

eXMP-SynqNet Quick Start Guide

*Windows XP
Embedded*





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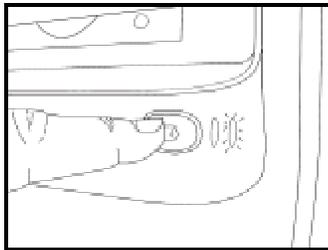
Safety Warnings

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.)

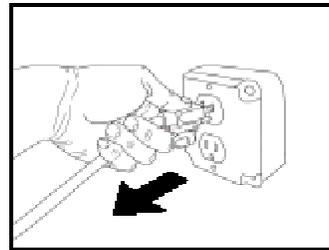
Standard safety rules prevail during installation of any hardware. Some are summarized below for the XMP. For more information, refer to local occupational safety regulations and the manufacturer of your motion drive.

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.



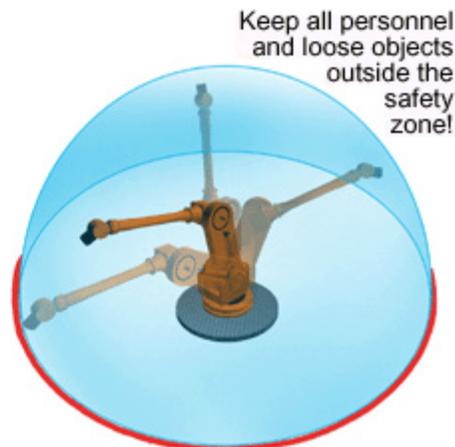
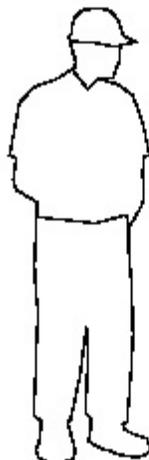
Unplug from source of power.

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 re-powering 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.

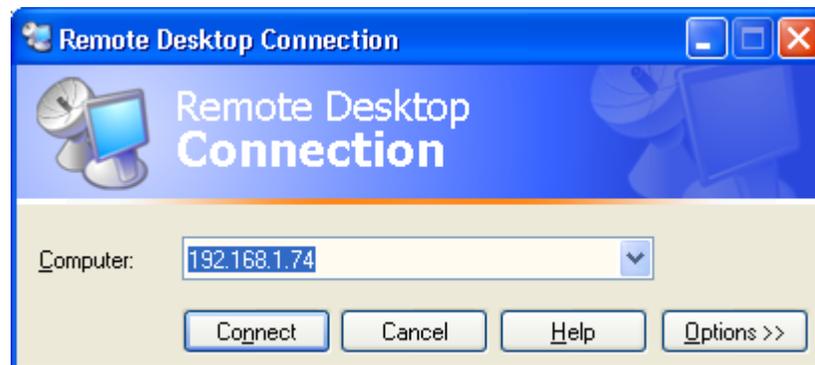


Introduction

This Quick Start Guide explains how to connect to an eXMP-SynqNet controller running Windows XP Embedded, change its IP address, load MPI software, and configure the start-up characteristics. The eXMP-SynqNet has a default run-time image pre-loaded in the compact flash memory. This image contains the Windows XP Embedded OS, several Windows utilities/applications, and the MEI/XMP device driver (MEIXMP.sys). The MPI library and utility programs are NOT available in the default compact flash image. You will need to install an MPI release on the eXMP to use the motion controller.



To connect to an eXMP running Windows XP Embedded from a host PC, use Microsoft's "Remote Desktop Connection" (Programs > Accessories > Communications). The Remote Desktop Connection application comes with Windows XP. If you are not using Windows XP, then you will need to download the Remote Desktop Connection software from Microsoft.



IMPORTANT NOTE

By default, the eXMP is configured at the factory with a static IP address:

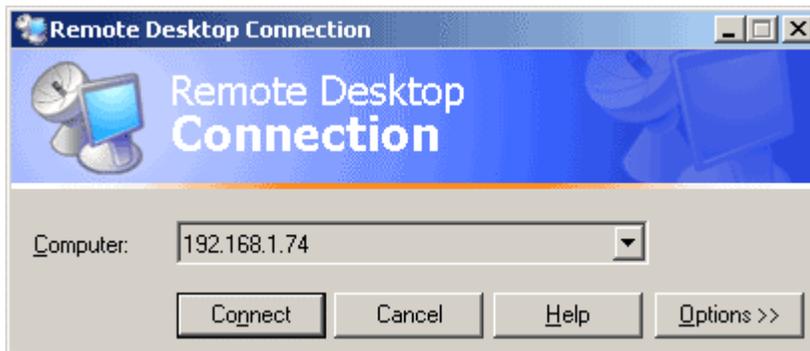
192.168.1.74

The user can change his network settings by using Microsoft's Remote Desktop Connection or telnet to change the eXMP's IP address.

Host-side Remote Desktop Connection

To connect to an eXMP running Windows XP Embedded from a host PC, use Microsoft's "Remote Desktop Connection" application, which comes with Windows XP. If you are not using Windows XP, then you will need to download the Remote Desktop Connection software from Microsoft and install it on your host PC.

