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April 1st, 2010
Renesas Electronics Corporation

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38D5 Group

Key Scan

1. Abstract

The following article introduces and shows an example of how to use the Key Scan on the 38D5 Group device.

2. Introduction

The application explained in this document applies to the following MCU and parameter(s):
Applicable MCU: 38D5 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 every 5 ms
• Fixed key input: 3 matches
•When pressing 2 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, 3.4 and 3.5 show the Control Procedure.

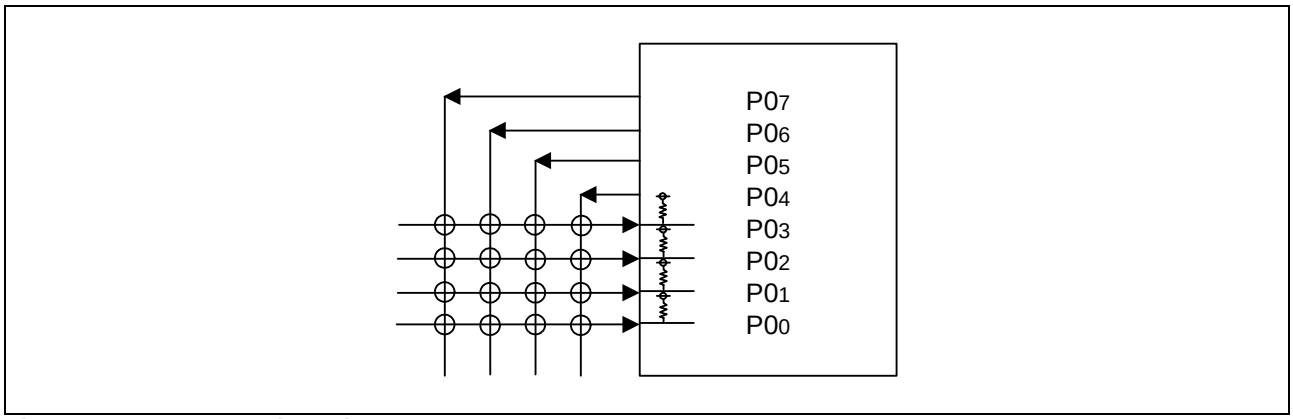

Figure 3.1 Connection Diagram

Table 3.1 Used RAM Definitions

Address (H)	Label Data Type	Initial Value	Size (Byte)	Description	Min (H)	Max (H)	Flag
0050	WORK	00H	1	Multipurpose buffer	00	FF	–
0051	KEY_SCAN_NOW	00H	4	Key input buffer	00	0F	–
0055	KEY_NO_BUF0	00H	1	Previous key input number	00	FF	–
0056	KEY_NO_BUF1	00H	1	Previous key input number	00	FF	–
0057	KEY_NO	00H	1	Fixed key input number	00	FF	–
0058	F_KEY	00H	1	Key flag	00	03	√

Table 3.2 Flag Definitions

Address(H)	0058	Label Data Type	F_KEY	File Name	FUNC_KEYSCAN.A74
Bit Symbol	Bit Position	Initial Value	Contents	Bit Pattern	Meaning of Bit Pattern
F_KEY_IN	b7 b0 □□□□□□□■	0	Fixed key input flag	00000000B 00000001B	Key not fixed yet Key fixed
F_KEY_OFF	b7 b0 □□□□□□■□	0	Key input OFF flag	00000000B 00000010B	Key OFF Key ON

