ABSTRACT

The qualifying work consists of the explanation note (54 pages, 27 drawings, 6 appendices).

The object of development is an FPGA-based prototype for PAL signal conversion for HDMI interface.

The system developed on the basis of an FPGA enables compatibility between legacy analog equipment and modern digital displays.

During the project development:

- analysis of existing PAL converter solutions was conducted;
- the potential of using FPGAs for video interface conversion was explored;
- an FPGA-based prototype for PAL-HDMI conversion was developed;
- testing and analysis of the prototype's performance were carried out in order to evaluate its effectiveness;

The prototype was developed using: Verilog hardware description language for flashing the FPGA, TDA8790 NXP analog-to-digital converter, ADV713 HDMI-transmitter, Xilinx Vivado integrated development environment.

Keywords: FPGA, PAL, HDMI, video converter, converting in real-time