# Configuring Serial Console Redirection for the Intel® ISP1100 Internet Server

## *Overview*

The ISP1100 BIOS is capable of displaying and receiving input to/from both a local and/or a remote serial console. A common way to use the remote console feature is through the use of *terminal emulation* software running on a client PC that is connected to an ISP1100 serial port using a standard Null Modem Cable. This can be useful when updating the BIOS on an ISP1100 system, which does not have a local console.

This document explains how to configure the ISP1100 BIOS Serial Console Redirection for use with *HyperTerminal** - a standard and pervasive terminal emulation Package for Windows* (Win98*, NT 4* and Win2000*) based PCs.

## *Real Mode Only*

The BIOS supports Console Redirection only while the processor is operating in Real-mode. Once an operating system boots, the processor is switched into Protected-mode and BIOS Console Redirection is no longer enabled. Other forms of remote serial (or network) based communication are available once the Operating System boots – *Telnet* for example allows a remote connection to be made over the network once the Operating System is running.

## *Do I need a local Video Adapter?*

A video adapter will allow utilities such as IFLASH (BIOS upgrade utility), Option ROM configuration, diagnostic or simple DOS* commands to be run through a BIOS redirected serial console. These utilities write to video memory even though output is redirected. Without a video card installed there will be no video memory for the utilities to write to. *If you intend to use Serial Console Redirection to run utilities prior to Operating System Boot, you will need to have a video adapter installed. If you only intend to use Serial Console Redirection to enter BIOS Setup, no video adapter is required.*

## *BIOS Update and Configuration*

The default action of the BIOS upon finding a video card installed is to disable console redirection. If there is not a video card installed, console redirection is enabled by the BIOS. When upgrading the BIOS, note that the BIOS IFLASH program for the ISP1100 uses a DOS "bat" file which provides two upgrade options – when upgrading the BIOS be sure to use the Interactive option (2) (the non-interactive option (1) will save factory defaults and you will lose console redirection if you have a video card installed).

In order to override the BIOS default action when a video card is installed, so that console redirection is enabled, you must enter BIOS Setup after powering the system up. The BIOS will prompt you to press F2 to enter Setup. To enable Serial Console Redirection, press the right arrow key until the "System Management" pull-down menu item is highlighted, then hit "Enter" at the "Serial Features" selection. You must enable Serial Console Redirection and then choose a COM port from the sub-menu items. Note that COM1 is routed out the back of the ISP1100 chassis and COM2 is routed out the front of the chassis.

Be sure to "Save Settings on Exit" from BIOS setup – this will assure that your choice to enable console redirection is acted upon each time the system boots, even with a video card installed. Note that some Terminal Emulation programs may have problems with mapping hot keys (F9, F10 etc). You can access any of these functions through the BIOS Setup "Exit" menu without dependency on hot keys.

## *HyperTerminal* Configuration*

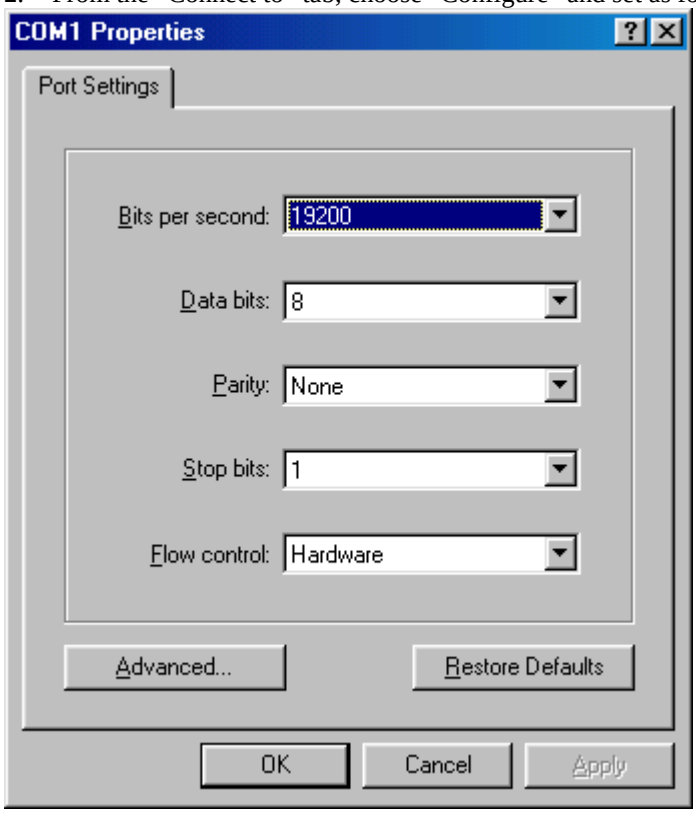
HyperTerminal* runs on Windows* based operating systems and is distributed with the O/S. It may be necessary to enable HyperTerminal* by "installing" it from:

Control Panel->Add/Remove Programs->Windows Setup->Communications.

