# **TEC2 CCM Programming Instructions**

Using H-JTAG Software and H-JTAG Download Probe



BETTIS

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## **Appendix**

## Section 1: TEC2 CCM Programming Instructions

## 1.1 Using H-JTAG Software and H-JTAG Download Probe



<image>

### NOTE:

Hjtag Probe has been modified. Software is available at http://www.hjtag.com/en/index.asp.

1. Connect the H-JTAG probe box and USB cable to the computer.



- 2. Connect the H-JTAG probe box to the USB cable.
- Figure 4USB LED should light when USB Cable is connected to PC<br/>and Probe. The TGT LED should light when the Ribbon cable is<br/>connected between Board and H-JTAG Probe. ACT LED should light<br/>when data is being transferred.



3. Connect the ribbon cable to the P10 JTAG connector on the CCM board.



#### Figure 5 CCM Installed in LDM Setup

#### Figure 6 Ribbon Cable on CCM Bare Board Setup – JTAG Ribbon on CCM **P10 Connector**



On computer, run the H-JTAG software by doubling clicking the H-JTAG Icon. 4.



5. H-JTAG Server should start running.



6. Click on the magnifying glass icon.



Figure 9 Correct Setup – Board Detected

7. If you do not see the ARM7TDMI-S, ensure that the TGT LED and USB LED are both lit on the H-JTAG Probe. See Figure 4 and check connections. See Appendix to supply power from probe, otherwise external power must be supplied.

#### Figure 10 Incorrect Setup – Board NOT Detected



8. Click on the F.



9. H-Flasher window will come up.

H-Flasher      New Load Save Save As Options Exit About      Program Wizard      Hash Selection	ndor: ADI
New Load Save Save As Options Exit About  Program Wizard  Rash Selection	ndor: ADI
Program Wizard >> Flash Selection	ndor: ADI
2 Configuration       ▲ ADI       ▲ Velocity         3 Init Scripts       ⊕ AMIC       Pather AMIC         4 Programming       ⊕ AT91SAM3       To         5 Pgm Options       ⊕ ATMEL       Set         • General       ⊕ ESI       E         • On-Chip Flash       ⊕ FUJITSU       W         • Production       ⊕ FUJITSU-FM3       W         • H-Flasher Help       ⊕ INTEL       W         • NARP       ⊕ SAMSUNG       ⊕ SPANSION         • SPANSION       ⊕ SPANSION       ▼	rtNo: pe: ctor: te: : idth:

\_

10. For Step 1 Flash Selection, pick NXP.

H-Flasher		
New Load Save Save As Program Wizard 1 Rash Selection 2 Configuration 3 Init Scripts 4 Programming 5 Pgm Options • General • On-Chip Flash • Nand Flash • Nand Flash • Production 3 H-Flasher Help	Options Exit About	<ul> <li>Vendor: ADI</li> <li>PartNo:         <ul> <li>Type:</li> <li>Sector:</li> <li>Size:</li> <li>ID:</li> <li>Width:</li> </ul> </li> <li>For Flash Selection, click on NXP</li> </ul>

11. Pick NXP LPC2368.

ew Load Save Save As	Options Exit About	
Program Wizard	>> Flash Selection - LPC2368	
	LPC2292	Vendor: NXP
Init Scripts	LPC2294 LPC2361 LPC2361-IRC	PartNo: LPC2368
Programming     Pam Ontions	LPC2362	Sector: 28
<ul> <li>General</li> </ul>		Size: 504 KB
<ul> <li>On-Chip Flash</li> <li>Nand Flash</li> </ul>	LPC2365	ID: 0x1600F925
<ul> <li>Production</li> </ul>	- LPC2366	Width: 8-BIT
H-Flasher Help		
	LPC2368-IRC LPC2368-IRC LPC2377	Select NXP LPC2368
	LPC2377-IRC LPC2378	

12. Click on Step 2 Configuration, enter 19.6606.

igure 15			
🔁 H-Flasher			
New Load Save Save As Program Wizard  Flash Selection Configuration Init Scripts	Options Exit About	2 <b>368</b>	
<ul> <li>Programming</li> <li>Pgm Options</li> <li>General</li> <li>On Chin Bash</li> </ul>	Flash Start Address: RAM Start Address:	0x0 0x40000000	<b>_</b>
<ul> <li>Nand Flash</li> <li>Production</li> <li>H-Flasher Help</li> </ul>	Ext XTAL (MHz):	19.6606	ENTER 19.6606
	PGM TCK:		

