Verification

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Verification

- System Verification
  - During development
    - Calculations
    - Simulation
  - Component verification
    - Bench testing
    - Automated testing
  - System verification
    - Bench testing
    - Automated testing
    - Use case testing
    - Field testing
    - Customer acceptance testing

Verification

- Simulation
  - System level simulation
    - Specific tools (Simulink, Comsol, …)
    - Custom code (C, Python, …)
  - Register Transfer Level (RTL) Simulation
    - Verifies functionality
    - Pre synthesis
    - Based on code only
  - Gate Level Simulation
    - Verifies functionality
    - Post synthesis
    - No timing information
  - Timing Simulation
    - Verifies performance
    - Post place-and-route
    - Includes technology information
      - Process corners, temperature, voltage

Verification

- Verification Strategy
  - Component Test
    - Bench
      - Limited ability to exercise all possible situations
    - ATE – Automated Test Equipment
      - SCAN Chains
      - Test Vectors
  - System Test
    - Integrate component into larger system
    - Verify interfaces
    - Verify overall operation to specification

Verification

- Verification Approach
  - Verify blocks in manageable chunks
  - Verify hierarchically
  - Re-verify after all block changes
    - Test bench does not change after it has been validated
  - Ideally – tests created separately from the module
    - Different group
    - Based on design specification