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High Performance Video Encoder with HDTV Output

CX25874/CX25875

Highest-Quality Video Encoder with "Adaptive" Flicker Filtering and HDTV Output

Conexant's CX25874 and CX25875 video encoders are specifically designed to meet TV-out cost and performance requirements for next-generation desktop and notebook PCs, game consoles and set-top boxes. With software forward compatibility to the CX25870 and CX25871, manufacturers can quickly bring to market new solutions that provide adaptive flicker filtering, ATSC High-Definition Television (HDTV) output, and true international television display (NTSC, PAL and SECAM output). The CX25874 and CX25875 support resolutions from 320 x 200 to 1024 x 768 and programmable overscan ratios from 0% to 25%. The CX25874 and CX25875 also provide 48 automatic configuration modes and offer 10-bit DACs.

HDTV Output

HDTV is here. More than 1 million consumers have purchased HDTV sets. With the start of this television set transition, TV-out capability must now include the ability to connect PCs, set-top boxes, DVD players and game consoles to HDTV television sets.

The CX25874 and CX25875 can convert either YCrCb or RGB input to HDTV output. While the CX25874 and CX25875 are in HDTV output mode, the device will provide either analog RGB or analog YP_BP_R signals and automatically insert tri-level synchronization pulses (when necessary) and vertical synchronizing "broad pulses".

The CX25874 and CX25875 are compliant with all existing HDTV standards including EIA770-4, SMPTE 274M/293M/296M and support all ATSC HDTV resolutions including 480p, 720p and 1080i.



Distinguishing Features

- True international support for NTSC, PAL and SECAM output
- HDTV output capability
- Adaptive flicker filtering
- Supports resolutions from 320 x 200 to 1024 x 768
- Software forward compatible with the CX25870 and CX25871
- Programmable overscan ratios from 0% to 25%
- Pin compatible with CX25872 and CX25873
- 64-pin TQFP

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Adaptive Flicker Filtering

The CX25874 and CX25875 include Conexant's unique adaptive flicker-filtering capability. With this feature, the optimal amount of flicker filtering for a given application is automatically determined by the characteristics of the pixel content. Now both an Excel spreadsheet and DVD movie can look great at the same time. Consumers do not have to manually adjust the amount of flicker filtering as they switch from applications requiring significant flicker filtering (e.g., text-intensive applications like an Excel spreadsheet) to those requiring little or no flicker filtering (e.g., a DVD movie).

International Support

The CX25874 and CX25875 provide the most complete support for products with TV-out functionality shipped to the U.S. and international markets. The CX25874 and CX25875 support SCART and Wide Screen

Signaling (WSS) 16:9 aspect ratio. The international standards supported include NTSC (North America, Taiwan, Japan), PAL-B, D, G, H, I (Europe, Asia), PAL-M (Brazil), PAL-N (Paraguay), PAL-Nc (Argentina), PAL-60, ECAM-D, K, K1 (Russia), SECAM-B, G, H (Middle East) and SECAM-L (France).

Pixel Input Formats and Timing

The CX25874 and CX25875 convert a wide range of input formats to television video formats. The input resolution can be non-interlaced with an active resolution of 320 x 200 to 1024 x 768 or interlaced such as CCIR601, CCIR656 and VESA VIP. Conexant is the only provider of video encoders that have the flexibility to offer any resolution in this range with so many input and output format options. This includes the exact resolution to display DVD movies in either NTSC or PAL formats.



Automatic Configuration Modes

The CX25874 and CX25875 offer enhanced automatic configuration mode functionality. A total of 48 different modes are now available which provide pre-programmed register settings for more than 95% of typical TV-out settings. For example, PAL-M can be automatically configured to an input resolution of 640 x 480 RGB with a moderate amount of overscan compensation with just a single register write.

