

ADVANCED APPROACH IN TV SYSTEM (SW+HW) VERIFICATION METODOLOGY

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Characteristics of modern TV system architecture are: (i) high-degree of integration, (ii) wide variety of connectivity. Integration of whole audio-video processing within one SoC together with control block (CPU) has direct impact onto software complexity of modern TV chips. Additionally to this the standard TV has tripled number of interfaces in last decade: (i) having one Analog-RF and one SCART, (ii) up today with 2 x RF (Analog + Digital), 3 x HDMI, 2 x SCART, 1 x DVI, 1 x VGA, 1 x YPbPr, 1 x S-Video; all these interfaces are multi-format (supporting different picture size and different frame rates); With large flat pannels, beside new output stage (with all technology problems that LCD/Plasma introduced) we are facing today with multi-window user interface, today TV systems supports following operational modes: PiP (picture-in-picture), PaP (picture-and-picture), PaT (picture-and-text), PaG (picture-and-graphics).

One of the major challenges in today high-end TV sets is the proper handling of the audio & video input formats.

In the moment when development of such complex system is near to end, one of biggest challenges becomes system verification; Test plans should cover all frequently use-case scenarios including input (interface and format), and output (one of picture modes) selection, and possible transition between those modes. Number of test cases easily comes to thousands of test cases that should be executed for system verification. Previous praxis in industry was manual test case execution, where tester passing trough verification list and checking system features.

In this paper is presented system for automatic TV system verification methodology called BBT – Black Box Testing System. Block diagram of BBT is shown in figure 1, where main building blocks are control software, capture devices and algorithms for results verification. Methodology is developed as part of final stages of TV Chips development and as tool for output quality control.

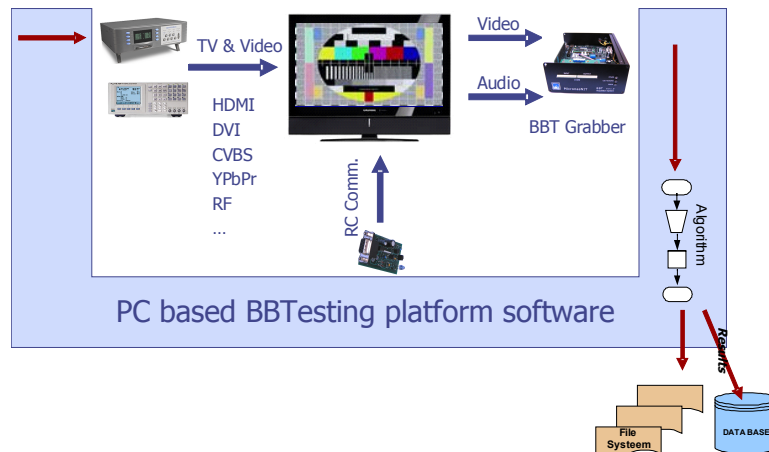


Figure 1. An overview of BBT system

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