EMERALD-MM-8PL-XT PC/104 Octal Serial Port Module

Emerald-MM-8P offers 8 multi-protocol serial ports on a single PC/104 module with complete software configurability via the operating system. Each port can be individually selected for RS-232, RS-422, or RS-485 under software control. Both local-echo and non-local-echo modes are supported for RS-485. I/O addresses and interrupt levels are also programmable, with interrupt sharing available for any number of ports. Each port may further be enabled or disabled in software. All configuration data is stored in an on-board EEPROM that is loaded automatically on power-up.
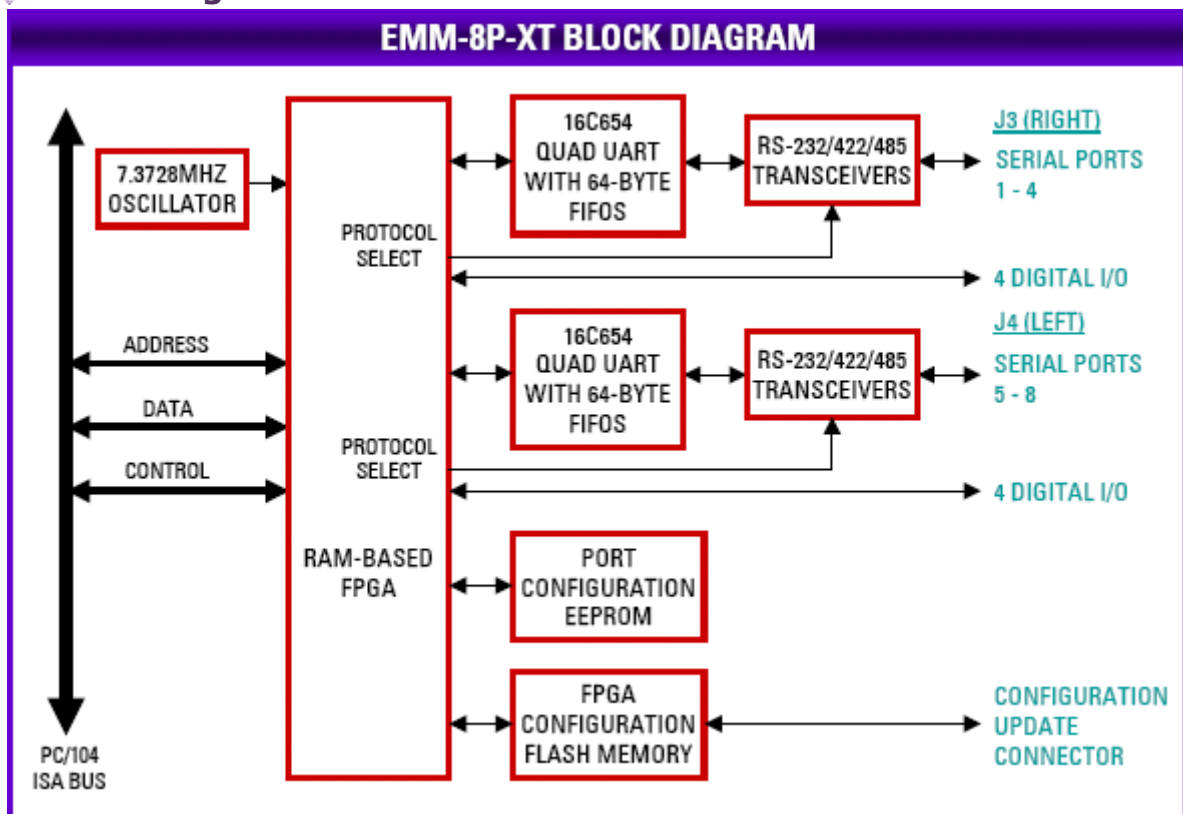
For applications where fixed addresses are desired, four groups of preset addresses are available with jumper settings that override the programmed settings. Line termination for RS-422/485 modes is also jumper-selectable.

Emerald-MM-8P offers 8 convenient digital I/O lines. The direction of each line is independently programmable. Diamond's Universal Driver software provides software support for these digital I/O lines.

Two I/O headers are provided, with four serial ports and four digital I/O lines on each header. The board operates on +5V only, eliminating the need for a +12V supply that is often required for serial port operation.

Emerald-MM-8P is based on the industry-standard 16C654 quad serial port IC. Two ICs provide a total of 8 serial ports. Each port contains 64-byte transmit and receive FIFOs to support the high-speed 460.8kbps data rates. Drivers are available for a wide range of operating systems including Windows 10 and Linux.

◆ Block Diagram

Serial Ports

Number of serial ports	8
Protocols	RS-232, RS-422, RS-485 (local and no echo)
Configuration	All features software configurable
Maximum baud rate	460.8kbps
Communications parameters	5, 6, 7, or 8 data bits; Even, odd, or no parity
Short circuit protection	Continuous, all outputs

RS-232 mode

Input Impedance	3KΩ min
Input voltage swing	±30V maximum
Output voltage swing	±5V min, ±7V typical

RS-422/RS-485 modes:

Differential input threshold	-0.2V min, +0.2V max
Input impedance	12KΩ minimum
Input current	+1.0mA max (Vin = 12V) -0.8mA max (Vin = -7V)
Differential output voltage	2.0V min (RL=50Ω)
High/low states differentia output voltage symmetry	0.2V max

Digital I/O

Number of I/O lines	8 in, 8 out
Input voltage	Low: -0.3V min, 0.8V max
Output voltage	Low: 0.0V min, 0.4V max (IOL = 6mA max)

General

I/O header	2 40-position (2x10) .025" square pin header on .1" centers; Headers mate with standard ribbon cable (IDC) connectors
Dimensions	3.55" x 3.775"
Power supply	+5VDC ±10%
Current consumption	160mA typical, all outputs unloaded
Operating temperature	-40°C to +85°C standard, all versions
MTBF	EMM-8P-XT: 490,502 hours
RoHS	Compliant