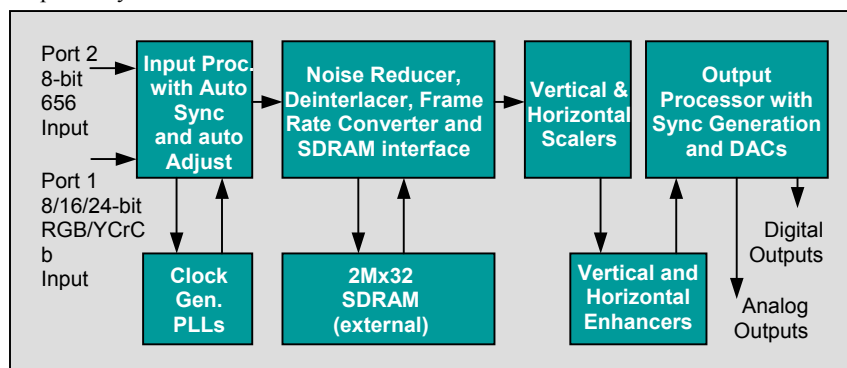


# Product Overview- FLI2300



**Digital Video Format Converter for DTV and DVD applications that incorporates Faroudja Laboratories' Emmy® award winning DCDi™ and TrueLife™ deinterlacing and image enhancement algorithms, coupled with highly flexible scaling and aspect ratio conversion to convert standard interlaced video signals into high-definition compatible signals.**

The FLI2300 Digital Video Format Converter produces the highest quality upconverted video output from a variety of interlaced video inputs including 525i/50 (NTSC), 625i/50 (PAL or SECAM), 480p/60, 720p/60, 1080i/60 (ATSC) and RGB graphics up to SXGA, with a maximum pixel rate of 75 MHz. It uses patented and patent pending motion-adaptive deinterlacing that selects the optimal filtering on a per-pixel basis to produce maximum resolution without introducing motion artifacts. This includes film mode for proper handling of 3:2 and 2:2 pulldown as well as bad edit detection and correction, technologies invented by Faroudja Laboratories. Prior to deinterlacing, the built-in motion-adaptive noise-reducer can be used to improve the signal-to-noise ratio, resulting in further improved deinterlacing. Another proprietary feature is Directional Correlational Deinterlacing (DCDi™). This technology identifies edges at any angle in moving images and interpolates along the edge to produce smooth, natural images without the staircasing or jaggies produced by other deinterlacing technologies. The FLI2300 also includes motion-adaptive cross-color suppression that removes highly objectionable coloration artifacts produced by commonly used video decoders. Flexible multi-tap horizontal and vertical scalers can be used to upconvert the image to any resolution up to 1080p or SXGA and to perform aspect ratio conversion. The output frame rate can be synchronous with the input or changed to be synchronized to a separate source, and the output can be either progressive or interlaced, with a maximum output pixel rate of 150 MHz, in either RGB or component formats. On-chip 10-bit DACs can be used to produce analog outputs in addition to the digital outputs. The FLI2300 also includes Faroudja Laboratories' TrueLife™ 2-D non-linear enhancement processing to ensure the highest possible quality images without introducing the artifacts typically introduced by sharpening algorithms. The FLI2301 is a variant of the FLI2300 that also includes a built-in Macrovision™ copy-protection generator for use in progressive scan DVD players. The FLI2310 is a variant of the FLI2300 with digital outputs only.



The FLI2300 includes all clock generation on-chip, and SDRAM controller and input and output color-space converters. It uses an industry standard two-wire serial interface for easy control and access to the registers.

## Features

Motion-adaptive recursive noise-reducer improves signal-to-noise ratio without introducing motion-induced smearing effects, resulting in further improved deinterlacing

Patented Faroudja per-pixel motion adaptive algorithms produces full resolution in the stationary areas of each frame while suppressing motion –artifacts in the moving areas

Directional Correlational Deinterlacing Proprietary per-pixel selection of edge direction produces smooth and natural images without staircasing or jaggies



Patented Film-mode produces artifact-free images by proper handling of 3:2 and 2:2 pulldown materials

Bad-edit detection and correction compensates for poor scene cuts and video insertions common in broadcast material

Motion-adaptive Cross-color suppression (CCS) removes “false color” artifacts produced by improper Y/C separation in low-cost video decoders

Supports both standard definition (525i/60 NTSC and 625i/50 PAL/SECAM) and enhanced/high definition (480p/60, 720p/60 and 1080i/60) input video signals with auto-detection of standard

Built-in front-end color-space converter also allows RGB graphics inputs from VGA (640x480) up to SXGA (1280x1024)

High-quality two-dimensional scaling upconverts signals to desired resolution

## Genesis Microchip Inc.

2150 Gold Street, Alviso, P.O. Box 2150, CA US 95002 Tel: (408) 262-6599 Fax: (408) 262-6365  
165 Commerce Valley Dr. West, Thornhill, ON Canada L3T 7V8 Tel: (905) 889-5400 Fax: (905) 889-5422  
1096, 12thA Main, Hal II Stage, Indira Nagar, Bangalore-560 008, India, Tel: (91)-80-526-3878, Fax: (91)-80-529-6245  
4F, No. 24, Ln 123, Sec 6, Min-Chuan E. Rd., Taipei, Taiwan, ROC Tel: 886-2-2791-0118 Fax: 886-2-2791-0196  
143-37 Hyundai Tower, #902, Samsung-dong, Kangnam-gu, Seoul, Korea 135-090 Tel 82-2-553-5693 Fax 82-2-552-4942  
Rm2614-2618 Shenzhen Office Tower, 6007 Shennan Blvd, 518040, Shenzhen, Guangdong, P.R.C., Tel (0755)386-0101, Fax (0755)386-7874  
2-9-5 Higashigotanda, Shinagawa-ku, Tokyo, 141-0022, Japan, Tel 81-3-5798-2758, Fax 81-3-5798-2759  
[www.genesis-microchip.com](http://www.genesis-microchip.com) / [info@genesis-microchip.com](mailto:info@genesis-microchip.com)

