



# VX1136/38

## HIGH QUALITY PROGRESSIVE VIDEO PROCESSOR AND TIMING CONTROLLER

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Headquarters  
Room B7,1F, No.1, Li-Hsin Rd. I, Science  
Based Industrial Park, HsinChu 300, Taiwan,  
R.O.C.  
Tel : 886-3-5630888  
Fax: 886-3-5630889

VXIS Technology Corp.  
<http://www.vxis.com>

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## 1 OVERVIEW

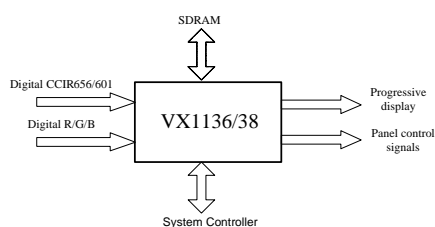
### 1.1 DESCRIPTION

VX1136/38 is a progressive video processor IC, consists of video processor, 3-D deinterlacer, picture enhancement engine, the scaling engine specially designed for video apps, T-con for LCD panel timing control. It receives digitized 24-bit RGB, interlaced video stream (BT. 656 or bt. 601) or progressive 8-bit BT656 signal from video decoder or MPEG video decoder. VX1136/38 can perform high quality picture enhancement such as video noise reduction, sharpening, black-level extension, and Gamma correction, and converts it into non-interlaced formats for direct display on progressive devices, such as LCD displays, DTV, projectors, or PC monitors. Its output resolution covers 320x240, 640x480, 720x480 800x480, 800x600, 1024x768, 1280x720, 1280x1024, 1600x1200, 1920x1080. VX1136/38 provides theater quality progressive scan video with VXIS's innovated Motion Adaptive-3D Deinterlace Algorithm, 3-2 pull down with automatic film mode detection, Edge Preserving Pixel Interpolation, frame-rate conversion,

synchronization regeneration, and automatic source mode detection. The font-based on-screen-display (OSD), and universal programmable timing control makes it become a highly integrated, most cost-efficient LCD video processor.

### 1.2 APPLICATION

- Portable DVD
- Car TV
- Small/middle size LCD TV
- Photo frame
- Surveillance
- Multimedia panel



**Figure 1.1 Interface for VX1136/38**

### 1.3 FEATURES

- Support Various Digital Video Input Formats
  - 24/18/16-Bit RGB + Horizontal Sync + Vertical Sync
  - 8-bit interlace ITU-R BT.656
  - 8-bit progressive 656
  - 8-Bit ITU-R BT.601 + Horizontal Sync + Vertical Sync
  - Bayer format CMOS Image Sensor input, up to 1280x1024
- Support Various Digital Video Output Formats
  - 24/18/16-Bit RGB + Horizontal Sync + Vertical Sync
  - 24/18/16-Bit 4:4:4 YUV + Horizontal Sync + Vertical Sync
  - 16-Bit 4:2:2 YUV + Horizontal Sync + Vertical Sync
  - 8-bit YUV progressive BT.656
- Frame rate up-conversion to 30 or 60 Hz for NTSC
- Frame rate up-conversion to 25/30 or 50/60 Hz for PAL & SECAM
- 2D(VX1136) or Motion-Adaptive 3D(with SDRAM)(VX1138) Deinterlace
- Edge-Preserving Pixel Interpolation
- Automatic Video Source(NTSC/PAL) Detection
- Embedded Scaling Engine (Relács), Supporting Output Resolution 320x240, 640x480, 720x480, 800x480, 800x600, 1024x768, 1280x720, 1280x1024, 1600x1200, 1920x1080
- Programmable Zoom/Shrink Scale with Anamorphic / Panoramic /4:3 / 16:9 Zoom Support
- Brightness, Contrast, Saturation, and Hue Adjustment
- Color Transient Improvement, Adaptive Black-Level Extension, Skin Tone Enhancement.
- Video Noise Reduction
- Frequency Directive Picture Sharpening
- 3-Channel 10-Bit Build-In Color gamma Look-Up Table for Video Fine-Tune
- Host Interface Compatible with Two-Wire IIC, Serial Interface
- OSD with 128 Build-in and 64 Programmable Font and Attribute Table, 16 Colors at same Time from 16,777,216-Color Template, Blinking, and Blending
- R/G/B output port swap & rotation control
- 8 pins of programmable panel timing control signals
- One 20 MHz crystal, or from digital R/G/B,CCIR input clock
- 1.8V / 3.3V power supply with 5V tolerant digital I/O
- 128 pin LQFP

**1.4 BLOCK DIAGRAM**
**1.4.1 BLOCK DIAGRAM OF VX1136/38**
