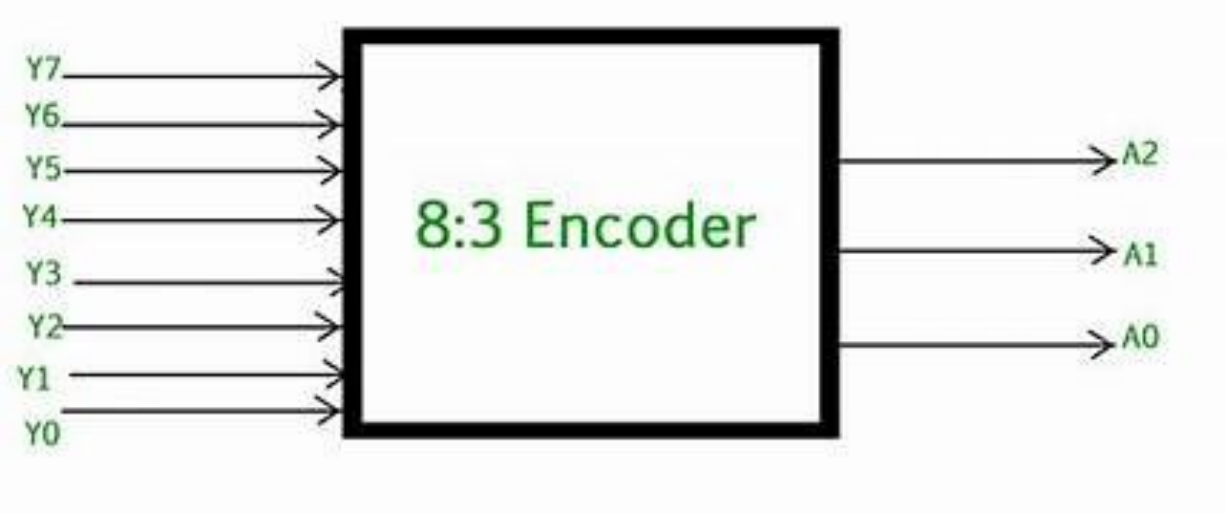
8:3 ENCODER

The 8 to 3 line Encoder is also known as **Octal to Binary Encoder**. In 8 to 3 line encoder, there is a total of eight inputs, i.e., Y_0, Y_1, Y_2, Y_3, Y_4, Y_5, Y_6, and Y_7 and three outputs, i.e., A_0, A1, and A_2. In 8-input lines, one input-line is set to true at a time to get the respective binary code in the output side. Below are the block diagram and the truth table of the 8 to 3 line encoder



RTL CODE:

```
module binary_encoder(
  input [7:0] D,
  output [2:0] y);

  assign y[2] = D[4] | D[5] | D[6] | D[7];
  assign y[1] = D[2] | D[3] | D[6] | D[7];
  assign y[0] = D[1] | D[3] | D[5] | D[7];
```

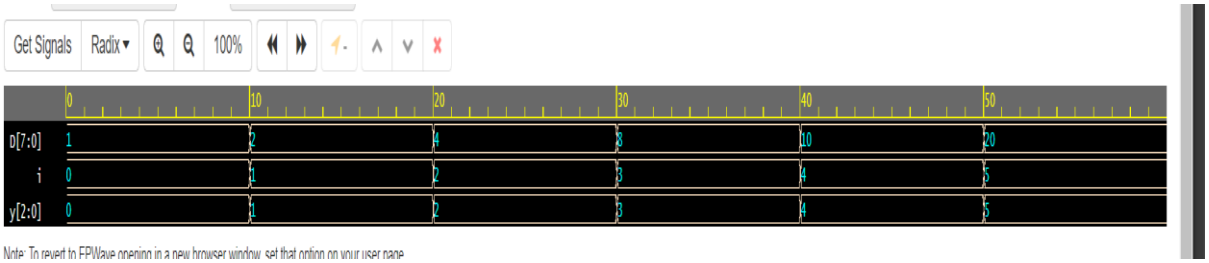
```
endmodule
```

TESTBENCH:

```
module tb;
  reg [7:0] D;
  wire [2:0] y;
  int i;

  binary_encoder bin_enc(D, y);
  initial begin
    $dumpfile("dump.vcd");
    $dumpvars(1);
  end


  initial begin
    D=8'b1;
    for(i=0; i<8; i++) begin
      #10 D=D<<1;
    end
  end
  initial begin
    #60 $finish();
  end
endmodule
```



Note: To revert to EPWave opening in a new browser window, set that option on your user page.