Changes Between the First Edition and the IEEE Edition

The order of chapters varies significantly between the First and IEEE editions. This reorganization was based on feedback from UVM trainers, who indicated that most new users would prefer to come up to speed on UVM and write stimulus quickly. Hopefully, this has been addressed in the UVM Quickstart - Part 1. Readers knowing UVM and wishing to obtain a more in-depth understanding may proceed to Parts II and III to gain in-depth knowledge. The Advanced topics have been moved to Part III from Part V of the previous edition. Part IV provides complete practical examples, just like the previous edition. You will find some additional examples in this part as well that address topics in UVM-1800.2.

Readers have offered feedback related to editing and typographical errors in the first edition of this book. Considerable work has been put in to eliminate as many as possible. Many paragraphs were rewritten to clarify the intent and meaning and have been reviewed by a technical writer.

If you work in a company, there is a good chance that you will be working with multiple UVM versions. When you are especially dealing with an SOC, where you inherit multiple environments, each at a different UVM version; things usually get a little interesting. Hence, this book attempts to serve all three different versions of the library UVM 1.1, UVM 1.2, and IEEE-1800.2. Version specific information (where available) is marked using the following icons:

This icon is for features new to UVM 1.2 from UVM 1.1 **ONLY**. If you see an issue between migration from UVM-1.1x to UVM-1.2, watch for this icon. If this feature has changed between the UVM-1.2 and IEEE-1800.2 versions, one of the other icons will also be present in the text adjacent to this icon.

Code/behavior that has changed between UVM-1.2 and IEEE-1800.2 is marked with this icon. Note that this icon is the same one used for the Accellera to IEEE standard implementation differences.

This icon is for features of UVM deprecated between 1.2 and IEEE-1800.2 **only**. It does not cover deprecation between UVM 1.2 and UVM 1.1x. See the migration guide in the previous chapter if you are attempting to migrate to the IEEE-1800.2 version from UVM 1.2.

This icon alerts you to features **new** in IEEE-1800.2 and not present in UVM 1.2. Please do not confuse this with features between UVM-1.2 and UVM-1.1x

Part 1:
This part is specifically geared to engineers wanting to pick up UVM quickly.

- Chapter 1 presents a UVM Overview and helps Verilog users understand UVM testbench architecture and philosophy and make a transition to UVM.
- Chapter 2 introduces the UVM environment.
- Chapter 3 provides you with information on creating stimulus for your DUT in UVM quickly.

Part 2:

- Chapter 4 goes over changes to uvm_object and the associated core utilities.
- Chapter 5 goes over the additions to the UVM factory class to support abstract types and aliases. Additional examples are added for abstract classes and factory replacement.
- Chapter 8 on the UVM component hierarchy adds examples explaining the changes in the build_phase, allowing you to speed things up.
- Chapter 6 Reporting goes over the changes to reporting. Please review this section as additional work may be required on your part in your scripts.
- Chapter 9 on Callbacks goes over the changes to callbacks methods and their behavior.
- The Register Abstraction layer has additional examples to illustrate IEEE capability. Chapter 20 discusses unlocking the register model.
- Chapter 14 discusses Advanced Stimulus Generation. The original chapter is partitioned from the earlier book to deal solely with advanced topics.
- Chapter 13 on Phasing discusses changes with additional examples due to capabilities added in IEEE version.

Advanced Topics

- Chapter 15 provides examples of how to add event callbacks to an event, a new feature introduced in IEEE version.
- Chapter 19 has descriptions of the new capabilities in the common operations. Details on how to customize your environment using the capabilities of the IEEE version are included here.

Practical Applications:

- Chapter 21 uses a different comparison function in the scoreboard.

Deprecated Core Utilities

Appendix A now describes the UVM 1.2 core utilities and behavior for compare/pack/print functions which have undergone enhancements in IEEE 1800.2. Some of the API described in this appendix has been deprecated in the IEEE version.