13. Click On Step 3, this screen should be blank. Delete anything entered here.

🖬 H-Flasher	Ontions	Euit A	haut			
Program Wizard	>> Init 9	Cripts -	LPC236	8		
<ol> <li>Flash Selection</li> <li>Configuration</li> <li>Init Scripts</li> <li>Programming</li> <li>Pgm Options</li> <li>General</li> </ol>	ldx (	Cmd	Width	Address	Value	± •
<ul> <li>On-Chip Flash</li> <li>Nand Flash</li> <li>Production</li> <li>H-Flasher Help</li> </ul>			Leave b	lank		*

14. Click On Step 4. Then click on Check button.

Tritasher				
ew Load Save Save,	As Options	Exit About		
Program Wizard	>> Progr	amming - LPC2368	Click On	
1 Flash Selection	Flash:	Unchecked	Check	Reset
Configuration	Target:	Unchecked		Check
Programming	Security:	Circle 1		UnProtect
5 Pgm Options	-	Step 4		
▶ General	Type:	Intel Hex Format	-	Program
On-Chip Flash	Dst Addr:		<b>_</b>	Verify
Nand Flash	Src File:	C:\Series500\CCM\Del	bug\Exe\ccm_F →	
<ul> <li>Production</li> </ul>				
H-Flasher Help	From:	Entire Chip	•	Erase
	To:	Entire Chip	•	Blank
	Address:			Read
	Size:			

15. You should see LPC2368 and ARM7TDMI-S for flash and target. If you do not see this information, it means that the probe cannot see the target board and all connections should be checked. See Figure 4 above. The H-JTAG probe supplies the power to the device being programmed. See the Appendix for instructions on how to supply power from the probe. If the probe does not supply the power to the board, the board must be powered externally for the download operation to work.

Figure	1	8
--------	---	---

🔁 H-Flasher		_ <b>_</b> X
New Load Save Save As	Options Exit About	
Program Wizard	>> Programming - , PC2368	
1 Flash Selection	Flash: LPC2368 0x1600F925	Reset
Configuration	Target: ARM7TDMI-S LITTLE-ENDIAN 👝	Check
Init Scripts	Security:	UnProtect
5 Pgm Options		
▶ General	Type: Intel Hex Format	Program
On-Chip Flash	Dst Addr:	Verify
Nand Flash	Src File: C:\Series500\CCM\Debug\Exe\ccm_F	
Production		
	From: Entire Chip	Erase
	To: Entire Chip	Blank
	Address:	D Bead
	Cita:	
	5126.	

16. Click on small arrow for "Type:". Then select Plain Binary Format in drop down list.

ew Load Save Save,	As Options	Exit About		
Program Wizard	>> Progr	amming - LPC2368		
Flash Selection	- Flash:	LPC2368 0x1600F925		Reset
Configuration	Target:	ARM7TDMI-S LITTLE-ENDIAN		Check
Programming	Security:			UnProtect
<ul><li>Pgm Options</li><li>General</li></ul>	Туре:	Plain Binary Format	-	Program
On-Chip Flash	Dst Addr:	Auto Flash Download Intel Hex Format Plain Binary Format		Verify
<ul> <li>Production</li> </ul>	Src File:	:\Series500\CCM\Debug\Exe\ccm_F		
H-Flasher Help	rrom:	Entire Chip	•	Erase
Select Plain Pinza:	To:	Entire Chip	•	Blank
Format	Address:		0	Read
	Size:			

17. Click on the three small dots.

and the second se				
ew Load Save Save As	Options E	Exit About		
Program Wizard	>> Progra	amming - LPC2368		
1 Flash Selection	Flash:	LPC2368 0x1600F925		Reset
Configuration	Target:	ARM7TDMI-S LITTLE-ENDIAN		Check
Init Scripts	Security:			UnProtect
Programming				0111101001
5 Pgm Options	Type:	Plain Binary Format 💌	[	Program
<ul> <li>On-Chip Flash</li> </ul>	Dst Addr:	Flash Base Address 💌		Verify
Nand Flash	Src File:	C:\Series500\CCM\Debug\Exe\ccm_F	[	
Production				
H-Flasher Help	From:	<b>F</b> → mp	[	Erase
Click on the 3 dots	To:	Entire Chip	[	Blank
	Address:		0	Read

