AHB Multilayer Fabric

IP Core

IPC-AHBFabric-AHB

FEATURES

- AMBA® 2.0 Compatible
- Multiple AHB Channels
- Off the shelf core supports 4 Masters and up 7 Slaves
- Arbitration is done at each slave
- Other configurations are available

LICENSED IP PACKAGE INCLUDES

- Verilog Source
- Complete Test Environment
- AHB Bus Functional Model
- C-Sample Code

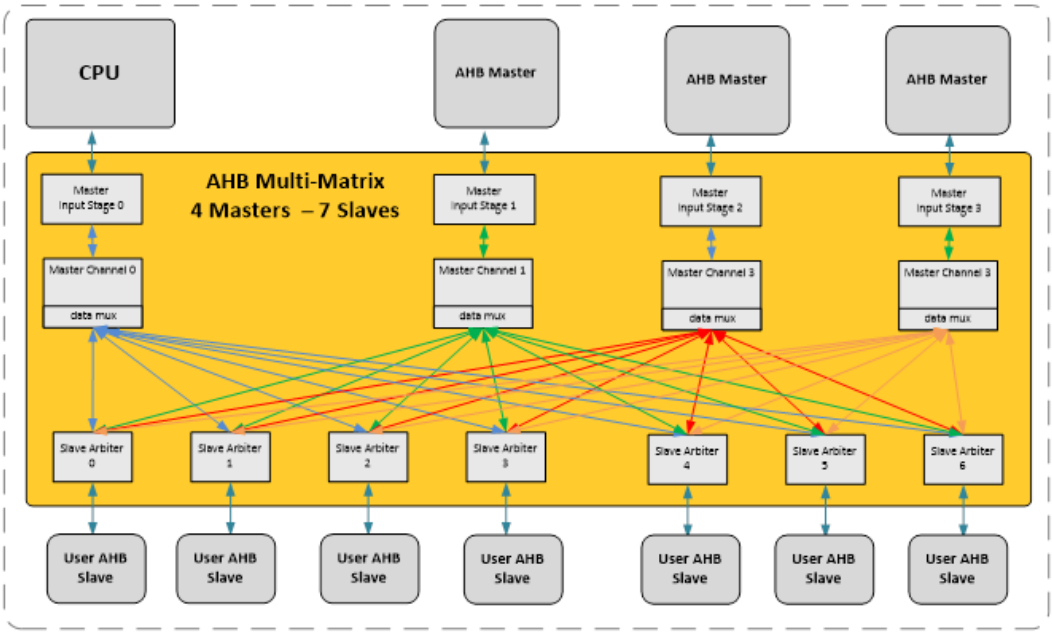
DESCRIPTION

The AHB Fabric provides the necessary infrastructure to connect up to 16 shared AHB Slaves to up to 16 AHB-Lite Bus Masters. The off-the-self configuration support 4 AHB Masters and 7 AHB Slaves and includes a remapping selection.

In a typical AHB system, several AHB Masters may compete for a shared (AHB) bus; a bus arbiter determines bus ownership. The AHB Fabric allows for the various AHB-Lite Masters to connect to several different shared peripherals without the need to arbitrate for a shared AHB bus. Instead, arbitration is performed at the peripheral. This way, the various Masters may see a significant increase in performance over a standard AHB system. However, systems where multiple masters need frequent access to the SAME peripheral will see only a modest performance increase.

The Fabric may be connected to the remainder of the subsystem as follows. Each of the AHB Fabric's M Mirrored Slave Ports is connected to an AHB Slave module (e.g. External Bus Interface, Memory Controller, AHB-to-APB Bridge). On the Master side, each of the N-1 AHB Fabric's Mirrored Master Ports is connected to either the output side of an AHB Arbiter (in the case where each AHB system has multiple bus Masters) or directly to an AHB or AHB-Lite Master such as a micro-processor.

GENERAL USE



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You may also be interested in:

AMBA® Subsystems

- Low Power Subsystem (simple AHB system)
- Low Power / Performance Subsystem (includes AHB Multi-matrix Fabric)
- Custom Performance Subsystem (includes AXI Multi-layer Fabric)

IP Cores

Infrastructure Cores

AHB Multi-Matrix Fabric
AHB/AHBLite Channel
AHB Arbiter
AXI Multi-Layer Fabric
AXI to AHBLite Bridge
AXI to APB Bridge
AHB to ABP Bridge
APB Channel

AXI Cores

AXI Multi-Layer Fabric
AXI to AHBLite Bridge
AXI to APB Bridge
AXI External Bus Interface
(Memory/Flash Controller)
AXI Internal Memory Controller
AXI QSPI with Execute in Place (XIP)

AHB Cores

AHB Channel
AHB Multi-Matrix Fabric
AHB to ABP Bridge
AHB Arbiter
AHB QSPI with Execute in Place (XIP)
AHB External Bus Interface
AHB Internal SRAM Controller
AHB Interrupt Controller
AHB DMA Controller
AHB DMA 4 Channel Controller
AHB TFT LCD Controller
AHB DES/TDES Encryption/Decryption

AHB Serial Flash Controller
Octal, Quad, Dual and Single Modes

Serial to AHB Bridge
SPI slave to AHB Master
Monitor/Control

APB Cores

APB Channel
APB Quad SPI Controller
APB General Purpose IO
APB Timer
APB UART
APB I2C (Master and Slave)
APB SPI
APB Watchdog Timer
APB Pulse Width Modulator
APB Real Time Clock

General

DES – Digital Encryption Standard
Triple DES (Low Gates)
Triple DES (pipelined)
ADC Interface (semi-custom)
Mixed-Signal Interfaces (semi-custom)
Power Management Unit (semi-custom)

AES Encryption Core

For more information contact

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