun_no_race	In case of no race condition, the path to TxAct RxDeact+ state is not allowed.
p_snps_chi_link_txdeact_rxstop_no_race	In case of no race condition, the path to TxDeact RxAct+ state is not allowed.
p_snps_chi_link_txstop_reqlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_reqlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_srsplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_srsplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_wdatlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_wdatlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_crsplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_crsplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_rdatlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_rdatlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_snplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_snplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_reqlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_reqlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_srsplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_srsplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_wdatlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_rxstop_wdatlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_crsplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_crsplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_rdatlcrdv	The receiver must not send any credits in STOP state.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_link_txstop_rdatlcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_snplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_snplcrdv	The receiver must not send any credits in STOP state.
p_snps_chi_link_txstop_reqflitv	The trabsmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_reqflitv	The trabsmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_srspflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_srspflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_wdatFlitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_wdatFlitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_crspflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_crspflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_rdatflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_rdatflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_snpflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_snpflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_reqflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_reqflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_srspflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_srspflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_wdatflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxstop_wdatflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_crspflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_crspflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_rdatflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_rdatflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_snpflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_txstop_snpflitv	The transmitter must not send any flits in STOP state.
p_snps_chi_link_rxact_crsplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_crsplcrdv	The receiver must not send any credits in ACTIVE state.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_link_rxact_rdatlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_rdatlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_snplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_snplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_crsplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_crsplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_rdatlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_rdatlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_snplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_snplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_reqlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_reqlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_srsplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_srsplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_wdatlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_rxact_wdatlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_reqlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_reqlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_srsplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_srsplcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_wdatlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_wdatlcrdv	The receiver must not send any credits in ACTIVE state.
p_snps_chi_link_txact_reqflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_reqflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_srspflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_srspflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_wdatflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_wdatflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_reqflitv	The transmitter must not send any flits in ACTIVE state.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_link_rxact_reqflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_srspflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_srspflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_wdatflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_wdatflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_crspflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_crspflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_rdatflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_rdatflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_snpflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_rxact_snpflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_crspflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_crspflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_rdatflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_rdatflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_snpflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txact_snpflitv	The transmitter must not send any flits in ACTIVE state.
p_snps_chi_link_txdeact_reqlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_reqlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_wdatlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_wdatlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_srsplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_srsplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_crsplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_crsplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_rdatlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_rdatlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_snplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_snplcrdv	The receiver must stop sending any credits in DEACTIVE state.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_link_txdeact_crsplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_crsplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_rdatlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_rdatlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_snplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_txdeact_snplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_reqlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_reqlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_wdatlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_wdatlcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_srsplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_rxdeact_srsplcrdv	The receiver must stop sending any credits in DEACTIVE state.
p_snps_chi_link_tx_activate_no_timeout	If the RXLINK moves to the ACTIVATE state, which is controlled by the component on the other side of the interface, then it is required that the TXLINK also moves to the ACTIVATE state, in a timely manner.
p_snps_chi_link_tx_activate_no_timeout	If the RXLINK moves to the ACTIVATE state, which is controlled by the component on the other side of the interface, then it is required that the TXLINK also moves to the ACTIVATE state, in a timely manner.
p_snps_chi_link_rx_activate_no_timeout	If the RXLINK moves to the ACTIVATE state, which is controlled by the component on the other side of the interface, then it is required that the TXLINK also moves to the ACTIVATE state, in a timely manner.
p_snps_chi_link_tx_deactivate_no_timeout	If the RXLINK moves to the DEACTIVATE state, which is controlled by the component on the other side of the interface, then it is required that the TXLINK also moves to the DEACTIVATE state, in a timely manner.
p_snps_chi_link_tx_deactivate_no_timeout	If the RXLINK moves to the DEACTIVATE state, which is controlled by the component on the other side of the interface, then it is required that the TXLINK also moves to the DEACTIVATE state, in a timely manner.
p_snps_chi_link_rx_deactivate_no_timeout	If the RXLINK moves to the DEACTIVATE state, which is controlled by the component on the other side of the interface, then it is required that the TXLINK also moves to the DEACTIVATE state, in a timely manner.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_link_tx_activate_lcredits	When the link is active, the receiver at each virtual channel must distribute L-credits for all its flit buffers in a timely manner without requiring any action on the part of the transmitter.
p_snps_chi_link_rx_activate_lcredits	When the link is active, the receiver at each virtual channel must distribute L-credits for all its flit buffers in a timely manner without requiring any action on the part of the transmitter.
p_snps_chi_excl_nonsnoopable_no_duplicate	Non-snoopable Exclusive request should not duplicate for same LPID.
p_snps_chi_excl_snoopable_no_duplicate	Snoopable Exclusive request should not duplicate for same LPID.
p_snps_chi_excl_addr_total_bytes_aligned	Exclusive Address should be aligned to the total number of bytes.
p_snps_chi_excl_legal_data_size	The number of bytes in Exclusive access should be either 1, 2, 4, 8, 16, 32 or 64.
p_snps_chi_excl_transaction_type	Exclusive access should be one of legal opcode.
p_snps_chi_excl_snoopable_load_rsp	Response for Exclusive snoopable Load should be matched with status determined by LPID and address.
p_snps_chi_excl_nonsnoopable_load_rsp	Response for Exclusive Non-snoopable Load should be matched with status determined by LPID and address.
p_snps_chi_excl_snoopable_store_rsp	Response for Exclusive snoopable Store should be matched with status determined by LPID and address.
p_snps_chi_excl_nonsnoopable_store_rsp	Response for Exclusive Non-snoopable Store should be matched with status determined by LPID and address.
p_snps_chi_excl_no_load_exokay_for_non_excl_req	Response for Non Exclusive Load transaction should not be EXOKAY.
p_snps_chi_excl_no_store_exokay_for_non_excl_req	Response for Non Exclusive Store transaction should not be EXOKAY.
p_snps_chi_excl_valid_snoopable_store_req	The LP must wait for all messages for any such transaction to be exchanged, or to receive a RetryAck response, before issuing an Exclusive Store transaction.
p_snps_chi_excl_valid_nonsnoopable_store_req	The LP must wait for all messages for any such transaction to be exchanged, or to receive a RetryAck response, before issuing an Exclusive Store transaction.
p_snps_chi_excl_no_exokay_for_failed_snoopable_store	An EXOKAY response should not be given to a snoopable STREX for a monitor entry that has been overwritten or the previous corresponding LDEX or STREX received a Normal OKAY response, or there was no corresponding LDEX.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_excl_no_exokay_for_failed_nonsnoopable_store	An EXOKAY response should not be given to a non-snoopable STREX for a monitor entry that has been overwritten or the previous corresponding LDEX or STREX received a Normal OKAY response, or there was no corresponding LDEX.
p_snps_chi_excl_no_exokay_for_overflow_snoopable_load	Snoopable Load Response should not be ExOkay when there is no corresponding Exclusive Load Request.
p_snps_chi_excl_no_exokay_for_overflow_nonsnoopable_load	Non-snoopable Load Response should not be ExOkay when there is no corresponding Exclusive Load Request.
p_snps_chi_excl_snoopable_req	Snoopable exclusive accesses must be issued as ReadClean, ReadShared or CleanUnique.
p_snps_chi_sbdld_reqRead2rdatLast	If TXREQFLITV is asserted and opcode is Read transaction, corresponding RXDATFLITV for all the beats of the data as per request should be asserted with opcode Compdata within N_RXCOMPDAT cycles.
p_snps_chi_sbdld_rdatLast2srspCompAck	If RXDATFLITV for all the read data beats are asserted and opcode is Compdata with original request having ExpCompAck asserted, corresponding TXRSPFLITV should be asserted with opcode Compack within N_TXCOMPACKRSP cycles.
p_snps_chi_sbdld_reqOrdrdRd2crspRdRcpt	If TXREQFLITV is asserted and opcode is ordered Read transaction (request order or endpoint order), corresponding RXRSPFLITV should be asserted with opcode READRECIEPT within N_RXRDRCPT cycles.
p_snps_chi_sbdld_reqDless2crspComp	If TXREQFLITV is asserted and opcode is data less transaction, corresponding RXRSPFLITV should be asserted with opcode Comp within N_RXCOMPRSP cycles.
p_snps_chi_sbdld_crspComp2srspCompAck	If RXRSPFLITV is asserted and opcode is Comp with original request being Dataless transaction with ExpCompAck asserted, corresponding TXRSPFLITV should be asserted with opcode Compack within N_TXCOMPACKRSP cycles.
p_snps_chi_sbdld_reqNCBW2crspCompDBIDs	If TXREQFLITV is asserted and opcode is non-copyback write transaction, corresponding RXRSPFLITV should be asserted with opcode CompDBID or DBID or COMP within N_RXCOMPDBIDRSP cycles.
p_snps_chi_sbdld_crspDBID2crspComp4NCBW	If TXREQFLITV is asserted and opcode is non-copyback write transaction and corresponding DBID response is received, then corresponding RXRSPFLITV should be asserted with opcode Comp within N_RXCOMPRSP cycles.
p_snps_chi_sbdld_crspComp2crspDBID4NCBW	If TXREQFLITV is asserted and opcode is non-copyback write transaction and corresponding COMP response is received, then corresponding RXRSPFLITV should be asserted with opcode DBID within N_RXDBIDRSP cycles

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_sbdld_crspCompDBID2wdatNCBW	If RXRSPFLITV is asserted with opcode CompDBID or DBID and original request being Non-CopyBack write transaction, Corresponding TXDATFLITV should be asserted for all the beats with opcode Non-CopyBackwrData within N_TXWRDATA cycles.
p_snps_chi_sbdld_crspCompDBID2srspCompAck4NCBW	If RXRSPFLITV is asserted with opcode CompDBID or COMP and original request being NonCopyBack write and ExpCompAck is asserted, corresponding TXRSPFLITV should be asserted with opcode Compack within N_TXCOMPACKRSP cycles.
p_snps_chi_sbdld_reqCBW2crspCompDBID	If TXREQFLITV is asserted and opcode is copy back write transaction, corresponding RXRSPFLITV should be asserted with opcode CompDBID within N_RXCOMPDBIDRSP cycles.
p_snps_chi_sbdld_crspCompDBID2wdatLast4CBW	If RXRSPFLITV is asserted with opcode CompDBID and original request being CopyBack write transaction, corresponding TXDATFLITV should be asserted for all the beats with opcode CopyBackwrData within N_TXWRDATA cycles.
p_snps_chi_sbdld_reqAtomicStore2crspCompDBIDs	If TXREQFLITV is asserted and opcode is atomic transaction with opcode AtomicStore, corresponding RXRSPFLITV should be asserted with opcode CompDBID or DBID or COMP within N_RXCOMPDBIDRSP_AT cycles.
p_snps_chi_sbdld_crspDBID2crspComp4AS	If TXREQFLITV is asserted and opcode is atomic transaction with opcode AtomicStore and corresponding DBID response is received, then corresponding RXRSPFLITV should be asserted with opcode Comp within N_RXCOMPRSP_AT cycles.
p_snps_chi_sbdld_crspComp2crspDBID4AS	If TXREQFLITV is asserted and opcode is atomic transaction with opcode AtomicStore and corresponding COMP response is received, then corresponding RXRSPFLITV should be asserted with opcode DBID within N_RXDBIDRSP_AT cycles.
p_snps_chi_sbdld_reqAtomicLdSwpCmp2crspDBID	If TXREQFLITV is asserted and opcode is atomic transaction with opcode AtomicLoad or AtomicSwap or AtomicCompare , Corresponding RXRSPFLITV should be asserted with opcode DBID within N_RXCOMPDBIDRSP cycles.
p_snps_chi_sbdld_reqAtomicLdSwpCmp2rdatCompData	If TXREQFLITV is asserted and opcode is atomic transaction with data response (atomic load, swap, compare), corresponding RXDATFLITV should be asserted with opcode Compdata within N_RXCOMPDATA cycles.
p_snps_chi_sbdld_crspCompDBIDs2wdat4AS	If RXRSPFLITV is asserted with opcode DBIDResp or CompDBID resp and original request being Atomic transaction, corresponding TXDATAFLITV should be asserted with Data within N_TXDATA cycles.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_sbdld_reqDVM2crspDBID	If TXREQFLITV is asserted and opcode is DVM transaction, corresponding RXRSPFLITV should be asserted with opcode DBID within N_RXDBIDRSP cycles.
p_snps_chi_sbdld_crspDBID2wdatComp4DVM	If RXRSPFLITV is asserted with opcode DBID and original request being DVM, corresponding TXDATFLITV should be asserted with opcode CompData within N_TXWRDATA cycles.
p_snps_chi_sbdld_wdatNCBW2crspComp4DVM	If TXDATFLITV is asserted with opcode NCBWrData and original request being DVM transaction, Corresponding RXRSPFLITV should be asserted with opcode Comp within N_TXCOMPRSP cycles.
p_snps_chi_sbdld_snpNonDVM2srspSnpResp	If RXSNPFLITV is asserted with opcode other than DVM, corresponding TXRSPFLITV/TXDATFLITV should be asserted with opcode snprsp/snprspdata/snprspdataptl within in N_TXSNPRSP cycles.
p_snps_chi_sbdld_snpNonDVM2wdatSnpRespDat a	If RXSNPFLITV is asserted with opcode other than DVM, corresponding TXRSPFLITV/TXDATFLITV should be asserted with opcode snprsp/snprspdata/snprspdataptl within in N_TXSNPRSP cycles.
p_snps_chi_sbdld_snpDVM2srspSnpResp	If RXSNPFLITV is asserted twice with opcode DVM snp, corresponding TXRSPFLITV should be asserted with opcode snprsp within in N_TXSNPRSP cycles.
p_snps_chi_sbdld_RetryAck2Credit	If RXRSPFLITV is asserted with opcode RetryAck and corresponding Pcrdgrant is received, then RXREQFLITV should be asserted by master either to resend the transaction with received P-Credit or return the credit within in N_TXRETRY cycles.
p_snps_chi_sbdld_PCrdGrant2RetryAck	Pcrdgrant is there RetryACK should be there within N_RETRYACK.
p_snps_chi_sbdld_RetryAck2PCrdGrant	RetryACK is there Pcrdgrant should be there within N_PCRDGRANT.
p_snps_chi_param_id_table_consistency	Found duplication in ID Table parameters, Node ID should be unique through out ID Table.
p_snps_chi_param_node_id_consistency	NODE_ID is not part of ID Table.
p_snps_chi_req_ctl_wruniqptlcmo	WriteUniquePtl+(P)CMO Req Flit must have specific control fields.
p_snps_chi_req_ctl_wruniqfullcmo	WriteUniqueFull+(P)CMO Req Flit must have specific control fields..
p_snps_chi_req_ctl_wrclnfullcmo	WriteCleanFull Req Flit must have specific control fields.
p_snps_chi_req_ctl_wrbackfullcmo	WriteBackFull Req Flit must have specific control fields.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_ctl_wrnosnpptlcmo	WriteNoSnpPtl Req Flit must have specific control fields.
p_snps_chi_req_tagop_nonzero_vld_dataless_transaction	Tagop all 0s in all but MakeUnique & MakeReadUnique.
p_snps_chi_req_makereaduniq_vld_tagop	Tagop for MakeReadUnique must be Invalid or Transfer.
p_snps_chi_req_makeuniq_vld_tagop	Tagop for MakeUnique must be Invalid or Transfer.
p_snps_chi_req_ctl_mkrduniq	MakeReadUnique Req Flits must have specific control fields
p_snps_chi_req_ctl_writevictorevict	WriteEvictorEvict Req Flits must have specific control fields
p_snps_chi_req_ctl_writenosnpzero	WriteEvictorEvict Req Flits must have specific control fields
p_snps_chi_req_ctl_writeunqzero	WriteUniqueZero Req Flits must have specific control fields
p_snps_chi_req_ctl_readpreferuniq	ReadPreferUnique Req Flits must have specific control fields
p_snps_chi_req_fields_dvm_fields_vld_tg_ttl_bits	Range field can be set to 1 only for TLBI operations with VA Valid asserted
p_snps_chi_req_fields_dvm_fields_vld_va_bits	Range field can be set to 1 only for TLBI operations with VA Valid asserted
p_snps_chi_req_fields_dvm_fields_tg_nonzero_for_range_based_op	Range field can be set to 1 only for TLBI operations with VA Valid asserted
p_snps_chi_req_fields_dvm_fields_zero_for_non_tlbi_ops	Range field can be set to 1 only for TLBI operations with VA Valid asserted
p_snps_chi_req_fields_dvm_range_zero_for_non_tlbi_ops	Range field can be set to 1 only for TLBI operations with VA Valid asserted
p_snps_chi_req_fields_dvm_tlbi_guest_s_chie	For REQ DVM TLBI with GuestOS, Secure, invalid combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1 & VA_Valid
p_snps_chi_req_fields_dvm_tlbi_hyp_s_chie	For REQ DVM TLBI with Hypervisor, Non-Secure, invalid encoding combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1 and VA_Valid
p_snps_chi_req_fields_dvm_vici_chie	For REQ DVM VICI (Virtual Insn $ Inv), invalid combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1, VA_Valid Security, Guest_OS
p_snps_chi_req_ctl_wrnosnpfullcmo	WriteNoSnpFull+(P)CMO REQ Flits must have LikelyShared = 1'b0, SnoopAttr[SnoopDomain,Snoopable] = 2'b00, Size= 64B
p_snps_chi_illegal_req_opcd_chie	Request flit Opcode value is illegal/reserved.
p_snps_chi_wdat_resp4wupcmo	The WDAT Flit for a WriteUniquePartial+CMO must have a RESP field indicating a $state of I
p_snps_chi_wdat_resp4wufcmo	The WDAT Flit for a WriteUniqueFull+CMO must have a RESP field indicating a $state of I

