

# MiiNePort Dual-Channel Multitasking with MCSC

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## Introduction

There is a new NetEZ technology bundled with MiiNePort E1/E2 Series, MCSC (Multi-Channel Serial Communication), which allows the user to enable the host device to perform as a server and a client at the same time for any specific application. This document will introduce how MCSC works.

## MCSC Benefits

MCSC enables two applications to share a single physical serial port at the same time and requires control packets for the software to handle two different channels. There are a total of 4 control packets beginning with an ASCII DLE (Data Link Escape, 0x10):

<b>Channel Switch Command</b>	DLE <b>0x10</b>	SOH <b>0x01</b>	CHN <b>0x00</b> or <b>0x01</b>
<b>Channel Inquiry Command</b>	DLE <b>0x10</b>	ENQ <b>0x05</b>	
<b>Data Escape Command</b>	DLE <b>0x10</b>	DLE <b>0x10</b>	
<b>Abnormal Packets</b>	DLE <b>0x10</b>	<b>??</b> (Others)	(drop data and return Hex "10 05")

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## About Moxa

Moxa manufactures one of the world's leading brands of device networking solutions. Products include serial boards, USB-to-serial hubs, media converters, device servers, embedded computers, Ethernet I/O servers, terminal servers, Modbus gateways, industrial switches, and Ethernet-to-fiber converters. Our products are key components of many networking applications, including industrial automation, manufacturing, POS, and medical treatment facilities.

## How to Contact Moxa

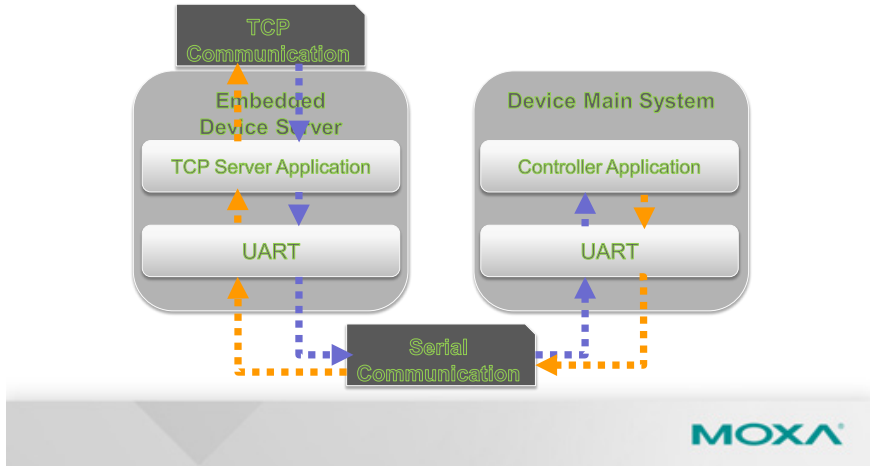
Tel: +886-2-8919-1230    Web: [www.moxa.com](http://www.moxa.com)  
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A typical serial-to-Ethernet application is shown below:

### Typical Serial to Ethernet Application

- Transparent data transfer from E2S or S2E.

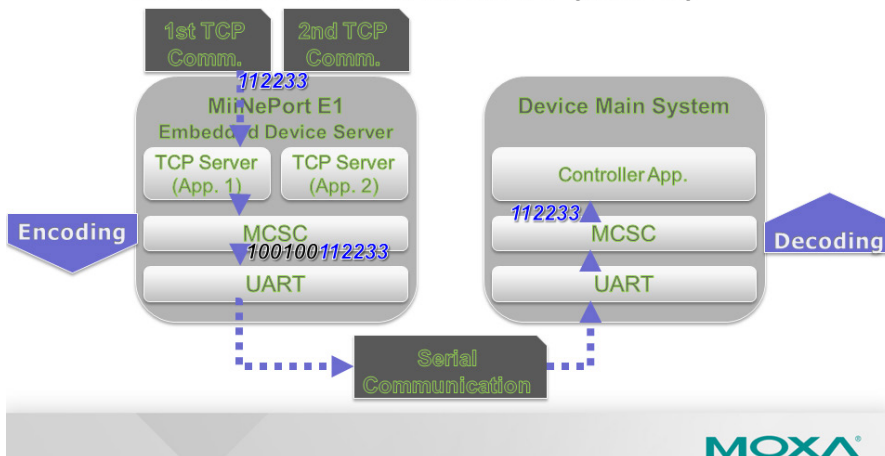


The embedded device server transparently transfers the data from E2S (Ethernet to Serial) or S2E.

When MCSC mode is enabled, encoding and decoding provides dual communication channels:

### MCSC Mechanism – I

- Encode & decode with MCSC (header)

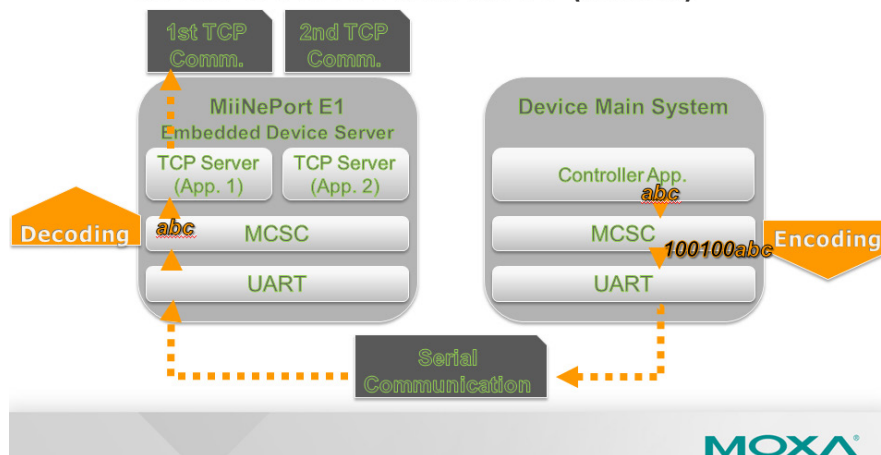


There are two TCP applications sending data to the MiiNePort, which encodes (adds control packet) the datagram and then send it to the device (serial). When the device receives the data, it will decode (removes control packet) the data and transfer the original datagram to the controller application (Device Main System).

If data is sent from serial to Ethernet, it will be transmitted to the proper TCP channel:

## MCSC Mechanism – I

### ■ Encode & decode with MCSC (header)



Moxa's MiiNePort inserts the MCSC layer between UART and the application to encode and decode data. Serial devices with MCSC mode activated will be able to provide dual connections and dual channels for multitasking performance.

### Why Moxa

- Smallest embedded device server available
- Extremely low power consumption
- NetEZ technology makes integration incredibly easy
- Versatile choice of operation modes: MCSC, Real COM, RFC2217, TCP, and UDP

### Related Products

MiiNePort E1/E2 Series