1.62V to 3.63V High Performance UART with 16/32/64-Byte FIFO XR16M570/670/770

Industry-First Smallest and Fastest Single-Channel
Universal Asynchronous Receiver Transmitter (UART) Series

The XR16M570[1] (M570), XR16M670[1] (M670) and XR16M770[1] (M770) are part of the enhanced Universal Asynchronous Receiver and Transmitter (UART) family with 16, 32 and 64 bytes of transmit and receive FIFOs. These devices have selectable (M570 and M670) or programmable (M770) transmit and receive FIFO trigger levels, and automatic hardware and software flow control. With data rates of up to 16 Mbps at 3.3V, 12.5 Mbps at 2.5V and 7.5 Mbps at 1.8V with 4X data sampling rate, the M570, M670 and M770 are the industry's fastest single-channel UARTs.

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 M570, M670 and M770 can be minimized by enabling the sleep mode and PowerSave mode.

The M570, M670 and M770 have 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 M570, M670 and M770 are available in 24-pin QFN, 32-pin QFN and 25-pin BGA packages. The 25-pin BGA (2x3x0.8mm) is the industry's smallest single-channel UART. All three packages offer the 16 mode (Intel bus) interface only.

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

Major Features

- 25-pin BGA (3x3x0.8mm)
- 16 Mbps Maximum Data Rate
- Independent TX/RX Baud Rate Generator
- Fractional Baud Rate Generator
- Auto RS-485 Half-Duplex Direction Control
- Multidrop Mode w/Auto Address Detect

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Features

- Pin-to-pin compatible with XR16L570 in 24-QFN and 32-QFN packages
- Intel data bus Interface
- Selectable TX/RX FIFO Trigger Levels
- TX/RX FIFO Level Counters
- Auto RTS/CTS Hardware Flow Control
- Auto XON/XOFF Software Flow Control
- Sleep Mode with Automatic Wake-up
- PowerSave mode in 24-pin QFN package
- Infrared (IrDA 1.0 and 1.1) mode
- 1.62V to 3.63V supply operation
- Crystal oscillator or external clock input

Ordering Information

Product No.	Package	Operating Temp. Range
XR16M570IL24	24-Pin QFN	-40°C to +85°C
XR16M570IL32	32-Pin QFN	-40°C to +85°C
XR16M570IB25	25-Pin BGA	-40°C to +85°C
XR16M670IL24	24-Pin QFN	-40°C to +85°C
XR16M670IL32	32-Pin QFN	-40°C to +85°C
XR16M670IB25	25-Pin BGA	-40°C to +85°C
XR16M770IL24	24-Pin QFN	-40°C to +85°C
XR16M770IL32	32-Pin QFN	-40°C to +85°C
XR16M770IB25	25-Pin BGA	-40°C to +85°C

Applications

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

XR16M770 Block Diagram