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_wdat_resp4wnspcmo	The WDAT Flit for a WriteNoSnpPartial+CMO must have a RESP field indicating a $state of I
p_snps_chi_wdat_resp4wnsfcmo	The WDAT Flit for a WriteNoSnpFull+CMO must have a RESP field indicating a $state of I
p_snps_chi_wdat_wdc_valid_wnspcmo	WDAT flits with opcode OPCD_DAT_WRITEDATACANCEL cannot be used in WriteNoSnpPtlCMO transactions with DEVICE TYPE = MEMORY
p_snps_chi_wdat_ncbw_for_wucmo	The WDAT packets of WriteNoSnp* transactions must be NonCopyBackWrData
p_snps_chi_wdat_ncbw_for_wnscmo	The WDAT packets of WriteNoSnp* transactions must be NonCopyBackWrData
p_snps_chi_wdat_cbw_for_wccmo	The WDAT packets of WriteClean CMO transactions must be CopyBackWrData.
p_snps_chi_wdat_cbw_for_wbcmo	The WDAT packets of WritBack CMO transactions must be CopyBackWrData.
p_snps_chi_wdat_expected_num_data_pkts	Th number of CopybackWriteData write data flits should be equal to the expected value.
p_snps_chi_wdat_wrCMOBEs_ok	The WDAT Flit Byte Enables must be valid wrt the original parameters of the corresponding REQ.
p_snps_chi_wdat_resp4spu	The SnpRespData WDAT Flit for a SnpPreferUnique must have a RESP indicating a $state of I, SC, SD, I_PD, or SC_PD.
p_snps_chi_srsp_snp_preferunique_resp	The Resp field in an SRESP of a Snoop PreferUnique must be I or SC or SD
p_snps_chi_srsp_snp_preferuniquefwd_resp	The cache state in the associated response of a SnpPreferUniqueFwd transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_srsp_snp_query_resp	The associated SnpResp has Legal cache state for SnpQuery transaction.
p_snps_chi_srsp_compack_cmo_causal_comp	CompAck must be send out after reception of one of the responses - Comp or DBIDResp or DBIDRespOrd or CompDBIDResp and applicable to WriteNoSnp* and WritUnique* CMOs.
p_snps_chi_req_makereadunique_vld_comm_pairs	Communicating node pairs for MakeReadUnique should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_readpreferunique_vld_comm_pairs	Communicating node pairs for ReadPreferUnique should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_writeevictorevict_vld_comm_pairs	Communicating node pairs for WriteEvictorEvict should be RNF to ICN(HNF), ICN(HNI).

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_writenosnpzero_vld_comm_pairs	Communicating node pairs for WriteNoSnpZeroI shoule be RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_writeuniquezero_vld_comm_pairs	Communicating node pairs for WriteUniqueZero should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_makereadunique_vld_comm_pairs_expected	Communicating node pairs for MakeReadUnique expected to be RNF to ICN(HNF).
p_snps_chi_req_readpreferunique_vld_comm_pairs_expected	Communicating node pairs for ReadPreferUnique expected to be RNF to ICN(HNF).
p_snps_chi_req_writeevictorevict_vld_comm_pairs_expected	Communicating node pairs for WriteEvictorEvict expected to be RNF to ICN(HNF).
p_snps_chi_req_writeuniquezero_vld_comm_pairs_expected	Communicating node pairs for WriteUniqueZero expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_crsp_compcmo_fields	A CompCMO on CRSP must have: PCrdType = 'b0
p_snps_chi_crsp_comp_resp4wcfpcmo	Final cache state in the associated CompCMO response of a WritCleanFull+CMO transaction is set to UC, SC or I and resp_pass_dirty indicated in resp field of the CompCMO response associated to WritCleanFull+CMO transaction is set to 0
p_snps_chi_crsp_comp_resp4wcfcmo	Final cache state in the associated CompCMO response of a WritCleanFull+CMO transaction is set to UC, SC or I and resp_pass_dirty indicated in resp field of the CompCMO response associated to WritCleanFull+CMO transaction is set to 0
p_snps_chi_crsp_comp_resp4wuz	The Comp/CompDBIDResp must have a RESP of I for a transaction of WriteUniqZero
p_snps_chi_crsp_comp_resp4wnsz	The Comp/CompDBIDResp must have a RESP of I for a transaction of WriteNoSnpZero
p_snps_chi_crsp_comp_resp4wufcmo	The Comp/CompDBIDResp/CompCMO must have a RESP of I for a transaction of WriteUniqFull+CMO
p_snps_chi_crsp_comp_resp4wufpcmo	The Comp/CompDBIDResp/CompCMO must have a RESP of I for a transaction of WriteUniqFull+CMO
p_snps_chi_crsp_comp_resp4wucmo	The Comp/CompDBIDResp/CompCMO must have a RESP of I for a transaction of WriteUniqPartial+CMO
p_snps_chi_crsp_comp_resp4wupcmo	The Comp/CompDBIDResp/CompCMO must have a RESP of I for a transaction of WriteUniqPartial+CMO
p_snps_chi_crsp_comp_resp4wnsfpcmo	The Comp/CompDBIDResp/CompCMO must have a RESP of I for a transaction of WriteNoSnoopFull+CMO

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_comp_resp4wnsfcmo	The Comp/CompDBIDResp/CompCMO must have a RESP of I for a transaction of WriteNoSnoopFull+CMO
p_snps_chi_crsp_comp_resp4wnscmo	The Comp/CompDBIDResp /CompCMO must have a RESP of I for a transaction of WriteNoSnoopPartial+CMO
p_snps_chi_crsp_comp_resp4wnspcmo	The Comp/CompDBIDResp /CompCMO must have a RESP of I for a transaction of WriteNoSnoopPartial+CMO
p_snps_chi_crsp_comp_resp4wbfpcmo	Final cache state in the associated CompCMO response of a WriteBackFull+CMO transaction is set to UC, SC or I and resp_pass_dirty indicated in resp field of the CompCMO response associated to WriteBackFull+CMO transaction is set to 0
p_snps_chi_crsp_comp_resp4wbfcmo	Final cache state in the associated CompCMO response of a WriteBackFull+CMO transaction is set to UC, SC or I and resp_pass_dirty indicated in resp field of the CompCMO response associated to WriteBackFull+CMO transaction is set to 0
p_snps_chi_crsp_dbid_resperr_for_writezero	The associated Comp and CompDBIDResp should not take EXOK value whereas data packet should not take EXOK or NDERR resp_err value for WriteUniqueZero and WriteNoSnpZero transactions.
p_snps_chi_crsp_resperr_for_writezero	The associated Comp and CompDBIDResp should not take EXOK value whereas data packet should not take EXOK or NDERR resp_err value for WriteUniqueZero and WriteNoSnpZero transactions.
p_snps_chi_crsp_resperr_for_writeuniquecmo	The associated Comp/ CompDBIDResp/CompCMO/Persist/CompPersist should not take EXOK value
p_snps_chi_crsp_resperr_for_writeuniquepcmo	The associated Comp/ CompDBIDResp/CompCMO/Persist/CompPersist should not take EXOK value
p_snps_chi_crsp_resperr_for_writebackfullcmo	The associated Comp/ CompDBIDResp/CompCMO/Persist/CompPersist should not take EXOK value
p_snps_chi_crsp_resperr_for_writebackfullpcmo	The associated Comp/ CompDBIDResp/CompCMO/Persist/CompPersist should not take EXOK value
p_snps_chi_crsp_resperr_for_writecleanfullpcmo	The associated Comp/ CompDBIDResp/CompCMO/Persist/CompPersist should not take EXOK value

