

This document addresses known errata and documentation issues for the Altera® NCO MegaCore® function, v7.1. Errata are functional defects or errors, which may cause a NCO MegaCore function to deviate from published specifications. Documentation issues include errors, unclear descriptions, or omissions from current published specifications or product documents.

Table 1 shows the issues that affect the NCO MegaCore function, v7.1.

<i>Table 1. NCO MegaCore Function, v7.1 Issues</i>	
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Small ROM, Large ROM, and Multiplier Generate Invalid Outputs if Magnitude is Greater than 24	1
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For existing up-to-date errata, refer to the *NCO MegaCore Function, v7.1 Errata Sheet* on the [Errata Sheets](#) page of the Altera literature website.

NCO MegaCore Function, v7.1 Issues

Altera has identified the following issue that affects the NCO MegaCore function, v7.1:

Small ROM, Large ROM, and Multiplier Generate Invalid Outputs if Magnitude is Greater than 24

Some of the ROM entries used in the small ROM, large ROM, and multiplier-based architectures are incorrect if a magnitude precision greater than 24 bits is selected.

Affected Configurations

Small ROM, large ROM, and Multiplier based architectures of the NCO MegaCore function.

Design Impact

The sine and cosine outputs from the design are invalid.

Workaround

If a magnitude precision of greater than 24 bits is required, a CORDIC architecture should be selected.

Solution Status

This issue will be fixed in a future release of the NCO MegaCore function.

Multiplier-Based MATLAB Model Crashes on Linux if the Sum of Precision and Dither is Greater than 32

When the multiplier-based architecture is used together with dithering, the MATLAB model crashes on a Linux platform, if the sum of angular precision (maximum 32 bits) and dithering (maximum level 8) is greater than 32.

Affected Configurations

Multiplier based architectures of the NCO MegaCore function on a Linux platform.

Design Impact

The MATLAB model crashes with a segmentation violation.

Workaround

If a large angular precision needs to be used combined with dithering, either a different architecture should be chosen, or the MATLAB model should be run on a Windows platform.

Solution Status

This issue will be fixed in a future release of the NCO MegaCore function.

The MATLAB Simulation File Cannot be Used on UNIX

The MATLAB simulation file generated by a NCO MegaCore function can only be used on Windows and Linux.

Affected Configurations

UNIX configurations.

Design Impact

You cannot simulate a NCO MegaCore function in MATLAB on UNIX.

Workaround

None.

Solution Status

This issue will be fixed in a future release of the NCO MegaCore function.

Cannot Generate Large Angular Precision ROM Parameters

IP Toolbench cannot generate NCO designs for large parameters of angular and magnitude precision in the ROM-based architectures.

Affected Configurations

Large ROM and Small ROM architectures of the NCO MegaCore function.

Design Impact

IP Toolbench does not close the Parameterize Window when the **Finish** button is pressed unless smaller values for angular and/or magnitude precision are selected.

Workaround

Use smaller value precision parameters, a different NCO architecture (multiplier or CORDIC based), or choose a device with more memory.

Solution Status

None.

Mismatches Between the MATLAB and RTL Models

For the multiplier-based architecture with throughput = $\frac{1}{2}$ (output every 2nd clock cycle), and for the serial CORDIC architecture, there can be mismatches between the output of the MATLAB model and the RTL output for certain parameter combinations. This is because some initial output values are not covered by either the MATLAB model or the RTL design, while the other values match.

Affected Configurations

Multiplier-based architecture with halved throughput and serial CORDIC architectures of the NCO MegaCore function.

Design Impact

Automatic comparison of the output values from the MATLAB model and RTL design during testing may show mismatches.

Workaround

The RTL design works correctly, but comparison between MATLAB model and RTL cannot be done automatically.

Solution Status

This issue will be fixed in a future release of the NCO MegaCore function.

MisMatch If Frequency Modulation and Dithering are Both Used

There are slight mismatches between the MATLAB model and RTL for the serial CORDIC architecture of the NCO if both frequency modulation input and dithering are used. However, both generate sine/cosine waves correctly and the differences between the corresponding values are small.

Affected Configurations

Serial CORDIC architectures of the NCO MegaCore function.

Design Impact

The output values from the RTL design are inaccurate.

Workaround

Use a different architecture if both frequency modulation input and dithering are necessary.

Solution Status

This issue will be fixed in a future release of the NCO MegaCore function.

Contact Information

For more information, contact Altera's mySupport web site at www.altera.com/mysupport and click **Create New Service Request**. Choose the **Product Related Request** form.

Revision History

Table 2 shows the revision history for the *NCO MegaCore function, v7.1 Errata Sheet*.

Table 2. NCO MegaCore Function v7.1 Errata Sheet Revision History		
Version	Date	Errata Summary
1.2	June 2007	Magnitude errata also applies to small ROM and large ROM architectures
1.1	May 2007	Added two errata for multiplier -based architectures.
1.0	May 2007	First release of this errata sheet.



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