

Write the hardware description of a 4-bit PRBS (pseudo-random Binary sequence) generator using a linear feedback shift register and test it.

The way it is implemented is as given in

[http://en.wikipedia.org/wiki/Linear\\_feedback\\_shift\\_register](http://en.wikipedia.org/wiki/Linear_feedback_shift_register)

Please bear in mind that you have to make just a 4-bit PRBS generator. You are free to choose your own polynomial for the generator.

Note: Please bear in mind that the shift register should not have all-zeros to start of with for the PRBS generator to produce the desired output. Make suitable adjustments.