

**SILICON
LIGHT
MACHINES**

**Cosmo Test Board PWA-20150810-01
Reprogramming Instruction
PRC-006747-01 Rev. B**

June 19, 2017

Revision History

Rev	Author	Description	Date
A	A.Volchegursky	Initial release.	03.21.17
B	G. Myatt	1.5 Changed name of soft button from OK to CLOSE and added addition instructions. 2.4 Added instruction on how to determine the IP address of the Cosmo Board Section 2: Warning added regarding FPGA reprogramming.	06.16.17

INTRODUCTION

The instruction covers only reprogramming of the firmware and FPGA on the Cosmo test board. It means that the board was already initially programmed. The whole process of reprogramming consists of three steps:

Step 1: Network setting

The reprogramming process uses Ethernet connection as a physical layer. Since Cosmo board carries fixed IP address, the user has to temporarily change IP address of the PC to the address of the same domain.

Example of the Cosmo IP address: 192.168.0.16

PC address to communicate with Cosmo through Ethernet to be 192.168.0.xx, where xx can be 10...15

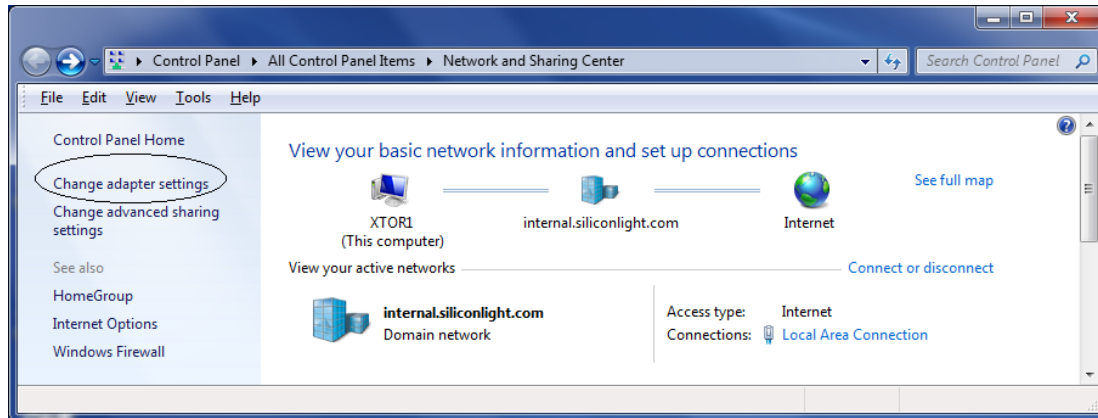
Step 2: Downloading new files

The application file “Cosmo Downloader.exe” to be copied on the PC as a tool of reprogramming.

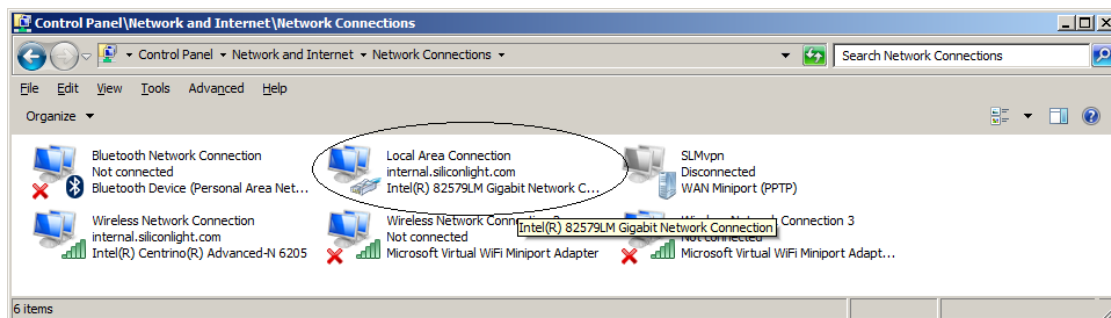
Step 3: Restoring PC original Network setting

