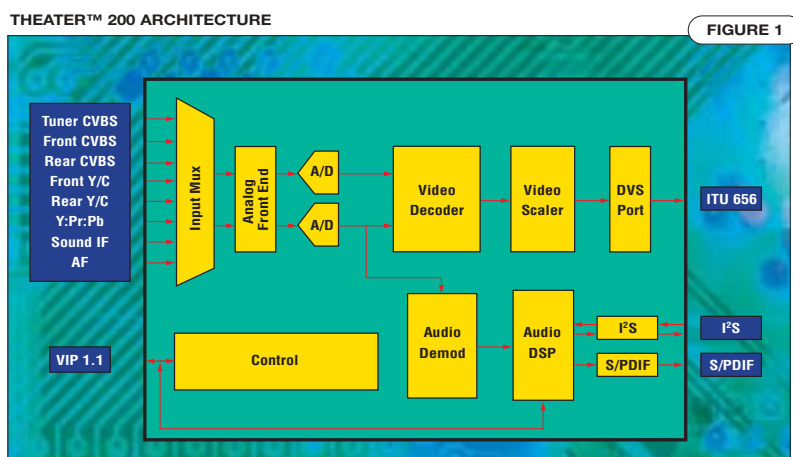
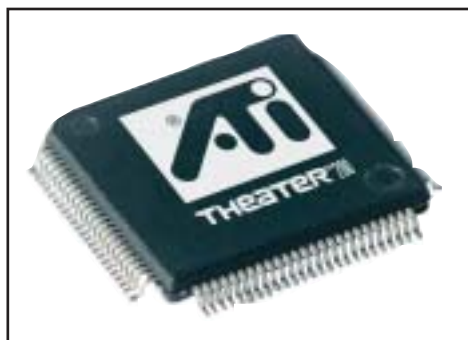




1. INTRODUCTION

THEATER™ 200 is an advanced, single chip analog video decoder and stereo audio processor and is targeted at devices requiring high quality video and audio capture such as PC TVs, Set-Top Boxes, analog PVRs, LCD TVs, and other multimedia platforms. THEATER™ 200 captures Composite, S-Video, and Component analog video signals and converts them to ITU-656 compliant digital video. It also captures Sound IF or composite audio, performs audio demodulation and stereo decoding, and outputs the decoded audio via I²S, S/PDIF, or VIP ports.



2. BENEFITS AND APPLICATIONS

The key benefits of THEATER™ 200 are:

HIGH LEVEL OF INTEGRATION

In addition to integrating the video decoder and stereo audio processor, THEATER™ 200 integrates many of the other support functions (input signal selection muxes, ADCs, anti-aliasing filters, etc) required to decode analog television signals. This high level of integration delivers high quality video and audio performance with significantly less system components allowing designers to realize a cost and space effective analog TV solution.

WORLD-WIDE STANDARDS SUPPORT

THEATER™ 200 has been designed to support the major analog television broadcast standards throughout the world. This strategy allows system designers to easily target world-wide markets with one product, a single bill of materials, and less inventory.

STANDARD INTERFACES

THEATER™ 200 incorporates industry standard interfaces on all input/output ports. As such, it can be seamlessly connected to standard TV tuners and multimedia processors such as ATI's RADEON™ or XILLEON™ 220 (Figure 2).

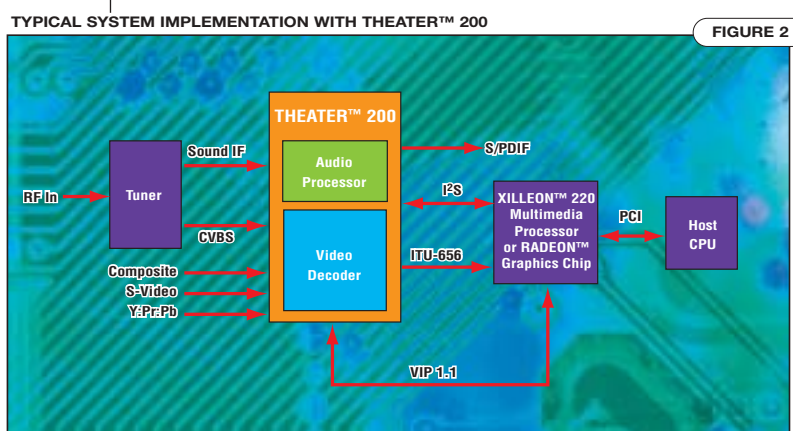
POWER SAVING MODE

THEATER™ 200 is designed so that blocks not being used can be powered down to reduce overall system power consumption.

