RTG4 Development Kit Quickstart Guide

Kit Contents

Quantity	Description
1	RTG4 Development Board with one RT4G150 PROTO FPGA in either a CB1657 or CG1657 package
1	USB A-male to micro-B male cable, three feet long 28/28AWG USB 2.0
1	USB A to mini-B cable
1	12 V, 5A AC power adapter
1	Quickstart Card

Ordering Information

Part Number	Description
RTG4-DEV-KIT	RTG4 Development Kit with RT4G150-CB1657PROTO FPGA
RTG4-DEV-KIT-CG	RTG4 Development Kit with RT4G150-CG1657PROTO FPGA

Overview

The RTG4™ Development Kit provides space designers and developers with an evaluation and development platform for applications such as data transmission, serial connectivity, bus interface, and high-speed designs using the latest Radiation Tolerant High-Speed Signal Processing FPGAs family, RTG4. The development board features a RT4G150 device offering 151,824 logic elements in a ceramic package with 1,657 pins.

The RT4G150 device has 24 SERDES transceivers supporting native SERDES (ePCS) and PCIe® interfaces. The native SERDES blocks are connected to the on-board FPGA Mezzanine Card (FMC) connector, while the PCIe blocks are connected to PCIe and high-speed sub-miniature push-on (SMA) connectors. There is plenty of memory on the development board including two 1GB of Double Data Rate3 (DDR3) and 2GB of SPI flash memories.

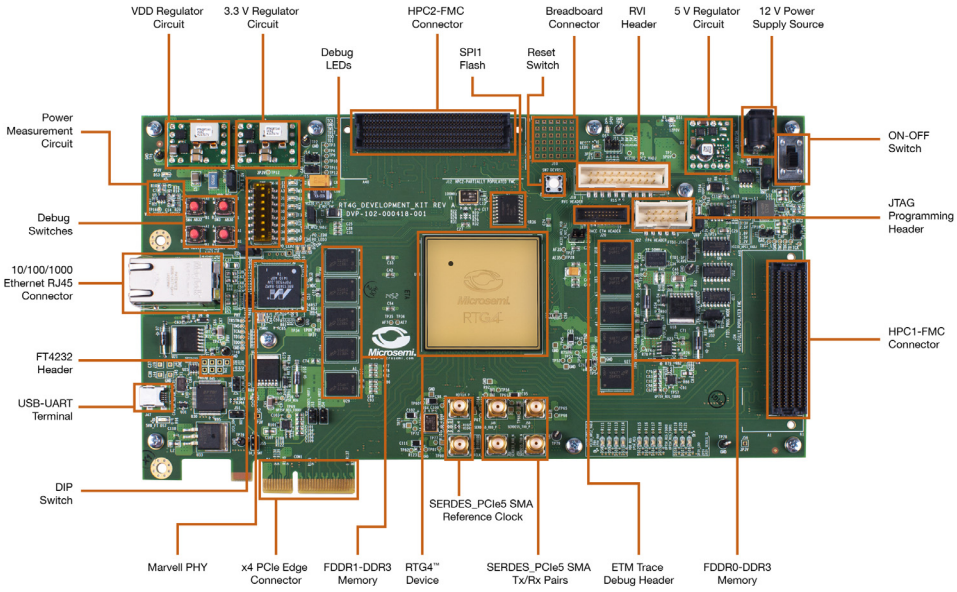
The RTG4 Development board has numerous standard and advanced peripherals such as: PCIe x4 edge connector, two FMC connectors for using many off-the-shelf daughter cards, gigabit Ethernet port, serial peripheral interface (SPI), and UART. There is a FlashPro5 programmer embedded on the board allowing programming of the RTG4 FPGA through the JTAG interface, without the need of an external programmer. Designers, who prefer to use an external programmer such as FlashPro4, have access to JTAG programming header on the board.