1 Network Setting

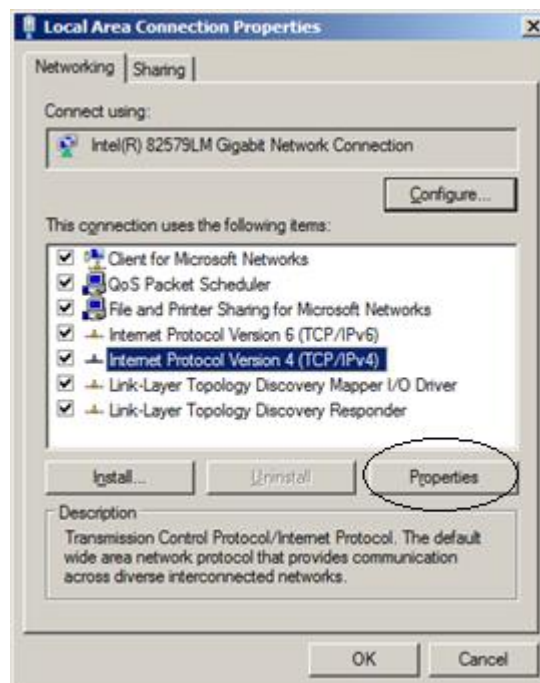
- 1.1 Go to [Control Panel] > [Network and Internet] > [Network and Sharing Center] and click on [Change Adapter Setting] from it



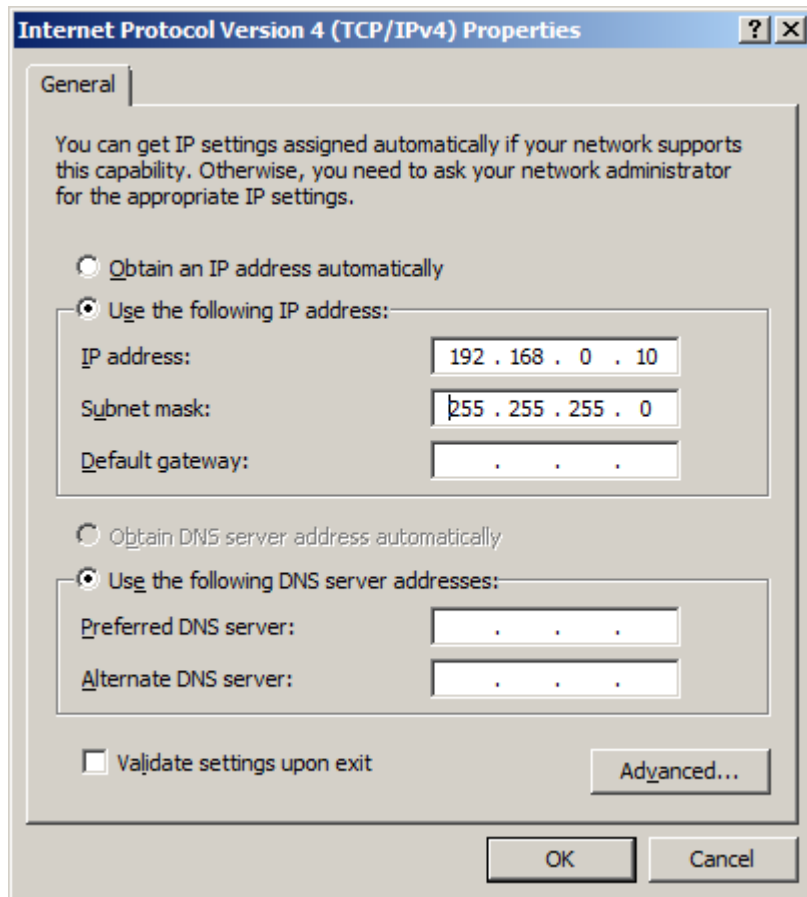
- 1.2 Select Local Area Network and choose [Property] from the context menu.



- 1.3 Select [Internet Protocol Version 4 (TCP/IPv4)] and click [Properties] button.



