41st Day

Coverage

Implicit bins //max it will create 64 bins

```
class msd;


 randc bit [3:0]a;
 randc bit [3:0]b;


 covergroup cg;
  coverpoint a;   //16 bins (0 to 15)
  coverpoint b;   //16 bins (0 to 15)
 endgroup


 function new();
  cg=new();
 endfunction
endclass


 module tb;
  msd m;
  initial
   begin
    m=new();
     repeat(16)
      begin
       m.randomize();
        m.cg.sample();
```

```
        $display("a and b is %d and %d",m.a,m.b);

      end



    $display("\n=========functional coverage report=============");
    $display("Total functional coverage:%0.2f%%",m.cg.get_coverage());
    $display("coverage of a is :%0.2f%%",m.cg.a.get_coverage());
    $display("coverage of b is :%0.2f%%",m.cg.b.get_coverage());


  end
endmodule
```

Simulation

```
Compiler version U-2023.03-SP2_Full64; Runtime version U-2023.03-SP2_Full64;  May  4 10:53 2025
a and b is 14 and 10
a and b is  4 and  4
a and b is  3 and  8
a and b is 15 and  7
a and b is 10 and 15
a and b is  0 and  9
a and b is  1 and  3
a and b is 13 and  5
a and b is  2 and  6
a and b is  7 and 13
a and b is  8 and  1
a and b is  6 and  0
a and b is 12 and 12
a and b is 11 and 14
a and b is  5 and 11
a and b is  9 and  2

=========functional coverage report=============
Total functional coverage:100.00%
coverage of a is :100.00%
coverage of b is :100.00%
          V C S   S i m u l a t i o n   R e p o r t
Time: 0 ns
CPU Time:      0.430 seconds;       Data structure size:   0.0Mb
```

Code 2 (explicit bins)

```
class msd;


  randc bit [3:0]a;
  randc bit [3:0]b;


  covergroup cg;
    coverpoint a
    {
      bins b1={1,4,5};
      bins b2[]={[2:4]};
    }
    coverpoint b
    {
      bins b3={1,4,5};
      bins b4[]={[3:11]};


    }
  endgroup


  function new();
    cg=new();
  endfunction


endclass


  module tb;


    msd m;
```

```
 initial
   begin
     m=new();

     repeat(10)
      begin
        m.randomize();
         m.cg.sample();
        $display("a and b is %d and %d",m.a,m.b);

      end



     $display("\n=========functional coverage report=============");
     $display("Total functional coverage:%0.2f%%",m.cg.get_coverage());
     $display("coverage of a is :%0.2f%%",m.cg.a.get_coverage());
     $display("coverage of b is :%0.2f%%",m.cg.b.get_coverage());

   end
endmodule
```

Simulation

```
Contains Synopsys proprietary information.
Compiler version U-2023.03-SP2_Full64; Runtime version U-2023.03-SP2_Full64;  May  5 12:53 2025
a and b is 14 and 10
a and b is  4 and  4
a and b is  3 and  8
a and b is 15 and  7
a and b is 10 and 15
a and b is  0 and  9
a and b is  1 and  3
a and b is 13 and  5
a and b is  2 and  6
a and b is  7 and 13

=========functional coverage report=============
Total functional coverage:95.00%
coverage of a is :100.00%
coverage of b is :90.00%
          V C S   S i m u l a t i o n   R e p o r t
Time: 0 ns
CPU Time:      0.380 seconds;       Data structure size:   0.0Mb
```