**Behavioral**

Port ( rows : in STD\_LOGIC\_VECTOR (3 downto 0);

columns : in STD\_LOGIC\_VECTOR (3 downto 0);

dout : out STD\_LOGIC\_VECTOR (7 downto 0));

begin

rows <= "0001";

columns <= "0001";

wait for 100 ns;

rows <= "0001";

columns <= "0010";

wait for 100 ns;

rows <= "0001";

columns <= "0100";

wait for 100 ns;

rows <= "0001";

columns <= "1000";

wait for 100 ns;

-- for second row =>

rows <= "0010";

columns <= "0001";

wait for 100 ns;

rows <= "0010";

columns <= "0010";

wait for 100 ns;

rows <= "0010";

columns <= "0100";

wait for 100 ns;

rows <= "0010";

columns <= "1000";

wait for 100 ns;

-- for third row =>

rows <= "0100";

columns <= "0001";

wait for 100 ns;

rows <= "0100";

columns <= "0010";

wait for 100 ns;

rows <= "0100";

columns <= "0100";

wait for 100 ns;

rows <= "0100";

columns <= "1000";

wait for 100 ns;

-- for fourth row =>

rows <= "1000";

columns <= "0001";

wait for 100 ns;

rows <= "1000";

columns <= "0010";

wait for 100 ns;

rows <= "1000";

columns <= "0100";

wait for 100 ns;

rows <= "1000";

columns <= "1000";

wait for 100 ns;

**Testbench Code**

rows <= "0001";

columns <= "0001";

wait for 100 ns;

rows <= "0001";

columns <= "0010";

wait for 100 ns;

rows <= "0001";

columns <= "0100";

wait for 100 ns;

rows <= "0001";

columns <= "1000";

wait for 100 ns;

-- for second row =>

rows <= "0010";

columns <= "0001";

wait for 100 ns;

rows <= "0010";

columns <= "0010";

wait for 100 ns;

rows <= "0010";

columns <= "0100";

wait for 100 ns;

rows <= "0010";

columns <= "1000";

wait for 100 ns;

-- for third row =>

rows <= "0100";

columns <= "0001";

wait for 100 ns;

rows <= "0100";

columns <= "0010";

wait for 100 ns;

rows <= "0100";

columns <= "0100";

wait for 100 ns;

rows <= "0100";

columns <= "1000";

wait for 100 ns;

-- for fourth row =>

rows <= "1000";

columns <= "0001";

wait for 100 ns;

rows <= "1000";

columns <= "0010";

wait for 100 ns;

rows <= "1000";

columns <= "0100";

wait for 100 ns;

rows <= "1000";

columns <= "1000";

wait for 100 ns;

**Constraint File**

Net “columns0” loc = P143;

Net “columns1” loc = P144;

Net “columns2” loc = P146;

Net “columns3” loc = P147;

Net “dout0” loc = P161;

Net “dout1” loc = P172;

Net “dout2” loc = P156;

Net “dout3” loc = P171;

Net “dout4” loc = P155;

Net “dout5” loc = P169;

Net “dout6” loc = P154;

Net “dout7” loc = P168;