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April 1st, 2010
Renesas Electronics Corporation

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7548/7549 Group

Key-on Wakeup

1. Abstract

The following article introduces and shows an example of how to use the Key-on Wakeup on the 7548/7549 Group device.

2. Introduction

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

Applicable MCU: 7548/7549 Group

Oscillation frequency: 4 MHz

Function set ROM data 0 to 2 are areas used to set peripheral functions by data written to the QzROM and can not be set by program. Data set to these areas are valid after a reset of the MCU is released. Make sure to set values according to the user system regardless of the use of peripheral functions. Set values used in this sample program are as follows.

Function set ROM data 0 FSROM0 (address FFD8h): 10000000b

Function set ROM data 1 FSROM1 (address FFD9h): 10000001b

Function set ROM data 2 FSROM2 (address FFDAh): 00001011b

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-on wakeup application example (1)

Outline: Any key input generates a key-on wakeup interrupt request.
Exit stop mode via a key-on wakeup interrupt.

Specifications:

- Key input pins: P10 ~ P13, Pull-up
- Scan output pins of key matrix: P04 ~ P07

Figure 3.1 shows the Connection Diagram, Figure 3.2 shows the Example of Timing for Key-on Wakeup Interrupt Operation in Stop Mode, Figure 3.3 shows the Relevant Register Settings, and Figure 3.4 shows the Control Procedure.

