TB227 (Rev2) - Configuring a CNC11 system to Communicate with an MPU11 Motion Control Board

Introduction

This document will explain how to configure the network card in a Linux based CNC11 system to communicate with the MPU11 motion control card.

General Information

There are a couple things to note before we get started. One all MPU11 systems will be networked with a static IP network. MPU11 systems will have a second network card for networking your control to a remote PC for file transfer. The NIC card in the CNC11 PC and the MPU11 motion card will have dedicated IP addresses:

CNC11 PC : 10.168.41.1
MPU11 card : 10.168.41.2

Automatic Configuration

Starting in CNC11 v3.00 beta rev 51 there is a script that can be run to automatically setup the MPU11 and Internet connections. Open a command prompt with **Alt+F6** and type: **configure-mpu11-network.sh** (press enter). There will be messages indicating success or failure. The ethernet connections to the Internet and MPU11 must be active for this configuration to work. If it fails, make sure the MPU11 is powered on and the ethernet cable is connected on both ends. Currently the script only works for setting up DHCP Internet connections. For static IP addresses that connection should still be established as in TB228 after running the script.

Manual Networking Instructions

1. Install the Linux FC/HDD you created into your CNC11 PC and connect a CAT5 straight through or crossover cable to the on board ethernet port and the ethernet port on the MPU11. The MPU11 will detect the cable type at power up and configure itself accordingly.
2. Power up the system, it will timeout with a 64180 error because the CNC11 software will not be configured to communicate with the MPU11.
3. Press F4-Sys Prompt to bring up a Linux prompt. Type:**cd /etc/sysconfig/network** (press enter).
4. Remember we have two network cards so we need to determine which one is assigned to eth0, eth1, or eth2. To do this type: **ifdown eth0** (press enter), this will display the network card that is being disabled. Note: The secondary NIC we use are Realtek 8139D units. K9-VGM-V MB's are VIA chipsets, and the Gigabyte MB's are Realtek 8210CL chipsets. If eth0 comes up with the Realtek 8139D type: **ifdown eth1** (press enter).
5. Now that we have determined which eth file is assigned to the on board NIC we can copy the ifcfg-mpu11 template file to the correct eth file. So if the on board NIC is eth0 type: **cp template/ifcfg-mpu11 ifcfg-eth0** (press enter).

See the ifcfg-mpu11 below to see what will be copied to the eth0 file, notice the IP address will be 10.168.41.1 as mentioned in the beginning of this document.

ifcfg-mpu11 (template file)
BOOTPROTO='static'
BROADCAST='10.168.41.255'
ETHTOOL_OPTIONS=''
IPADDR='10.168.41.1'
MTU=''
NAME='Ethernet Adapter'
NETMASK='255.255.255.0'
NETWORK='10.168.41.0'
REMOTE_IPADDR=''
STARTMODE='auto'
USERCONTROL='no'

6.To enable the on board NIC type: **ifup eth0** (press enter). Then type: **ifconfig** (press enter) and verify the inet address is set to 10.168.41.1.
7.To verify communication between the PC and the MPU11 type: **ping 10.168.41.2** (press enter). If you see communication press **Ctrl+C** stop the ping command.
8.Type: **exit** (press enter) to close the Linux prompt. Press **F1-CNCM** to start CNC11 software.

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