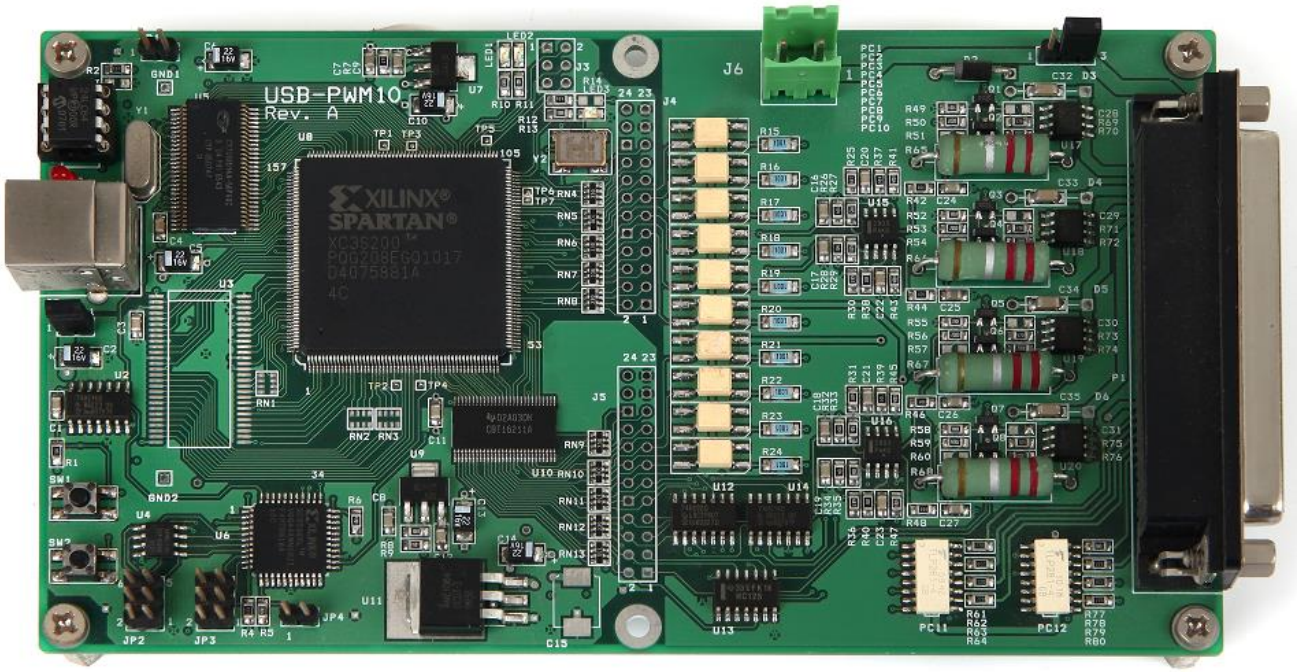
USB-PWM10

API Manual

Version 1.0



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Board Level API Functions

Overview

int **OpenDAQDevice (void)**
BOOL **ResetBoard (int nBoard)**
BOOL **CloseDAQDevice (void)**
int **GetBoardNum (void)**

OpenDAQDevice

This function opens the device. In the program using the USB-PWM10 board, the device must be opened by calling the function once at the beginning.

BOOL **OpenDAQDevice (void)**

Parameters:

Return Value:

If device open is successful, the number of devices currently installed in the system (PC) is returned. In case of failure, "-1" is returned.

ResetBoard

This function initializes the device currently installed in the system (PC).

BOOL **ResetBoard (int nBoard)**

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

Return Value:

If the function call fails, "FALSE" is returned.
If the function call succeeds, "TRUE" is returned.

CloseDAQDevice

This function closes all open USB-PWM10 device. When the use of the device is finished, be sure to close the device so that other programs can use it.

BOOL CloseDAQDevice (void)

Parameters:

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

GetBoardNum

This function can check how many USB-PWM10 boards are currently installed in the PC.

int CloseDAQDevice (void)

Parameters:

Return Value:

It returns -1 if Close fails, and the number of installed boards if successful.