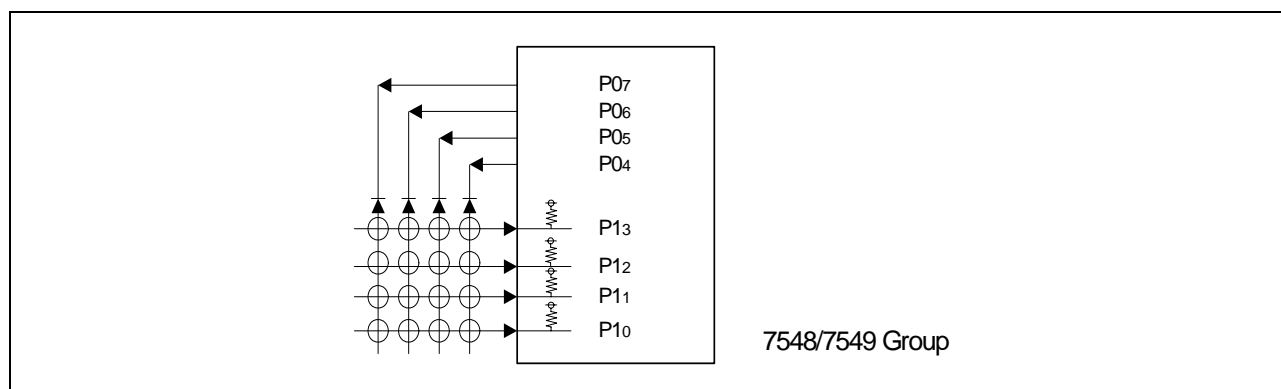


Figure 3.1 Connection Diagram