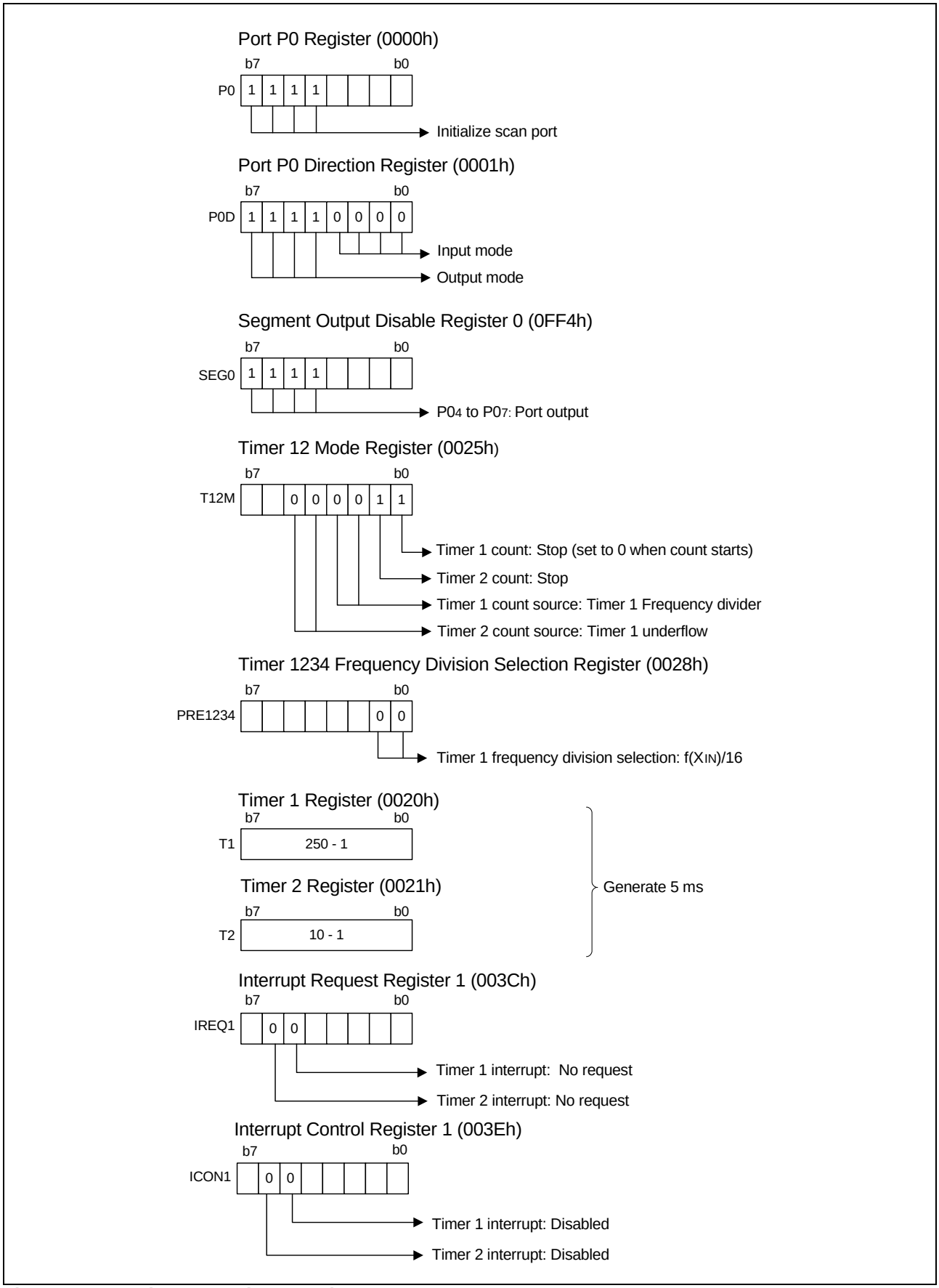

Figure 3.2 Relevant Register Settings

