

## FEATURES

- Data modem line speeds of 33600 bps (MCM-33.6M) or 14400 bps (MCM-14.4M)
  - V.32 bis, V.32, V.22bis, V.22A/B, V.23 & V.21
  - Bell 212A and Bell 103
  - V.34 and V.FC (LPM/MCM-33.6M only)
- ECC support
  - V.42 LAPM and MNP 2 - 4 error correction
  - V.42bis and MNP 5 data compression
  - MNP 10 data throughput enhancement
- MNP 10EC™ support
- Communication software compatible with AT Command Sets
- FAX modem send and receive rates up to 14.4kbps
  - V.33, V.17, V.29, V.27ter and V.21 channel 2
- NVRAM directory and stored profiles
- Auto answer/auto dial; tone and pulse dialing
- FCC Part 68 Registered onboard DAA
- Parallel interface mapped as COM1, 2, 3 or 4
- Small size: 4.5" x 6.5"
- Available for CMOS STD Bus
- +5 volt only operation

WinSystems' STD Bus FAX/Modem cards are designed to directly connect to dial-up telephone lines. They support data rates up to 33600 bps with effective data modem throughput up to 115200 bps with MNP error correction and compression. The modem supports Fax Group 3 Send and Receive rates up to 14400 bps and supports T.30 protocol.

The modems are fully compatible with the industry standard AT Command Set, providing access to a vast range of existing PC communication software. These boards offer a direct migration path for higher performance and lower costs from WinSystems' MCM-2401/2496/ 9696/1414 Fax/Modem boards.

## FUNCTIONAL CAPABILITY

**STD Bus Interface** - The LPM-14.4M and LPM-33.6M has the CMOS STD Bus interface and the MCM-14.4M and MCM-33.6M has the STD Bus interface for this card. The LPM/MCM prefix is used in this data sheet when the card has the same features and functionality.

The FAX/Modem cards have a STD Bus I/O port mapped interface. A total of 8 contiguous I/O addresses are required in the I/O map. It can be jumper selected to the locations of COM1 through COM4.



The Fax/Modem interface is a 16C550A compatible UART with a 16 byte Tx/Rx FIFO. It provides the parallel to serial interface between the bus and modem section. It will work with 7- or 8-bit characters and will handle 1 or 2 stop bits, even, odd or no parity, false start bit detection and automatic break detection.

**Data/Fax Modes** - In data modem modes, the modem can operate in 2-wire, full duplex, asynchronous modes at line rates up to 33600 (LPM/MCM-33.6M) or 14400 bps (LPM/MCM-14.4M). Data modem modes perform complete handshake and data rate negotiations. All tone and pattern detection functions required by the applicable ITU or Bell standard are supported. For LPM/MCM-33.6M, using V.34 modulation to optimize modem configuration for line conditions, the modem can connect at the highest data rate that the channel can support from 33600 to 300 bps with automatic fall-back.

In Fax modem modes, the LPM/MCM-33.6M/14.4M boards fully support Group 3 facsimile send and receive speeds of 14400, 12000, 9600, 7200, 4800, and 2400 bps. Fax modem modes support Group 3 Fax requirements. Fax data transmission and reception performed by the modem is controlled and monitored through the fax EIA-578 Class 1 command interface. Full HDLC formatting, zero insertion/deletion, and CRC generation/checking is provided.

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**Enhanced Cellular Connection** - The MNP 10EC protocol layer is implemented in the modem firmware which improves data error identification/correction and maximizes data throughput by dynamically adjusting speed and packet size based on signal quality and data error performance. The LPM/MCM-33.6M/14.4 does not have a direct cellular hardware interface circuit.

**Interrupts** - Interrupts can be individually enabled by software for any or all of the following conditions: Received Data Available, Transmitter Holding Register Empty, Receiver Line Status and Modem Status. An interrupt request can be jumper selected to one of the four STD Bus backplane INTRQ lines or over the front plane of the board.

**Telephone Line Interface** - The connection to the phone line is through a RJ-11C jack. An onboard FCC Part 68 registered DAA provides the required isolation and protection for connection to dial-up lines.

**Non-volatile RAM** - A 256 x 8 NVRAM is on the board which allows storage of two user configurations and four 35-digit speed-dial strings.

**Auto Dialing** - Both pulse and tone dialing are supported. DTMF dialing using DTMF tone pairs is supported in accordance with ITU-T Q.23. Pulse dialing is supported in accordance with EIA/TIA-496-A.

**Auto Answer** - When an incoming ring is detected, the board goes Off-Hook and returns an answer tone to the remote caller. If a carrier is not detected, it terminates the call and goes On-Hook.

**Software** - The LPM/MCM-33.6M/14.4M supports the enhanced "AT" Command Set and is compatible with many PC communications software packages.

**Self Test** - The board provides analog loopback, digital loopback, and remote digital loopback functions for testing purposes.

## **SPECIFICATIONS**

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### **Electrical**

STD Bus or CMOS STD Bus compatible  
I/O Addressing: 10-bit  
Power = +5VDC +5% @ 250 mA

### **Mechanical**

STD Bus mechanical dimensions: 4.5" x 6.5"

### **Connectors**

Telephone: RJ-11C  
Frontplane interrupt: 10-pin on 0.100 inch grid  
Jumpers: 0.025" square posts

### **Environmental**

Operating Temperature: 0 to +60°C

## **ORDERING INFORMATION**

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MCM-33.6M 33600 bps STD Bus Fax/Modem  
LPM-33.6M CMOS STD Bus Fax/Modem  
MCM-14.4M 14400 bps STD Bus Fax/Modem  
LPM-14.4M CMOS STD Bus Fax/Modem



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