

To our customers,

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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## 3858 Group

### Key Scan

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#### 1. Abstract

The following article introduces and shows an example of how to use the Key Scan on the 3858 Group device.

#### 2. Introduction

The application explained in this document applies to the following MCU and parameter(s):

Applicable MCU: 3858 Group

Oscillation frequency: 8 MHz

This sample program may include operations of unused bit functions for the convenience of the SFR bit layout. Set the values according to the operational conditions of the user system.

### 3. Contents

#### 3.1 Key Scan

Outline:

- Key matrix of 4 × 4 is input.

Specifications:

- Scan output: P04 to P07
- Key input: P00 to P03
- “L” scan at every 2.5 ms
- Fixed key input: Fixed when matching three times
- When pressing two keys simultaneously, key input is disabled.

Figure 3.1 shows the Connection Diagram, Tables 3.1 and 3.2 show the Used RAM Definitions and Flag Definitions, Figure 3.2 shows the Relevant Register Settings, and Figure 3.3 and 3.4 show the Control Procedure.

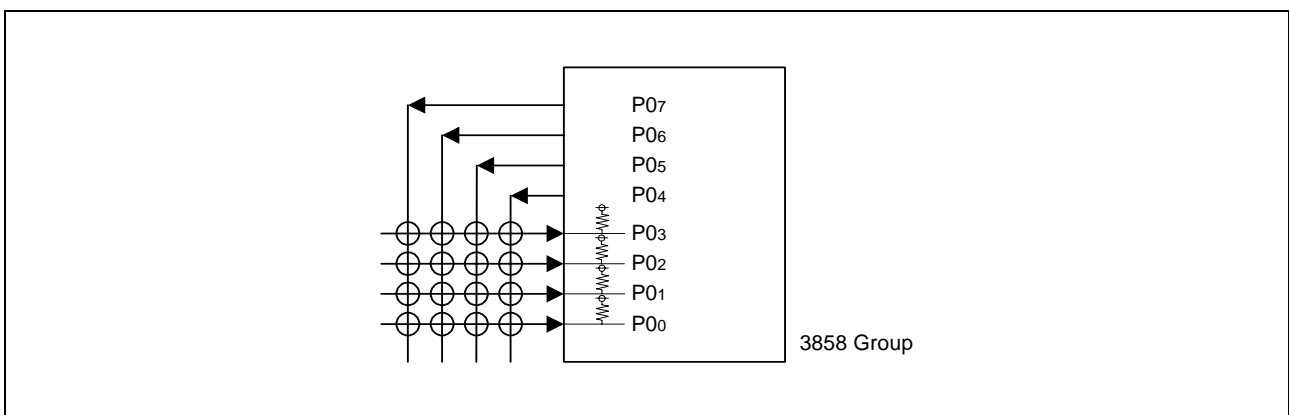


Figure 3.1 Connection Diagram

Table 3.1 Used RAM Definitions

Address (H)	Label Data Type	Initial Value	Size (Byte)	Description	Min (H)	Max (H)	Flag
0040	WORK	00H	1	Multipurpose buffer	00	FF	–
0041	WORK2	00H	1	Multipurpose buffer 2	00	16	–
0042	C_KEY	00H	1	Number of pressed keys	00	16	–
0043	KEY_SCAN_NOW	00H	4	Key input buffer	00	0F0F0F0F	–
0047	KEY_NO_BUF0	00H	1	Previous key input number	00	FF	–
0048	KEY_NO_BUF1	00H	1	Key input number before previous key input number	00	FF	–
0049	KEY_NO	00H	1	Fixed key input number	00	FF	–
004A	F_KEY	00H	1	Key flag	00	02	√

Table 3.2 Flag Definitions

Address(H)	004A	Label Data Type	F_KEY	File Name	FUNC_KEY2.A74
Bit Symbol	Bit Position	Initial Value	Contents	Bit Pattern	Meaning of Bit Pattern
F_KEY_OFF	b7 □ □ □ □ □ □ □ b0	0	Key input OFF flag	00000000B 00000010B	Key OFF Key ON

