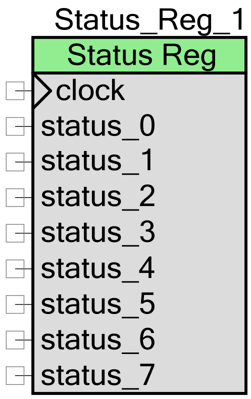
Status Register

1.50



Features

- Up to 8-bit Status Register

General Description

The Status Register allows the firmware to read digital signals.

When to Use a Status Register

Use the Status Register when the firmware needs to query the state of internal digital signals.

Input/Output Connections

This section describes the input connections for the status register. An asterisk (*) in the list of I/Os indicates that the I/O may be hidden on the symbol under the conditions listed in the description of that I/O.

clock – Input

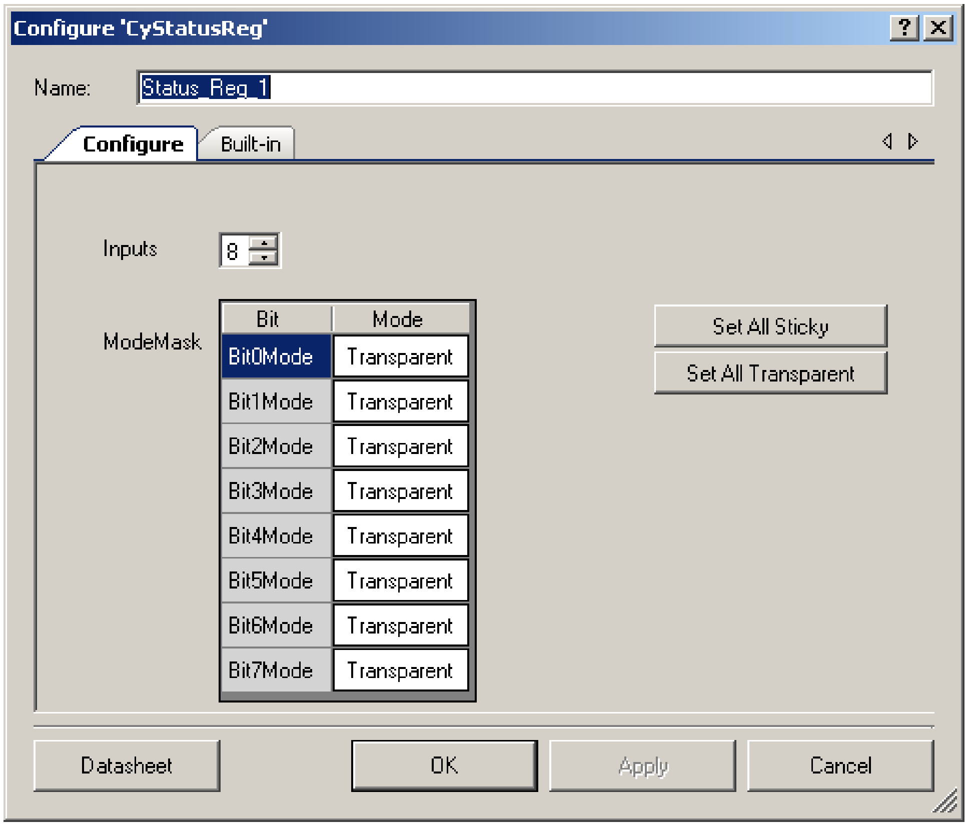
Status register clock. The clock input signal is ignored for bits configured as Transparent.

status_0 - status_7 – Input *

Status register input. The firmware queries the input signals by reading the status register. The number of inputs depends on the **Inputs** parameter.

Component Parameters

Drag a Status Register onto your design and double-click it to open the **Configure** dialog.



Name: Status_Reg_1

Inputs 8

ModeMask

Bit	Mode
Bit0Mode	Transparent
Bit1Mode	Transparent
Bit2Mode	Transparent
Bit3Mode	Transparent
Bit4Mode	Transparent
Bit5Mode	Transparent
Bit6Mode	Transparent
Bit7Mode	Transparent

Inputs

Number of input terminals (1 to 8). The default value is **8**.

