# How to Configure Your Target PC to Run Standalone xPC

### Introduction

Up until now, you've been running xPC in a Host-Target mode. You need a Host computer to build and start/stop you model. In StandAlone xPC, the Target PC runs completely autonomously. The model is no longer downloaded from the host, but is stored on the CF boot disk. When the computer starts, the model begins running automatically, with an indefinite stop time.

#### What You Need:

- PC/104 PC
- Workstation w/ Matlab
- CompactFlash Card Reader/Writer
- CompactFlash card

## **Before You Start**

- You will need a model to build and run on the PC/104 PC in standalone mode. In this document we assume this model to be named "test.mdl"
- The CF cards should be pre-loaded with xPC and are labeled with their unique IP address. The contents of these disks are as follows:

C:>

\autoexec.bat	- runs the DOS command "xpcboot xpctgo16.rtb" at boot
\xpcboot.com	- the program that boots xPC
\xpctgo16.rtb	- holds the kernel and system configuration info (IP)

- Your version of Matlab should have the Embedded Option enabled. You can check this by typing "ver" at the Matlab prompt. This will list all of the installed toolboxes and you should see "xPC Target Embedded Option" near the bottom of the list.
- Your CF card reader/writer should be attached (usually by USB) and operational.

#### **Procedure**

#### • Instruct the Host PC to compile the model for StandAlone xPC

- 1. Open xpcexplr
- 2. Click on TargetPC1\Configuration in the list on the left.
- 3. Change the Target Boot Mode to <u>StandAlone</u>

🛃 xPC Target Explorer					
File Target Application Tools Help	لا ا				
xPC Target Hierarchy	TargetPC1 Configuration				
Host PC Root     Compiler(s) Configuration     DLM(s): C:\Program Files\MATLAB71\work     Configuration     Configuration     Configuration     Appearance     File System     PCI devices	This section contains general (non-model specific) parameters for the configuration of xPC Target.         After setting the necessary communication and kernel configuration values, click the Create         Bootdisk button to create an xPC Target boot floppy disk. Use this disk to boot a target computer with the xPC Target kernel.         Target boot mode:       StandAlone         Create Bootdisk				
Refresh Enabled					

- Click on TargetPC1\Configuration\Communication
   Edit the Target PC IP address so that it matches the one printed on your CF card.

🛃 xPC Target Explorer				
File Target Application Tools Help				
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xPC Target Hierarchy	TargetPC1 Communication Component			
Host PC Root     Gompiler(s) Configu     DLM(s): C:\Program     DLM(s): C:\Program	Communication protocol Host target communication:	^		
Configuration     Communicatic     Settings	Target PC TCP/IP configuration         Target PC IP address:         [192.168.1.101         TCP/IP target driver:         [182559			
Appearance Bile System PCI devices	TCP/IP target port:	Ξ		
	LAN subnet mask address:     255.255.255.0       TCP/IP target ISA memory     0x300			
	TCP/IP gateway address: 192.168.1.1 TCP/IP target ISA IRQ number: 5			
	RS-232 configuration Host port: COM1  Baud rate: 115200			
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Refresh Enabled				

6. Click Apply and close xpcexplr

#### **Configure and Build the Model** ٠

1. Open Simulation \ Configuration Parameters from the Simulink model menu.



2. In the Real-Time Workshop menu, make sure the System target file is set to "xpctarget.tlc"

🐱 Configuration Parameters: test/Configuration					
Select:	-Target selection-				
Data Import/Export Optimization	System target file: Language: Description:	xpctarget.tlc Browse C × XPC Target			
Sample Time Data Validity Type Conversion Connectivity Compatibility	Documentation     Generate HTML report     Launch report after code generation completes				
Hardware Implementation	Build process				
- Model Referencing	TLC options:				
Beal-Time Workshop	Make command: Template makefile	make_rtw : xpc_default_tmf			
···· Lustom Code ···· Debug ···· xPC Target options	Generate code only Build				

- 3. Click OK and exit the dialog.
- 4. Build the model (Ctrl+B)
- 5. When complete, the matlab window should say:

### xPC Target StandAlone application test.rtb in directory test\_xpc\_emb created
### Successful completion of xPC Target build procedure for model: test

#### • Copy the Boot Files to the CompactFlash Card

- 1. Insert the xPC compact flash disk into the CF reader/writer.
- 2. A window will pop up showing the contents of the disk.
- 3. Now, open Windows Explorer or My Computer in another window and go to the Matlab Work folder. Usually it is C:\Program Files\Matlab71\work
- 4. You will see lots of files created by Matlab and by other users in this folder. As the compiler said above, it created a directory called "<u>test\_xpc\_emb</u>." Open this directory.
- 5. The contents of this directory are as such:

C:\Program Files\Matlab71\work\test\_xpc\_emb

\autoexect.bat	- runs the DOS command "xpcboot test.rtb" at boot
\test.rtb	- contains the xpc kernel AND your model
\xpcboot.com	

- 6. Copy "<u>test.rtb</u>" from the "test\_xpc\_emb" folder to the CF disk.
- 7. Right-click on the autoexec.bat file on the CF disk and select Edit. This opens a notepad editor.
- 8. Change the autoexec.bat file to run the standalone file instead of the regular one. The file should look like:

xpcboot test.rtb

9. Save the autoexec.bat file and remove the CF disk from the reader/writer. It should now boot the PC/104 stack into StandAlone mode and begin running your model immediately.

#### • Change the CF disk to boot normally again

- 1. Insert the CF disk into the CF reader/writer.
- 2. A window should pop up showing the contents of the disk.
- 3. Right-click on the autoexec.bat file and select Edit
- 4. Change the file to read:

xpcboot xpctgo16.rtb

5. Save the file and remove the CF disk.