eXMP-SynqNet
Quick Start Guide

VxWorks

Motion Engineering

Helping you build a better machine, faster.

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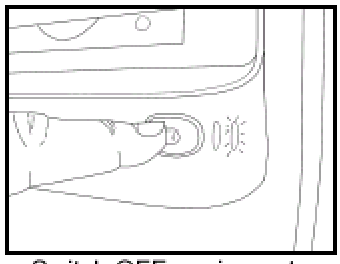
Safety Warnings

During installation, solid electrical contact must be ensured at connectors; otherwise, noise and power problems will develop. (Connections should be verified through inspection and testing.)

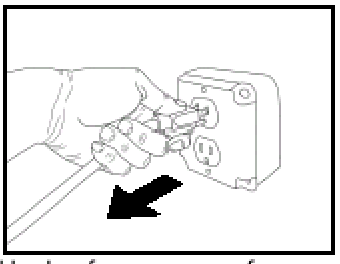
Standard safety rules prevail during installation of any hardware. Some are summarized below for the XMP. For more information, refer to local occupational safety regulations and the manufacturer of your motion drive.

Turn Off All Power Before Installing Equipment

Before installing any motion control equipment, including XMP controllers, power should be switched OFF. Unplug all power plugs from their sources of power.



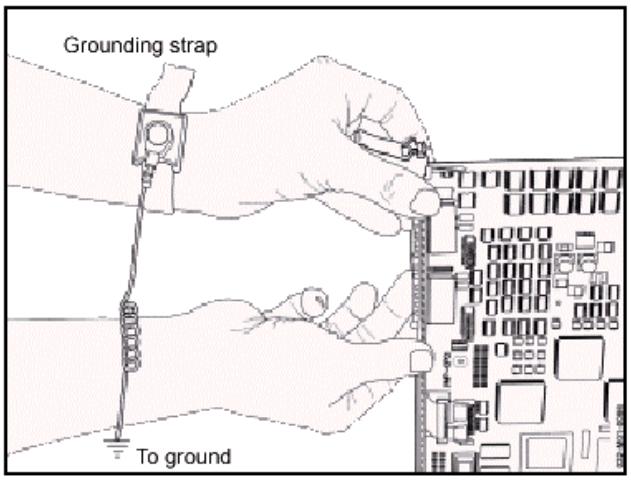
Switch OFF equipment.



Unplug from source of power.

Observe ESD Precautions

To prevent damage to controller and drive electronics due to electrostatic discharge (ESD), service personnel are cautioned to observe proper grounding during handling of components.



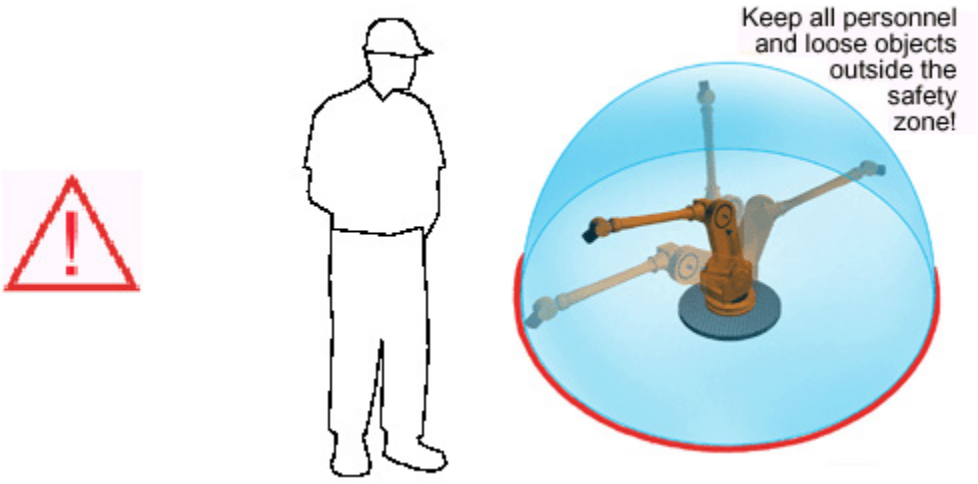
Grounding straps should be worn at all times when handling XMP-SynqNetTM electrical components and connection hardware.

Define and Clear a Safety Zone!