- 1.4 Select [Use the following IP address] and enter IP address 192.168.0.10, then click on subnet mask to get automatically filled 255.255.255.0. Then click [OK]. The [Internet Protocol Version 4 (TCP/IPv4) Properties] window will close and the [Local Area Connection Properties] window will still be open.

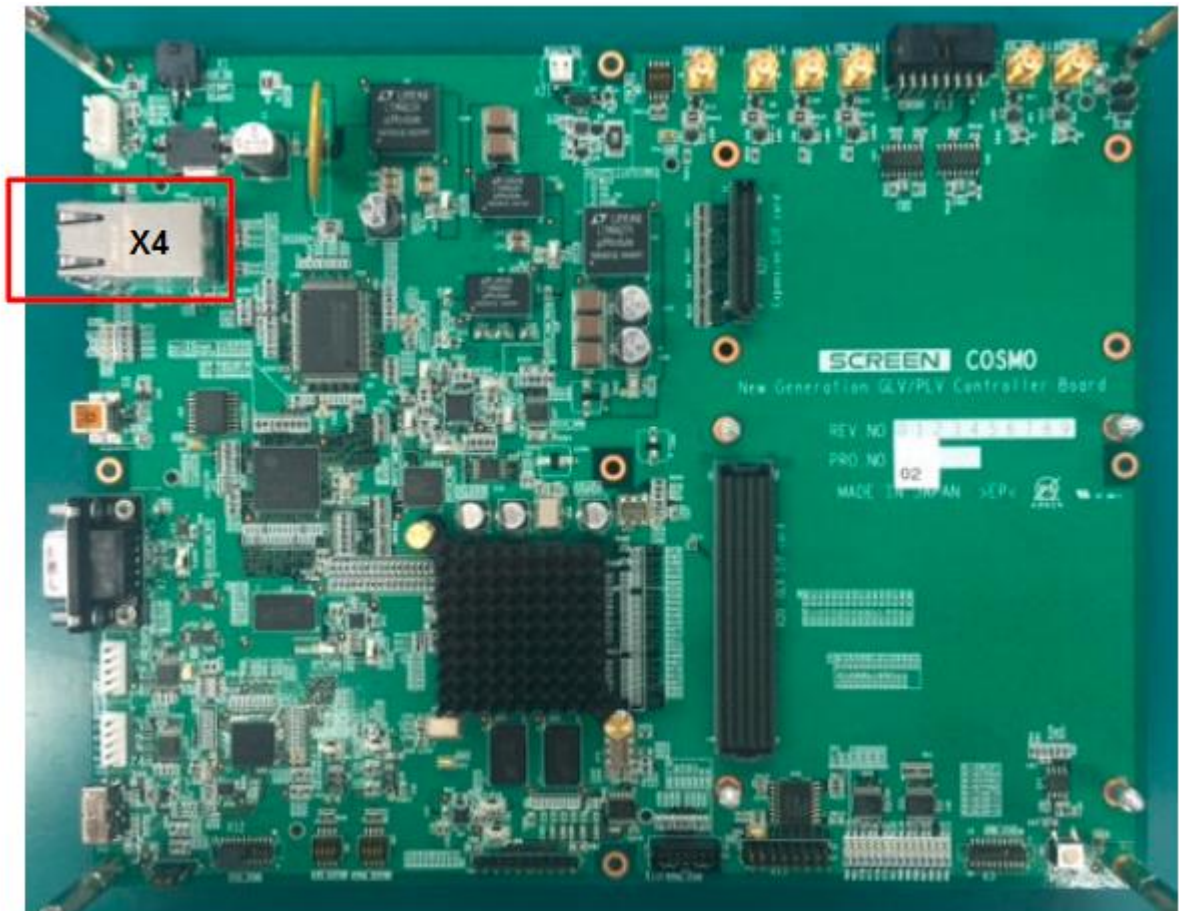


- 1.5 Now click [CLOSE] on [Local Area Connection Properties] window. NOTE: The IP address will not change until this window is closed.

- 1.6 End of Network Setting process.