Run the Remote Desktop Connection program (Programs > Accessories > Communications). Enter the computer name or IP address for the eXMP (default = 192.168.1.74) and select Connect:



After a few seconds, the Host will connect to the eXMP (Target) and the Remote Desktop will show the Windows XP desktop on the eXMP. You will need to login:

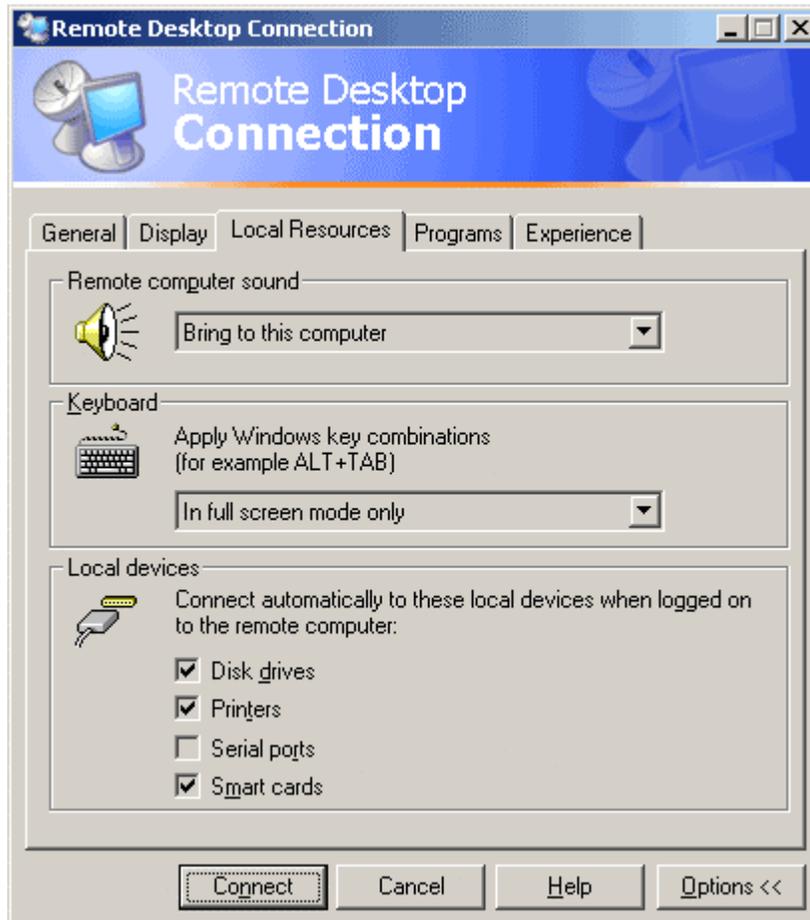
User Name: Administrator
Password: exmp



From the Remote Desktop, you can operate the eXMP. The desktop is similar to a normal Windows XP workstation. In general, you will be able to run any Windows application on the eXMP. Applications and performance may be limited by the available compact flash memory space, memory, CPU speed, and network connection.

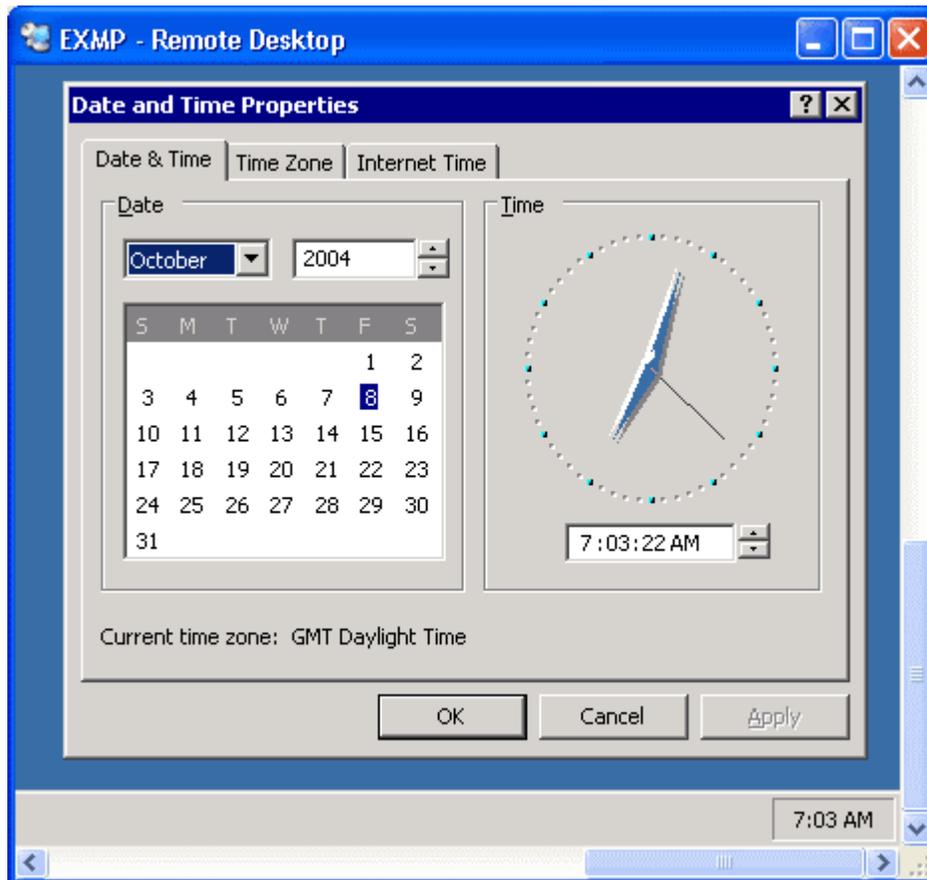
The Remote Desktop Connection has several Options that can be configured to optimize the feature set and performance. For example, the login can be automated under the General tab.

Selecting the "Disk drives" option (Local Resources > Local devices) will allow the eXMP to access the Host's disk drives. This feature is very useful for transferring files between the Host PC and the eXMP.



