GENERAL DESCRIPTION

The XR16M580[1] (M580) is an enhanced Universal Asynchronous Receiver and Transmitter (UART) with 16 bytes of transmit and receive FIFOs, selectable transmit and receive FIFO trigger levels, automatic hardware and software flow control, and data rates of up to 16 Mbps at 3.3V, 12.5 Mbps at 2.5V and 8 Mbps at 1.8V with 4X sampling rate.

The Auto RS-485 Half-Duplex Direction control feature simplifies both the hardware and software for half-duplex RS-485 applications. In addition, the Multidrop mode with Auto Address detection increases the performance by simplifying the software routines.

The Independent TX/RX Baud Rate Generator feature allows the transmitter and receiver to operate at different baud rates. Power consumption of the M580 can be minmized by enabling the sleep mode and PowerSave mode.

The M580 has a 16550 compatible register set that provide users with operating status and control, receiver error indications, and modem serial interface controls. An internal loopback capability allows onboard diagnostics. The M580 is available in 32-pin QFN, 48-pin TQFP and 25-pin BGA packages. All three packages offer both the 16 mode (Intel bus) interface and the 68 mode (Motorola bus) interface which allows easy integration with Motorola processors.

NOTE: *1 Covered by U.S. Patent #5,649,122.*

FEATURES

- Pin-to-pin compatible with XR16L580 in 32-QFN and 48-TQFP packages
- Intel or Motorola Bus Interface select
- 16Mbps maximum data rate
- Selectable TX/RX trigger levels
- TX/RX FIFO Level Counters
- Independent TX/RX Baud Rate Generator
- Fractional Baud Rate Generator
- Auto RTS/CTS Hardware Flow Control
- Auto XON/XOFF Software Flow Control
- Auto RS-485 Half-Duplex Direction Control
- Multidrop mode w/ Auto Address Detect
- Sleep Mode with automatic wake-up
- Power Save mode
- Infrared (IrDA 1.0 and 1.1) mode
- 1.62V to 3.63V supply operation
- Crystal oscillator or external clock input

APPLICATIONS

- Personal Digital Assistants (PDA)
- Cellular Phones/Data Devices
- Battery-Operated Devices
- Global Positioning System (GPS)
- Bluetooth

FIGURE 1. XR16M580 BLOCK DIAGRAM