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_resperr_for_writecleanfullcmo	The associated Comp/ CompDBIDResp/CompCMO/Persist/CompPersist should not take EXOK value
p_snps_chi_crsp_resperr_for_writenosncmo	The associated Comp/ CompDBIDResp/CompCMO/Persist/CompPersist should not take EXOK value
p_snps_chi_crsp_resperr_for_writenosnpcmo	The associated Comp/ CompDBIDResp/CompCMO/Persist/CompPersist should not take EXOK value
p_snps_chi_srsp_resperr_for_snppreferuniqfwd	The associated SnpResp should not take EXOK or DERR resp_err value for SnpPreferUniqueFwd transaction.
p_snps_chi_srsp_fwd_resperr_for_snppreferuniqfwd	The associated SnpRespFwded should not take EXOK resp_err value for SnpPreferUniqueFwd transaction.
p_snps_chi_wdat_resperr_for_snppreferunqfwd	The associated SnpRespData, SnpRespDataFwded or CompData packet should not take EXOK or NDERR resp_err value for snpPreferUniqueFwd transaction.
p_snps_chi_rdat_same_tagop_beats	In the RDAT packets corresponding to the same Read Request, the TagOp must remain constant.
p_snps_chi_compcmo_valid_txn_chie	Invalid COMPCMO on CRESP
p_snps_chi_dbidrespord_valid_txn_chie	Invalid DBIDRespORd on CRESP
p_snps_chi_snp_fields_dvm_fields_vld_tg_ttl_bits	TG and TTL fields are inapplicable and must be set to zero in non-range based TLBI operations which are not by VA or IPA
p_snps_chi_snp_fields_dvm_fields_vld_va_bits	Valid VA based on TG
p_snps_chi_snp_fields_dvm_fields_tg_nonzero_for_range_based_op	The TransGranular field (TG) should not take a value of 2'b00 for a Range based TLBI
p_snps_chi_snp_fields_dvm_range_zero_for_non_tlbi_ops	Range field can be set to 1 only for TLBI operations with VA Valid asserted
p_snps_chi_snp_fields_dvm_tlbi_guest_s_chie	Unsupported encoding combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1 & VA_Valid For Snoop DVM TLBI with GuestOS and Secure transaction.
p_snps_chi_snp_fields_dvm_tlbi_hyp_s_chie	Unsupported encoding combinations of ASID_Valid, VMID_Valid, LEAF, S2-S1 & VA_Valid for Snoop DVM TLBI with Hypervisor, Non-Secure transaction.
p_snps_chi_snp_fields_dvm_vici_chie	For Snoop DVM VICI operations, the supported field combinations are ASID_Valid, VMID_Valid, LEAF, S2-S1, VA_Valid, Security, Guest_OS for CHI_E.
p_snps_chi_snp_opcd_chie	Snoop flit opcode values 0xE, 0xF, 0x10, 0x15, 0x16, 0x18 and after are illegal/reserved.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_opcd_writenosnpzero	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_writenuniquezero	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteNoSnpFullCleanSh	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteNoSnpFullCleanInv	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteNoSnpFullCleanShPerSep	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteUniqueFullCleanSh	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteUniqueFullCleanShPerSep	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteBackFullCleanSh	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteBackFullCleanInv	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteBackFullCleanShPerSep	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteCleanFullCleanSh	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteCleanFullCleanShPerSep	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteNoSnpPtlCleanSh	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteNoSnpPtlCleanInv	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteNoSnpPtlCleanShPerSep	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteUniquePtlCleanSh	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_WriteUniquePtlCleanShPerSep	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_makereadunique	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_writeevictorevict	Cover the appearance of the particular request opcode
p_snps_chi_req_opcd_readpreferunique	Cover the appearance of the particular request opcode
p_snps_chi_crsp_opcd_compcmo	Cover the appearance of the particular response opcode
p_snps_chi_crsp_opcd_comppersist	Cover the appearance of the particular response opcode
p_snps_chi_crsp_opcd_tagmatch	Cover the appearance of the particular response opcode
p_snps_chi_crsp_opcd_dbispord	Cover the appearance of the particular response opcode
p_snps_chi_snp_ctl_snpquery	SnoopQuery Req Flit must have specific control fields.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_atomic_vld_tagop	TagOp in Atomic transaction requests can be set to either Invalid or Match.
p_snps_chi_req_memtag_vld_memory	Memory tagging is permitted only in requests to Normal WriteBack memory.
p_snps_chi_req_read_vld_tagop	TagOp in the Read transaction request is set to INVALID, TRANSFER OR FETCH.
p_snps_chi_req_read_64bytes_vld_tagop	TagOp is set to Fetch only when the data_size of the Read request is 64Bytes.
p_snps_chi_rdat_tagops_ok	Given Req TagOp, the Rdat has wrong Tagop.
p_snps_chi_rdat_dirty_tag_dirty_pass	Dirty Tags leads to pass Dirty.
p_snps_chi_crsp_respsepdata_0tagop	TagOp is inapplicable and must be 0.
p_snps_chi_wdat_tagops_ok	Wdat TagOp is wrong given TagOp of Rew.
p_snps_chi_wdat_tagop_invalid_0tags	For Invalid TagOp, Tag bits must be 0.
p_snps_chi_wdat_atomic_same_tagop_req	All Wdats of an Atomic must have the same TagOp.
p_snps_chi_wdat_snp_trace_tag_valid	Wdat Trace tag is not valid.
p_snps_chi_srsp_snp_trace_tag_valid	Trace Tag is not OK given the Snoop Request Trace Tag.
p_snps_chi_req_tagop_match_vld	TagOp in transaction requests can only take values as permitted in Table 18-6 as per spec version IHI0050E_a.
p_snps_chi_req_tagop_update_vld	TagOp in transaction requests can only take values as permitted in Table 18-6 as per spec version IHI0050E_a.
p_snps_chi_req_tagop_transfer_vld	TagOp in transaction requests can only take values as permitted in Table 18-6 as per spec version IHI0050E_a.
p_snps_chi_rsp_flit_tagmatch_check_nontag_err	RespErr status in TagMatch response can be set to OKAY, DERR and NDERR.
p_snps_chi_rsp_flit_tagmatch_check_fields	TxnID, DBID, PCrdType, FwdState, DataPull and TagOp fields are inapplicable and must be set to zero.
p_snps_chi_rdat_atomic_valid_tagop	For Atomic transactions, the TagOp in the read data response must be either Invalid or Transfer.
p_snps_chi_wdat_same_tagop_beats	All Write data flits corresponding to a transaction must have the same TagOp value.
p_snps_chi_wdat_tagup_zero_when_tagop_not_update	If TagOp value in the Write data response is not Update, TU bits must all be de-asserted.
p_snps_chi_wdat_valid_tu_for_partial_cache_write	In case of partial cacheline writes, only the TU bits corresponding to the valid data byte lanes can be set.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_wdat_valid_tu_whn_wdat_tagop_upd	In case of WriteUniqueFull* and WriteNoSnpFull, all TU bits in the write data response must be asserted.
p_snps_chi_wdat_tag_up_not_allowed	Tag Update is valid in snoop responses and write transactions which update the Allocation Tags. It must be set to 0 in all other cases.
p_snps_chi_crsp_dataless_mkrduniq_tagop_vld	TagOp field in the dataless response sent for a MakeReadUnique must be Invalid in case TagOp in the request is Invalid and Invalid or Update in case TagOp in the request is Transfer. For all other transactions, the dataless response must be set to Invalid.
p_snps_chi_crsp_comp_resp4mru_non_excl	Legal cache state related check for MakereadUnique
p_snps_chi_crsp_comp_resp4mru_excl	Legal cache state related check for MakereadUnique(Excl)
p_snps_chi_rdat_resp4mru_non_excl	Legal cache state related check for MakereadUnique
p_snps_chi_rdat_resp4mru_excl	Legal cache state related check for MakereadUnique(Excl)
p_snps_chi_rdat_respErr4mru	The CompData response for a MakeReadUnique must have a RespErr of OK, DERR or NDERR. RespErr value of ExOK is not permitted in response to MakeReadUnique (Excl).
p_snps_chi_crsp_comp_respErr4mru	COMP response of MRU can not have ExOk response.
p_snps_chi_crsp_rspsepdata_respErr4mru	RspSepDat response of MRU can have only Ok and NDERR response.
p_snps_chi_rdat_trace_tag_valid	Trace Tag in the response or spwaned flit must be set when TraceTag in the corresponding originating flit is set.
p_snps_chi_crsp_trace_tag_valid	Trace Tag in the response or spwaned flit must be set when TraceTag in the corresponding originating flit is set.
p_snps_chi_srsp_valid_final_state_for_non_invalidating_snp_when_mru_outs	A requester must not invalidate the line in response to receiving a non-invalidating snoop while MakeReadUnique is outstanding.
p_snps_chi_wdat_valid_final_state_for_non_invalidating_snp_when_mru_outs	A requester must not invalidate the line in response to receiving a non-invalidating snoop while MakeReadUnique is outstanding.
p_snps_chi_crsp_mru_exp_rsp	If Snoop filter is not present in the Interconnect or Cacheline is invalidated then the MakeReadUnique must receive a data response.
p_snps_chi_wdat_for_writeevictorevict_after_comp_dbid_resp	CopyBackWrData WDAT packets for WEorE txn must be sent only after CompDBIDResp
p_snps_chi_srsp_compack_causal_for_writeevictorevict_comp	CompAck is sent only for COMP response.
p_snps_chi_crsp_comp_resp4writeevictorevict	The Comp/CompDBIDResp must have a RESP of I for a transaction of WriteEvictorEvict.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_comp_respErr4WriteEvictorEvict	Valid respErr for COMP response
p_snps_chi_crsp_compdbid_respErr4WriteEvictorEvict	Valid respErr for COMPDBID response
p_snps_chi_srsp_compack_respErr4WriteEvictorEvict	Valid respErr for COMPACK response
p_snps_chi_req_before_writevictorevict_comp_or_compdbid_pending	An RN-F must wait for the Comp/CompDBIDResp response to be received for an outstanding WriteEvictorEvict transaction before issuing another request to the same cache line
p_snps_chi_wdat_cbw_for_writeevictorevict	The WDAT packets of WriteEvictorEvict transactions must be CopyBackWrData
p_snps_chi_wdat_resp4wee	WriteEvictorEvict transaction must have RESP field indicating a state of I or SC or UC
p_snps_chi_rdat_mru_tagop_valid	TagOp field in the data responses sent for a MakeReadUnique can be set to Invalid, Transfer or Update.
p_snps_chi_wdat4snp_same_tagop_beats	All Snoop data response flits corresponding to a Snoop transaction must have the same TagOp value
p_snps_chi_wdat4snp_dirty_tag_dirty_pass	If the Snoopee returns Dirty Tags with TagOp value of ôUpdateô then the snoop response state must include pass Dirty.
p_snps_chi_associate_tagmatch_with_xact_check	The TagGroupID, GroupIDExt, TgtID in the TagMatch response must match with the TagGroupID, GroupIDExt and SrcID of a Write or Atomic transaction request with TagOp set to MATCH.
p_snps_chi_rdat_respErr4rpu	Permitted RespErr field values in the response to ReadPreferUnique are OK, DERR and NDERR. EXOK response is not permitted even when Excl bit in the request is set to one.
p_snps_chi_rdat_resp4rpu	Final Cache state for ReadPreferUnique should be SC, UC or UD.
p_snps_chi_excl_load_no_dmt_allowed	Exclusive transaction other than ReadPreferUnique and MakeReadunique that do not fail must not use the DMT flow.
p_snps_chi_rdat_resperr_valid	Non-data Error response is permitted only in none or all data response packets in read data response.
p_snps_chi_comppersist_valid_txn_chie	CompPersist response seen for CleanSharedPersistSep or Combined Write_CleanSharedPersistSep transaction.
p_snps_chi_crsp_comp_resp4csperssep	Final cache state in the Comp/CompPersist response of a CleanSharedPersistSep transaction is set to UC, SC or I.
p_snps_chi_crsp_comp_respErr4csperssep	The RespErr field in the associated Comp/Persist/CompPersist response flits of a CleanSharedPersistSep transaction are as per Table 9-4 in the CHI-D or later Specification.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_comppersist_fields	Response VC message fields must be set to valid values for a CompPersist response to CleanSharedPersistSep transaction.
p_snps_chi_crsp_dbidrespord_fields	Response VC message fields must be set to valid values for a DBIDRespOrd transaction.
p_snps_chi_crsp_respsepdata_resperr_matches	For a given RN transactions, if resp_err_status set to NON_DATA_ERROR in one of the responses RespSepData or DataSepResp then both the responses RespSepData and DataSepResp must have the resp_err_status as NON_DATA_ERROR and must have been generated from the same HN.
p_snps_chi_crsp_tagop_zero	TagOp not applicable for crsp except for COMP response.
p_snps_chi_csp_valid_txn	The Response type must correspond to one of the permitted combinations for the CleanSharedPersistSep transaction.
p_snps_chi_link_txact_rxdeactp_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txact_rxdeactp_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txact_rxdeactp_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txact_rxdeactp_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txdeact_rxactp_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txdeact_rxactp_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txdeact_rxactp_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txdeact_rxactp_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txrunp_rxstop_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txrunp_rxstop_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txrunp_rxstop_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txrunp_rxstop_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_link_txstopp_rxrun_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txstopp_rxrun_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txstopp_rxrun_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_link_txstopp_rxrun_vld_transition	Legal Tx and Rx link active state combinations from the async input race states.
p_snps_chi_rdat_datasepresp_homenid_matches	The DBID and HomeNID values in the DataSepResp flits must match the DBID and SrcID values in the RespSepData flit.
p_snps_chi_rdat_datasepresp_resperr_matches	For a given RN transactions, if resp_err_status set to NON_DATA_ERROR in one of the responses RespSepData or DataSepResp then both the responses RespSepData and DataSepResp must have the resp_err_status as NON_DATA_ERROR and must have been generated from the same HN.
p_snps_chi_rdat_dbid_same_beats	For a Read transaction, if the DBID is valid then the DBID field must take same value in all the corresponding read data flits. DBID is valid if ExpCompAck is set to 1 for the corresponding Read transaction.
p_snps_chi_rdat_tagop_not_invalid_for_transfer_fetch_req_tagop	Read data flit is not set to Invalid when the Read Request TagOp is Transfer or Fetch and the target HN supports memory tagging.
p_snps_chi_rdat_tagops_expected	The TagOp field in a Read data flit should be Invalid, Transfer or Update.
p_snps_chi_rdat_valid_ordering_and_compack_combination_for_dmt	DMT for Readnosnp, Readonce, ROCI and ROMI cannot be used with ordering and No compack.
p_snps_chi_rdat_valid_transaction_supporting_dmt	DMT is applicable only for the following transactions: Readclean, Readshared, Readunique, RNSD, Readnosnp, Readonce, ROCI, ROMI, ReadPreferUnique and MakeReadUnique.
p_snps_chi_req_ctl_stash1nceunq_chie	StashOnceUnique Req Flit must have specific control fields.
p_snps_chi_req_writebackfullcmo_vld_comm_pairs	Communicating node pairs for WriteBackFull should be RNF to ICN(HNF), ICN(HNI).
p_snps_chi_req_writebackfullcmo_vld_comm_pairs_expected	Communicating node pairs for WriteBackFull expected to be RNF to ICN(HNF).
p_snps_chi_req_writebackfullcmo_vld_comm_pairs_expected	Communicating node pairs for WriteBackFull expected to be RNF to ICN(HNF).
p_snps_chi_req_writecleanfullcmo_vld_comm_pairs	Communicating node pairs for WriteCleanFull should be RNF to ICN(HNF), ICN(HNI).

