3D scanning by means of dual-projector structured light illumination

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ABSTRACT

This document shows the desired format and appearance of a manuscript prepared for the Proceedings of the SPIE. It contains general formatting instructions and hints about how to use LaTeX. The LaTeX source file that produced this document, `article.tex` (Version 3.3), provides a template, used in conjunction with `spie.cls` (Version 3.3).

Keywords: Manuscript format, template, SPIE Proceedings, LaTeX

1. INTRODUCTION

Structured light illumination

2. HDMI

HDMI is the abbreviation of High-Definition Multimedia Interface, it is one of the most popular diaplay interfaces. The newest release, HDMI Version 2.1 supports up to $10K$ video at $120Hz$.

3. SYSTEM IMPLEMENTATION BASED ON FPGA

The system diagram is shown in Figure The system generates structured light patterns at the resolution of $800x600$, the refresh rate of $120Hz$. According to the document provided by VESA,[1] the HDMI timing should be set as table 1.

Table 1: HDMI timing of $800x600@120Hz$

Pixel Clock	73.250MHz
Hor. Front Porch	48 pixels
Hor. Sync Time	32 pixels
Hor. Back Porch	80 pixels

Ver. Front Porch	3 lines
Ver. Sync Time	4 lines
Ver. Back Porch	29 lines

We utilize an I^2C programmable oscillator Si514 to generate the unusual 73.25MHz pixel clock.

ACKNOWLEDGMENTS

This unnumbered section is used to identify those who have aided the authors in understanding or accomplishing the work presented and to acknowledge sources of funding.

REFERENCES

1. Video Electronics Standards Association, *VESA and industry standards and guidelines for computer display monitor timing* (May 2007). Version 1.0.

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