MDIN-150 is a highly integrated single chip implementation of deinterlacing and format conversion for processing HDTV signal as well as existing analog TV signal.

MDIN-150 provides two digital input ports and one digital output port, and it handles both progressive and interlaced scan video.

MDIN-150 receives any format of input video and performs deinterlacing and format conversion to produce any desired format of progressive or interlaced scan video with excellent signal quality preservation.

MDIN-150 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-150’s high quality deinterlacing and video processing capability is suitable for high-end scan conversion systems or progressive display devices such as LCD TV, PDP TV and so on.
Main Features

- Two digital video input ports for interlaced or progressive scan video
- One digital video output port for progressive or interlaced 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 caption region detection and processing
- Independent horizontal and vertical scaling
- Horizontal and vertical anti-aliasing filters for graceful down conversion
- Advanced signal enhancement and color enhancement processing for crisper picture quality
- Seamless interface to 8MB or 16MB SDRAM widely available in the market
- Serial I2C bus interface
- Pin-to-pin compatible with MDIN-100

Specifications

**Input Format**
- Two input ports: 16-bit and 24-bit digital video
- 24-bit input port is shared with SDRAM data bus.
- Maximum pixel rate: 135Mpixel/sec
- Scan type: interlaced or progressive scan video up to 1920x1080i @60Hz, 1280x1024p @75Hz
- Video format: RGB, YCbCr(4:4:4), YCbCr(4:2:2), 8/16-bit digital format including SMPTE274M

**Output Format**
- One digital output port: 30-bit single or 60-bit dual mode
- Maximum pixel rate: 150Mpixel/sec
- Scan type: progressive or interlaced scan video up to 1920x1080p @60Hz
- Video format: RGB, YCbCr(4:4:4), YCbCr(4:2:2), 16-bit digital format including SMPTE274M

**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 deinterlacing
- Fast motion, slow motion and still image detection
- Inter-field noise reduction
- High frequency area detection
- Film mode support for 3:2 and 2:2 pull-down mode
- Bad-edit film and caption region detection

**Format Conversion**
- Independent horizontal and vertical scaling
- Format conversion from one format to another format with an arbitrary scaling ratio
- Horizontal and vertical anti-aliasing filters for graceful down conversion
- 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

**Signal Enhancement**
- High order horizontal peaking filter
- Non-linear 2-D filter
- Independent horizontal & vertical gain control
- High order filter for enhancing color component

**Display Functions**
- CSC & LUT for brightness, contrast, hue, saturation and gamma control
- Programmable output sync generation
- Lock-to-input sync mode or free-run mode

**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
- Input noise reduction capability
- Internal programmable PLLs
- Built-in test pattern generation logic

**Electrical and Mechanical Characteristics**
- 2.5V & 3.3V supply voltage, 5V tolerant I/O
- 256-pin QFP package