Analog Mux Constraint

1.50

Features

- Limits analog routing of an switchable mux connection to a specific routing resource
- All terminals on the signal must connect directly to the routing resource

  Note Routing is strict. All of the devices connected to the net with the resource constraint must have a direct hardware connection to the resource. Refer to the Analog Routing Diagram in the applicable Technical Reference Manual (TRM), which is available from the Cypress website, www.cypress.com. If the resources do not have a hardware connection to the specified constraint, an error will occur.

General Description

The Analog Mux Constraint component allows you to define the route of the analog signal on the switchable mux connection to which it is connected. This is an advanced feature that is not needed for most designs, and should be used with caution.

When to Use an Analog Mux Constraint

The Analog Mux Constraint should be used to manually control analog routing when strict control over the signal routing is required.

Input/Output Connections

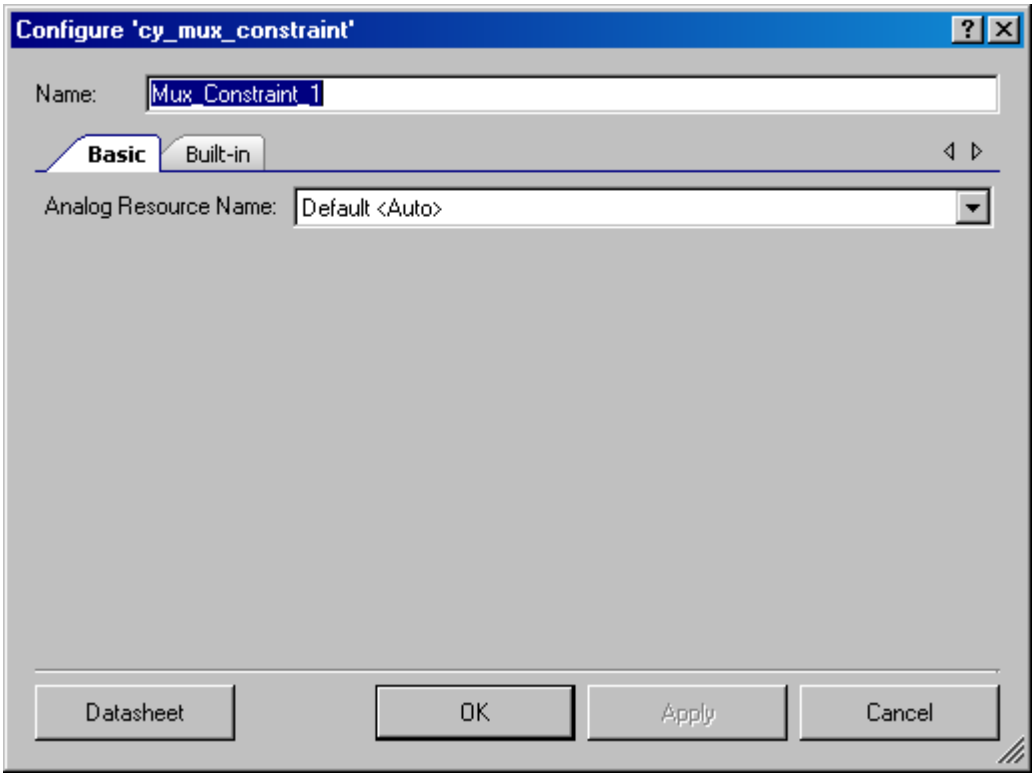
This section describes the various input and output connections for the Analog Mux Constraint.

connect – Input /Output

Provides the connection to the analog signal to which the Analog Mux Constraint applies.

Component Parameters

Drag an Analog Mux Constraint onto your design and double-click it to open the **Configure** dialog.



The Analog Mux Constraint provides the following parameters.

Analog Resource Name

The analog resource to assign to the connected signal. The default value, **Auto**, has no effect. The routing resource list depends on the selected family.

Placement

The Analog Mux Constraint consumes hardware resources, because it specifies which hardware resource must be used by the router. It has no other placement specification.

Resources

The Analog Mux Constraint component causes the connected analog signal to consume the selected analog routing resource.

Functional Description

The following analog routing resource names are available for PSoC 3 and PSoC 5. Not every analog routing resource connects to every component terminal. For detailed information about analog connectivity, refer to the applicable device datasheet and TRM. These documents are available on the Cypress website, www.cypress.com.

