CNC control system networking solution
2008-03-28

Location / Country : Mitsubishi Electric Taiwan Co., Ltd. /Taiwan

Product Solutions:
NPort Express DE-311

1-port RS-232/422/485 serial device server

Introduction
Project Introduction

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With 80 years of experience in providing reliable, high-quality products to both corporate clients and general consumers all over the world, Mitsubishi Electric Corporation is a recognized world leader in the manufacture, marketing, and sale of a wide range of electrical and electronic equipment. Mitsubishi's products are used in information processing and communications, space development and satellite communications, home electronics, and in various industrial fields, such as energy, transportation, and construction.

Mitsubishi Electric Taiwan Co., Ltd., established in 1982, supplies excellent advanced products by bridging the gap between customers in Taiwan and Mitsubishi Electric Corporation in Japan. In the past, it was standard practice to use factory floor PCs to carry out DNC (Direct Numerical Control) procedures. Engineers would first develop a manufacturing program off-line in the design room, and then go to the factory floor to transfer the program to the factory floor PC using a floppy disk. The factory floor PC implemented the program by sending instructions to various manufacturing machines over an RS-232 interface connection. However, factory floor environments are not very favorable to PCs (due to higher humidity, oily and dusty conditions, and extreme temperatures), making it more likely that the PCs will experience frequent breakdowns.

Moxa Solution

This problem can be overcome by replacing the factory floor PC with Moxa's 1-port serial device server, MOXA NPort Express (model DE-311). Mitsubishi has realized several benefits by implementing this solution in their factory:

- System costs are reduced, due to savings on both equipment (NPort Express is much cheaper than a PC) and human resources.
- CNC (Computerized Numerical Control) devices can be placed in a centralized location, resulting in a much simpler overall solution.
- This solution is transparent—Moxa's driver technology reroutes COM data through the computer's Ethernet card; the user does not need to change anything about existing manufacturing programs.

The solution described here is quickly becoming standard practice in industrial automation.

Application Description

Mitsubishi uses Windows 98 as their design environment for producing DNC procedures. By using NPort Express DE-311's Windows 98 real COM port driver, the design room's PC can write the DNC file directly to one of its COM ports (the same as before). NPort Express's driver then reroutes the data over the Ethernet, and finally to NPort Express's serial port. The effort required to implement this solution is minimal, particularly since Mitsubishi's engineers do not need to change any of their existing manufacturing programs.

Why Moxa

- Instant solution to network-enable your serial device
- Extremely low transition cost
- Easy integration with serial COM software