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_req_writecleanfullcmo_vld_comm_pairs_expected	Communicating node pairs for WriteCleanFull expected to be RNF to ICN(HNF).
p_snps_chi_req_writecleanfullcmo_vld_comm_pairs_expected	Communicating node pairs for WriteCleanFull expected to be RNF to ICN(HNF).
p_snps_chi_req_writenosnpfullcmo_vld_comm_pairs	Communicating node pairs for WriteNoSnpFullCMO shoule be RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_writenosnpptlcmo_vld_comm_pairs	Communicating node pairs for WriteNoSnpPtlCMO should be RNF, RND, RNI to ICN(HNF, HNI) or ICN(HNF) to SNF or ICN(HNI) to SNI.
p_snps_chi_req_writeuniquefullcmo_vld_comm_pairs	Communicating node pairs for WriteUniqueFull should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_writeuniquefullcmo_vld_comm_pairs_expected	Communicating node pairs for WriteUniqueFull expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_writeuniquefullcmo_vld_comm_pairs_expected	Communicating node pairs for WriteUniqueFull expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_writeuniqueptlcmo_vld_comm_pairs	Communicating node pairs for WriteUniquePtl should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_writeuniqueptlcmo_vld_comm_pairs_expected	Communicating node pairs for WriteUniquePtl expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_writeuniqueptlcmo_vld_comm_pairs_expected	Communicating node pairs for WriteUniquePtl expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_snp_ctl_snpclean	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpcleanshared	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpcleaninvalid	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpcleaninvalid	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpcleanshared	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpmakeinvalid	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpnsd	Snoop VC message fields must be set to valid values for a Snoop transaction.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_snp_ctl_snponcefwd	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snppreferunique	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpshared	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpstash	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpunique	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_ctl_snpunqfwd	Snoop VC message fields must be set to valid values for a Snoop transaction.
p_snps_chi_snp_req_not_sent_when_coherent_txn_outs_to_same_cacheline	RN-F node, Snoop request is observed when there are no outstanding coherent transactions targeting the same cache line that received completion response and has not yet sent out the CompAck or Write Data.
p_snps_chi_snp_req_not_sent_when_snp_txn_outs_to_same_cacheline	For an RN-F node, Snoop request is observed when there are no outstanding Snoop transactions targeting the same cache line.
p_snps_chi_srsp_compack_ownosnp_after_previous_comp	Check that the CompAck response for an ordered WriteNoSnp transaction is sent only afer Comp response for all earlier ordered Write transactions which are required to be ordered with respect to the current WriteNoSnp transaction are received.
p_snps_chi_srsp_compack_ownosnpcmo_after_previous_comp	Check that the WriteNoSnp+CMO response for an ordered WriteNoSnp+CMO transaction is sent only afer Comp response for all earlier ordered Write transactions which are required to be ordered with respect to the current WriteNoSnp+CMO transaction are received.
p_snps_chi_srsp_compack_owu_after_previous_comp	Check that the CompAck response for an ordered WriteUnique transaction is sent only afer Comp response for all earlier ordered Write transactions which are required to be ordered with respect to the current WriteUnique transaction are received.
p_snps_chi_srsp_compack_owucmo_after_previous_comp	Check that the WriteUnique+CMO response for an ordered WriteUnique+CMO transaction is sent only afer Comp response for all earlier ordered Write transactions which are required to be ordered with respect to the current WriteUnique+CMO transaction are received.
p_snps_chi_wdat_AtomicBEs_ok	The WDAT Flit Byte Enables must be valid wrt the original parameters of the corresponding REQ.
p_snps_chi_wdat_atomic_compare_comp_swap_equal_tag	Memory tag is same in the Tag fields corresponding to the compare and swap data.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_wdat_beats_same_opcode	Opcode field values must be the same for all WDAT flits of a transaction.
p_snps_chi_wdat_ctl_snprespdatfwded	Data VC message fields must be set to valid values for a SnpRespDataFwded transaction.
p_snps_chi_wdat_dvm_unused_fields_zero	Unused bits in the Write data of a DVMOp transaction are set to zero.
p_snps_chi_wdat_ncbwrdatacompack_ownosnp_after_previous_comp	Check that the NCBWRDATACOMPACK response for an ordered WriteNoSnp+CMO transaction is sent only after Comp response for all earlier ordered Write transactions which are required to be ordered with respect to the current WriteNoSnp+CMO transaction are received.
p_snps_chi_wdat_ncbwrdatacompack_owu_after_previous_comp	Check that the NCBWRDATACOMPACK response for an ordered WriteUnique+CMO transaction is sent only after Comp response for all earlier ordered Write transactions which are required to be ordered with respect to the current WriteUnique+CMO transaction are received.
p_snps_chi_wdat_tag_zero_when_tu_zero	Check that in Write Data with TagOp Update, a TU value of zero must set the associated Tag value to zero.
p_snps_chi_compstashdone_valid_txn_chie	CompStashDone response is allowed for StashOnceSepUnique/StashOnceSepShared.
p_snps_chi_crsp_compcmo_vld_comm_pairs	Communicating node pairs for COMPCMO should be valid.
p_snps_chi_crsp_comppersist_vld_comm_pairs	Communicating node pairs for COMPPERSIST should be valid.
p_snps_chi_crsp_compstashdone_fields	A compStashDone response on CRSP must have: PCrdType = 'b0 , FwdState/DataPull=='b0 Ref: Tbl. A-4 IHI0050E spec.
p_snps_chi_crsp_dbidrespord_vld_comm_pairs	Communicating node pairs for DBIDRespord should be HNF, HNI, MN to RNF, RND, RNI
p_snps_chi_crsp_persist_fields	A Persist response on CRSP must have: PCrdType = 'b0 FwdState/DataPull=='b0 TXNID==0 && Resp==0 Ref: Tbl. A-4 IHI0050D spec.
p_snps_chi_crsp_persist_vld_comm_pairs	Communicating node pairs for PERSIST should be valid
p_snps_chi_crsp_resperr_for_stashoncesepshared	The associated Comp/CompStashDone/StashDone should not take EXOK for StashOnceSepShared transaction.
p_snps_chi_crsp_resperr_for_stashoncesepunique	The associated Comp/CompStashDone/StashDone should not take EXOK for StashOnceSePUnique transaction.
p_snps_chi_crsp_stashdone_fields	A StashDone response on CRSP must have: PCrdType = 'b0 , FwdState/DataPull=='b0 TXNID==0 && Resp==0 Ref: Tbl. A-4 IHI0050E spec.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_crsp_stashdone_vld_comm_pairs	Communicating node pairs for STASHDONE/COMPSTASHDONE should be valid.
p_snps_chi_crsp_stashoncesepshared_resp	The cache state in the associated comp response packet of a StashOnceSepShared transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_crsp_stashoncesepunique_resp	The cache state in the associated comp response packet of a StashOnceSepUnique transaction should indicate a valid value when the RespErr field does not indicate any error.
p_snps_chi_crsp_tagmatch_vld_comm_pairs	Communicating node pairs for TAGMATCH should be HNF to RNF, RND, RNI or SN-F to HNF, RNF, RNI, RND.
p_snps_chi_crsp_vld_ordering_compack_comb_for_dwt	DWT is not permitted in Non-CopyBack writes that are OWO writes.
p_snps_chi_crsp_vld_txn_support_dwt	DWT is applicable only for non-copyback write transactions. DBIDRSP can not come from Slave for transactions other then non-copyback writes.
p_snps_chi_rdat_stash_compdata_tagop_samebeats	All DataPull CompData flits corresponding to a Stash type Snoop transaction involving DataPull must have the same TagOp value.
p_snps_chi_rdat_stash_compdata_tagop_vld	The TagOp field in a DataPull CompData flit is set to TAG_INVALID or TAG_TRANSFER.
p_snps_chi_req_cmos_fwdwd_to_slave_when_fwd_cmo2slv_enabled	SN can receive CleanShared, CLeanInvalid, MakeInvalid transaction from HN only when HN_FWD_CMO2SLV is set.
p_snps_chi_req_cmos_fwdwd_to_slave_when_fwd_pcmo2slv_enabled	SN can receive CleanSharedPersist/CleanSharedPersistSeransaction from HN only when HN_FWD_PCMO2SLV is set.
p_snps_chi_req_ctl_stash1ncesepshrd	StashOnceSepShared Req Flits must have specific control fields.
p_snps_chi_req_ctl_stash1ncesepunq	StashOnceSepUnique Req Flits must have specific control fields.
p_snps_chi_req_dwt_used_by_hn_when_dwt_enabled	DWT can be used by an HN only when DWT is enabled for that HN through HN_SUPPORT_DWT.
p_snps_chi_req_stashoncesepshared_vld_comm_pairs	Communicating node pairs for StashOnceSepShared should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_stashoncesepshared_vld_comm_pairs_expected	Communicating node pairs for StashOnceSepShared expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_stashoncesepunique_vld_comm_pairs	Communicating node pairs for StashOnceSepUnique should be RNF, RND, RNI to ICN(HNF), ICN(HNI).
p_snps_chi_req_stashoncesepunique_vld_comm_pairs_expected	Communicating node pairs for StashOnceSepUnique expected to be RNF, RND, RNI to ICN(HNF).
p_snps_chi_req_vld_txn_support_dwt	DWT is applicable only for non-copyback write transactions.

Table 4-2 The CHI AIP Channel Properties

Property Name	Property Description
p_snps_chi_srsp_no_data_pull_on_outstanding_with_dbidrspord	The data_pull in the Snoop response to a stash snoop should be set to 0 when there exists outstanding transactions to the cache line which have received DBIDRespOrd response.
p_snps_chi_stashdone_valid_txn_chie	StashDone response is allowed for StashOnceSepUnique/StashOnceSepShared.
p_snps_chi_wdat_snpfwd_compdata_tagop_same beats	The TagOp field is set to the same value in all the Compdata flits Corresponding to a Forward type Snoop.
p_snps_chi_wdat_snpfwd_compdata_tagop_vld	Check that the TagOp field in the CompData in Fwded Snoop response is set to a value that is permitted by the specification for the corresponding transaction type.

4.4 The CHI AIP Link State Machine Cover Properties

Table 4-3 describes certain link cover properties that are of interest to the CHI AIP users, but are not part of the original spec.

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_txsactive_high_rxsactive_high
p_snps_chi_link_txsactive_high_rxsactive_low
p_snps_chi_link_txsactive_low_rxsactive_high
p_snps_chi_link_txsactive_low_rxsactive_low
p_snps_chi_link_txsactive_rxsactive_l2h_l
p_snps_chi_link_txsactive_rxsactive_l2h_h
p_snps_chi_link_txsactive_rxsactive_l2h_l2h
p_snps_chi_link_txsactive_rxsactive_l2h_h2l
p_snps_chi_link_txsactive_rxsactive_h2l_l
p_snps_chi_link_txsactive_rxsactive_h2l_h
p_snps_chi_link_txsactive_rxsactive_h2l_h2l
p_snps_chi_link_txsactive_rxsactive_h2l_l2h
p_snps_chi_link_txsactive_rxsactive_transition
p_snps_chi_link_txsactive_low_rxsactive_low_link_not_active
p_snps_chi_link_txsactive_low_rxsactive_low_link_active
p_snps_chi_link_txsactive_low_rxsactive_high_link_not_active
p_snps_chi_link_txsactive_low_rxsactive_high_link_active
p_snps_chi_link_txsactive_high_rxsactive_low_link_not_active
p_snps_chi_link_txsactive_high_rxsactive_low_link_active
p_snps_chi_link_txsactive_high_rxsactive_high_link_not_active
p_snps_chi_link_txsactive_high_rxsactive_high_link_active
p_snps_chi_link_txactivate_rxstop_to_txrunp_rxstop
p_snps_chi_link_txactivate_rxrun_to_txactivate_rxdeactivatep
p_snps_chi_link_txdeactivate_rxrun_to_txstopp_rxrun
p_snps_chi_link_txdeactivate_rxstop_to_txdeactivate_rxactivatep

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_txstop_rxstop
p_snps_chi_link_txstop_rxactivate
p_snps_chi_link_txstop_rxrun
p_snps_chi_link_txstop_rxdeactivate
p_snps_chi_link_txactivate_rxstop
p_snps_chi_link_txactivate_rxactivate
p_snps_chi_link_txactivate_rxrun
p_snps_chi_link_txactivate_rxdeactivate
p_snps_chi_link_txrun_rxstop
p_snps_chi_link_txrun_rxactivate
p_snps_chi_link_txrun_rxrun
p_snps_chi_link_txrun_rxdeactivate
p_snps_chi_link_txdeactivate_rxstop
p_snps_chi_link_txdeactivate_rxactivate
p_snps_chi_link_txdeactivate_rxrun
p_snps_chi_link_txdeactivate_rxdeactivate
p_snps_chi_link_txstop_rxstop_to_txstop_rxactivate
p_snps_chi_link_txstop_rxstop_to_txactivate_rxstop
p_snps_chi_link_txstop_rxstop_to_txactivate_rxactivate
p_snps_chi_link_txstop_rxactivate_to_txactivate_rxactivate
p_snps_chi_link_txstop_rxactivate_to_txactivate_rxrun
p_snps_chi_link_txactivate_rxstop_to_txrun_rxstop
p_snps_chi_link_txactivate_rxstop_to_txactivate_rxactivate
p_snps_chi_link_txactivate_rxstop_to_txrun_rxactivate
p_snps_chi_link_txactivate_rxactivate_to_txactivate_rxrun
p_snps_chi_link_txactivate_rxactivate_to_txrun_rxrun
p_snps_chi_link_txactivate_rxactivate_to_txrun_rxactivate
p_snps_chi_link_txactivate_rxrun_to_txactivate_rxdeactivate
p_snps_chi_link_txactivate_rxrun_to_txrun_rxdeactivate

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_txactivate_rxrun_to_txrun_rxrun
p_snps_chi_link_txactivate_rxdeactivate_to_txrun_rxdeactivate
p_snps_chi_link_txrun_rxstop_to_txrun_rxactivate
p_snps_chi_link_txrun_rxactivate_to_txrun_rxrun
p_snps_chi_link_txrun_rxactivate_to_txdeactivate_rxrun
p_snps_chi_link_txrun_rxrun_to_txrun_rxdeactivate
p_snps_chi_link_txrun_rxrun_to_txdeactivate_rxdeactivate
p_snps_chi_link_txrun_rxrun_to_txdeactivate_rxrun
p_snps_chi_link_txrun_rxdeactivate_to_txdeactivate_rxstop
p_snps_chi_link_txrun_rxdeactivate_to_txdeactivate_rxdeactivate
p_snps_chi_link_txdeactivate_rxrun_to_txdeactivate_rxdeactivate
p_snps_chi_link_txdeactivate_rxrun_to_txstop_rxdeactivate
p_snps_chi_link_txdeactivate_rxrun_to_txstop_rxrun
p_snps_chi_link_txdeactivate_rxdeactivate_to_txdeactivate_rxstop
p_snps_chi_link_txdeactivate_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_txdeactivate_rxdeactivate_to_txstop_rxdeactivate
p_snps_chi_link_txdeactivate_rxstop_to_txdeactivate_rxactivate
p_snps_chi_link_txdeactivate_rxstop_to_txstop_rxactivate
p_snps_chi_link_txdeactivate_rxstop_to_txstop_rxstop
p_snps_chi_link_txdeactivate_rxactivate_to_txstop_rxactivate
p_snps_chi_link_txstop_rxrun_to_txstop_rxdeactivate
p_snps_chi_link_txstop_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_txstop_rxdeactivate_to_txactivate_rxstop
p_snps_chi_link_txstop_rxrun_to_txactivate_rxrun
p_snps_chi_link_txrun_rxstop_to_txdeactivate_rxstop
p_snps_chi_link_txdeactivate_rxactivate_to_txdeactivate_rxrun
p_snps_chi_link_txactivate_rxdeactivate_to_txactivate_rxstop
p_snps_chi_link_txstop_rxactivate_to_txstop_rxrun
p_snps_chi_link_txrun_rxdeactivate_to_txrun_rxstop

