The gm3110 device is an all-in-one image processor targeted on LCD monitors with resolutions up to XGA (1024x768). The gm3110 leverages Genesis patented advanced image-processing technology as well a Genesis proprietary Ultra-Reliable DVI-compliant digital receiver to provide excellent image quality. In addition, an integrated microcontroller is provided. These features provide a very simple and cost-effective solution for high-end, digital interface LCD monitors.

FEATURES

- Zoom (from VGA) and shrink (from UXGA) scaling
- Integrated Ultra-Reliable DVI 1.0-compliant receiver
- High-Bandwidth Digital Content Protection (HDCP)
- Embedded microcontroller with parallel ROM interface
- On-chip versatile OSD engine
- All system clocks synthesized from a single external crystal
- Programmable gamma correction (CLUT)
- RealColor controls provide sRGB compliance
- PWM back light intensity control
- 5-Volt tolerant inputs
- Low EMI and power saving features

- **High-Quality Advanced Scaling**
  - Fully programmable zoom ratios
  - High-quality shrink capability from UXGA resolution
  - RealRecovery function provides full color recovery image for refresh rates higher than those supported by the LCD panel
  - Moire cancellation

- **Ultra-Reliable DVI Compliant Input Port**
  - Operating up to 165 MHz (up to UXGA 60Hz)
  - Direct connect to all DVI compliant digital transmitters
  - High-bandwidth Digital Content Protection (HDCP)

- **RealColor Technology**
  - Digital brightness and contrast controls
  - TV color controls including hue and saturation controls
  - Flesh-tone adjustment
  - Full color matrix allows end-users to experience the same colors as viewed on CRTs and other displays (e.g. sRGB compliance)

- **On-chip OSD Controller**
  - On-chip RAM for downloadable menus
  - 1, 2 and 4-bit per pixel character cells
  - Horizontal and vertical stretch of OSD menus
  - Blinking, transparency and blending

- **On-chip Microcontroller**
  - Requires no external microcontroller
  - External parallel ROM interface allows firmware customization with little additional cost
  - 21 general-purpose inputs/outputs (GPIOs) available for managing system devices (keypad, back light, NVRAM, etc)
  - Industry-standard firmware embedded on-chip, requires no external ROM (configuration settings stored in NVRAM)

- **Output Format**
  - Single / double wide up to XGA 75Hz output
  - Support for 8 or 6-bit panels (with high-quality dithering)

- **Highly Integrated System-on-a-Chip Reduces Component Count for *Highly Cost Effective Solution***

- ***Stand-alone* operation requires No external ROM and no firmware development for *Fast Time to Market***

- **Pin and register-compatible LCD controller family includes:**
  - gm5110/gm5120 Dual-Interface XGA/SXGA
  - gm3110/gm3120 Digital-Interface XGA/SXGA
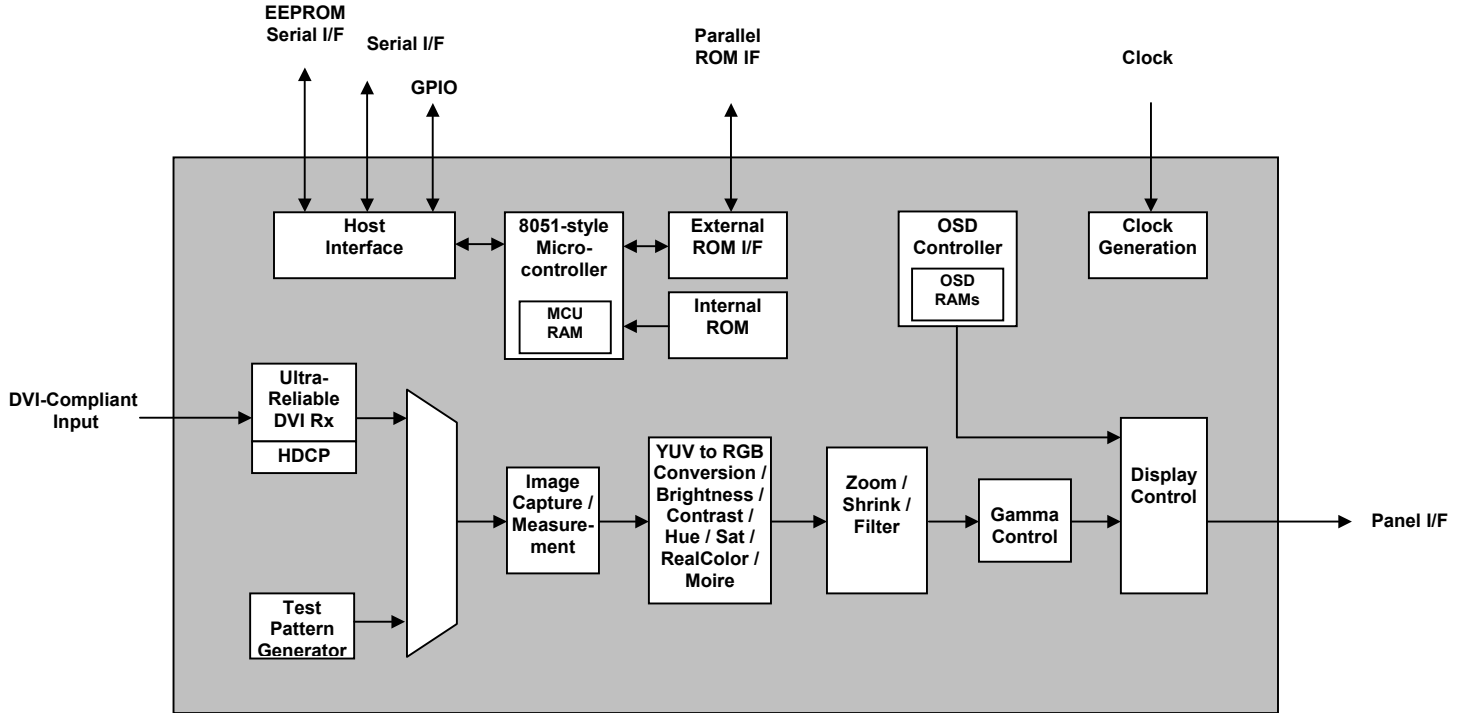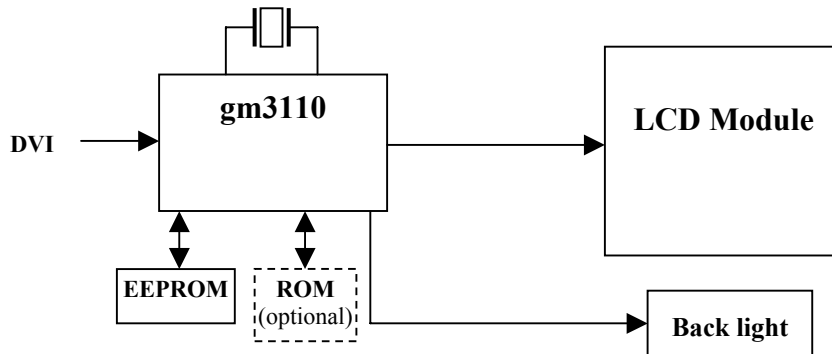 - gm2110/gm2120 Analog-Interface XGA/SXGA

PACKAGE

- 208-pin PQFP

gm3110 Functional Block Diagram

gm3110 LCD Monitor Design Example