



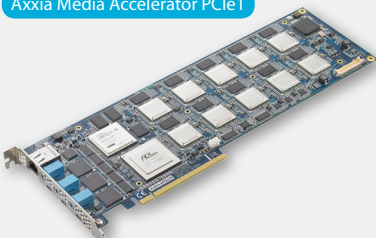
## Axxia Media Accelerator Solution

### High-Performance Media Processing Solution for the Data Center

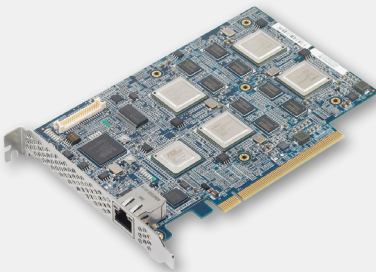
#### FEATURES

- Two PCIe boards enabling scalable solutions
- 10 SP2704 multicore DSP processors on full-length PCIe card with 60 DSP & ARM11MP cores
- 5 GB of on-board DDR3-1066 memory
- 3 HDMI 1.3 and 3 analog stereo inputs
- 1 Gigabit Ethernet port
- A complete software package for HD video, voice, and graphics applications
- A powerful Host API enables customers to focus on differentiated application development

Axxia Media Accelerator PCIe1



Axxia Media Accelerator PCIe2



#### Overview

The LSI™ Axxia Media Accelerator is a powerful and versatile PCIe solution for accelerating data center media applications. As video becomes the dominant component of IP traffic and media applications are migrating to the data center in a virtualized environment, an increasing level of media processing capability is required.

The Axxia Media Accelerator accelerates host-based media applications such as HD video transcoding & streaming, video conferencing, intelligent video surveillance, and IP-PBXs for enterprise unified communications.

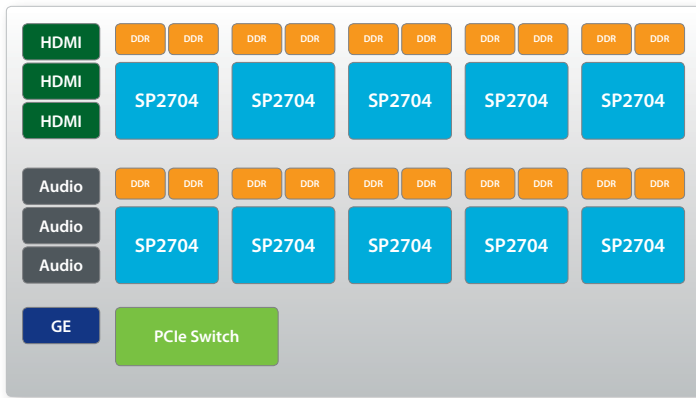
The main system components include:

- **Compute:** The Axxia Media Accelerator is based on LSI's leading multicore Digital Signal Processors (DSPs) that provide a powerful and fully programmable media platform to address the wide range of video-based and audio-based applications.
- **Media Platform Software:** The media platform software provides a robust and complete solution for running application-specific media channels. A given application will run dynamically configurable media channels, based on its specific requirements. The media platform manages all media channel activity on the DSP compute farm and is controlled by the server application via a Host API.
- **Algorithms:** Media channels are based on a wide range of media algorithms and network stacks. Algorithms include video, audio & voice compression, graphics, image processing, voice quality enhancement, tone generation and detection, and fax/data modem pumps. Network stacks include TCP/IP, UDP, and RTP streaming.
- **Hardware:** The Axxia Media Accelerator provides a scalable hardware solution with two PCIe generation-2 boards: the Axxia Media PCIe1 is a full-length PCIe board with 10 DSP subsystems, HD video, analog stereo audio inputs and a GE networking interface. The Axxia Media PCIe2 is a half-width, 4-DSP board with a GE networking interface.