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_txrun_rxactivate_to_txdeactivate_rxactivate
p_snps_chi_link_txstop_rxdeactivate_to_txactivate_rxdeactivate
p_snps_chi_link_exp_txrun_rxrun_to_txdeactivate_rxrun_to_txdeactivate_rxdeactivate_to_txstop_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_exp_txrun_rxrun_to_txdeactivate_rxrun_to_txdeactivate_rxdeactivate_to_txdeactivate_rxstop_to_txstop_rxstop
p_snps_chi_link_exp_txrun_rxrun_to_txrun_rxdeactivate_to_txdeactivate_rxdeactivate_to_txstop_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_exp_txrun_rxrun_to_txrun_rxdeactivate_to_txdeactivate_rxdeactivate_to_txdeactivate_rxstop_to_txstop_rxstop
p_snps_chi_link_exp_txstop_rxstop_to_txstop_rxactivate_to_txactivate_rxrun_to_txrun_rxrun
p_snps_chi_link_exp_txstop_rxstop_to_txactivate_rxstop_to_txrun_rxactivate_to_txrun_rxrun
p_snps_chi_link_valid_txrun_rxrun_to_txrun_rxdeactivate_to_txdeactivate_rxdeactivate_to_txstop_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txrun_rxdeactivate_to_txdeactivate_rxdeactivate_to_txdeactivate_rxstop_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txrun_rxdeactivate_to_txdeactivate_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txrun_rxdeactivate_to_txdeactivate_rxstop_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txdeactivate_rxrun_to_txdeactivate_rxdeactivate_to_txstop_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txdeactivate_rxrun_to_txdeactivate_rxdeactivate_to_txdeactivate_rxstop_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txdeactivate_rxrun_to_txdeactivate_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txdeactivate_rxrun_to_txstop_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txdeactivate_rxrun_to_txstop_rxrun_to_txstop_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txdeactivate_rxdeactivate_to_txstop_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txdeactivate_rxdeactivate_to_txdeactivate_rxstop_to_txstop_rxstop
p_snps_chi_link_valid_txrun_rxrun_to_txdeactivate_rxdeactivate_to_txstop_rxstop
p_snps_chi_link_valid_txstop_rxstop_to_txstop_rxactivate_to_txactivate_rxrun_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txstop_rxactivate_to_txactivate_rxactivate_to_txactivate_rxrun_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txstop_rxactivate_to_txactivate_rxactivate_to_txrun_rxactivate_to_txrun_rxrn

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Property Name
p_snps_chi_link_valid_txstop_rxstop_to_txstop_rxactivate_to_txactivate_rxactivate_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txactivate_rxactivate_to_txactivate_rxrun_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txactivate_rxactivate_to_txrun_rxactivate_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txactivate_rxactivate_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txactivate_rxstop_to_txactivate_rxactivate_to_txactivate_rxrun_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txactivate_rxstop_to_txactivate_rxactivate_to_txrun_rxactivate_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txactivate_rxstop_to_txactivate_rxactivate_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txactivate_rxstop_to_txrun_rxactivate_to_txrun_rxrun
p_snps_chi_link_valid_txstop_rxstop_to_txactivate_rxstop_to_txrun_rxstop_to_txrun_rxactivate_to_txrun_rxrun
p_snps_chi_link_sysco_coherency_disabled_state
p_snps_chi_link_sysco_coherency_connect_state
p_snps_chi_link_sysco_coherency_enabled_state
p_snps_chi_link_sysco_coherency_disconnect_state
p_snps_chi_link_rdat_lcrd_asserted_back_to_back_cycles
p_snps_chi_link_rdat_lcrd_to_next_rdat_lcrd_delay_count
p_snps_chi_link_rdat_lcrd_to_next_rdat_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_rdat_zero_return_lcredits
p_snps_chi_link_rdat_one_or_more_return_lcredits
p_snps_chi_link_rdat_return_lcrd_asserted_back_to_back_cycles
p_snps_chi_link_rdat_return_lcrd_to_next_rdat_return_lcrd_delay_count
p_snps_chi_link_rdat_return_lcrd_to_next_rdat_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_rxla_ack_assertion_to_rdat_flitv_delay_count_min_clock_cycles
p_snps_chi_link_rxla_ack_assertion_to_rdat_flitv_delay_count
p_snps_chi_link_rxla_ack_assertion_to_rdat_flitv_delay_count_max_clock_cycles
p_snps_chi_link_rxla_req_deassertion_to_rdat_return_lcrd_delay_count_min_clock_cycles
p_snps_chi_link_rxla_req_deassertion_to_rdat_return_lcrd_delay_count

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Property Name
p_snps_chi_link_rxla_req_deassertion_to_rdat_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_crsp_zero_return_lcredits
p_snps_chi_link_crsp_one_or_more_return_lcredits
p_snps_chi_link_crsp_return_lcrd_asserted_back_to_back_cycles
p_snps_chi_link_crsp_return_lcrd_to_next_crsp_return_lcrd_delay_count
p_snps_chi_link_crsp_return_lcrd_to_next_crsp_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_rxla_ack_assertion_to_crsp_flitv_delay_count_min_clock_cycles
p_snps_chi_link_rxla_ack_assertion_to_crsp_flitv_delay_count
p_snps_chi_link_rxla_ack_assertion_to_crsp_flitv_delay_count_max_clock_cycles
p_snps_chi_link_rxla_req_deassertion_to_crsp_return_lcrd_delay_count_min_clock_cycles
p_snps_chi_link_rxla_req_deassertion_to_crsp_return_lcrd_delay_count
p_snps_chi_link_rxla_req_deassertion_to_crsp_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_snp_zero_return_lcredits
p_snps_chi_link_snp_one_or_more_return_lcredits
p_snps_chi_link_snp_return_lcrd_asserted_back_to_back_cycles
p_snps_chi_link_snp_return_lcrd_to_next_snp_return_lcrd_delay_count
p_snps_chi_link_snp_return_lcrd_to_next_snp_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_rxla_ack_assertion_to_snp_flitv_delay_count_min_clock_cycles
p_snps_chi_link_rxla_ack_assertion_to_snp_flitv_delay_count
p_snps_chi_link_rxla_ack_assertion_to_snp_flitv_delay_count_max_clock_cycles
p_snps_chi_link_rxla_req_deassertion_to_snp_return_lcrd_delay_count_min_clock_cycles
p_snps_chi_link_rxla_req_deassertion_to_snp_return_lcrd_delay_count
p_snps_chi_link_rxla_req_deassertion_to_snp_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_req_zero_return_lcredits
p_snps_chi_link_req_one_or_more_return_lcredits
p_snps_chi_link_req_return_lcrd_asserted_back_to_back_cycles

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Property Name
p_snps_chi_link_req_return_lcrd_to_next_req_return_lcrd_delay_count
p_snps_chi_link_req_return_lcrd_to_next_req_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_req_flitv_delay_count_min_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_req_flitv_delay_count
p_snps_chi_link_txla_ack_assertion_to_req_flitv_delay_count_max_clock_cycles
p_snps_chi_link_txla_req_deassertion_to_req_return_lcrd_delay_count_min_clock_cycles
p_snps_chi_link_txla_req_deassertion_to_req_return_lcrd_delay_count
p_snps_chi_link_txla_req_deassertion_to_req_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_wdat_zero_return_lcredits
p_snps_chi_link_wdat_one_or_more_return_lcredits
p_snps_chi_link_wdat_return_lcrd_asserted_back_to_back_cycles
p_snps_chi_link_wdat_return_lcrd_to_next_wdat_return_lcrd_delay_count
p_snps_chi_link_wdat_return_lcrd_to_next_wdat_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_wdat_flitv_delay_count_min_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_wdat_flitv_delay_count
p_snps_chi_link_txla_ack_assertion_to_wdat_flitv_delay_count_max_clock_cycles
p_snps_chi_link_txla_wdat_deassertion_to_wdat_return_lcrd_delay_count_min_clock_cycles
p_snps_chi_link_txla_wdat_deassertion_to_wdat_return_lcrd_delay_count
p_snps_chi_link_txla_wdat_deassertion_to_wdat_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_srsp_zero_return_lcredits
p_snps_chi_link_srsp_one_or_more_return_lcredits
p_snps_chi_link_srsp_return_lcrd_asserted_back_to_back_cycles
p_snps_chi_link_srsp_return_lcrd_to_next_srsp_return_lcrd_delay_count
p_snps_chi_link_srsp_return_lcrd_to_next_srsp_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_srsp_flitv_delay_count_min_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_srsp_flitv_delay_count
p_snps_chi_link_txla_ack_assertion_to_srsp_flitv_delay_count_max_clock_cycles

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_txla_srsp_deassertion_to_srsp_return_lcrd_delay_count_min_clock_cycles
p_snps_chi_link_txla_srsp_deassertion_to_srsp_return_lcrd_delay_count
p_snps_chi_link_txla_srsp_deassertion_to_srsp_return_lcrd_delay_count_max_clock_cycles
p_snps_chi_link_txlinkactiveack_assertion_to_txsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txlinkactiveack_assertion_to_txsactive_assertion_delay_count
p_snps_chi_link_txlinkactiveack_assertion_to_txsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txlinkactiveack_assertion_to_rxsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txlinkactiveack_assertion_to_rxsactive_assertion_delay_count
p_snps_chi_link_txlinkactiveack_assertion_to_rxsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txlinkactiveack_deassertion_to_txsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txlinkactiveack_deassertion_to_txsactive_assertion_delay_count
p_snps_chi_link_txlinkactiveack_deassertion_to_txsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txlinkactiveack_deassertion_to_rxsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txlinkactiveack_deassertion_to_rxsactive_assertion_delay_count
p_snps_chi_link_txlinkactiveack_deassertion_to_rxsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxlinkactiveack_assertion_to_txsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxlinkactiveack_assertion_to_txsactive_assertion_delay_count
p_snps_chi_link_rxlinkactiveack_assertion_to_txsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxlinkactiveack_assertion_to_rxsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxlinkactiveack_assertion_to_rxsactive_assertion_delay_count
p_snps_chi_link_rxlinkactiveack_assertion_to_rxsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxlinkactiveack_deassertion_to_txsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxlinkactiveack_deassertion_to_txsactive_assertion_delay_count
p_snps_chi_link_rxlinkactiveack_deassertion_to_txsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxlinkactiveack_deassertion_to_rxsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxlinkactiveack_deassertion_to_rxsactive_assertion_delay_count
p_snps_chi_link_rxlinkactiveack_deassertion_to_rxsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txlinkactivereq_assertion_to_txsactive_assertion_delay_count_min_clock_cycles

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Property Name
p_snps_chi_link_txlinkactivereq_assertion_to_txsactive_assertion_delay_count
p_snps_chi_link_txlinkactivereq_assertion_to_txsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txlinkactivereq_assertion_to_rxsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txlinkactivereq_assertion_to_rxsactive_assertion_delay_count
p_snps_chi_link_txlinkactivereq_assertion_to_rxsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txlinkactivereq_deassertion_to_txsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txlinkactivereq_deassertion_to_txsactive_assertion_delay_count
p_snps_chi_link_txlinkactivereq_deassertion_to_txsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txlinkactivereq_deassertion_to_rxsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txlinkactivereq_deassertion_to_rxsactive_assertion_delay_count
p_snps_chi_link_txlinkactivereq_deassertion_to_rxsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxlinkactivereq_assertion_to_txsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxlinkactivereq_assertion_to_txsactive_assertion_delay_count
p_snps_chi_link_rxlinkactivereq_assertion_to_txsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxlinkactivereq_assertion_to_rxsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxlinkactivereq_assertion_to_rxsactive_assertion_delay_count
p_snps_chi_link_rxlinkactivereq_assertion_to_rxsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxlinkactivereq_deassertion_to_txsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxlinkactivereq_deassertion_to_txsactive_assertion_delay_count
p_snps_chi_link_rxlinkactivereq_deassertion_to_txsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxlinkactivereq_deassertion_to_rxsactive_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxlinkactivereq_deassertion_to_rxsactive_assertion_delay_count
p_snps_chi_link_rxlinkactivereq_deassertion_to_rxsactive_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txsactive_assertion_to_txlinkactiveack_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txsactive_assertion_to_txlinkactiveack_assertion_delay_count
p_snps_chi_link_txsactive_assertion_to_txlinkactiveack_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txsactive_assertion_to_txlinkactiveack_deassertion_delay_count_min_clock_cycles
p_snps_chi_link_txsactive_assertion_to_txlinkactiveack_deassertion_delay_count
p_snps_chi_link_txsactive_assertion_to_txlinkactiveack_deassertion_delay_count_max_clock_cycles