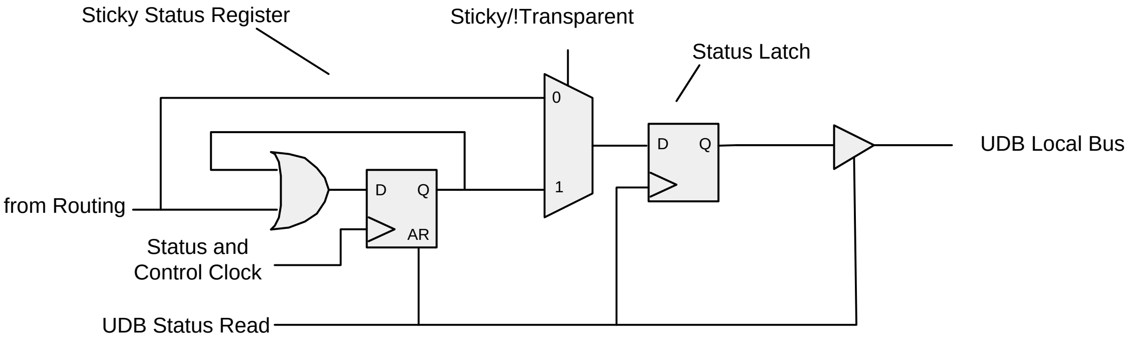
ModeMask (Bit0Mode – Bit7Mode)

These parameters are used to set specific bits of the Status Register to be held high after being registered, until a read is executed. That read clears all registered values. The settings are:

- **Transparent** – By default, a CPU read of this register transparently reads the state of the associated routing net and is asynchronous to the block clock. This mode can be used for transient state that is computed and registered internally in the UDB.

- **Sticky (Clear on Read)** – In this mode, the associated routing net is sampled on each cycle of the status and control clock. If the signal is high in a given sample, it is captured in the status bit and remains high, regardless of the subsequent state of the associated route. When CPU firmware reads the status register, the bit is cleared. The status register clearing is independent of mode and will occur even if the block clock is disabled; it is based on the bus clock and occurs as part of the read operation.

Figure 1. Behavior of Transparent versus Sticky Modes



Set All Sticky

This button sets all of the bits to Sticky mode.

Set All Transparent

This button sets all of the bits to Transparent mode.

Resources

Analog Blocks	Digital Blocks					API Memory (Bytes)		Pins (per External I/O)
	Datapaths	Macro cells	Status Registers	Control Registers	Counter7	Flash	RAM	
N/A	N/A	N/A	1	N/A	N/A	6	0	N/A

The status register requires one UDB Status Register.

Application Programming Interface

Application Programming Interface (API) routines allow you to configure the component using software.

By default, PSoC Creator assigns the instance name “Status_Reg_1” to the first instance of a status register in any given design. You can rename the component to any unique value that follows the syntactic rules for identifiers. The instance name becomes the prefix of every global function name, variable, and constant symbol. For readability, the instance name used in the following function is “StatusReg.”

uint8 StatusReg_Read (void)

Description: Reads the value of a status register.

Parameters: None

Return Value: Returns the current value of a status register.

Side Effects: None

Sample Firmware Source Code

PSoC Creator provides numerous example projects that include schematics and example code in the Find Example Project dialog. For component-specific examples, open the dialog from the Component Catalog or an instance of the component in a schematic. For general examples, open the dialog from the Start Page or **File** menu. As needed, use the **Filter Options** in the dialog to narrow the list of projects available to select.

Refer to the “Find Example Project” topic in the PSoC Creator Help for more information.

Component Changes

This section lists the major changes in the component from the previous version.

Version	Description of Changes	Reason for Changes / Impact
1.50.d	Minor datasheet edit.	
1.50.c	Minor datasheet edit.	
1.50.b	Datasheet edits	
1.50.a	Datasheet edits	
1.50	Updated the Configure dialog.	Created a customized interface. Added "Set All" buttons and changed Number of Inputs field to allow keyboard entry. Updated the dialog to comply with corporate standards.

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