Aspect ratio conversion can be used to convert letterbox images to full-screen, full-screen 4x3 images to pillarbox 16x9 or any other mode

Both horizontal and vertical scaling can be linear or non-linear for maximum flexibility

“Curtain generator” allows top and bottom or sides of non-full-screen images to be shown in a wide range of colors and brightness to suit user’s environment

Two-dimensional non-linear *TrueLife™* enhancement brings out details in images and sharpens edges in both chroma and luma signals, producing a more lifelike image

Tearless frame rate conversion allows generation of outputs either synchronized to other sources or upconverted from input rate, allowing generation of 75i or 100i outputs from 50i inputs

Built-in output color-space converter allows generation of 4:4:4 RGB outputs as well as 4:2:2 or 4:4:4 YCbCr or YPbPr

Built-in triple 10-bit DAC generates high quality analog outputs for CRT displays

Built-in Macrovision™ copy protection generator allows use of FLI2301 in compliant progressive-scan DVD players

Uses up to 4 MB of low-cost SDRAM as frame memories

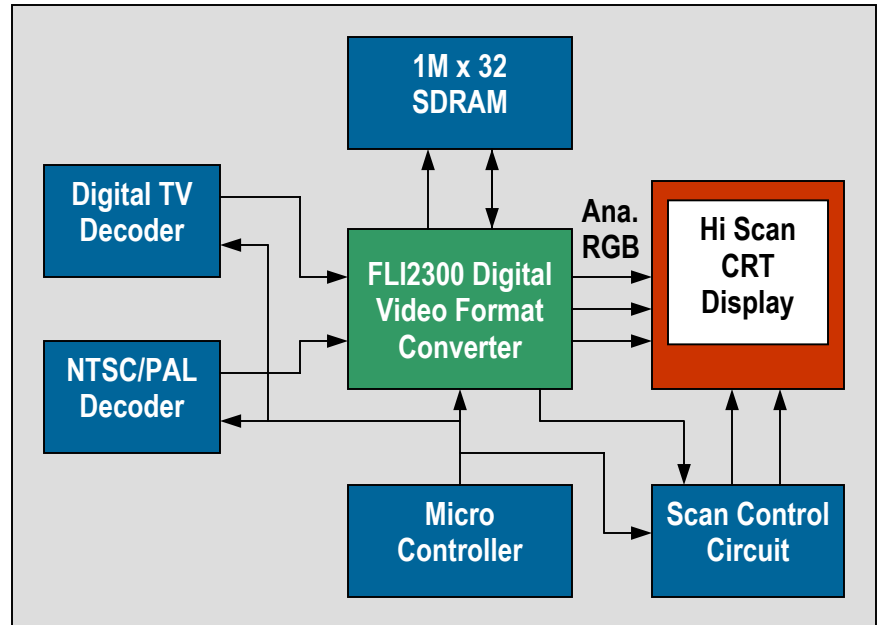
Standard 2-wire serial interface (I2C compatible) for easy access to registers

### Applications

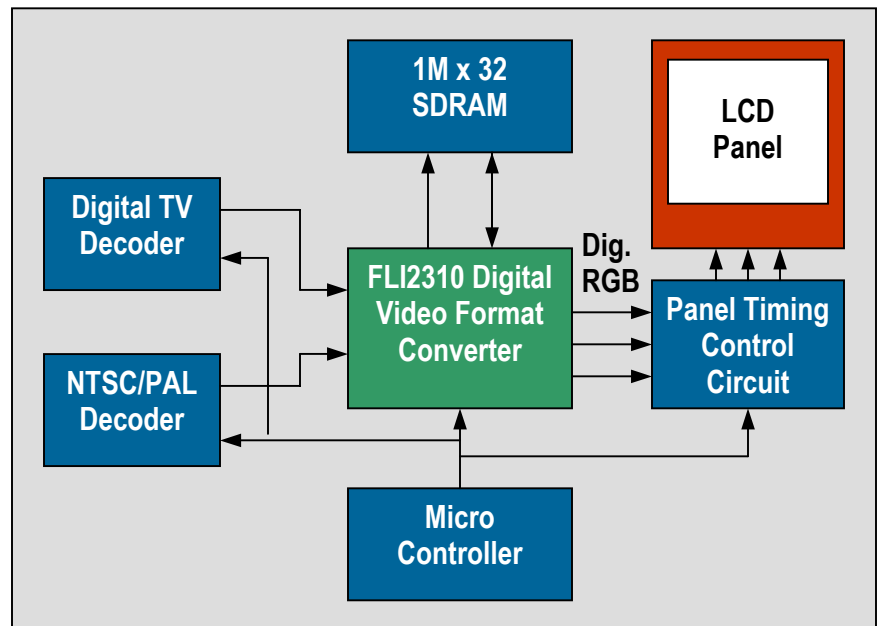
- Flat panel TV – LCD, PDP, DLPT™
- HD compatible CRT TVs
- Progressive DVD players (FLI2301)
- Progressive cable and satellite STBs
- Multimedia PCs/workstations



### CRT Based HDTV Application



### Flat Panel TV Application



Emmy® is a registered trademark of the Academy of Television Arts and Sciences (ATAS)/ National Academy of Television Arts & Sciences (NATAS)