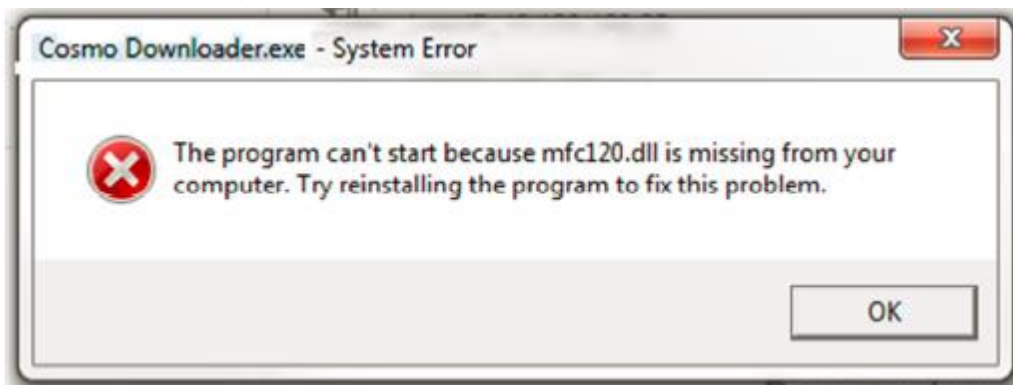
2 **Cosmo Downloader**

2.1 Connect your PC and Cosmo board X4 connector to the network.



2.2 Start application Cosmo_Downloader.exe

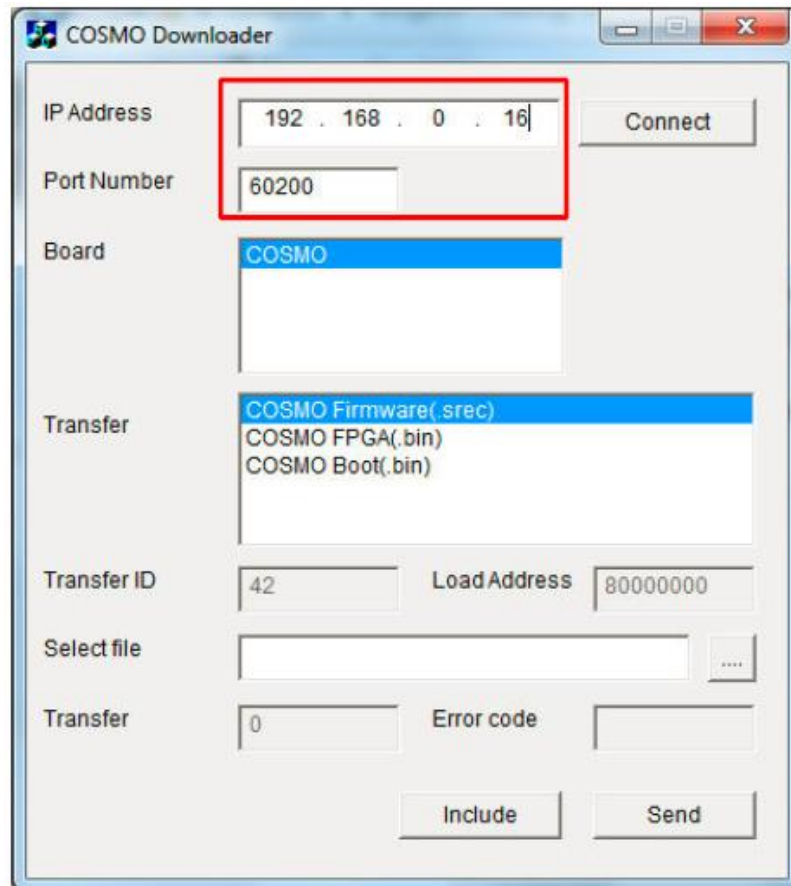
2.3 If the error message about missing file mfc120.dll pops-up as below,



please download Visual C++ redistributable package for Visual Studio 2013 from the following site:

<https://www.microsoft.com/en-gb/download/details.aspx?id=40784>

- 2.4 When Cosmo Downloader starts, enter IP address and Port number of the Cosmo board into the IP Address box as shown below. Each Cosmo Board can have a unique IP address. To determine the IP address of the Cosmo Board, execute the “RESET” command on the HyperTerminal, then the IP Address will be displayed in the boot-up text displayed on the HyperTerminal. The Ethernet cable must be plugged into the Cosmo Board for the IP address to be displayed. The Port Number will always be 60200.



