

RN0086

CoreJESD204BRX v3.0 Release Notes





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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, Calif., and has approximately 4,800 employees globally. Learn more at www.microsemi.com.

1 Revision History

The revision history describes the changes that were implemented in the document. The changes are listed by revision, starting with the most current publication.

1.1 Revision 6.0

Updated changes related to CoreJESD204BRX v3.0.

1.2 Revision 5.0

Updated changes related to CoreJESD204BRX v2.5.

1.3 Revision 4.0

Updated changes related to CoreJESD204BRX v2.4.

1.4 Revision 3.0

Updated changes related to CoreJESD204BRX v2.3.

1.5 Revision 2.0

Updated changes related to CoreJESD204BRX v2.2.

1.6 Revision 1.0

Revision 1.0 was the first publication of this document. Created for CoreJESD204BRX v2.0.

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2 Preface

2.1 Purpose

These release notes accompany the production release of CoreJESD204BRX v3.0. This document provides details about the features, enhancements, system requirements, supported families, implementations, and known issues and workarounds.

2.2 Intended Audience

FPGA designers using Libero® System-on-Chip (SoC).

3 CoreJESD204BRX v3.0 Release Notes

3.1 Overview

These release notes accompany the production release of CoreJESD204BRX v3.0. This document provides details about the features, enhancements, system requirements, supported families, implementations, and known issues and workarounds.

3.2 Features

CoreJESD204BRX implements the receiver interface of the JESD204B standard and has the following features:

- Supports 1 to 8 lanes
- Supports Subclasses 0, 1, and 2
- Performs word alignment
- Sync~ signal encoding
- Performs user-enabled 8B/10B decoding
- Recovers link configuration parameters
- Performs lane alignment buffering, monitoring and correction
- Performs user-enabled frame alignment, monitoring, and correction
- Performs octet reconstruction
- Performs user-enabled descrambling
- Error detection
- Supports data width of 16, 32, or 64 bits

Note: Octet to Frame Stream conversion is not performed by the core.

3.3 Delivery Types

CoreJESD204BRX is license free.

Complete register transfer level (RTL) source code is provided for the core and testbenches.

3.4 Supported Families

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

3.5 Supported Tool Flows

- CoreJESD204BRX v3.0 requires Libero® System-on-Chip (SoC) software v11.0 or later.

3.6 Installation Instructions

The CoreJESD204BRX CPZ must be installed into Libero software. This is done automatically through the Catalog update function in Libero, or the CPZ file can be manually added using the Add Core catalog feature. Once the CPZ file is installed in Libero, the core can be configured, generated, and instantiated within SmartDesign for inclusion in the Libero project.

Refer to the [Libero SoC Online Help](#) for further instructions on core installation, licensing, and general use.

3.7 Documentation

This release contains a copy of the *CoreJESD204BRX 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 also implementation suggestions. Refer to the [Liberio SoC Online Help](#) for instructions on obtaining IP documentation.

For updates and additional information about the software, devices, and hardware, visit the Intellectual Property pages on the Microsemi SoC Products Group website: visit:

<http://www.microsemi.com/products/fpga-soc/design-resources/ip-cores>.

3.8 Supported Test Environments

The following test environments are supported:

- Verilog user testbench

3.9 Resolved History

Table 1 lists the release history for CoreJESD204BRX.

Table 1 • Release History

Version	Date	Changes
3.0	November 2016	Added PolarFire support. Also added support of up to 8 lanes.
2.5	January 2015	Added RTG4 support, LCD_EN parameter/generic and a EPCS_RX_VAL input signal per lane.
2.4	March 2014	Improved Maximum Operating Frequency.
2.3	December 2013	Fixed known SARs.
2.2	October 2013	Fixed known SARs and added support for the IGLOO2 product family. Also added support for 10-bit EPCS Interface.
2.0	March 2013	Initial version of the core.

