



## AVF 49xyA

Jan/2004



## AVF 49xyA Audio/Video Front-End

The AVF 49xyA is a fully integrated Audio-Video Front-end solution specifically well suited for DVD recorder and personal video recorder (PVR) applications. It combines the functional units of both a Multistandard Sound Processor (MSP) and a Video Pixel Decoder (VPX) and it provides the audio/video synchronization of the output signal. The AVF 49xyA comes in a PQFP128 package.

The MSP unit covers the sound processing of all analog TV standards worldwide, as well as the NICAM digital sound standards. The full TV sound processing – starting with analog sound IF signal input down to processed analog AF signal output – is performed.

The VPX unit provides the full-feature video acquisition for consumer and multimedia applications. All of the processing capability necessary to convert an analog video signal in CVBS, Y/C or YC<sub>r</sub>C<sub>b</sub> format into a digital component stream is integrated. Additionally, text slicing for Intercast, Teletext, and Closed Caption is provided. For improved Y/C separation, an adaptive 4H comb filter is included.

### General Features

- ◆ I<sup>2</sup>C interface with different device addresses for using two AVF 49xyA in one system
- ◆ Audio / video synchronization either in Master or Slave mode
- ◆ PQFP128-2 package

### Video Features

- ◆ High-performance adaptive 4H comb filter Y/C separator with adjustable vertical peaking
- ◆ Multistandard color decoding:
  - NTSC-M, NTSC-443
  - PAL-BDGI, PAL-M, PAL-N, PAL-60
  - SECAM, S-VHS
- ◆ Video ADCs with clamping and automatic gain control (AGC)
- ◆ Seven analog inputs with integrated selector for the following sources:
  - 4×composite video (CVBS), or
  - 2×CVBS and 2×Y/C (S-VHS), or
  - 2×CVBS, 1×Y/C and 1×YP<sub>r</sub>P<sub>b</sub>
- ◆ Decoding and detection of full Macrovision 7.01 protected video

- ◆ Dual-window cropping and scaling
- ◆ Horizontal resizing between 32 and 864 pixels/line
- ◆ High-quality anti-aliasing filter
- ◆ Scaling controlled peaking and coring
- ◆ Digital YC<sub>r</sub>C<sub>b</sub> 4:2:2 format
- ◆ ITU-R 601/656 compliant output format
- ◆ Square pixel format (640/768 pixels/line)
- ◆ 8-bit or 16-bit synchronous output mode
- ◆ 13.5 MHz/16-bit and 27 MHz/8-bit output rate
- ◆ VBI bypass and raw ADC data output
- ◆ High-performance hardware data slicing
- ◆ Multistandard data slicer
  - NABTS, WST
  - CAPTION (1×, 2×), CGMS, VPS, WSS, Antiope
- ◆ Full support for
  - Teletext, Intercast
  - WebTV for Windows, EPG services
- ◆ VBI and Full-field mode
- ◆ Data insertion into video stream
- ◆ Simultaneous acquisition of Teletext, VPS, WSS, and Caption

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## Audio Features

- ◆ Standard selection with single I<sup>2</sup>C transmission
- ◆ Automatic standard detection of terrestrial TV standards
- ◆ Automatic sound selection (mono/stereo/bilingual), new registers MODUS, STATUS
- ◆ Sound IF (SIF) input
- ◆ Automatic-carrier-mute function
- ◆ Interrupt output programmable (indicating status change)
- ◆ Main/Aux channel with volume
- ◆ Automatic volume correction (AVC)
- ◆ Two channel mixer
- ◆ Selectable preemphasis for Aux channel
- ◆ Four stereo Line inputs, two stereo Line outputs
- ◆ Complete Line in/out switching matrix
- ◆ Two 48-kHz I<sup>2</sup>S inputs; one asynchronous 5 ... 50-kHz I<sup>2</sup>S input, one asynchronous I<sup>2</sup>S output
- ◆ All analog Mono sound carriers including AM-SECAM
- ◆ All analog FM-Stereo A2 and satellite standards
- ◆ All NICAM standards
- ◆ Simultaneous demodulation of (very) high-deviation FM-Mono and NICAM
- ◆ Demodulation of the BTSC multiplex signal and the SAP channel
- ◆ Alignment-free digital DBX noise reduction for BTSC Stereo and SAP
- ◆ BTSC stereo and EIA-J separation significantly better than spec.
- ◆ SAP and stereo detection for BTSC
- ◆ Korean FM-Stereo A2 standard
- ◆ Alignment-free Japanese standard EIA-J
- ◆ Demodulation of the FM-Radio multiplex signal

## System Application

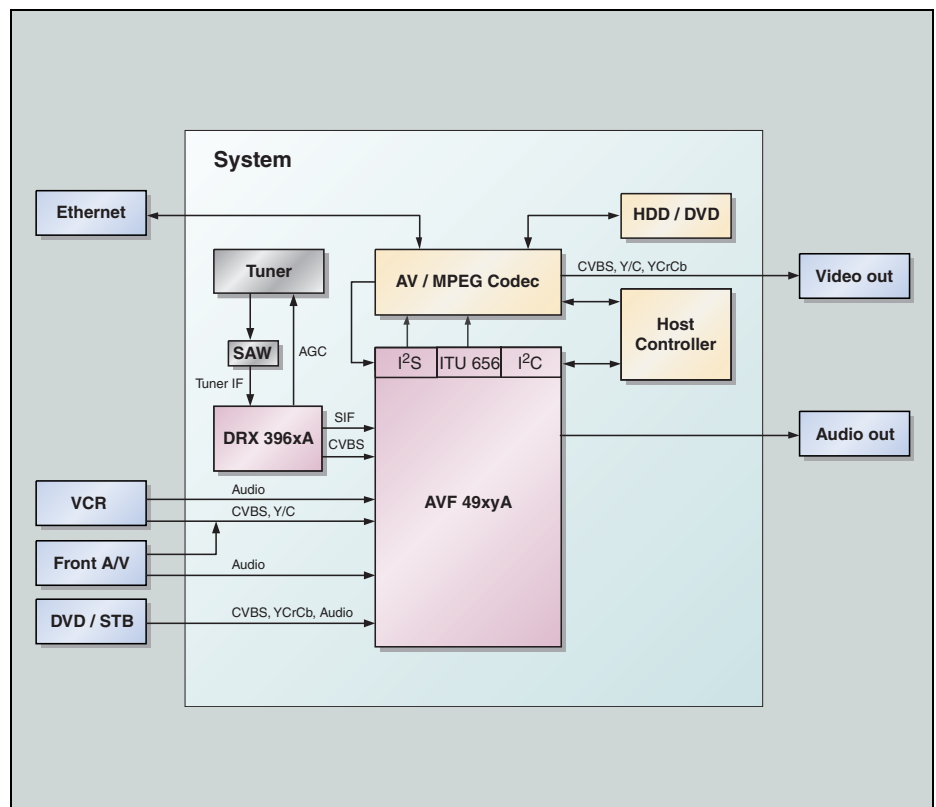


Fig. 1: Digital video recorder system with the AVF 49xyA

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