

# RoBoard RB-050 Console Redirection How-To

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Robotic Division  
March 2011

# About RB-050's Console Redirection Function

- When Console Redirection is enabled, RB-050 will redirect text screens (such as BIOS & DOS screens) to one of its native COM ports.
- By Console Redirection, you are able to manipulate RB-050 on any PC via serial (RS232) ports.
  - Note that Console Redirection will become invalid if RB-050 boots into WinXP, Linux, or any protected-mode OS.



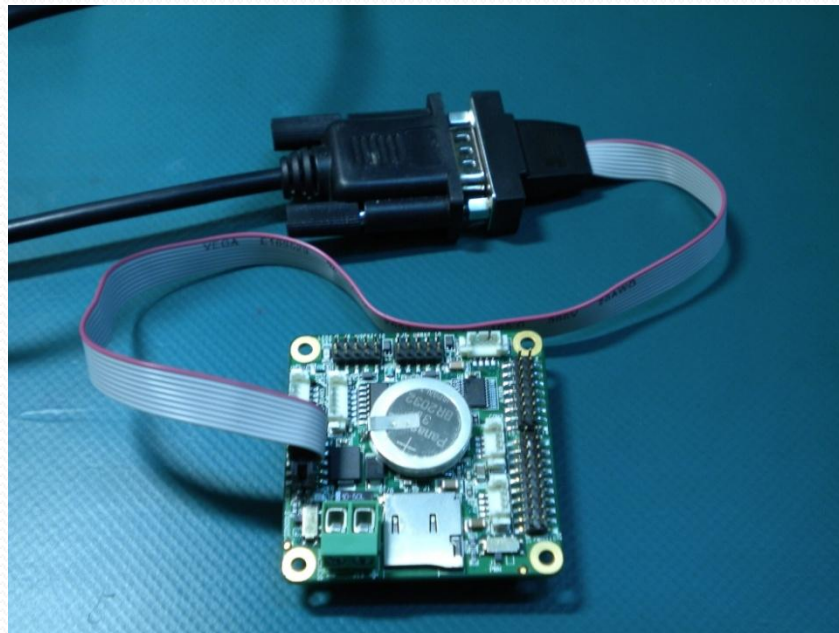
# About RB-050's Console Redirection Function

- **Remarks**

- Console Redirection is the only method to manipulate RB-050's BIOS.
- The default console-redirection port is COM1 (RS-232) at 115200 bps (with 1 stop bit, no parity, no flow control).
  - You can change the console-redirection port settings in BIOS, but should be careful to do this.

# Hardware Requirement

- RoBoard RB-050
- Any PC with serial (RS-232) ports
  - Assume it will be connected to RB-050's COM1.

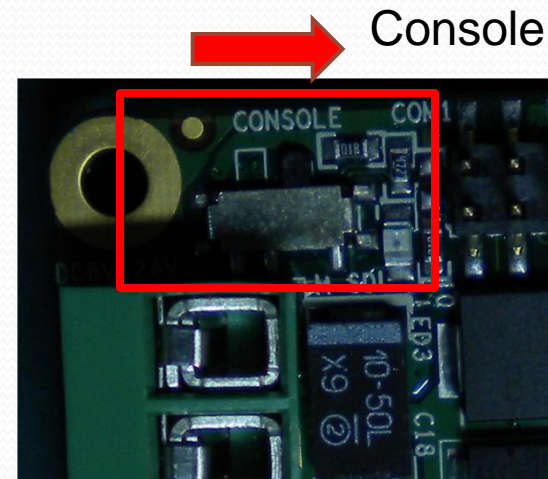
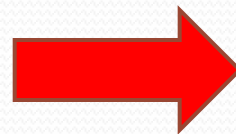
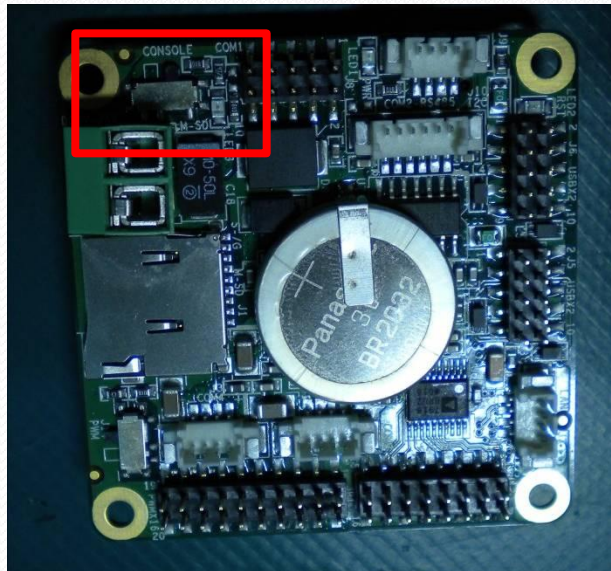




# **How to Enable RB-050 Console Redirection**

# H/W Switch

- Turn Console Redirection switch to “Console Redirection enable” (see also H/W introd. Slide)



# Remarks

- Console Redirection Function will occupy the COM port that is set to redirect the console (default COM1 at 115200bps).
- Console Redirection is valid only for Real Mode and the 80×25 text mode.
  - i.e., it doesn't work for any protected-mode OS and any graphic-mode DOS program.



# **Connect PC to RB-050 via Console Redirection**

(Use WinVista & PuTTY as an example)



# STEP 1: Download PuTTY

- Download PuTTY from :

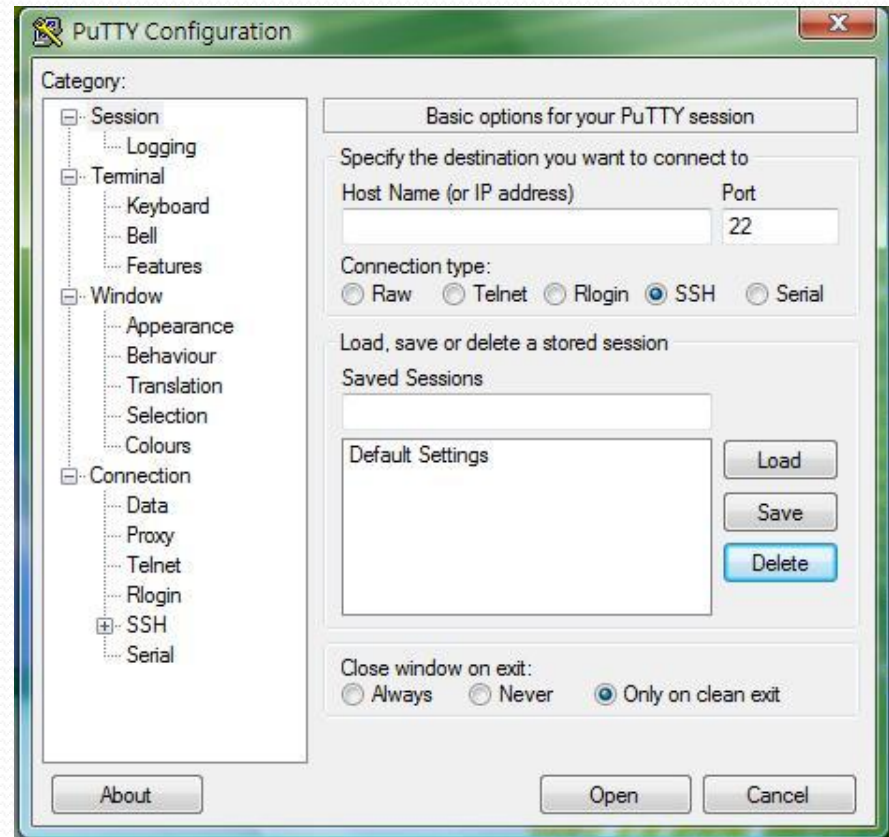
<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

