Single-channel UART's operating voltage drops to 1.8-V

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Fremont, Calif.— Aimed at portable and mobile applications, Exar Corp. has developed a 1.8-V single-channel UART in 24- and 32-pin QFN packages.

The XR16L570, 1.8-V UART consumes less power than the company's previous-generation device, the XR16L580, which has an operating voltage of 2.5V. Both are offered in what the company claims are the smallest UART packages: a 32-pin QFN, measuring 5-mm x 5-mm, and a 24-QFN, with a 4-mm X 4-mm dimension.

Low-voltage is a key attribute for portable and mobile applications due to lower power consumption and longer battery life requirements in many consumer applications. According to executives at Exar, features such as sleep mode with PowerSave and 5-V tolerant inputs have increasingly become important.

"Designers and consumers both can benefit from the XR16L570's low voltage and small package options," said Eric Nguyen, senior strategic marketing manager, Interface Products Division. "Consumer portable devices leveraging leading application such as Bluetooth and global positioning capabilities will see immediate extended battery life and portability benefits from the XR16L570's low voltage and small form factor advantages."

Nguyen added that manufacturers will no longer need to stockpile UARTs with different supply voltages, and make the tradeoff between feature integration and the product's battery life.

The sleep and PowerSave modes are designed to increase battery operating time. The sleep mode shuts off the oscillator circuitry to minimize power consumption. The PowerSave mode isolates the data lines from the CPU data bus to further reduce power consumption.

The PowerSave mode reduces the power consumption during sleep mode to less than 5-uA at 1.8-V over the industrial temperature range of -40°C to +85°C. It also has the industry standard 16C550 register set along with enhanced features that support Intel's 8-bit data bus interface. The XR16L570 internal registers are compatible with Exar's XR16L580 2.5-V UART.

The XR16L570's 5-V tolerant inputs allow the UART to operate at a lower voltage and still be able to interface with other devices that may be operating up to 5-V. This feature also contributes to the lower power consumption.

The XR16L570 integrates an IrDA encoder/decoder, allowing direct wireless data transaction in products such as remote

controls and handheld devices. It is software compatible to industry standard 16C450, 16C550, ST16C580, ST16C650A, XR16C850 and XR16L580 UARTs; therefore, it will work with any standard serial port driver available in Windows or Linux.

It has 16 bytes of TX and RX FIFOs with selectable trigger levels to increase serial data throughput and reduce the CPU bandwidth requirement. The XR16L570 is capable of operating with a serial data rate of up to 4-Mbits/s at 5-V, 3-Mbits/s at 3.3-V, 1-Mbits/s at 2.5-V, and 750-Kbits/s at 1.8-V.

In addition to 16-bytes of TX and RX FIFOs, the XR16L570 also has automatic RTS/CTS hardware flow control, automatic Xon/Xoff and special character software flow control. It also has programmable baud rate generator with a prescaler of divide by 1 or 4, and is fabricated using an advanced CMOS process.

The device comes in two versions. The XR16L570IL24 is packaged in a 24-pin QFN and the XR16L570IL32, in a 32-pin QFN. In 1,000-unit quantities, the device costs $1.64 each.

For more information, see the datasheet: www.exar.com/products/16l570-100-120605.pdf

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