170050068 170050074 170050083 170050093 170050102
The Designers

Assignment 5 Report

Input and output ports:

Clk : in std_logic;

in_reqtb : in std_logic_vector(6 downto 0);

It is a 7 bit vector. A value ‘1’ in x th position from left implies request inside lift to go to xth floor is made.

out_reqtb : in std_logic_vector(13 downto 0);

It is a 14 bit vector. A value ‘1’ in 2*x th position from left implies request in xth floor and ‘1’ in 2*x+1 th position implies the request is to go up.

pres_state : out std_logic_vector(2 downto 0);

It is a 3 bit vector giving the binary representation of present floor.

empty : out std_logic;

It’s value is ‘1’ if there are no requests to handle and the lift is idle.

Stop : out std_logic;

It’s value is ’1’ when the lift is open at a floor.

Direc : out std_logic;

It’s value is ‘1’ if the lift is moving up and ‘0’ if the lift is moving down.

Algorithm :

If the lift is empty:

If requested floor (from variable first) is above present state and req direction is up:

while moving up collect all upward requests (and store the first request not addressed in variable first.)

If requested floor is above present state and req direction is down:

Don’t collect any intermediate request until reaching the requested floor and then after go in downward direction (and store the first request not addressed in variable first.)

If the lift is not empty:

If the lift is moving up:

Continue to move up and address all requests of upward direction above the present state until there are no pending upward requests above the present floor.

If the lift is moving down:

Continue to move down and address all requests of downward direction below the present state until there are no pending downward requests below the present floor.

Wave form output: