

Product Brief

TC90240XBG Frame Rate Converter for 100/120 Hz TVs

Highlights

- Converts 50/60 Hz output to 100/120 Hz output using motion vector estimation and interpolation
- Easy to add to an existing 50/60 Hz TV chassis to create a 100/120 Hz LCD TV
- Supports both WXGA and 1080p LCD panels
- Supports 8-bit and 10-bit LVDS output
- De-judder motion picture material (24 Hz) for a better viewing experience on a 100/120 Hz LCD TV
- Includes picture management functionality – color management, RGB gamma correction, frame rate control dither.
- Easy to integrate into current solution as it requires only minimal I²C programming.
- LVDS input and outputs for easy integration into existing TV chassis

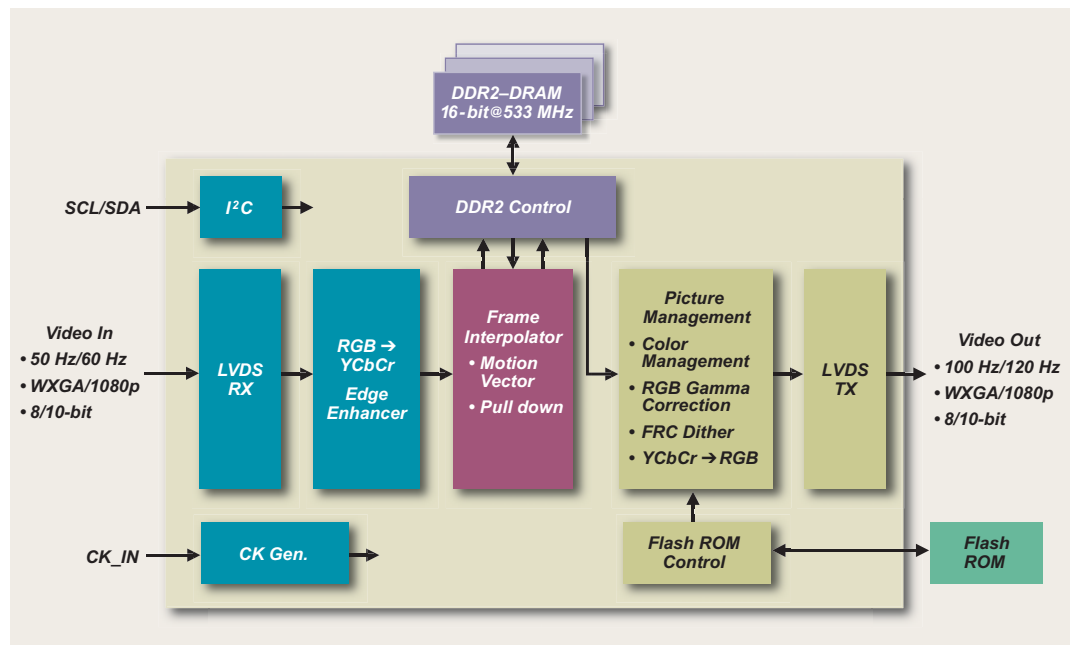
Description

Current high-definition LCD TV panels occasionally show motion blur and judder in some video scenes. To resolve this problem, LCD TV panel makers are building panels that refresh at 100/120 Hz instead of the typical 50/60 Hz. This provides a very sharp picture without the blur associated with LCD TVs. Toshiba's TC90240XBG is designed to take 50/60 Hz input signal, generate additional frames and output the signal at 100/120 Hz. The device uses LVDS inputs and outputs to make it very easy to integrate into an existing LCD TV chassis. In addition, the TC90240XBG provides de-juddering to convert content from 24 Hz to make it appear smooth when displayed at 100/120 Hz. The TC90240XBG also offers picture management functions to improve picture quality.

Features

- Interpolated frame generation using motion estimation and motion compensation
- De-judder of film material
- Picture management
 - Color management
 - RGB gamma correction
 - Frame rate control dither
 - Edge enhancement
- Integrated DDR-2 memory controller
- Input – LVDS 8- or 10-bit WXGA or 1080p signals in RGB, YCbCr or YPbPr format at 50/60 Hz
- Provides RGB to YCbCr function at input signal
- Output – LVDS 8- or 10-bit WXGA or 1080p signals in RGB, YCbCr or YPbPr format at 100/120 Hz
- Provides YCbCr to RGB function at output signal
- I²C programming interface
- Internal PLL for clock generation
- PBGA-564 31mm x 31mm with 1 mm ball pitch
- Built-in memory controller support DDR-2 at 533 MHz data rate

TC90240XBG Frame Rate Converter Block Diagram



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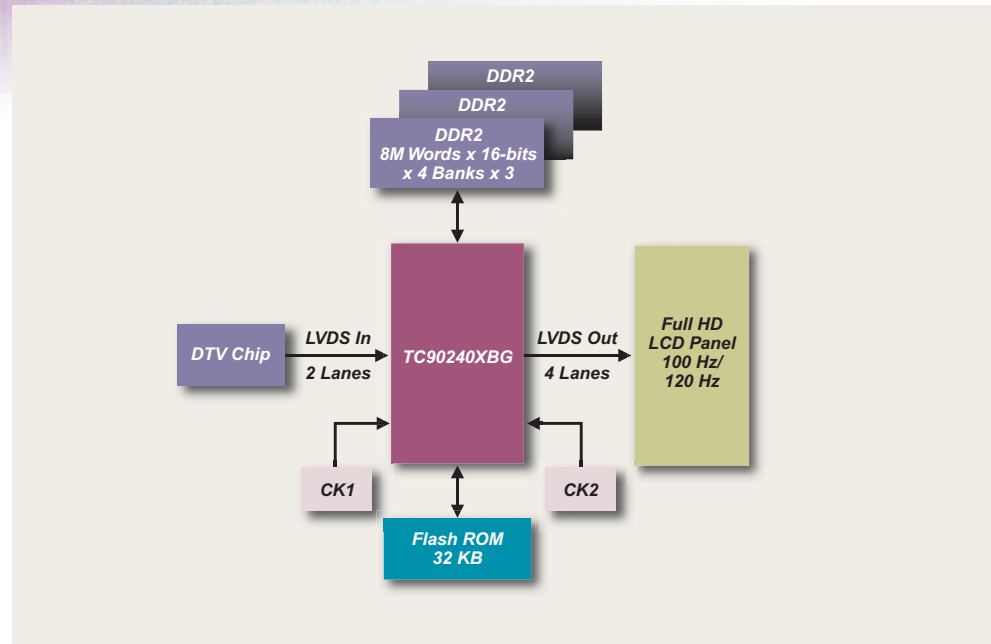
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TC90240XBG System Block Diagram for 120 Hz Full-HD Panel



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