Dragonchip

DC6288EMT User Manual

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Document Revision 1.1 April, 2018

Table of Content

1 Introduction

This document briefly describes the details of the development tool ‘Emulator for DC6288 Family (DC6288EMT)’.

1.1 Supported Products

Part Number	Supported Products
DC6288EMT-FT	DC6288FT

1.2 Package

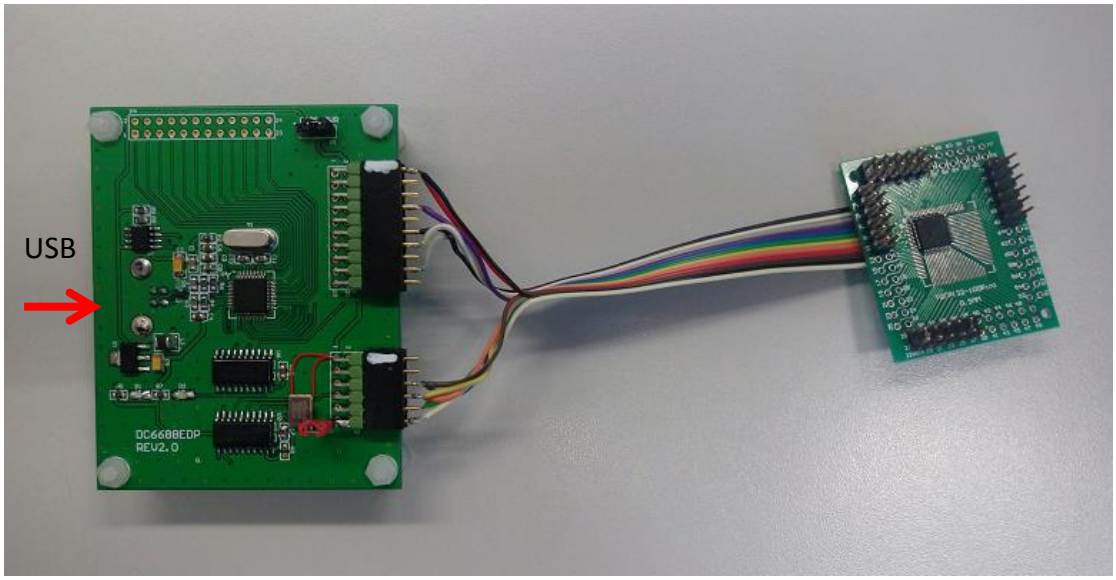
1) Emulator
2) USB Cable
3) User Manual

1.3 Useful Links

1) DC6288EMT Emulator
   http://www.dragonchip.com/TechDoc/DC6288/DC6288FT/DevTools/EMT.htm
2) DC6288 Technical Website
   http://www.dragonchip.com/TechDoc/DC6288.htm

