

CXD1916R

The use of digital processing in communication and AV equipment is increasing, and as a result it is now possible to provide even more complex and even higher level processing and functions in this equipment. However, analog output is still required as the final output.

The CXD1916R was developed so that beautiful and attractive output of digitally processed video signals can be provided in many countries.

Since this device supports an extensive set of input and output formats, it supports usage modes that match the local conditions in most countries around the world.

Furthermore, since low power operation and miniaturization were achieved, this product can also be used in portable equipment.

- NTSC, PAL, MPAL, and 4.43 NTSC encode modes
- Built-in 3-channel 10-bit D/A converter
- Composite/YC, RGB, and YUV outputs
- Both 8-bit and 16-bit pixel input modes
- Pixel rate: 13.5 Mbps
- I²C bus*1 (400 kHz)
Supports 3-wire serial I/O.
- Closed caption encoder
- VBID and WSS encoders

*1: The purchase of Sony I²C bus products gives the purchaser rights to use I²C bus patents held by Philips when using these products in systems that meet the I²C bus standard specifications stipulated by Philips.

■ NTSC, PAL, MPAL, and 4.43 NTSC Encode Modes

The CXD1916R is a digital video encoder designed for use in digital video equipment such as set-top-boxes, video servers, and video CD players. The CXD1916R converts digital video signals expanded by an MPEG decoder, or digital video signals (ITU-R601: Y, Cb, Cr) that are supplied by other digital equipment to an NTSC or PAL composite signal, a Y/C (S video) signal, or an R/G/B or Y/U/V analog signal. It thus allows display of those digital input signals on a television. It can also convert MPAL or 4.43 NTSC composite signals and Y/C (S video) analog signals.

■ Built-in 3-channel 10-bit D/A Converter

The CXD1916R adopts a 10-bit D/A converter. It creates an analog television signal that retains the high picture quality of the digital signal by 2× oversampling of the 13.5 MHz video data and performing the D/A conversion at 27 MHz.

■ Both 8-bit and 16-bit Pixel Input Modes

The CXD1916R accepts either 16-bit Y, Cb, Cr data or 8-bit data corresponding to the ITU-R656 recommendation. It can also decode the ITU-R656 EAV code signal.

■ Closed Caption Encoder

Since July of 1993, US law has required the provision of a closed caption decoder in every television receiver with a size of 13 inches or larger. The CXD1916R can automatically encode closed caption data simply by writing it from the serial interface to an internal register. That closed caption data is then superimposed on lines 21 and 284.

■ VBID and WSS Encoders

The CXD1916R supports video ID encoding used to discriminate between aspect ratios. VBID (the CPX-1204 EIAJ provisional standard) is superimposed on lines 20 and 283 in NTSC video signals. WSS (the ETS300/294 ETSI provisional standard) is superimposed on line 23 in PAL video signals.

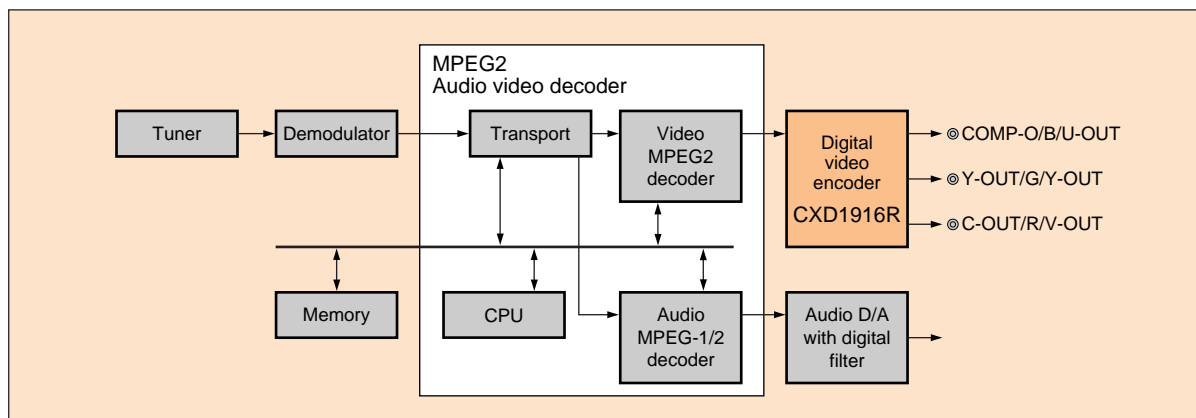
* The CXD1915R product, which incorporates copy protection functionality (Macrovision Rev. 7.1), is under development.

