

CSCE 612 – Spring 2003 Homework Assignment #5

4- bit UP/DOWN COUNTER

Functional Description: The block diagram along with the pinout description is given below in figure 1.0 and table 1.0 respectively. The counter has a RESETn (active low) input, which is used to reset the counter. It uses a single-phase clock CLKn (active low). The LDn (active low) signal is used to load the 4-bit data input DATA into the counter. The data input is the base value for counting. When the LDn is high, the counter starts counting. The CTRL input defines the direction (up/down) of counting. The counter has two outputs COUT, which is the data output after counting, and CO, the overflow status flag. The overflow is set when the counter value reaches its limit when counting.

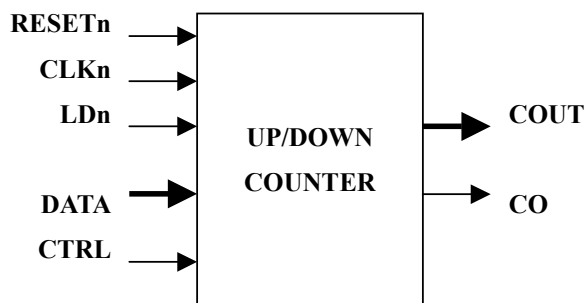


Figure 1.0 Block Diagram of Up/Down Counter

Port	Port type	Port Width	Description
RESETn	Input	1	Reset input, active low
CLKn	Input	1	Single phase system clock, active low
LDn	Input	1	Load data on DATA port, active low
DATA	Input	4	DATA input
CTRL	Input	1	Defines Direction of Counting
COUT	Output	4	Counter output
CO	Output	1	Indicates overflow

Table 1.0 Pinout Description for Up/Down Counter