Questa Lint

Features and Benefits

Adaptive insight

- Collation of similar results to accelerate find-and-fix cycles

- Change-only reporting to identify new issues caused by a recent change

- Issue visualization via text, FSM or schematic views to identify issues intuitively

Value through integration

- Complete LRM support through Questa to ensure code portability throughout the use of Questa tools and beyond

- Pre-verified and compiled FPGA libraries for rapid bring-up of FPGA designs

The high impact of design issues on projects

Mistakes happen, but finding and fixing issues late in programs increases overall program scope, as well as schedule and resource requirements. Competitive pressures push teams constantly to do more. Functional verification teams face significant challenges to build testbenches quickly, uncover design issues and enable rapid debug. Incomplete or incorrect bug fixes (or even a hurried introduction of new bugs) compound the problem.

Actionable intent-focused insight for designers

Questa Lint provides a fast check of your RTL, without waiting for a testbench, looking for completeness and consistency issues. Using syntactic, semantic, stylistic, and structural analyses, Questa Lint identifies issues at the time of introduction, preventing these issues from becoming expensive to fix later. Only issues that need to be fixed are reported, and the results are prioritized and collated such that the first issues addressed will provide the biggest return. Results are presented in intuitive visualizations, with metrics and quality scores summarizing detailed information in an easy-to-use dashboard.

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Features and Benefits (cont.)

- Common issue status flows and user interfaces with other Questa Design Solutions tools to ensure minimal learning curve throughout the solution

Design scoring
- Results-based quality score to determine quality of internal and external IP

Collaborative team-based debug
- Team member-assignable issues to enable teams to work collaboratively in parallel to clean the design

Traceability and metrics
- Association of issues with requirements for standards compliance

- Instant metrics and trend analyses to ensure consistency

Continuous integration support
- Support for common continuous integration flows to ensure a clean design stays clean
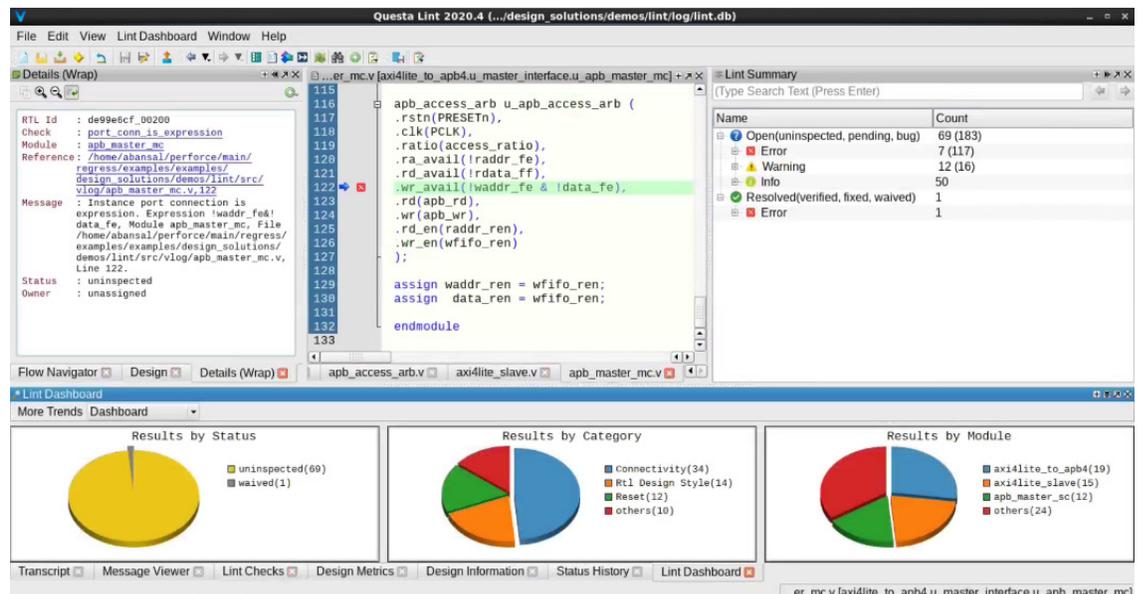
From immediate results to custom methodologies

Architected to provide immediate out-of-the-box results, Questa Lint implements pre-configured methodologies for IP, FPGA or SoC development. Each of these methodologies offers an array of pre-defined readiness goals, such as floor-planning or synthesis readiness. In addition, there are pre-built checksets supporting industry standards such as DO-254, ISO-26262 or STARC. Once familiar with the tool, you can configure your own methodologies and checks to enable Questa Lint to enforce your development methodology, either through release-focused reviews or through continuous integration flows.

