THE RESEARCH OF CONTACT IMAGE SENSON FOR USE AS A HIGH-PRECISION MEASURING ELEMENT

V.V. Opolsky, Y.A. Chursin, A.V. Tsepilova

National Research Tomsk Polytechnic University,

Russian Federation, Tomsk city, Lenin street, 30, 634050

E-mail: vvo6@tpu.ru

Nowadays measurement requirements are increased to make higher quality production. In this case sensors with higher resolution are required. Modern market does not have a sufficient number of contact image sensors with high resolution and full datasheet. Because of this fact, it was decided to use CIS-module from scanner «HP ScanJet 300» with 4800 dpi resolution and 256 quantization levels [1]. There is no datasheet of this sensor with free access, and because of that, timing diagrams of CIS pinouts were measured by oscilloscope. There were 12 pinouts, including power supply, start pulses, clock pulses, LED controls and video output. The most interesting were two start pulses and two clock pulses. After monitoring, signals were reproduced using FPGA «Altera Cyclone III» [2]. After that laser diode and CIS module have been fixed on opposite sides of black box. Laser was operated in pulsed mode by FPGA and turned on at the time of exposure. In the center of black box an obstacle has been placed and video signal which was monitored by oscilloscope confirmed the validity of installation controlling. Block diagram is shown on figure 1.

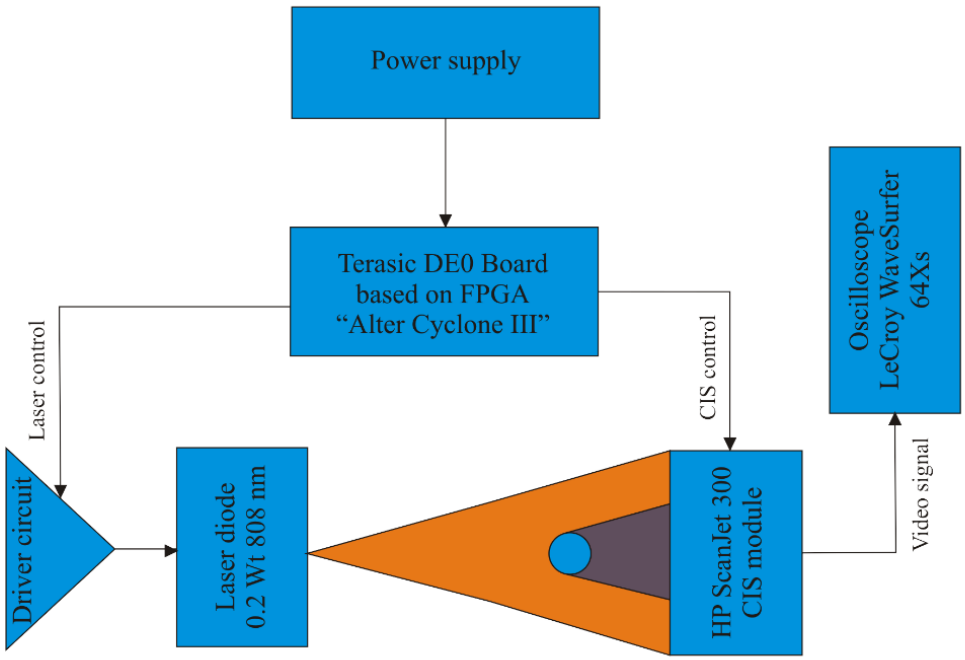

Figure 1. Block diagram of the test installation

REFERENCES

1. HP Scanjet 300 Flatbed Scanners - User-Replaceable Parts and Supplies (EMEA). http://h20564.www2.hp.com/hpsc/doc/public/display?docId=c03613923&DocLang=en&docLocale=en_US&jumpid=reg_r1002_usen_c-001_title_r0002 26.04.15
2. Cyclone III Device Handbook. https://www.altera.com/en_US/pdfs/literature/hb/cyc3/cyclone3_handbook.pdf 26.04.15