## For Windows on Intel x86

PuTTY:	<a href="#"><u>putty.exe</u></a>	<a href="#"><u>(or by FTP)</u></a>	<a href="#"><u>(RSA sig)</u></a>	<a href="#"><u>(DSA sig)</u></a>
PuTTYtel:	<a href="#"><u>puttytel.exe</u></a>	<a href="#"><u>(or by FTP)</u></a>	<a href="#"><u>(RSA sig)</u></a>	<a href="#"><u>(DSA sig)</u></a>
PSCP:	<a href="#"><u>pscp.exe</u></a>	<a href="#"><u>(or by FTP)</u></a>	<a href="#"><u>(RSA sig)</u></a>	<a href="#"><u>(DSA sig)</u></a>
PSFTP:	<a href="#"><u>psftp.exe</u></a>	<a href="#"><u>(or by FTP)</u></a>	<a href="#"><u>(RSA sig)</u></a>	<a href="#"><u>(DSA sig)</u></a>
Plink:	<a href="#"><u>plink.exe</u></a>	<a href="#"><u>(or by FTP)</u></a>	<a href="#"><u>(RSA sig)</u></a>	<a href="#"><u>(DSA sig)</u></a>
Pageant:	<a href="#"><u>pageant.exe</u></a>	<a href="#"><u>(or by FTP)</u></a>	<a href="#"><u>(RSA sig)</u></a>	<a href="#"><u>(DSA sig)</u></a>
PuTTYgen:	<a href="#"><u>puttygen.exe</u></a>	<a href="#"><u>(or by FTP)</u></a>	<a href="#"><u>(RSA sig)</u></a>	<a href="#"><u>(DSA sig)</u></a>

# STEP 2: Configure PuTTY Serial Settings

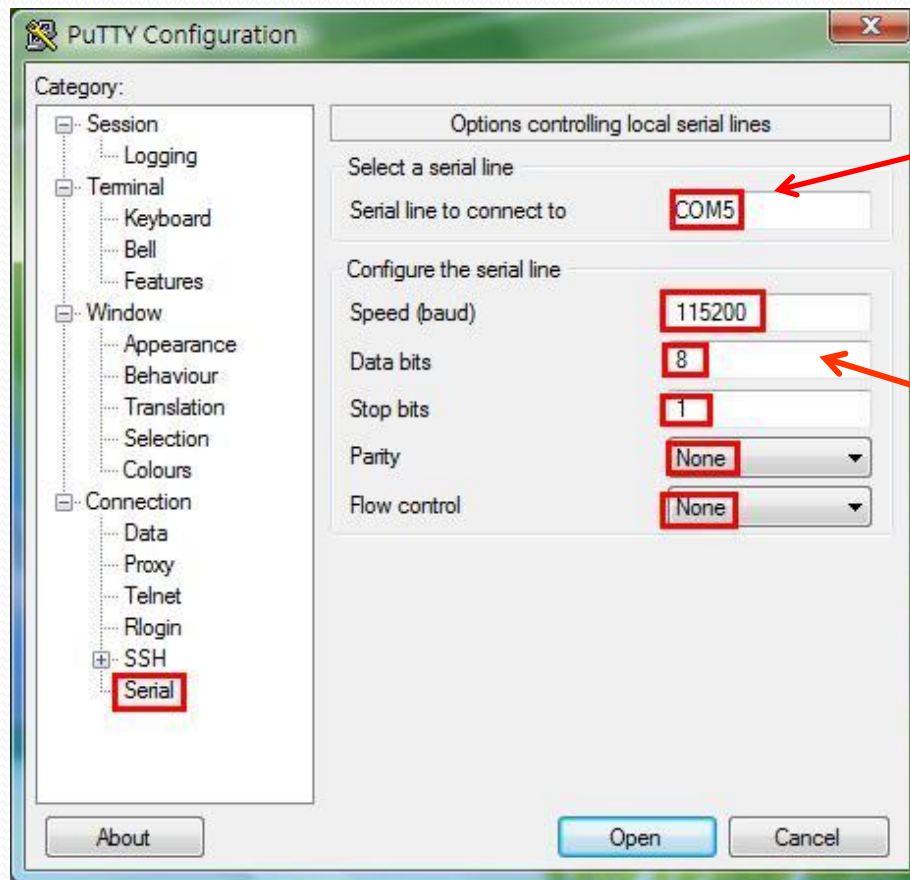
- STEP 2.1: Launch PuTTY



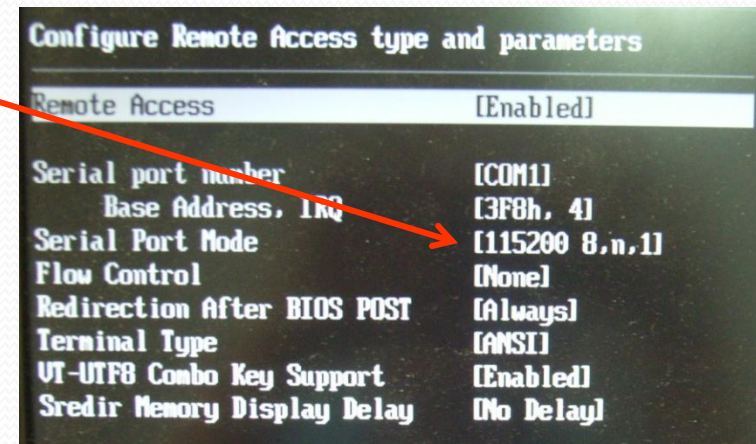
# STEP 2: Configure PuTTY Serial Settings

- STEP 2.2: Set the correct serial configuration
  - Select your PC's serial port that will connect to RB-050 (COM5 in this example).
  - The baudrate, data/stop bits, parity, and flow control settings should coincide with RB-050's console-redirection port.
    - The default settings of RB-050's console-redirection port are 115200 bps, 8 data bits, 1 stop bit, no parity and no flow control.