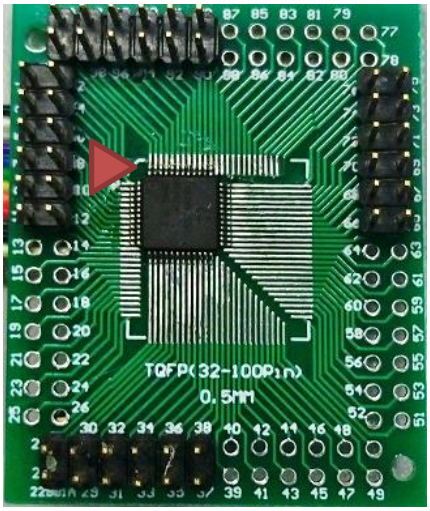
2 Hardware

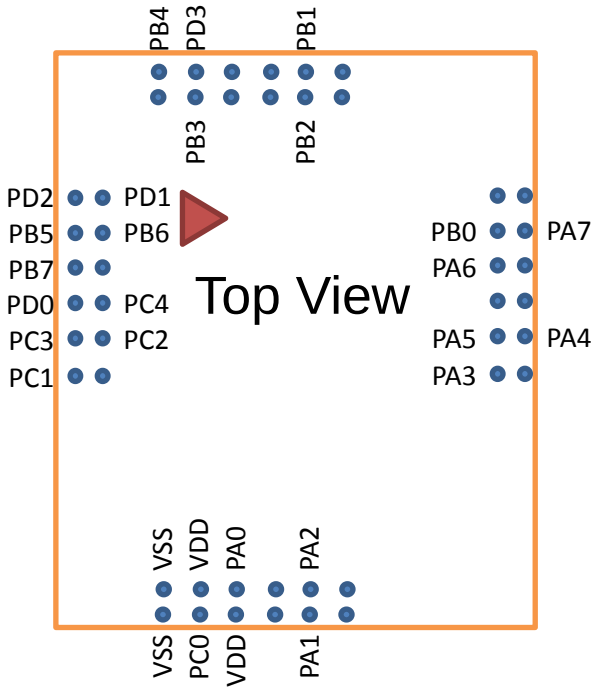
2.1 Control Interface



2.2 Connector

Connect the emulator to target board through the POD. The POD pin assignments are listed below:





3 Software Installation

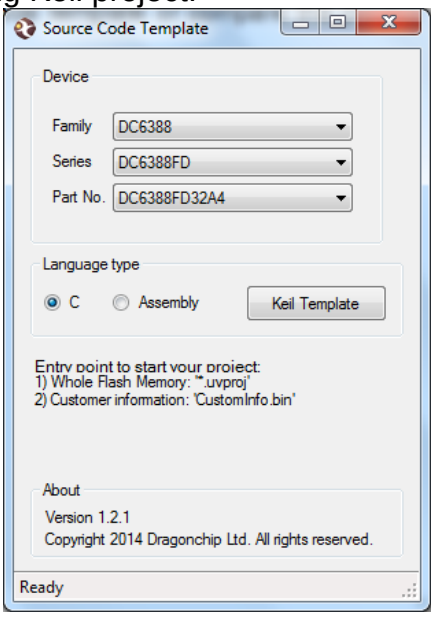
Install the following components

1) Keil PK51 Professional Developers Kit (v9.55 or later)
2) Dragonchip development tools package 'DragonICE Installer' Rev3.0.5 or later:
   a. Source Code Template
   b. DragonICE Driver
   c. Software SLP

Note: After installing the DragonICE driver, connect the emulator to PC USB port, the driver will be installed automatically. In case the PC fails to locate the driver, select the driver path "C:\WINDOWS\system32" manually.

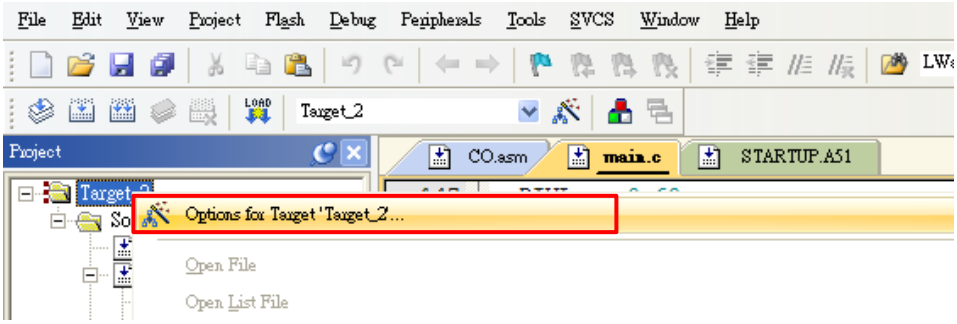
3.1 Source Code Template

This software can help to generate Keil project templates for various products with all necessary project settings for using emulators. User can either start the development with the generated source code template or compare the project settings with their existing Keil project.

