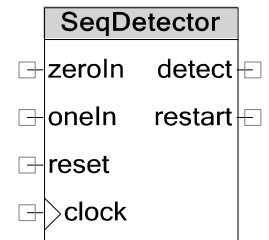


SeqDetect

1.00

Features

- 5-bit sequence detector with reset
- Special restart output indicates even partially wrong input sequence
- Implemented completely in hardware



General Description

The SeqDetect component is a hardware-only 5-bit binary sequence detector implemented in the Programmable Logic Device (PLD) portion of the PSoC Universal Digital Blocks (UDBs).

When to Use the SeqDetect component

This component serves as a demonstration of the PLD capabilities of the PSoC UDBs. The component when used in a design is a fun 'memory game' to play with friends. With a few modifications, it could also be used as a digital lock.

Input/Output Connections

There are 4 inputs and 2 outputs for the Count4Bit component.

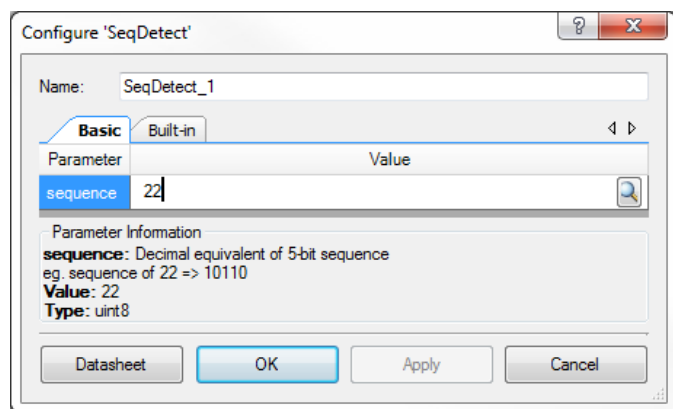
Input	May Be Hidden	Description
zeroIn	N	Active high indication of an input value of zero.
oneIn	N	Active high indication of an input value of one.
reset	N	Active high, synchronous reset. It requires at least one rising edge of the clock to reset the sequence back to its initial state.
clock	N	The clock input defines the operating frequency of the component.

Output	May Be Hidden	Description
detect	N	Goes high on the next clock after the correct sequence is completely entered. Detect stays high as long as no new input is given to the component
restart	N	Goes high whenever a wrong input is entered. This enables the user to verify whether s/he is on the right track to guessing the 5-bit pattern.

Component Parameters

Drag the SeqDetect component on to your design and double-click it to open the Configure dialog box. The Configure dialog box has two tabs. The Basic tab contains one parameter which is the decimal representation of the 5-bit sequence to be detected.

Basic Options



sequence

The sequence value is the decimal equivalent of the 5-bit sequence to be detected. Valid values are between 0 and 31, both included (all 5-bit binary values between 00000 and 11111).

Placement

PSoC Creator automatically places the SeqDetect component within the UDB array in the best possible configuration.

Resources

The SeqDetect component uses the following device resources:

Resources	Count
Datapath	0 of 24
Status cells	0 of 24
Control/count7 cells	0 of 24
Total Pterms	15 of 384
Macrocells	5 of 192
PLDs	2 of 48
Interrupts	0 of 32
Digital clock dividers	0 of 8
Sync blocks	0 of 92
Flash	0
RAM	0

Note The total available resources may vary across device part numbers.

Application Programming Interface

None. The SeqDetect component is hardware-only.

DC and AC Electrical Characteristics

AC Specifications

Parameter	Description	Conditions	Min	Typ	Max	Units
	Operating frequency	-	-	-	TBD	MHz

Concept Component Changes

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

Version	Description of Changes
1.00	Initial design

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