# STEP 2: Configure PuTTY Serial Settings

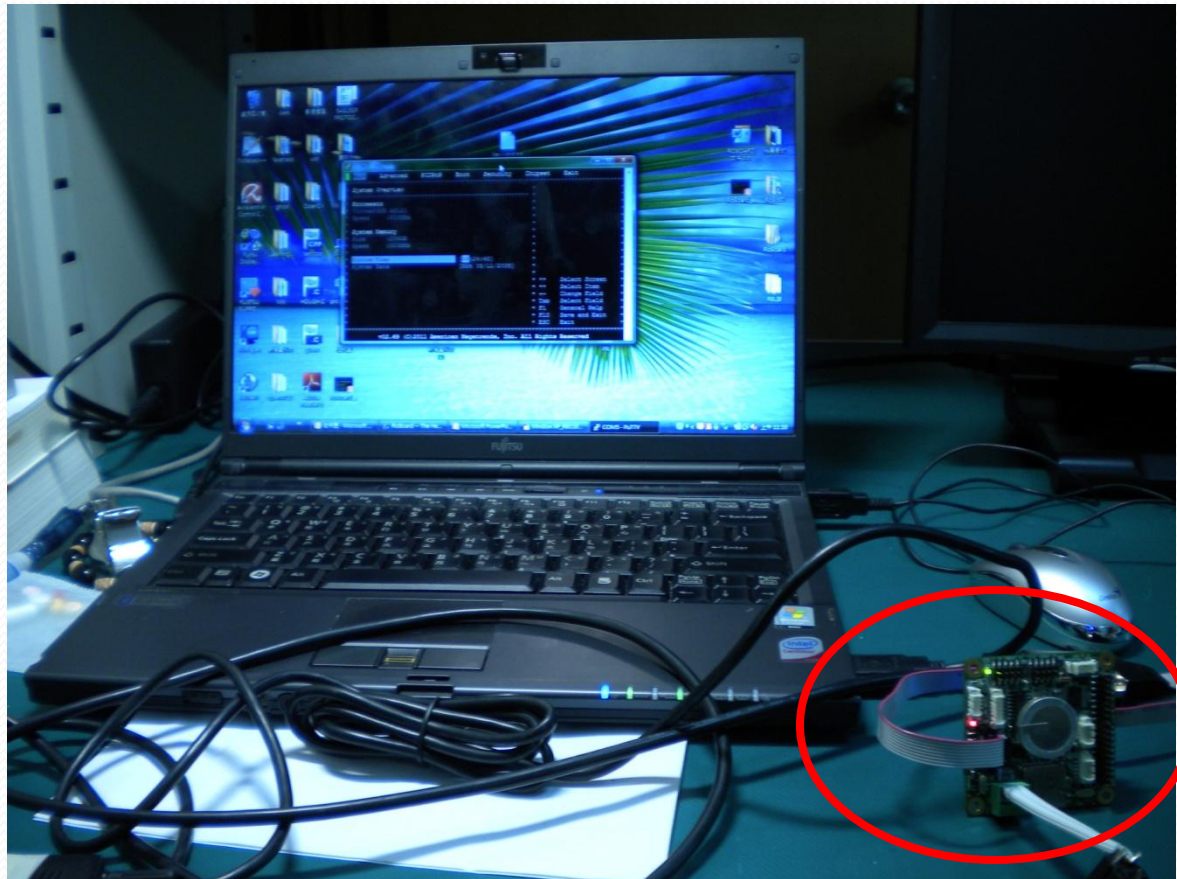


PC's serial port



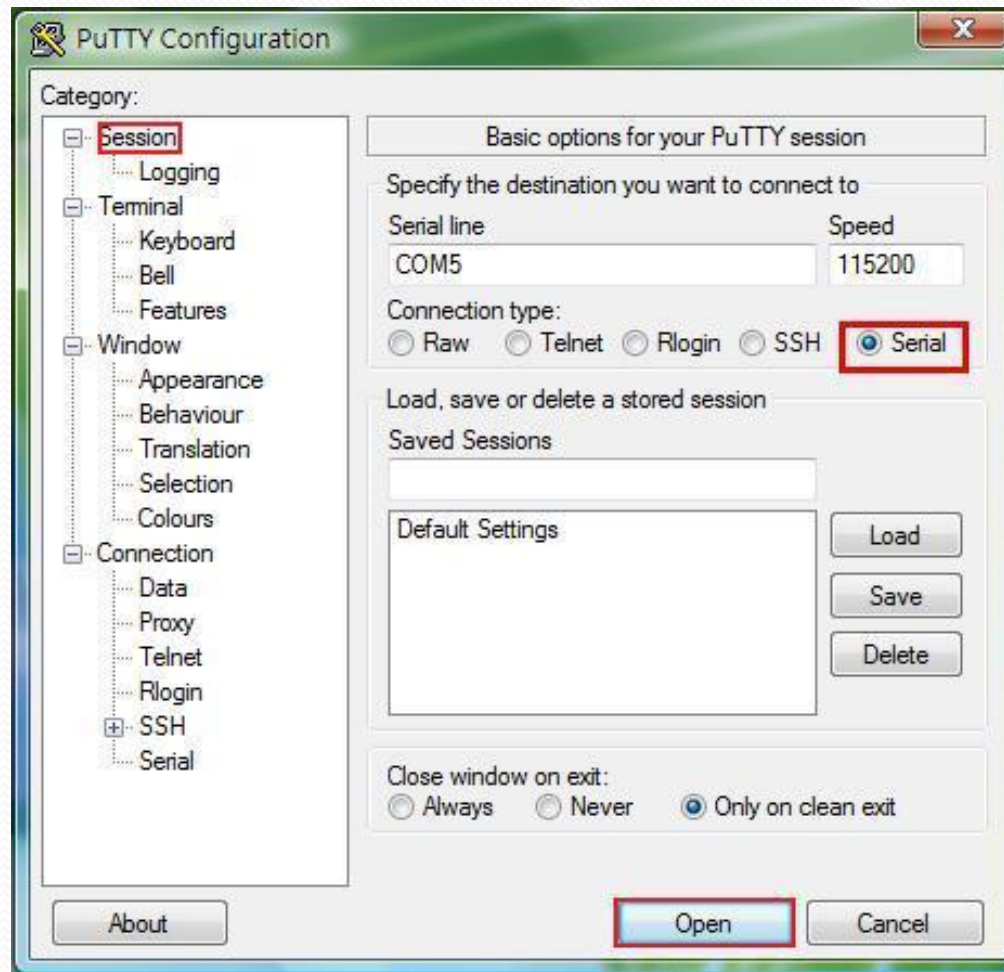
RB-050 BIOS settings

# STEP 3: Connect Serial Ports of Your PC and RB-050



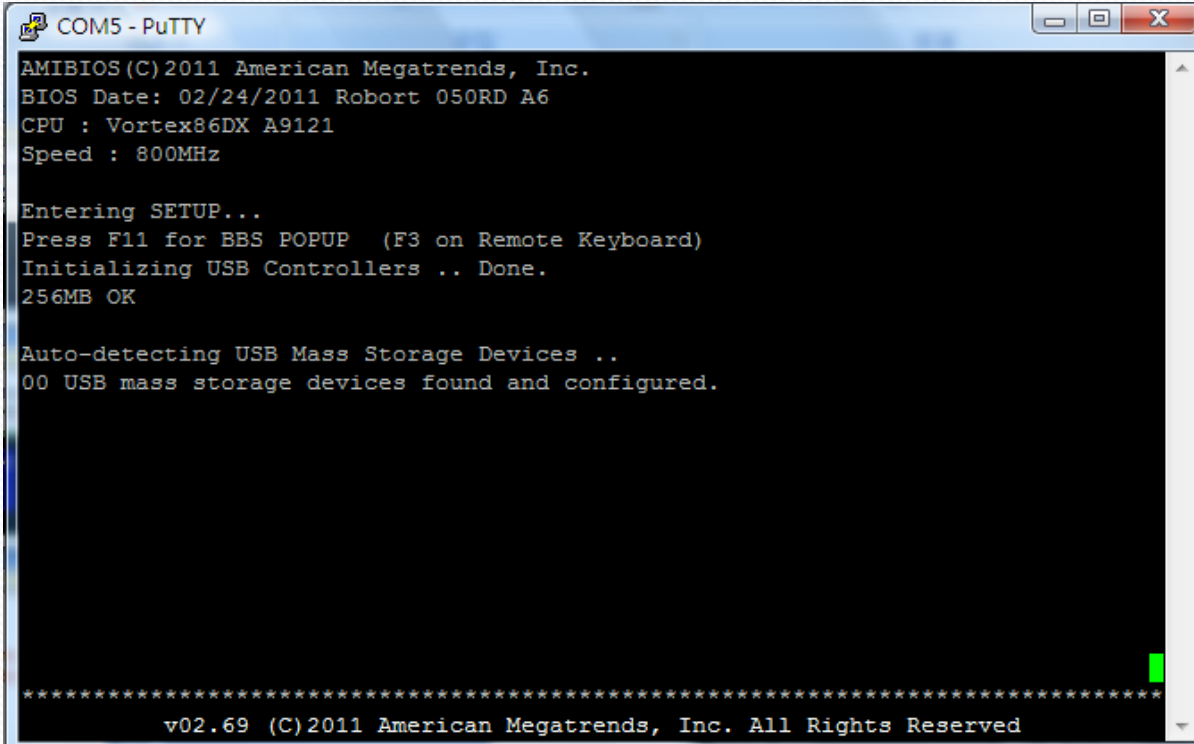


# STEP 4: Open PuTTY Serial Connection



# STEP 5: Power on RB-050

- Power on RB-050; then you will see the RB-050 boot screen in PuTTY.



```
COM5 - PuTTY
AMIBIOS(C)2011 American Megatrends, Inc.
BIOS Date: 02/24/2011 Robort 050RD A6
CPU : Vortex86DX A9121
Speed : 800MHz

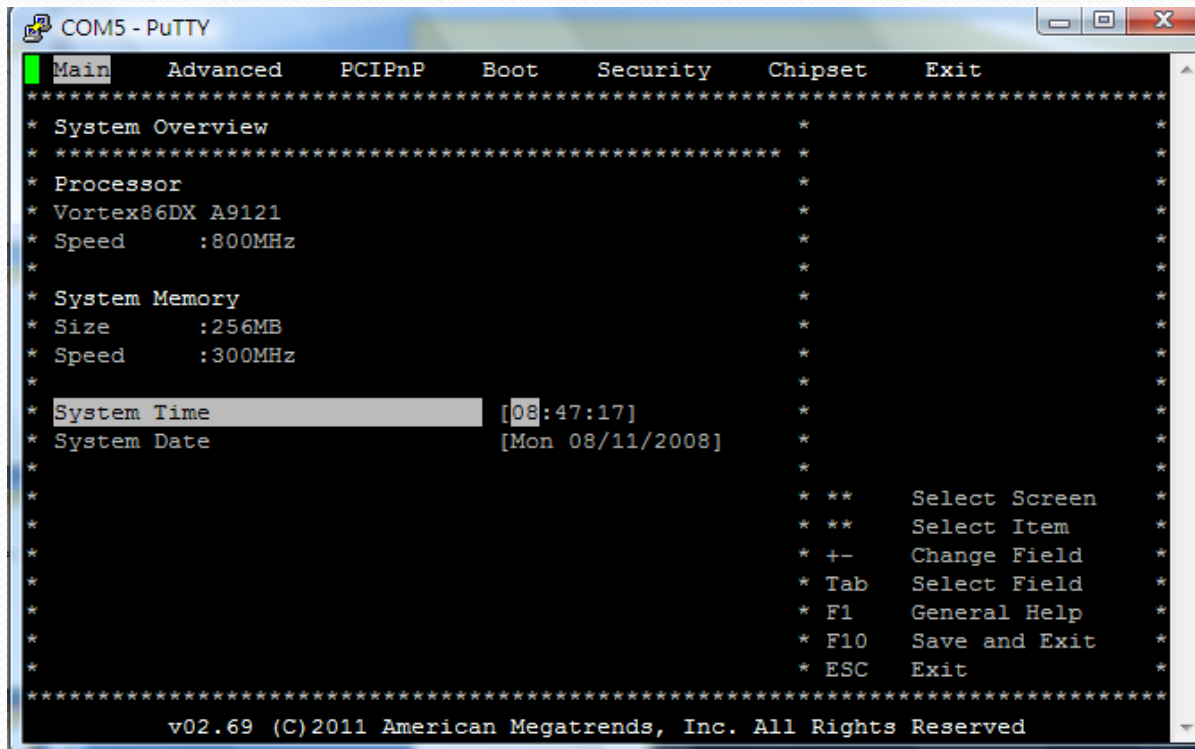
Entering SETUP...
Press F11 for BBS POPUP  (F3 on Remote Keyboard)
Initializing USB Controllers .. Done.
256MB OK

Auto-detecting USB Mass Storage Devices ..
00 USB mass storage devices found and configured.

*****
v02.69 (C)2011 American Megatrends, Inc. All Rights Reserved
```

# STEP 5: Power on RB-050

- You can then press “F4” key of your PC (in the boot screen) to enter RB-050 BIOS and manipulate it.



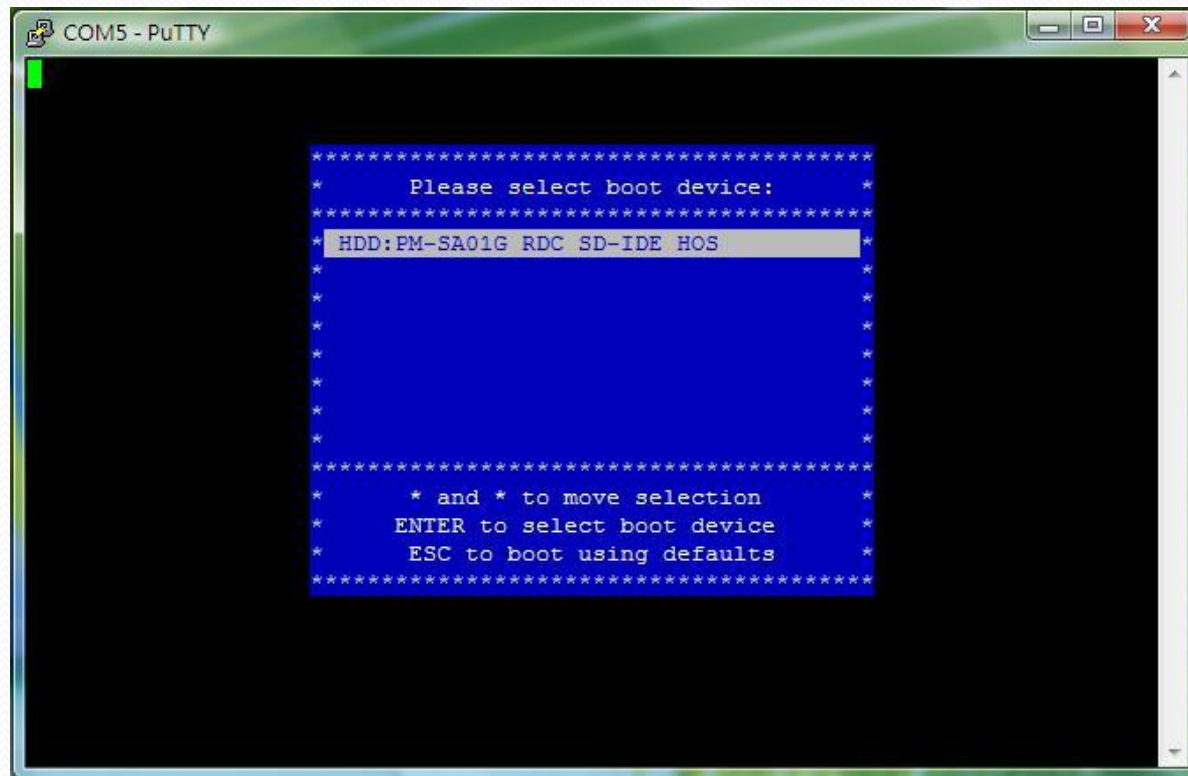
The screenshot shows a PuTTY window titled "COM5 - PuTTY" displaying the RB-050 BIOS Main menu. The menu is structured with a top bar containing "Main", "Advanced", "PCIPnP", "Boot", "Security", "Chipset", and "Exit". The "Main" menu is expanded, showing a list of system information items: "System Overview", "Processor", "System Memory", "System Time", and "System Date". Each item is preceded by an asterisk. The "System Time" and "System Date" items are highlighted with a grey background. The "System Time" is displayed as "[08:47:17]" and the "System Date" is displayed as "[Mon 08/11/2008]". At the bottom of the menu, there is a list of keyboard shortcuts: "Select Screen", "Select Item", "Change Field", "Select Field", "General Help", "Save and Exit", and "Exit". The bottom of the screen displays the version "v02.69" and the copyright notice "(C)2011 American Megatrends, Inc. All Rights Reserved".

```
COM5 - PuTTY
Main  Advanced  PCIPnP  Boot  Security  Chipset  Exit
*****
* System Overview                               *
* *****                                     *
* Processor                                     *
* Vortex86DX A9121                             *
* Speed      :800MHz                           *
* *                                              *
* System Memory                               *
* Size       :256MB                             *
* Speed      :300MHz                           *
* *                                              *
* System Time [08:47:17]                       *
* System Date [Mon 08/11/2008]                 *
* *                                              *
* * * * *                                     *
* * * * *                                     *
* +- Change Field                             *
* Tab Select Field                             *
* F1 General Help                             *
* F10 Save and Exit                           *
* ESC Exit                                     *
*****
v02.69 (C)2011 American Megatrends, Inc. All Rights Reserved
```