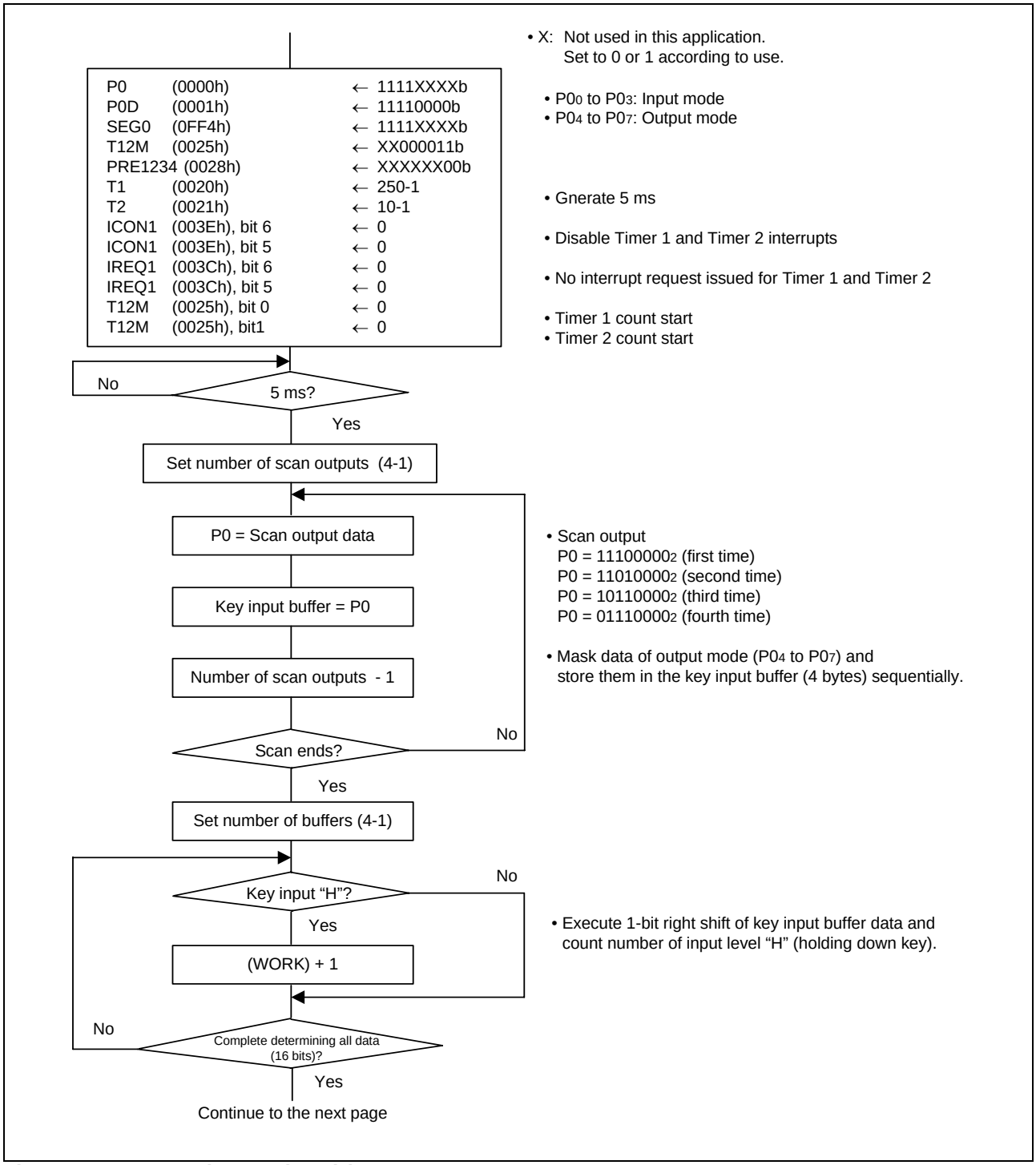

Figure 3.3 Control Procedure (1)