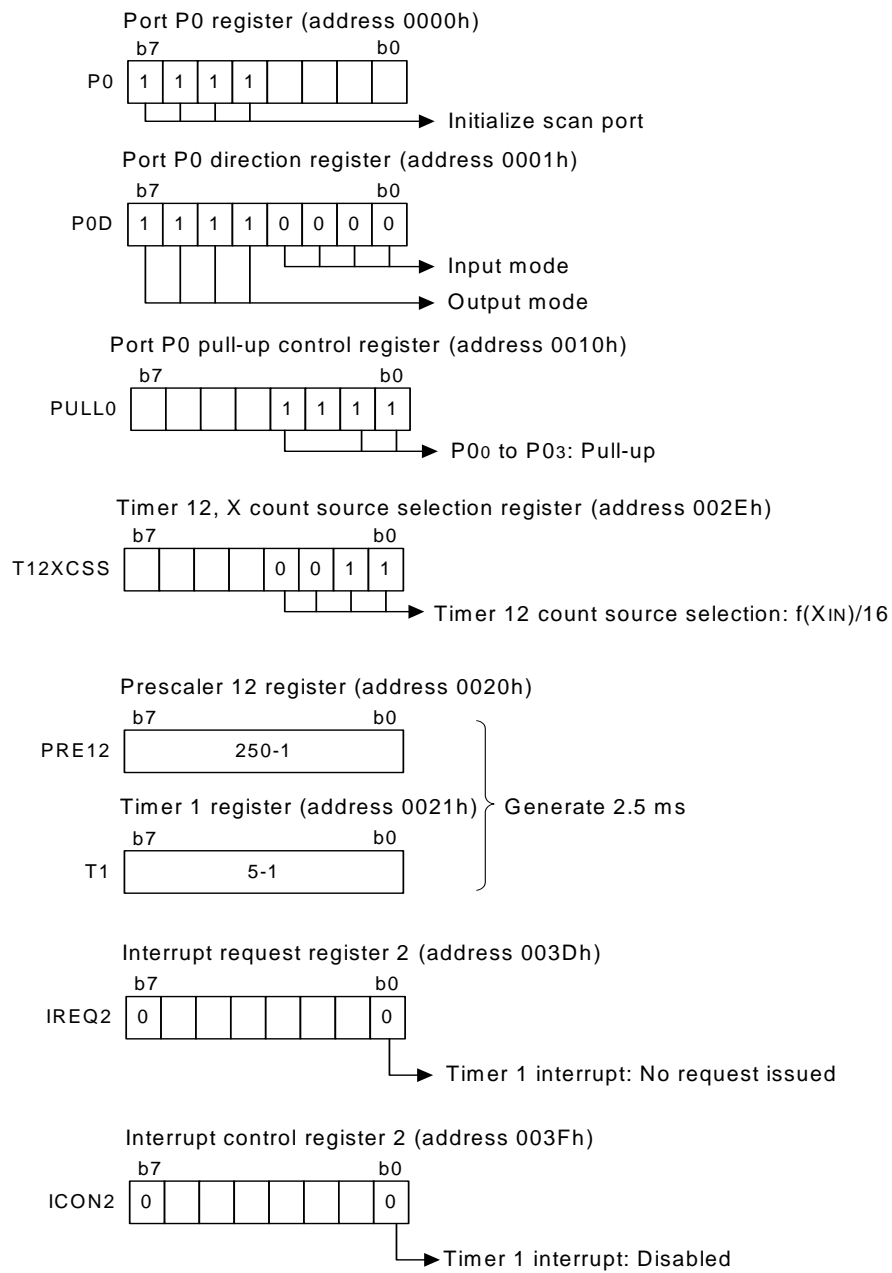


Figure 3.2 Relevant Register Settings

