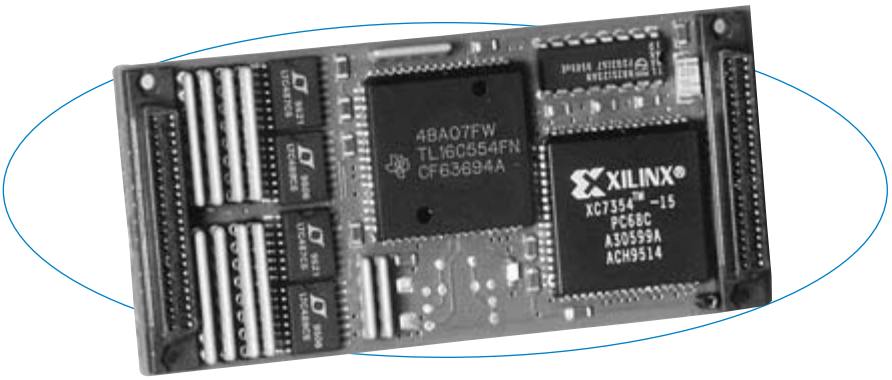
IP501-x Serial 422/485 Communication



Large, 128-byte FIFO buffers reduce the processing burden on the CPU to increase the overall system performance.

These modules provide an asynchronous serial communication interface for your system. They have four asynchronous, full-duplex RS422B serial ports. Since the transceivers are compatible with the RS485 standard, you can also use a full-duplex RS485 interface for multiple driver support. However, for true half-duplex RS485 operation, use the IP502.

Software-configuration quickly sets the baud rate, character-size, stop bits, and parity.

For more efficient data processing, each serial port is equipped with 16, 64 or 128-character FIFO buffers on the transmit and receive lines.

Features

- Four asynchronous, full-duplex RS422B serial ports (full-duplex RS485)
- 16, 64, or 128-byte FIFO buffers
- Programmable baud rate (up to 512Kbps) (Consult factory for custom rates up to 1Mbps)
- Individually controlled interrupts (unique vectors for each port)
- Handshake control signals (RTS, CTS) for each channel
- Extended temperature option (-40 to 85°C)
- Industry-standard 16C550 family UART includes software-compatible 16C450 mode

Benefits

- Failsafe receivers guarantee a high output state when the inputs are left open or floating.
- Internal diagnostics help detect faults.
- FIFO buffers minimize CPU interaction for improved system performance.

Specifications

RS422B Serial Ports

Configuration: Four independent, non-isolated RS422B serial ports with a common single return connection.

Data rate: Programmable up to 512K bits/second using internal baud rate generator. Consult factory for custom baud rates up to 1M baud.

Interface: Asynchronous serial only.

Character size: 5 to 8 bits, software-programmable.

Parity: Odd, even, or no parity; software-programmable.

Stop bits: 1, 1-1/2, or 2 bits; software-programmable.

Interrupts: Receiver line status (overrun error, parity error, framing error, or break interrupt); received data available (FIFO level reached) or character time-out; transmitter holding register empty; or modem status (CTS). Multiple ports share the IntReq0 line according to a shifting priority scheme based on the last interrupting port serviced.

UART

IP501-16: Texas Inst. TL16C554FN or equivalent.

IP501-64: Startech ST16C654CJ68.

IP501-128: Exar/Startech XR16C854

IP Compliance (ANSI/VITA 4)

Meets IP specifications per ANSI/VITA 4-1995.

IP data transfer cycle types supported:
Input/output (IOSel*), ID read (IDSel*).

Access times (8MHz clock):
ID PROM read: 1 wait state (375nS cycle).
Channel register read/write: 2 wait states (500nS cycle).
Interrupt select read: 2 wait states.

Environmental

Operating temperature: 0 to 70°C (IP501-16/64/128) or -40 to 85°C (IP501-16E/128E).

Storage temperature: -40 to 125°C (all models).

Relative humidity: 5 to 95% non-condensing.

Power: +5V (±5%): 650mA maximum.
±12V (±5%) from P1: 0mA (not used).

MTBF: Consult factory.

Ordering Information

Industry Pack Modules

IP501-16
Four serial ports with 16-byte FIFOs.

IP501-16E
Same as IP501-16 plus extended temperature range

IP501-64
Four serial ports with 64-byte FIFOs

IP501-128
Four serial ports with 128-byte FIFOs

IP501-128E
Same as IP501-128 plus extended temperature range

For Industry Pack Carrier Cards, see Page 5.

Customized Industry Pack Modules

†4861-x
Modified IP501-16 with user specified crystal/baud rate.

†4988-x
Modified IP501-64 with user specified crystal/baud rate.

†5024-x
Modified IP501-128 with user specified crystal/baud rate.

† Specify x = crystal frequency when ordering. Minimum quantity per order is two units.

For Industry Pack Carrier Cards, see Page 5.

Software *(see Page 81)*

IPSW-API-VXW
VxWorks® software support package

IPSW-API-QNX
QNX® software support package

IPSW-ATX-PCI
ActiveX®/OLE Controls 2.0 software package

For accessories information, see Page 87.