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Property Name
p_snps_chi_link_txsactive_assertion_to_rxlinkactiveack_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txsactive_assertion_to_rxlinkactiveack_assertion_delay_count
p_snps_chi_link_txsactive_assertion_to_rxlinkactiveack_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txsactive_assertion_to_rxlinkactiveack_deassertion_delay_count_min_clock_cycles
p_snps_chi_link_txsactive_assertion_to_rxlinkactiveack_deassertion_delay_count
p_snps_chi_link_txsactive_assertion_to_rxlinkactiveack_deassertion_delay_count_max_clock_cycles
p_snps_chi_link_txsactive_assertion_to_txlinkactivereq_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txsactive_assertion_to_txlinkactivereq_assertion_delay_count
p_snps_chi_link_txsactive_assertion_to_txlinkactivereq_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txsactive_assertion_to_txlinkactivereq_deassertion_delay_count_min_clock_cycles
p_snps_chi_link_txsactive_assertion_to_txlinkactivereq_deassertion_delay_count
p_snps_chi_link_txsactive_assertion_to_txlinkactivereq_deassertion_delay_count_max_clock_cycles
p_snps_chi_link_txsactive_assertion_to_rxlinkactivereq_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txsactive_assertion_to_rxlinkactivereq_assertion_delay_count
p_snps_chi_link_txsactive_assertion_to_rxlinkactivereq_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txsactive_assertion_to_rxlinkactivereq_deassertion_delay_count_min_clock_cycles
p_snps_chi_link_txsactive_assertion_to_rxlinkactivereq_deassertion_delay_count
p_snps_chi_link_txsactive_assertion_to_rxlinkactivereq_deassertion_delay_count_max_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_txlinkactiveack_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_txlinkactiveack_assertion_delay_count
p_snps_chi_link_rxsactive_assertion_to_txlinkactiveack_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_txlinkactiveack_deassertion_delay_count_min_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_txlinkactiveack_deassertion_delay_count
p_snps_chi_link_rxsactive_assertion_to_txlinkactiveack_deassertion_delay_count_max_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_rxlinkactiveack_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_rxlinkactiveack_assertion_delay_count
p_snps_chi_link_rxsactive_assertion_to_rxlinkactiveack_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_rxlinkactiveack_deassertion_delay_count_min_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_rxlinkactiveack_deassertion_delay_count

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Property Name
p_snps_chi_link_rxsactive_assertion_to_rxlinkactiveack_deassertion_delay_count_max_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_txlinkactivereq_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_txlinkactivereq_assertion_delay_count
p_snps_chi_link_rxsactive_assertion_to_txlinkactivereq_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_txlinkactivereq_deassertion_delay_count_min_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_txlinkactivereq_deassertion_delay_count
p_snps_chi_link_rxsactive_assertion_to_txlinkactivereq_deassertion_delay_count_max_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_rxlinkactivereq_assertion_delay_count_min_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_rxlinkactivereq_assertion_delay_count
p_snps_chi_link_rxsactive_assertion_to_rxlinkactivereq_assertion_delay_count_max_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_rxlinkactivereq_deassertion_delay_count_min_clock_cycles
p_snps_chi_link_rxsactive_assertion_to_rxlinkactivereq_deassertion_delay_count
p_snps_chi_link_rxsactive_assertion_to_rxlinkactivereq_deassertion_delay_count_max_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_snp_flitv_delay_count_min_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_snp_flitv_delay_count
p_snps_chi_link_txla_ack_assertion_to_snp_flitv_delay_count_max_clock_cycles
p_snps_chi_link_txla_ack_deassertion_to_snp_flitv_delay_count_min_clock_cycles
p_snps_chi_link_txla_ack_deassertion_to_snp_flitv_delay_count
p_snps_chi_link_txla_ack_deassertion_to_snp_flitv_delay_count_max_clock_cycles
p_snps_chi_link_txla_req_assertion_to_snp_flitv_delay_count_min_clock_cycles
p_snps_chi_link_txla_req_assertion_to_snp_flitv_delay_count
p_snps_chi_link_txla_req_assertion_to_snp_flitv_delay_count_max_clock_cycles
p_snps_chi_link_txla_req_deassertion_to_snp_flitv_delay_count_min_clock_cycles
p_snps_chi_link_txla_req_deassertion_to_snp_flitv_delay_count
p_snps_chi_link_txla_req_deassertion_to_snp_flitv_delay_count_max_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_req_lcrdv_delay_count_min_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_req_lcrdv_delay_count
p_snps_chi_link_txla_ack_assertion_to_req_lcrdv_delay_count_max_clock_cycles

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Property Name
p_snps_chi_link_txla_ack_assertion_to_wdat_lcrdv_delay_count_min_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_wdat_lcrdv_delay_count
p_snps_chi_link_txla_ack_assertion_to_wdat_lcrdv_delay_count_max_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_srsp_lcrdv_delay_count_min_clock_cycles
p_snps_chi_link_txla_ack_assertion_to_srsp_lcrdv_delay_count
p_snps_chi_link_txla_ack_assertion_to_srsp_lcrdv_delay_count_max_clock_cycles
p_snps_chi_link_txla_req_to_rxla_req_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txla_req_to_rxla_req_assertion_delay_count
p_snps_chi_link_txla_req_to_rxla_req_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txla_req_to_txla_ack_assertion_delay_count_min_clock_cycles
p_snps_chi_link_txla_req_to_txla_ack_assertion_delay_count
p_snps_chi_link_txla_req_to_txla_ack_assertion_delay_count_max_clock_cycles
p_snps_chi_link_txla_req_to_rxla_req_deassertion_delay_count_min_clock_cycles
p_snps_chi_link_txla_req_to_rxla_req_deassertion_delay_count
p_snps_chi_link_txla_req_to_rxla_req_deassertion_delay_count_max_clock_cycles
p_snps_chi_link_lasm_num_clock_cycles_in_txact_rxdeactp
p_snps_chi_link_lasm_num_clock_cycles_in_txrunp_rxstop
p_snps_chi_link_lasm_num_clock_cycles_in_txdeact_rxactp
p_snps_chi_link_lasm_num_clock_cycles_in_txstopp_rxrun
p_snps_chi_link_lasm_num_clock_cycles_in_txstop_rxrunp
p_snps_chi_link_lasm_num_clock_cycles_in_txrun_rxstopp
p_snps_chi_link_lasm_num_clock_cycles_in_txdeactp_rxact
p_snps_chi_link_lasm_num_clock_cycles_in_txactp_rxdeact
p_snps_chi_link_powerup_activation
p_snps_chi_link_deactivation
p_snps_chi_link_reactivation

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Property Name
p_snps_chi_link_req_curr_l_credit
p_snps_chi_link_wdat_curr_l_credit
p_snps_chi_link_srsp_curr_l_credit
p_snps_chi_link_crsp_curr_l_credit
p_snps_chi_link_rdat_curr_l_credit
p_snps_chi_link_snp_curr_l_credit
p_snps_chi_link_reqflitv_back2back_cycles
p_snps_chi_link_req_flitpend_b2b_without_flitv
p_snps_chi_link_req_flitpend_without_flitv
p_snps_chi_link_req_lcredit_received_next_cycle_flitv_asserted
p_snps_chi_link_req_lcredit_received_next_cycle_flitv_not_asserted
p_snps_chi_link_req_vc_no_l_credit_available_flitpend_asserted
p_snps_chi_link_req_vc_no_l_credit_available_flitpend_asserted_back2back_cycles
p_snps_chi_link_req_vc_protocol_flit_observed
p_snps_chi_link_rdat_lcredit_transmitted_next_cycle_flitv_asserted
p_snps_chi_link_rdat_lcredit_transmitted_same_cycle_flitpend_asserted
p_snps_chi_link_rdat_flitpend_b2b_without_flitv
p_snps_chi_link_rdat_flitpend_without_flitv
p_snps_chi_link_rdat_vc_no_l_credit_available_flitpend_asserted
p_snps_chi_link_rdat_vc_no_l_credit_available_flitpend_asserted_back2back_cycles
p_snps_chi_link_rdat_vc_protocol_flit_observed
p_snps_chi_link_crsp_lcredit_transmitted_next_cycle_flitv_asserted
p_snps_chi_link_crsp_lcredit_transmitted_same_cycle_flitpend_asserted
p_snps_chi_link_crsp_flitpend_b2b_without_flitv
p_snps_chi_link_crsp_flitpend_without_flitv
p_snps_chi_link_crsp_vc_l_credit_received_same_cycle_flitpend_asserted
p_snps_chi_link_crsp_vc_no_l_credit_available_flitpend_asserted_back2back_cycles

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_crsp_vc_no_l_credit_available_flitpend_asserted
p_snps_chi_link_crsp_vc_protocol_flit_observed
p_snps_chi_link_snp_lcredit_transmitted_next_cycle_flitv_asserted
p_snps_chi_link_snp_lcredit_transmitted_same_cycle_flitpend_asserted
p_snps_chi_link_snp_flitpend_b2b_without_flitv
p_snps_chi_link_snp_flitpend_without_flitv
p_snps_chi_link_snp_vc_l_credit_received_same_cycle_flitpend_asserted
p_snps_chi_link_snp_vc_no_l_credit_available_flitpend_asserted_back2back_cycles
p_snps_chi_link_snp_vc_no_l_credit_available_flitpend_asserted
p_snps_chi_link_snp_vc_protocol_flit_observed
p_snps_chi_link_rxlinkactiveack_asserted_same_cycle_rdatlcrdv_asserted
p_snps_chi_link_rxlinkactiveack_asserted_same_cycle_crsplcrdv_asserted
p_snps_chi_link_rxlinkactiveack_asserted_same_cycle_snplcrdv_asserted
p_snps_chi_link_rxlinkactivereq_assertion_followed_by_rxsactive_assertion
p_snps_chi_link_rxlinkactivereq_deasserted_same_cycle_rdatflitv_asserted
p_snps_chi_link_rxlinkactivereq_deasserted_same_cycle_crspflitv_asserted
p_snps_chi_link_rxlinkactivereq_deasserted_same_cycle_snpflitv_asserted
p_snps_chi_link_rxsactive_asserted_next_cycle_rdatflitv_asserted
p_snps_chi_link_rxsactive_asserted_next_cycle_crspflitv_asserted
p_snps_chi_link_rxsactive_asserted_next_cycle_snpflitv_asserted
p_snps_chi_link_rxsactive_asserted_same_cycle_rdatflitv_asserted
p_snps_chi_link_rxsactive_asserted_same_cycle_crspflitv_asserted
p_snps_chi_link_rxsactive_asserted_same_cycle_snpflitv_asserted
p_snps_chi_link_rxsactive_asserted_same_cycle_rxlinkactivereq_asserted
p_snps_chi_link_rxsactive_assertion_followed_by_rxlinkactivereq_assertion
p_snps_chi_link_rxsactive_deasserted_while_receiving_dat_linkflit
p_snps_chi_link_rxsactive_deasserted_while_receiving_rsp_linkflit
p_snps_chi_link_rxsactive_deasserted_while_receiving_snp_linkflit

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_speculative_rxsactive_asserted_txstop_rxstop
p_snps_chi_link_speculative_rxsactive_asserted_txstop_rxactivate
p_snps_chi_link_speculative_rxsactive_asserted_txstop_rxrun
p_snps_chi_link_speculative_rxsactive_asserted_txstop_rxdeactivate
p_snps_chi_link_speculative_rxsactive_asserted_txactivate_rxstop
p_snps_chi_link_speculative_rxsactive_asserted_txactivate_rxactivate
p_snps_chi_link_speculative_rxsactive_asserted_txactivate_rxrun
p_snps_chi_link_speculative_rxsactive_asserted_txactivate_rxdeactivate
p_snps_chi_link_speculative_rxsactive_asserted_txrun_rxstop
p_snps_chi_link_speculative_rxsactive_asserted_txrun_rxactivate
p_snps_chi_link_speculative_rxsactive_asserted_txrun_rxrun
p_snps_chi_link_speculative_rxsactive_asserted_txrun_rxdeactivate
p_snps_chi_link_speculative_rxsactive_asserted_txdeactivate_rxstop
p_snps_chi_link_speculative_rxsactive_asserted_txdeactivate_rxactivate
p_snps_chi_link_speculative_rxsactive_asserted_txdeactivate_rxrun
p_snps_chi_link_speculative_rxsactive_asserted_txdeactivate_rxdeactivate
p_snps_chi_link_speculative_rxsactive_assertion_to_deassertion_clock_cycles
p_snps_chi_link_speculative_txsactive_asserted_txstop_rxstop
p_snps_chi_link_speculative_txsactive_asserted_txstop_rxactivate
p_snps_chi_link_speculative_txsactive_asserted_txstop_rxrun
p_snps_chi_link_speculative_txsactive_asserted_txstop_rxdeactivate
p_snps_chi_link_speculative_txsactive_asserted_txactivate_rxstop
p_snps_chi_link_speculative_txsactive_asserted_txactivate_rxactivate
p_snps_chi_link_speculative_txsactive_asserted_txactivate_rxrun
p_snps_chi_link_speculative_txsactive_asserted_txactivate_rxdeactivate
p_snps_chi_link_speculative_txsactive_asserted_txrun_rxstop
p_snps_chi_link_speculative_txsactive_asserted_txrun_rxactivate
p_snps_chi_link_speculative_txsactive_asserted_txrun_rxrun
p_snps_chi_link_speculative_txsactive_asserted_txrun_rxdeactivate

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_speculative_txsactive_asserted_txdeactivate_rxstop
p_snps_chi_link_speculative_txsactive_asserted_txdeactivate_rxactivate
p_snps_chi_link_speculative_txsactive_asserted_txdeactivate_rxrun
p_snps_chi_link_speculative_txsactive_asserted_txdeactivate_rxdeactivate
p_snps_chi_link_speculative_txsactive_assertion_to_deassertion_clock_cycles
p_snps_chi_link_wdat_flitpend_b2b_without_flitv
p_snps_chi_link_wdat_flitpend_without_flitv
p_snps_chi_link_wdat_lcredit_received_next_cycle_flitv_asserted
p_snps_chi_link_wdat_lcredit_received_next_cycle_flitv_not_asserted
p_snps_chi_link_wdat_vc_l_credit_received_same_cycle_flitpend_asserted
p_snps_chi_link_wdat_vc_no_l_credit_available_flitpend_asserted_back2back_cycles
p_snps_chi_link_wdat_vc_no_l_credit_available_flitpend_asserted
p_snps_chi_link_wdat_vc_protocol_flit_observed
p_snps_chi_link_srsp_flitpend_b2b_without_flitv
p_snps_chi_link_srsp_flitpend_without_flitv
p_snps_chi_link_srsp_lcredit_received_next_cycle_flitv_asserted
p_snps_chi_link_srsp_lcredit_received_next_cycle_flitv_not_asserted
p_snps_chi_link_srsp_vc_l_credit_received_same_cycle_flitpend_asserted
p_snps_chi_link_srsp_vc_no_l_credit_available_flitpend_asserted_back2back_cycles
p_snps_chi_link_srsp_vc_no_l_credit_available_flitpend_asserted
p_snps_chi_link_srsp_vc_protocol_flit_observed
p_snps_chi_link_txlinkactiveack_asserted_same_cycle_wdatlcrdv_asserted
p_snps_chi_link_txlinkactiveack_asserted_same_cycle_reqlcrdv_asserted
p_snps_chi_link_txlinkactiveack_asserted_same_cycle_srsplcrdv_asserted
p_snps_chi_link_txlinkactivereq_assertion_followed_by_rxsactive_assertion
p_snps_chi_link_txlinkactivereq_deasserted_same_cycle_wdatflitv_asserted
p_snps_chi_link_txlinkactivereq_deasserted_same_cycle_reqflitv_asserted