18. A new window will come up. Go to the directory and select which file to download to the board.



19. Select the file to download.

LOOK IN:	Exe	▼ 🖛 🗈 🖛		
Name		Date modified	Туре	Size
ocm_FL	ASH.bin	4/8/2015 9:21 AM	VLC media file (.bi	504 KE
				Open
File name:	ccm_FLASH.bin			Open

Figure 22Click on the file and then click on the Open button.<br/>You should use the BIN type file.

20. Click on Program button.

### Figure 23 Hit Program Button

🔁 H-Flasher		X
New Load Save Save As	Options Exit About	
Program Wizard	>> Programming - LPC2368	
1 Flash Selection	Flash: LPC2368 0x1600F925	Reset
Configuration	Target: ARM7TDMI-S LITTLE-ENDIAN	Check
<ul> <li>Init Scripts</li> <li>Programming</li> </ul>	Security:	UnProtect
5 Pgm Options ▶ General	Type: Plain Binary Format	Program
On-Chip Flash	Dst Addr: Flash Base Address	Verify
<ul> <li>Nand Flash</li> <li>Production</li> </ul>	Src File: C:\Series500\CCM\DelKExe\ccm_F	
₽ H-Flasher Help	From: For Chip	Erase
Click on Program	T Entire Chip	Blank
	Address:	C Read
	Size:	
<u>p</u>		

21. A small window will pop up and give you down load status.

igure 24							
-							
Programmin	g and Verifying						
00:01:50 1	5% 47 KB/s	Size = 444.9 KB					
		Stop					
	Programmin 00:01:50 1	Programming and Verifying 00:01:50 15% 47 KB/s	Programming and Verifying 00:01:50 15% 47 KB/s Size = 444.9 KB Stop	Programming and Verifying 00:01:50 15% 47 KB/s Size = 444.9 KB Stop			

22. Read the screen and verify that it Programmed and Verified Successfully, then Click on the Close Button.

H-Fla:	sher	
	Programmed and Verified x1 suc	cessfully.
	00:09:50 100% 47 KB/s	Size = 444.9 KB
	<b>T</b> .	Close

- 23. Remove the Ribbon cable from the board being programmed. (See Figure 1 and Figure 2).
- 24. Remove the ribbon cable from the P10 of the CCM board.
- 25. Congratulations, the board is now programmed and is ready for use.

#### Programming More Boards:

To program more board(s), keep everything the same as above, and then repeat these four instructions bellow:

- 26. Connect the JTAG ribbon cable to the new board to be programmed (See Figures 5 and 6).
- 27. Click on the Check button. (See Figure 18).
- 28. Click on the Program button. (See Figure 23).
- 29. Read H-Flasher status window. (See Figure 25).

# Appendix

#### NOTE:

The H-JTAG probe used in these directions was modified from the original manufacturers design to provide 5V on JTAG pin 19 to power the target device. This is how to modify the H-JTAG probe. The JTAG specification allows for supplying power to the target on pin 19.

Figure 26	<b>JTAG Pi</b>	n Out	
VTref nTRST TDI TMS TCK RTCK TDO RESET DBGRQ 5V-Supply	1 • 3 • 5 • 7 • 9 • 11 • 13 • 15 • 17 • 19 •	<ul> <li>2</li> <li>4</li> <li>6</li> <li>8</li> <li>10</li> <li>12</li> <li>14</li> <li>16</li> <li>18</li> <li>20</li> </ul>	N C G N D G N D G N D G N D G N D G N D * G N D * 20 PIN JTAG INTERFACE DESCRIPTION: G N D * G N D * G N D * HTTPS://WWW.SEGGER.COM/INTERFACE-DESCRIPTION.HTML

1. Remove hidden screw under label.



2. Remove four Screws on board.



3. Remove board and connect 5V from USB connector to JTAG Pin 19.



4. Exploded view of disassembled probe for reference. Big screw holds case together. Reverse prior directions to reassemble the probe.

#### Figure 30



5. New Black Style Boxes Modification.



These instructions were written for H-Flasher V3.0:



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