XR16V2550/2551/2552
High Performance *DUART with 16-Byte FIFO*

Ideal for High Speed Data Transmission

T he XR16V2550/XR16V2551/XR16V2552 (XR16V255x) product family consists of two high performance universal asynchronous receiver-transmitter (UART) with 16 byte transmit and receive FIFOs. Each UART is compatible to the industry standard 16550 UART, but with enhanced features such selectable TX and RX FIFO trigger levels, automatic hardware (RTS/CTS) flow control, automatic software (XON/XOFF) flow control, sleep mode, and a fractional baud rate generator.

In addition, the XR16V2551 has two additional features: Intel/Motorola bus select and PowerSave mode. The XR16V2551 can operate in either the Intel bus mode (CS#, IOR#, IOW#) or the Motorola bus mode (CS#, R/W#). The XR16V2550 and XR16V2552 can operate only in the Intel bus mode. When the XR16V2551 is in the sleep mode, the PowerSave mode can further reduce the power consumption by isolating the address, data and control lines from the CPU.

The fractional baud rate generator is a new feature that provides more flexibility on the selection of a clock or crystal frequency. Traditionally, the baud rate generator allowed divisors of 1 to 2^{16} in increments of 1. By being limited to whole numbers, there were only specific clock or crystal frequencies that could be used depending on what baud rate (or data rate) each channel is operating at. With the new fractional baud rate generator, divisors can be from 1 to (2^{16} - 0.0625) in increments of 0.0625 (or 1/16). The fractional divisor allows the use of non-standard clock frequency to be used to generate standard baud rates and the use of standard clock frequency to generate non-standard baud rates.

All devices operate from 2.25 to 3.63 volts with 5 Volt tolerant inputs. Each channel of the XR16V255x is capable of data rates up to 16 Mbps at 3.3V with a 4X sampling clock. The XR16V255x is pin and software compatible with previous generation ST16C255x and XR16L255x UART families. The XR16V2550 and XR16V2551 are available in 48-pin TQFP and 32-pin QFN packages. The XR16V2552 is available in 44-pin PLCC and 32-pin QFN packages.


Major Features

- **2.25 to 3.63 Volt Operation**

- **5 Volt Tolerant Inputs**

- **Two independent UART channels**

- **Register set compatible to XR16L2550**

- **Data rate of up to 16 Mbps at 3.3V, and 12.5 Mbps at 2.5 V with 4X sampling rate**

- **Fractional Baud Rate Generator**

- **Transmit and Receive FIFOs of 16 bytes**

- **Programmable TX and RX FIFO Trigger Levels**

EXAR

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XR16V2551 Block Diagram
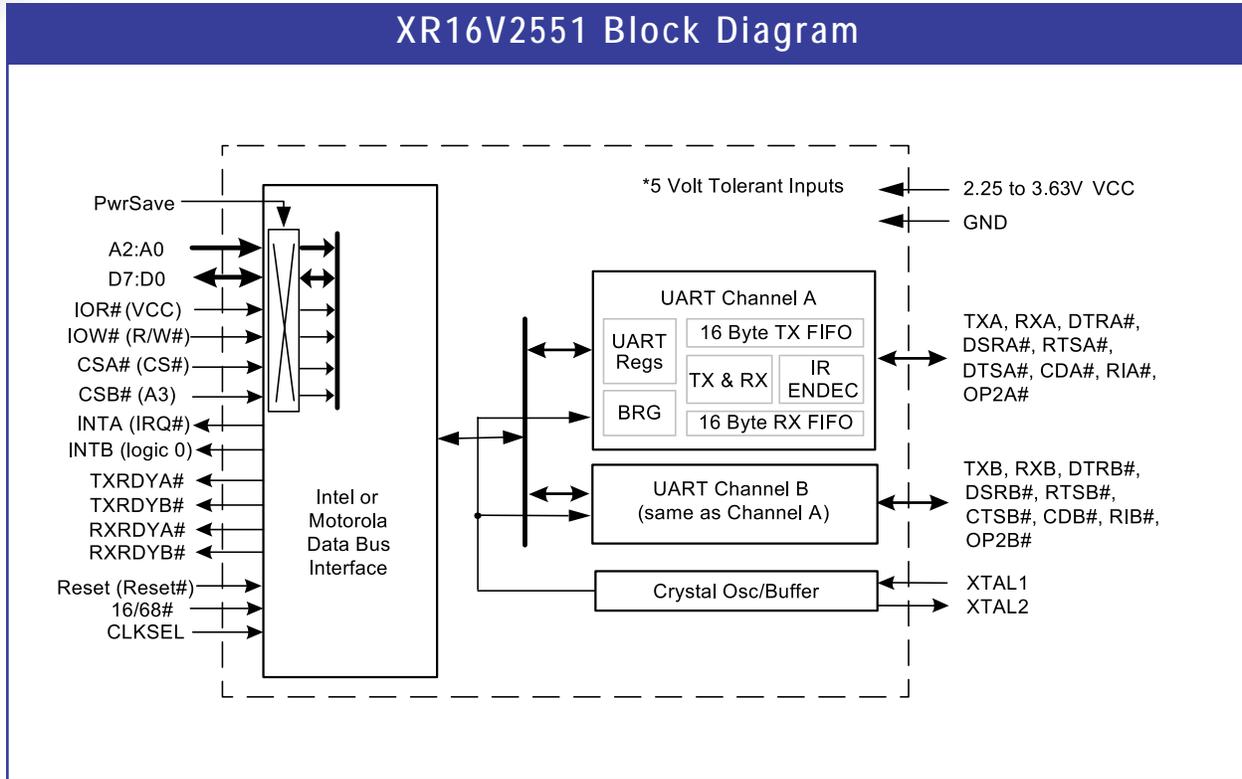
Features

- Automatic Hardware (RTS/CTS) Flow Control
- Automatic Software (Xon/Xoff) Flow Control
- Wireless Infrared (IrDA 1.0)
- Encoder/Decoder
- Automatic sleep mode
- Full modem interface
- Device Identification and Revision
- Crystal oscillator or external clock input
- 48-TQFP, 32-QFN and 44-PLCC packages

Applications

- Portable Appliances
- Telecommunication Network Routers
- Ethernet Network Routers
- Cellular Data Devices
- Factory Automation and Process Controls

Ordering Information

Product No.	Package	Operating Temp. Range
XR16V2550IL	32-QFN	-40°C to +85°C
XR16V2550IM	48-TQFP	-40°C to +85°C
XR16V2551IL	32-QFN	-40°C to +85°C
XR16V2551IM	48-TQFP	-40°C to +85°C
XR16V2552IL	32-QFN	-40°C to +85°C
XR16V2552IJ	44-PLCC	-40°C to +85°C