



System Verilog for Verification

❖ Introduction

- Overview of Verilog HDL
- Why System Verilog ?
- Static and dynamic entity
- Literals Values & Operators
- Casting

❖ Data Types

- 4 state and 2 state data types
- Void & String
- User Define Data type
- Structure and union
- Enumerations
- Packages

❖ Arrays

- for loop enhancement and foreach loop
- Packed and Unpacked array
- Dynamic Array
- Queue
- Associative Array
- Common Array Methods

❖ Task and Function enhancement

- Overview of task and function in Verilog
- Removal of begin....end
- Void type function
- Return statement
- Argument Passing
- Pass by reference

❖ Interface

- Limitation with Verilog



- What is system Verilog interface ?
- Modports
- Clocking block

❖ **Threads**

- fork...Join, fork... join_any, fork....join_none
- process control

❖ **Object Oriented Programming (Basic)**

- What is OOPs ?
- Class and objects
- Class constructor
- **this** keyword
- object assignment
- copying an object
- encapsulation

❖ **Object Oriented Programming (Advance)**

- Inheritance
- **Super** keyword
- Static properties and methods
- Polymorphism
- Virtual/abstract class
- Casting
- Parameterized class
- Singleton class

❖ **Randomization**

- **rand** and **randc** keywords
- **Randomize** method
- Constraint blocks
- Type of constraint
- Variable ordering
- In-line random variable
- Constraint mode and rand mode method
- Randomizing an array
- Inheritance
- Various Randomization Techniques



- Seeding randomization

❖ **Inter process Communication**

- Mailbox
- Semaphore
- Event

❖ **Functional Coverage**

- Why Functional Coverage ?
- Code coverage vs function coverage
- Covergroup and coverpoints
- Type of bins
- Cross product
- Select expression
- Coverage options and methods

❖ **Verification Process**

- Types of Verification
- The Verification Plan
- Connecting testbench and design
- Layered Testbench
- Testbench Components
- Multiple test cases and Regression
- Writing Functional Coverage
- analyzing coverage report

❖ **System Verilog Assertion**

- Types of Assertion
- Immediate Assertion
- Concurrent Assertion
- SV Event Scheduler
- Layers of SV Assertion
- The Boolean Expression
- The Sequence Layer
- The Property Layer
- Assert directives and assertion bindings