

BEYOND GENERAL PURPOSE DEBUG INTERFACE CONTROLLER

BA2x Line Of Processors And General Purpose Wishbone Bus Debug Interface

OVERVIEW

The Debug Interface Controller is designed to provide access to internal processor debug and/or WISHBONE bus resources using industry standard IEEE 1149.1-2001 Test Access Port protocol. Paired with any standard TAP controller, the debug interface will enable access to internal resources using off the shelf hardware and software, such as JTAG key and gdb to name the most commonly used combination.

Modular design supports seamless integration into systems implementing different clock, reset and power domains.

Debug interface can be used in virtually any embedded system that uses standard bus interconnect other than WISHBONE, if simple protocol converters are added.

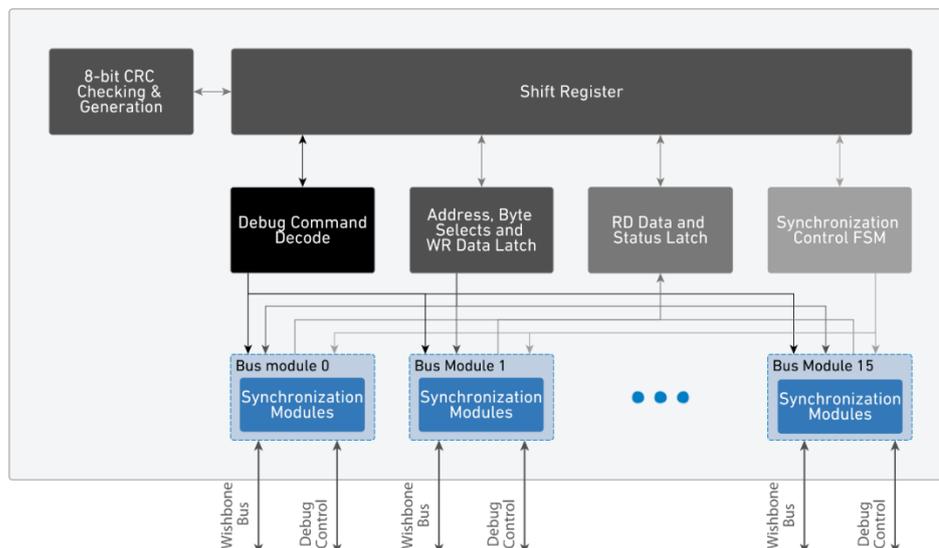
KEY BENEFITS

- Ready to use with BA line of processors.
- Connects seamlessly to WISHBONE bus.
- Comprehensive software support.
- Modular design allowing implementation of multiple interfaces in different clock, reset and power domains.
- Ready to use with Beyond TAP controller.
- Ready to use with standard third party TAP controllers.
- Simple WISHBONE protocol can be easily interfaced to other bus protocols.

APPLICATIONS

- Any application with embedded BA processor.
- Any application that requires access to internal bus resources via standard JTAG hardware and debugging software.

BLOCK DIAGRAM



FEATURES

TAP Interface

- Uses decoded instruction register value and state information from IEEE 1149.1-2001 External TAP Controller to shift and load its data register appropriately
- Command and data are transmitted and received serially
- 80-bit data register (DR) stores all the information needed to execute debugging commands
- 8-bit CRC for added robustness generated and checked as part of DR
- WISHBONE Module selection logic
- Deadlock prevention allows independent reset assertion and/or clock gating per bus module. Keeping or initializing state information is thus not necessary in external HW/SW

WISHBONE Modules

- Up to 16 Bus modules (WISHBONE interfaces), compile time definable
- Bus module includes:
 - WISHBONE SoC Interface Rev. B3 compliant
 - Optional control signals for Debug Unit of Beyond BA processors
- Bus module can be connected to the Debug Unit of Beyond BA processor or to internal bus infrastructure
- Each bus module operates on its own clock and reset domain
- Full clock domain crossing synchronization

RELATED PRODUCTS

- [Beyond TAP Controller](#) is designed according to IEEE 1149.1-2001 standard and is very useful for applications which require fine control over TAP insertion or use test and diagnostic features in functional modes of operation. Full RTL delivery and parameterized design allow easy integration and pre-synthesis verification of TAP and corresponding functional mode test and diagnostic features.



Beyond Semiconductor is addressing challenges of systemic complexity in today's electronic devices, empowering its customers to create new experiences for end users.

Initially known for its processor expertise, Beyond quickly gained acceptance among top semiconductor companies and evolved into global company leveraging processing, software and system-wide view competence to provide its customers with effectively designed IP and ASICs.

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