



# Migration from DC6688F2STR to DC6688F2SPN

AppNote130

Document Revision 1.0

November, 2018

# Table of Content

<b>1</b>	<b>INTRODUCTION .....</b>	<b>3</b>
<b>2</b>	<b>DEVELOPMENT TOOLS .....</b>	<b>4</b>
<b>3</b>	<b>SOFTWARE .....</b>	<b>5</b>
	3.1 HEADER FILE .....	5
	3.2 I/O PORT CONFIGURATION .....	5
	3.3 INTERNAL FREQUENCY 4MHZ (DEFAULT) .....	6
	3.4 IDLE MODE POWER SAVING IMPROVEMENT .....	6
	3.5 RUN MODE POWER SAVING IMPROVEMENT .....	7
	3.6 REGISTER PCONT .....	7
<b>4</b>	<b>HARDWARE.....</b>	<b>8</b>
	4.1 SOFTWARE SLP .....	8
	4.2 PROGRAMMING INTERFACE .....	8
	<b>REVISION HISTORY .....</b>	<b>9</b>

# 1 Introduction

The objective of this document is to describe the migration from DC6688F2STR to DC6688F2SPN.

Three areas will be covered, and explain in detail in the subsequent sections.

- 1) Development tools
- 2) Software
- 3) Hardware

## 2 Development tools

Before proceeding to software development, make sure the following software components are installed in PC:

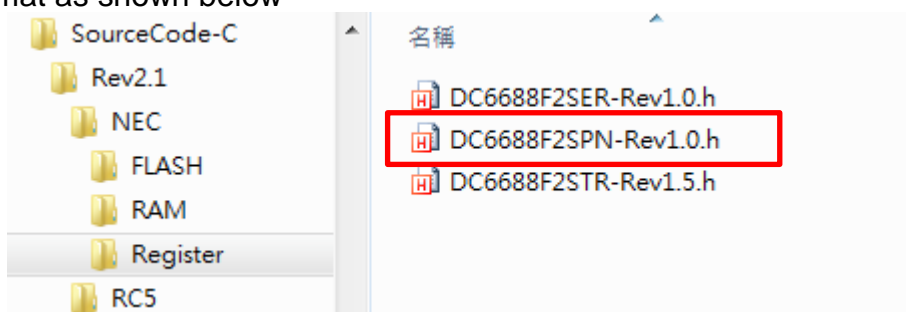
- 1) Keil PK51 v953 or higher
- 2) [Emulator driver v3.1.3](#) or higher  
Hardware emulator for F2T (DC6688EMT-F2T) must be used.
- 3) [Software SLP v8.2.2](#) or higher  
This is used for production.

### 3 Software

For illustration, an example code of remote control for F2SPN in [Application Note 080](#) is used.

#### 3.1 Header file

The header file for F2SPN is available from AppNote080 in c or assembly format as shown below



#### 3.2 I/O port configuration

Table below shows the comparison on port configuration between DC6688F2STR and DC6688F2SPN

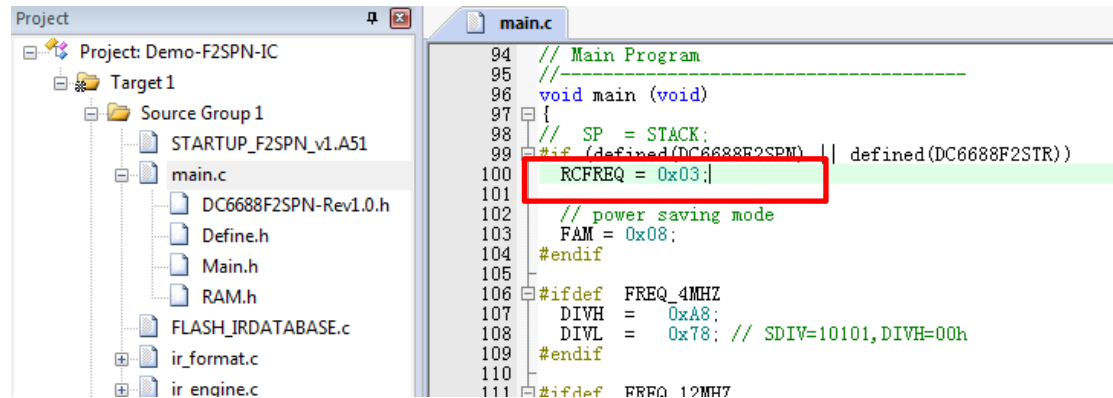
Port	DC6688F2STR	DC6688F2SPN
PA0 – 7		Same
PB0 – 3		Same
PB7	Available	Not available
PC0 – 2		Same
PC3	Available	Not available
PC4	Available	Not available

