AL460

High Speed Memory Buffer for HD Video Applications

Introduction

The AL460 is an IC chip used by HD Video equipment to capture and queue high density video data streams before being processed by other applications. The AL460 consists of 128 Mbits of memory density and is configured as a 8,192K x 16-bit FIFO (First-In-First-Out). The optimized access scheme offers maximum R/W operating speeds up to 150 MHz. The FIFO provides simple and easy-to-use interfaces facilitating usage in a wide range of applications such as multimedia systems, video capture systems and various video data buffering applications. EVB and demo boards are available to hasten benchmarking, evaluation and testing.

■ Features

- 128 Mbit memory density configured as 8M x 16-bit input and output data bus width
- Supports NTSC, PAL and HDTV up to 1080p
- Independant 16-bit read/write data bus operations (different I/O data rates acceptable)
- Input/Output enable control
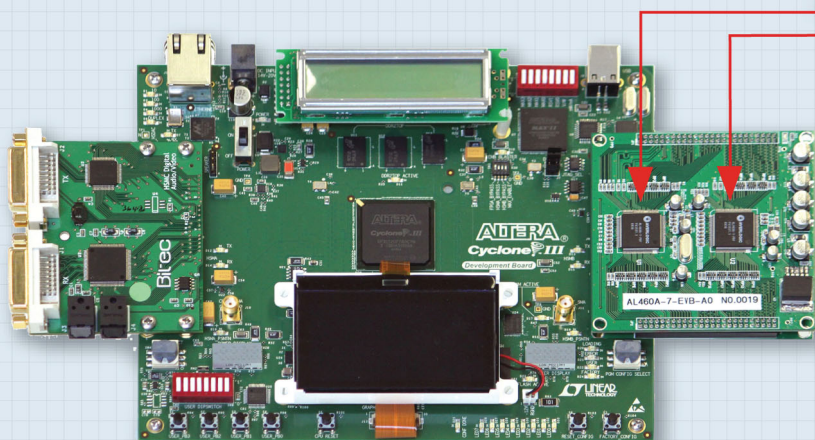- Polarity selectable

■ Features

- High speed synchronous sequential access with maximum speed 150 MHz
- 2.5V and 3.3V power supply
- Standard LQFP-128 package
- Supports double buffer mode (upper and lower frame access with 4M x 16-bit in each frame) via frame-select pins
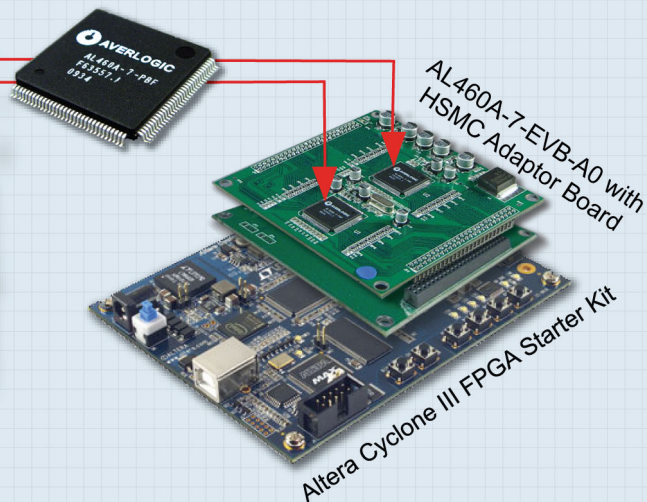
HD Video Development Kit