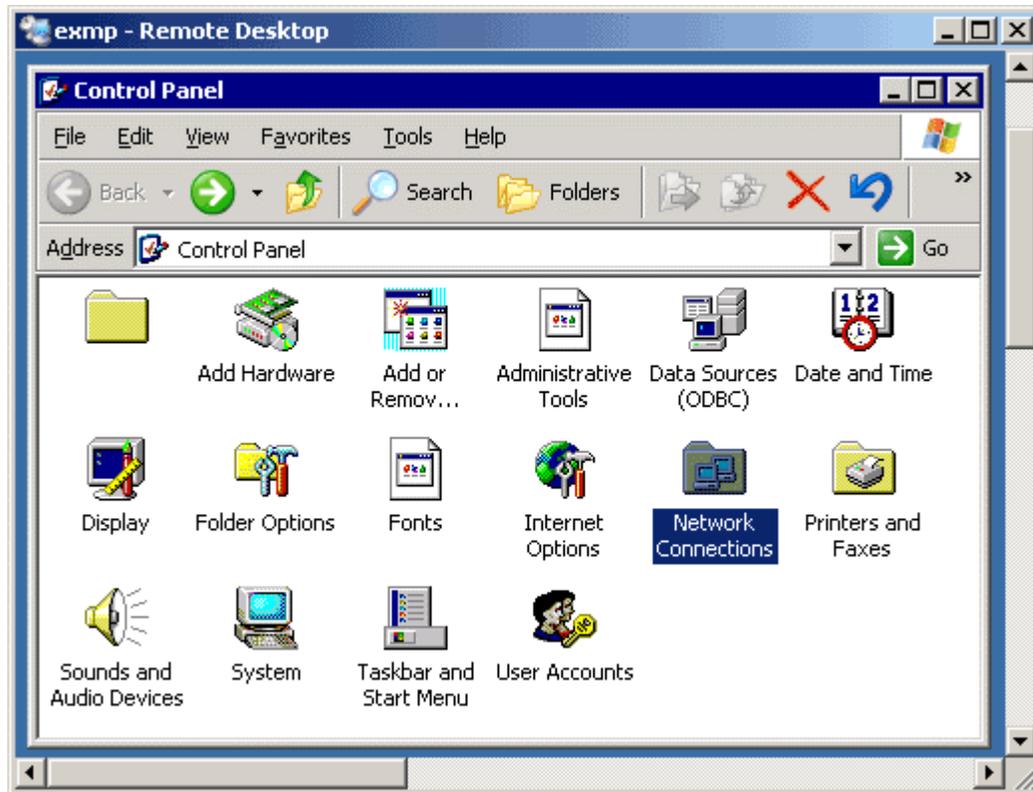
Setting Date and Time

When connected to the eXMP via the Remote Desktop Connection, you can adjust the eXMP's date and/or time. Right click on the clock located on the taskbar or go to Control Panel > Date and Time. Then configure the Date and Time properties:



Changing Network Interface Settings

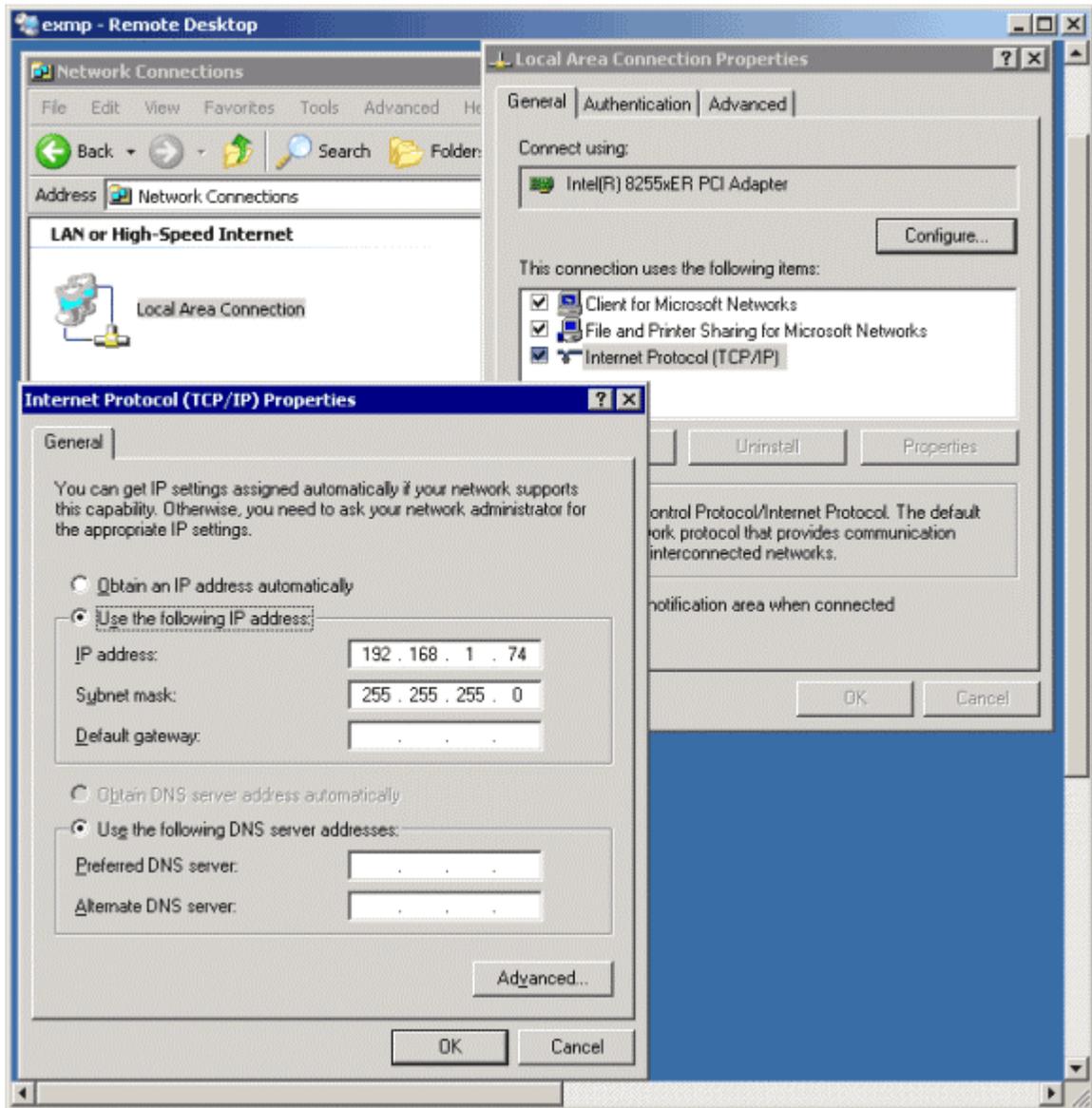
After connecting to the eXMP via the Remote Desktop, you can change the eXMP's IP address. From the Control Panel select Network Connections:



Right-click on Local Area Connection icon. Go to Properties > Internet Protocol > Properties. From this window you can configure the eXMP to use a dynamic or static IP address:

- **Dynamic IP Address:**
Select "Obtain an IP address automatically."
- **Static IP Address:**
Select "Use the following IP Address."
Then specify the IP address and Subnet mask.