In order to maintain the stop mode current ( $I_{dd(pd)}$ ) within the specification, if those ports are not used, it is required to configure to input with pull-up enable.

An example can refer to function “INIT\_2” in file “Keyscan.c”

### 3.3 Internal Frequency 4MHz (default)

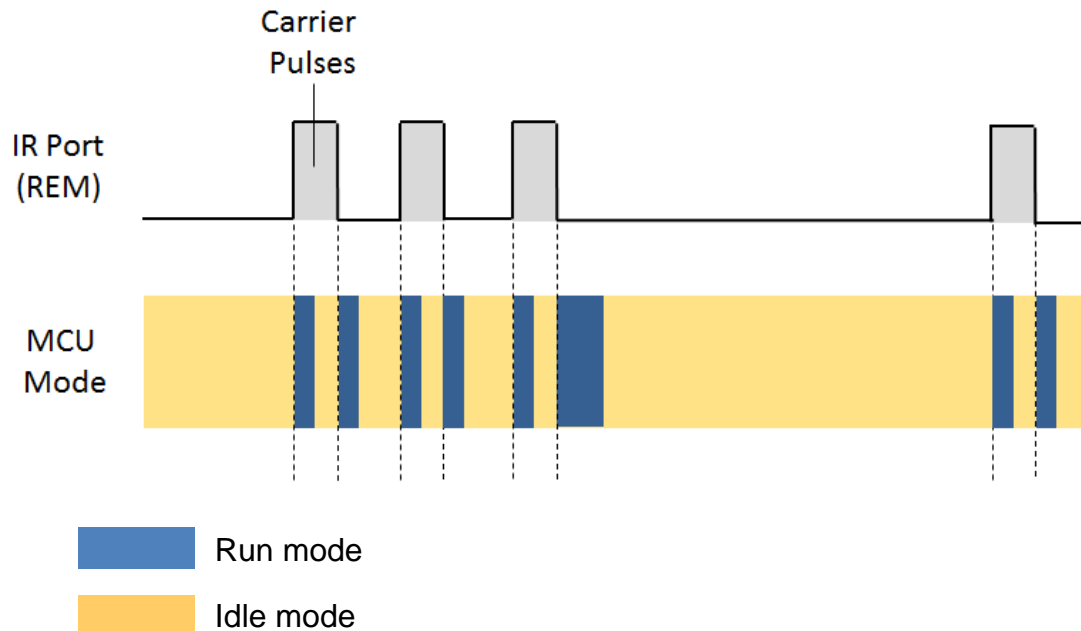
The CPU running frequency is set to 4MHz by default.  
An example can refer to function “main” in file “main.c” as shown below.



```
94 // Main Program
95 //-----
96 void main (void)
97 {
98 // SP = STACK;
99 #if (defined(DC6688F2SPN) || defined(DC6688F2STR))
100 RCFREQ = 0x03;
101
102 // power saving mode
103 FAM = 0x08;
104 #endif
105
106 #ifdef FREQ_4MHZ
107 DIVH = 0xA8;
108 DIVL = 0x78; // SDIV=10101, DIVH=00h
109 #endif
110
111 #ifdef FREQ_12MHZ
```

### 3.4 Idle mode Power saving improvement

To utilize this feature, idle mode must be enabled in application where possible.  
An example is shown below. Actually, for remote application when output IR format, the data processing by CPU does not occupy all the time, most of the time can be idle.



Detail can refer AppNote080 example code with user manual showing how to implement.