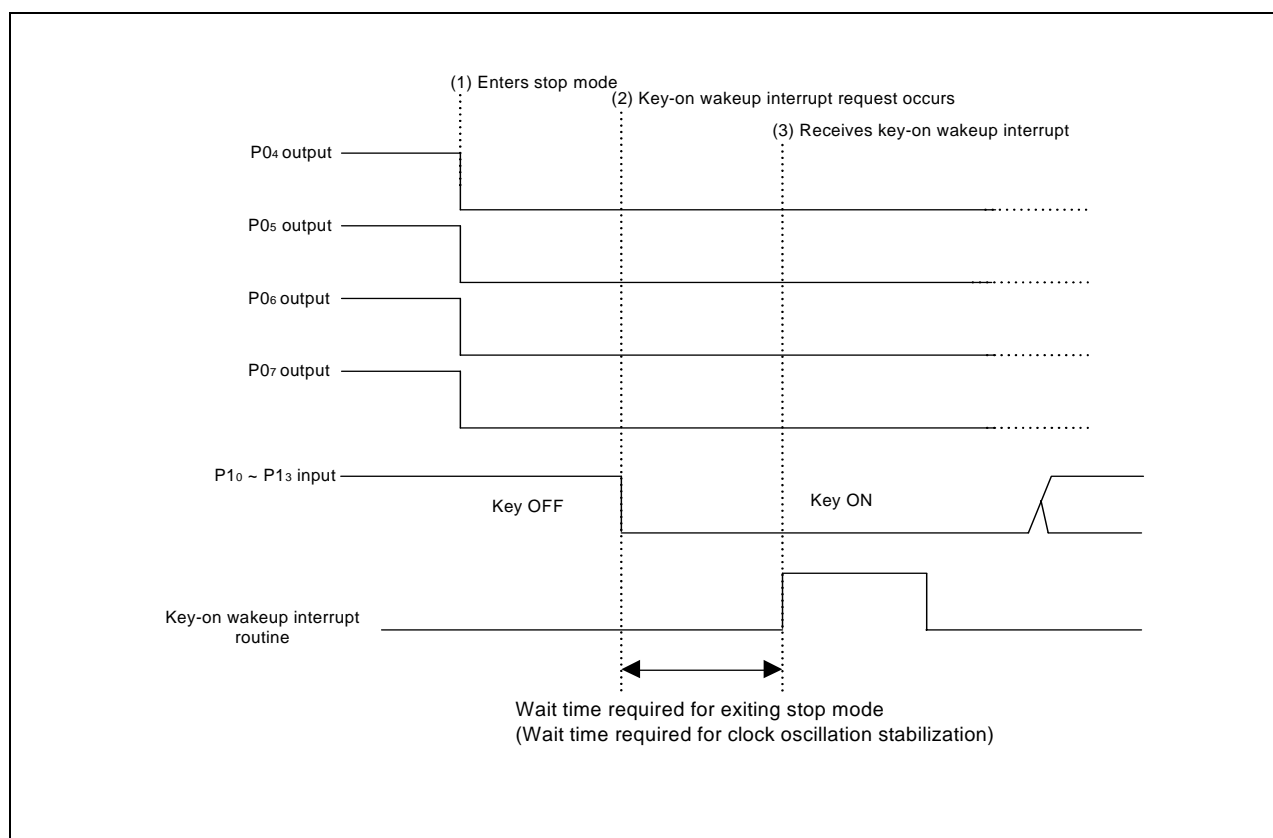
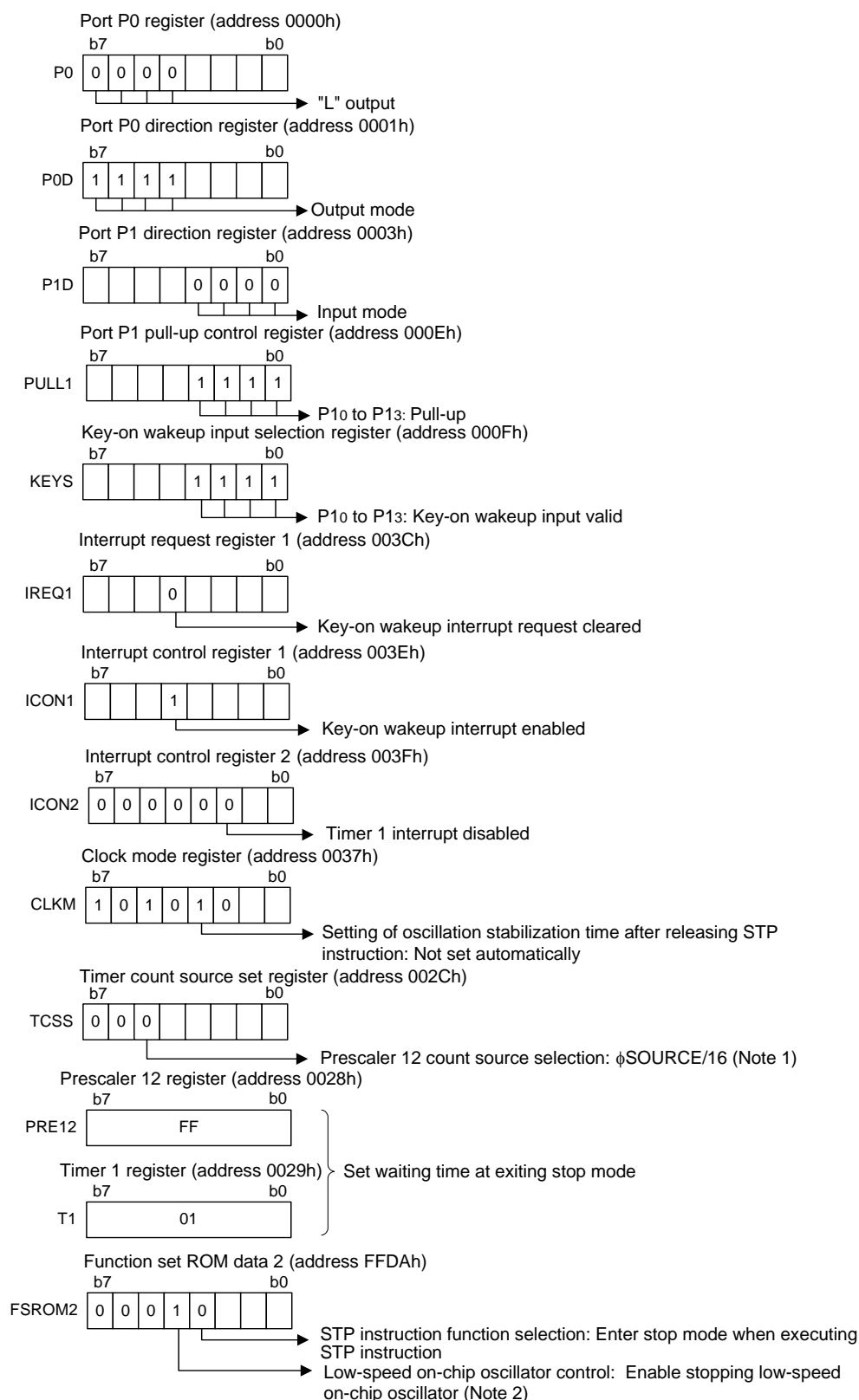


