NetSpeed Gemini

Release Notes

Version: GEMINI-18.01

Revision: A.0

NetSpeed Gemini 18.01a Release Notes

About This Document

This document lists the release notes for NetSpeed Gemini. 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 Gemini 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	Feb 19, 2018	Initial Release
A.0	Mar 14, 2018	Internal Release

Contents

1 Deliverables

- NetSpeed NocStudio Package and one of the license options:
  - N7 version supporting 16 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.

  NOTE: Please use a linux machine to unpack release tarball set. Unpack linux tarball set on Windows machines may cause problems with symbolic links.

- The release makes use of Qt libraries covered under LGPL:
    - http://qt-project.org/downloads

3 Feature Update: Design Methodology

3.1 GUI – Command Auto Complete

New release allows user to enter commands in GUI console window with the new command auto complete feature. GUI command console displays all the commands with the improved tab-complete option. Pressing Tab once completes the command if there is only a single option and pressing twice will list all matching commands.

3.2 Link Prop Update

New release allows users to set the link properties <link_prop> of multiple links in a single line with { }.

Before 1801:

```
link_prop l1 output_register on
link_prop l2 output_register on
link_prop l3 output_register on
…
```

In 1801:

```
link_prop {l1 l2 l3 ...} output_register on
```

3.3 Bridge Area Optimizations

New release has improved AHB area and max outstanding difference from reorder buffer depths, resulting in improved bridge areas. Contact NetSpeed Support for more details.

3.4 SystemC FT model Update

New release has widened support for SystemC Model. Contact NetSpeed support for more details.

3.5 Noticeable Command Property Changes

- The default setting of the property, `axi4m_exclusive_support` has been changed from `'yes'` to `'no'`.
- The range for the property `axi4m_logical_processors` has been increased from `` `1 to 32` `` to `` `1 to 256` ``.
- Added a new `'format'` option to specify the class on a per logical_id granularity for the `axi4m_llc_allocation_class` property

4 Feature Updates: System Interconnect

None

5 Feature Updates: Non-Coherent Components

None

6 Feature Updates: Coherent Components

None

7 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.

8 Errata: System Interconnect

None

9 Errata: Non-Coherent Components

None

10 Errata: Coherent Components

None

11 Errata: Coherent Components

None

12 Errata: Coherent Components

None

13 Changes to Commands and Properties

Please refer to NocStudio Help → User Manual Supplement for details.

13.1 Command Changes

Command Name	Comment
reset_clock_domains	Deprecated
reset_power_domains	Deprecated
reset_voltage_domains	Deprecated
del_clock_domain	Replace reset_clock_domains
del_power_domain	Replace reset_power_domains
del_voltage_domain	Replace reset_voltage_domains
list_vcs	New command to print VCs information between a source and a destination
plot_graph	New command to plot graphs with a given set of points for visualization
set_pmf	New command to set the Probability Mass function associated with a name for host modeling

13.2 Mesh Property Changes

Property Name	Comment
max_distance_from_routerconn	Property to set the maximum manhattan distance (in mm) between a bridge and its router conn when running "tune_router_conn"

13.3 Host Property Changes

None

13.4 Bridge Property Changes

Property Name	Comment
axi4_allow_different_data_widths	Property to allow all the bridge to have different read/write data widths if required

unified_domain	Property to set the unified domain (clock, power and RTL grouping if applicable) of a bridge
axi4m_programmable_address_granularity	Property to set the number of fixed address bits in programmable registers
axi4m_ar_reorder_bypass_enable	Property to make messages bypass the read reorder buffer under certain conditions
axi4m_ar_reorder_entries	Property to make messages bypass the read reorder buffer under certain conditions
axi4m_exclusive_support	Property default setting has changed from 'yes' to 'no'
axi4m_logical_processors	Property range changed from '1 to 32` to '1 to 256'
axi4m_llc_allocation_class	Added `format` option to specify class on a per logical_id granularity

13.5 Interface Property Changes

None

13.6 Link Property Changes

None

13.7 Router Property Changes

Property Name	Comment
unified_domain	Property to set the unified domain (clock, power and RTL grouping if applicable) of a router

13.8 VC Property Changes

None

13.9 Default Property Changes

Property Name	Comment
axi4_allow_different_data_widths	Property to allow all the bridge to have different read/write data widths if required
unified_domain	Property to set the unified domain of a bridge

axi4m_programmable_address_granularity	Property to set the number of fixed address bits in programmable registers
axi4m_ar_reorder_bypass_enable	Property to make messages bypass the read reorder buffer under certain conditions
axi4m_ar_reorder_entries	Property to make messages bypass the read reorder buffer under certain conditions

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