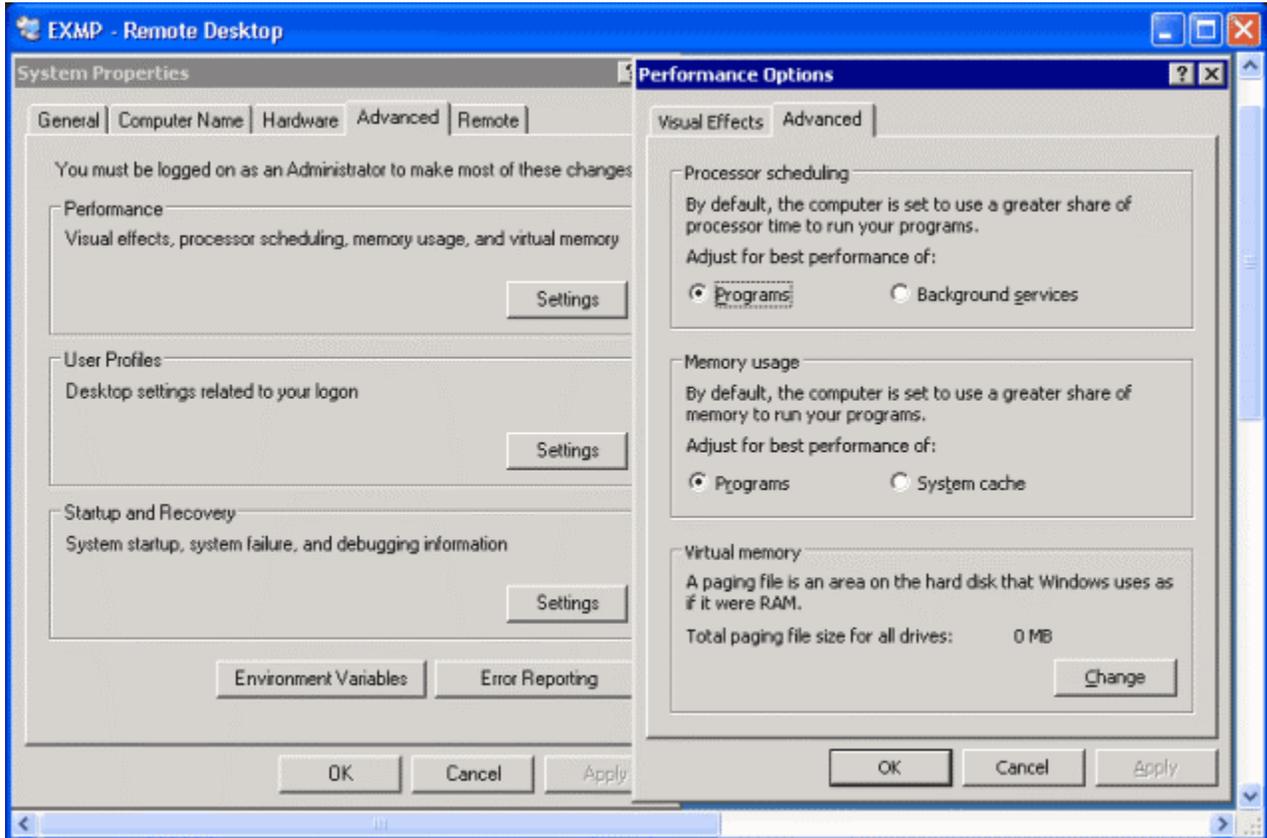
When using a Dynamic IP Address, the eXMP will be addressed by its computer name (default = EXMP).



After closing the Local Area Connection Properties window, Remote Desktop will lose its connection due to the new IP address. You will need to re-launch Remote Desktop with the new eXMP IP address.

System Properties

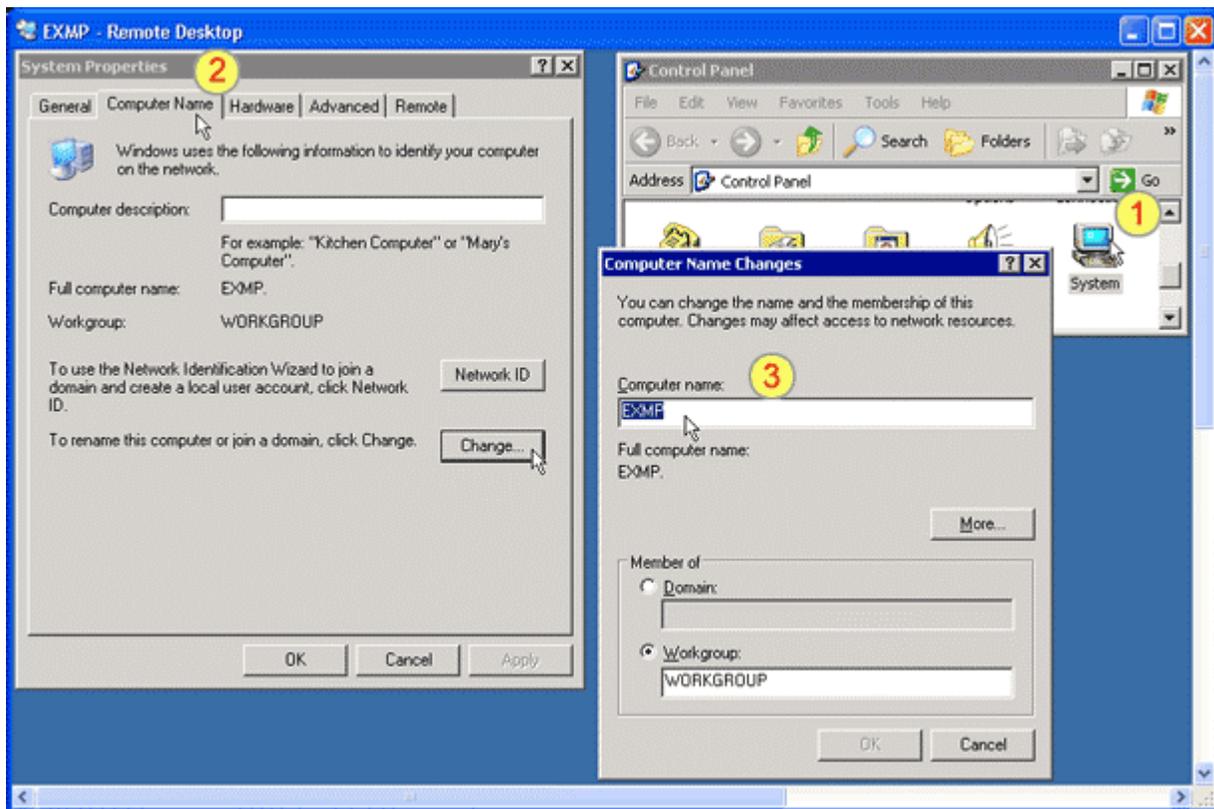
XP Embedded allows the user to change the System Properties (Control Panel -> System) to tune the OS performance. In the Advanced tab, under the Performance -> Advanced tab there is a setting for Virtual memory. DO NOT use Virtual memory. The eXMP has a compact flash (not a hard drive), which is NOT supported for Virtual memory.