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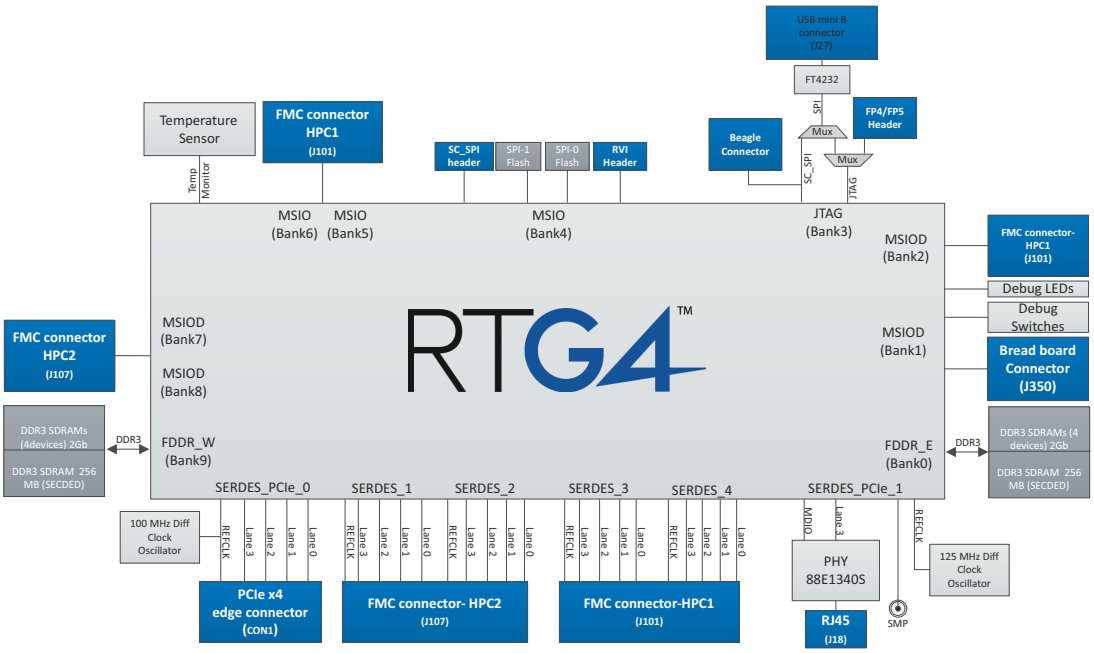
Hardware Feature Overview

- RTG4-DEV-KIT includes one RT4G150-CB1657PROTO FPGA
- RTG4-DEV-KIT-CG includes one RT4G150-CG1657PROTO FPGA
- Two 1GB DDR3 synchronous dynamic random access memory (SDRAM)
- 2GB SPI flash memory
- PCI Express Gen1 x1 interface
- PCIe x4 edge connector
- One pair SMA connectors for testing of the full-duplex SERDES channel
- Two FMC connectors with HPC/LPC pinout for expansion
- RJ45 interface for 10/100/1000 Ethernet
- USB micro-AB connector
- Headers for SPI, GPIOs
- FTDI programmer interface to program the external SPI flash
- JTAG programming interface
- RVI header for application programming and debug
- FlashPro programming header
- Embedded trace macro (ETM) cell header for debug
- Dual in-line package (DIP) switches for user application
- Push-button switches and LEDs for demo purposes
- Current measurement test points

Development Board Callout



Development Board Block Diagram



Software

The RTG4 Development Kit is supported by the Libero® SoC Software, which includes a web install option. FlashPro is enabled by default in the web install; these software tools can be used for software design and debug. Refer to the *UG0617: RTG4 FPGA Development Kit User Guide* for more information. A Libero Platinum license is required to use the RT4G150 device. The license must be purchased and is not included with the kit.

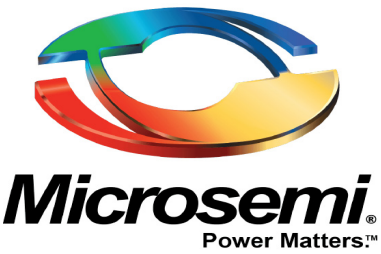
Documentation Resources

For further kit information, including user guide, tutorial, and full design examples, refer to the *RTG4 Development Kit* page.

New demos and tutorials will be posted as they become available. Microsemi recommends that you sign up for Product Updates to be notified when new material is available. You can sign up for product updates from your *Microsemi Customer Portal* account.

Technical Support and Contacts

Technical support is available online and by *email*.To find your local representative visit *Microsemi SoC Sales* offices, including *Representatives* and *Distributors*, which are located worldwide.



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