AL460A HD-FIFO Reference Design – HD Visual Digitizer

Fulfill your high speed video buffering needs!

High-Speed First-In-First-Out memory buffer for HD Video applications

Introduction

The AL460A HD-FIFO HD Visual Digitizer Reference Design is a concise, efficient, and straightforward specification, implementing the AL460A chip to convert HD video for VGA output to LCD monitors or TV displays, while providing full-function OSD capabilities. This specification can be applied to a wide-range of applications, such as electronic magnifiers for industrial inspection applications, 3D object illustrators for educational use and much more. AverLogic's AL460A Full HD-FIFO and fpga are the core video logic processors, employing a 3.2 Megapixel CMOS sensor, ensuring precision image capture with vivid picture quality. The AL460A HD-FIFO is designed with a straightforward bus interface, reducing implementation and debugging efforts, and helping customers develop faster and more efficiently.

The Control Firmware delivers a robust, feature-rich set of functions for HD Visual Digitizers, including 8x8 video zoom, video quality control, image freeze, embedded OSD and selectable output resolutions. Implementing an external OSD chip is also possible.

Applications

- ❑ Low vision aids
- ❑ 3D projector for classrooms
- ❑ Electronic magnifiers
- ❑ Industrial inspection equipment
- ❑ Assembly line QA examination
- ❑ Video surveillance

AL460A HD-FIFO Advantages

HD-FIFO is a proprietary design technology used to overcome issues commonly hindering and limiting other frame buffer devices (e.g. SDRAM, DDR…etc) found in FPGA solutions. Traditional FPGA implementations require higher I/O pin totals and place heavy demands on logic resources and property memory controllers, forcing a designer to move up to higher grade FPGAs. In contrast, AverLogic's HD-FIFO requires significantly less in I/O pins and logic resources, at the same time overcoming latency issues therein. The programmable I/O controls and double buffer mode increase design flexibility and reduce FPGA overhead.

Specifications

AL460 HD Visual Digitizer Ref Design Specs

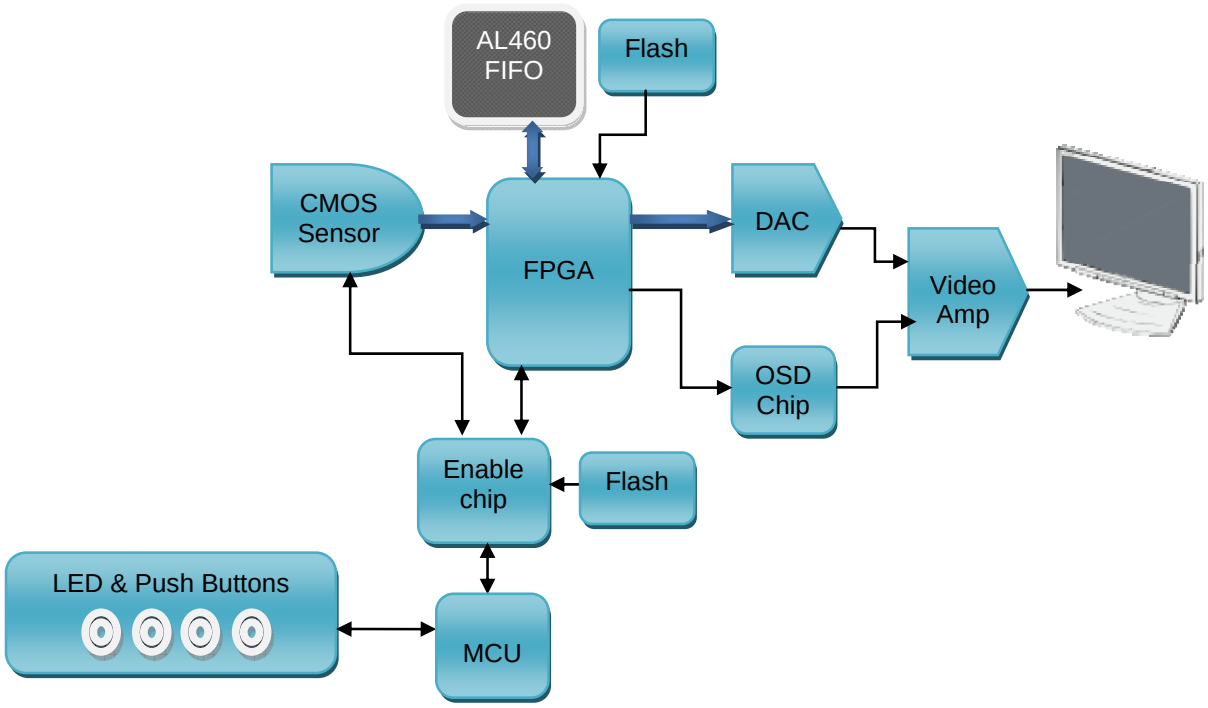
- 3.2 Megapixel 1/4" CMOS senor
- Output resolution in XGA@30fps, SXGA@15fps, WXGA@15fps
- Fixed focus (Auto focus optional)
- 8x8 digital zoom
- Embedded OSD
- Green LED indicator
- 50Hz/60Hz frame rate input auto-detect
- Auto/Manual brightness control
- Supports image freeze operation
- Supports color or monochrome display
- Incorporates Edge enhancement
- Supports contrast adjustment
- Standard VGA output
- 5V DC supply voltage

(all selected design components are ROHS compliant)

Design Materials

- Reference design datasheet
- Reference design schematic
- Reference design BOM list
- Control Firmware
- Application Notes
- Design Enable Chip

Block Diagrams



Ordering Information

Part number	Input	Output	Power
HVD-0310C-MDL-A0-CD	3.2 Megapixel CMOS sensor	XGA, SXGA, WXGA	5V