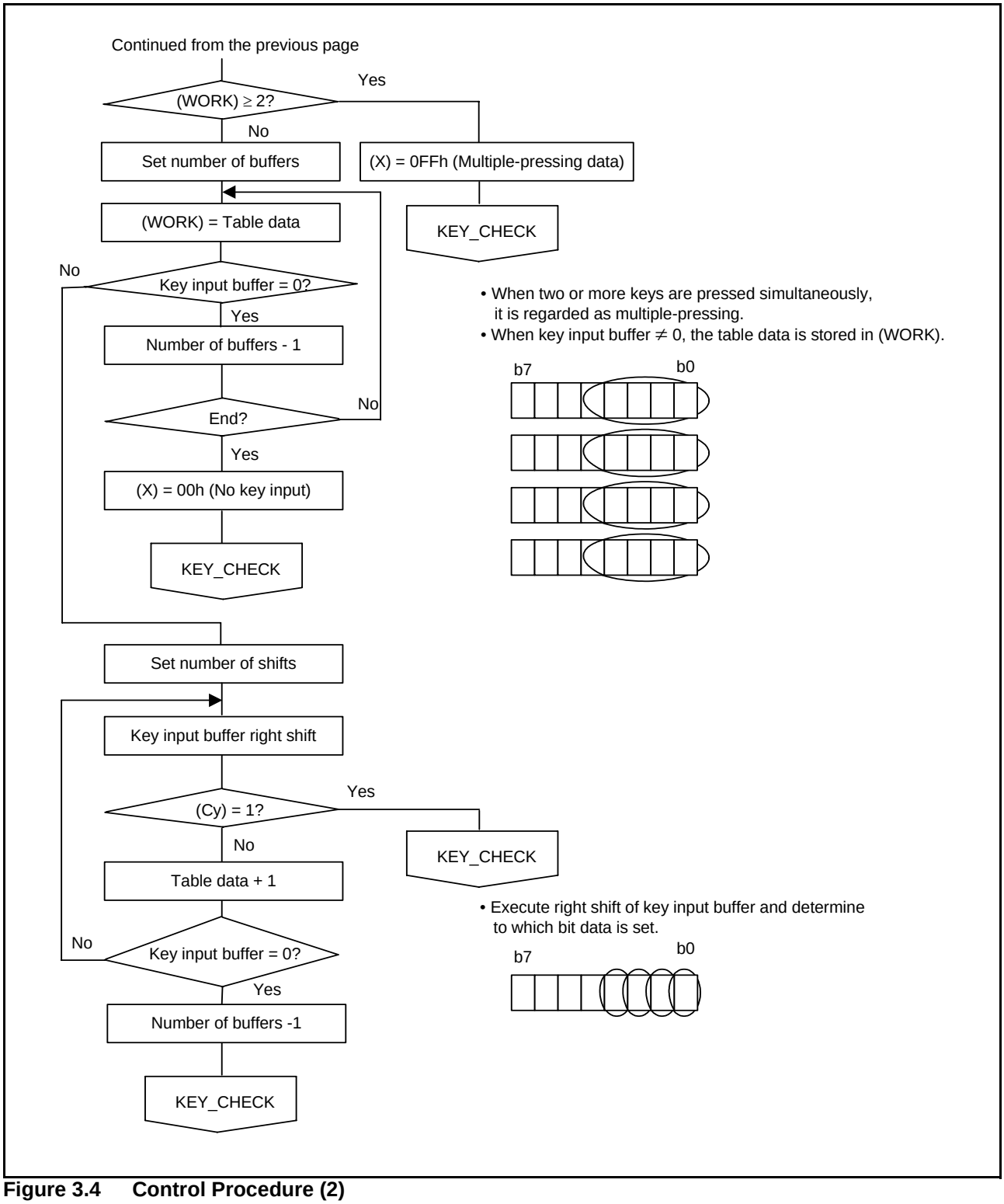

Figure 3.4 Control Procedure (2)

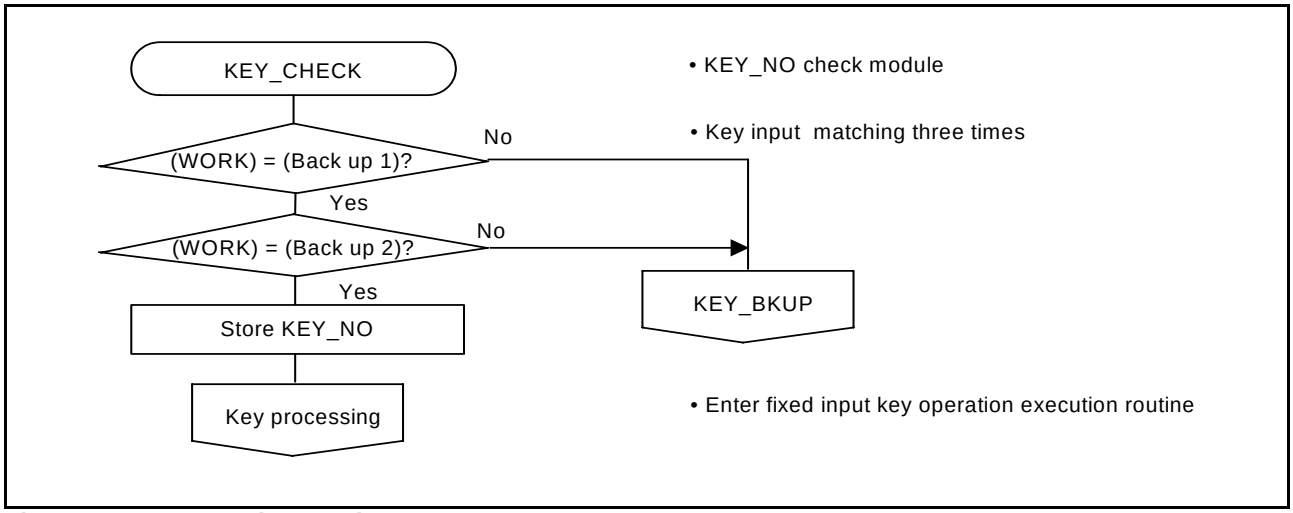

Figure 3.5 Control Procedure 3

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 38D5 Group.

5. Reference Document

Datasheet
38D5 Group Datasheet
Download the latest version from the Renesas Technology website.

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REVISION HISTORY	38D5 Group Key Scan

Rev.	Date	Description	
		Page	Summary
1.00	Sep 15, 2006	–	First Edition issued
1.01	Mar 30, 2007	2	3.1 section title corrected. Some changes in the wording made.

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