Figure 3.2 Example of Timing for Key-on Wakeup Interrupt Operation in Stop Mode



Notes: 1. ϕ SOURCE is the clock selected by bits 5 and 4 at the clock mode register (address 0037h). Timer count sources are not affected by bits 7 and 6 (clock dividing ratio selection bits).
2. When this bit is set to 0, it is impossible to write 1 to the bit 0 at the clock mode register (address 0037h). In addition, the low-speed on-chip oscillator does not stop even when the STP instruction is executed.

Figure 3.3 Relevant Register Settings

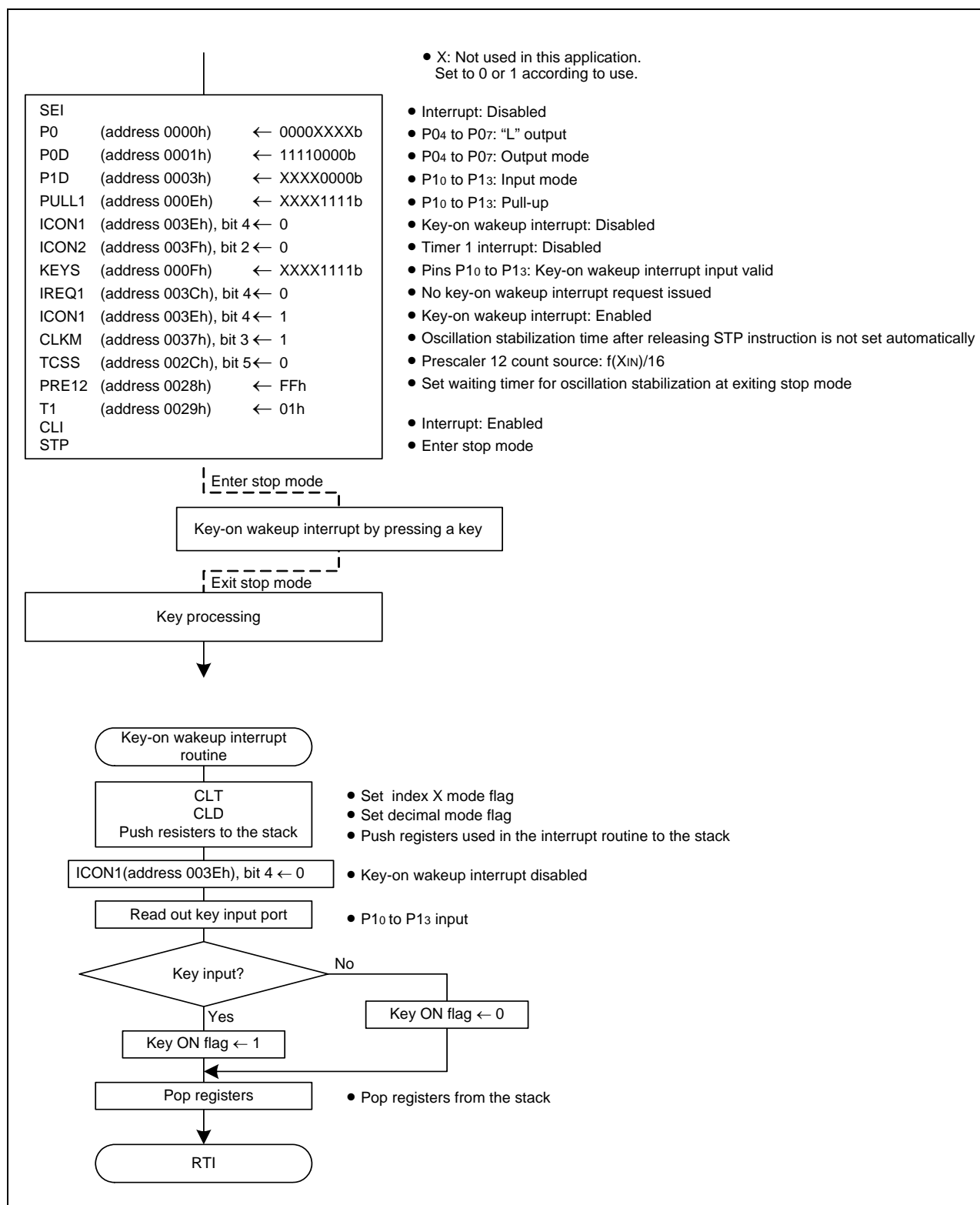


Figure 3.4 Control Procedure

3.2 Key-on wakeup application example (2)

Outline: Use a key-on wakeup interrupt as a normal external interrupt.

Specifications:

- A key-on wakeup interrupt is generated by inputting a falling edge (Note 1) to ports P10 to P17 (Note 2).

- P10 ~ P17 (Note 2): Pull-up

Notes: 1. The key-on wakeup interrupt is valid at the falling edge only.

2. The P16 and the P17 are available in 7549 Group only.

Figure 3.5 shows Relevant Register Settings and Figure 3.6 shows the Control Procedure.

