

1.0 Report on P1364 Activities and Recommendations

2.0 Background

The P1364 WG is divided, much like the Accellera SV WG, into taskforces that cover PLI (PTF), Errata (ETF), and the main language (BTF).

While each of these task forces has under consideration a large number of enhancements and errata (all documented in databases associated with the Verilog web page at <http://www.verilog.com/IEEEVerilog.html>, I will limit this discussion to a few of the broad, important topics being covered.

2.1 BTF – Leader, Steve Sharp

The two major projects here are the Encryption work headed by Steven Dovich and the Data Types work headed by Kathy McKinley.

Aside from a large group of errata that have been dealt with by the ETF, the other issues fall into three main categories:

Omissions from 1364-2001, e.g.

1. End-of-file functions missing from file I/O extensions
2. Configurations do not handle hierarchies containing instance arrays or for-generate blocks
3. No rules for connecting net arrays to instance array ports

Simple but useful extensions not included in SystemVerilog, e.g.

1. A convenient way to specify bit reversal for a vector, or ranges in case item expressions.
2. Compiler directive to specify backward compatibility modes with Convenient way to specify bit-reversal of a vector, or ranges in earlier versions of the language, which would be useful for SystemVerilog also, given the large number of new keywords that may appear in legacy Verilog designs.

Users will not want to wait an extended period for these simple changes so it would be beneficial to have a parallel update mechanism for base language changes while the main work on 3.1a is proceeding.

Compatibility and consistency issues with SystemVerilog

In anticipation of the SV donation a subgroup under the BTF started looking at issues that would arise when the two specifications were brought together. The data types work is part of this effort. Several other areas were looked at including extension of test bench features to non-00 types.

2.2 PTF – Leader, Charles Dawson

The PTF has been largely a reactive group adding VPI constructs to support new language features. It has also been working on a large cleanup project to deprecate the early, largely obsolete version of the PLI which would significantly reduce the size of the documentation.

The corresponding group for SystemVerilog has been very active and developed several new interfaces:

- DPI
- Assertion API
- Coverage API
- Data base read API

It would make sense to merge these two groups so that enhancements and errata can be coordinated.

2.3 ETF - Leader, Karen Pieper

This group has been performing a similar function to its corresponding group SystemVerilog and the two should be merged.

3.0 Observations and Recommendations

3.1 Background

The following recommendations take into consideration the short and long term goal for P1800 expressed by the chair at the August 2004 meeting. I summarize and paraphrase:

- Short term - cleanup and standardize 3.1a
- Medium term - alignment and actions plans for P1800/P1364
- Long term - convergence

My interpretation of these guidelines is that we should focus on the short term goal to clean up and standardize 3.1a as quickly as possible so long as our actions in doing this do not preclude later alignment and consistency with the base 1364 language. In cases where there is possible conflict we need to balance any potential delay in the short term goal with interference in the medium and long term goals and manage the plan to minimize impact on the short term goal.

3.2 Analysis

Looking at the current 1364 activities almost all of these can be continued in parallel with the short term P1800 goal with little or no impact. These activities include the encryption work which is essentially orthogonal to the main language work, the simple changes and correction of omissions from 1364-2100 which can also be done in parallel and merged later, and the PTF work which basically tracks any language changes.

The two areas I see that have more direct impact on 3.1a are the data types work and the extension of the test bench features for non-00 parts of the language. The data types work would affect constructs in both 3.1a and 1364 documents and would need to be managed carefully between them. The test bench features would mainly require syntactic hooks to support changes that could be done later.

3.3 Summary

It looks from an initial overview that all this work with the exception of the data types can be done in parallel to the short term 3.1a work

with minimal impact. We need a more detailed plan of the data types work to assess its impact and manage its development.

After discussing this overview at the September 14 P1800 WG meeting I will take the recommendations and clarification made at the meeting and meet with the alignment task force to get more details on the plans and requirements. I will report back to the P1800 WG on the results at the October meeting.

3.4 Other Requirements

After considering the issues of the 1800/1364 alignment and discussing this with a number of people I have concluded that we need some additional structure for efficiently managing the tasks ahead for the WG. In addition to the Alignment taskforce I recommend that we form two standing task forces:

3.4a Documentation Management TF

This issue of managing the updates to the LRM were already discussed at the August meeting. This task was fairly constrained and mechanical to make sure that approved changes were completely and accurately reflected in the LRM edits. I am suggesting that in addition, a planning function be added to guide the long term integration of the Verilog documentation. It will be important when considering both errata and enhancements to be able to assess the impact on both the new and old documents and ensure that there are no conflicts. This will be managed by the DMTF.

3.4b Policies and Management Structure TF

This group will be responsible for dealing with any needed changes in WG policy and for managing new and updated PARs. It will be the responsibility of this group to ensure that when and if the WG decides to change its scope and goals, these are reflected in the P&Ps and PARs managed by the WG. They will take care of the administrative work involved in the updates and submit the changes for approval to WG.