USB2.0 On-The-Go (OTG) Controller IP Core
uu2otgahbutmi

Overview

The Renesas USB2.0 On-The-Go (OTG) Controller IP is a Dual-Role Device (DRD) controller that supports host and peripheral function. This IP is compliant with the Universal Serial Bus (USB) 2.0 Specification, Enhanced Host Controller Interface(EHCI) Specification, and On-The-Go Supplement Specification. This IP is consists of the host controller "uu2hcabhutmi" and the peripheral controller "uu2pcahbutmi". The system interface of this IP is AHB(AMBA®3 AHB-Lite) and the PHY interface is UTMI+(Level-3). The host-part of this IP supports High Speed (480 Mbps), Full Speed (12Mbps) and Low Speed (1.5Mbps) transfer. And peripheral-part supports High Speed (480 Mbps), Full Speed (12Mbps) transfer.

Key Features

General

・Compliant with Universal Serial Bus Specification Revision 2.0.
・Compliant with Enhanced Host Controller Interface(EHCI) Specification for USB Rev.1.1.
・Compliant with Open Host Controller Interface(OHCI) Specification for USB Rev.1.0a.
・Compliant with AMBA®3 AHB-Lite Protocol v1.0 Specification.
・Compliant with UTMI+ Specification Rev 1.0 Level-3.
・Compliant with On-The-Go and Embedded Host Supplement to USB Revision 2.0 Specification Rev. 2.0 Ver.1.1a.

USB function

・Supports 1 OTG Port.
・Supports Control, Bulk, Interrupt, and Isochronous transfers.
・Supports Battery Charging Specification Rev 1.2.

AHB I/F

・Conforms to AMBA®3 AHB-Lite.
・Data bus width: 32 bits
・Supports big endian and little endian.
・Provides master interface and slave interface.
・Supports the AHB-Lite specification.

RAM interface

・For the host controller: One 32-bit x 256-word 2-port SRAM device is needed as the buffer memory outside.
・For the peripheral controller: 64-bit 1-port SRAM interface for the buffer memory outside. The memory size is configurable depends on endpoint and is up to 16KByte.

UTMI+ interface

・Supports UTMI+ level-3 interface.

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CPU/INTC

AHB Interconnect

AHB-IF

uu2otgahbutmi

EHCI host controller
(uu2hcahbutmi)

peripheral controller
(uu2pcahbutmi)

AHB master | AHB slave

AHB master | AHB slave

RAM

EHCI/OHCI Controller

Endpoint Controller

RAM

UTMI+ interface

UTMI+ IF

UTMI+ PHY

USB connector

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