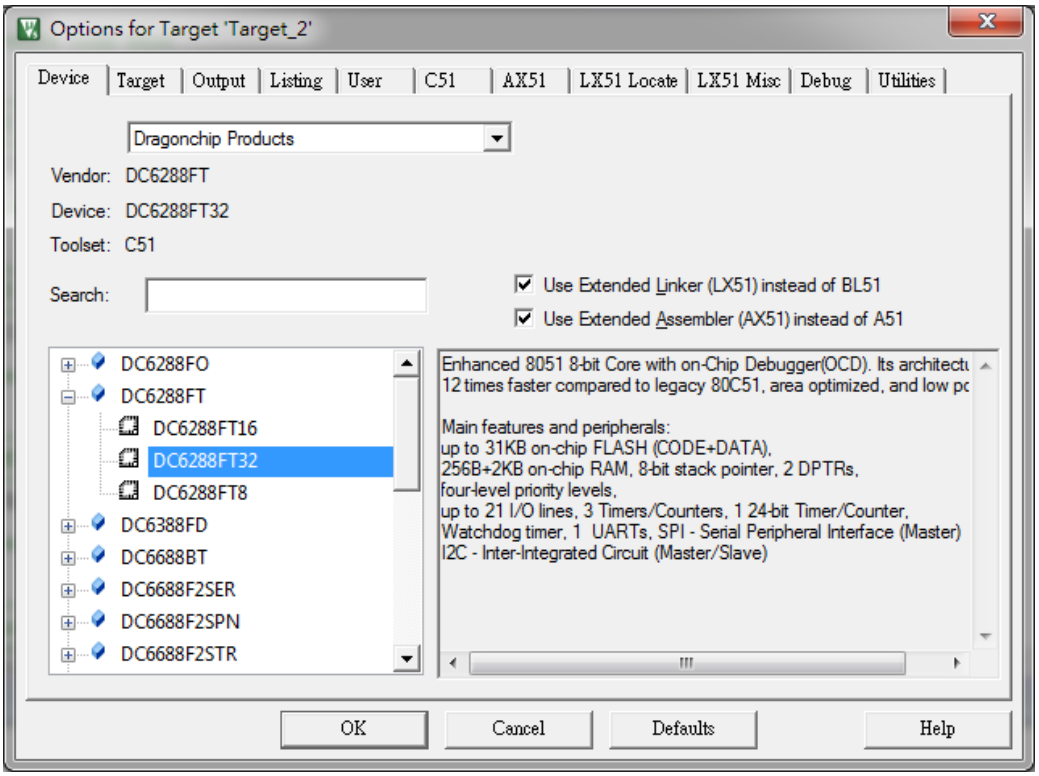


3.2 Keil Project Settings

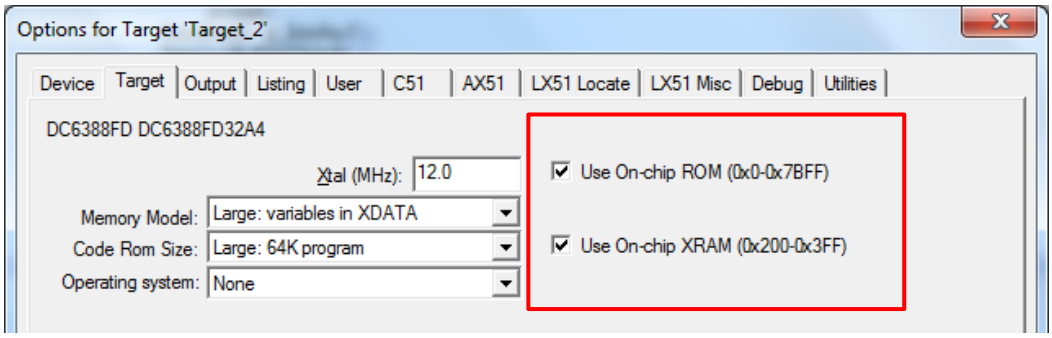
1) Enter ‘Options for Target’



2) ‘Device’ Tab - Select DC6288 part number from the list.