During installation and testing of motion control hardware-software, a safety zone should be defined around moving components and kept clear of personnel, hands, fingers and loose hardware. During a repowering of the system, motion control components may behave erratically due to misconnected lines or wrongly configured software settings. Sudden and unexpected moves by components can cause injury, property damage, or even death!

Under NO circumstances, should a motion system be tested or operated while personnel are within the safety zone.

Additionally, beware of flying debris from unsecured hardware operating at high speeds. The use of safety shielding is highly recommended.



Introduction

This Quick Start Guide explains how to configure the eXMP-SynqNet for software start-up and configuration including connection, and changing boot-line parameters in order to load the VxWorks working image from your host computer.

Note that no MEI utilities are shipped on the eXMP at the factory. The user will need to copy the necessary files from the MPI release to the eXMP for the specific version.

Fig 1. A full version of the eXMP-SynqNet is shown above containing all the stuff options.

NOTE: Although a fully stuffed eXMP-SynqNet is shown, the setups should be identical for a "lite" version of the eXMP-SynqNet.

IMPORTANT NOTE
In its default shipping state, the eXMP is configured for an IP address of:

192.1.68.1.74

The user can change his network settings by using telnet to access the eXMP and change the IP address, or connect to the eXMP using a console connection and adapter (See the *Configuring for Console Mode* section).

IMPORTANT NOTE
The eXMP-SynqNet was designed to allow users to interact with its operating system using a local console and command line via COM1. Therefore, COM1 functions as either a standard COM1 connection or as the console mode connection. Do NOT connect a serial device into the eXMP-SynqNet when COM1 is being used in console mode. COM1 cannot function as a standard COM1 connection and console mode connection at the same time. The following steps will explain how to set up the eXMP-SynqNet in console mode so that it may be accessed by a network computer for development and testing.

Hardware Setup

A fully stuffed eXMP-SynqNet is shown below. Depending on the version of eXMP-SynqNet, some connectors may not be present.

Configuring for Console Mode

The following steps will explain how to set up the eXMP-SynqNet in console mode so that it may be accessed by a host computer for local development and testing. This is mandatory for configuring the Bootline parameters under the VxWorks operating system.

1. The local console must be attached to COM1 via a Null Modem serial cable whose RIN (pin 9) and DTR (pin 4) lines are tied together.

The short between these two pins indicates the presence of a valid console device and is detected during system initialization by the eXMP, thereby enabling the Console output to COM1. This can be done with either an inline adapter or modifications to the Null Modem cable itself.

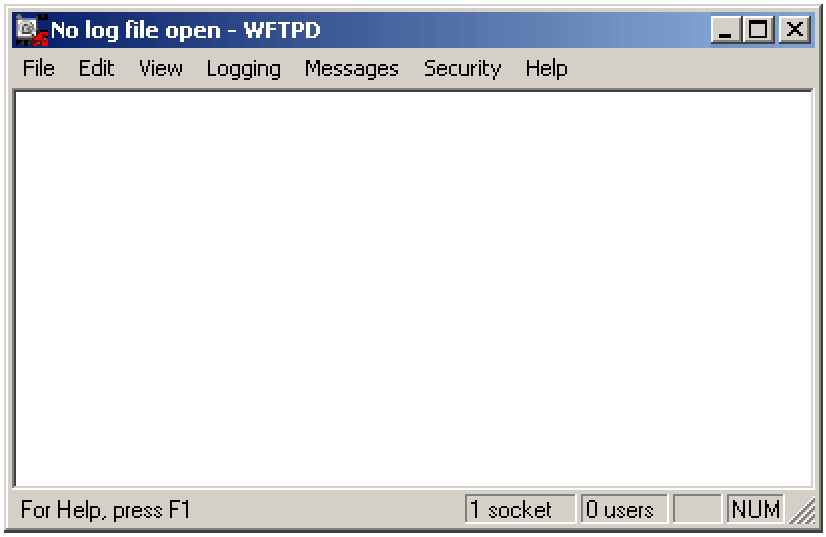
One example of an inline adapter is the **MEI C001-0034** (Cable, Serial, eXMP, DE9).

While MEI does not sell this adapter, MEI can provide its customers with cable DWG to assist in making their own adapter.