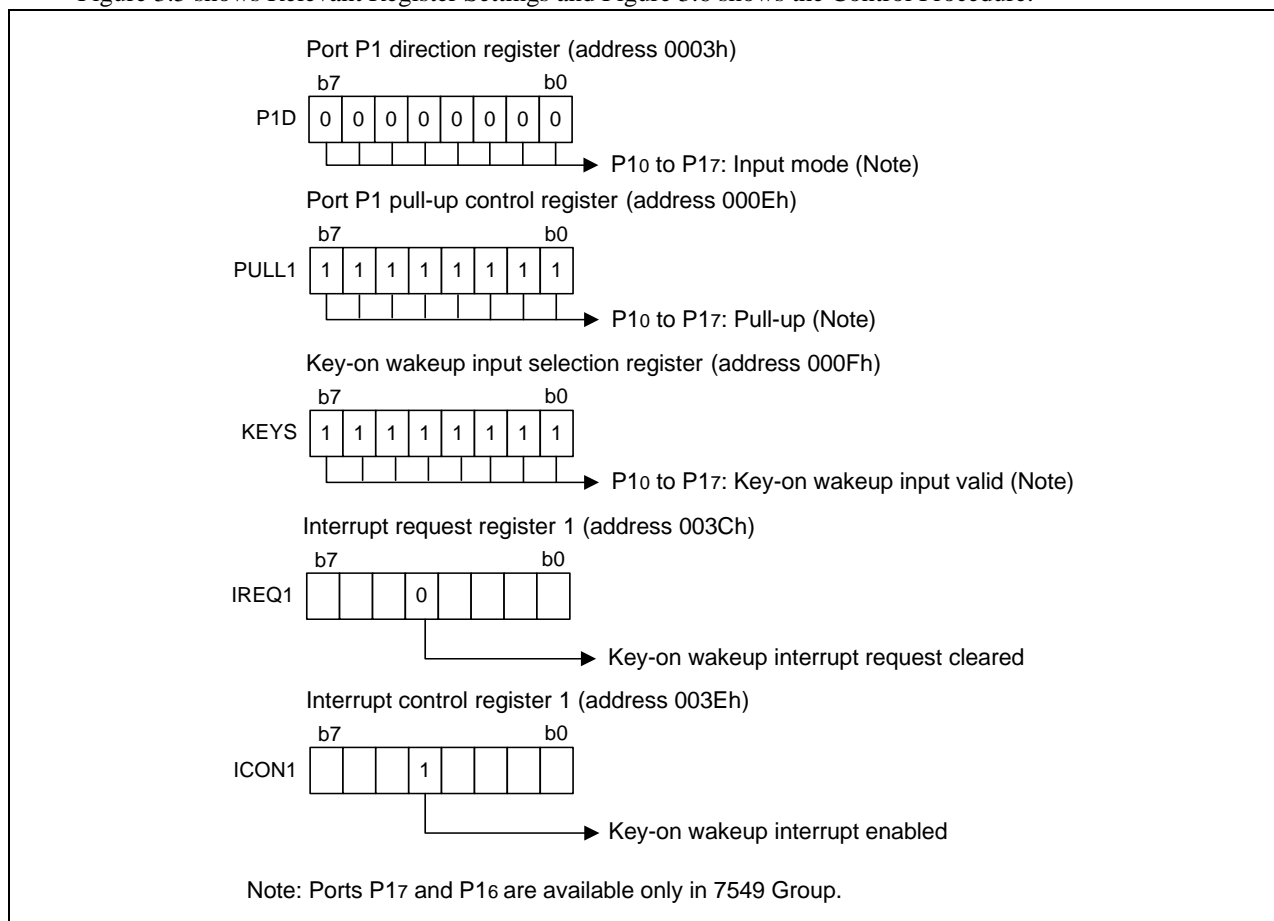


Figure 3.5 Relevant Register Settings

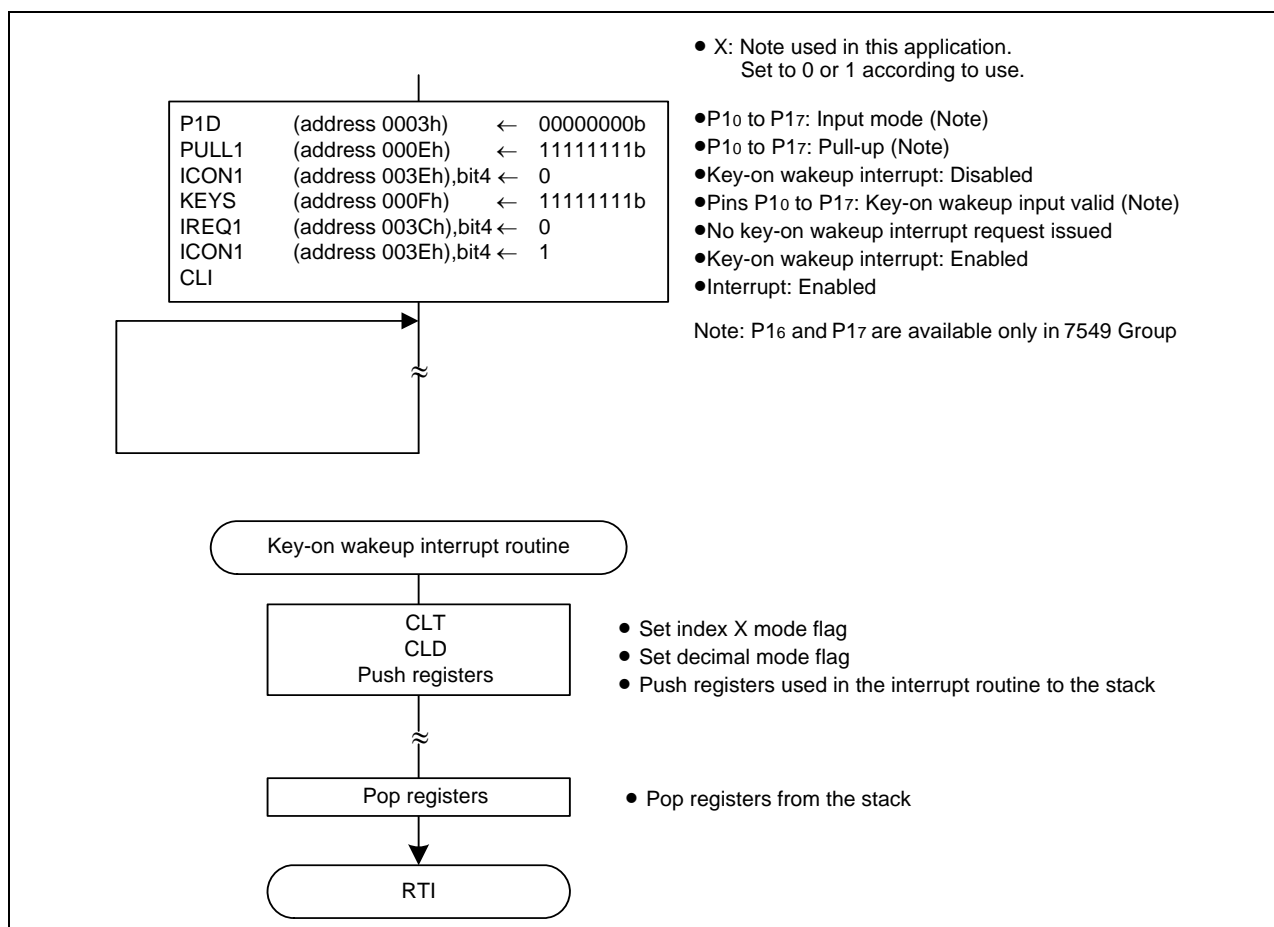


Figure 3.6 Control Procedure

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 7548/7549 Group.

5. Reference Document

Datasheet

7548/7549 Group Datasheet

Download the latest version from the Renesas Technology website.

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REVISION HISTORY	7548/7549 Group Key-on Wakeup
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Rev.	Date	Description	
		Page	Summary
1.00	Mar 26, 2007	–	First Edition issued
1.01	Oct 01, 2007	3,4,5	Figures 3.3, 3.4, 3.5 clerical errors revised

Notes regarding these materials

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