BEYOND ⧉

SEMICONDUCTOR

# BEYOND UART 16550 SERIAL CONTROLLER

## Standard 16550 Compatible UART

## OVERVIEW

Beyond UART (Universal Asynchronous Receiver/Transmitter) 16550 Serial Controller IP core translates data between parallel and serial interfaces, and adds/removes start, stop bits, and optionally parity bit. It can be used to communicate with other external devices using a serial cable and RS232 protocol.

This core is fully compatible with industry standard National Semiconductors 16550D device. Additionally CPU can read values of divisor latch and fill levels of transmitter and receiver FIFOs. On power up/reset Beyond UART starts in 16450 mode.
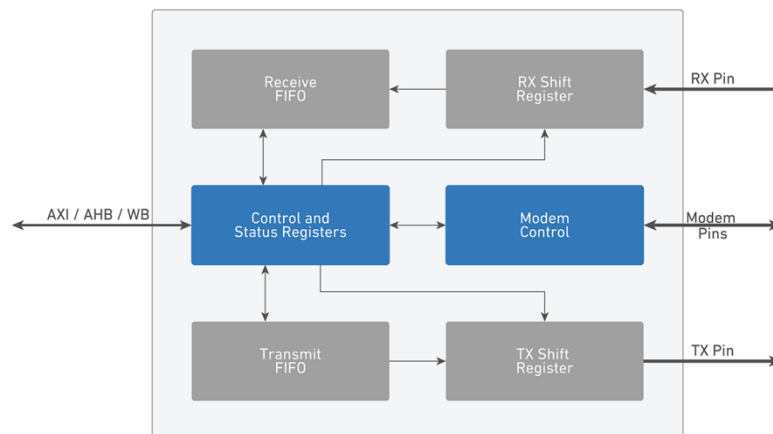
## KEY BENEFITS

- Compatible with AXI, AHB and AXI SoC Bus Interfaces
- Fractional (non-integer) baud rate generation (more precise serial frequency )
- Compile-time configurable FIFO depth
- Fast and easy configuration
- Deeper FIFOs require less CPU intervention

## APPLICATIONS

- Networking
- Automotive
- Home entertainment consumer electronics

## BLOCK DIAGRAM



## FEATURES

### Serial Communications Features

- Compatible with PC16550D/16450
- Compile-time configurable FIFO depth (16 bytes by default) in 16550 mode
- MODEM control functions
- Programmable serial interface:
  - Number of data bits (5 - 8)
  - Number of stop bits
    - 1 and 1,5 for (5 data bits)
    - 1 and 2 for (6,7,8 data bits)
  - False start bit detection

- Internal diagnostic (loopback, error simulation)
- Line break generation and detection
- Prioritized interrupts
- Directly readable divisor latch value
- Readable transmitter and receiver FIFO level

### Supported SoC Bus Interfaces

- AMBA AXI / AHB / APB as appopriate
- AMBA AXI
- WISHBONE
- Other buses: for additional options please contact sales@beyondsemi.com

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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