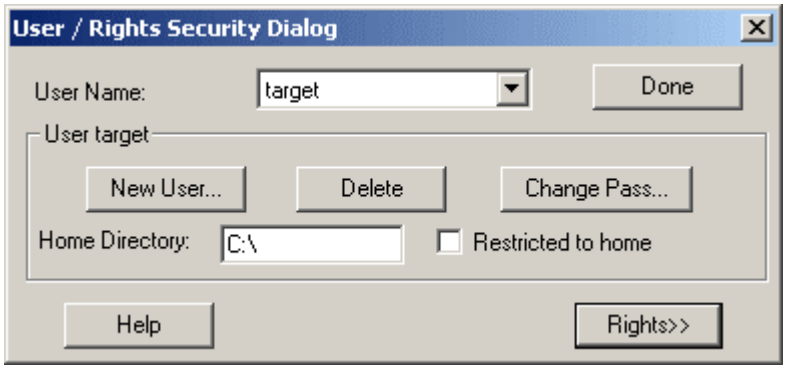
Host-Side Configuration

1. Power down Controller.

2. Start the FTP server supplied by Tornado on the host computer. An FTP server is only needed if files will be loaded off the host computer.

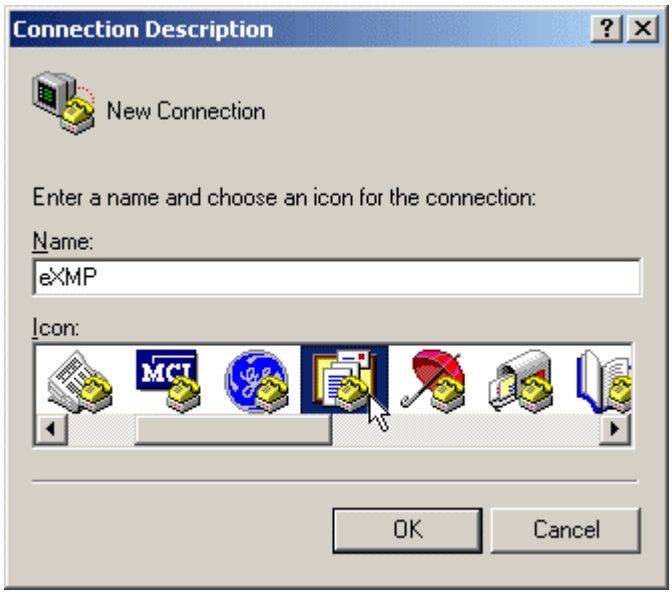


3. Add a User Profile for the eXMP-SynqNet.
Default setttings:
User Name: target
Password: pw



4. Open HyperTerminal and configure a new connection. Choose a name and icon for this

connection.

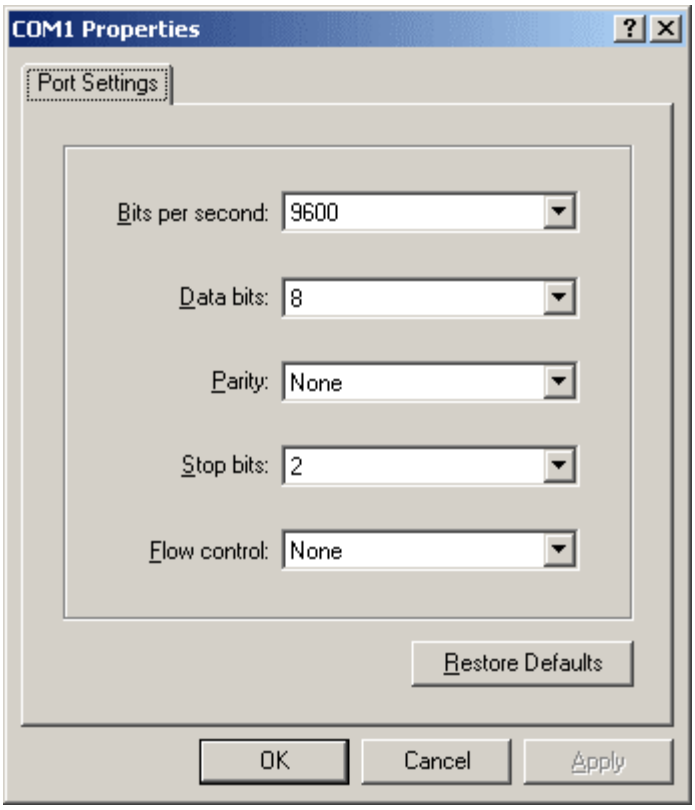


5. If it is not already connected, connect eXMP COM1/Console to COM1 on the host computer using a NULL serial cable. Console mode is now enabled on the eXMP-SynqNet.