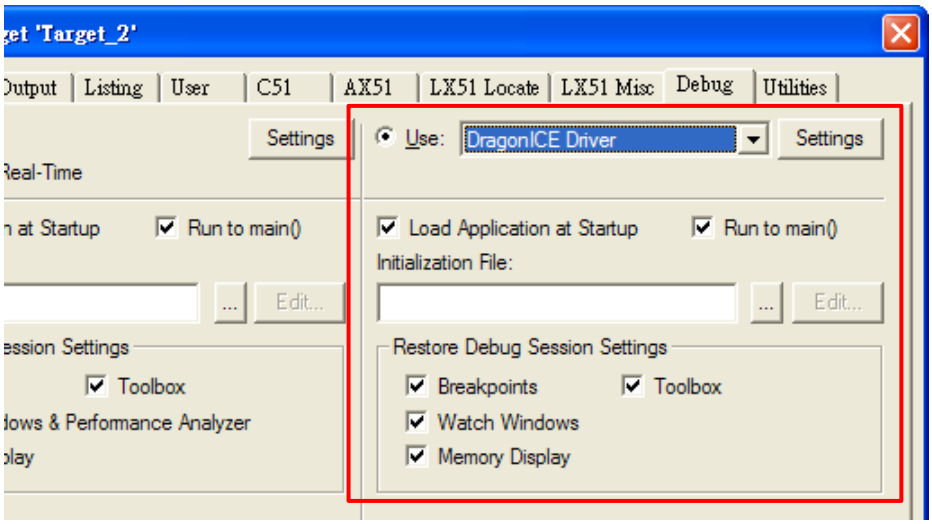


3) ‘Target’ Tab – Always check the 2 boxes for ROM and XRAM setting.

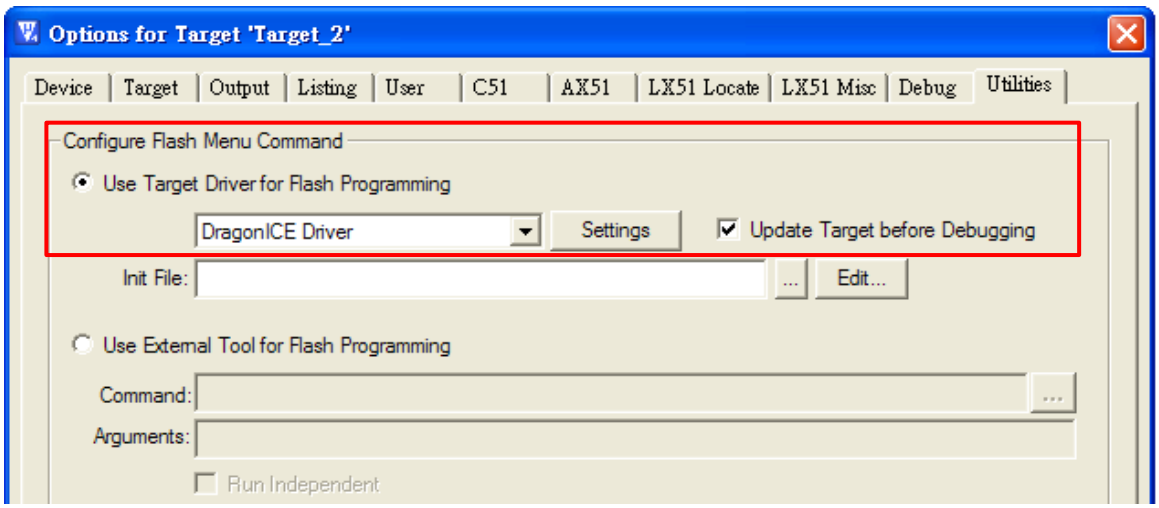


Note: The Clock frequency in this page is invalid setting. The setting should be selected in ‘Programming Setting’ instead.