CGMS Support

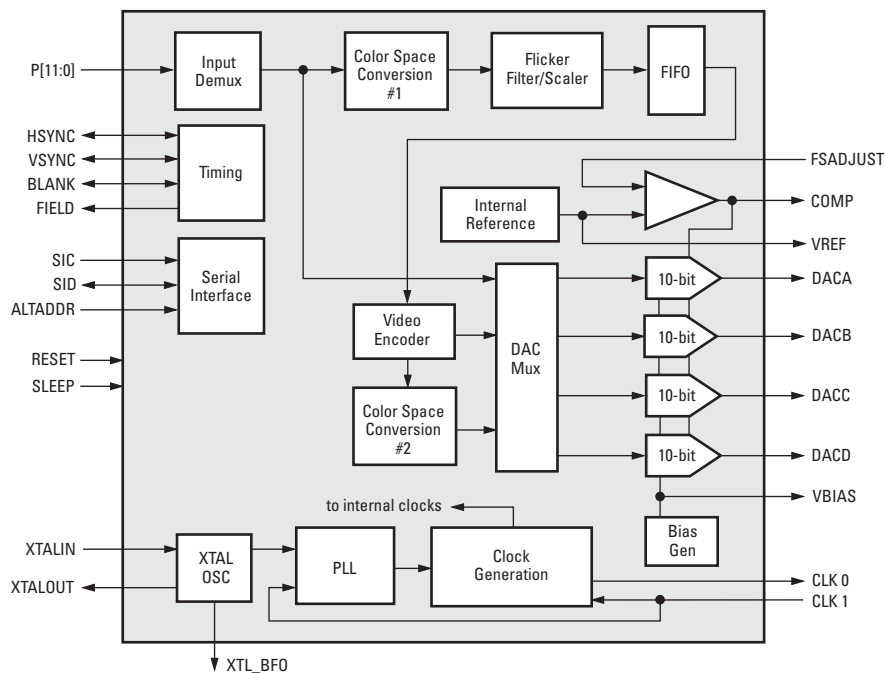
The CX25874 and CX25875 support the complete CGMS set of standards. This includes 480i, 480p/525p, 720p/750p and 1080i/1125i.

Overscan Compensation

The CX25874 and CX25875 support overscan ratios as low as 0% (truly to the bezel of the TV) and as high as 25% (25% of the screen will be black).

Macrovision™ Support

The CX25875 provides Macrovision 7.1.L1 copy protection and Macrovision 525/625p specification compliance.



CX25874/CX25875 block diagram

Product Features

- HDTV output
- CGMS support
- Adaptive flicker filtering for enhanced image and text sharpness
- 5-line vertical and horizontal flicker filtering
- Supports any input resolution from 320 x 200 to 1024 x 768
- 48 automatic configuration modes
- Programmable power management
- Software-forward compatibility with the CX25870 and CX25871
- Pin compatibility with the CX25872 and CX25873
- SCART
- WSS 16:9 (wide screen signaling) support
- Macrovision 7.1.L1 copy protection (CX25875 only)
- 525p/625p specification compliance (CX25875 only)
- 10-bit DACs for superior picture quality
- Overscan compensation ratios from 0 to 25%
- Serial programming interface
- Buffered crystal clock output
- NTSC/PAL/SECAM TV outputs:
 - Interlaced or non-interlaced
 - Composite
 - S-video (Y/C)
 - Simultaneous S-video and Composite
 - YUV
- YCrCb non-interlaced input to interlaced output
 - 16-bit 4:2:2 multiplexed 8-bit input
 - 24-bit 4:4:4 multiplexed 12-bit input
- RGB non-interlaced input to interlaced output
 - 15/16-bit multiplexed 8-bit input
 - 24-bit multiplexed 12-bit input
- RGB non-interlaced input to RGB non-interlaced output
 - 15/16-bit multiplexed 8-bit input
 - 24-bit multiplexed 12-bit input
- RGB or YCrCb interlaced input to interlaced output
 - CCIR656
- CCIR601/DVD
- VESA VIP
- 64-pin TQFP

Applications

- Desktop PCs
- Graphics cards
- Notebook computers
- Game consoles
- Digital television receiver cards
- Living room PCs
- Internet PCs
- Progressive DVD players
- Set-top boxes

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