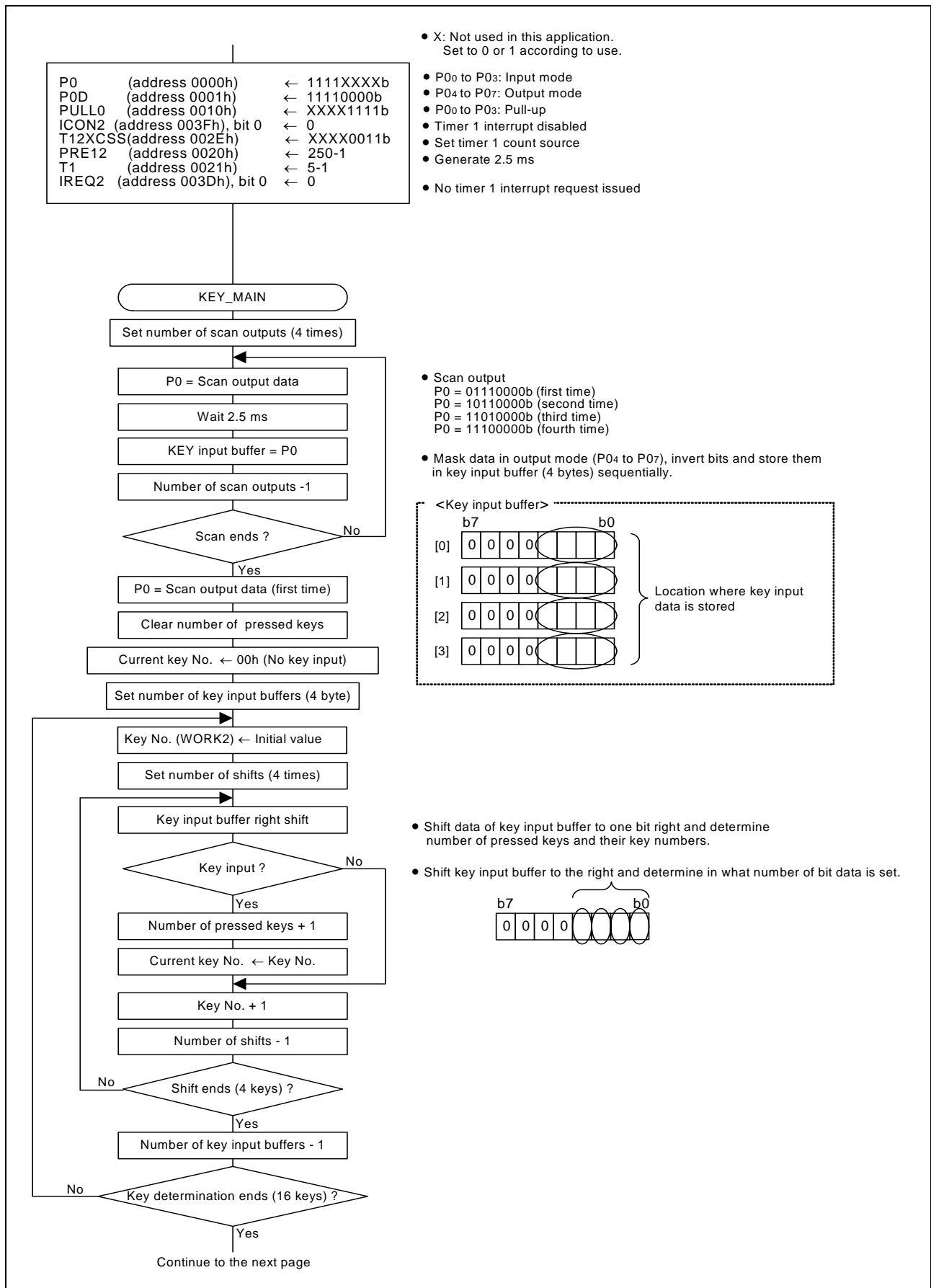


Figure 3.3 Control Procedure (1)