- 2.5 Click on [Connect] button to have the PC and Cosmo board connected. When connected successfully, pop-up message should appear as below



Click [OK] to end the dialog.

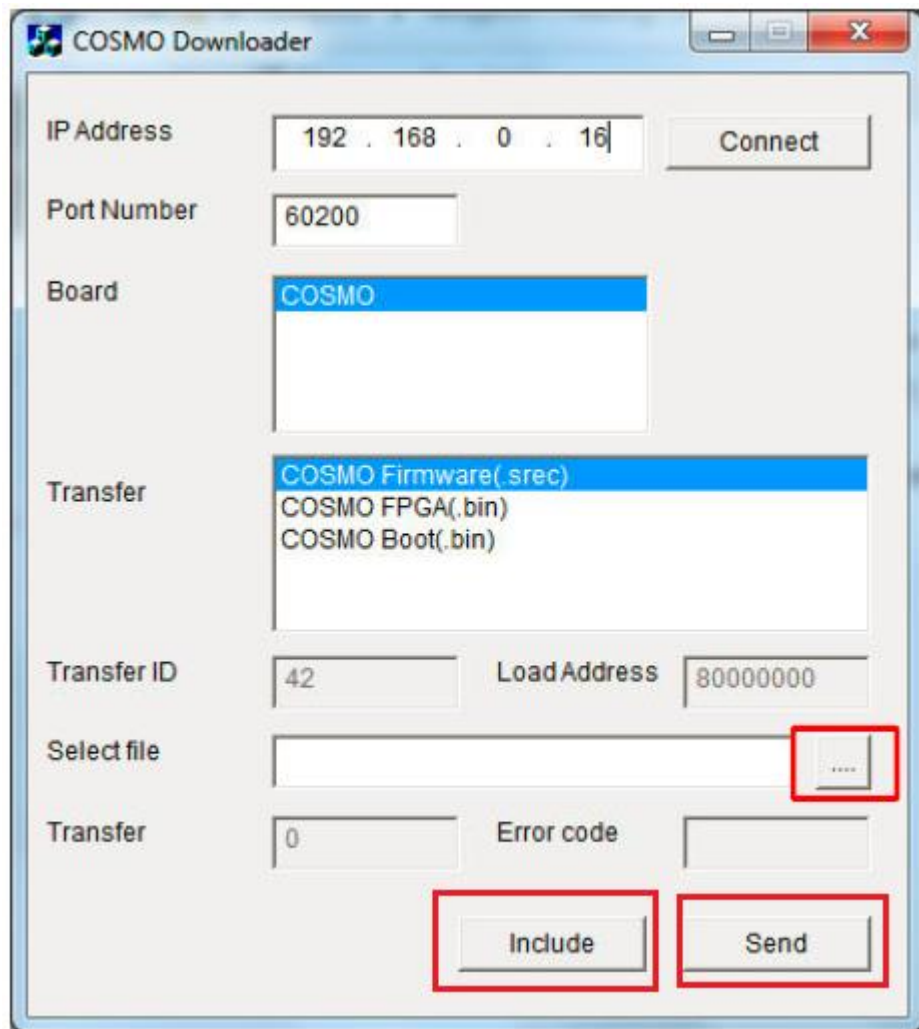
2.6 In the Transfer box select type of the file to download

To download firmware, highlight [COSMO Firmware (.srec)]

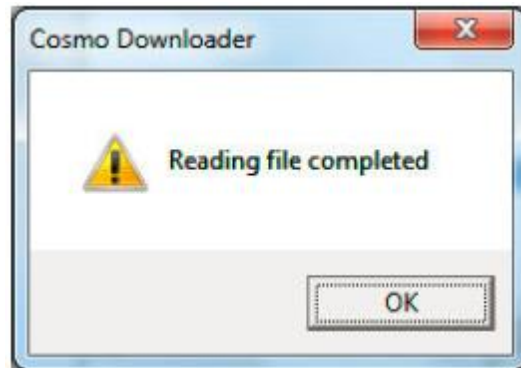
To download FPGA, highlight [COSMO FPGA (.bin)]

