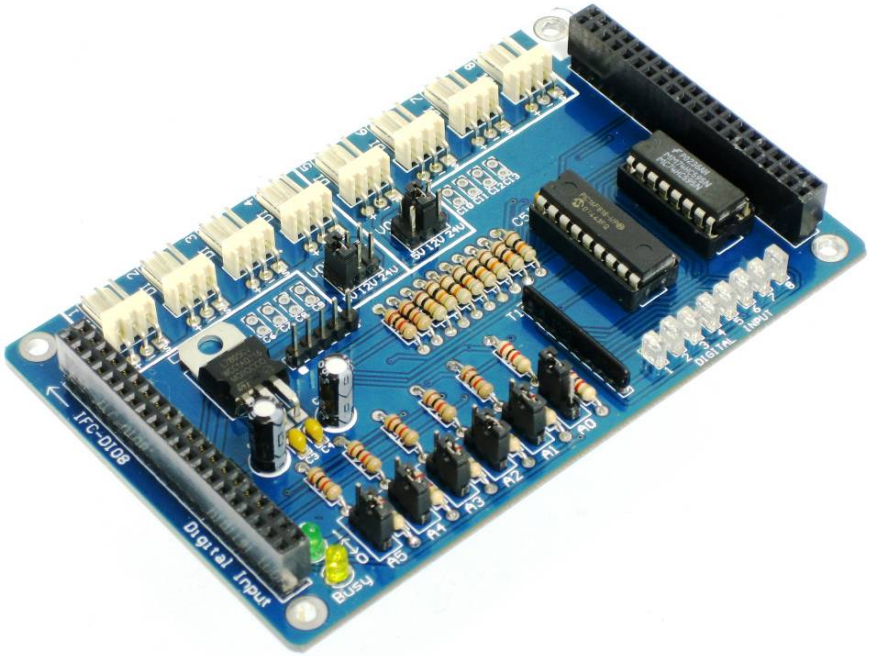
IFC-DI08
Interface Free Controller
Digital Input



Card Library Functions

V1.1

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Function Prototype for Digital Input (DI08)

This document explains the function prototype for DI08 needed in controlling input port. The function prototype will be called in main program for MB00 in order to control/communicate with DI08. User can also find the explanation of function prototype in its header file, "iic_di.h". Table 1 show the function for DI08.

Function Prototype	Remarks	Parameter Description
void di_c1con(unsigned char **add**, unsigned char **on_off**)	di_c1con(**add_di1,1**)	**add** = card address **on_off** = 16-Bits counter condition. **1** = enable DI1 as Counter 1 **0** = disable DI1 as Counter 1 and used as normal digital input.
void di_c2con(unsigned char **add**, unsigned char **on_off**)	di_c2con(**add_di1,0**)	**add** = card address **on_off** = 16-Bits counter condition. **1** = enable DI2 as Counter 2 **0** = disable DI2 as Counter 2 and used as normal digital input.
void di_c1clr(unsigned char **add**)	di_c1clr(**add_di1**)	**add** = card address. Clear Counter 1 value on DI card addressed as add_di1.
void di_c2clr(unsigned char **add**)	di_c2clr(**add_di1**)	**add** = card address. Clear Counter 2 value on DI card addressed as add_di1.
unsigned short di_c1val(unsigned char **add**)	di_c1val(**add_di1**)	**add** = card address. Read Counter 1 value on DI card addressed as add_di1.
unsigned short di_c2val(unsigned char **add**)	di_c2val(**add_di1**)	**add** = card address. Read Counter 2 value on DI card addressed as add_di1.
unsigned char di_read(unsigned char **add**, unsigned char **selection**)	di_read(**add_di1, 1)**	**add** = card address. **selection=0,** whole byte of input **selection=1,** input1 **selection=2,** input2 **selection=3,** input3 **selection=4,** input4 **selection=5,** input5 **selection=6,** input6 **selection=7,** input7 **selection=8,** input8 Read Digital input status on DI card addressed as add_di1 base on the selection. Value '0' will send to microcontroller when signal detected.

Table 1 Function Prototype for Digital Input (DI08)

Digital input (DI08) is another card for IFC. With this digital input card user can plug their favorite sensor, stack it and use it. To use this digital input card, some examples in using function prototype are given as a guide.

void di_c1con(unsigned char **add**,unsigned char **on_off**)
void di_c2con(unsigned char **add**, unsigned char **on_off**)

These function prototypes are used to set the condition of counter on DI08. The first 2 input ports (DI 1 and DI 2) can be set as 16-Bits counter which can count up to 65,535. Example below is to show how to use this function prototype. di_add is an address which is set on the Digital Input card and need to declare at beginning of programming. Both of the counters are enabled in the example code.

```
di_c1con(add_di1,1);
di_c2con(add_di1,1);
```

From Figure 1, both of the counters are enabled and counter1 counted 619 times while counter2 counted 463 times.

Figure 1

void di_c1clr(unsigned char **add**)
void di_c2clr(unsigned char **add**)

This function prototype is used to clear value in counter1 and counter2. To use this function, user may call the function prototype as shown:

```
di_clclr(add_dil);
di_c2clr(add_dil);
```

From Figure 2 when user calls this function, counter1 and counter2 will reset and start from 000000 compared to previous figure (Figure 1) where both of the counters have value.

Figure 2

unsigned short di_c1val(unsigned char **add**)
unsigned short di_c2val(unsigned char **add**)

di_c1val and di_c2val store the value counted by counter1 and counter2. So, this function is used to read value in counter1 and counter2. User may call the function as shown to test the value in counter1, if it is equal to '3', led7 will turn ON:

```
if(di_clval(add_dil)==3)
{
    led7=1;
}
```

unsigned char di_read(unsigned char **add**, unsigned char **selection**)

This function is used to read the digital input status in byte or per input. For example below, the program is written to test status of Digital Input 2. When signal is detected, value '0' will be send to the microcontroller since all the input ports on DI08 are active low.

```
if(di_read(di_add,2)==0)
{
    cp1_goto(0,0);
    cp1_char('2');
}
```

Figure 3 shows char'2' being displayed on LCD screen when input2 (DI 2) detected a signal.

Figure 3

User may also call this function to test ALL input port in a together. The example shown below is to test ALL the input ports. If signal is detected on ALL input ports together, LED1 will turn ON:

```
if(di_read(add_dil,0)==0)
{
    led1 = 1;
}
```

Note: User is reminded to add header file (iic.h and iic_di.h) and object file (iic.o and iic_di.o) for IFC-MB00 and IFC-DI08 each time open a new project for IFC. User also needs to include card h file at the beginning of the program. Please refer sample source code for the example to include card h file.

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