6. After pressing OK, switch "Connect using" to apporpriate COM port. All other fields should be grayed out after selections have been made.

7. Configure the connection as follows:

- Bits per second: 9600
- Data bits: 8
- Parity: None
- Stop bits: 2
- Flow control: None

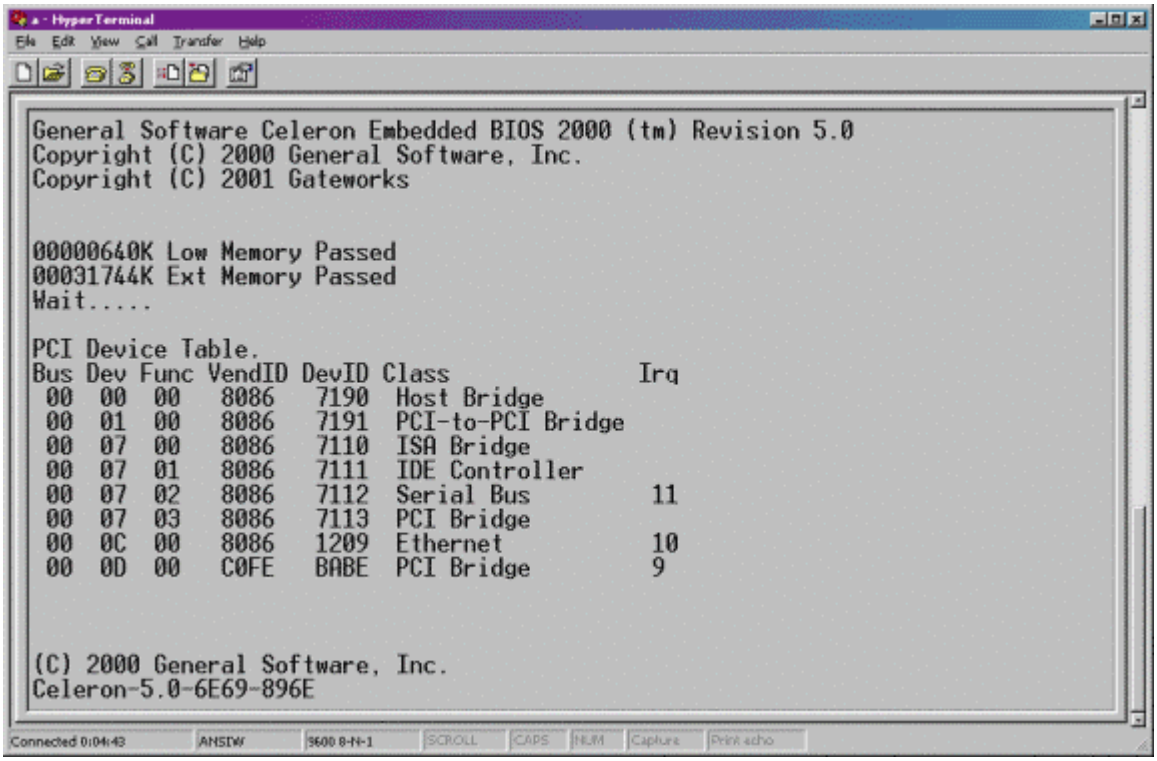


Click **OK**. The session is now active. Upon exit, save this session for later use.

