This page will contain the information about the combined lcd/button matrix forum topic[uCApps]

right now I'm using a modified version of the sm_simple C example
this code will be rewritten to make it more coherent

modifications to scan matrix example [uCApps]

Hardware

DOUT wiring

DIN wiring

**note: schematics not finished!*

Software

in main.c:

```
...
//second shiftregister drives the leds
#define LEDOUT 1
...
void LM_SetRow(){
    MIOS_DOUT_SRSet(LEDOUT,ledtest[sm_col]);
}

/////////////////////////////////////////////////////////////////////////////
/
// This function is called by MIOS before the shift register are loaded
/////////////////////////////////////////////////////////////////////////////
/
void SR_Service_Prepare(void) __wparam
{
  // call the Scan Matrix Driver
  SM_PrepareCol();
  // call the Led Matrix Driver
  LM_SetRow();
}
...
```

in sm_simple.asm:

```


...
    global    _sm_button_column
    global    _sm_button_row
    global    _sm_button_value
```

```
    global  _sm_col

    ;; import lables
    extern    _SM_NotifyToggle

; ========================================================================

accessram       udata        ; (no access ram required, these variables can
be located anywhere)

_sm_button_column   res    1    ; exported to C, therefore an "_" has been
added
_sm_button_row      res    1
_sm_button_value    res    1
_sm_col             res 1

...

SM_PrepareCol
    ;; select next DOUT register

    ;; (current column + 1) & 0x07
    SET_BSR    sm_selected_column
    incf    sm_selected_column, W, BANKED    ; (* see note below)
    andlw    0x07
    ;_sm_col is used by LM_SetRow()
    movwf    _sm_col
    call    MIOS_HLP_GetBitANDMask    ; (inverted 1 of 8 code)
...
```

and finally in sm_simple.h:

```

...
extern unsigned char sm_button_value;
extern unsigned char sm_col;
...
```

Appendum

To avoid flickering leds when pushing a button the MIOS button debouncing should be turned off!!

Due to the setup of the SRIO driver the debounce algoritm also delays the DOUT chain when a DIN event is being debounced. So when a button is pushed the led update frequency is reduced, the higher the debounce value, the lower the update frequency.

According to this post TK will fix this in a future MIOS release:

> This is something what I'm planning to solve in one of the next MIOS versions - currently the same

> SR scanning routine is used for DIN and DOUT registers, which means, >when the DINs are temporary disabled due to the cheap debouncing method, the DOUT registers won't be updated.

> The solution is to add a second scan routine which only services the DOUTs so long the debouncing delay is active.

Workaround

To turn the debouncing off, set

```
#define DIN_DEBOUNCE_VALUE    0
```

back to DSEQ32