V O I C E

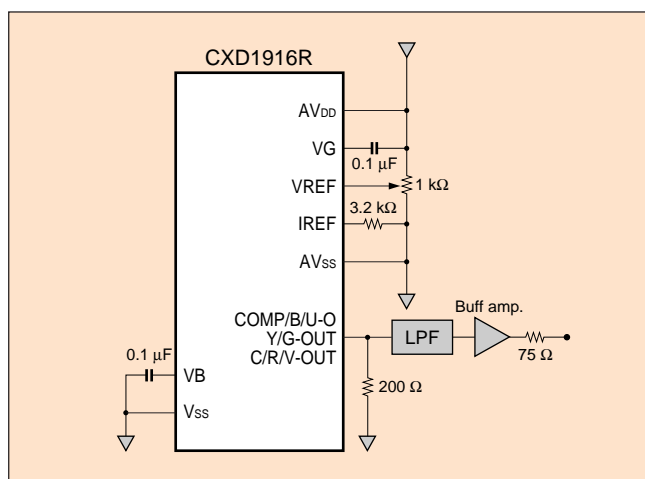
Our goals were to develop an IC that could be used in any digital product that handles video and that features further miniaturization, lower power consumption, and good generality. We are hopeful that this IC will be used extensively in the revolutionary digital products that will be appearing in the near future.



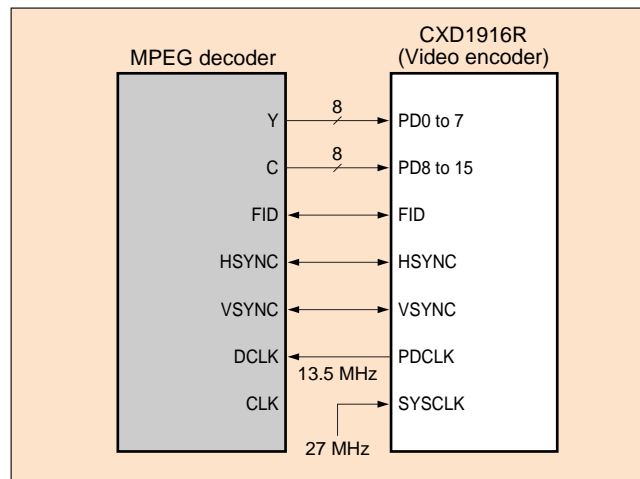
*New
Products*



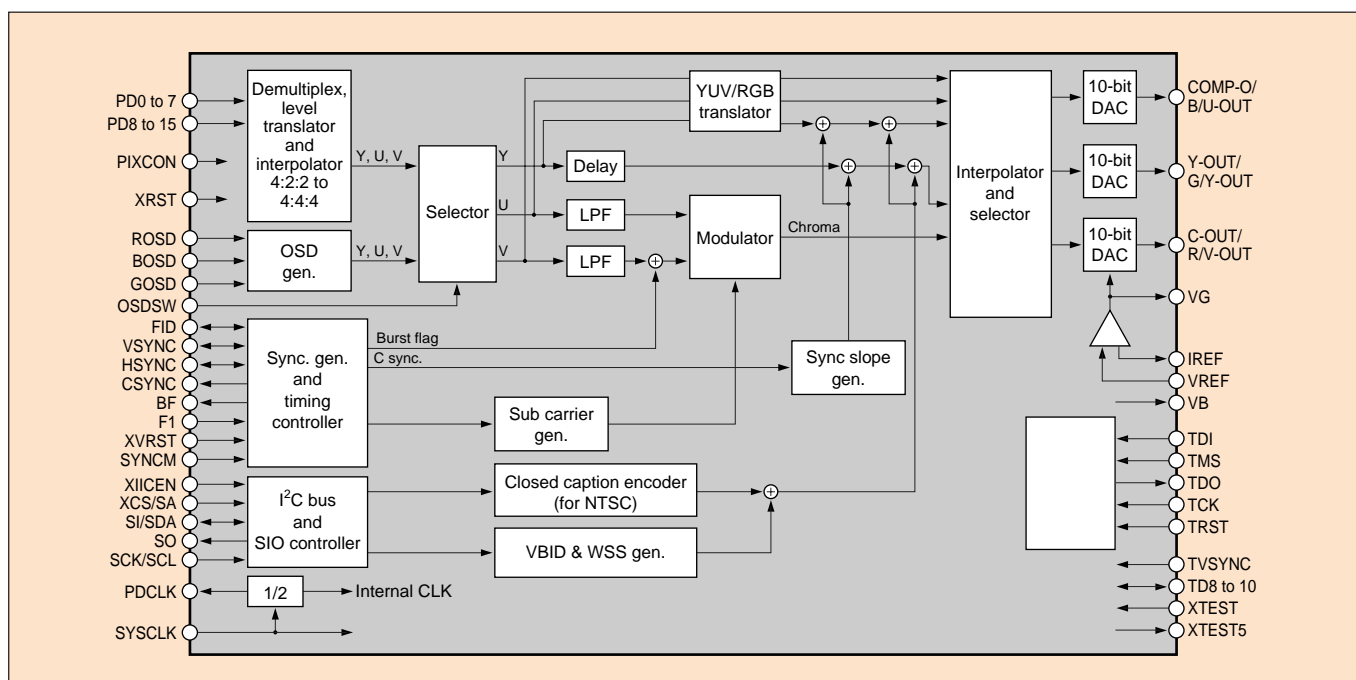
■ Figure 1 Set-top-box Block Diagram



■ Figure 2 D/A Converter Application Circuit Example



■ Figure 3 Application Circuit Example



■ Figure 4 CXD1916R Block Diagram