Key Applications:

With its wide range of video input formats and digital audio ports, THEATER™ 200 delivers astounding video and audio performance and is the ideal component for a variety of multimedia applications including:

- Set-top Boxes
- PC & Internet Televisions
- Analog PVRs
- LCD TVs
- Entertainment/Home Theater PCs
- Videoconferencing
- Video Editing



3. VIDEO DECODER

DECODER INPUT

THEATER™ 200 is capable of capturing video signals from all standard video sources such as broadcast systems (tuners), high-end VCRs, and DVD players and in all transmission formats. Specifically, THEATER™ 200 supports:

- Composite, S-Video, and Component (including High Definition) video inputs
- Universal formats:
 - NTSC North America and Japan
 - PAL I, B, G, H, M, D, N
 - SECAM D, K, L, B, G

In addition, an integrated video mux allows multiple sources to be simultaneously connected to THEATER™ 200 and eliminates the OEM's need to add costly mux circuits. THEATER™ 200 can accept:

- Y:Pr:Pb Component Input and
- 5 Composite signals or
- 4 Composite and 1 S-Video signal or
- 3 Composite and 2 S-Video (Front & Rear Panel)

DECODER INTERNAL PROCESSING

The video decoder is designed to deliver superior quality, low noise digital video signals for the most demanding applications. Features of the decoder include:

- Integrated Anti-Aliasing filters
- Dual 12-bit ADCs
- Automatic Gain Control (AGC) with programmable override option
- Advanced AGC & Clamp circuitry increasing immunity to noisy input signals
- Adaptive 2D Comb Filter
- Integrated high quality horizontal and vertical downscalers
- Continuous Sharpness control
- Peak White Detector ensuring input signals with suppressed synchronization are not distorted
- Support for square pixel, ITU non-square pixel, arbitrary scaling
- VBI data capture
- Macrovision detection circuitry

DECODER OUTPUT

Once processed, the digital video is delivered to the host or to other downstream multimedia processors via an 8 or 10-bit industry standard ITU 656 interface.

4. STEREO AUDIO PROCESSOR

The THEATER™ 200 stereo audio processor demodulates and decodes the audio accompanying a TV channel to baseband left and right channels. Audio is supplied from the tuner to the THEATER™ 200 via the Sound IF or AF signals.

Like the video decoder, the stereo audio processor is multi-standard and supports major audio television broadcast standards used throughout the world, namely;

- BTSC
- Dual FM
- EIA-J
- NICAM

Additional features of the stereo audio processor include:

- 16-bit audio output
- Multiple sampling rate support
 - 32kHz, 44.1kHz, 48kHz, 96kHz
- Automatic Stereo and SAP/Second Language detection and processing
- Programmable Volume/Mute control
- Automatic Volume Control maintains constant volume even as volume of incoming signal varies

After demodulation and decoding, the audio can be delivered to the host via the VIP interface or to other system components via the I²S or S/PDIF digital audio ports.

5. AVAILABILITY

- The THEATER™ 200 comes with all required DSP software code and low level drivers for Windows® and embedded operating systems.
- The THEATER™ 200 is packaged in a 100-pin LQFP and is manufactured in .18um technology with a 1.8V core Voltage and a 3.3V I/O Voltage.
- THEATER™ 200 chip specifications, reference design schematics, and design documentation are available. Please contact your local ATI representative.



ATI TECHNOLOGIES INC.
33 Commerce Valley Drive East
Markham, Ontario, Canada L3T 7N6
Telephone: (905) 882-2600
Facsimile: (905) 882-2620
www.ati.com

ATI TECHNOLOGIES SYSTEMS CORP.
2805 Bowers Avenue
Santa Clara, CA 95051-0917
Telephone: (408) 572-6500
Facsimile: (408) 572-6305

ATI TECHNOLOGIES (EUROPE) GMBH
Kelttenring 13
D-82041 Oberhaching, Germany
Telephone: +49 89 665 15 -0
Facsimile: +49 89 665 15 -300

ATI TECHNOLOGIES (JAPAN) INC.
Kojimachi Nakata Bldg 4F
5-3 Kojimachi, Chiyoda-Ku
Tokyo 102-0083, Japan
Telephone: +81 35275-2241
Facsimile: +81 35275-2242

OFFICIAL ATI REP. AMI TECHNOLOGIES CORP.
8F, 148, Sec. 1, Hsin Sheng S. Rd.
Taipei, Taiwan, R.O.C.
Telephone: 886-2-2396-7711
Facsimile: 886-2-2351-3030

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