



## RISC VIDEO/SOUND OUTPUT INTERFACE

### FEATURES

- Pixel rate selectable as 8, 12, 16 or 24 MHz
- Serializes data to 1-, 2-, 4- or 8-bits per pixel
- 16 x 13-bit words - 4096 color look-up palette
- Three 4-bit DACs (one for each CRT gun)
- Fully programmable screen parameters
- Screen border in any of the 4096 possible colors
- Flexible cursor sprite
- Support for interlaced display format
- External synchronization capability
- Very high resolution monochrome mode support
- High quality stereo sound generation

### DESCRIPTION

The Video Controller (VIDC) accepts video data from DRAM under DMA control, serializes and passes it through a color look-up palette, and converts it to analog signals for driving the CRT guns. The chip also controls all the display timing parameters plus the position and pattern of the cursor sprite. In addition, the VIDC includes an exponential DAC and stereo image table for the generation of high-quality sound from data in the DRAM.

The VIDC requests data from the RAM when required, and buffers it in one of three first-in, first-out memories (FIFOs). Note that the addressing of the data in RAM is controlled elsewhere in the system (usually in the VY86C110 Memory Controller, MEMC). Data is requested in blocks of four 32-bit words, allowing efficient use of page-mode DRAM without locking up the system data bus for long periods.

The VIDC is a highly-programmable device, offering a wide choice of display

formats. The pixel rate can be selected in a range between 8 and 24 MHz and the data can be serialized to either 8-, 4-, 2-, or 1-bit per pixel. The horizontal timing parameters can be controlled to units of 2 pixels, and the vertical timing parameters can be controlled in units of a raster. The color look-up palette which drives the three on-chip DACs is 13 bits wide, offering a choice from 4096 colors or an external video source.

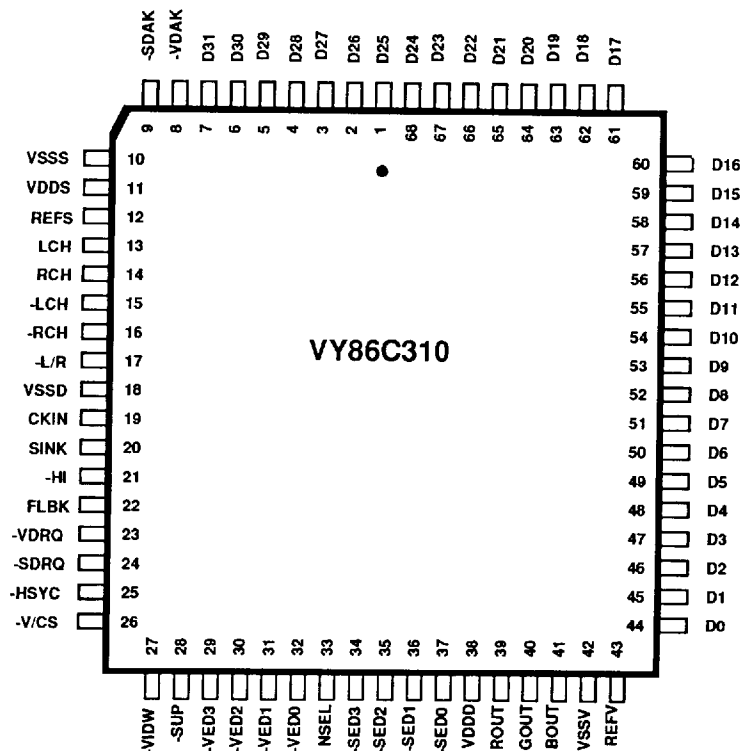
Extensive use is made of pipelining throughout the device.

The cursor sprite is 32 pixels wide, and any number of rasters high. Three simultaneous colors (from 4096 possible) are supported, and any pixel can be defined as transparent, making possible cursors of many shapes. The cursor can be positioned anywhere on the screen.

The sound system implemented on the device can support up to eight channels, each with a separate stereo position.

### PIN DIAGRAM

Plastic Leaded Chip Carrier (PLCC)



### ORDERING INFORMATION

Part Number	Clock Frequency	Package
VY86C310-12QC	12 MHz	PLCC

Note: Operating temperature range is 0°C to +70°C.