

ABSTRACT

Since the Digital Forensics Pre-Automated Era history (1990–2001), Hardware Write Blocker (HWB) has become a very important tool for the preservation of evidence integrity. Known for its foolproof, high-performance, and attack-resilient properties, HWB continuously develops in commercial and research communities. The emerging new high-speed interface hardware requires portable architecture to adapt across hardware layers. Without the portability architecture HWB it is difficult to adapt and become obsolete. This research proposes portable architecture of SATA HWB through Software Development Life Cycle (SDLC) for prototype development. SDLC is a step by step process that start from requirements analysis, design, implementation and testing. National Institute of Science and Technology (NIST) mandatory requirement specification are taking account among non-functional and portability requirement. The proposed portable architecture is designed with dependency inversion to achieve low coupling. This design is implemented on TUSB9261 board for testing. As a result, the low coupling design is evaluated with coupling metrics and gain reduction from 4.96 to 0.99. For write-blocking accuracy test, the low coupling design is validated with National Institute of Science and Technology (NIST) Federated testing and NIST Assertion Test Plan (ATP). NIST Federated testing result is UnChanged and NIST ATP return 100% write-blocking accuracy. The transfer speed performance of low-coupling design is tested to ensure there are no side effects on the transfer speed. After transfer speed statistical test between proposed HWB and without proposed HWB, it is concluded that the use of low coupling design has no effect on transfer speed. **Keywords:** Hardware Write Blocker, portability, low-coupling