

- Software Compatible with TL16C550C UART
- IEEE 1284 Bidirectional Parallel Data port
 - Compatible with Standard Centronics Parallel Interface
 - Support for Parallel Protocols ECP and EPP
 - Data Path 16-Byte FIFO Buffer
 - Direct Memory Access (DMA) Transfer
 - Decompression of Run Length Encoded Data in ECP Reverse Mode
 - Direct Connection to Printer, No External Transceiver is Needed
- Serial Ports Have IrDA Inputs and Outputs
 - 1200 bit/s to 115.2 kbit/s Data Rate
- 16-Byte FIFOs Reduce CPU Interrupts
- 12 mA Drive Current for All 1284 Control Pins and Parallel Port Data Pins
- Programmable Auto-RTS and Auto-CTS
- Capable of Running With All Existing TL16C452 Software
- After Reset, All Registers Are Identical to the TL16C450 Register Set
- Up to 16-MHz Clock Rate for Up to 1-Mbaud Operation
- Programmable Baud Rate Generator Allows Division of Any Input Reference Clock by 1 to $(2^{16} - 1)$ and Generates an Internal $16 \times$ Clock
- Independent Receiver Clock Input
- Independent Control of Transmit, Receive, Line Status, and Data Set Interrupts on Each Channel
- Modem Control Functions (CTS, RTS, DSR, DTR, RI, and DCD)
- Available in 80-Pin PQFP

description

Functionally equivalent to the TL16C450 on power up (character or TL16C450 mode), the TL16PIR552 can also be placed in FIFO mode. This relieves the CPU of excessive software overhead by buffering received and transmitted characters. The receiver and transmitter FIFOs store up to 16 bytes including three additional bits of error status per byte for the receiver FIFO. In the FIFO mode, there is a selectable autoflow control feature that can significantly reduce software overload and increase system efficiency by automatically controlling serial data flow using RTS output and CTS input signals.

The TL16PIR552 is similar to the TL16C552A dual-channel UART. The device serves two serial I/O ports simultaneously in a microcomputer or microprocessor-based system. Each channel performs serial-to-parallel conversion on data characters received from peripheral devices or modems and parallel-to-serial conversion on data characters transmitted by the CPU. The complete status of each channel of the dual-channel UART can be read at any time during functional operation by the CPU. The information obtained includes the type and condition of the transfer operation being performed and the error condition.

The serial ports also have a dedicated Infrared Data Association (IrDA) serial data input (IRSINO/1) and the serial data outputs multiplex between RS-232 type serial output or IrDA serial data output. This is selected through an internal register bit and uses the same SOUT0 and SOUT1 output pins. The same UART circuit is used for the data path for the IrDA or the RS232 case.

In addition to the dual communication capabilities, the TL16PIR552 provides the user with an IEEE 1284 host-side-compatible bidirectional parallel data port. The parallel port operates in compatible mode, nibble mode, byte mode, extended capability port (ECP) mode (with RLE data decompression), or enhanced parallel port (EPP) mode. The default mode of operation is compatible with the Centronics-type printer port interface. The parallel port and the two serial ports provide IBM PC/AT™-compatible computers with a single device to serve a 3-system port. The TL16PIR552 has one IBM PC/XT™ compatible parallel port which includes a PS/2™-type bidirectional parallel port (SSP), that is supported by EPP and ECP protocols.

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PRODUCT PREVIEW

TL16PIR552
DUAL UART WITH DUAL IrDA
AND 1284 PARALLEL PORT

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description (continued)

The TL16PIR552 includes a programmable baud rate generator capable of dividing a reference clock by divisors from 1 to $(2^{16}-1)$ and producing a $16\times$ reference clock for the internal transmitter logic. Provisions are also included to use this $16\times$ clock for the receiver logic. The UART accommodates a 1-Mbaud serial rate (16-MHz input clock) so that a bit time is $1\ \mu\text{s}$ and a typical character time consisting of a start bit, 8 data bits, and a stop bit is $10\ \mu\text{s}$.

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