Benefits and Highlights

Immediate productivity — Questa Lint provides pre-defined configurations for specific methodologies, and within those methodologies, pre-defined development flow-aligned goals to provide out-of-the-box results. With the addition of intelligent inference capabilities, identifying and applying attributes to your design, Questa Lint provides a fast path to finding issues without any setup or configuration.

Data analysis-based assistance — Using proprietary data-analysis techniques, Questa Lint provides actionable results with low noise. Questa Lint reviews reported issues, then uses its deep understanding of every issue known to provide results different than inferred intent (as well as those known to cause false violations), to adapt the results. This results in Questa Lint reporting only the issues that need to be fixed, and in the order of those that matter most, resulting in actionable results and faster fix cycles.

Using only your RTL, Questa Lint provides intent and quality-focused insight from the first line of code. Questa Lint's metrics and quality scores can be captured over time with trend analysis to ensure that a design that was once clean stays clean. No testbench is required.

*Familiar visualization and foundations
—* Questa Lint shares the same issue status
flow with other Questa Design Solutions tools,
providing efficient transitions through the
analyses in the solutions. Questa Lint's user
interfaces are built on the Visualizer UI capa-
bilities, and the analyses are built upon a
common foundation across Design Solutions
tools, providing familiarity and commonality
within the solution, then beyond to other
Siemens products in simulation, formal verifi-
cation, emulation and beyond.

Design scoring — Today's development flows
require the integration of a great deal of IP,
whether it's developed internally or acquired
externally. The task of the integrator is chal-
lenging, pulling together many pieces that
may not have been built to work together.
Questa Lint provides a design quality scoring
mechanism to enable you to quickly under-
stand which IP blocks are likely to cause
issues later. These scores are generated with
proprietary algorithms that result in identifi-
cations of the blocks that need attention
sooner.

Traceability support — Standards-compliant
development flows must exhibit both trace-
ability to requirements and a prescribed level
of quality. Some standards require the ability
to show the progression of quality metrics over
time. Questa Design Solutions products
leverage Siemens' long running support of
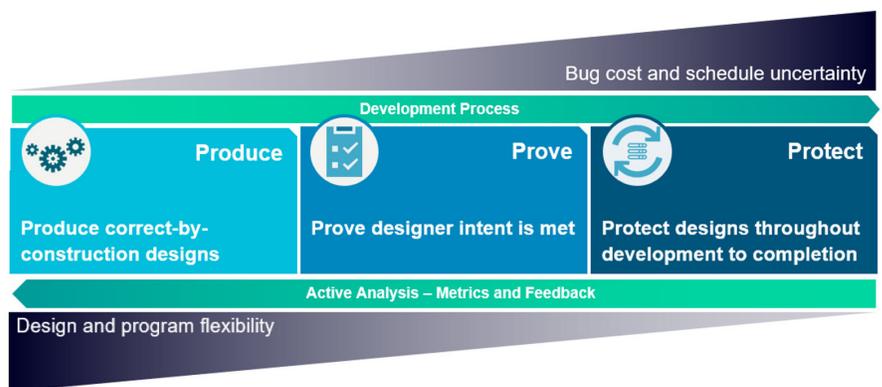these requirements to deliver these features.

Change-only reporting — With the goal of
accelerating fixes, Questa Lint can report only
new issues introduced with the latest fix. A
change to the design to fix an issue could
result in other, new issues. By focusing on only
the new issues since the last change, you can
quickly identify if your fix is complete.

Team-based collaborative fixes —
Depending on your development flow, you
may find yourself with many issues to fix and

little time to do so. Questa Lint supports a
collaborative mechanism that allows issues to
be assigned to individuals, then track the
progress of fixes as not just you, but your
entire team work together to clean the design.

Continuous integration — Questa Lint inte-
grates into popular Continuous Integration
management tools, ensuring that throughout
the development process, a design, once
proven clean, remains that way.

Part of Questa Design Solutions
Questa Lint is part of Questa Design Solutions,
an integrated and complementary solution
that increases team agility and development
consistency by optimizing and automating
verification for designers. Questa Design
Solutions delivers integrated intent-focused
insight from creation to completion. Using only
RTL, (and UPF and constraints where neces-
sary), Questa Design Solutions finds and fixes
bugs early in the design process when the
design and program is still flexible, then
preserves the design from unnecessary issues
when the cost to address the issue, and the
resulting schedule impact, Is greater. The
solution functions by producing correct-by-con-
struction designs, then proving that the design
intent is met, and finally protecting throughout
the implementation process.