# STEP 5: Power on RB-050

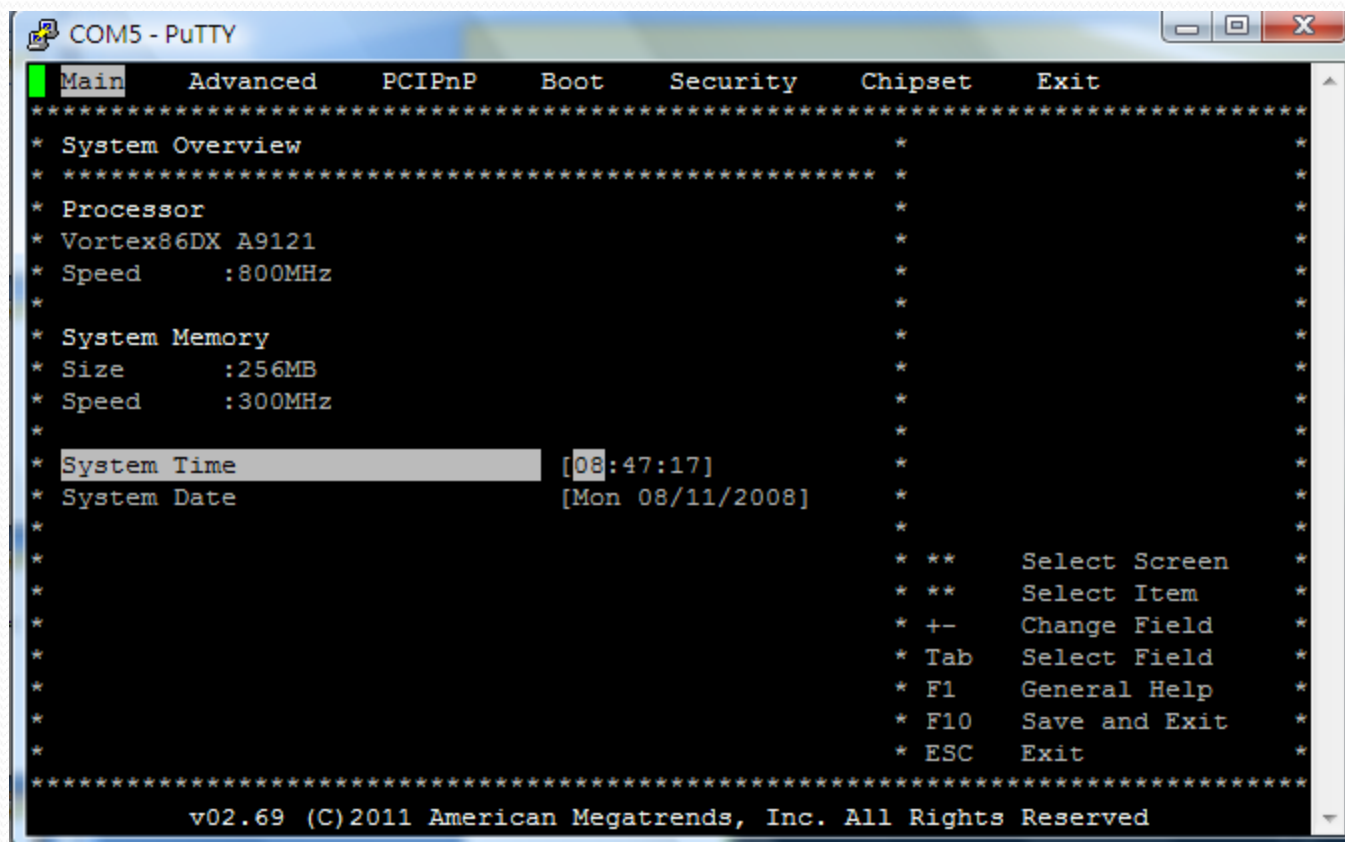
- Alternatively, you can press “F3” key of your PC to select RoBoard boot device.