Changing the Computer Name

When connected to the eXMP via the Remote Desktop Connection, you can change the computer's name. If there are multiple eXMP's on the same network with the same name using dynamic IP addresses, you will want to configure unique names for each eXMP. Follow these steps to change the computer's name:

1. Go to Control Panel > System. Double-click the System icon.
2. Click on the Computer Name tab and press the Change button.
3. Enter the Computer Name. ex: EXMP



After changing the Computer Name, you will need to restart the eXMP. To re-connect to the eXMP, you will need to launch the Remote Desktop Connection with the new Computer Name.

User Accounts

The eXMP XP Embedded image (rev 1.1 and higher) has two user accounts:

Automatic Login Account (default)

User Name: Administrator

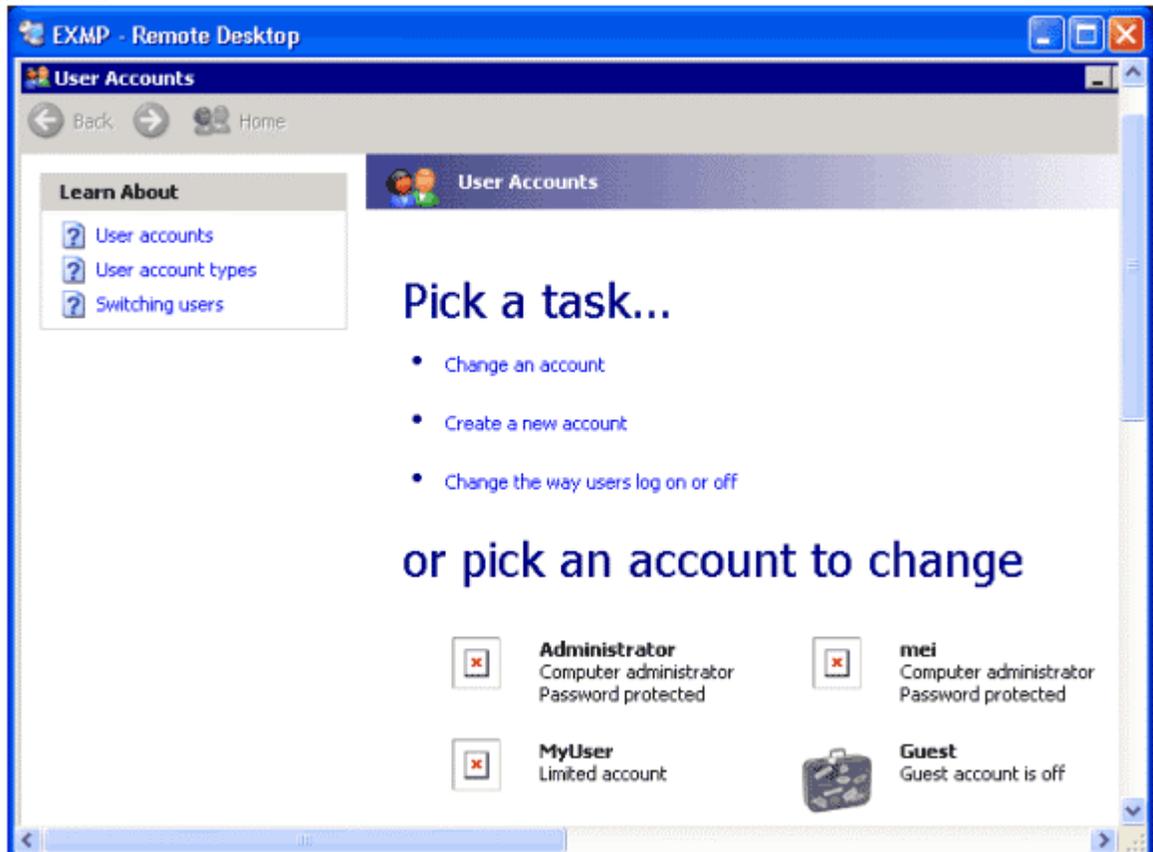
Password: exmp

Backup Account

User Name: mei

Password: exmp

You can add more accounts using the Control Panel > User Accounts > Create New Account:



Be sure to select the Computer Administrator account type. Then select the new user account and create a password for the account. XP embedded requires passwords for all accounts.

WARNING! You will NOT be able to login to an account via Remote Desktop if the account does NOT have a password.