3.10 Resolved Issues in the v3.0 Release

Table 2 • Resolved Issues in the v3.0 Release

SAR Number	Changes
83377	Add support for 8 lanes
67151	RTG4: CoreJESD204BRX Timing issue-HB to updated for Clock Over constraining needed for STD speed grade devices
67042	Modify elastic buffer to absorb variable latency

3.11 Resolved Issues in the v2.5 Release

Table 3 • Resolved Issues in the v2.5 Release

SAR Number	Changes
63095	JESDRX SoftIP must include EPCS_RX_VALID i/p port for SERDES RX Data handling
63732	Timing Closure fails due to Large number Logic Levels between registers

3.12 Resolved Issues in the v2.4 Release

Table 4 • Resolved Issues in the v2.4 Release

SAR Number	Changes
54242	Enhance fmax to achieve 160 MHz (3.2 Gbps)

3.13 Resolved Issues in the v2.3 Release

Table 5 • Resolved Issues in the v2.3 Release

SAR Number	Changes
53593	Parameter ranges in HB does not match with configurator values
53510	Wrong DEC_WA.v file in CPZ causing issues

3.14 Resolved Issues in the v2.2 Release

Table 6 • Resolved Issues in the v2.2 Release

SAR Number	Changes
47391	Data is being shifted into the word aligner buffer in the wrong direction
50813	8B10B decoding incorrect
51084	Input data in reverse bit order
51683	Add support for 10-bit EPCS Interface

3.15 Resolved Issues in the v2.0 Release

As this is the initial version, there were no SARs resolved in the v2.0 release.

3.16 Discontinued Features and Devices

There are no discontinued features or devices.

3.17 Known Limitations and Workarounds

There are no known limitations and workarounds.

4 Product Support

Microsemi SoC Products Group backs its products with various support services, including Customer Service, Customer Technical Support Center, a website, electronic mail, and worldwide sales offices. This appendix contains information about contacting Microsemi SoC Products Group and using these support services.

4.1 Customer Service

Contact Customer Service for non-technical product support, such as product pricing, product upgrades, update information, order status, and authorization.

From North America, call **800.262.1060**

From the rest of the world, call **650.318.4460**

Fax, from anywhere in the world, **408.643.6913**

4.2 Customer Technical Support Center

Microsemi SoC Products Group staffs its Customer Technical Support Center with highly skilled engineers who can help answer your hardware, software, and design questions about Microsemi SoC Products. The Customer Technical Support Center spends a great deal of time creating application notes, answers to common design cycle questions, documentation of known issues, and various FAQs. So, before you contact us, please visit our online resources. It is very likely we have already answered your questions.

4.3 Technical Support

For Microsemi SoC Products Support, visit

<http://www.microsemi.com/products/fpga-soc/design-support/fpga-soc-support>.

4.4 Website

You can browse a variety of technical and non-technical information on the Microsemi SoC Products Group home page, at <http://www.microsemi.com/products/fpga-soc/fpga-and-soc>.

4.5 Contacting the Customer Technical Support Center

Highly skilled engineers staff the Technical Support Center. The Technical Support Center can be contacted by email or through the Microsemi SoC Products Group website.

4.5.1 Email

You can communicate your technical questions to our email address and receive answers back by email, fax, or phone. Also, if you have design problems, you can email your design files to receive assistance. We constantly monitor the email account throughout the day. When sending your request to us, please be sure to include your full name, company name, and your contact information for efficient processing of your request.

The technical support email address is soc_tech@microsemi.com.

4.5.2 My Cases

Microsemi SoC Products Group customers may submit and track technical cases online by going to [My Cases](#).

4.5.3 Outside the U.S.

Customers needing assistance outside the US time zones can either contact technical support via email (soc_tech@microsemi.com) or contact a local sales office. Visit [About Us](#) for [sales office listings](#) and [corporate contacts](#).

4.6 ITAR Technical Support

For technical support on RH and RT FPGAs that are regulated by International Traffic in Arms Regulations (ITAR), contact us via soc_tech@microsemi.com. Alternatively, within My Cases, select **Yes** in the ITAR drop-down list. For a complete list of ITAR-regulated Microsemi FPGAs, visit the ITAR web page.