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_txlinkactivereq_deasserted_same_cycle_srspflitv_asserted
p_snps_chi_link_txsactive_asserted_next_cycle_reqflitv_asserted
p_snps_chi_link_txsactive_asserted_next_cycle_wdatflitv_asserted
p_snps_chi_link_txsactive_asserted_next_cycle_srspflitv_asserted
p_snps_chi_link_txsactive_asserted_same_cycle_reqflitv_asserted
p_snps_chi_link_txsactive_asserted_same_cycle_wdatflitv_asserted
p_snps_chi_link_txsactive_asserted_same_cycle_srspflitv_asserted
p_snps_chi_link_txsactive_asserted_same_cycle_rxlinkactivereq_asserted
p_snps_chi_link_txsactive_assertion_followed_by_rxlinkactivereq_assertion
p_snps_chi_link_txsactive_deasserted_while_receiving_req_linkflit
p_snps_chi_link_txsactive_deasserted_while_receiving_wdat_linkflit
p_snps_chi_link_txsactive_deasserted_while_receiving_srsp_linkflit
p_snps_chi_link_reqflitv_during_tx_activate_state
p_snps_chi_link_reqflitv_during_tx_run_state
p_snps_chi_link_reqflitv_during_tx_deactivate_state
p_snps_chi_link_reqflitv_during_rx_activate_state
p_snps_chi_link_reqflitv_during_rx_run_state
p_snps_chi_link_reqflitv_during_rx_deactivate_state
p_snps_chi_link_reqlcrdv_during_tx_activate_state
p_snps_chi_link_reqlcrdv_during_tx_run_state
p_snps_chi_link_reqlcrdv_during_tx_deactivate_state
p_snps_chi_link_reqlcrdv_during_rx_activate_state
p_snps_chi_link_reqlcrdv_during_rx_run_state
p_snps_chi_link_reqlcrdv_during_rx_deactivate_state
p_snps_chi_link_wdatflitv_during_tx_activate_state
p_snps_chi_link_wdatflitv_during_tx_run_state
p_snps_chi_link_wdatflitv_during_tx_deactivate_state
p_snps_chi_link_wdatflitv_during_rx_activate_state

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_wdatflitv_during_rx_run_state
p_snps_chi_link_wdatflitv_during_rx_deactivate_state
p_snps_chi_link_wdatlcrdv_during_tx_activate_state
p_snps_chi_link_wdatlcrdv_during_tx_run_state
p_snps_chi_link_wdatlcrdv_during_tx_deactivate_state
p_snps_chi_link_wdatlcrdv_during_rx_activate_state
p_snps_chi_link_wdatlcrdv_during_rx_run_state
p_snps_chi_link_wdatlcrdv_during_rx_deactivate_state
p_snps_chi_link_srspflitv_during_tx_activate_state
p_snps_chi_link_srspflitv_during_tx_run_state
p_snps_chi_link_srspflitv_during_tx_deactivate_state
p_snps_chi_link_srspflitv_during_rx_activate_state
p_snps_chi_link_srspflitv_during_rx_run_state
p_snps_chi_link_srspflitv_during_rx_deactivate_state
p_snps_chi_link_srsplcrdv_during_tx_activate_state
p_snps_chi_link_srsplcrdv_during_tx_run_state
p_snps_chi_link_srsplcrdv_during_tx_deactivate_state
p_snps_chi_link_srsplcrdv_during_rx_activate_state
p_snps_chi_link_srsplcrdv_during_rx_run_state
p_snps_chi_link_srsplcrdv_during_rx_deactivate_state
p_snps_chi_link_rdatflitv_during_tx_activate_state
p_snps_chi_link_rdatflitv_during_tx_run_state
p_snps_chi_link_rdatflitv_during_tx_deactivate_state
p_snps_chi_link_rdatflitv_during_rx_activate_state
p_snps_chi_link_rdatflitv_during_rx_run_state
p_snps_chi_link_rdatflitv_during_rx_deactivate_state
p_snps_chi_link_rdatlcrdv_during_tx_activate_state
p_snps_chi_link_rdatlcrdv_during_tx_run_state
p_snps_chi_link_rdatlcrdv_during_tx_deactivate_state

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_rdatlcrdv_during_rx_activate_state
p_snps_chi_link_rdatlcrdv_during_rx_run_state
p_snps_chi_link_rdatlcrdv_during_rx_deactivate_state
p_snps_chi_link_crspflitv_during_tx_activate_state
p_snps_chi_link_crspflitv_during_tx_run_state
p_snps_chi_link_crspflitv_during_tx_deactivate_state
p_snps_chi_link_crspflitv_during_rx_activate_state
p_snps_chi_link_crspflitv_during_rx_run_state
p_snps_chi_link_crspflitv_during_rx_deactivate_state
p_snps_chi_link_crsplcrdv_during_tx_activate_state
p_snps_chi_link_crsplcrdv_during_tx_run_state
p_snps_chi_link_crsplcrdv_during_tx_deactivate_state
p_snps_chi_link_crsplcrdv_during_rx_activate_state
p_snps_chi_link_crsplcrdv_during_rx_run_state
p_snps_chi_link_crsplcrdv_during_rx_deactivate_state
p_snps_chi_link_snpflitv_during_tx_activate_state
p_snps_chi_link_snpflitv_during_tx_run_state
p_snps_chi_link_snpflitv_during_tx_deactivate_state
p_snps_chi_link_snpflitv_during_rx_activate_state
p_snps_chi_link_snpflitv_during_rx_run_state
p_snps_chi_link_snpflitv_during_rx_deactivate_state
p_snps_chi_link_snplcrdv_during_tx_activate_state
p_snps_chi_link_snplcrdv_during_tx_run_state
p_snps_chi_link_snplcrdv_during_tx_deactivate_state
p_snps_chi_link_snplcrdv_during_rx_activate_state
p_snps_chi_link_snplcrdv_during_rx_run_state
p_snps_chi_link_snplcrdv_during_rx_deactivate_state
p_snps_chi_link_outstand_srsp_when_txstopp_rxrun_state

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_link_req_no_credits_return_cycle
p_snps_chi_link_wdat_no_credits_return_cycle
p_snps_chi_link_srsp_no_credits_return_cycle
p_snps_chi_link_crsp_no_credits_return_cycle
p_snps_chi_link_rdat_no_credits_return_cycle
p_snps_chi_link_snp_no_credits_return_cycle
p_snps_chi_link_req_csc_credits_return_cycle
p_snps_chi_link_wdat_csc_credits_return_cycle
p_snps_chi_link_srsp_csc_credits_return_cycle
p_snps_chi_link_crsp_csc_credits_return_cycle
p_snps_chi_link_rdat_csc_credits_return_cycle
p_snps_chi_link_snp_csc_credits_return_cycle
p_snps_chi_<TagOP Type>_TagOp_for_<Opcode>
p_snps_chi_snp_opcd_<SnpOpcode>
p_snps_chi_req_opcode_excl_<Request Opcode>
p_snps_chi_req_opcd_<Request Opcode>_expcmpack
p_snps_chi_req_opcd_<Request Opcode>_ns
p_snps_chi_req_opcd_<Request Opcode>_sec
p_snps_chi_req_opcd_<Request Opcode>_memattr_alloc
p_snps_chi_req_opcd_<Request Opcode>_memattr_noalloc
p_snps_chi_req_opcd_<Request Opcode>_memattr_device
p_snps_chi_req_opcd_<Request Opcode>_memattr_normal
p_snps_chi_req_opcd_<Request Opcode>_ewa
p_snps_chi_req_opcd_<Request Opcode>_noewa
p_snps_chi_req_opcd_<Request Opcode>_cacheable
p_snps_chi_req_opcd_<Request Opcode>_non_cacheable
p_snps_chi_snp_opcd_<Snp Opcode>_ns
p_snps_chi_snp_opcd_<Snp Opcode>_sec

Table 4-3 The CHI AIP Link State Machine Cover Properties

Property Name
p_snps_chi_snp_opcd_<Snp Opcode>_ret2src
p_snps_chi_snp_opcd_<Snp Opcode>_ret2src_zero
p_snps_chi_snp_opcd_<Snp Opcode>_dontgo2sd
p_snps_chi_snp_opcd_<Snp Opcode>_dontgo2sd_zero
p_snps_chi_snp_opcd_<Snp Opcode>_tracetag_one
p_snps_chi_snp_opcd_<Snp Opcode>_tracetag_zero
p_snps_chi_wdata_invaild_tagop_for_<Wdata Opcode>
p_snps_chi_wdata_invaild_tagop_for_<Wdata Opcode>
p_snps_chi_wdata_invaild_tagop_for_<Wdata Opcode>
p_snps_chi_req_dvm_optype_tlb_invalidate
p_snps_chi_req_dvm_optype_branchpred_invalidate
p_snps_chi_req_dvm_optype_phy_icache_invalidate
p_snps_chi_req_dvm_optype_vitrual_icache_invalidate
p_snps_chi_req_dvm_optype_sync
p_snps_chi_req_dvm_optype_tlbi_all_guestos_sec
p_snps_chi_req_dvm_optype_tlbi_all_guestos_ns_ipa
p_snps_chi_req_dvm_optype_tlbi_all_guestos_ns
p_snps_chi_req_dvm_optype_tlbi_hyp_sec
p_snps_chi_req_dvm_optype_tlbi_hyp_ns
p_snps_chi_req_dvm_optype_tlbi_el3_sec

5 The CHI AIP Use Cases

This chapter discusses the CHI Assertion IP in different environments used for validation. Scenarios covered under this are mentioned in the section below:

5.1 The CHI AIP Examples

For a simple example of how to use the CHI AIP, refer to the test directory in the AIP distribution tree and study the back-to-back testing environment where you check the CHI AIP against itself.

5.2 The CHI AIP Configuration Example

The main configuration parameters for the CHI AIP are `INTF_TYPE` and `AGENT_TYPE`. These parameters should be set based on the type of DUT to be verified.

The `INTF_TYPE` parameter represents the type of DUT node. The `AGENT_TYPE` parameter represents either Requester (Master) or Receiver (Slave).

Table 5-1 CHI AIP Configuration Example

Node interface	INTF_TYPE
RN-F	RNF_ICN
RN-D	RND_ICN
RN-I	RNI_ICN
SN-F	ICN_SNF
SN-I	ICN_SNI

If DUT is Requester (Master) on either RN-F, RN-D or RN-I, then AGENT_TYPE=SLAVE.

If DUT is Receiver (Slave) on either SN-F or SN-I, then AGENT_TYPE=MASTER.

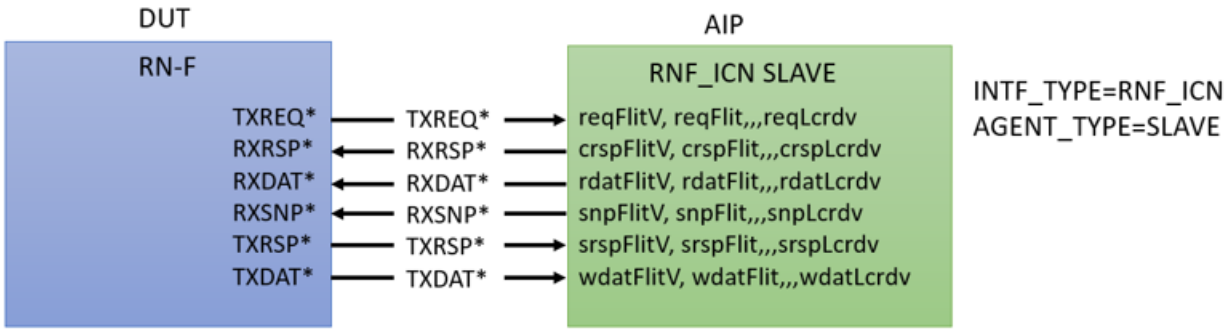
If DUT is Receiver (Slave) on ICN, then AGENT_TYPE=MASTER.

If DUT is Requester (Master) on ICN, then AGENT_TYPE=SLAVE.

5.2.0.1 Examples

If DUT is RN-F, CHI AIP should be configured as INTF_TYPE=RNF_ICN and AGENT_TYPE=SLAVE as shown in Figure 5-1.

Figure 5-1 Verifying RN-F DUT



The TXREQ* signals in RN-F DUT should be connected to the reqFlit* and reqLcrdv signals in AIP.

The RXRSP* signals in RN-F DUT should be connected to the crspFlit* and crspLcrdv signals in AIP.

The RXDAT* signals in RN-F DUT should be connected to the rdatFlit* and rdatLcrdv signals in AIP.

The RXSNP* signals in RN-F DUT should be connected to the snpFlit* and snpLcrdv signals in AIP.

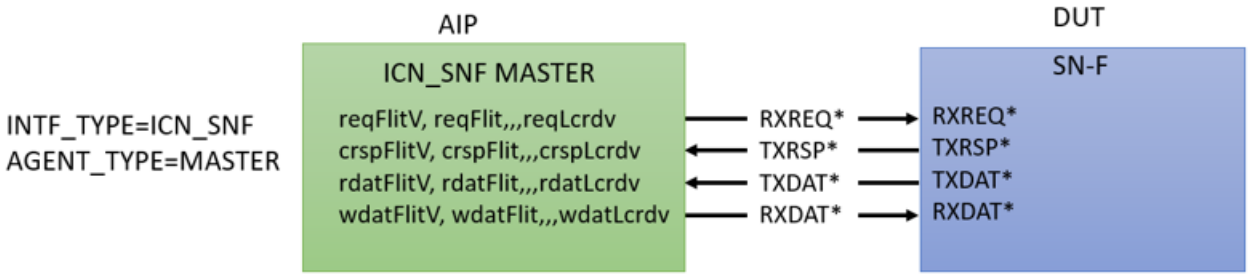
The TXRSP* signals in RN-F DUT should be connected to the srspFlit* and srspLcrdv signals in AIP.