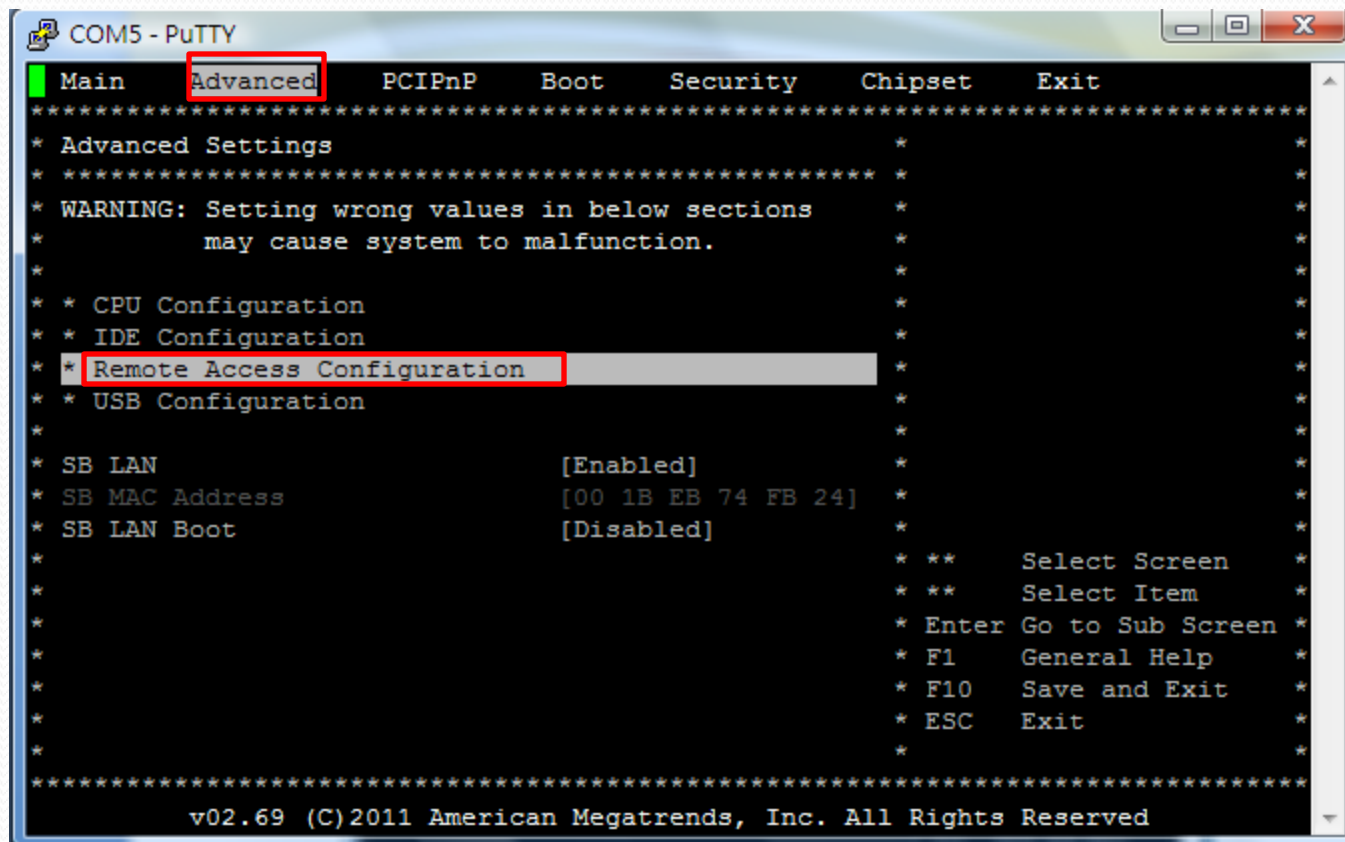


# **How to Change the Settings of Console Redirection**

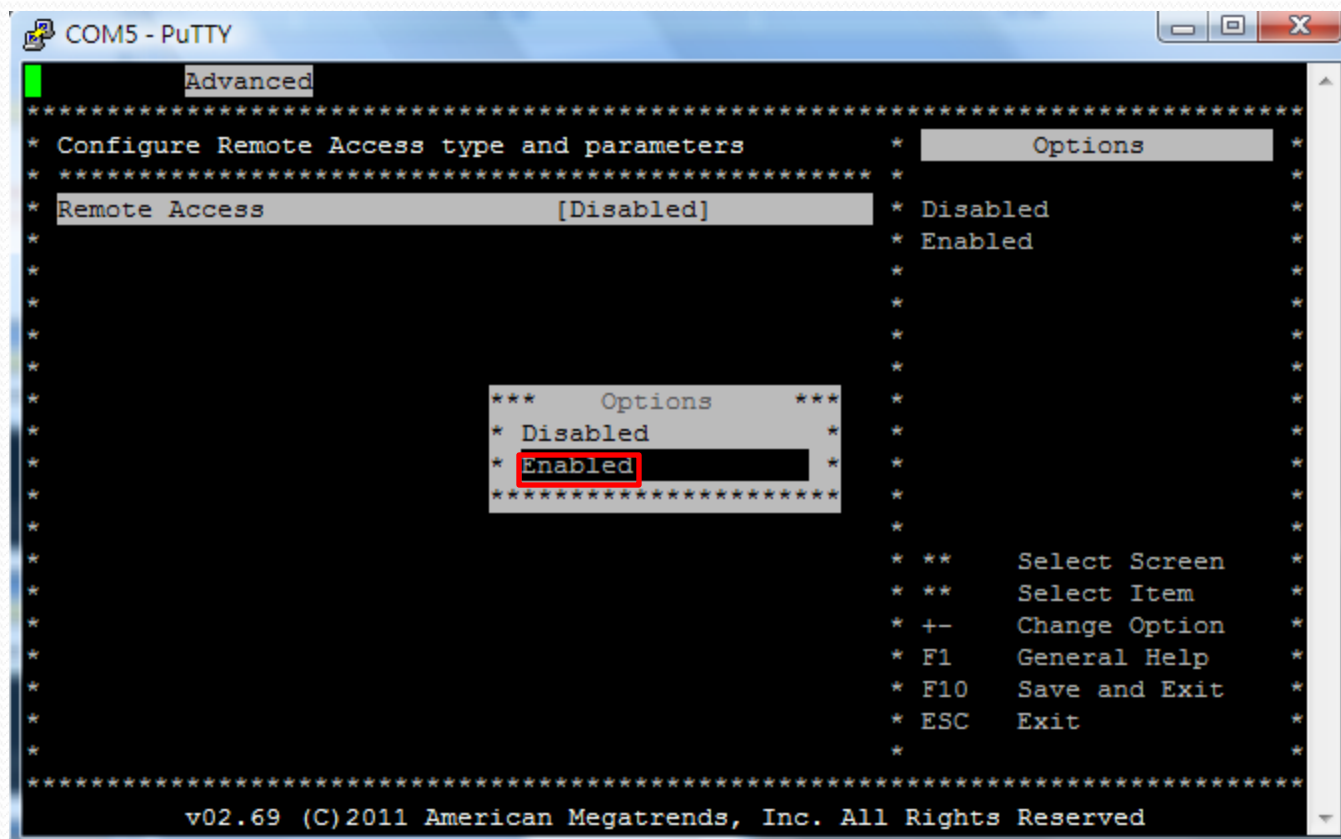
- Enter RB-050 BIOS.



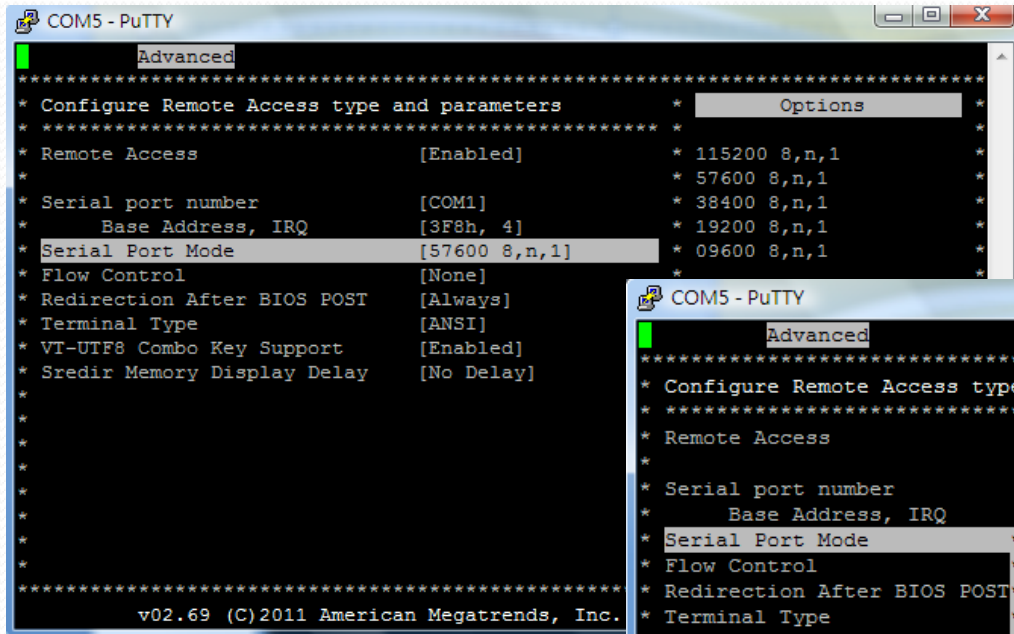
- Advanced → Remote Access Configuration.



