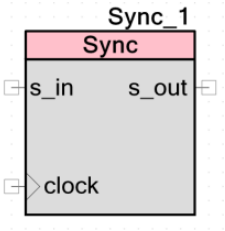
Sync
1.0



Features

- Synchronizes 1 to 32 input signals

General Description

The Sync component resynchronizes a set of input signals to the rising edge of the clock signal.

When to Use a Sync

When you need to use a signal from one clock domain in another clock domain, you can use the Sync component to line up that signal's transitions to the clock domain of the destination. In this case the Sync component is clocked using the same clock as the destination.

Input/Output Connections

This section describes the various input and output connections for the Sync component.

s_in – Input

Signal to be resynchronized. The signal must have a pulse width of at least one clock period plus 2 ns.

clock – Input

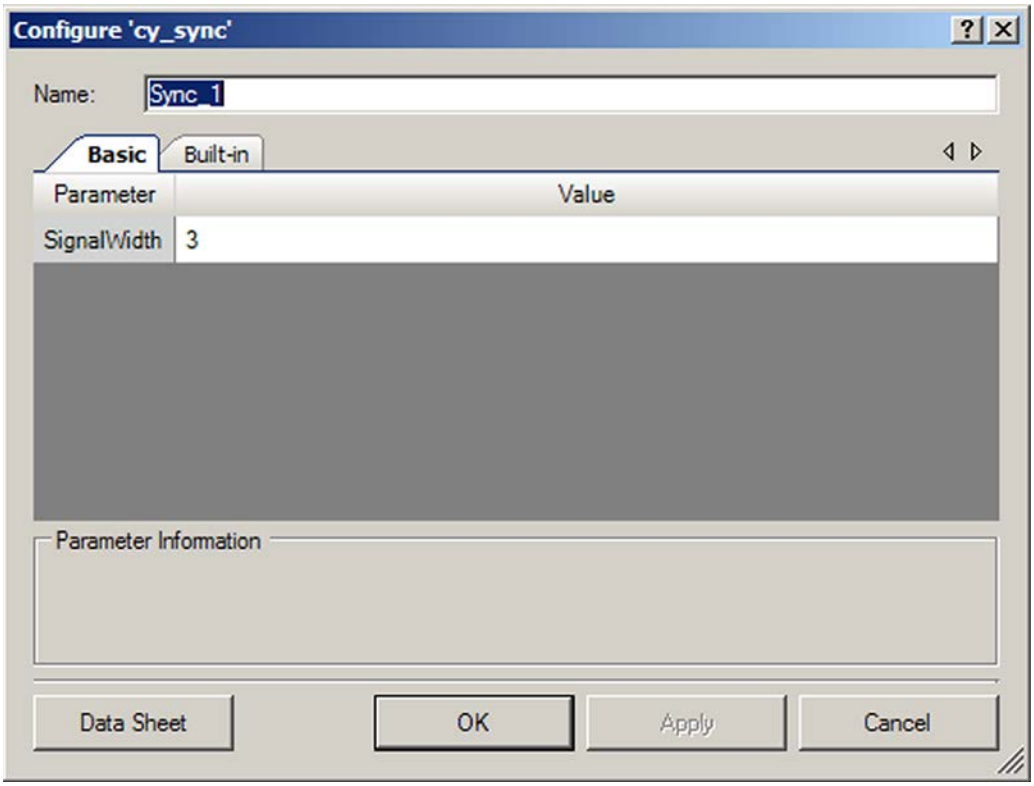
Signal that s_in is to be resynchronized against.

s_out – Output

Resulting resynchronized signal.

Component Parameters

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



The Sync component provides the following parameter.

SignalWidth

This parameter configures the number of signals that will be synchronized to the associated clock.

Placement

The Sync component has no placement controls. PSoC Creator packs these signals into groups to be placed in the UDB array.

Resources

This circuit is implemented using a status register in synchronizer mode. A single status register can synchronize four signals that are synchronized by the same clock.

Functional Description

The Sync component is implemented using a double synchronizer. A double synchronizer clocks the input signal through two registers in series. The second register is used to resolve a metastable value that could occur if the incoming signal violates setup or hold on the first register.

Component Changes

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

Version	Description of Changes
1.0.b	Minor datasheet edits and updates
1.0.a	Minor datasheet edits and updates

© Cypress Semiconductor Corporation, 2012. The information contained herein is subject to change without notice. Cypress Semiconductor Corporation assumes no responsibility for the use of any circuitry other than circuitry embodied in a Cypress product. Nor does it convey or imply any license under patent or other rights. Cypress products are not warranted nor intended to be used for medical, life support, life saving, critical control or safety applications, unless pursuant to an express written agreement with Cypress. Furthermore, Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress products in life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

PSoC® is a registered trademark, and PSoC Creator™ and Programmable System-on-Chip™ are trademarks of Cypress Semiconductor Corp. All other trademarks or registered trademarks referenced herein are property of the respective corporations.

Any Source Code (software and/or firmware) is owned by Cypress Semiconductor Corporation (Cypress) and is protected by and subject to worldwide patent protection (United States and foreign), United States copyright laws and international treaty provisions. Cypress hereby grants to licensee a personal, non-exclusive, non-transferable license to copy, use, modify, create derivative works of, and compile the Cypress Source Code and derivative works for the sole purpose of creating custom software and or firmware in support of licensee product to be used only in conjunction with a Cypress integrated circuit as specified in the applicable agreement. Any reproduction, modification, translation, compilation, or representation of this Source Code except as specified above is prohibited without the express written permission of Cypress.

Disclaimer: CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Cypress reserves the right to make changes without further notice to the materials described herein. Cypress does not assume any liability arising out of the application or use of any product or circuit described herein. Cypress does not authorize its products for use as critical components in life-support systems where a malfunction or failure may reasonably be expected to result in significant injury to the user. The inclusion of Cypress' product in a life-support systems application implies that the manufacturer assumes all risk of such use and in doing so indemnifies Cypress against all charges.

Use may be limited by and subject to the applicable Cypress software license agreement.