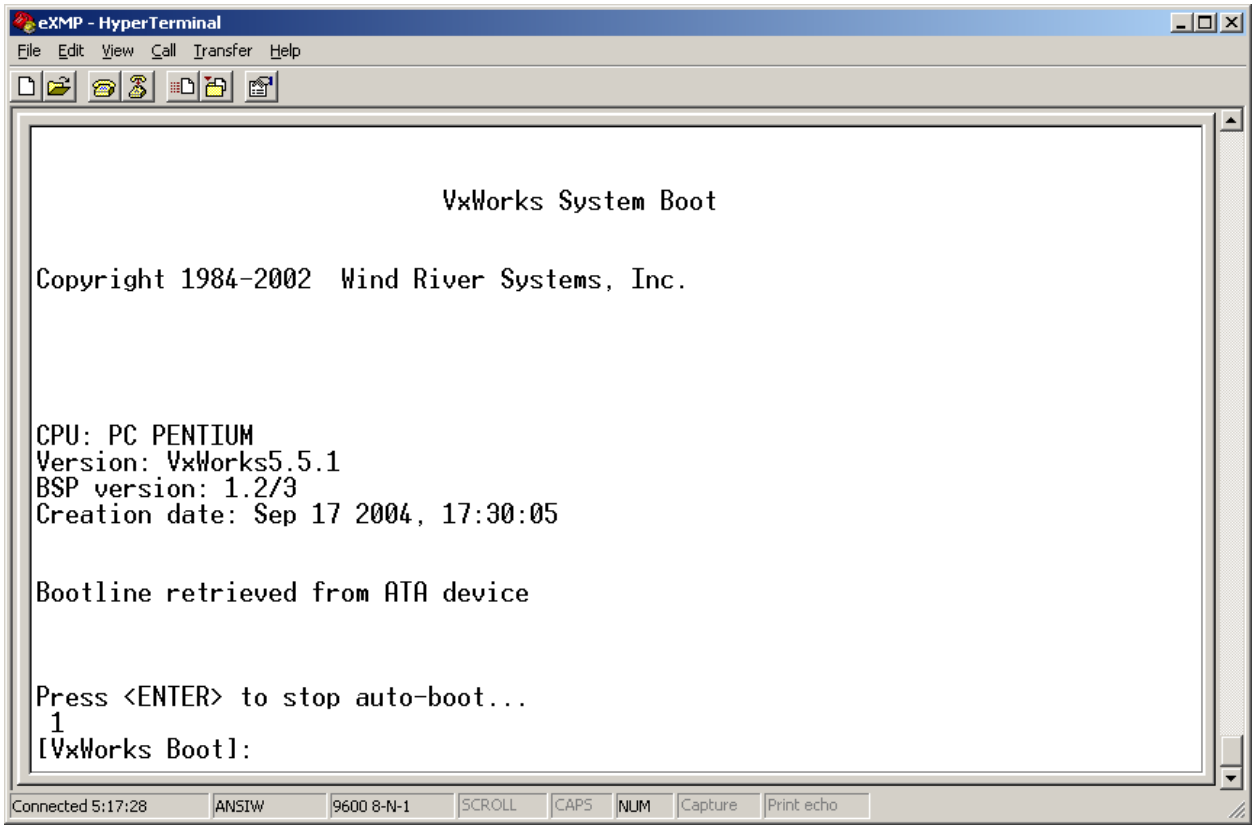
8. Power up the eXMP-SynqNet.

Changing Boot Parameters

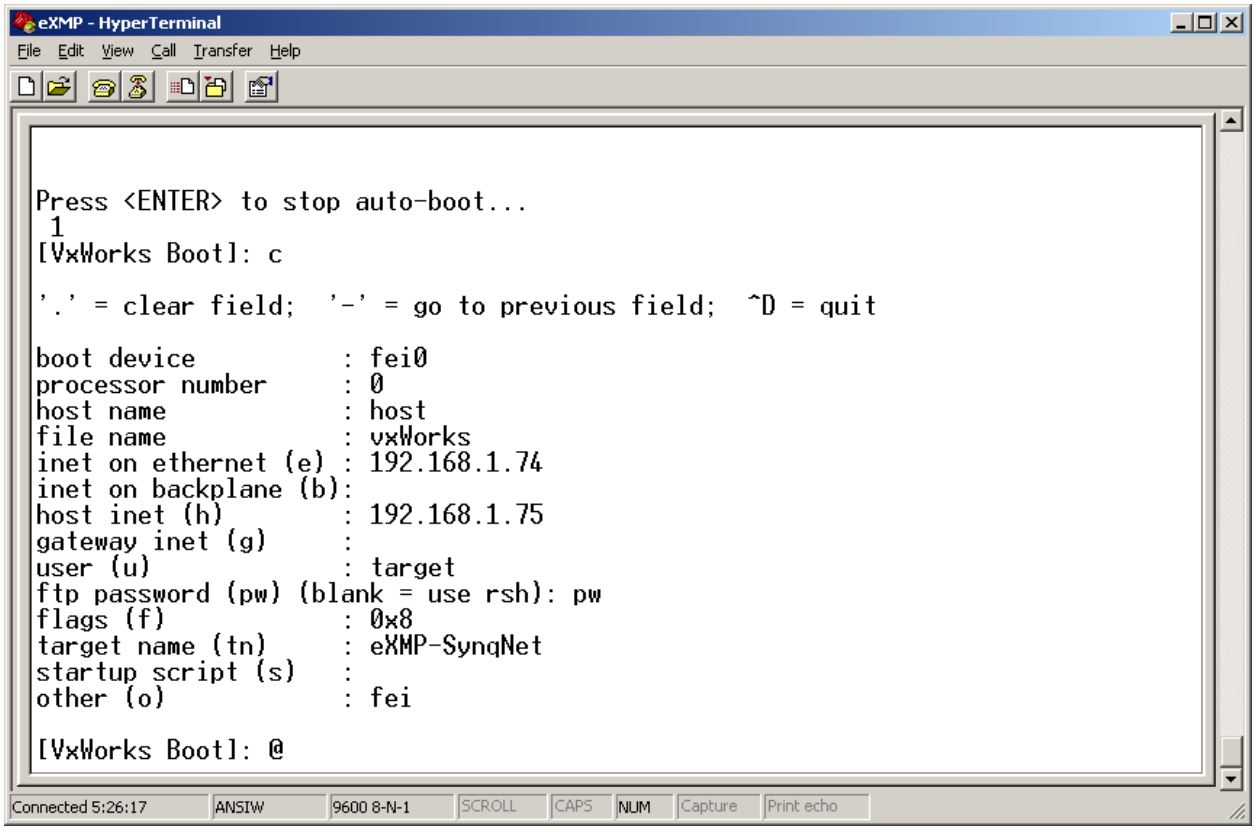
1. When you power up the eXMP-SynqNet the console terminal should display the BIOS information.



