NetSpeed Orion

Release Notes

Version: ORION-18.04

Revision: 0.0

NetSpeed Orion 18.04 Release Notes

About This Document

This document lists the release notes for NetSpeed Orion. Using NetSpeed NocStudio, users can define NoC architectures, describe specifications and requirements, optimize the NoC design and finally generate the NoC IP files such as RTL, testbench, synthesis scripts, NoC IP documentation etc.

Audience

This document is intended for users of NocStudio:

- NoC Designers
- NoC Architects
- SoC Architects

Prerequisite

Before proceeding, you should generally understand:

- Basics of NetSpeed Orion IP Technology

Related Documents

The following documents can be used as a reference to this document.

- NetSpeed NocStudio User Manual

Customer Support

For technical support about this product, please contact support@netspeedsystems.com

For general information about NetSpeed products refer to: www.netspeedsystems.com

Revision History

Revision	Date	Updates
0.0	Jun 16, 2018	Initial Release

Contents

1 Deliverables

- NetSpeed NocStudio Package and one of the license options:
  - N7 version supporting 8 layers and 256 bridges
  - N6 version supporting 4 layers and 128 bridges
  - N5 version supporting 4 layers and 60 bridges
  - N4 version supporting 2 layers and 32 bridges
  - N3 version supporting 1 layers and 12 bridges
- NocStudio executable with interactive GUI.
- Verification checkers to be used in the DV environment.
- Sanity Test Bench.
- Documentation
  a. NocStudio User Manual: The User Guide describes how to set up a system using NocStudio and how to use it to generate NetSpeed IP.
  b. IP Integration Spec: The Integration Manual describes how to integrate a configured network into a larger subsystem.
  c. Technical Reference Manual: The Technical Reference Manual describes how the functionality of the various NoC elements, the features and functions available, and how to dynamically change the functions using the programmer's mode.

2 Installation

- NocStudio uses FlexLM based licensing.
  - Linux CentOS 5.5 or higher
  - For node-locked license file, copy over the license file under NocStudio installation directory and renamed it as "license.dat". If the license file resides in a separated folder, please set environment variable LM_LICENSE_FILE with the proper path.
  - For floating licensing scheme, please download and extract netspeed.flexlmpkg.tar.gz for 32- or 64-bit license daemon and follow FlexLM documentation.
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  - NOTE: Please use a Linux machine to unpack release tarball set. Unpack Linux tarball set on Windows machines may cause problems with symbolic links.
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- The release makes use of Qt libraries covered under LGPL:
  - http://qt-project.org/downloads

3 Feature Update: Design Methodology

3.1 REGBUS LAYER POWER DOMAINS

The new release enables users to assign power domains to the routers in the regbus layer from GUI.

3.2 SIB GUI ENHANCEMENT

The new and improved GUI enables the users to view the connections of the master bridges to their respective SIBs.

3.3 NOTICEABLE COMMAND CHANGES

3.3.1 MEMORY TYPE OPTION OF ADD_RANGE

A new option has been added to add_range command to specify the memory_type. The default value is set to “unspecified”. Refer the help menu for more details.

4 Feature Updates: System Interconnect

None

5 Feature Updates: Non-Coherent Components

None

6 EDA Tool Compatibility

- Cadence EDA tools were used for verification and synthesis of this product.
  - Incisive RTL Simulator 15.22-s018
  - Genus RTL Synthesis 16.22-s033_1
  - HAL Linting tool 15.20-s027
  - Conformal 16.20-s240
- Compatibility testing has been done with VCS vcs-mx/L-2016.06 and Synopsys Design Compiler L-2016.03-SP5

Please contact NetSpeed support team (support@netspeedsystems.com) for additional platform and tool compatibility details.

7 Errata: System Interconnect

None

8 Errata: Non-Coherent Components

None

9 Changes to Commands and Properties

9.1 Command Changes

Command Name	Comment
tune_router_conn	New command to automatically configure router connections of bridges so as to reduce NoC area.
reset_router_conn	New command to undo the effects of tune_router_conn
gather_bridges	New command to move the position of a bridge near the specified nodes

9.2 Mesh Property Changes

Property Name	Comment
static_muxing_enable	New property to allow master bridges to connect to multiple shared interface bridges

9.3 Host Property Changes

None

9.4 Bridge Property Changes

Property Name	Comment
axi4m_firewall_enable	New property to enable firewall security on a master bridge
axi4m_firewall_secure_groups	New property to specify the number of secure groups a master bridge supports
sib_allow_different_ranges	New default property allows master bridges that connect to a SIB to have different address ranges
sib_compress_range_groups	New property to use a common set of address range registers in the SIB for masters that have identical ranges. This property is only settable when the SIB supports different address ranges on masters.
ahb_rd_undefined_increment_mode	New property to set the type of read undefined increment mode used by the AHB master

flop_structure_parity_enb	New property to enable flop structure parity on structures inside a bridge
flop_structure_parity_granularity	New property to set the granularity of flop structure parity on a bridge
axi4m_ar_support_interleaved_resp	This property is now available on ACE master bridges

9.5 Interface Property Changes

None

9.6 Link Property Changes

None

9.7 Router Property Changes

None

9.8 VC Property Changes

None

9.9 Default Property Changes

Property Name	Comment
show_flow_list_in_channel_tooltip	Deprecated
axi4m_firewall_enable	New default property to enable firewall security on all master bridges
axi4m_firewall_secure_groups	New default property to specify the number of secure groups a master bridge supports
sib_allow_different_ranges	New default property allows master bridges that connect to a SIB to have different address ranges
flop_structure_parity_enb	New default property to enable flop structure parity on structures inside all bridges
flop_structure_parity_granularity	New default property to set the granularity of flop structure parity on all bridges
gui_latency_histogram_num_ranges	New default property to set the number of ranges in latency histogram plots generated by the performance simulator

10 Hot Fixes

10.1 Corrected Missing Interface In Perf Sim

An issue with interface missing in the perf sim result, when the bandwidth requirement crosses a certain threshold has been corrected in the new release.

10.2 Corrected Missing Registers In NOC_REGISTERS.CSV

The new release has corrected the llc_ram_way_enable, llc_ram_way_secure and llc_ram_address_base registers, which have been missing in the noc_registers.csv file.

10.3 Correctable ECC Errors of RX Switches

In the new release the correctable ECC errors reported by the RX switches have been steered to use non-fatal interrupts, provided the fatal/non-fatal feature is enabled. Contact support for more details.

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