

BlueCheck: Frequently Asked Questions

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1. Can I view the test-sequences that BlueCheck is generating?

In simulation, yes: run your executable with the `+chatty` command-line option.

2. Is iterative-deepening/shrinking ever undesirable?

Yes, if the design-under-test does not properly reset to a consistent state when its reset signal is asserted. Consequently, iterative-deepening and shrinking could give false counter-examples. In such cases, the `blueCheck` test bench should be used, not `blueCheckID`.

Alternatively, the design-under-test should be modified to reset properly. For more details, see the section about resettable specifications in Section II(E) of the paper. Examples of components that do not reset “by themselves” are: `mkRegU` (make uninitialised register), and `mkRegFile` (make uninitialised register file).

3. Can I replay counter-examples found on a previous run?

Yes. In simulation, when a counter-example is found, BlueCheck saves it to a file `State.txt`. When the test bench is run with the `+replay` or `+resume` command-line options, BlueCheck will resume testing from the point at which the counter-example was found.

On FPGA, the contents of `State.txt` is produced over a UART. The first character is 1 if a counter-example was found and 0 otherwise. Counter-examples can be viewed using the `+view` option or replayed using `+replay`. Of course, a failure on FPGA may not correspond to a failure in simulation if there are any hardware components that are not accurately modelled in simulation, e.g. DRAM.

4. Why did replaying a counter-example not reproduce my bug?

When in iterative-deepening mode and the design-under-test does not properly reset itself, BlueCheck can report false counter-examples. See answer to Question 2.

5. Is BlueCheck configurable at all?

BlueCheck is configurable in various ways using the `BlueCheck_Params` structure. See `BlueCheck.bsv` for details of this structure and `testStackIDCustom` in `StackExamples.bsv` for an example of how to configure the structure. Note that not all combinations of configuration options are supported, e.g. shrinking is only possible in iterative-deepening mode.

6. Does shrinking work with wedge failures?

No. Iterative-deepening, on the other hand, is ideal for finding simple wedges.