

DesignWare IP

Video Analog Front-End

Portfolio

- ▶ SDTV Analog Front-End
- ▶ HDTV Analog Front-End
- ▶ PC-Graphics Analog Front-End

Foundries and Processes

- ▶ Available in major foundries and in a wide range of process technologies from 180nm down to 65nm

Key Applications

- ▶ Set-Top Boxes
- ▶ Digital/HDTV/SDTV
- ▶ Flat Panel Displays
- ▶ DVD-A /DV/HD-DVD/Blue-Ray players/recorders
- ▶ Video Acquisition Systems (e.g., PC-cards)
- ▶ Camcorders
- ▶ Surveillance Systems
- ▶ Infotainment
- ▶ Personal Computing
- ▶ Automotive/Car Entertainment

Today's rapidly growing Home Entertainment consumer market is driven by superior Video quality. Analog Video Front Ends play a pivotal role in this arena by providing a low power high resolution analog interface between Video devices. Synopsys DesignWare Video Analog Front-End IP delivers high quality video resolution (1080p/WUXGA) at minimal power and silicon area.

With more than 10 years of experience in developing Analog Front-End IP solutions for video applications, Synopsys offers a comprehensive portfolio of silicon-proven DesignWare Video Analog Front-End IP solutions designed to meet the requirements of specific analog video applications such as Standard Definition TV (SDTV), High Definition TV (HDTV) and PC-Graphics.

By providing designers with a broad portfolio of high-quality video Analog Front-End Synopsys enables designers to quickly integrate the IP into their SoC with significantly less risk and improved time-to-market.

The DesignWare Video Analog Front-End IP solution is optimized for high resolution HDTV and PC-Graphics applications as well as compact SDTV applications, delivering very low power dissipation, small area and support for a wide range of process technologies and foundries ranging from 180nm down to 65nm.

Technology Highlights

- ▶ The #1 provider of Video Analog Front-End (AFE)
- ▶ More than ten years expertise in designing AFE for Video Applications
- ▶ Silicon-proven, complete HDTV/PC Graphics AFE
- ▶ Full 1080p and WUXGA @60Hz video standard support
- ▶ Robust synchronism processing for perfect video image
- ▶ Leverages Synopsys' advanced data conversion technology

Application	IP Type	Video Functions	Video Resolution
Analog SDTV, Surveillance Systems	SDTV AFE	<ul style="list-style-type: none"> • 10/12-bit 27/54MSPS A-to-D conversion; • Charge pump clamping for DC restoration; • 2-bit gain control • Built in references • Single (composite), dual (S-video) and triple (component) channel versions • Testability 	Standard 27/54MSPS Analog Video
Flat panel PC-Graphics up to wide panel WUXG	PC-Graphics AFE	<ul style="list-style-type: none"> • 8/10-bit up to 235MSPS A-to-D conversion • Regulated bottom/mid-scale clamping • 7-bit offset adjustment for RGB and YPbPr inputs • 8-bit gain adjustment for all video inputs • Sync slicing and H-sync and V-sync processing and pixel clock generation • Sync-on-green separation 	SXGA UXGA WUXGA
Digital TV up to 1080p (60Hz)	HDTV AFE	<ul style="list-style-type: none"> • 10-bit up to 205MSPS A-to-D conversion • 3-bit Programmable 2nd-order anti-aliasing low-pass filtering (6MHz-125.5MHz) • Multimode clamping (7-bit calibrated, sync-tip, etc.) • External/extracted from V-sync coast • Robust full sync processing for composite sync and sync-on-green • SCART support and content protection compliant • And more... 	1080i 1080p

About DesignWare® IP

Synopsys is the leading provider of high-quality, silicon-proven interface and analog IP solutions for system-on-chip designs. Synopsys' broad IP portfolio delivers complete connectivity IP solutions consisting of controllers, PHY and verification IP for widely used protocols such as USB, PCI Express, DDR, SATA, HDMI and Ethernet. The analog IP family includes Analog-to-Digital Converters, Digital-to-Analog

Converters, Audio Codecs, Video Analog Front Ends and more. In addition, Synopsys offers SystemC transaction-level models to build virtual platforms for rapid, pre-silicon development of software. With a robust IP development methodology, extensive investment in quality and comprehensive technical support, Synopsys enables designers to accelerate time-to-market and reduce integration risk.

For more information on DesignWare IP, visit <http://www.synopsys.com/designware>



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