ABLE2

ABLE2 is *"Aceic's Bluetooth Low Energy"* 4.2 EDA independent Verification IP
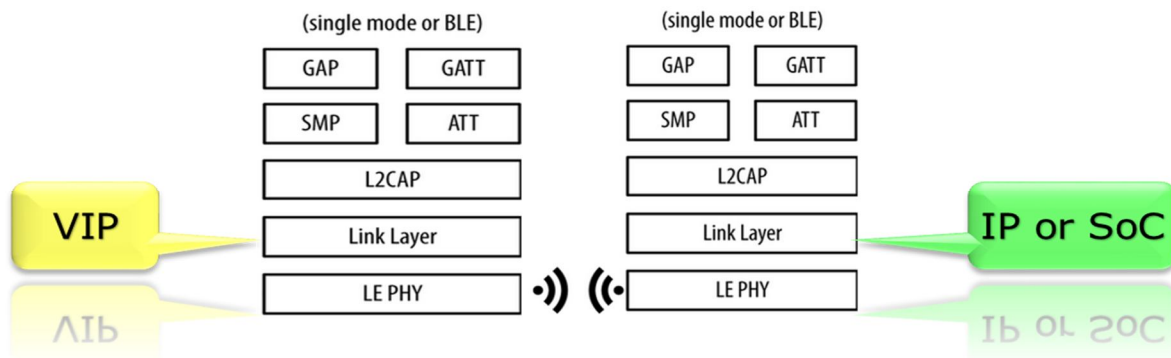
Introduction to ABLE2

Figure 1 : Bluetooth Software Architecture

ABLE2 verifies bluetooth LE 4.2 IP, SoC or the System. It verifies the link layer portion of the bluetooth protocol. Response event communicates back the status of the link layer to HCI.
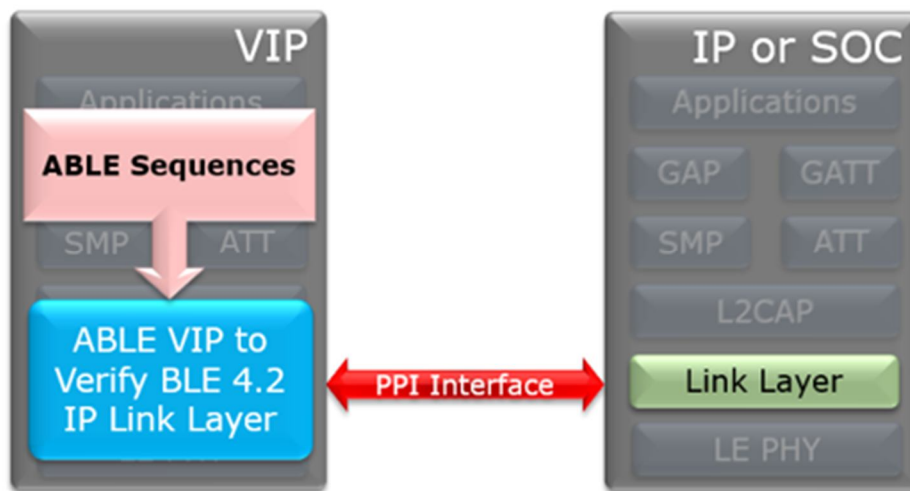

Figure 2 : ABLE2 handles Link Layer in Software Stack

Overview

ABLE2 is an intuitive VIP and will give you a superior competitive edge and a TTM advantage over your rivals. It is a reusable Test Bench infrastructure built using System Verilog based OVM/UVM. Packaged with a comprehensive set of test cases, it will rapidly help you realize verification convergence. The on board protocol analyser captures protocol sequences, displays it in an user friendly environment helping you to easily debug complex and highly interleaved traffic. You can extend the built-in coverage to add your own coverage bins for any user specific sampling event or data. Your quest for optimal performance ends here.

Deliverables:

ABLE2 deliverables include:

Aceic Verification Plan

- ✓ Executable verification plan for bluetooth low energy 4.2
- ✓ Supports the back-annotation of coverage values on any industry standard simulator
- ✓ Golden reference for the design Verification sign-off

Aceic Test Library

- ✓ Complete Test Suite for the regression testing.
- ✓ Constrained-Random BLE 4.2 Low Energy Compliant Test cases
- ✓ LLTS Test Suite covering all Link compliance for BLE 4.0/4.1/4.2
- ✓ Interface for adding design specific test cases.

Aceic VIP

- ✓ Simulator independent system verilog based VIP
- ✓ OVM/UVM Testbench infrastructure includes BLE controller, channel model OVCs/UVCs, bus monitors, scoreboards and coverage model
- ✓ Supports BLE 4.2 protocol validation using SVA
- ✓ Supports low power mode testing and error injection for negative protocol testing
- ✓ Supports performance checking for latency and throughput metrics

Aceic Run Scripts & User friendly documentation:

- ✓ Offered along with the VIP to enable automation of the VIP installation, DUT connection and simulation. The documentation helps user with ABLE2 know-how & usage.

Supported Bluetooth Low Energy Features:

- ✓ Compliant with the low energy features of Bluetooth 4.2 Specification
- ✓ Supports all BLE packet types
- ✓ Supports Master and Slave Modes
- ✓ Supports all states: Standby, Advertising, Scanning, Initiating and Connection
- ✓ Whitelist filter policies, Along with Enhanced Scanner Filter Policies.
- ✓ Adaptive Frequency Hopping
- ✓ AES128 encryption / decryption
- ✓ LL Data Length Enhancement with Length Update Procedures
- ✓ LL Privacy handling Non Resolvable (NRPA) and Resolvable private address (RPA) with resolving list.

Key Product Features and Deliverables

- SystemVerilog/OVM TB Infrastructure
- AMBA AHB / APB bus interface for easy verification environment within an IP block / SOC system.
- Comprehensive test cases are provided including the Link Layer Compliance Test Suite (LLTS 4.2.1) for BLE 4.0/4.1/4.2
- Coverage points along with Coverage Verification Plans
- Broadcaster, Observer, Peripheral and Central roles
- Enhanced Packet Length support with Payload up to 255 bytes.
- BLE 4.2 Privacy at the Link Layer before Connection
- Security Features and Authentication methods
- Supports Active and Passive Scanning, with Extended Scan Filter Policies
- Low Energy mode Support
- Error Injection Tests for verifying various negative protocol scenarios
- Additional Assertions for ABLE2 Protocol Violation checking (for BLE 4.2)

To know more about ABLE watch this video at   https://www.youtube.com/watch?v=Jr7hv2YykrQ>