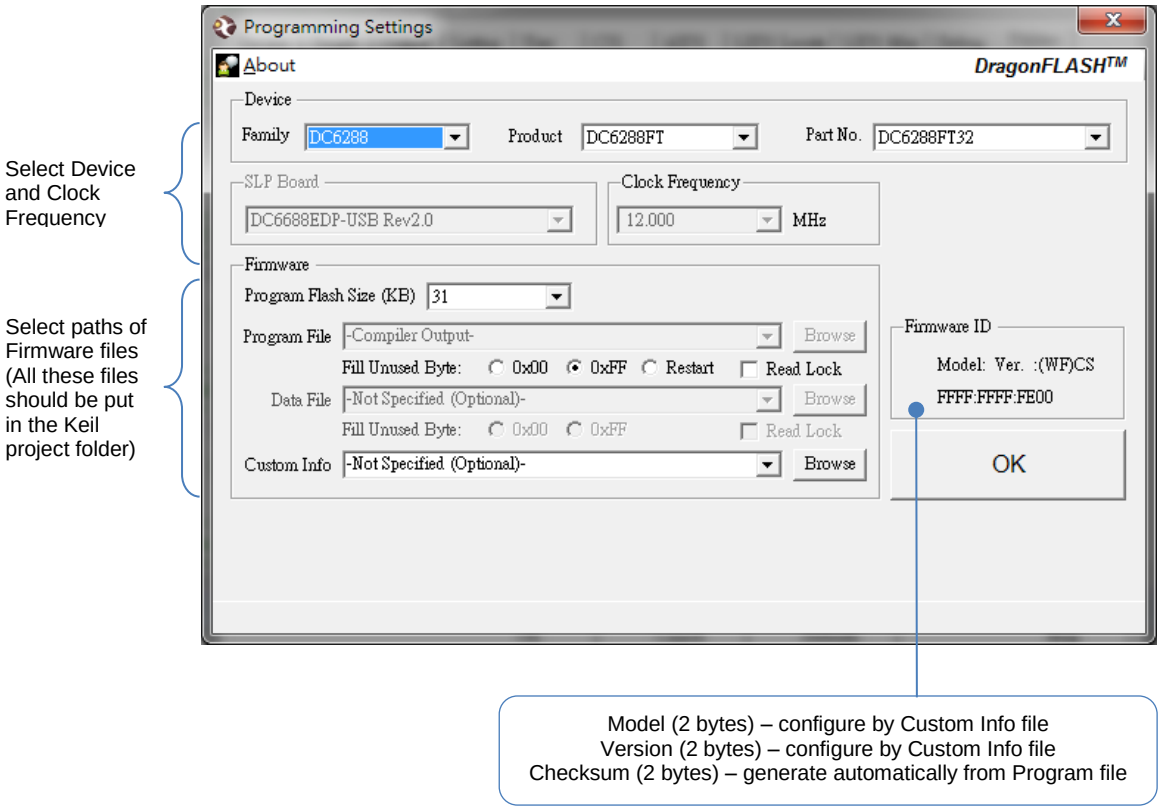
4) ‘Debug’ Tab - Follow the settings shown below:



5) ‘Utilities’ Tab - Follow the settings shown below:



6) Click ‘Settings’ in ‘Utilities’ tab to enter Programming Setting. Input relevant settings for programming the emulator chip and then press ‘OK’.



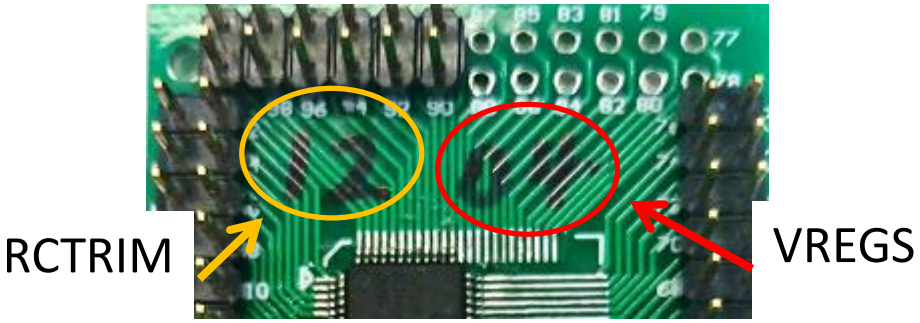
4 View Memory Content

The memory content can be checked in the Keil Memory Windows during debug.

