

## FEATURES

- General Purpose Input Output
- Software configurable
- AMBA® APB Compatible
- Scalable up to 32 I/Os
- Each I/O is independent
- Interrupt control for each I/O

## LICENSED IP PACKAGE INCLUDES

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

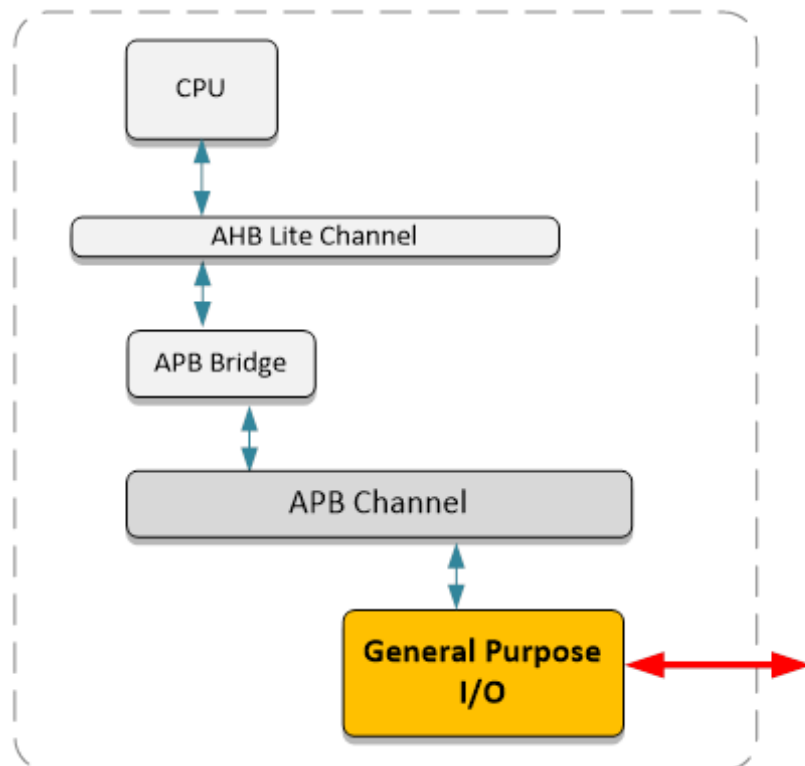
## DESCRIPTION

The APB GPIO is a configurable module allowing the use of up to 32 scalable I/O lines. If more than 32 I/Os are required, more than one GPIO module may be instantiated.

Each line can be configured independently resulting in a very useful I/O application. The GPIO module supports a wide variety of options concerning synchronization logic and interrupt signal, which can be triggered by either a low level, high level, positive or negative edge. The GPIO is also fully compatible with the industry-standard APB bus interface.

The GPIO module is a standard APB Slave peripheral, and has a standard APB Slave Port. The APB Slave Port is typically connected to one of the various APB Mirrored-Slave Ports of an APB Channel module. The several GPIO registers are accessed through its APB interface.

## GENERAL USE



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**

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