PWM API Functions

Overview

BOOL **Pwm_Reset (int nCh)**
BOOL **Set_Mode (int nCh, int nMode)**
Int **Get_Mode (int nCh)**
BOOL **Set_Cont (int nCh, int nCont)**
Int **Get_Cont (int nCh)**
BOOL **Pwm_Enable (int nCh)**
BOOL **Pwm_Disable (int nCh)**
BOOL **Set_Pwm (int nCh, int nNum)**
Int **Get_Pwm (int nCh)**
BOOL **Set_Delay (int nCh, int nTime)**
Int **Get_Delay (int nCh)**
BOOL **Set_Period (int nCh, int nTime)**
Int **Get_Period (int nCh)**
BOOL **Set_Dout (int dout)**
BOOL **Get_Dout (void)**
BOOL **Get_Din (void)**

Pwm_Reset

This function initializes each PWM. After initialization, the PWM value becomes 0, PWM Disable, Normal Mode, Delay time is 0, Period time is 1000mSEC.

BOOL **Pwm_Reset (int nCh)**

Parameters:

nCh : PWM channel numbers 0 through 3

Return Value:

If initialization fails, "FALSE" returns "TRUE" in case of success.

Set_Mode

This function sets the operation mode of each PWM. There are two operation modes: Normal Mode and Trigger Mode.

BOOL Set_Mode (int nCh, int nMode)

Parameters:

nCh : PWM channel numbers 0 through 3

nMode : "0" : Normal Mode, "others" : Trigger Mode

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Get_Mode

This function finds out the current PWM operating mode.

Int Get_Mode (int nCh)

Parameters:

nCh : PWM channel numbers 0 through 3

Return Value:

In case of Normal Mode, it returns "0",

in case of trigger mode, it returns a value other than "0".

Set_Cont

This function sets the trigger operation mode of each PWM. There are single (One-shot) mode and continuous trigger mode for trigger operation mode.

BOOL Set_Cont (int nCh, int nCont)

Parameters:

nCh : PWM channel numbers 0 through 3

nCont : "0" : One-shot Trigger Mode

"others" : Continuous Trigger Mode

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Get_Cont

This function finds out the current PWM trigger operation mode.

Int **Get_Cont (int nCh)**

Parameters:

nCh : PWM channel numbers 0 through 3

Return Value:

In case of one-shot trigger mode, it returns "0",

in case of continuous trigger mode, it returns a value other than "0".

Pwm_Enable

This function allows each PWM operation to be performed.

BOOL **Pwm_Enable (int nCh)**

Parameters:

nCh : PWM channel numbers 0 through 3

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Pwm_Disable

This function stops each PWM operation.

BOOL **Pwm_Disable (int nCh)**

Parameters:

nCh : PWM channel numbers 0 through 3

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Set_Pwm

This function controls the output operation of each PWM. The setting value range is from 0 to 255, with 255 being the maximum value and the maximum brightness.

BOOL Set_Pwm (int nCh, int nNum)

Parameters:

nCh : PWM channel numbers 0 through 3

nNum : Output set value

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Get_Pwm

This function reads the currently set PWM operation value.

Int Get_Pwm (int nCh)

Parameters:

nCh : PWM channel numbers 0 through 3

Return Value:

It returns -1 in case of failure and the PWM value set in case of success.

Set_Delay

This function controls the output delay behavior of each PWM. The set value ranges from 0 to 4194303, and the resolution is in 1uSEC units, up to 4194303uSEC.

BOOL Set_Delay (int nCh, int nTime)

Parameters:

nCh : PWM channel numbers 0 through 3

nTime : Output delay time (0- 4194303)

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Get_Delay

This function finds the currently set PWM output delay value.

Int **Get_Delay (int nCh)**

Parameters:

nCh : PWM channel numbers 0 through 3

Return Value:

It returns -1 in case of failure and the set output delay value in case of success.

Set_Period

This function controls the output time of each PWM. The set value ranges from 0 to 4194303, and the resolution is in 1uSEC units, up to 4194303uSEC.

BOOL **Set_Period (int nCh, int nTime)**

Parameters:

nCh : PWM channel numbers 0 through 3

nTime : Output time (0- 4194303)

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Get_Period

This function finds the currently set PWM output time value.

Int **Get_Period (int nCh)**

Parameters:

nCh : PWM channel numbers 0 through 3

Return Value:

It returns -1 in case of failure and the set output time value in case of success.

Set_Dout

This function sets the digital output value. When each bit is 1, the output is ON.
The total output is bits 0 through 11.

BOOL Set_Dout (int dout)

Parameters:

dout : Set the value to be output with each bit.
(Example) 0x081 (decimal 129) Bit 0, Bit 7 ON

Return Value:

If the function call fails, "FALSE" is returned.
If the function call succeeds, "TRUE" is returned.

