ANALOG DEVICES

12-Bit, 170 MHz, Video and Graphics Digitizer with Quad HDMI 1.3 Receiver

ADV7604

FEATURES

Three 12-bit ADCs
ADC sampling rates up to 170 MHz
12-channel analog input mux
525i/625i component analog input
525p/625p component progressive scan support
720p/1080i/1080p/1250i component HDTV support
Digitizes RGB graphics up to 1600 × 1200 at 60 Hz (UXGA)
VBI data slicer (including teletext)
Simultaneous HDMI and analog video sync processing
Ultralow jitter digital PLL
Quad HDMI Rx
  4:1 multiplexed HDMI receiver
  HDMI 1.3, DVI 1.0
  225 MHz HDMI receiver
  Repeater support
  High-bandwidth digital content protection (HDCP 1.3)
  36-/30-/24-bit deep color support
  HDMI 1.3-compatible audio interface (I2S, DSD, DST,
  Dolby® TrueHD, DTS®-HD master audio, and DTS-HD high
  resolution audio)
  Programmable/adaptive equalizer for cable lengths up to
    30 meters
  Internal EDID RAM
  EDID with HDMI cable power support
  CEC support
General
  S/PDIF (IEC90658-compatible) digital audio output
  Highly flexible output interface
  12-bit 4:4:4/8-bit 4:2:2 DDR pixel output interface
  Dual STDI function support standard identification
  2 any-to-any 3 × 3 color space conversion matrixes
  2 programmable interrupt request output pins
  Advanced sync processing for robust sync extraction of
    poor video sources
  AV.Link support

APPLICATIONS

Advanced TV
  PDP HDTVs
  LCD TVs (HDTV ready)
  LCD/DLP® rear projection HDTVs
  CRT HDTVs
  LCoS™ HDTVs

AVR video receivers
LCD/DLP front projectors
HDTV STBs with PVR
CRT HDTVs
DVD recorders with progressive scan input support

GENERAL DESCRIPTION

The ADV7604 is a high quality, single chip, multiformat video decoder, graphics digitizer with an integrated 4:1 multiplexed High-Definition Multimedia Interface (HDMI™) receiver.

The ADV7604 contains one main component processor (CP) that processes YPrPb and RGB component formats, including RGB graphics. The CP also processes the video signals from the HDMI receiver. The ADV7604 can operate in quad HDMI and analog input mode, thus providing simultaneous HDMI and analog video sync processing. This allows for fast switching between HDMI and the ADCs.

The ADV7604 supports the decoding of a component RGB/ YPrPb video signal into a digital YCrCb or RGB pixel output stream. The support for component video includes 525i, 625i, 525p, 625p, 720p, 1080i, 1080p, and 1250i standards as well as many other HD and SMPTE standards.

Graphics digitization is also supported by the ADV7604. The ADV7604 is capable of digitizing RGB graphics signals from VGA to UXGA rates and converting them into a digital RGB or YCrCb pixel output stream.

The ADV7604 incorporates a quad input HDMI 1.3-compatible receiver that supports all HDTV formats up to 1080p and display resolutions up to UXGA (1600 × 1200 at 60 Hz). The reception of encrypted video is possible with the inclusion of HDCP. The HDMI receiver also includes programmable/adaptive equalization that ensures robust operation of the interface with cable lengths up to 30 meters. The HDMI receiver has advanced audio functionality, such as a mute controller that prevents audible extraneous noise in the audio output.

Fabricated in an advanced CMOS process, the ADV7604 is provided in a space-saving, 260-ball 15 mm × 15 mm BGA surface-mount, RoHS-compliant package and is specified over the −40°C to +70°C temperature range.

Advantiv
Advanced Television Solutions
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NSV
Precision Video
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Rev. Sp0

NOTES

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