

NXP single- and dual-channel 1.8 V UARTs SC16C85x

High-speed, low voltage, 128-byte FIFO 16C UARTs for portable applications

Operating at up to 5 Mbps with supply voltages of 1.8 V, these UARTs reduce CPU overhead, minimize power consumption, support wireless data links, and save board space.

Key features

- ▶ Single- and dual-channel UARTs
- ▶ Multiple processor interfaces: Intel/Motorola and Marvell PXA32x VLIO
- ▶ 128-byte Tx/Rx FIFOs with programmable trigger levels
- ▶ Independent Tx and Rx enable/disable
- ▶ Low-voltage 1.8-V supplies
- ▶ Up to 5 Mbps baud rates
- ▶ Enhanced sleep mode and low-power feature
- ▶ Supports IrDA version 1.0 (up to 115.2 Kbps)
- ▶ Standard modem-control functions (-CTS, -RTS, -DSR, -DTR, -RI, -CD)
- ▶ UART software reset
- ▶ Dual UART channels concurrent write (SC16C852x only)
- ▶ High-resolution fractional clock prescaler for use with non-standard UART clock
- ▶ Automatic RS-485 address detection and driver turn-around

- ▶ Industrial temperature range at commercial pricing (-40 to +85 °C)
- ▶ Ultra-small, Pb-free, RoHS-compliant packaging (HVQFN, TFBGA, LQFP)

Benefits

- ▶ Lower CPU overhead and fewer interrupts
- ▶ Glueless interface to a variety of processors
- ▶ Longer battery life with enhanced sleep mode and low power feature
- ▶ Reduced software overhead via automatic RS-485 features
- ▶ Fewer external components (no external crystal needed)
- ▶ Greater system optimization with large on-chip FIFOs
- ▶ Very high data rate and throughput

Applications

- ▶ Smartphones and other mobile phones
- ▶ PDAs and MP3 players

- ▶ Bluetooth® 1.2 and 2.0+EDR interfaces
- ▶ Computing and point-of-sale (POS)
- ▶ Automotive and navigation systems
- ▶ Medical equipment, networking and telecommunications
- ▶ Gaming systems, HDTV, and LCD TV
- ▶ Wireless infrared data links, RS-232 and RS-485 (multi-drop)

The SC16C85x family is a series of high-performance, single- and dual-channel UARTs for handheld, battery-operated, and other applications. The family is especially well suited to smartphone and Bluetooth (1.2 and 2.0+EDR) applications.

Each UART in the family has a large, 128-byte FIFO, offers a baud rate of up to 5 Mbps, and very low power consumption. Each is available in a small-footprint package.



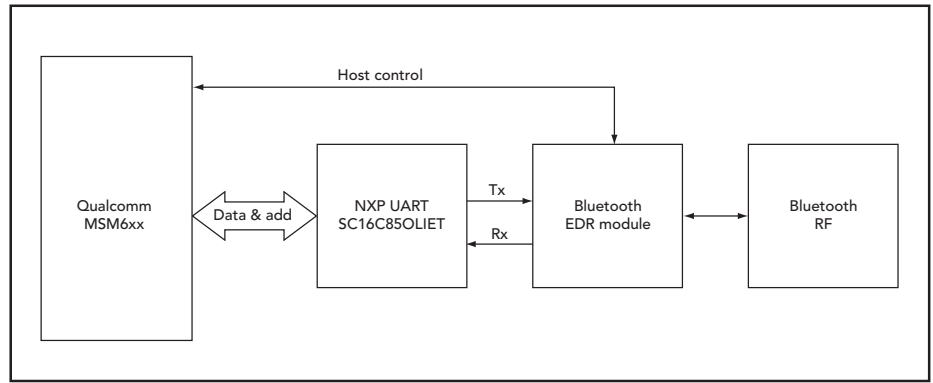
The SC16C85x architecture includes a UART software reset and a high-resolution clock prescaler (from 0 to 15, with a granularity of 1/16), that works with a non-standard UART system clock.

There are 128 programmable interrupt trigger levels and 128 FIFO reporting levels for receive and transmit. The enable/disable functions for transmit and receive operate independently. To support battery-operated applications, a low-power mode reduces power-down current.

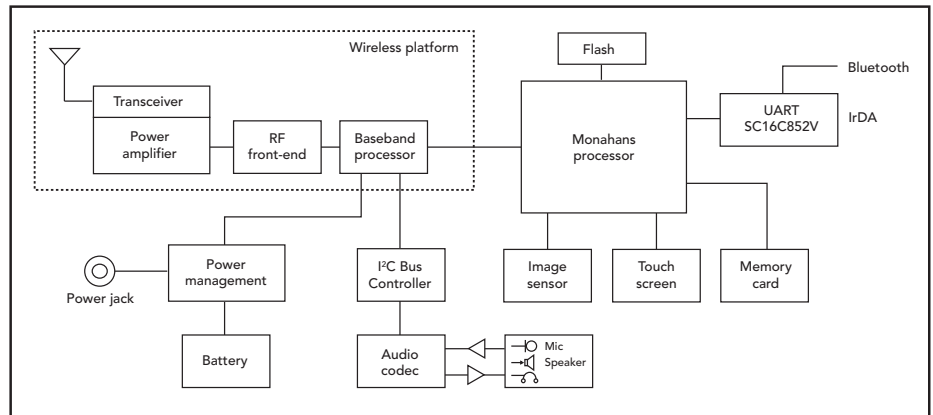
The automatic RS-485 function operates in 9-bit or multi-drop mode, offers address detection with programmable addresses, and supports driver turn-around with programmable time delay. The software (XON/XOFF) and hardware (RTS/CTS or DTR/DSR) flow controls are also automatic.

The architecture supports dual-channel concurrent write that allows the host to write simultaneously to the same register of all UART channels. The IrDA coder/encoder is compatible with infrared IrDA version 1.0 (up to 115.2 Kbps).

For more information, please visit www.nxp.com/interface. Please send technical questions to interface.support@nxp.com.



Bluetooth cell phone enabled by the SC16C850LIET



Smartphone application with SC16C852VIET

Selection guide

Part number	Part description	Package type	Dimensions (mm)
UART with parallel bus interface			
SC16C850LIET	1.8-V, 5-Mbps, low-power, single-channel UART with Intel interface	TFBGA36	3.5 x 3.5 x 0.8
SC16C850LIBS	1.8-V, 5-Mbps, low-power, single-channel UART with Intel/Motorola interface	HVQFN32	5.0 x 5.0 x 0.85
SC16C852LIBS	1.8-V, 5-Mbps, low-power, dual-channel UART with Intel/Motorola interface	HVQFN32	5.0 x 5.0 x 0.85
SC16C852LIB48	1.8-V, 5-Mbps, low-power, dual-channel UART with Intel/Motorola interface	LQFP48	7.0 x 7.0 x 1.4
UART with VLIO bus interface			
SC16C852VIET	1.8-V, 5-Mbps, low-power, dual-channel UART with Intel VLIO interface	TFBGA36	3.5 x 3.5 x 0.8
SC16C852VIBS	1.8-V, 5-Mbps, low-power, dual-channel UART with Intel VLIO interface	HVQFN48	6.0 x 6.0 x 0.85
SC16C850VIBS	1.8-V, 5-Mbps, low-power, single-channel UART with Intel VLIO interface	HVQFN32	5.0 x 5.0 x 0.85