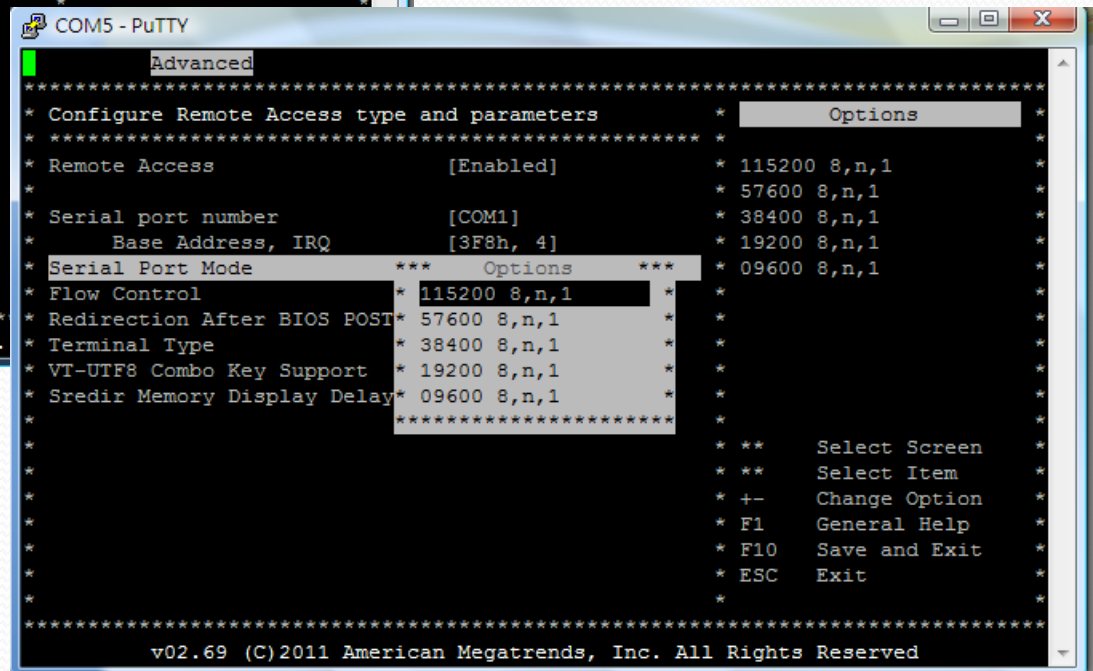
- Remote Access → Enable.



- Change the console-redirection port settings.

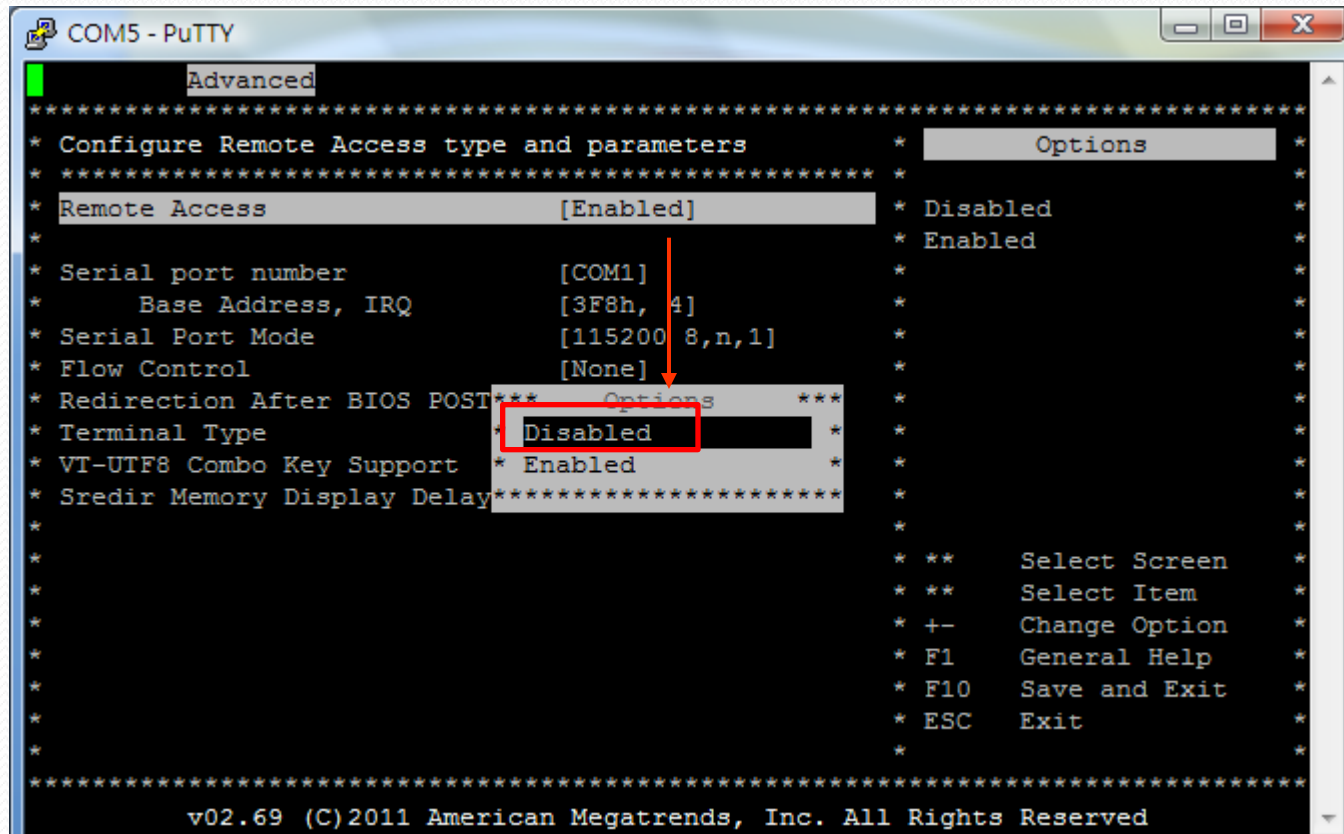


```
COM5 - PuTTY
Advanced
*****
* Configure Remote Access type and parameters * Options *
*****
* Remote Access [Enabled] * 115200 8,n,1 *
* * * 57600 8,n,1 *
* Serial port number [COM1] * 38400 8,n,1 *
* Base Address, IRQ [3F8h, 4] * 19200 8,n,1 *
* Serial Port Mode [57600 8,n,1] * 09600 8,n,1 *
* * *
* Flow Control [None] *
* Redirection After BIOS POST [Always] *
* Terminal Type [ANSI] *
* VT-UTF8 Combo Key Support [Enabled] *
* Sredir Memory Display Delay [No Delay] *
* *
*****
v02.69 (C)2011 American Megatrends, Inc.
```

