



**Dragonchip**

# Software Development Notice for DC6388F

AppNote200

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## 1 Introduction

The Objective of this document is to show the important software development notice for DC6388F family. It is recommended to read this document before developing the MCU software.

## 2 Dragonchip Tools

### 2.1 Troubleshoot

Before software development, it is advised to review the [AppNote106](#).

In addition, the following should pay attention:

1. Avoid using generic pointer

It was found the Keil C51's Generic Pointer implementation might not be supported by our MCU. Instead, memory-specific pointer is recommended, which fix its referencing memory space during variable declaration [1].

An example is shown below.

<b>Memory-specific Pointers</b>
<code>char <b>idata</b> * input_string; // memory pointer to indirect SRAM space</code>
<code>unsigned int <b>xdata</b> * cur_index; // memory pointer to XRAM space</code>
<code>char <b>code</b> * message; // memory pointer to CODE space</code>
<b>Generic Pointers (Not recommended)</b>
<code>char * buffer; // memory pointer that can points to SRAM, XRAM or CODE space</code>

## 3 DC6388FD

### 3.1 Troubleshoot

	Topic	Symptom	Solution
1	Data flash memory initialization	Incorrect data flash content	<ol style="list-style-type: none"> <li>1) If the Data Flash memory is initialized in the beginning of MCU software, add a 100ms delay before this initialization. Due to the unstable power supply at the moment of device power on, it is possible that Data Flash writing is failed. This 100ms delay at the beginning of the software help to delay the Data Flash writing before the power supply is stable.</li> <li>2) Avoid initializing Data Flash memory by MCU software. It is recommended to download the Data File image to Data Flash memory by SLP.</li> </ol>
2	SRAM initialization	Incorrect operation	The SRAM contents are undetermined in power up. That means the SRAM content can be any value. Please make sure the SRAM is initialized.
3	Data Flash memory access	<ol style="list-style-type: none"> <li>1) CPU running suspended</li> <li>2) Incorrect interrupt</li> </ol>	<p>During Data Flash access, CPU running is suspended while peripherals such as timers would keep running.</p> <ol style="list-style-type: none"> <li>1) Do not assign any task until Data Flash access finished. Note that MCU could be reset by basic timer (watchdog) during Data Flash access.</li> <li>2) Avoid interrupts during Data Flash memory access: <ul style="list-style-type: none"> <li>■ Only the first interrupt is processed even there are more than one interrupt during Data Flash access.</li> <li>■ All interrupt will be delayed to be processed until completion of accessing Data Flash.</li> </ul> </li> </ol>
4	I/O port configuration in stop mode	High or unstable stop mode current	<p>To prevent current leakage and minimize the stop mode current consumption, all the I/O ports should be correctly configured. The following configurations lead to “floating” state which are NOT allowed:</p> <ol style="list-style-type: none"> <li>1) Input mode without pull up</li> </ol>

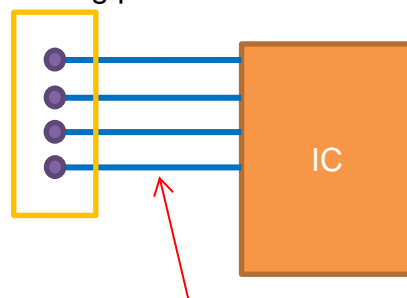
	Topic	Symptom	Solution
			2) Output mode, n-channel open drain, drive low, with pull up 3) Output mode, n-channel open drain, drive high, without pull up 4) Output mode, push pull, drive low, with pull-up Hidden I/O pads which require above configuration handling: 1) 48-pin: PD5, PD6, PD7 2) 52-pin: None 3) 64-pin: None
5	UART Data Transmission	Wrong UART data sent	Do not change the UART Transmit port (TXD) state when data is being sent out. Otherwise, wrong UART data may be sent.
6	Main System clock (MCLK)	Programming fail	Upon power up, add 500ms at the beginning of the program before switching main system clock (MCLK) to XIN2 or Internal low-freq oscillator clock. Otherwise, the programmer will fail to do re-programming.

## 3.2 Hardware

### 3.2.1 PCB layout

Below are some guidelines for the layout.

Programming pads



No carbon film between pin and pad, and length < 3cm

### 3.3 Emulator Limitations

The emulator part number is DC6388EMT-FD. Download the [latest user manual](#) and refer to the limitation section.

### 3.4 In-System Programming

During programming, the flash memory has the following steps involved:

1. whole flash memory erase for security reason
2. write program flash memory
3. write customer information(Model/Version/Checksum)
4. read back program flash memory and customer information, and then verify byte by byte
5. lock program flash if required

### 3.5 Production highlights in customer factory

It is recommended to review the following items before production in customer site:

- 1 [The prevention and control of Electrostatic Discharge \(ESD\)](#)
- 2 Routine check VDD from programmer to IC below 3.8V
- 3 Use SLP Programmer (DC6688SLP-USB Rev3.2 or higher)
- 4 Use Software SLP Rev8.2.4 or higher
- 5 The IC should be powered by our programmer **ONLY**
  - 5.1 The programmer control power off/on to ensure proper programming & verification operations.

## 4 Revision History

Document Rev. No.	Issued Date	Section	Page	Description	Edited By	Reviewed By
1.0	Nov, 2014	-	-	First Release	Celia Ki	Danny Ho
1.1	Feb, 2017	2	-	Added Dragonchip tools for troubleshoot	Danny Ho	Patrick Li
		3.1	-	Item 6 in table is added		
1.2	Nov, 2017	3.1		Item 6 is revised	Danny Ho	Patrick Li
1.4	Dec, 2017	-		Update cover page	Danny Ho	Patrick Li
1.5	Jun, 2018	2.1		Update link	Danny Ho	Patrick Li
1.6	Dec, 2018	3.2		Add PCB layout	Danny Ho	Patrick Li
		3.4		In-system Programming		
		3.5		Add Production highlights		

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