

**RN0040**  
**Release Notes**  
**CoreDDS v3.0**



**Power Matters.™**

**Microsemi Corporate Headquarters**

One Enterprise, Aliso Viejo,  
CA 92656 USA

Within the USA: +1 (800) 713-4113

Outside the USA: +1 (949) 380-6100

Fax: +1 (949) 215-4996

Email: [sales.support@microsemi.com](mailto:sales.support@microsemi.com)

[www.microsemi.com](http://www.microsemi.com)

© 2017 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.

**About Microsemi**

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California, and has approximately 4,800 employees globally. Learn more at [www.microsemi.com](http://www.microsemi.com).

# 1 CoreDDS v3.0 Release Notes

---

This document accompanies the release of CoreDDS v3.0. It provides information about the features and enhancements, system requirements, supported families, implementations, and known issues and workarounds.

## 1.1 Key Features

CoreDDS supports the following features:

- Sine, cosine, or quadrature generator
- Up to 32 bits phase accumulator
- Up to  $2^{20}$  effective LUT depth
- $\frac{1}{4}$  wave memory saving architecture
- Output sample bit resolution 4 to 32 bits
- Optional phase dithering for spurious-free dynamic range (SFDR) improvement
- Optional trigonometric wave correction for SFDR improvement
- User configurable output polarity
- Optional built-in dynamically controlled phase and frequency offsets
- Controllable pipeline latency

## 1.2 Supported Interfaces

No standard interface available.

## 1.3 Delivery Types

No License is required to use CoreDDS. Complete RTL source code is provided for the core.

## 1.4 Supported Families

The following FPGA families are supported by the CoreDDS:

- PolarFire™
- RTG4™
- SmartFusion®2
- IGLOO®2

## 1.5 Supported Tool Flows

The following tools are supported by the CoreDDS:

- Libero® System-on-Chip (SoC) software v11.7 or later.
- Windows and Linux operating systems

## 1.6 Installation Instructions

The CoreDDS IP core must be downloaded from Libero SoC Catalog. Once the core is downloaded in the Libero SoC Catalog, the core can be instantiated and configured.

For more instructions about core installation, licensing, and general use, see the [Libero SoC Online Help](#).

## 1.7 Documentation

The release contains the CoreDDS Handbook. The handbook describes the core functionality and gives step-by-step instructions on how to simulate, synthesize, and place-and-route this core, and implementation suggestions.

For more information about Intellectual Property, go to <http://www.microsemi.com/products/fpga-soc/design-resources/ip-cores>. For updates and additional information about software, FPGAs, and hardware, go to <http://www.microsemi.com>.

## 1.8 Supported Test Environments

The following test environments are supported by the CoreDDS:

- VHDL user testbench
- Verilog user testbench

## 1.9 Release History

The following table provides the release history of CoreDDS v3.0.

**Table 1 • Release History**

Version	Date	Changes
3.0	March 2017	Graphic user interface; support for SmartFusion2, IGLOO2, RTG4, and PolarFire families; major design changes
2.0	March 2006	Initial release

## 1.10 Resolved Issues in v3.0 Release

The following table lists the software action requests (SARs) resolved in the v3.0 release of CoreDDS.

**Table 2 • Resolved SARs**

SAR No.	Description
63075	Provide support for SmartFusion2, IGLOO2, and RTG4 families

## 1.11 Discontinued Features and Devices

CoreDDS v3.0 supports the FPGA families listed in [Supported Families](#), page 1.

## 1.12 Known Limitations and Workarounds

Phase offset cannot exceed the value of  $2^{31} - 1$ .