To download firmware boot, highlight [COSMO Boot (.bin)]

2.7 Click on [...] button to browse your PC for the file to fill the Select file box



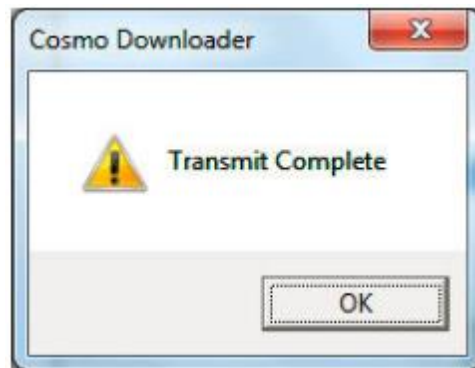
- 2.8 Click on [Include] button. If the file is successfully read by the Downloader, pop-up message should appear as below:



Click [OK] to end the dialog.

- 2.9 Click [Send] button to transfer (download) selected file to Cosmo board. When transfer completed, pop-up message should appear as below.

Do not turn OFF the Cosmo board power until the message appear!



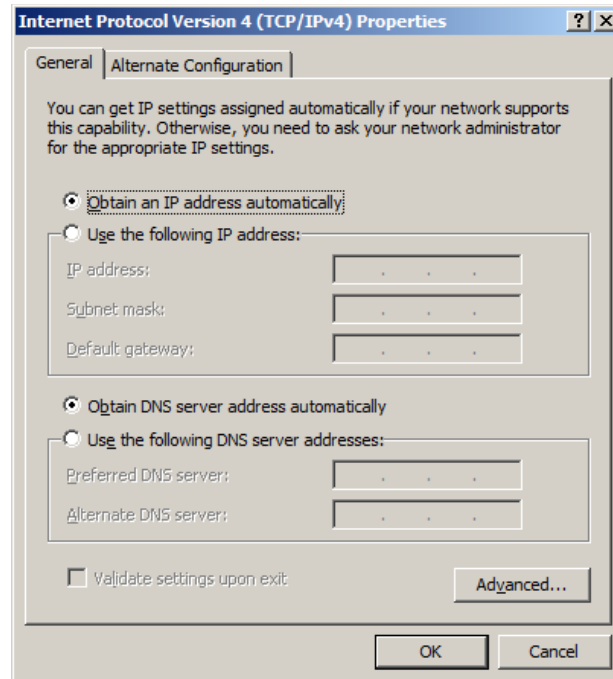
Click [OK] to end the dialog.

- 2.10 If you have to download another file (reprogram another device), go to item 2.6 and repeat the necessary actions.
- 2.11 To have reprogramming take effect, please restart Cosmo board either by cycling the power OFF and ON or by sending RESET command through HyperTerminal.

WARNING: On rare occasions the COSMO FPGA file (.bin) can fail to reprogram. The failure rate is about 2%. Therefore, the user may want to wait until there is a non-critical time before reprogramming the FPGA. In the event that the FPGA fails to reprogram, the FPGA must be programmed using the following Xilinx FPGA development tools: Vivado Design Tool and the Platform Cable USB II (Model DLC10). If the user has these Xilinx tools, programming instructions can be obtained by contacting Silicon Light Machines. Otherwise, send the Cosmo Board to Silicon Light Machines for FPGA programming.

3 **Restoring PC original Network setting**

- 3.1 Go back to Local Area Network Properties window as in item 1.3.
- 3.2 Select [Internet Protocol Version 4 (TCP/IPv4)] and click [Properties] button.
- 3.3 Select [Obtain an IP address automatically] and click [OK].



- 3.4 Now click [OK] on [Local Area Connection Properties] window.
- 3.5 End of Network Setting restoring process.

End of Instruction