E03CXPN

MCF5441x

LAB
4

MCF5441X
Linux®—getting started
with RTC and telnet

freescale
semiconductor

Get to know the TWR-MCF5441x

Primary Connector

RS232 Header (UART0)

RCON Boot Setting Switches

RS232 Header (UART4)

Boot Setting Switches

Mini-B USB Connector (OSBDM)

MCF5441X MPU

Potentiometer

LEDs

Switches

Interrupt Push Buttons

Reset Button

26-pin BDM

Secondary Connector

TWR-MCF5441X-KIT
Freescale Tower System

The TWR-MCF5441X module is part of the Freescale Tower System, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Take your design to the next level and begin constructing your Tower System today.

**LAB
4**

Linux®—Getting Started with RTC and telnet

This document explains the out-of-box demo of the Freescale TWR-MCF5441X system. TWR-MCF5441X system is a Freescale Tower-compatible system based on the MCF5441X ColdFire MCU. This document presumes that the reader has reviewed the Quick Start Guide and followed the steps to setup the hardware system.

Lab tutorial for embedded Linux kernel

How to start Linux

The TWR-MCF5441X module will start the Linux demo when the user powers up the Tower System. U-boot loader will automatically count down from 5 to bring up the Linux Kernel. If any key is pressed during the count down, it will stop and return to the U-boot prompt. Enter the following command on the U-boot command line to start the Linux kernel.

U-boot command: "-> run linuxjffsboot"

How to run the real-time clock (RTC) application in Linux

By default, the clock is set to 2112-01-01 03:48:53 UTC (186096037). Enter the following commands on the Linux command line to execute the applications.

Linux command: "[root@freescale /]# date"
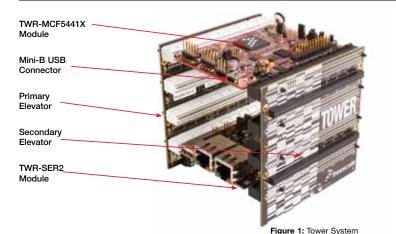Linux command: "[root@freescale /]# hwclock"

1. To set the clock to a known date and time, use the following command:
   # date -u MMDDhhmm[CC][YY].ss
   For example: date -u 010912002010.30 will set the time to Jan 9 12:00:30 2010.

2. To sync up with hwclock, type "hwclock –w"

3. Now both hwclock and date application are synchronized. To display the current date and time, enter hwclock or date command.

   [root@freescale /]# date

   Fri Jan 1 12:00:30 UTC 2010

   [root@freescale /]# hwclock

   Fri Jan 1 12:00:32 2010 0.000000 seconds

Prepare the network and telnet to the telnet server

The default Ethernet for eth0 device is the RJ45 on the TWR-SER2 Tower board. First, you need to setup the network of the TWR-MCF5441X if Ethernet is not connected after Linux bring up.

1. Use Ethernet cable to connect RJ45 connector on the TWR-SER2 port A to your Internet connection.

2. If your network has a DHCP server, type the following command in console:
   # udhcpc

3. If your network does not have a DHCP server, you need to configure your target network IP manually. Here is the step:
   # ifconfig eth0 <target ipaddress> netmask <target netmask> up

4. You can use ping command to check if the Ethernet is working properly.
   # ping <known IP address on the network>

5. If the network is ready, you may start the telnet session by typing the following command in console:
   # telnet <telnet server IP address>

About the Tower System

TWR-MCF5441X
Module

Mini-B USB
Connector

Primary
Elevator

Secondary
Elevator

TWR-SER2
Module

Figure 1: Tower System

Learn more at freescale.com/tower.