The Administrator account supports automatic logon at boot time. This makes it possible to operate the eXMP as a standalone controller without having to logon from Remote Desktop. If you change the Administrator account, automatic logon will not work. But, there is a work-around by modifying the registry. For more information, see the [Microsoft](#) website.

File Transfer

There are a few ways of transferring files between the Host PC and the eXMP:

1. **Windows XP Host**

Use a copy/paste via the Remote Desktop Connection. Files can be directly copied from the Host to the eXMP, or from the eXMP to the Host via the Remote Desktop Connection.

2. **Windows Host**

Use mapped local or network drives on the eXMP.

- **Map Local Host Drives**

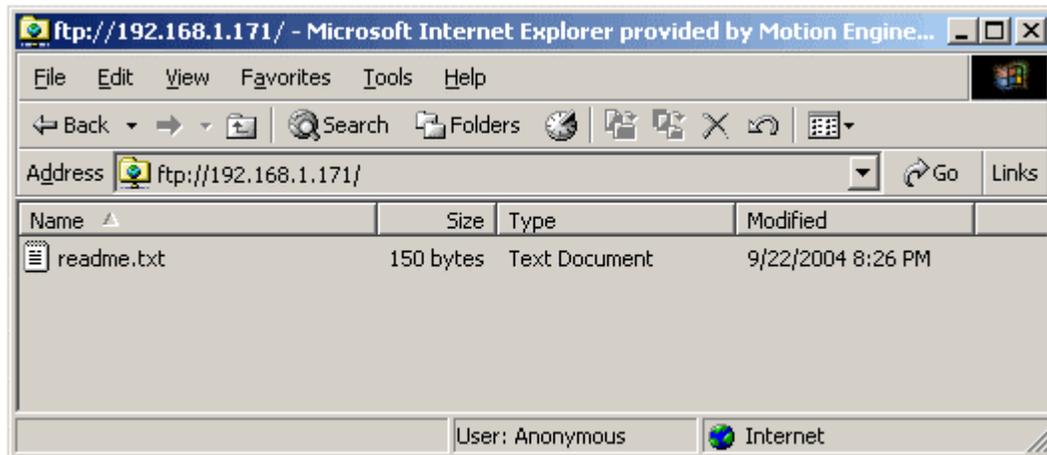
Go to the Disk Drives configuration window in the Remote Desktop Connection. (Local Resources > Local Devices > Disk Drives)

- **Map Network Host Drives**

In My Computer, go to Tools > Map Network Drive. After the drives are mapped, files can be copied to/from the network/local drives.

3. **Any Host**

Use the eXMP's ftp server. The eXMP's ftp root directory is located in **C:\inetpub\ftproot**. From any host, you can login to the ftp server as an "Anonymous" user and no password is required. File access privileges are read, write, and delete. From a Windows host, you can login to the ftp server with Microsoft's Internet Explorer, by specifying the ftp address (**default = ftp://192.168.1.74**). Files can be transferred by copy/paste or drag 'n' drop.



Using the eXMP-SynqNet Motion Controller

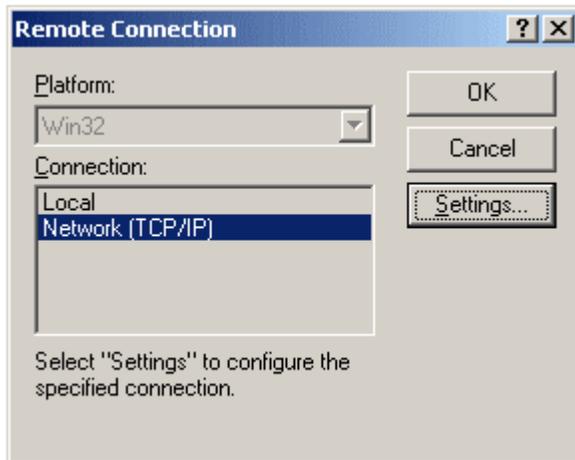
You will need to install the MPI software on the eXMP to use the motion controller features. Copy the software installation file (**xx.xx.xx_WinNTSetup.exe**) to the eXMP. See the [File Transfer](#) section. After the installation file is copied to the eXMP, execute the installation via the Remote Desktop Connection. Although the InstallShield is slow over the Remote Desktop Connection, the software installation process is the same as an XMP-Series controller in a host PC system.

For detailed installation instructions see the [Software Installation Instructions](#). After the software is installed, you're ready to connect SynqNet nodes and begin application development. The [SynqNet-XMP QuickStart Guide](#) will show you how to connect SynqNet nodes and use Motion Console to move a motor.

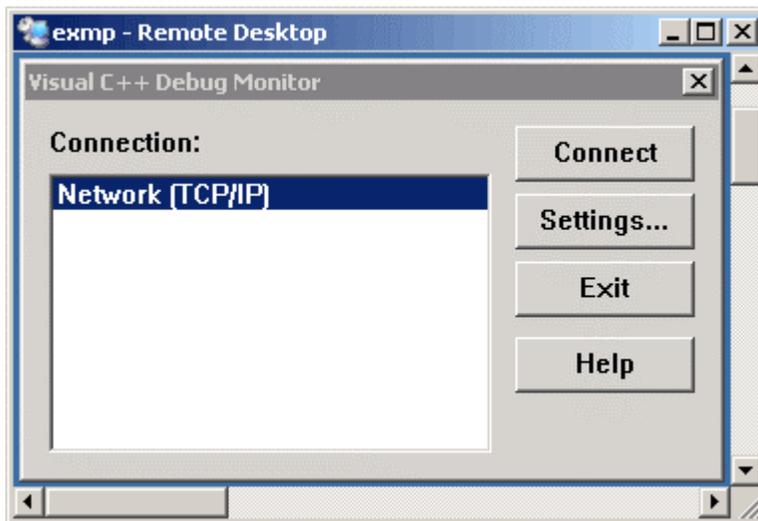
Using the Remote Desktop Connection will greatly simplify application development. All Windows tools (Motion Console, Motion Scope, Bode Tool, etc.) will execute on the eXMP via the Remote Desktop Connection. Although the eXMP probably doesn't have enough free compact flash space to install the MS Visual Studio environment and your application code, you will find it useful and convenient to build applications on the host and then download them directly to the eXMP.