The HD Video Development Kit can be used for a wide range of applications such as Multimedia Switch Boxes, Time Base Converters, HD Video Cameras, and Video Capture systems.
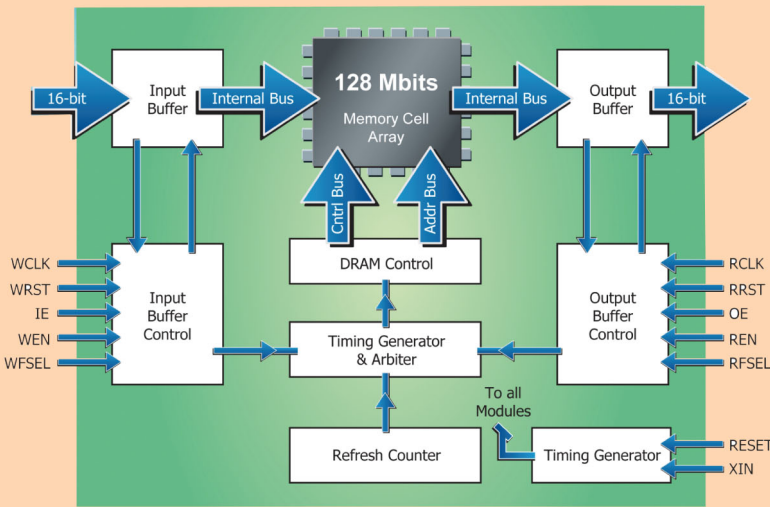
✓ Completely compliant with Altera FPGA software VIP (Video IP) and HSMC daughter boards.

✓ Extremely easy to design with; reduces design and development efforts and costs.

AL460A-7-EVB-A0 board with Altera Cyclone III FPGA Development Kit and Bitec HSMC DVI Daughter card

AL460A-7-EVB-A0 with HSMC Adaptor Board

Altera Cyclone III FPGA Starter Kit

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Block Diagram

16-bit → Input Buffer → Internal Bus → **128 Mbits** Memory Cell Array → Internal Bus → Output Buffer → 16-bit		

Cntrl Bus — Addr Bus

WCLK, WRST, IE, WEN, WFSEL → Input Buffer Control

DRAM Control

Timing Generator & Arbiter

To all Modules

Refresh Counter

Timing Generator

Output Buffer Control → RCLK, RRST, OE, REN, RFSEL

RESET, XIN

AL460 Advantages
Stay on schedule, on budget

- Extremely simple design interface
- Reduced design/development efforts
- Reduced overall costs
- Faster time to market
- Supports double buffering
- Improved system performance (vs DDR2)
- Less I/O pins
- Easy retrofit for existing designs

Applications

HD Video Cameras

Medical Systems

Video/Audio Broadcasting

Video Surveillance

Ordering Information

Part Number	Description	Content
AL460A-7-PBF	HD FIFO chip (150 MHz)	
AL460A-13-PBF	HD FIFO chip (75 MHz)	
AL460A-7-EVB-A0	HD FIFO EVB (150 MHz)	BB-AL460FSB1-EVB-D0 + DST-0106A-MDL-A0
AL460A-13-EVB-A0	HD FIFO EVB (75 MHz)	BB-AL460FSB1-EVB-D0 + DST-0106A-MDL-A1
DST-0106A-MDL-A0	HD FIFO module (150 MHz)	
DST-0106A-MDL-A1	HD FIFO module (75 MHz)	
BB-AL460FSB1-EVB-D0	HSMC interface adaptor board	
AL460A -7-EVB-A2	HD FIFO FPGA Development Kit	TP-BITDVI-EVB-D0 + TP-AT3C120-EVB-D0 + AL460A-7-EVB-A0
TP-BITDVI-EVB-D0	DVI Daughter card	
TP-AT3C120-EVB-D0	Altera Cyclone III 3C120 Development Kit	

HD Cameras
Studio Camera
PIP Image Buffering
HD Video Frame Synchronizer

Medical Systems
Image Grabber
Image buffering & enhancement processor

Industrial Instruments
Data Synchronizer
Time Base Correction (TBC)
Buffer for communication systems

Video/Audio Broadcasting
HDTV/SDTV Video Editing
Multiple source/format switcher
Scan Rate Converter
IPTV Set-Top-Box
Image Manipulation
Video Wall

Video Surveillance
Multi-window video merging
HD Camera Data Buffering

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