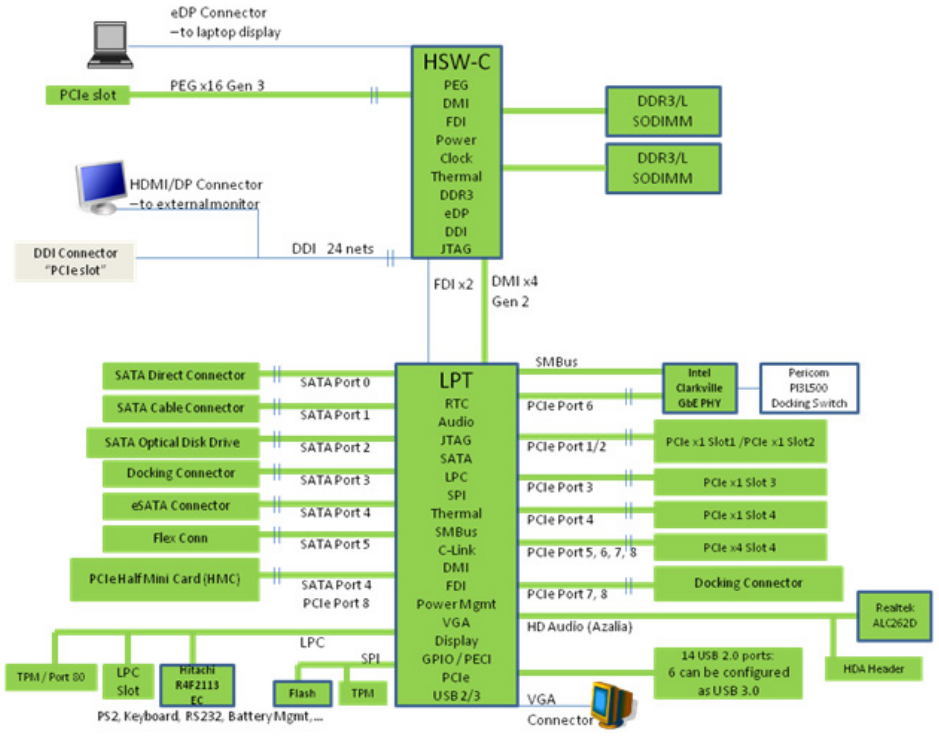
INTEL® HASWELL TESTABILITY REVIEW USING THE SCANWORKS® PLATFORM FOR EMBEDDED INSTRUMENTS

APPLICATION BRIEF

Legacy circuit board test strategies for volume manufacturing which depend upon physical probes and/or bed-of-nails fixtures are severely challenged by new mobile platforms and embedded applications featuring Intel® Haswell processors. Haswell-based designs provide little external physical test access, which is required by older and legacy intrusive test technologies like in-circuit test (ICT), manufacturing defect analyzers (MDA), flying probe testers (FPT) and others. In contrast, software-based non-intrusive board test (NBT) technologies do not rely on physical access to apply tests and capture results. As a result, NBT technologies based on embedded instrumentation deliver test coverage where the older intrusive test technologies cannot. And NBT manufacturing test technologies are much more cost-effective than external hardware-based, hardwired intrusive test technologies.



PCT Test Coverage

December 2012

SCANWORKS®
Platform for Embedded Instruments

The ASSET® ScanWorks NBT solution, powered by Intel Silicon View Technology, combines boundary-scan test (BST), processor-controlled test (PCT), and high-speed input/output validation (HSIO) (based on Intel Interconnect Built-In Self Test [Intel IBIST] technology) to plug coverage gaps within legacy test technologies:

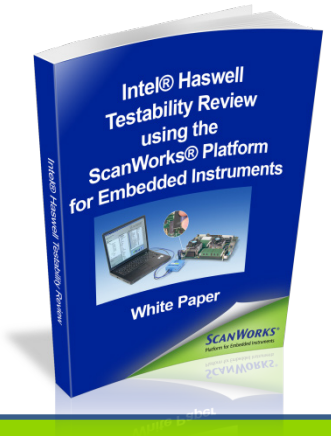
1. Boundary-scan test will provide a level of structural test coverage (device presence, correctness, orientation, and "liveness"; and interconnect shorts and stuck-at faults) for the Haswell processor and Lynx Point chipset and some of its subtending buses.

2. Processor-controlled test will provide comprehensive at-speed functional and structural test coverage on a majority of the board's kernel. Specifically, it will verify device presence, correctness, orientation, "liveness" (PCOL) and base functionality of the Haswell-C processor, Lynx Point chipset, DDR3, SPI Flash, GbE PHY, HD Audio, and other devices; PCOL for EC and TPM; as well as interconnect shorts and opens on PCIe, PEG, DMI, DDR3, SATA, USB, HD Audio, and other low speed buses and connectors.

3. High-speed input/output test (HSIO) will provide close to 100% shorts and opens coverage on PCIe, PEG, DMI, DDR3, SATA and USB buses. Based upon its at-speed BERT and margining functional test capabilities, it may also detect manufacturing quality defects that cannot be found by any other means, such as solder voids, micro-cracks, head-in-pillow defects, variations in stripline impedance, etc.

Learn More

Learn more about the ScanWorks platform for embedded instruments. Register for our technical paper, "**Intel® Haswell Testability Review using the ScanWorks® Platform for Embedded Instruments – White Paper**" and discover the technology behind the use of BST, PCT, and HSIO for board bring-up and manufacturing test.



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