Remote Debugging with MS Visual Studio

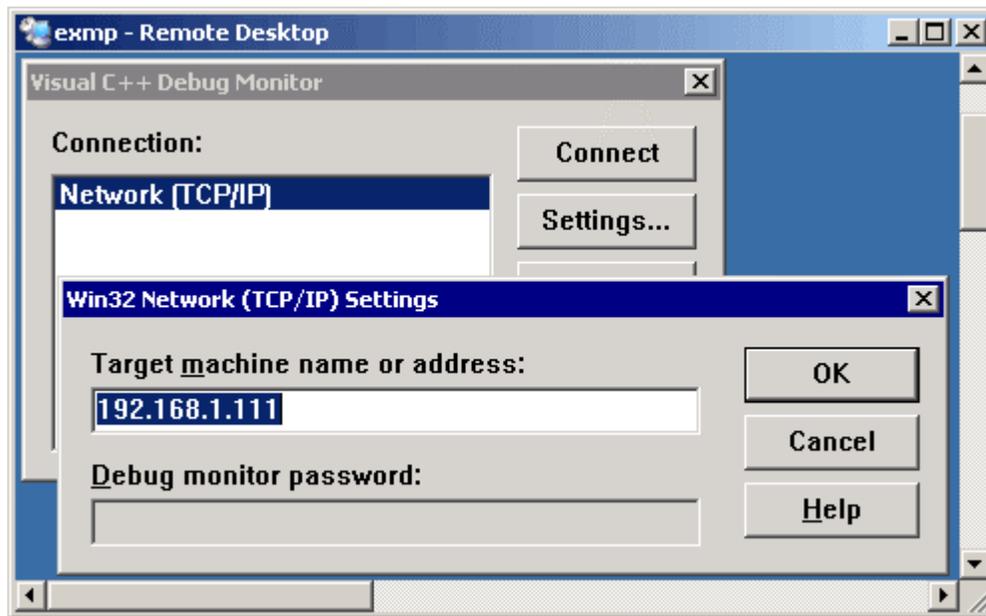
Microsoft Visual Studio supports remote debugging. Using remote debug, you can run the debugger on the host, stepping into the executable code on the target (eXMP). To use this feature, you will need to configure MS Visual Studio to use remote debugging with the **Debugger Remote Connection** (Build > Debugger Remote Connection) via a TCP/IP connection:



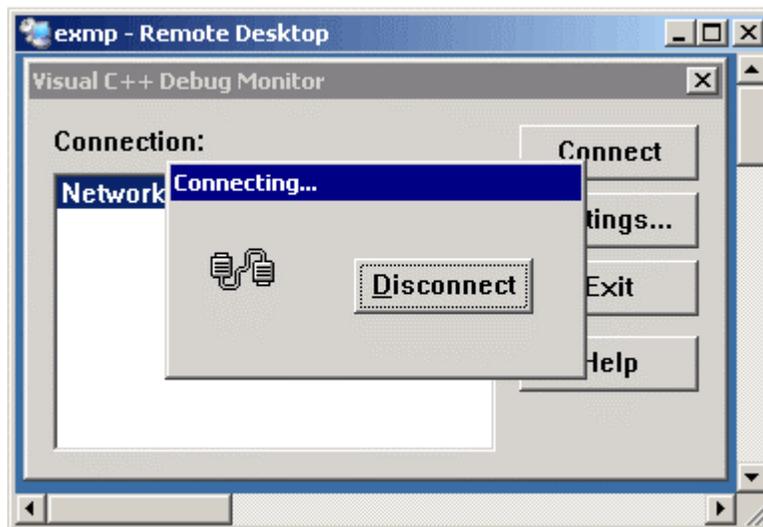
You will also need to install the remote debugger monitor on the target system (eXMP). Contact Microsoft for details. Then run the debugger monitor on the target system (eXMP) with the TCP/IP option: **msvcmon -tcpip**



Configure the Host connection via the Settings tab.



Click the Connect button to connect to the host.



And now you will be able to run the debugger remotely from your host system.

Board Support Package Guide

eXMP Startup

After the BIOS loads, the Windows XP Embedded OS will load from the on-board compact flash memory. During the BIOS boot, messages will print to the serial console (COM1). The Windows XP Embedded image will start FTP and Telnet servers at boot time. The FTP site supports Anonymous login and no password required. The Telnet server uses the same login name and password as the Windows XP username and password.

The root directory contains 3 start-up batch files:

- start1.bat
- start2.bat
- start3.bat

These files will be executed each time the OS is booted. By default, the 'start' batch files are empty. You can edit these batch files to launch applications or other utilities (for example, server.exe).

Files on the Compact Flash (CF)

The Compact Flash is mounted as drive C. Windows XP Embedded defines the directory structure, which is very similar to a standard Windows XP directory structure. There are a few directories:

/inetpub

Contains the FTP server and Web server administration scripts and root directories.

/inetpub/ftproot

Contains the files from the FTP site. There is also a shortcut on the desktop.

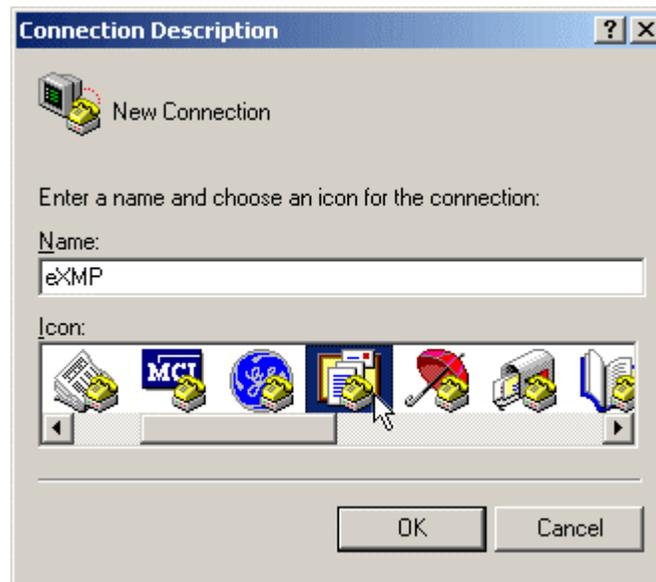
/batchfiles

Contains the Devcon.exe and driverswap batch file. These tools are useful for switching between MPI versions that require different device driver versions.

