

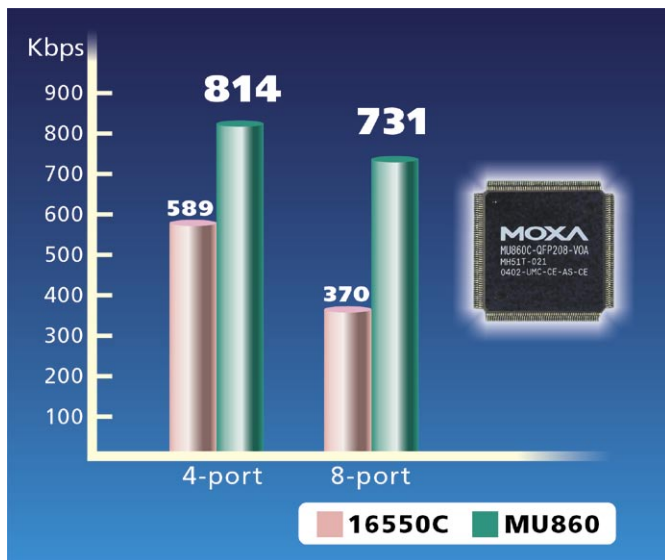
Extreme Serial Performance Technology

The new Moxa Turbo Serial Engine™ is a specially designed semiconductor chip that makes Moxa's second generation of Smart Multiport Serial Boards the top performing boards in their class.

The stamp-sized MU860 Turbo Serial Engine™, which draws on Moxa's 17-plus years of experience in serial board design, combines a high-performance UART with Burst Data Mode, on-chip hardware/software flow control and PCI bridge, and on-chip ADDC™ for RS-485 communication. These special features



push serial communication throughput to over 700 Kbps per port, making MU860 the most powerful UART chip in the world.



The MU860 Turbo Serial Engine™ makes Moxa's second generation of Smart Multiport Serial Boards into top performing, cost-effective products. Turbo Serial Engine™ will play an important role in providing customers around the world with high-performance, high-value serial communications solutions.

Features

- 8-port UART with 128-byte FIFO and Burst Data Mode
- On-chip hardware, software flow control and ADDC™ (Automatic Data Direction Control)
- 3.3V/5V PCI Ver. 2.2 controller
- On-chip RS-422, 2-wire RS-485, 4-wire RS-485 control circuit

RS-485 ADDC™ (Automatic Data Direction Control) Design

What Is Direction Control?

RS-485 is often used to create a simple network that includes two or more nodes. If more than 2 nodes transmit at the same time, data from

different transmissions could collide. For this reason, RS-485 devices need to control the direction that data is transmitted.

Data Direction Control Methods

	By RTS	Moxa's ADDC	Other Companies' Auto Solutions
Technology	Software (Control the RTS to switch direction)	Hardware (Auto)	Hardware (Auto)
System Complexity*	Low	Low	High
Reaction time**	Slow	Fast	Fast
Board application	Yes	Yes	Yes
Converter Application	Yes	Yes	No

* System complexity refers to the components that make up the product board.

** The time interval that the RS-485 device needs to switch on or off to transmit data. A longer time marks data collisions more likely. A shorter time marks data collisions less likely.

Limitations:

- *The system must determine when to switch the transmitter on and off.
- *Only one node can switch on/off at any given time.

Traditional Solution:

Use the RTS signal to control the transmitter by software.

Advanced Method:

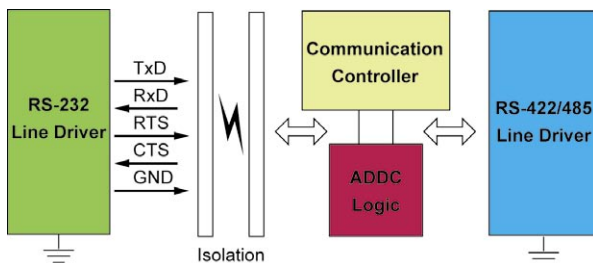
ADDC™ (Automatic Data Direction Control).

Benefit:

ADDC™ switches the transmitter on and off very precisely by hardware, effectively simplifying the complexity of timing control by software.

Result:

The Industrial Multiport Communication Board uses embedded ADDC™ technology to sense and control data direction automatically instead of using RTS/CTS control, making the handshaking signal method obsolete.