Get_Dout

This function reads the currently set digital output value.

Int Get_Dout (void)

Parameters:

Return Value:

In case of failure, -1 is returned,
in case of success, the set digital output value is returned.

Get_Din

This function reads the currently set digital input value.
There are a total of 6 digital inputs.

Int Get_Din (void)

Parameters:

Return Value:

It returns -1 in case of failure and digital input value in case of success.

DIO(Digital Input Outpur) API Functions

Overview

BOOL **Dout_Write (unsigned short val)**

Unsigned short **Dout_Read (void)**

Unsigned short **Din_Read (void)**

Dout_Write

This function sets the digital output value. When each bit is 1, the output is ON. The total output is bits 0 through 7.

BOOL **Dout_Write (unsigned short val)**

Parameters:

val : Set the value to be output with each bit

(Example) 0x081 (decimal 129) Bit 0, Bit 7 ON

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Dout_Read

This function reads the currently set digital output value.

Unsighed short **Dout_Read (void)**

Parameters:

Return Value:

It returns -1 in case of failure and digital input value in case of success.

Din_Read

This function reads the currently set digital input value. There are a total of 6 digital inputs.

Unsigned short **Din_Read (void)**

Parameters:

Return Value:

It returns -1 in case of failure and digital input value in case of success.

Multi-Board PWM API Functions

Overview

BOOL **Pwm_Reset_Mul (int nBoard, int nCh)**
BOOL **Set_Mode_Mul (int nBoard, int nCh, int nMode)**
Int **Get_Mode_Mul (int nBoard, int nCh)**
BOOL **Set_Cont_Mul (int nBoard, int nCh, int nCont)**
Int **Get_Cont_Mul (int nBoard, int nCh)**
BOOL **Pwm_Enable_Mul (int nBoard, int nCh)**
BOOL **Pwm_Disable_Mul (int nBoard, int nCh)**
BOOL **Set_Pwm_Mul (int nBoard, int nCh, int nNum)**
Int **Get_Pwm_Mul (int nBoard, int nCh)**
BOOL **Set_Delay_Mul (int nBoard, int nCh, int nTime)**
Int **Get_Delay_Mul (int nBoard, int nCh)**
BOOL **Set_Period_Mul (int nBoard, int nCh, int nTime)**
Int **Get_Period_Mul (int nBoard, int nCh)**
BOOL **Set_Dout_Mul (int nBoard, int dout)**
BOOL **Get_Dout_Mul (int nBoard)**
BOOL **Get_Din_Mul (int nBoard)**

Pwm_Reset_Mul

This function initializes each PWM. After initialization, PWM value becomes 0, PWM Disable, Normal Mode, Delay time are 0, and Period time is 1000mSEC.

BOOL **Pwm_Reset_Mul (int nBoard, int nCh)**

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.
nCh : PWM channel numbers 0 through 3

Return Value:

If initialization fails, "FALSE" returns "TRUE" in case of success.

Set_Mode_Mul

This function sets the operation mode of each PWM. There are two operation modes: Normal Mode and Trigger Mode.

BOOL Set_Mode_Mul (int nBoard, int nCh, int nMode)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.
nCh : PWM channel numbers 0 through 3
nMode : "0" : Normal Mode, "others" : Trigger Mode

Return Value:

If the function call fails, "FALSE" is returned.
If the function call succeeds, "TRUE" is returned.

Get_Mode_Mul

This function finds out the current PWM operating mode.

Int Get_Mode_Mul (int nBoard, int nCh)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.
nCh : PWM channel numbers 0 through 3

Return Value:

In case of Normal Mode, it returns "0",
in case of trigger mode, it returns a value other than "0".

Set_Cont_Mul

This function sets the trigger operation mode of each PWM. There are single (One-shot) mode and continuous trigger mode for trigger operation mode.

BOOL Set_Cont_Mul (int nBoard, int nCh, int nCont)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

nCh : PWM channel numbers 0 through 3

nCont : "0" : One-shot Trigger Mode
"others" : Continuous Trigger Mode

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Get_Cont_Mul

This function finds out the current PWM trigger operation mode.

Int Get_Cont_Mul (int nBoard, int nCh)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

nCh : PWM channel numbers 0 through 3

Return Value:

In case of one-shot trigger mode, it returns "0",
in case of continuous trigger mode, it returns a value other than "0".

