



# CFG Crux

## *Release Notes*

**Version: CRUX-19.07L**

**Revision: 0.0**

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# CFG Crux 19.07L Release Notes

## About This Document

This document lists the release notes for CFG Crux. Using CFG 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 Architects
- NoC Designers
- SoC Architects

## Prerequisite

Before proceeding, you should generally understand:

- Basics of Network on Chip technology

## Related Documents

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

- CFG NocStudio Crux User Manual
- CFG Crux IP Integration Spec

## Customer Support

For technical support about this product and general information, contact CFG Support.

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# Revision History

Revision	Date	Updates
0.0	Jul 19,2019	Initial Version

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# 1 DELIVERABLES

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- CFG NocStudio Package contains N7 version of the tool supporting 16 layers and 256 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 CFG 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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### 2.1 LICENSING

NocStudio uses FlexLM based licensing hosted by Intel Central Licensing group using two dedicated license servers: one in Santa Clara and the other is located in Israel.

In addition to LM\_PROJECT, a Linux environmental variable *NETSPD\_LICENSE\_FILE* shall be set as shown below in order to access the licenses. The LM\_PROJECT is essential for users not to check out the wrong combination of license features by accident.

```
setenv NETSPD_LICENSE_FILE
```

```
7010@netspeed01p.elic.intel.com:7010@netspeed02p.elic.intel.com
```

For teams without LM\_PROJECT defined, a node-locked license file may be issued. Simply copy over the license file under NocStudio installation directory and renamed it as “license.dat”. If the license file resides in a separated folder, user may set environment variable *LM\_LICENSE\_FILE* before opening NocStudio.

### 2.2 DELIVERABLES / TARBALL SET

The CFG IPs and their configuration tool NocStudio have been packaged individually for maximum flexibility allowing mix and match. Each release is tagged with <yy><mm> where yy is the last 2 digits of the year and mm is the month in integer. As an example, release in Jan 2019 will be referenced as 1901 release. Un-tar all individual tarballs delivered as part of the tarball set using the command below.

```
linux% tar zxvf <tarball_name>.tar.gz
```

Here is a snippet of tarball set in 1907L release: netspeed-<release>.<package>.tar.gz

Tarball name	Description	Category
netspeed-1907L.tar.gz	NocStudio	Base
netspeed-1907L.cruxpkg.tar.gz	Crux IP package (non-AMBA)	NSIP IP
netspeed-1907L.orionpkg.tar.gz	Orion IP package	AMBA IP
netspeed-1907L.geminipkg.tar.gz	Gemini IP package	AMBA IP
netspeed-1907L.pegasuspkg.tar.gz	Pegasus IP package	AMBA IP





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netspeed-1907L.ocppkg.tar.gz	OCP support package	Connectivity
netspeed-1907L.daupkg.tar.gz	Deadlock Avoidance Unit	System
netspeed-1907L.syscpkg.tar.gz	SysC (PA) support package	Flow
netspeed-1907L.cpp61pkg.tar.gz	C++ Modeling API support package for gcc 6.1	Flow

**Note:**

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

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## 3 FEATURE UPDATES

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### 3.1 GUI ENHANCEMENTS

In this release, a few GUI enhancements have been implemented for ease of access, as follows:

- Double-clicking on a layer performs fit-view for that layer. Double-clicking again returns to the default view.
- GUI “File” menu now lists the history of the recent config files sourced by NocStudio.

### 3.2 SINGLE NOCSTUDIO RELEASE

In this release, CFG has merged traditional NocStudio (Orion, Gemini and Crux) and SCF NocStudio into a single binary. The license key feature “SCF” and NocStudio command “enter\_scf\_mode” enables the corresponding product features for Intel specific CMS, CRS, SBO, CHA and so on. A separated license “COREKIT” can be enabled to generate Collage compatible corekit collaterals for server SOC project.

### 3.3 NOC\_REGISTERS.XML

In this release, in addition to standard noc\_registers.csv and noc\_reference\_manual.html, NocStudio also generates the NOC Registers in XML which is easier for RDL conversion.

### 3.4 MULTIPLE REGBUS SUPPORT

In this release, NocStudio supports multiple RegBus layers in a design. During new\_mesh creation, user can specify the number of regbus layers in addition to NOC layers. Use *set\_node\_regbus\_layer* to specify all nodes to be included in a specific regbus layer.

### 3.5 SPYGLASS CDC

In this release, a “cdc” folder has been created by NocStudio during “gen\_ip” to provide preliminary support for CDC waiver file which allows user to invoke Spyglass flow and get an abstract model.

### 3.6 USER DEFINED TIME UNIT FOR SDC CONSTRAINTS

Due to library implementation difference, new default property “*prop\_default sdc\_time\_unit [ps|ns]*” is now supported for NocStudio to generate SDC constraints in “ns” or “ps” time unit. For compatibility purpose, the prop defaults to “ns”.

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### **3.7 SINGLE POISON BIT IN LLC**

The feature allows user to specify 1 poison bit for every 256 bits of data instead 4-bits in prior releases. A new property “*P\_LLC\_SINGLE\_BIT\_POISON*” has been added, please refer to NocStudio help manual for details.

### **3.8 STAMPING ENHANCEMENT**

In this release, node-stamping flow has been enhanced to support for low-power and ILDC (In-Link Domain Crosser) based designs with limitations. New naming support for user to specify pipeline stages separately on data link and credit link has been added. Please refer to Technical Reference Manual Stamping Support chapter for details.

### **3.9 MODELING API AND PA-ULTRA COMPATIBILITY ENHANCEMENT**

In this release, the NOC modeling API has been enhanced to support unique AID and QoS override enabled design.

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## 4 EDA TOOL COMPATIBILITY

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- Cadence EDA tools were used for verification and synthesis of this product.
  - Xcelium 19.03-s003
  - Design Compiler RTL Synthesis N-2017.09-SP3
  - HAL Linting tool 15.20.027
  - Conformal 16.20.s240
- Compatibility testing has been done with VCS N-2017.12-SP2-4.
- For Platform Architect, used GCC version is gcc-6.1.0a. (Backward compatible upto gcc-5.2.0-64)
- Please refer to IP Integration specification to enable/disable specific CFG checker in order to resolve or workaround any verification related issues, if any.

Contact your CFG or Synopsys support team for assistance.

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## 5 ERRATA

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### 5.1 STAMPING RESTRICTION

Node-stamping doesn't support user inserted pipeline stages between the regbus layer router and regbus ring slave. Please contact CFG support if your design requires such configuration options.

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## 6 CHANGES TO COMMANDS AND PROPERTIES

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### 6.1 COMMAND CHANGES

None

### 6.2 DEFAULT PROPERTY CHANGES

None

### 6.3 MESH PROPERTY CHANGES

None

### 6.4 BRIDGE PROPERTY CHANGES

None

### 6.5 HOST PROPERTY CHANGES

None

### 6.6 INTERFACE PROPERTY CHANGES

None

### 6.7 LINK PROPERTY CHANGES

None

### 6.8 ROUTER PROPERTY CHANGES

None

### 6.9 VC PROPERTY CHANGES

Non



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Intel Corporation  
2200 Mission College Blvd,  
Santa Clara, CA - 95054.