The TXDAT* signals in RN-F DUT should be connected to the wdatFlit* and wdatLcrdv signals in AIP.

Similarly, if DUT is RN-D, then INTF_TYPE=RND_ICN and AGENT_TYPE=SLAVE. If DUT is RN-I, then INTF_TYPE=RNI_ICN and AGENT_TYPE=SLAVE.

If DUT is SN-F, CHI AIP should be configured as INTF_TYPE=ICN_SNF and AGENT_TYPE=MASTER as shown in Figure 5-2.

Figure 5-2 Verifying SN-F DUT



The RXREQ* signals in SN-F DUT should be connected to the reqFlit* and reqLcrdv signals in AIP.

The TXRSP* signals in SN-F DUT should be connected to the crspFlit* and crspLcrdv signals in AIP.

The TXDAT* signals in SN-F DUT should be connected to the rdatFlit* and rdatLcrdv signals in AIP.

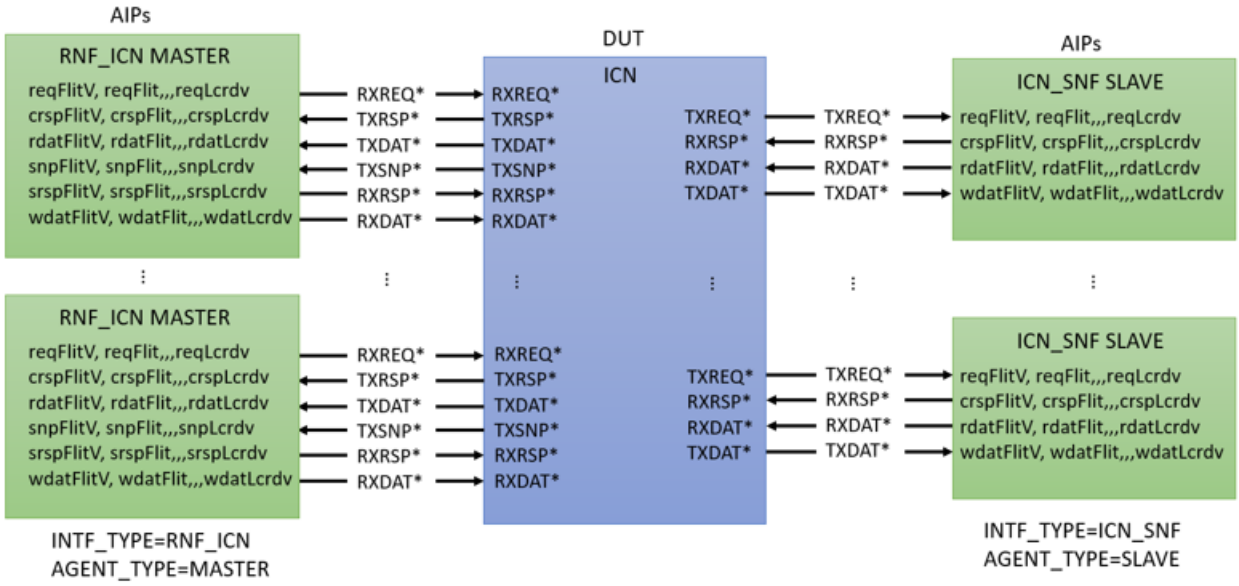
The RXDAT* signals in SN-F DUT should be connected to the wdatFlit* and wdatLcrdv signals in AIP.

Similarly, if DUT is SN-I, then INTF_TYPE=ICN_SNI and AGENT_TYPE=MASTER.

If DUT is ICN, CHI AIP should be configured per interface type of interconnect.

As shown in Figure 5-3, if AIP role is RN-F, then INTF_TYPE=RNF_ICN and AGENT_TYPE=MASTER. If AIP role is SN-F, then INTF_TYPE=ICN_SNF and AGENT_TYPE=SLAVE.

Figure 5-3 Verifying ICN DUT



The CHI AIP can be instantiated through the `bind` statement. The following is an example to verify RN-F DUT:

Example 5-1 Verifying RN-F DUT

```
bind chi_tb snps_chi_aip
     #(.AGENT_TYPE      (snps_amba5_aip_pkg::SLAVE),
       .INTF_TYPE       (snps_amba5_aip_pkg::RNF_ICN),
       .SPEC_VERSION    (snps_amba5_aip_pkg::CHI_C),
       .NODE_ID         ('h01),
       .NUM_NODES       (19),
       .NODE_ID_TABLE   ({'h00, 'h01, 'h02, 'h08,
                          'h09, 'h0a, 'h0b, 'h0c,
                          'h0d, 'h10, 'h11, 'h18,
                          'h19, 'h1c, 'h20, 'h21,
                          'h22, 'h28, 'h29}),
       .DEVTYPE_TABLE   ({ RNF,  RNF,  RNF,  RND,
                           RND,  RND,  RND,  RNI,
                           RNI,  HNF,  HNF,  HNI,
                           HNI,   MN,  SNF,  SNF,
                           SNF,  SNI,  SNI}))
  RNF_HNF_snps_chi_aip
    (.SCLK              (SCLK),
     .SRESETn           (SRESETn),
     .reqFlitPend       (TXREQFLITPEND),
     .reqFlitV          (TXREQFLITV),
     .reqFlit           (TXREQFLIT),
     .reqLcrdv          (TXREQLCRDV),
     .crspFlitPend      (RXRSPFLITPEND),
     .crspFlitV         (RXRSPFLITV),
     .crspFlit          (RXRSPFLIT),
     .crspLcrdv         (RXRSPLCRDV),
     .rdatFlitPend      (RXDATFLITPEND),
```

```
.rdatFlitV       (RXDATFLITV),
.rdatFlit        (RXDATFLIT),
.rdatLcrdv       (RXDATLCRDV),
.snpFlitPend     (RXSNPFLITPEND),
.snpFlitV        (RXSNPFLITV),
.snpFlit         (RXSNPFLIT),
.snpLcrdv        (RXSNPLCRDV),
.srspFlitPend    (TXRSPFLITPEND),
.srspFlitV       (TXRSPFLITV),
.srspFlit        (TXRSPFLIT),
.srspLcrdv       (TXRSPLCRDV),
.wdatFlitPend    (TXDATFLITPEND),
.wdatFlitV       (TXDATFLITV),
.wdatFlit        (TXDATFLIT),
.wdatLcrdv       (TXDATLCRDV),
.TXLINKACTIVEREQ (RXLINKACTIVEREQ),
.TXLINKACTIVEACK (RXLINKACTIVEACK),
.RXLINKACTIVEREQ (TXLINKACTIVEREQ),
.RXLINKACTIVEACK (TXLINKACTIVEACK),
.TXSACTIVE       (RXSACTIVE),
.RXSACTIVE       (TXSACTIVE),
.SYSCOREQ        (SYSCOREQ),
.SYSCOACK        (SYSCOACK));
```

Refer to the examples under the following directory for more information:

`$VC_STATIC_HOME/packages/aip/CHI_AIP/examples/chi_test`

The bind statement example is at the following location:

`$VC_STATIC_HOME/packages/aip/CHI_AIP/examples/chi_test/tb/bind_chi_aip.sv`

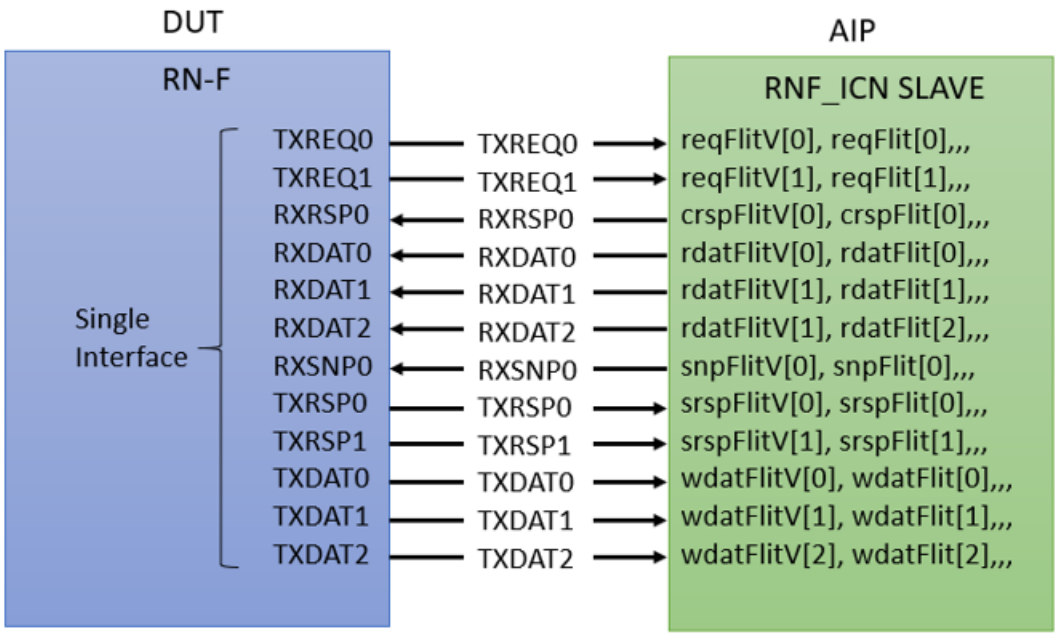
5.3 Replicated Channels Support

The replicated channels feature is supported from CHI version E. For more information, refer to the following section in the CHI-E specification:

13.7.2 Replicated channels on a single interface

The CHI AIP supports the replicated channels feature from 2021.09-SP2-5 and 2022.06-SP1-1.

Figure 5-4 Replicated Channels Example



Consider the case shown in Figure 5-4. The CHI AIP can be configured for the number of ports in each channel using parameters as follows:

Set REQ_NUM_REPLIC_INTFS with 2, CRSP_NUM_REPLIC_INTFS with 1, RDAT_NUM_REPLIC_INTFS with 3, SNP_NUM_REPLIC_INTFS with 1, SRSP_NUM_REPLIC_INTFS with 2, and WDAT_NUM_REPLIC_INTFS with 3.

The `bind` statement example is shown as follows:

Example 5-2 Bind Statement Example

```
bind chi_dut snps_chi_aip
  #(.AGENT_TYPE            (snps_amba5_aip_pkg::SLAVE),
    .INTF_TYPE             (snps_amba5_aip_pkg::RNF_ICN),
    …
    .REQ_NUM_REPLIC_INTFS  (2),
    .CRSP_NUM_REPLIC_INTFS (1),
    .RDAT_NUM_REPLIC_INTFS (3),
    .SNP_NUM_REPLIC_INTFS  (1),
    .SRSP_NUM_REPLIC_INTFS (2),
    .WDAT_NUM_REPLIC_INTFS (3))
  RNF_snps_chi_aip
   (.SCLK (CLK),
    …
    .reqFlitPend  ({TXREQFLITPEND1, TXREQFLITPEND0}),
    .reqFlitV     ({TXREQFLITV1,    TXREQFLITV0}),
    .reqFlit      ({TXREQFLIT1,     TXREQFLIT0}),
    .reqLcrdv     ({TXREQLCRDV1,    TXREQLCRDV0}),
    .crspFlitPend ({RXRSPFLITPEND0}),
    .crspFlitV    ({RXRSPFLITV0}),
    .crspFlit     ({RXRSPFLIT0}),
    .crspLcrdv    ({RXRSPLCRDV0}),
```

```
.rdatFlitPend ({RXDATFLITPEND2, RXDATFLITPEND1, RXDATFLITPEND0}),
.rdatFlitV    ({RXDATFLITV2,    RXDATFLITV1,    RXDATFLITV0}),
.rdatFlit     ({RXDATFLIT2,     RXDATFLIT1,     RXDATFLIT0}),
.rdatLcrdv    ({RXDATLCRDV2,    RXDATLCRDV1,    RXDATLCRDV0}),
.snpFlitV     ({RXSNPFLITV0}),
.snpFlit      ({RXSNPFLIT0}),
.snpLcrdv     ({RXSNPLCRDV0}),
.srspFlitPend ({TXRSPFLITPEND1, TXRSPFLITPEND0}),
.srspFlitV    ({TXRSPFLITV1,    TXRSPFLITV0}),
.srspFlit     ({TXRSPFLIT1,     TXRSPFLIT0}),
.srspLcrdv    ({TXRSPLCRDV1,    TXRSPLCRDV0}),
.wdatFlitPend ({TXDATFLITPEND2, TXDATFLITPEND1, TXDATFLITPEND0}),
.wdatFlitV    ({TXDATFLITV2,    TXDATFLITV1,    TXDATFLITV0}),
.wdatFlit     ({TXDATFLIT2,     TXDATFLIT1,     TXDATFLIT0}),
.wdatLcrdv    ({TXDATLCRDV2,    TXDATLCRDV1,    TXDATLCRDV0}),
…
```

5.4 Notes for Compatibility

The full path of a property may be different according to the AIP instantiation, configuration, or version. Therefore, it is not recommended to specify a property with full path in the Tcl script when some properties are disabled or enabled. It is recommended to specify property path as follows:

To disable specific properties in AIP, it is recommended to replace AIP internal path with *.

Consider the following full path:

```
fvdisable {<the path to design module or instance>.<AIP instance name>.<AIP internal path>.<property name>}
```

Replace `<AIP internal path>` with `*` as follows:

```
fvdisable {<the path to design module or instance>.<AIP instance name>.*.<property name>}
```

For example, if the CHI AIP is used to verify the `chi_dut` design and the AIP `bind` statement is specified as follows.

```
bind chi_dut snps_chi_aip #(<parameters>) RNF_snps_chi_aip (<ports>);
```

It is recommended to disable `ast_snps_chi_req_transaction_complete` as follows:

```
 fvdisable { chi_dut.RNF_snps_chi_aip.*.ast_snps_chi_req_transaction_complete }
```

Rather than using full path as follows:

```
fvdisable
{chi_dut.RNF_snps_chi_aip.REQ_TOUT_ASSERT.REQTOUT[0].SAFETY.ast_snps_chi_req_transaction_complete}
```