

# NetSpeed Gemini

## *Release Notes*

**Version: GEMINI-18.10**

**Revision: 0.0**

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# NetSpeed Gemini 18.10 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](mailto:support@netspeedsystems.com)

For general information about NetSpeed products refer to: [www.netspeedsystems.com](http://www.netspeedsystems.com)

## Revision History

Revision	Date	Updates
0.0	Nov 02, 2018	Initial Release

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## 1 Deliverables

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- 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

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- 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

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### 3.1 RTL GROUPING VISIBLE IN GUI

In the new release, the users can view the RTL Groups created, in the GUI. This feature enables the users to highlighting the rtl groups using the highlight command.

Syntax:

```
highlight -rtl_group <name_of_the_group> -color <color>
```

### 3.2 INCREASE IN NUMBER OF AXI BRIDGES

In the new release, the maximum number of bridges for AXI nocs has been increased to 1024 from the previous limit of 256 bridges.

Note that this limit has been changed only for the AXI nocs, but not for the ACE nocs.

### 3.3 INCREASED DATA WIDTH FOR LLC

The new release gives the user the flexibility to set the data width of an LLC to 256 bits or 512 bits, unlike the previous release which had a fixed value of 256 bits.

Syntax:

```
host_prop <nae_of_llc> llc_data_width <512/256>
```



## 4 Feature Updates: System Interconnect

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### 4.1 REORDER BUFFER SHAREABILITY

The new release provides users the ability to share the reorder buffer entries, when the burst sizes are smaller than the reorder buffer provisioned. This improves efficiency of the reorder buffers when the bursts are smaller. This shareability can be enabled using the following bridge props:

*max\_rd\_splits\_in\_shared\_entry*

*max\_wr\_splits\_in\_shared\_entry*

## 5 Feature Updates: Non-Coherent Components

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None



## 6 Feature Updates: Coherent Components

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None



## 7 EDA Tool Compatibility

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- 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](mailto:support@netspeedsystems.com)) for additional platform and tool compatibility details.

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## 8 Errata: System Interconnect

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### 8.1 MESH PROPERTIES CHANGED TO DEFAULT PROPERTIES

In the process of enabling or disabling the presence of registers globally at all the routers in the NoC, the mesh properties, *router\_registers\_enabled* and *bridge\_amba\_registers\_enabled* have been changed to default properties (*prop\_default*).

Replace *mesh\_prop router\_registers\_enabled* and *mesh\_prop bridge\_amba\_registers\_enabled* with *prop\_default router\_registers\_enabled* and *prop\_default bridge\_amba\_registers\_enabled* respectively, in the config file before running NocStudio.

### 8.2 RUNNING PARTIAL TRAFFIC FLOWS WITHIN A PROFILE

During performance simulation, running partial traffic flows within a profile eases system level debug. In 1810, this feature is only supported when *rate scale* != 1.

## 9 Errata: Non-Coherent Components

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None

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## 10 Errata: Coherent Components

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None

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## 11 Changes to Commands and Properties

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

### 11.1 COMMAND CHANGES

Command Name	Comment
color_no_credit_blames	New command to color channels in the GUI based on no_credit blocked cause blame after performance simulation
reset_hide_warning	New command to reset all warnings hidden by the hide_warning command

### 11.2 MESH PROPERTY CHANGES

Property Name	Comment
router_registers_enabled	<b>Deprecated.</b> This property has been replaced by prop_default router_registers_enabled
bridge_amba_registers_enabled	<b>Deprecated.</b> This property has been replaced by prop_default bridge_amba_registers_enabled

### 11.3 HOST PROPERTY CHANGES

Property Name	Comment
llc_data_width	New property to control the data width of the LLC and its master and slave bridges
llc_tag_ram_1r1w	New property to enable/disable the use of dual port rams for the tag memory in the LLC and ICC

### 11.4 BRIDGE PROPERTY CHANGES

Property Name	Comment
axi4m_ar_reorder_entries	<b>Deprecated</b>
axi4m_ar_reorder_bypass_enable	<b>Deprecated</b>
amba_registers_enabled	New property to control the presence of registers per AXI bridge



max_rd_splits_in_shared_entry	New property to control the number of read split transactions that share a common AID table tracking entry
max_wr_splits_in_shared_entry	New property to control the number of write split transactions that share a common AID table tracking entry

## 11.5 INTERFACE PROPERTY CHANGES

None

## 11.6 LINK PROPERTY CHANGES

None

## 11.7 ROUTER PROPERTY CHANGES

Property Name	Comment
registers_enabled	New property to control the presence of registers per router

## 11.8 VC PROPERTY CHANGES

None

## 11.9 DEFAULT PROPERTY CHANGES

Property Name	Comment
router_registers_enabled	New property to set the default value of the router property registers_enabled to enable or disable presence of registers at a router. This property replaced mesh property router_registers_enabled.
bridge_amba_registers_enabled	New property to set the default value of the bridge property amba_registers_enabled to enable or disable presence of registers at an AXI bridge. This property replaced mesh property bridge_amba_registers_enabled.
no_credit_blame_tracking	New property to enable or disable tracking of the cause of no_credit blocked causes at TX

	interfaces during NocStudio performance simulation
floorplan_view_snapping	New property to enable or disable the automatic snapping of hosts and bridges at a fixed granularity when they are drawn or moved in the floorplan view
floorplan_view_snapping_granularity	New property to control the granularity of snapping of hosts and bridges at a fixed granularity when they are drawn or moved in the floorplan view

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## 12 Hot Fixes

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None

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