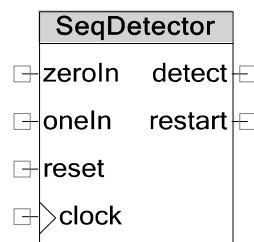


# SeqDetect

## 1.10

## 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.

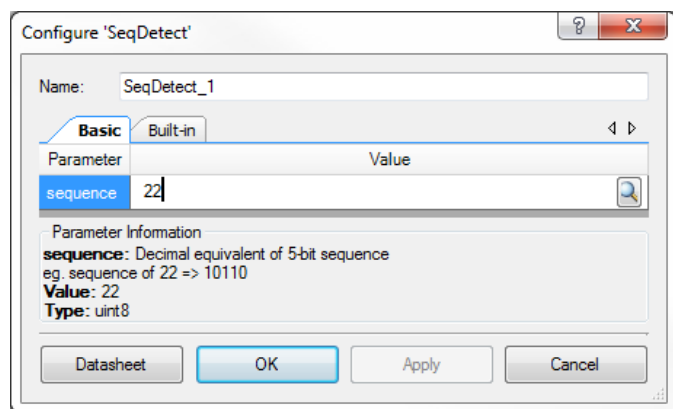
Input	May Be Hidden	Description
zeroIn	N	Active high indication of an input value of zero.
oneIn	N	Active high indication of an input value of one.
reset	N	Active high, synchronous reset. It requires at least one rising edge of the clock to reset the sequence back to its initial state.
clock	N	The clock 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	23 of 384
Macrocells	7 of 192
PLDs	3 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	-	-	-	67	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
1.10	Updated datasheet

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