perplexity

Please generate a 32-bit Barrel Shifter with Rotation Control design in Verilog defined as:

module barrel_shift_32_w_rotation_ctrl(sel_left_or_right_rotate, inputData[31:0], shiftVal[4:0], outputData[31:0]);
//Insert code here
endmodule

```
module barrel_shift_32_w_rotation_ctrl(
  input sel_left_or_right_rotate,
  input [31:0] inputData,
  input [4:0] shiftVal,
  output [31:0] outputData
);

  reg [31:0] shifted_data;

  always @* begin
    if (sel_left_or_right_rotate == 1'b1) begin // Right Rotate
      shifted_data = {inputData >> shiftVal, inputData << (32 - shiftVal)};
    end else begin // Left Rotate
      shifted_data = {inputData << shiftVal, inputData >> (32 - shiftVal)};
    end
  end

  assign outputData = shifted_data;

endmodule
```