TOSHIBA

SP-870-010

# ADKEY

--Detecting Keys Using an A/D Converter--

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## 1. Target MCU

This sample program is created targetting at the TLCS-870/X series.
When using an MCU other than the TLCS-870/X series, refer to the data sheet for that MCU.

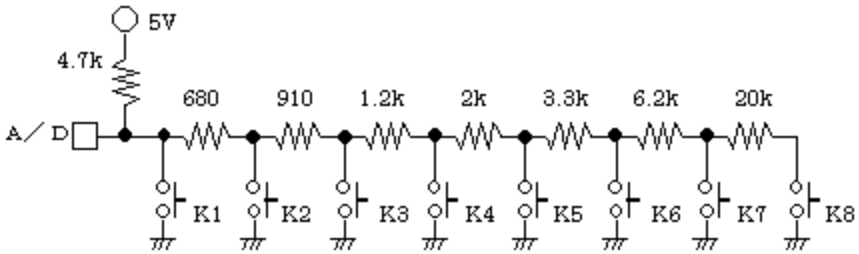
## 2. Overview

This sample program detects keys using an A/D converter contained in the MCU.

## 3. Description

Detects keys using A/D conversion.

- Use eight keys.
- Use P70 (AIN0) as an A/D port.
- The key circuit diagram is as follows:



- The following table shows the A/D input voltage when each key is pressed as well as the tolerance for detection:

| Key | Input voltage [V] | Tolerance [V] | Converted value (Hex) |
|---|---|---|---|
| K1 | 0.00 | 0.00—0.31 | 00—0F |
| K2 | 0.63 | —0.95 | 10—30 |
| K3 | 1.26 | —1.56 | 31—4F |
| K4 | 1.86 | —2.19 | 50—6F |
| K5 | 2.52 | —2.84 | 70—90 |
| K6 | 3.16 | —3.46 | 91—B0 |
| K7 | 3.76 | —4.08 | B1—D0 |
| K8 | 4.40 | —4.70 | D1—EF |
| No input | 5.00 | —5.00 | F0—FF |

- If more than one key in the above configuration is pressed simultaneously, the leftmost one of the pressed keys is detected.
- The pressing of a key is determined if it is detected three times in a row at intervals of 10 ms.

## 4. Passing Data

Use the following variables to exchange data with a key handler or other routines:

[ Variable: GKEYCOD ]

bit 7 FKEYON =0: Key off =1: Key on

bit 6 FKEYCT =0: No key input =1: Key determined

bit 3-0 Key code

| K1 | K2 | K3 | K4 | K5 | K6 | K7 | K8 |
|---|---|---|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |

## 5. Interrupts

TC5 interrupts (10-ms cycle)

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