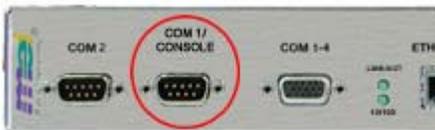
Host-side Console Connection

The eXMP supports console output on Com1. During the eXMP boot, the BIOS information is directed to the console. After the BIOS boot is complete, the console is no longer active. However, the console is useful for debugging purposes, when a TCP/IP connection is not available.

1. Power down Controller.
2. Open HyperTerminal and configure a new connection. Choose a name and icon for this connection.



3. Console mode is supported on the eXMP to gain access to the BIOS information. Once Windows XP Embedded loads, the console is no longer active. A host system must be attached to the Com1 / Console port on the eXMP via a NULL modem serial cable having RIN (pin 9) and DTR (pin 4) shorted together on the connector.



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).



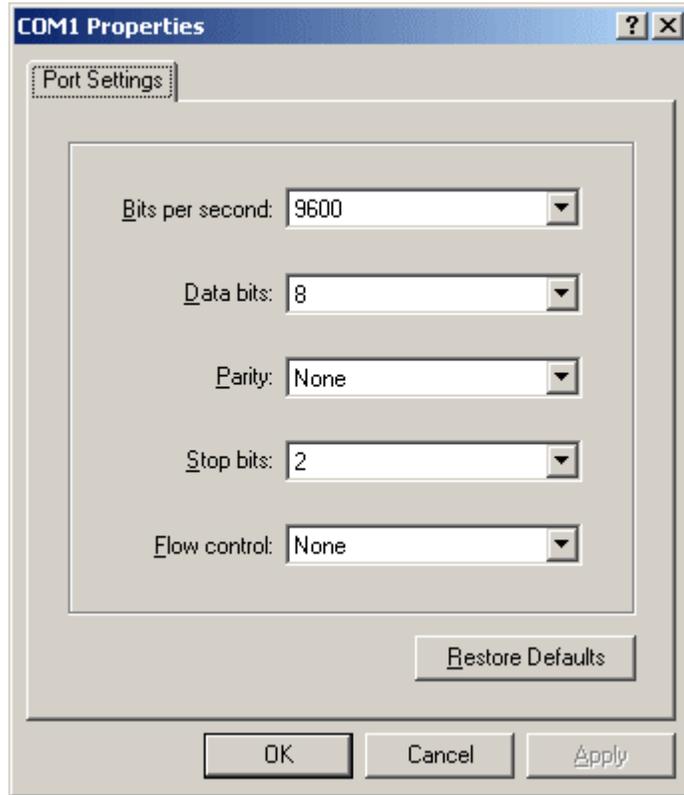
While MEI does not stock/sell this adapter, MEI can provide customers with a detailed cable drawing to assist in the manufacturing of their own.

4. After pressing OK, switch “Connect using” to the appropriate COM port. All other fields should be grayed out after selections have been made.



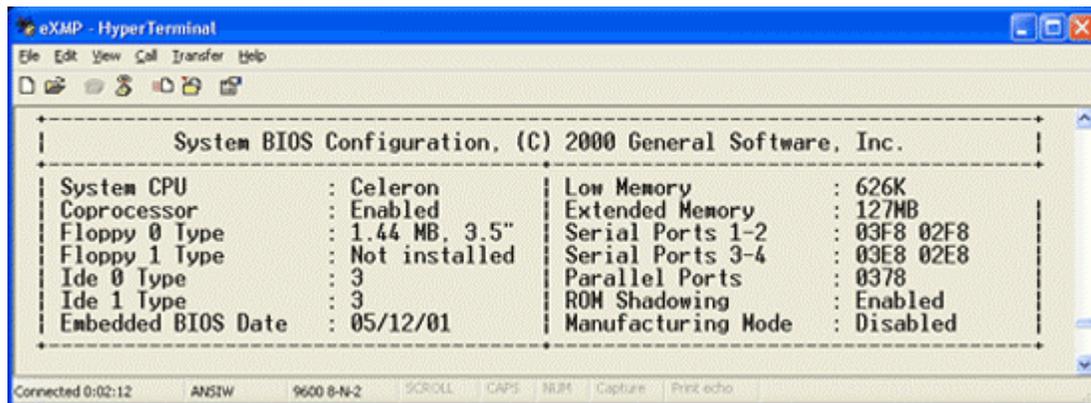
5. Configure the connection as follows:

- 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.

6. Power up the eXMP-SynqNet. The following BIOS information will appear:



XP Embedded Revision History

Rev 1.1

Add backup account

XP embedded requires passwords for account access via Remote Desktop. Ironically, it does allow users to set the password to NULL (no password), which would make future account login via Remote Desktop impossible. A back-up user account was added to provide a way to recover:

User Name: mei

Password: exmp

Add version to XPe image

The XP embedded image version is located in the file WERUNTIME.INI (root directory). To read the version, open WERUNTIME.INI with Notepad and find the keyword RunTimeOEMRev.

Default automatic logon

In the previous image, the default automatic logon was:

User Name: EXMP

Password:

The default automatic logon has been changed to:

User Name: Administrator

Password: exmp

Send IP address information to COM1 (console) at boot

The start1.bat file has been modified to call ipinfo.bat, which will send IP configuration information to COM1 (console). This is useful for determining the eXMP's IP address, if the computer name or IP address is unknown. Please DO NOT remove this call from the batch file.

Rev 1.0 – Initial Release