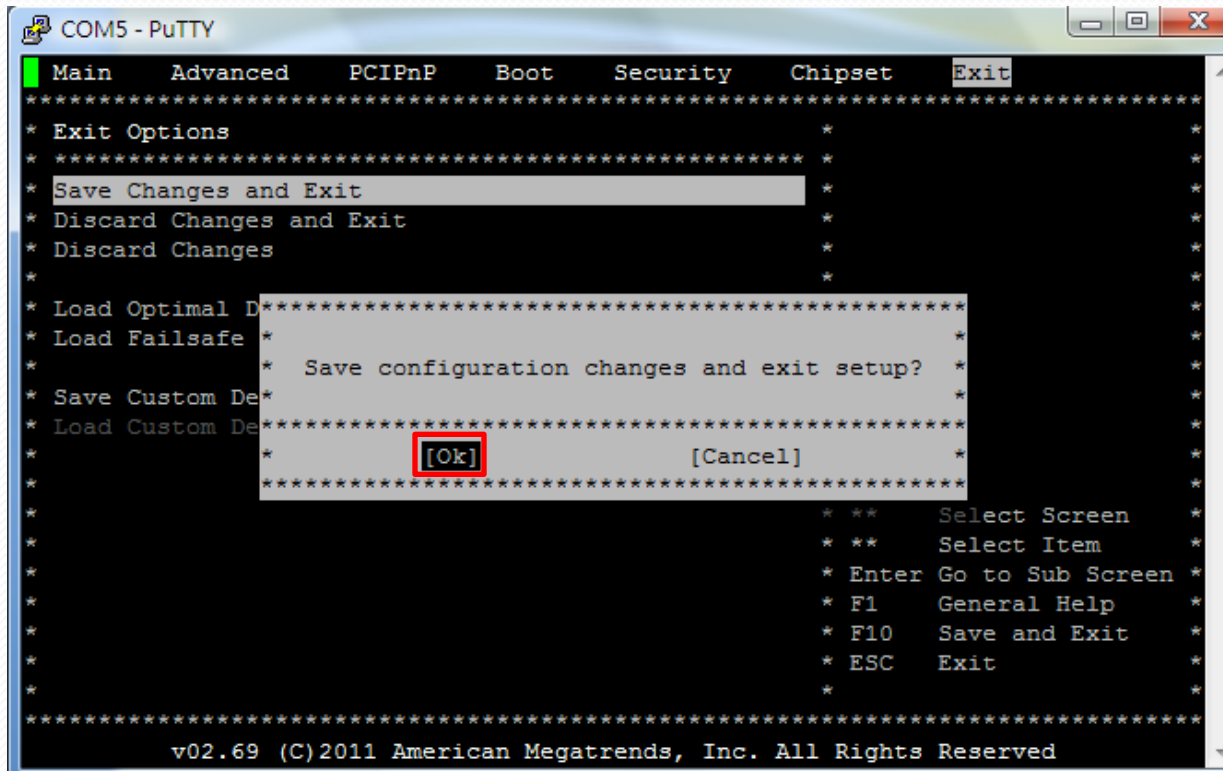


```
COM5 - PuTTY
Advanced
*****
* Configure Remote Access type and parameters * Options *
*****
* Remote Access [Enabled] * 115200 8,n,1 *
* * * 57600 8,n,1 *
* Serial port number [COM1] * 38400 8,n,1 *
* Base Address, IRQ [3F8h, 4] * 19200 8,n,1 *
* Serial Port Mode *** Options *** * 09600 8,n,1 *
* * *
* Flow Control * 115200 8,n,1 *
* * * 57600 8,n,1 *
* Redirection After BIOS POST * 38400 8,n,1 *
* * * 19200 8,n,1 *
* Terminal Type * 09600 8,n,1 *
* * *
* VT-UTF8 Combo Key Support *
* Sredir Memory Display Delay *
* *
*****
* * * Select Screen *
* * * Select Item *
* +- Change Option *
* F1 General Help *
* F10 Save and Exit *
* ESC Exit *
* *
*****
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```

- (After changing your settings) Remote Access → Disable.



- Save configuration changes and exit setup.



- Note that you should then reconnect to RB-050 with the new console-redirection settings.





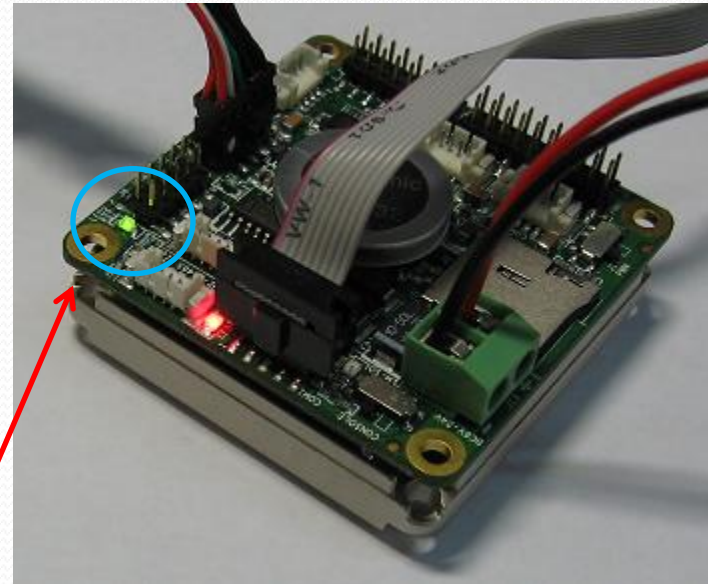
# **How to Restore the Default Settings of Console Redirection**

# Restore the Default Setting of Console Redirection

- You may need to restore the BIOS default settings of console redirection if forgetting your original settings.
- Two methods to do this
  - Method 1: Using BIOS hotkey
  - Method 2: Using RB-050 BIOS Settings Rescue Tool

# METHOD 1: Using BIOS HotKey

1. Connect an USB keyboard to RB-050
2. Power on RB-050 and Press the “Delete” key to enter BIOS menu (ensure the ~Reset LED remain light)



When RB-050 enters BIOS menu,  
the ~Reset LED should remain light

# METHOD 1: Using BIOS HotKey

3. Press “F9” → Press “Enter” (Load Optimal Defaults)




4. Press “F10” → Press “Enter” (Save Changes and Exit)

5. Now the console-redirection settings should be restored to default (COM1 115200bps, 1 stop bit, no parity, no flow control)

# METHOD 2: Using RB-050 BIOS Settings Rescue Tool

1. Download RB-050 BIOS Settings Rescue Tool from [http://www.roboard.com/download\\_m1.htm](http://www.roboard.com/download_m1.htm)

RB-050	
RB-050 BIOS (ver. A6) ( <a href="mailto:contact_tech@roboard.com">contact tech@roboard.com</a> )	
RB-050 BIOS (ver. A6) Settings Rescue Tool	

2. Follow the guide in the tool to restore the RB-050's BIOS default settings.
3. Now the console-redirection settings should return to default (COM1 115200bps, 1 stop bit, no parity, no flow control)



# The heart of Robotics

# THANK YOU

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