DESCRIPTION

The Genesis Microchip gm7010 is a highly integrated interface controller and image processing sub-system for Digital CRT applications. By integrating a 165 Mega-pixels per second (Mpps) Ultra-Reliable DVI™ receiver, HDCP (content protection), triple 10-bit precision DAC, enhanced OSD support, sync dropout protection and an analog multiplexer, the gm7010 does more than simply add digital input capabilities to a CRT application. In addition, the gm7010 also includes Genesis Microchip proprietary color management controls for color and gamma correction. An integrated analog multiplexer simplifies the design of dual input systems, selecting between analog or decoded DVI inputs. Integrated automatic format detection and measurement capabilities simplify monitor setup.

The integration of HDCP enables a secure means to receive high-definition multi-media content. The gm7010 provides additional features that are specifically designed to enhance consumer and desktop multi-media applications.

The OSD features downloadable fonts and multi-language support. OSD data may be inserted on a pixel-by-pixel basis, enabling high-resolution fonts and superior OSD menus to be created.

In summary, the gm7010 is **an optimal low cost solution enabling the quick and simple integration of a Digital DVI 1.0 compliant input with a standard multi-frequency CRT.**

FEATURES

- **Ultra-Reliable DVI™ receiver**
  - Fully DVI 1.0 compliant integrated Ultra-Reliable DVI™ receiver
  - Direct connection to all DVI 1.0 compliant TMDS transmitters
  - Supports pixel rates of 20 – 165 Mpps
  - Programmable impedance matching
  - Patented phase equalization circuitry for increased eye opening
- **DVI-HDCP 1.0 Content Protection**
  - Secure key storage mechanism
  - Enables secure link to be established between transmitting device and gm7010
- **Precision 10-bit DAC**
  - 10-bits per color
  - 37.5 ohm drive capability (75 ohm balanced)
- **Built-in sync dropout protection**
  - Automatically detects loss of sync
  - Produces sync pattern for stable OSD image when no input is connected
- **Auto Detection/Input Format Measurement**
  - Automatic input format measurement
  - No microcontroller intervention required
- **On Screen Display Controller**
  - Programmable OSD window size up to 32 x 32 characters
  - Programmable characters
  - 16 colors from a palette of 4096
  - Optional external OSD data insertion path for greater flexibility
- **Integrated Analog Mux**
  - Enables selection between analog RGB input or decoded DVI 1.0 signal.
- **Simplicity of design speeds time to market**
  - Single chip Ultra-Reliable DVI™ receiver and high quality DAC solution
  - No external memory required
  - Four wire and I^2C interface for easy connection to external microcontrollers
  - All of the required on-chip clocks generated by a single external reference 14.318 MHz oscillator
  - Proprietary color management controls
  - Programmable gamma correction
  - Stand-alone mode – internal test pattern generates image for monitor burn-in and testing
  - Power management support

PACKAGE

- 208-pin PQFP

APPLICATIONS

- Multi-frequency Digital CRT monitors
- Digital TVs and Set-top boxes

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Figure 1: gm7010 Functional Block Diagram

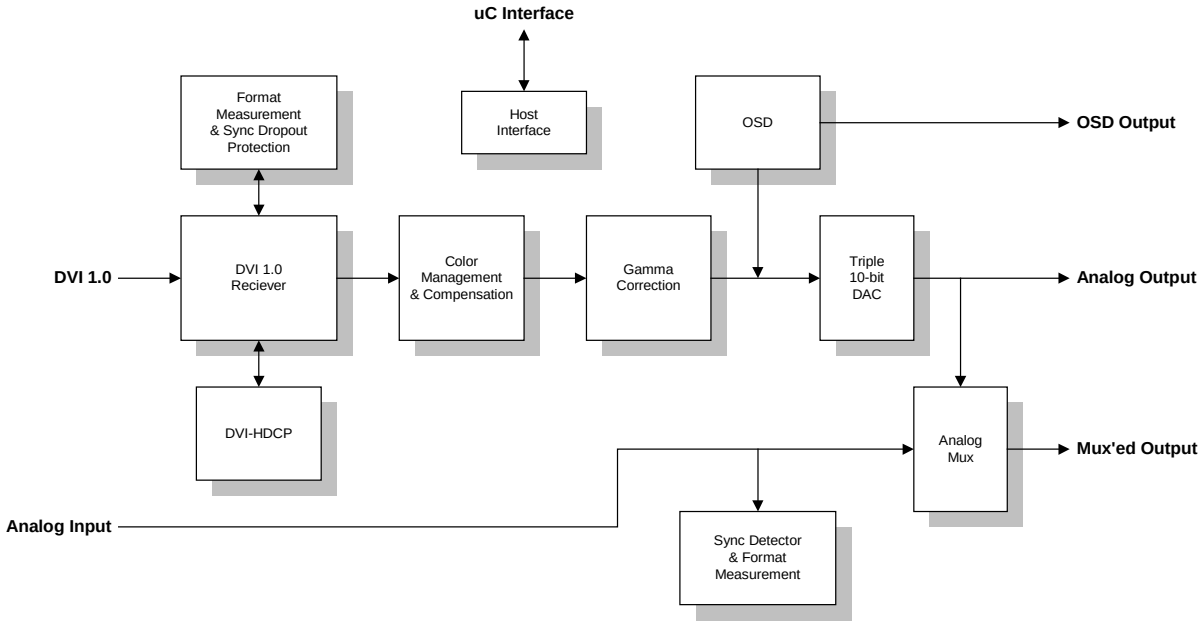

Figure 2: gm7010-Based System Design Example