

Precautions to Debounce 6 Frames in NY9T

Description: In NY9T, when user selects Debounce 6 frames and enables the Slow-Green mode, the releasing status cannot be detected if Slow command is executed during the Touch-Key pressed, and the key will fail since then. Likewise, when user selects Debounce 6 frames and PA0 Wakeup, and Slow command is executed with Touch-Key other than PA0 pressed, will also result in the same failure.

Reason: If Debounce is set to 6 frames, Slow command is executed during the key pressed will cause the Touch-Key kept in the pressing (falling) status. So pressing the same key again cannot awake MCU until Auto-judge / Enforce Calibration is issued or other Touch-Key is pressed to wake up MCU and update the Touch-Key status.

The same situation is also happened when Slow command is executed during Touch-Key pressed with settings of Debounce 6 frames and PA0 Wakeup.

Solution: When using NY9T series and selecting Debounce to 6 frames with Slow-Green Mode Enable / PA0 Wakeup, user must judge the status of Touch-keys before entering slow mode. If any Touch-Key is pressed, the Slow command has to be canceled. (Please refer to the following example code)

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; =====
; Project:      NY9T004A Debounce 6 Frames into slow mode example code
; =====
; Register& constant definition
P_Touch_Ctrl    EQU    0x0A        ; [TPCTL] Touch control register
C_Touch_En     EQU    B'0001'     ; Bit0 Touch-Key enable/disable
C_Slow_Mode    EQU    B'0010'     ; Bit1 Touch-Key slow mode
C_Calibration1 EQU    B'0100'     ; Bit2 Auto-Judge calibration mode
C_Calibration2 EQU    B'1000'     ; Bit3 Enforce calibration mode
P_Touch_PA     EQU    0x0C        ; [KEYD0] Key4~Key1 status

R_Sleep        EQU    0x10        ; Sleep flag
; Vector definition
...
ORG    0x200
V_Start:
; User initial
...
L_MainLoop:
CWDT           ; Clear Watch-Dog timer
; User code, service loop
...
Call F_System_ServiceLoop ; Check system function
JMP  L_MainLoop

F_System_ServiceLoop:
MVMA R_Sleep ; If R_Sleep = 0, then goto Sleep
CPAL 0
JMP  L_System_ServiceLoop_Ret ; R_Sleep not equal 0, then return

L_Set_SlowMode:
MVMA P_Touch_Ctrl
ORL  C_Slow_Mode
MVAM P_Touch_Ctrl ; Touch-Key into slow mode

L_Check_TouchKey:
MVMA P_Touch_PA ; Check all key status before system into slow mode
CPAL 0 ; If define 16*Touch, check Touch-Key PA~PD
JMP  L_Clr_SlowMode ; Have key, jump to cancel slow mode and return.
; No key, system go to sleep
; Goto Sleep

L_Clr_SlowMode:
MVMA P_Touch_Ctrl
ANDL ~C_Slow_Mode
MVAM P_Touch_Ctrl ; Cancel Touch-Key into slow mode

L_System_ServiceLoop_Ret:
LDPC ; Function return
end ; End of code

```