2. In order to change the boot parameters of VxWorks, you need to stop the auto-boot process. At the VxWorks boot screen, press any key to stop the auto-boot. There is only one second to do this, so you need to be quick. If you missed it and VxWorks auto-loads, reset the controller and try again.

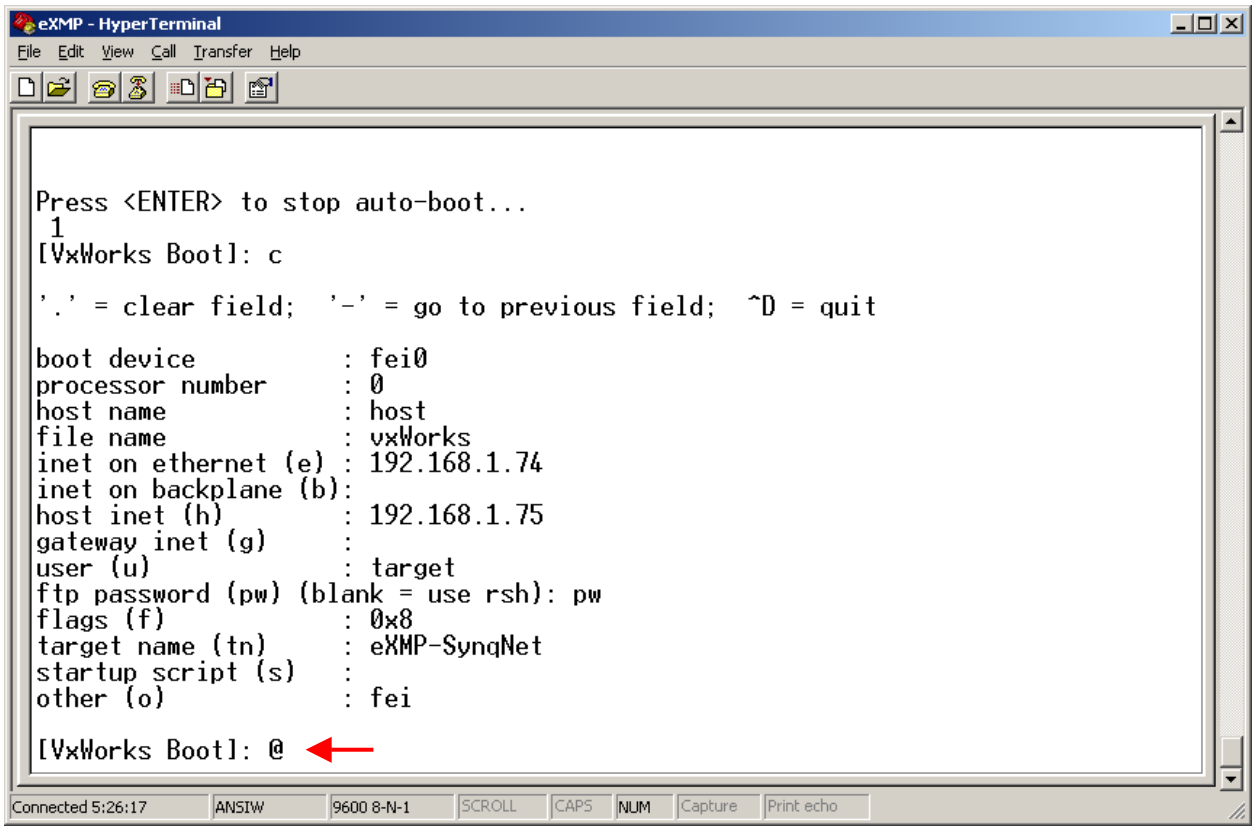


3. At [VxWorks Boot]: line enter '**c**' to change boot parameters. Type in the new values. Any changed values will be saved into the flash and used on next boot up.

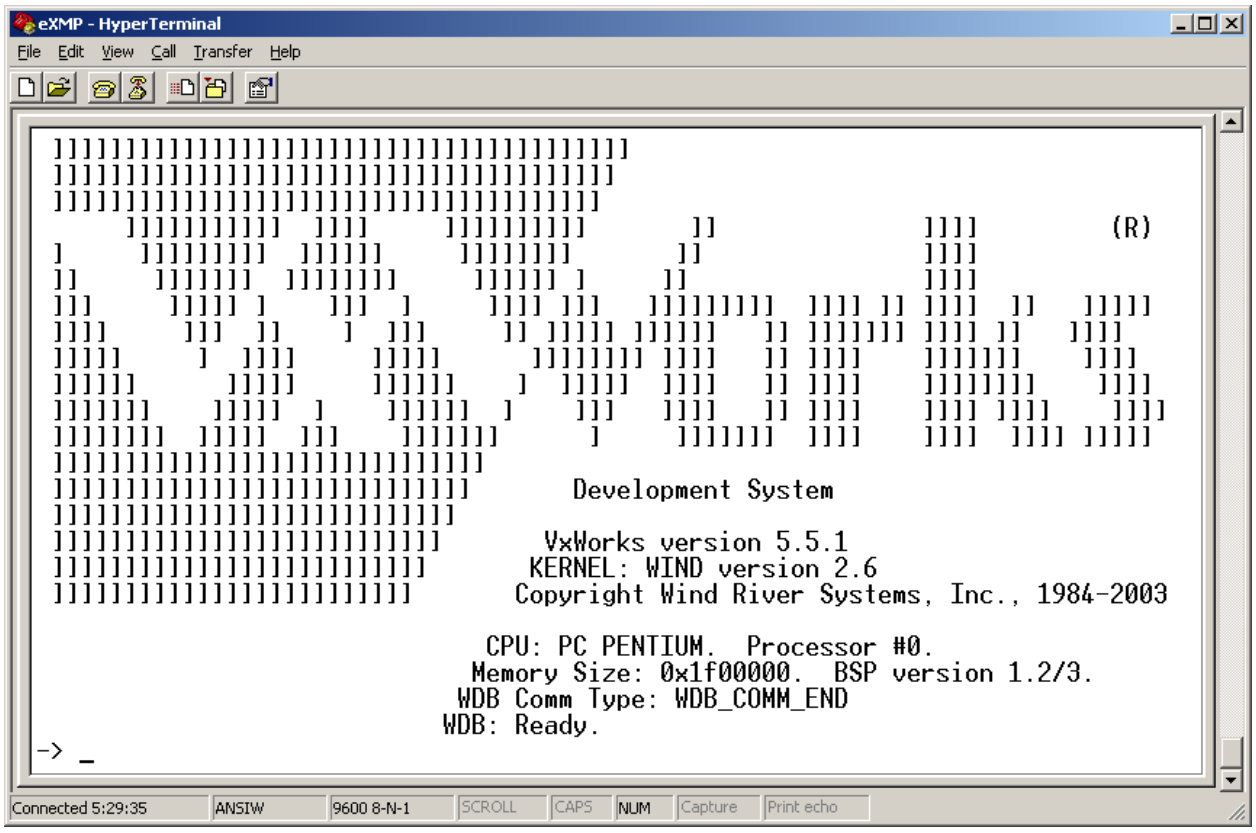


boot device	: fei0	This points to the Flash memory.
processor number	: 0	Use processor 0
host name	: host	Name of host computer.
file name	: vxWorks	Boot file in Flash memory.
inet on ethernet (e)	: 192.168.1.74	Set to eXMP IP address.
inet on backplane (b)		
host inet (h)	: 192.168.1.75	Host IP address.
gateway inet (g)	:	
user (u)	: target	Login name for ftp server.
ftp password (pw) (blank = use rsh)	: pw	Login password for ftp server.
flags (f)	: 0x8	Option flags
target name (tn)	: eXMP-SynqNet	eXMP name
startup script (s)	:	Enter path and startup script if needed.
other (o)	: fei	When booting of Flash, this enables Ethernet.