### 3.5 Run mode Power saving improvement

To enable this feature, register 'FAM' must set to 0x08 as shown below.

```

94 // Main Program
95 //-----
96 void main (void)
97 {
98 // SP = STACK;
99 #if (defined(DC6688F2SPN) || defined(DC6688F2STR))
100 RCFREQ = 0x03;
101
102 // power saving mode
103 FAM = 0x08;
104 #endif
105
106 #ifdef FREQ_4MHZ
107 DIVH = 0xA8;
108 DIVL = 0x78; // SDIV=10101, DIVH=00h
109 #endif
110
111 #ifdef FREQ_12MHZ
  
```

### 3.6 Register PCONT

PCONT scan the ports as shown below table.

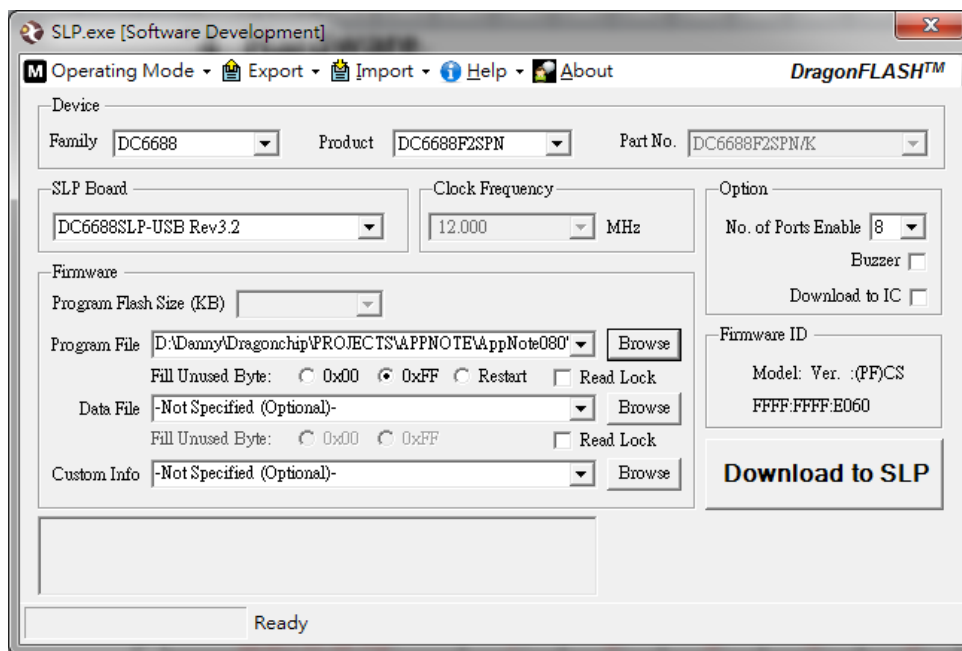
Port	DC6688F2STR	DC6688F2SPN
PB2	✓	✓
PC2	✓	✓
PC0	✓	✓
PB0	✓	✓
PB1	✓	✓
PB3	✓	✓
PB7	✓	✗
PC3	✓	✗
PC4	✓	✗

An example of using this register can refer to function 'SCAN\_ROW' in file 'keyscan.c' in AppNote080.

## 4 Hardware

### 4.1 Software SLP

Setting is shown below:



### 4.2 Programming interface

Detail refers to [AppNote092 'ISP programming interface for DC6688F2STR / DC6688F2SPN'](#).



## Revision History

Document Rev. No.	Issued Date	Section	Page	Description	Edited By	Reviewed By
1.0	Nov, 2018			First release	Danny Ho	Patrick Li

### **Copyright Notice**

This specification is copyrighted by Dragonchip Ltd. No part of this specification may be reproduced in any form or means, without the expressed written consent Dragonchip Ltd.

### **Disclaimer**

Dragonchip Ltd. assumes no responsibility for any errors contained herein.

Copyright by Dragonchip Ltd. All Rights Reserved.  
Dragonchip Ltd.  
TEL: (852) 2776-0111  
FAX: (852) 2776-0996  
<http://www.dragonchip.com>