

TOSHIBA

SP-870-009

KEYSCAN

--Detecting Keys Using a Timer--

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1. Target MCU

This sample program is created targeting 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.

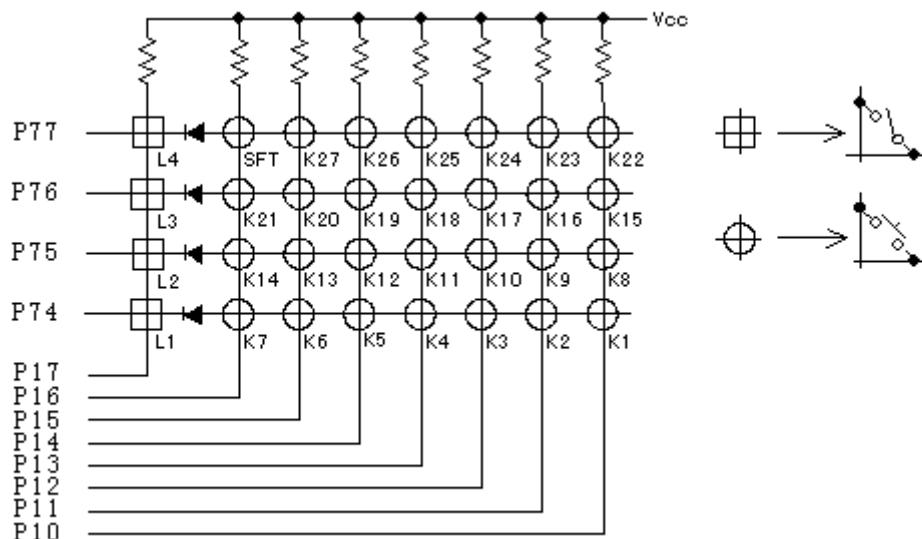
2. Overview

This sample program detects keys using a timer.

3. Description

The program scans keys using 5-ms-cycle interrupts in timer mode.

It assumes 4x8 key configuration (including four lock switches and a multiplexed key) and the following port assignment:



- Keys operate based on negative logic (for both digit selection and value entry).
- K1 to K27 are valid as individual keys.
- SFT+K1 to SFT+K27 are valid as combination keys.
- Keys are first detected when pressed for 0.5 s and repeatedly detected at intervals of 0.25 seconds when kept pressed.
- L1 to L4 operate as lock switches.
- The program scans P74 to P77 at intervals of 5 ms and determines that a key is on if it is pressed six times in a row, thus eliminating chattering during 30 ms.

4. Passing Data

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

[Variable: GKEYCOD]

- bit7 FKEYON =0: Key off =1: Key on
- bit6 FKEYCT =0: Initial key on =1: Continuous key on
- bit5 FSFTON =0: SFT key off =1: SFT key on
- bit4-0 Key code

K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	K12	K13	K14
01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E
K15	K16	K17	K18	K19	K20	K21	K22	K23	K24	K25	K26	K27	
0F	10	11	12	13	14	15	16	17	18	19	1A	1B	

[Variable: GLOCKSW]

- bit7 FLKCG4 =0: No change =1: Changed
- bit6 FLKCG3 =0: No change =1: Changed
- bit5 FLKCG2 =0: No change =1: Changed
- bit4 FLKCG1 =0: No change =1: Changed
- bit3 FLKSW4 =0: SW off =1: SW on
- bit2 FLKSW3 =0: SW off =1: SW on
- bit1 FLKSW2 =0: SW off =1: SW on
- bit0 FLKSW1 =0: SW off =1: SW on

5. Interrupts

TC5 interrupts (5-ms cycle)

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