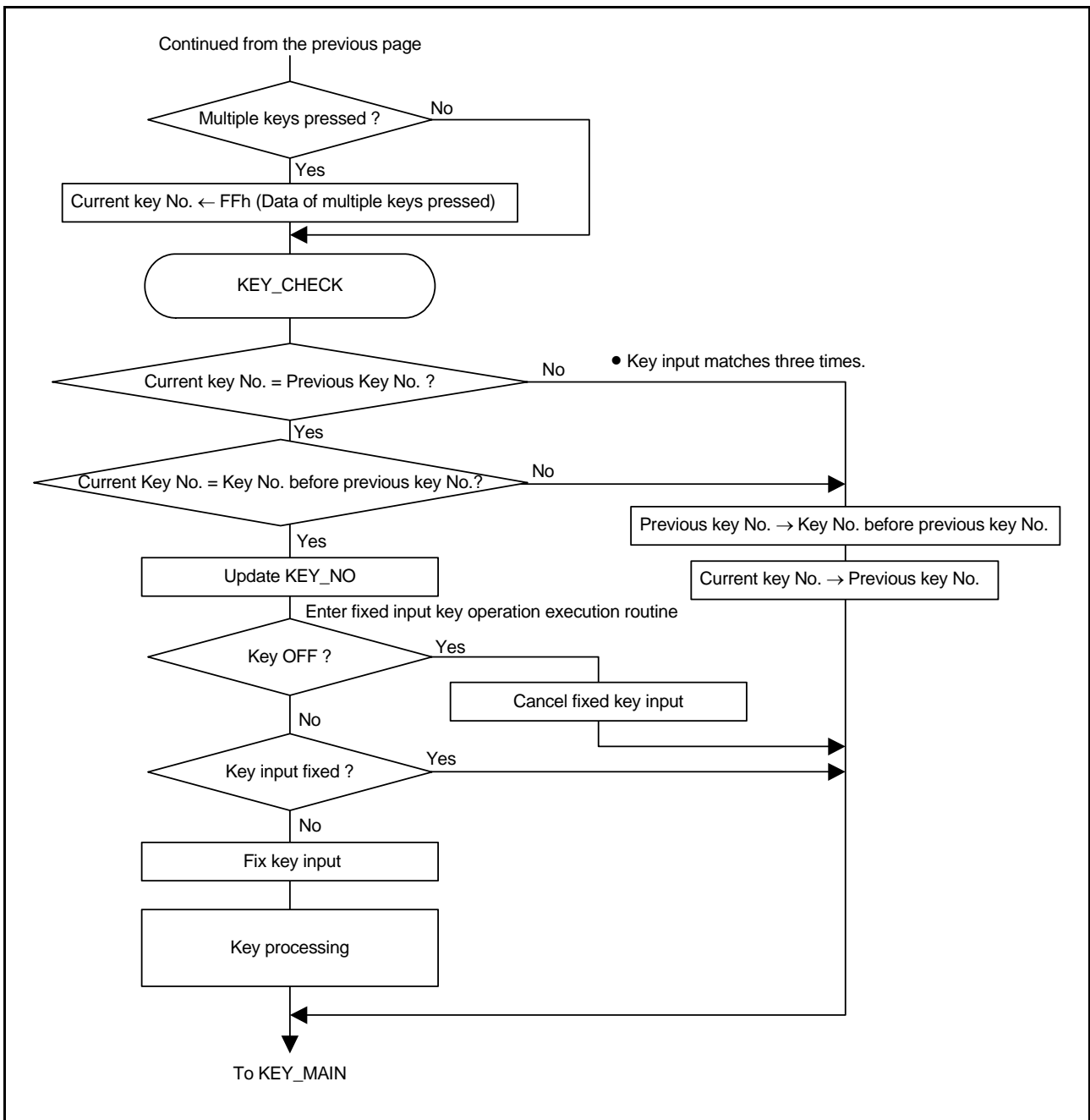


Figure 3.4 Control Procedure (2)

#### **4. Sample Programming Code**

Download a sample program from the Renesas Technology website.  
To download, click “Application Notes” in the left side menu on the page of the 3858 Group.

#### **5. Reference Document**

Datasheet  
3858 Group Datasheet  
Download the latest version from the Renesas Technology website.

Technical News/Technical Update  
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REVISION HISTORY	3858 Group Key Scan
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Rev.	Date	Description	
		Page	Summary
1.00	Feb 23 2007	-	First Edition issued

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