

Vivado Isolation Verifier Release Notes

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Introduction

This document describes changes to the Vivado Isolation Verifier (VIV) software from release to release. Please see the Vivado Isolation Verifier (Tcl Based) User Guide, [UG1290](#) for background information on VIV and usage instructions.

Summary

Enhanced VIV to handle SSIT devices. Made changes to give violation messages consistent across all IDF checks. Fixed bugs in IDF-3 and IDF-6 where VIV was giving false positives in some scenarios. Added clarity to IDF-1 messages. Added checks for VIV to run only on supported devices.

Changes from 1.82 to 1.97

1. Added support for SSIT devices. Now IDF-4 and IDF-5 consider SLR boundary as valid fence.
2. Made changes to violation text messages to be consistent across all the IDF checks.
3. Made changes to multiload violation check which is an IDF-6 sub-check to report isolated modules instead of pblocks.
4. Fixed a bug in IDF-6 due to which it was giving false positives in a scenario where interconnect tiles were non-contiguous row-wise because of gaps between them that were filled with NULL tiles.
5. Fixed a bug in IDF-6 where adjacency of interconnect tiles and logic tiles were not being handled properly due to which VIV was not giving proper results in some scenarios where some of the adjacent logic tiles of an interconnect tile contained different isolation logics and the other adjacent logic tiles were empty.
6. Made changes to IDF-1 report to give isolated modules instead of pblocks.
7. Fixed a bug in IDF-6 due to which it was giving false positives in a scenario where two inter-region nets were passing over a single tile and have a common module across driver or load modules.
8. Fixed a bug in IDF-3 due to which it was giving false positives in a scenario where amongst multiple pins of a package pin site, only a single pin was connected.
9. Added checks in VIV to run only on supported devices and architectures. VIV now runs on all Kintex, Virtex and Zynq devices. For Artix it runs on all devices except 12T and 25T devices.
10. Fixed a bug where IDF-6 caused VIV to crash when two DCPs were open in a single Vivado session.
11. Fixed a bug in IDF-6 where it was giving false positives in a scenario where a site was included in an isolated pblock but no logic was placed in it.

12. Fixed a bug in IDF-1 where it was reporting regional clock nets belonging to an isolated module as global clock nets.
13. Fixed a bug in IDF-6 due to which it was giving false positives in a scenario where both driver and load of a net were in an isolated module and HD.ISOLATED_EXEMPT property on the load was set to True without any isolation exemption property on the driver.

Changes from 1.81 to 1.82

1. Fixed a bug where IDF-4 and IDF-5 caused VIV to crash when design involved Monitor and Config-Center tile types.
2. Fixed a bug in IDF-6 where sometimes it was giving false positives in a scenario when driver of an isolated pblock was driving loads present in an isolated pblock and another in a top pblock.

Changes from 1.79 to 1.81

1. Fixed a bug in IDF-4 due to which sometimes it failed to report adjacency faults for some specific tiles.
2. Fixed a bug in IDF-4 due to which sometimes it might report false positives if there are top level pblocks.
3. Changed message of IDF-4 so that there is no confusion between logical partitions and physical pblocks.
4. Changed message of IDF-5 to print names of isolated partitions instead of pblocks. Also, made a modification in the message to clearly convey the case when multiple logic from isolated partitions are placed on the same tile.
5. Fixed a bug in IDF-5 and IDF-6 where it was not correctly handling tiles having cells with HD.ISOLATED_EXEMPT property set.

Changes from 1.78 to 1.79

1. Fixed a bug in IDF-6 where it was not correctly reporting violations for nets with loads in multiple isolation regions.

Changes from 1.76 to 1.78

2. Fixed a bug in IDF-3 where it was not correctly reporting violations if package pins were listed as either of GLOBAL_CLK, VREF, VRN, or VRP, even though they were used as data pins.
3. Fixed a bug in IDF-5 where it was not correctly reporting tile adjacency violations when logic placement from different Isolation modules were not separated by a tile.

Changes from 1.72 to 1.76

4. Suppressed debug statements appearing in the Tcl console of Vivado. To enable debug logging, before running the DRCs/VIV, run the following command in the Vivado Tcl prompt:

```
set ::tclapp::xilinx::idf::enable_debug 1
```
5. Fixed an issue where sometimes warning messages regarding `get_sites` command could be seen.

Changes from 1.63 to 1.72

6. Added support for PCIE3. Suppressed warning messages in `check_fence_pips`.
7. Request #924637 fixed a spelling error in an output message.
8. The test for top-level logic bridging the fence was incorrect. It did not filter out unused tiles.
9. Performance optimization of IDF-6 intra-region PIP checking. Algorithm is to gather tiles surrounding floorplan rectangles rather than examining all intra-region nets.
10. Added support for HD.ISOLATED_EXEMPT.
11. Rewrote IDF-2 to track changes in Vivado Tcl. New implementation is more straightforward.
12. Added reporting to IDF-1 of global clock nets, inter-region nets and HD.ISOLATED_EXEMPT nets.

Changes from 1.50 to 1.63

13. Improved the discrimination for checking PIPs in the fence. The violation message changed accordingly. The old message was, "Inter-region routing cannot use programmable interconnect points outside the regions." The new message is, "Routing cannot use programmable interconnect points separating isolated regions."
14. Improved performance and reporting of PIP checking.
15. Added support for additional transceiver types. Previously, only GTX transceivers were supported. Added support for GTH, GTP and GTY. Fixed a typo regarding LAGUNA_TILE categorization. Included previously excluded power nets in checking in intra-region net checking.
16. Fixed a coding error in code to determine whether a tile is included in an area range. Added support for left-side GTH and GTP interconnect types.
17. Fixed a coding error that was causing IDF-1 to fail on certain platforms. The code assumed a particular environment variable would be defined. Now all references to environment variables tolerate undefined variables. Fixed a logical vs physical ownership error in the check that inter-region signals have loads in exactly one isolation group.
18. Excluded top-level routing from the check on the drivers of a tile.

19. Modified the check for conflicting intra-region nets to apply to interconnect tiles only. Improved naming and organization of the code.
20. Modified intra-region net tile check to apply to all interconnect tiles, not just ones outside the floorplan regions.
21. Added detail to intra-region net violations.
22. Improved performance by reducing the number of calls to `get_cells`.
23. Added support for isolated regional clock buffer checking. Fixed a defect in global clock enumeration from revision 61. Checks appropriate to inter-region signals were mistakenly being applied to a broader set of signals. Fixed. Fixed a warning in IDF-3 due to extraneous arguments being supplied in the creation of a DRC violation object. Fixed `check_net_tiles` to only look at inter-region nets.