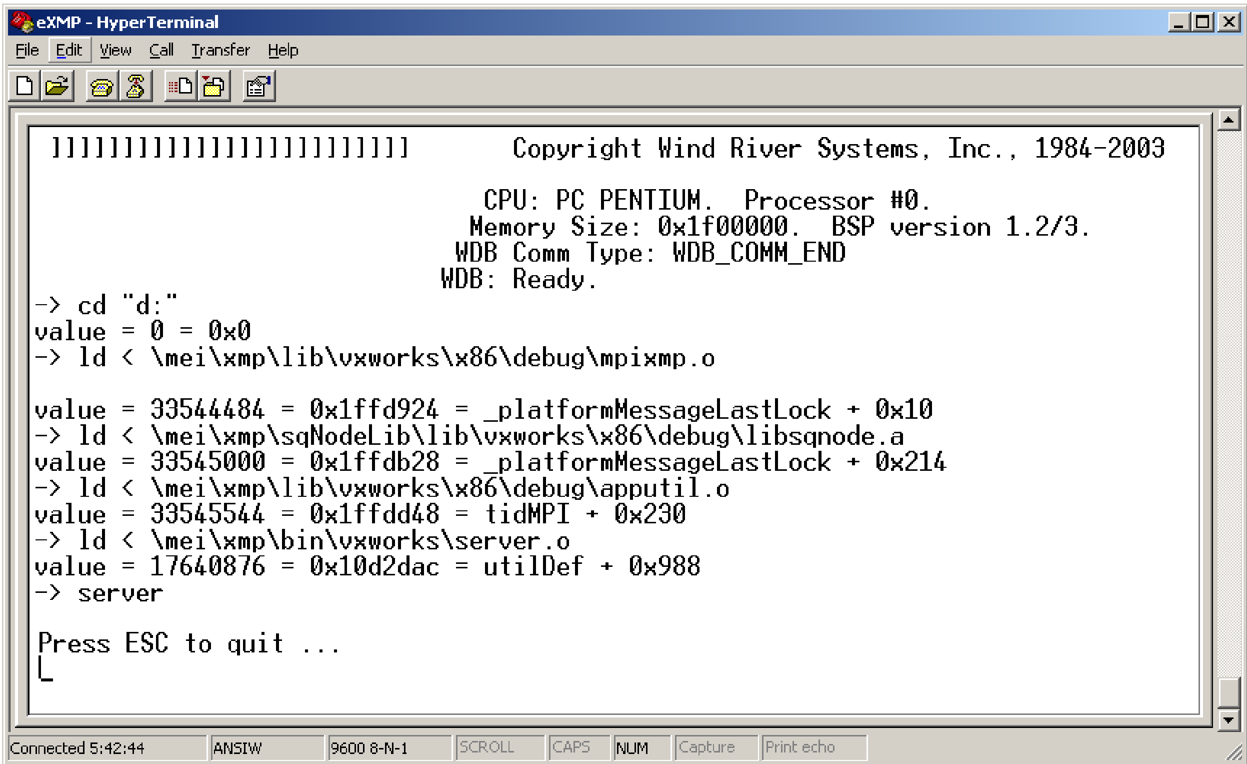
4. Once your boot parameters have been entered, type **'@'** to boot the eXMP-SynqNet.



5. If VxWorks loads correctly, the following screen should appear:



6. Download the **mpixmp.o**, **apputil.o**, and **server.o** files to the target system and then spawn the '**server**' command to start the MEI server.



7. Once the server is running, initial system tuning and checkout can be accomplished using the Motion Console and Motion Scope utilities. For more information regarding XMP utilities using server mode, please see the Utilities section on http://support.motioneng.com/.

Congratulations! You have successfully configured the eXMP-SynqNet for console mode using VxWorks. The eXMP-SynqNet is now ready for testing and development.