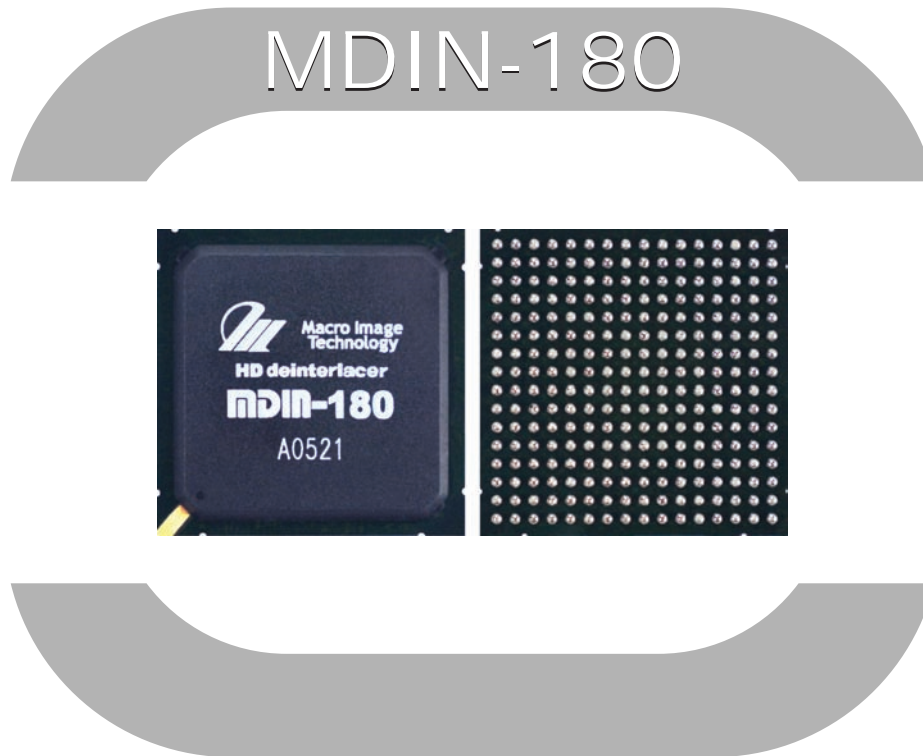


3rd Generation HD Deinterlacer



- MDIN-180 is a highly integrated single chip implementation of deinterlacing and format conversion for processing HDTV signal as well as existing analog TV signal.
- MDIN-180 provides Two digital video input ports for 10bit precision interlaced or progressive scan video and One digital video output port for 10bit precision progressive scan video, and it handles both progressive and interlaced scan video.
- MDIN-180 receives any format of input video and performs deinterlacing and format conversion to produce any desired format of progressive scan video with excellent signal quality preservation.
- MDIN-180 provides high quality edge preserving deinterlacing with up-to-date motion adaptive 3-D deinterlacing algorithm and it performs auto detection and proper processing for fast motion and film mode video sources.
- MDIN-180 provides High Quality 3D Noise Reduction with motion detection.
- MDIN-180's high quality deinterlacing and video processing capability is suitable for high quality display application such as DVD player, flat panel display TV, scan converter system, especially where HDTV signal processing is required.

Main Features

- Two digital video input ports for 10bit precision interlaced or progressive scan video
- One digital video output port for 10bit precision progressive scan video
- Motion adaptive 3-D deinterlacing with pixel-by-pixel motion adaptive interpolation
- Advanced multi-directional edge preserving deinterlacing
- Deinterlacing with fast motion, slow motion and still image detection and processing
- Deinterlacing with film mode, bad-edit and subtitle detection and processing
- 3D noise reduction filter with cross-color suppression
- Independent horizontal and vertical scaling with arbitrary conversion ratio
- Horizontal peaking filter and color enhancement processing for crisper picture quality
- Programmable brightness, contrast, hue, saturation control
- 1 layer OSD with 16 color and 4 sprite
- Seamless interface to 8MB or 16MB SDRAM widely available in the market
- Serial I2C bus interface
- 256 BGA package (17mm X 17mm)

Specifications

Input Format

Two input ports : Total 40-bit configurable digital port Max. 10bit precision

Maximum pixel rate : 108Mpixel/sec

Scan type : interlaced or progressive scan video up to 1920x1080i @60Hz, 1280x1024p @60Hz

Video format : RGB, YCbCr(4:4:4), YCbCr(4:2:2), 24/30-bit, 16/20-bit and 8/10-bit digital(sync embeded) format

Output Format

One digital output port : 30-bit single width

Maximum pixel rate : 115Mpixel/sec

Scan type : progressive scan video up to 1536x1080p @60Hz

Video format : RGB, YCbCr(4:4:4), YCbCr(4:2:2), 24/30 and 16/20-bit digital(sync embeded) format

Deinterlacing

Deinterlacing for any interlaced input video up to 1080i

Motion adaptive 3-D deinterlacing on a per-pixel basis

Programmable motion detection and adaptation control

Adaptive motion-weighted interpolation for eliminating non-motion artifacts

Advanced multi-directional edge preserving

Fast motion, slow motion and still image detection

Motion boundary preserving

High frequency area detection and adaptation

Film mode support for 3:2 and 2:2 pull-down

Bad-edit detection and adaptation

Programmable setting of subtitle area and artifacts elimination

Noise Reduction and Cross Color Suppression

High Quality 3D Noise Reduction with motion detection

Cross Color Suppression for CVBS video input

Format Conversion

Independent horizontal and vertical scaling

Format conversion from one format to another format with an arbitrary scaling ratio

Scaling ratio : x1/15 ~ unlimited

Programmable size & position zoom in/out

Frame Rate Conversion

Frame rate conversion from 3-250Hz to 3-250Hz

Conversion ratio : x1/31 ~ x31

Uses external frame buffer

Display Functions

CSC for brightness, contrast, hue, saturation

Black and white level extension

Programmable output sync generation

Lock-to-input sync mode or free-run mode

Signal Enhancement

High order programmable horizontal peaking filter

Programmable gain control & coring

Filter for color component enhancement

LTI and CTI for edge enhancement

Bitmap OSD

One layer with 4 sprite

16 color with blending

Frame Buffer Memory

8MB or 16MB external SDRAM

32-bit or 64-bit data width interface

Seamless interface to widely available x16 or x32-bit SDRAM

Host Processor Interface

I2C serial bus interface

Miscellaneous

Auto detection of input video/sync

Internal programmable PLLs

Built-in test pattern generation logic

Electrical and Mechanical Characteristics

1.8V & 3.3V supply voltage, 5V tolerant I/O

256-pin BGA package (17mm x 17mm)

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