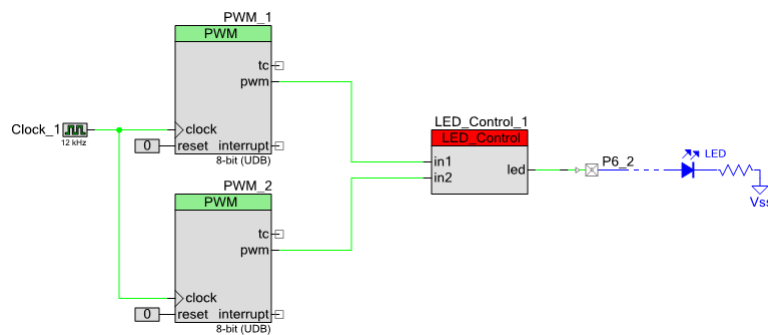


LED_Control Component Datasheet

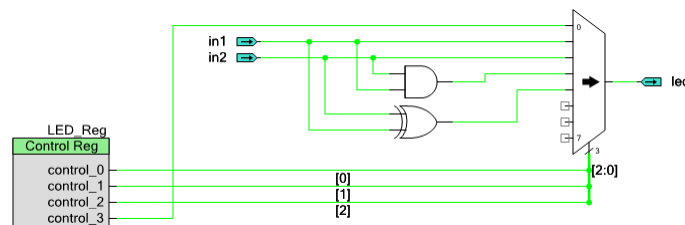
(v1.00)

The LED_Control component allows the user to drive an LED from a selection of different signals. The signal selection is made via the component “channel” parameter and generated APIs. The expected use case is as follows, where both inputs are driven from a PWM and the output is connected to an LED.



Implementation

LED_Control uses a control register to drive digital muxes that select the requested signal to drive the output pin (LED).



The ANDed and XORed signals are used to generate a glowing LED effect by combining two PWM outputs of slightly different period.

Parameters

channel	The selected channel. Legal choices are as follows.
Software	(Drive the output from the control register itself)
in1	(Drive the output directly from the in1 input)
in2	(Drive the output directly from the in2 input)
in1 AND in2	(Drive the output with the bitwise AND of in1 and in2)
in1 XOR in2	(Drive the output with the bitwise XOR of in1 and in2)

Software APIs

The following software APIs enable the application to control the channel at run-time. When the channel is 'Software' it also provides APIs to read and write the pin.

Note that, in the following, the string “LED_Control” should be replaced by the actual component instance name, e.g. LED_Control_1_USE_SOFTWARE.

```
/* Chooses the signal to be routed to the output/LED */
void LED_Control_Set_Channel( int use );

/* Returns the selected output/LED */
int LED_Control_Get_Channel( void );

/* Writes to the output/LED when it is driven from software */
void LED_Control_Write( int value );

/* Returns the state of the output when it is driven from software */
int LED_Control_Read(void);
```

void LED_Control_Set_Channel(int use)

Chooses which signal to route to the output/LED. Reads the register, modifies the bits that control the signal selection, and writes the new value back to the register.

Parameters:

use:	The signal to be routed.
LED_Control_USE_SOFTWARE	Drive the output from the control register itself
LED_Control_USE_IN1	Drive the output directly from the in1 input
LED_Control_USE_IN2	Drive the output directly from the in2 input
LED_Control_USE_IN1_AND_IN2	Drive the output with the bitwise AND of in1 and in2
LED_Control_USE_IN1_XOR_IN2	Drive the output with the bitwise XOR of in1 and in2

Return:

void

int LED_Control_Get_Channel(void)

Returns the value of the software bit in the control register. If the output is driven from the schematic the return value is undefined.

Parameters:

None

Return:

int (the currently-selected channel – see ‘use’ parameter for Set_Channel API)

void LED_Control_Write(int value)

Writes to the LED when it is driven from software. Reads the register and checks that the selected output is software-driven. If so, it updates the bit that drives the output based on the function argument.

If the output is driven from the schematic this API has no effect.

Parameters:

value: 0 (OFF) or non-zero (ON)

Return:

void

`int LED_Control_Read(void)`

Returns the value of the software bit in the control register. If the output is driven from the schematic the return value is undefined.

Parameters:

None

Return:

0 (OFF) or 1 (ON)