Multiport Serial Board Guidebook

PComm Utility

Moxa PComm Utility, a professional serial comm developing tool for PCs, is a software package that runs under Windows 2000/XP/2003, Windows NT, and Windows 95/98/ME. It includes a powerful serial communication library for easy programming in most popular languages, useful utilities (such as Diagnostic, Monitor, Terminal Emulator, Data Scope, and Performance Analyzer), and

illustrative example programs and comprehensive online documentation.

Use the serial communication library to develop a system for data communication, remote access, data acquisition, or industrial control in Windows 2000/XP/2003, Windows NT, and Windows 95/98/ME environments. PComm offers an easier solution compared to the more complex Windows Win32 COMM API.

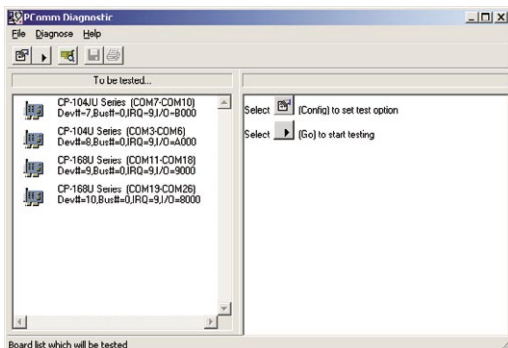
Utilities

Five useful utilities are available to help you debug and troubleshoot serial communication problems quickly: PComm Diagnostic, PComm Monitor, and Terminal Emulator are available

on the Multiport Serial Board CD-ROM, and Data Scope and Performance Analyzer can be downloaded from Moxa's website. Each utility is introduced below.

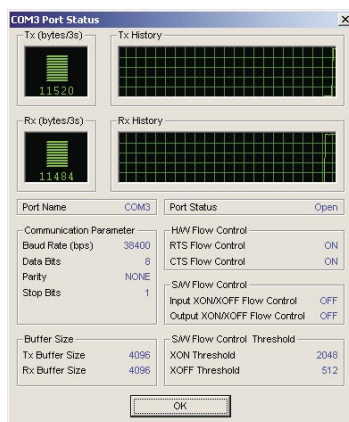
PComm Diagnostic

Diagnostic is a utility that provides internal and external testing of IRQ, Tx/D/RxD, UART, CTS/RTS, DTR/DSR, DTR/DCD, etc. This utility only works with MOXA boards.



PComm Monitor

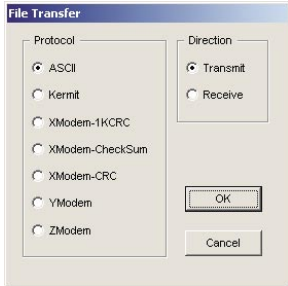
PComm Monitor provides a port monitoring function for MOXA boards and ports.



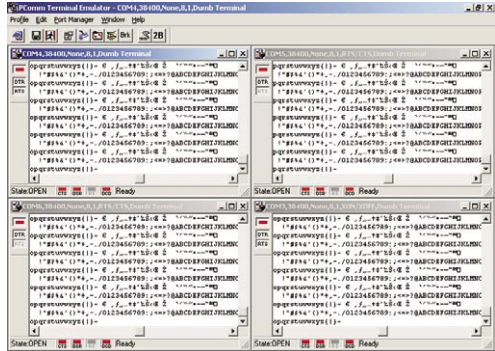
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Terminal Emulator

Terminal Emulator features multi-windows and supports VT100/ANSI and Dumb terminal types. Transfer data interactively, send patterns periodically, and transfer files using ZModem, YModem, XModem, Kermit, or ASCII protocols.



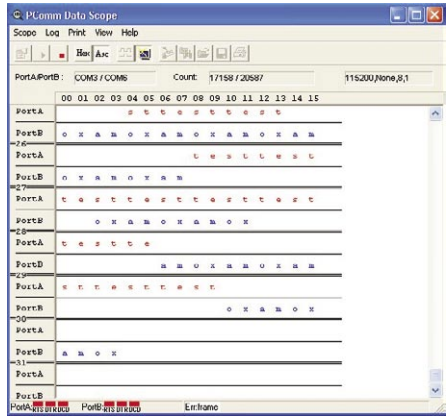
File transfer



Multi-windows

Data Scope

The Data Scope utility provides transparent monitoring of serial communication lines and allows data to be streamed to disk storage for later analysis in either ASCII or HEX mode. Use Data Scope with a portable PC that has two COM ports to create an economical yet powerful data scope instrument.



Performance Analyzer

Performance Analyzer is a utility that can help you analyze a system's serial communication performance on any COM port that you select in advance.

