2.1.3   Input/output processing

(1) Video input

The video input format is ITU-R BT.656 (8-bit Y/Cb/Cr the 4:2:2 format) and 8-bit Y/Cb/Cr which deals with the 4:2:0 format. The horizontal synchronization signal, the vertical synchronization signal and the field index can be used without using SAV and EAV. In this case, IVFLD can be used by taking with $\overline{\text{IVVSYNC}}$ or it judges a field judgment in the polarity of $\overline{\text{IVHSYNC}}$ behind the falling edge two clock of $\overline{\text{IVVSYNC}}$. It judges that an odd field is 'H' and an even field is 'L'. $\overline{\text{IVVSYNC}}$ and $\overline{\text{IVHSYNC}}$ need the high / low period more than 3 IVCLK. The video-input unit watches over the synchronization signals and detects synchronous error.

(2) Picture size conversion filter

For adapting to the bit rate of the stream, the picture size of the encoding can be changed. In addition, picture size changed with the external filter to the 4:2:0 format can be inputted directly, too.

Table 2-2. Input Video Data Arrangement

Format	Line	Data arrangement
4:2:2	Odd/even lines	Cb0, Y0, Cr0, Y1, Cb1, Y2, Cr1, Y3, Cb2, Y4, Cr2, Y5, …
4:2:0	Odd lines	Cb0, Y0, Cr0, Y1, Cb1, Y2, Cr1, Y3, Cb2, Y4, Cr2, Y5, …
	Even lines	(-), Y0, (-), Y1, (-), Y2, (-), Y3, (-), Y4, (-), Y5, …

(3) Time base corrector (TBC)

It has a frame-type TBC. It is possible to make stable encoding of the channel changing and the nonstandard video signal such as VTR. When using TBC, it needs over 64 Mbits SDRAM. The following video signals can be corrected.

Table 2-3. Correctable Video Signals

	Horizontal Sync	Vertical Sync
NTSC	1626 to 1806 IVCLK/H	246 to 278 H/V
PAL	1628 to 1828 IVCLK/H	294 to 330 H/V

Remark IVCLK: 27 MHz

(4) Noise reduction

Respectively the noise reduction of the luminance signal and the color signal can be set three levels

(5) Slicer

Slicer decodes the luminance signal to the vertical blanking data. It detects VBID, Closed Caption, and Wide Screen Signal. The host CPU can read, and stop encoding and re-write the copy control information in VBID and the Wide Screen Signal, on the host CPU interface.