Pwm_Enable_Mul

This function allows each PWM operation to be performed.

BOOL **Pwm_Enable_Mul (int nBoard, int nCh)**

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

nCh : PWM channel numbers 0 through 3

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Pwm_Disable_Mul

This function stops each PWM operation.

BOOL **Pwm_Disable_Mul (int nBoard, int nCh)**

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

nCh : PWM channel numbers 0 through 3

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Set_Pwm_Mul

This function controls the output operation of each PWM. The setting value range is from 0 to 255, with 255 being the maximum value and the maximum brightness.

BOOL Set_Pwm_Mul (int nBoard, int nCh, int nNum)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

nCh : PWM channel numbers 0 through 3

nNum : Output set value

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Get_Pwm_Mul

This function reads the currently set PWM operation value.

Int Get_Pwm_Mul (int nBoard, int nCh)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

nCh : PWM channel numbers 0 through 3

Return Value:

It returns -1 in case of failure and the PWM value set in case of success.

Set_Delay_Mul

This function controls the output delay behavior of each PWM. The set value ranges from 0 to 4194303, and the resolution is in 1uSEC units, up to 4194303uSEC.

BOOL Set_Delay_Mul (int nBoard, int nCh, int nTime)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.
nCh : PWM channel numbers 0 through 3
nTime : Output delay time (0- 4194303)

Return Value:

If the function call fails, "FALSE" is returned.
If the function call succeeds, "TRUE" is returned.

Get_Delay_Mul

This function finds the currently set PWM output delay value.

Int Get_Delay_Mul (int nBoard, int nCh)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.
nCh : PWM channel numbers 0 through 3

Return Value:

It returns -1 in case of failure and the set output delay value in case of success.

Set_Period_Mul

This function controls the output time of each PWM. The set value ranges from 0 to 4194303, and the resolution is in 1uSEC units, up to 4194303uSEC.

BOOL Set_Period_Mul (int nBoard, int nCh, int nTime)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

nCh : PWM channel numbers 0 through 3

nTime : Output time (0- 4194303)

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Get_Period_Mul

This function finds the currently set PWM output time value.

Int Get_Period_Mul (int nBoard, int nCh)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

nCh : PWM channel numbers 0 through 3

Return Value:

It returns -1 in case of failure and the set output time value in case of success.

Set_Dout_Mul

This function sets the digital output value. When each bit is 1, the output is ON.
The total output is bits 0 through 11.

BOOL Set_Dout_Mul (int nBoard, int dout)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

dout : Set the value to be output with each bit.
(Example) 0x081 (decimal 129) Bit 0, Bit 7 ON

Return Value:

If the function call fails, "FALSE" is returned.
If the function call succeeds, "TRUE" is returned.

Get_Dout_Mul

This function reads the currently set digital output value.

Int Get_Dout_Mul (int nBoard)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

Return Value:

In case of failure, -1 is returned,
in case of success, the set digital output value is returned.

Get_Din_Mul

This function reads the currently set digital input value.
There are a total of 6 digital inputs.

Int Get_Din_Mul (int nBoard)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

Return Value:

It returns -1 in case of failure and digital input value in case of success.

Multi-Board DIO(Digital Input Outpur) API Functions

Overview

BOOL **Dout_Write_Mul (int nBoard, unsigned short val)**

Unsigned short **Dout_Read_Mul (int nBoard)**

Unsigned short **Din_Read_Mul (int nBoard)**

Dout_Write_Mul

This function sets the digital output value. When each bit is 1, the output is ON. The total output is bits 0 through 7.

BOOL **Dout_Write_Mul (int nBoard, unsigned short val)**

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

val : Set the value to be output with each bit
(Example) 0x081 (decimal 129) Bit 0, Bit 7 ON

Return Value:

If the function call fails, "FALSE" is returned.

If the function call succeeds, "TRUE" is returned.

Dout_Read_Mul

This function reads the currently set digital output value.

Unsighed short **Dout_Read_Mul (int nBoard)**

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

Return Value:

It returns -1 in case of failure and digital input value in case of success.

Din_Read_Mul

This function reads the currently set digital input value. There are a total of 6 digital inputs.

Unsigned short Din_Read_Mul (int nBoard)

Parameters:

nBoard : Shows the board number currently installed in the system.
The board number is set using the DIP switch of the board.

Return Value:

It returns -1 in case of failure and digital input value in case of success.

Memo

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