

PI7C9X1172/762

I2C-bus/SPI to UART Bridge Controller w/ 64 bytes of TX/RX FIFOs

The PI7C9X1172/762 is a I2C-bus/SPI to a dual-channel high performance UART bridge controller. It offers data rates up to 20 Mbps and guarantees low operating and sleeping current. The PI7C9X1172/762 also has up to 8 additional programmable general purpose I/O [GPIO] pins. The device comes in both very small TSSOP28 and TQFN32 packages, which makes it ideally suitable for cost efficient, handheld, battery operated applications. These UARTs provide a bridge for protocol conversion from I2C -bus or SPI to and RS-232/RS-485 and are fully bidirectional.

The PI7C9X1172/762 supports SPI clock speeds up to 20 Mbps and IrDA SIR up to 1.152 Mbit/s.

PI7C9X1172/762's internal register set is backward-compatible with the widely used and widely popular 16C450 UART. The PI7C9X1172/762 also provides additional advanced features such as auto hardware and software flow control, automatic RS-485 support, support for fractional baud rates and software reset. This allows the software to reset the UART at any moment, independent of the hardware reset signal.

Application Diagram



Features

- ➔ Dual channel full-duplex UART
- ➔ Support I2C-bus or SPI interface
- ➔ 64 bytes FIFO (transmitter and receiver)
- ➔ Fully compatible with industrial standard 16C450 and equivalent
- ➔ Baud Rates up to 16Mbit/s in 4X sampling clock rate
- ➔ Programmable character formatting
- ➔ 5-bit, 6-bit, 7-bit or 8-bit character
- ➔ Even, odd, or no parity
- ➔ 1, 1.5, or 2 stop bits
- ➔ Programmable Receive and Transmit FIFO trigger levels
- ➔ Special character detection
- ➔ Internal Loopback mode
- ➔ Line break generation and detection
- ➔ Flow control
- ➔ Support hardware flow control using RTS/CTS
- ➔ Support software flow control with programmable Xon/Xoff characters
- ➔ Programmable single or double Xon/Xoff characters

Interface control

- ➔ Automatic RS-485 slave address detection
- ➔ RS-485 driver direction control via RTS signal
- ➔ RS-485 driver direction control inversion
- ➔ Built-in IrDA encoder and decoder interface
- ➔ Supports IrDA SIR with speeds up to 115.2 kbit/s (optional 1.152Mbps)
- ➔ Up to eight user programmable GPIO pins
- ➔ Software reset

Others

- ➔ Low standby current at 3.3 V
- ➔ Wide operation voltage (1.8V, 2.5V or 3.3V)
- ➔ Commercial temperature ranges
- ➔ Available in TSSOP28 and TQFN32 Packages
- ➔ I2C interface
- ➔ Compliant with I2C-bus fast speed
- ➔ Support slave mode only
- ➔ Crystal oscillator (up to 24MHz) or external clock (up to 64MHz) input