CoreAPB

DirectCore

Product Summary

Intended Use

- Intended for Use in a Processor Subsystem to Implement the Advanced Peripheral Bus (APB) Fabric
- Configured for Easy and Automatic System Design with CoreConsole

Key Features

- Supplied in SysBASIC Core Bundle
- Up to 16 APB Slave Devices Supported
- Automatic Connection to AHB Bridge (CoreAHB2APB) and APB Slaves

Benefits

- Allows Easy Connection of APB Devices to a CoreMP7 or Cortex-M1 Subsystem
- Auto Stitch in CoreConsole for Rapid Development
- Compatible with Advanced Microcontroller Bus Architecture (AMBA), CoreMP7, and Cortex-M1

Supported Device Families

- Fusion
- IGLOO™
- IGLOOe
- ProASIC®3L
- ProASIC3
- ProASIC3E

Synthesis and Simulation Support

- Supported in the Actel Libero® Integrated Design Environment (IDE)

Verification and Compliance

- Compliant with AMBA

Contents

General Description

Along with CoreAHB2APB, the CoreAPB component provides an AMBA APB fabric that supports up to 16 APB slaves. CoreAHB2APB provides APB address decoding in the form of select signals. CoreAPB is concerned with multiplexing the read data busses from all the APB slaves into one single read data bus to send to CoreAHB2APB. Figure 1 gives an illustration of CoreAPB.

There is one APB master interface, which is typically connected to the AMBA Bridge, and 16 equal-sized (16 MB) APB slave interfaces.
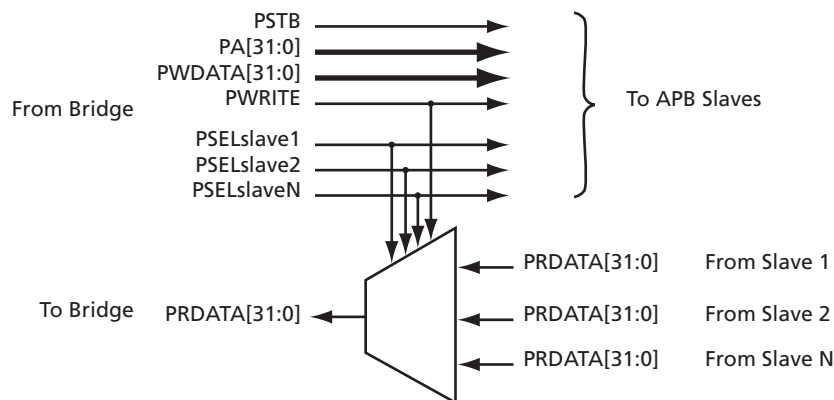

Figure 1 • **CoreAPB**

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Connecting CoreAPB in CoreConsole

Table 1 lists the ports present on the APB bus and describes how to connect these in CoreConsole.

Table 1 • **APB Bus Connections**

Connection	CoreConsole Label	Description
Required Connections		
APB mirrored master interface	APBmmaster	This interface connects to the APBmaster interface of CoreAHB2APB.
Optional Connections		
	APBmslave0	APB mirrored Slave 0 interface
	APBmslave1	APB mirrored Slave 1 interface
	APBmslave2	APB mirrored Slave 2 interface
	APBmslave3	APB mirrored Slave 3 interface
	APBmslave4	APB mirrored Slave 4 interface
	APBmslave5	APB mirrored Slave 5 interface
	APBmslave6	APB mirrored Slave 6 interface
	APBmslave7	APB mirrored Slave 7 interface
	APBmslave8	APB mirrored Slave 8 interface
	APBmslave9	APB mirrored Slave 9 interface
	APBmslave10	APB mirrored Slave 10 interface
	APBmslave11	APB mirrored Slave 11 interface
	APBmslave12	APB mirrored Slave 12 interface
	APBmslave13	APB mirrored Slave 13 interface
	APBmslave14	APB mirrored Slave 14 interface
	APBmslave15	APB mirrored Slave 15 interface

Resource Requirements

The utilization for CoreAPB in a ProASIC3 device is 125 tiles.

Ordering Information

CoreAPB is included in the SysBASIC core bundle supplied with the Actel CoreConsole IP Deployment Platform (IDP). The obfuscated RTL version of SysBASIC (SysBASIC-OC) is available for free with CoreConsole. The source RTL version of SysBASIC (SysBASIC-RM) can be ordered through your local Actel sales representative. CoreAPB cannot be ordered separately from the SysBASIC core bundle.

List of Changes

The following table lists critical changes that were made in the current version of the document.

Previous Version	Changes in Current Version (v2.1)	Page
v2.0	The "Supported Device Families" section was updated to include ProASIC3L.	1
	The "Resource Requirements" section was updated to change ProASIC3E to ProASIC3.	2
Advanced v0.1	The "Product Summary" section was updated to include Cortex-M1 and IGLOO/e information.	1

Datasheet Categories

In order to provide the latest information to designers, some datasheets are published before data has been fully characterized. Datasheets are designated as "Product Brief," "Advanced," and "Production." The definitions of these categories are as follows:

Product Brief

The product brief is a summarized version of an advanced or production datasheet containing general product information. This brief summarizes specific device and family information for unreleased products.

Advanced

This datasheet version contains initial estimated information based on simulation, other products, devices, or speed grades. This information can be used as estimates, but not for production.

Unmarked (production)

This datasheet version contains information that is considered to be final.

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