- Analog globals: AGL[0] – AGL[7], AGR[0] – AGR[7]
- Analog local bus: abusl0 – abusl3, abusr0 – abusr3
- Analog mux bus: AMUXBUSL, AMUXBUSR
- Combined left/right resources: AG[0] – AG[7], abus0 – abus3, AMUXBUS

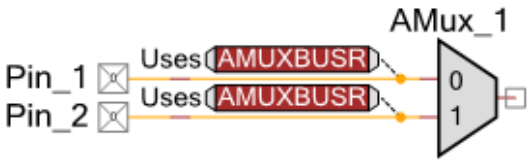
When a Analog Mux Constraint is present on a signal, the signal will be routed using **only** the specified resource. All of the component terminals connected to the signal must have a direct connection to the routing resource. The analog placer might not be able to automatically ensure that components are placed in way that satisfies Analog Mux Constraints. Components connected to constrained signals should be placed manually.

Analog Mux Constraint Example

The Analog Mux Constraint must be connected to a switchable connection of an analog mux. It controls the routing of the mux rather than the routing of the input signal.

Figure 1 shows that the constraint applies to the routing of the AMux. Pin_1 is connected to Pin_2 when the firmware connects both inputs of the AMux.

Figure 1. Analog Resource Constrained with AMux



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.c	Minor datasheet edits.	
1.50.b	The component was made visible for PSoC 6.	
1.50.a	Minor datasheet edits and updates	

© Cypress Semiconductor Corporation, 2012-2017. This document is the property of Cypress Semiconductor Corporation and its subsidiaries, including Spansion LLC (“Cypress”). This document, including any software or firmware included or referenced in this document (“Software”), is owned by Cypress under the intellectual property laws and treaties of the United States and other countries worldwide. Cypress reserves all rights under such laws and treaties and does not, except as specifically stated in this paragraph, grant any license under its patents, copyrights, trademarks, or other intellectual property rights. If the Software is not accompanied by a license agreement and you do not otherwise have a written agreement with Cypress governing the use of the Software, then Cypress hereby grants you a personal, non-exclusive, nontransferable license (without the right to sublicense) (1) under its copyright rights in the Software (a) for Software provided in source code form, to modify and reproduce the Software solely for use with Cypress hardware products, only internally within your organization, and (b) to distribute the Software in binary code form externally to end users (either directly or indirectly through resellers and distributors), solely for use on Cypress hardware product units, and (2) under those claims of Cypress’s patents that are infringed by the Software (as provided by Cypress, unmodified) to make, use, distribute, and import the Software solely for use with Cypress hardware products. Any other use, reproduction, modification, translation, or compilation of the Software is prohibited.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS DOCUMENT OR ANY SOFTWARE OR ACCOMPANYING HARDWARE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. To the extent permitted by applicable law, Cypress reserves the right to make changes to this document without further notice. Cypress does not assume any liability arising out of the application or use of any product or circuit described in this document. Any information provided in this document, including any sample design information or programming code, is provided only for reference purposes. It is the responsibility of the user of this document to properly design, program, and test the functionality and safety of any application made of this information and any resulting product. Cypress products are not designed, intended, or authorized for use as critical components in systems designed or intended for the operation of weapons, weapons systems, nuclear installations, life-support devices or systems, other medical devices or systems (including resuscitation equipment and surgical implants), pollution control or hazardous substances management, or other uses where the failure of the device or system could cause personal injury, death, or property damage (“Unintended Uses”). A critical component is any component of a device or system whose failure to perform can be reasonably expected to cause the failure of the device or system, or to affect its safety or effectiveness. Cypress is not liable, in whole or in part, and you shall and hereby do release Cypress from any claim, damage, or other liability arising from or related to all Unintended Uses of Cypress products. You shall indemnify and hold Cypress harmless from and against all claims, costs, damages, and other liabilities, including claims for personal injury or death, arising from or related to any Unintended Uses of Cypress products.

Cypress, the Cypress logo, Spansion, the Spansion logo, and combinations thereof, WICED, PSoC, CapSense, EZ-USB, F-RAM, and Traveo are trademarks or registered trademarks of Cypress in the United States and other countries. For a more complete list of Cypress trademarks, visit cypress.com. Other names and brands may be claimed as property of their respective owners.