Memory	Size	Memory Type	Start Address	End Address	Example
Program/ Data Flash	Up to 31KB	code	0x00000	0x7BFF	C:0x00000
Internal SRAM	256 bytes	idata	0x00	0xFF	I:0x00
Expanded SRAM	1KB	xdata	0x0200	0x05FF	X:0x0200
	1.5KB	xdata	0x0200	0x07FF	X:0x0200
	2KB	xdata	0x0200	0x09FF	X:0x0200
SFR	128 bytes	data	0x80	0xFF	D:0x80
XFR	256 bytes	xdata	0x00	0xFF	X:0x0000

5 Write Trim value

At the beginning in function main(), trim value have to be loaded to the designated registers. Every emulator board have an unique value as hown below:

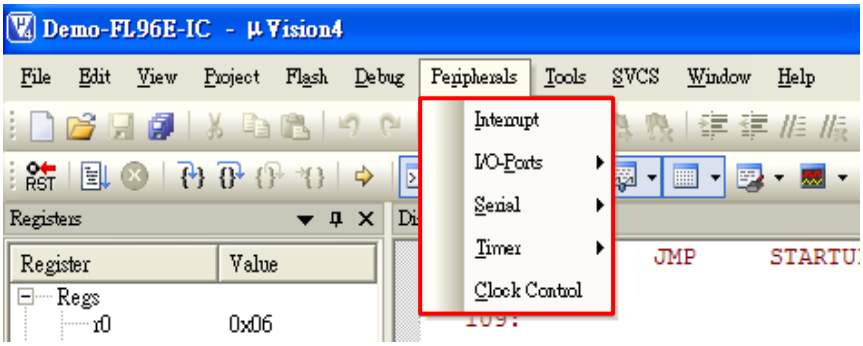


main.c

```
153        VREG2 = TRIM_V2;
154      }
155    #endif
156    #endif
157
158    #if defined(DC6288FT32_)
159    #ifdef FREQ_12MHZ
160      // Internal Freq. to 12 MHz
161      RCFREQ = 0x00;     // 12MHz
162
163      // if emulator, load the value shown on the board
164      // if MP, disable the following line
165      RCTRIM = 0x12;
166      VREG2 = 0x04;
167
168    #endif
169    #endif
170
171      // Hello World!
172      // Write code here
```

6 Limitations

1) Keil IDE debugger:
   a) DragonICE does not support these peripheral features.



   b) Debug 'Step', 'Step over' will fail if the instruction is entering stop mode while RTC interrupt already enabled before.
2) Voltage Supply: The voltage supply to emulator chip is 3.3V (VDD pin voltage). User should do emulation at this voltage level only.
3) Low voltage indicator (LVI) would not be supported.
4) Reset pin RSTN would not be supported.
5) MCU Peripherals: When the emulator running is stopped in debugging environment, all the running MCU peripherals (e.g. LCD driver, timer) would still keep running. Thus, the MCU peripherals would be out of synchronization with the code instruction.
6) Compile Keil Project: Only compile the code before entering the Keil debugging environment. Otherwise the emulated flash content may not be updated and the debug action may not match with the displayed code. For example,
   a) Cursor jumped to a wrong code location in debugger.
   b) Debug ‘Step’ wrongly executed as debug ‘Free Run’.

Revision History

Document Rev. No.	Issued Date	Section	Page	Description	Edited By	Reviewed By
1.0	Mar, 2018			First release	Danny Ho	Patrick Li
1.1	Apr, 2018	5		Add section 5	Danny Ho	Patrick Li
		2.2		Revise pin assignment		

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