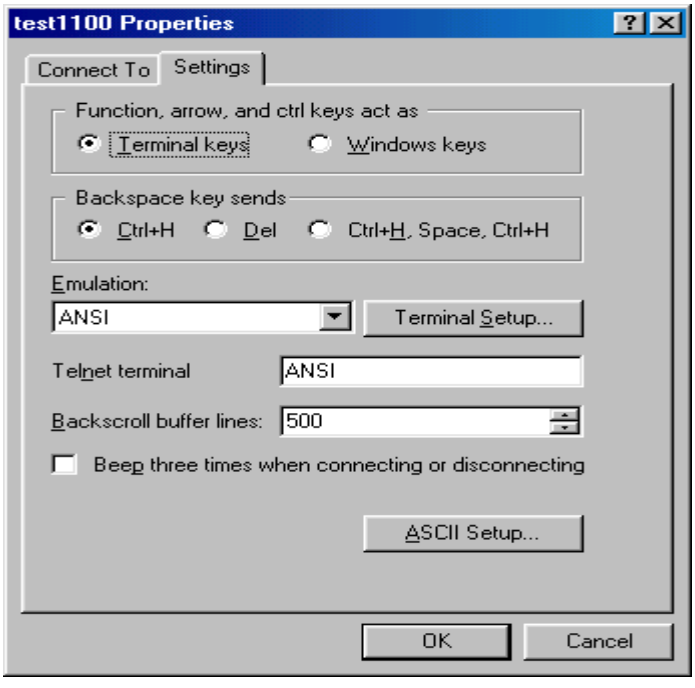
After HyperTerminal* launch, choose File->Properties:

1. "Connect using" COM port of your choice. You will connect your NULL Modem cable from this port on your PC to the ISP1100 serial port which you have enabled through BIOS setup.

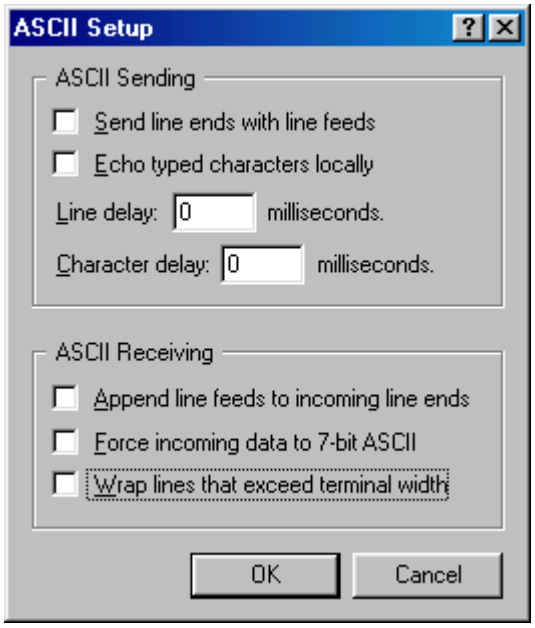
2. From the "Connect to" tab, choose "Configure" and set as follows:




2. Choose the following from "Settings" tab:

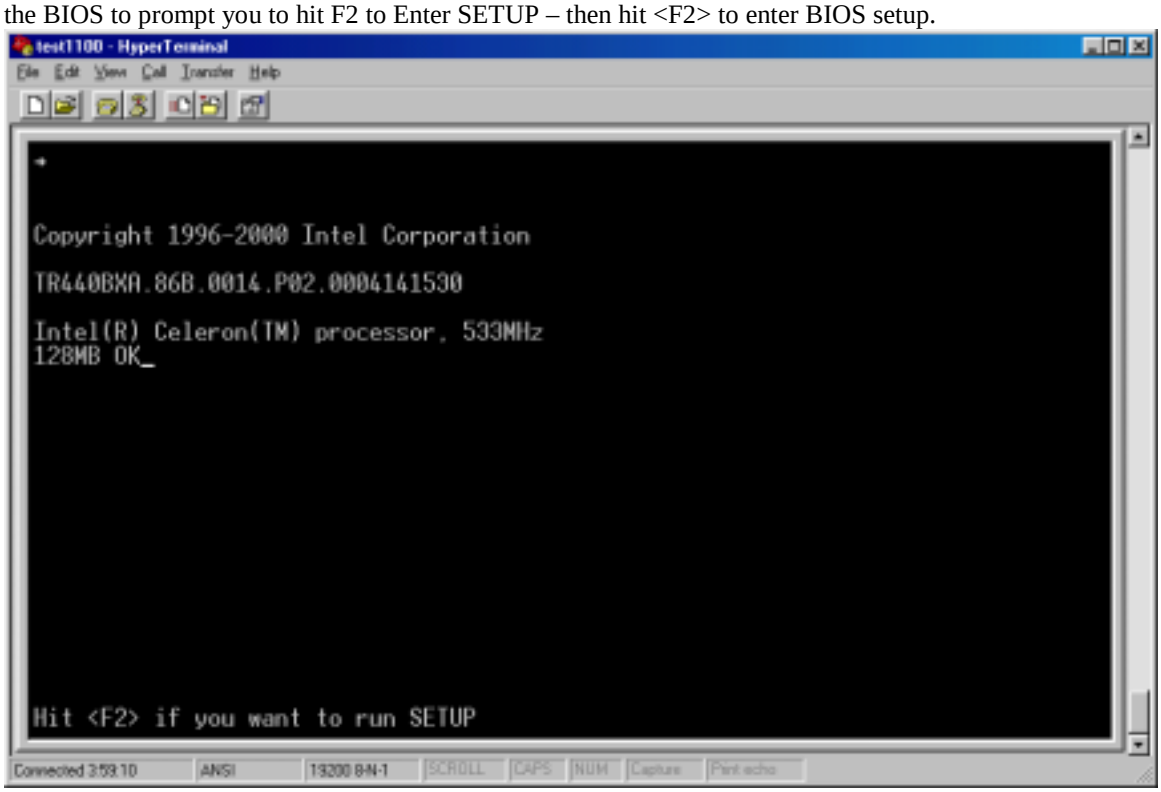


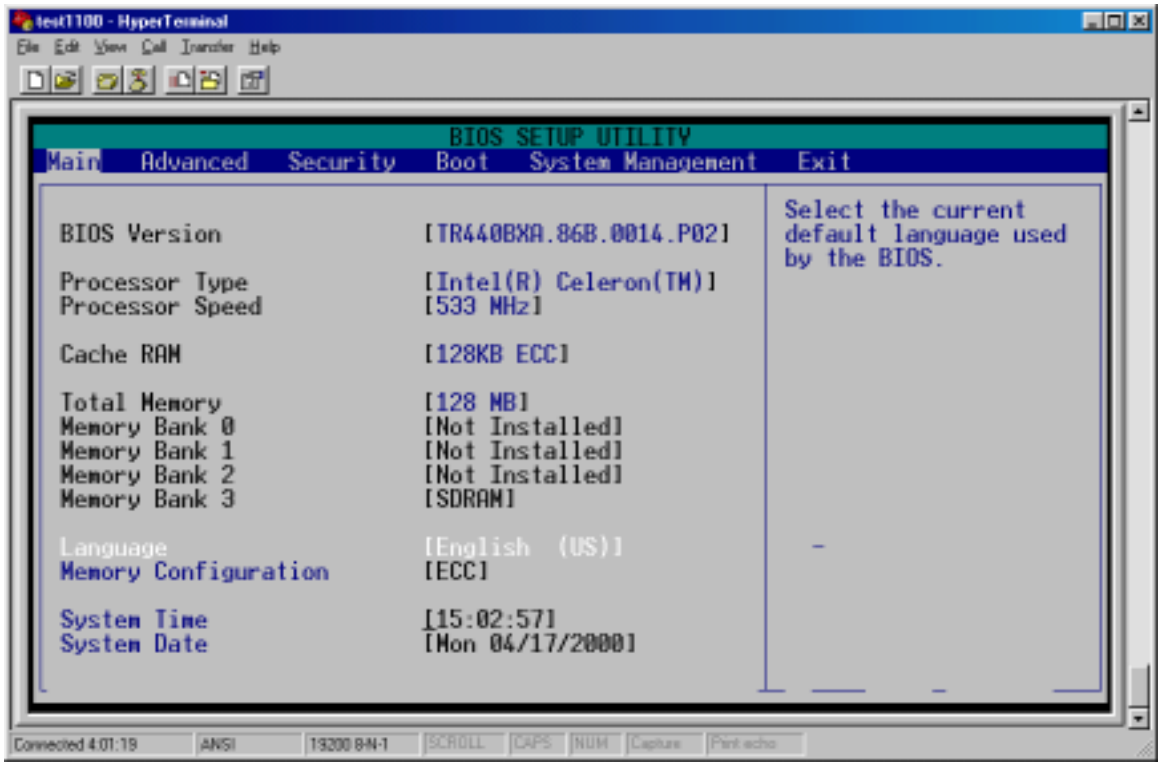
2. Choose the following at "ASCII Setup":




## *Viewing Setup through HyperTerminal**

You should now have the ISP1100 connected to the PC running HyperTerminal*, serial port to serial port, using a standard Null Modem cable. HyperTerminal* should now be configured for use and active – choose "Call" from HyperTerminal* to initiate a connection. Power on or reset the ISP1100 and wait for the BIOS to prompt you to hit F2 to Enter SETUP – then hit <F2> to enter BIOS setup.



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