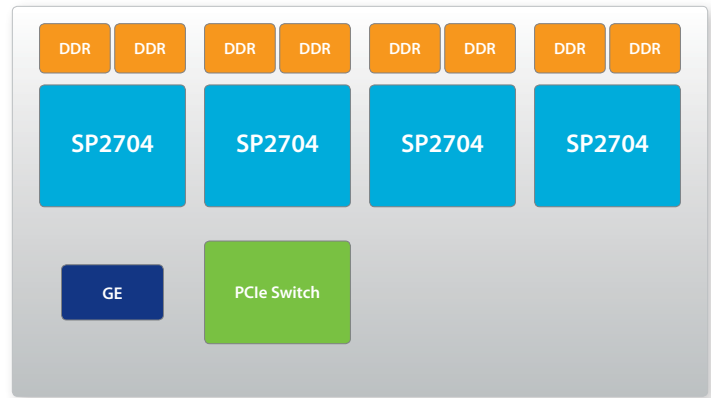
**AXXIA MEDIA ACCELERATOR HARDWARE SPECIFICATION**

ITEM	SPECIFICATION	AXXIA MEDIA PCIe1	AXXIA MEDIA PCIe2
Compute Resources	LSI multicore DSP processors, each sub-system including: <ul style="list-style-type: none"> <li>• Four DSP cores @ 750 MHz</li> <li>• A dual-core ARM11MP @ 375 MHz</li> <li>• Eight MB of shared on-chip RAM</li> <li>• Two 16-bit DDR3 devices (512 MB total)</li> </ul>	10	4
System Interconnect	PCIe switching among devices & host sRIO daisy chaining between devices	128 Gb/s 2.5 Gb/s	64 Gb/s 2.5 Gb/s
Bus Architecture	PCI Express Gen 2		
Bus Connector	PCIe lanes, I/O throughput PCIe physical connector	8 lanes, 32 Gb/s 16-lane	8 lanes, 32 Gb/s 16-lane
Network I/O	Gigabit Ethernet port	1	1
Video I/O	HDMI 1.3 inputs	3	N/A
Analog I/O	Stereo analog inputs	3	N/A
Form Factor	PCIe compliant form factors	Full length; Full height 312 mm * 111.15 mm	Half length; Full height 167.65 mm * 111.15 mm
Operating Conditions	Temperature (ambient): Storage Temperature: Air Velocity Humidity:	0°C to 50°C -20°C to 70°C 500 LFM 20% to 90% RH	0°C to 50°C -20°C to 70°C 100 LFM 20% to 90% RH

**LSI Axxia Media PCIe1**



**LSI Axxia Media PCIe2**



AXXIA MEDIA ACCELERATOR SOFTWARE SPECIFICATION	
ITEM	SPECIFICATION
Media Platform Applications	<ul style="list-style-type: none"> <li>• Video &amp; audio transcoding and streaming</li> <li>• Digital signage</li> <li>• TelePresence</li> <li>• Intelligent video surveillance</li> <li>• Unified Communications, IP-PBX, media gateway</li> <li>• Audio Conferencing</li> </ul>
Host O/S	Linux Ubuntu Server Edition or other Linux versions based on Kernel 2.6; support for 64-bit & 32-bit O/S
Host API	API to the LSI Axxia Media Accelerator's software
Video	H.264 AVC MP 1080p30, H.263++, MPEG4 SP, MPEG2 MP/HL Future: VC1, SVC HD, VP8, MJPEG
Image Processing	High quality, image resize Alpha blending
Graphics	PNG & MNG encode and decode
Audio and Voice	G.711, G.729AB, G.722, G.723.1, G.726, G.728, AAC-LD/LC, RTA, i.LBC, ISAC, GSM-FR/HR/EFR, AMR-NB /WB, EVRC-A/B/C & QCELP8/13 Audio mixer
Voice Quality Enhancement	G.168 certified ECAN, Noise Reduction, CNG, AGC
Tone Processing	Universal Tone Detection/Generation, DTMF, Tone Suppression
Encryption	AES
Data, Fax	V.34, V.32bis, V.32 T.38 Fax Relay, V.34HD, V.17, V.29, V.27ter, V.21

The Axxia Media Accelerator supports a wide range of host media applications through a Host API. The board software provides a powerful and flexible media solution, enabling customization of the on-board media platform to meet the varying and evolving needs of different host media applications.

The Axxia Media Accelerator software includes three basic parts:

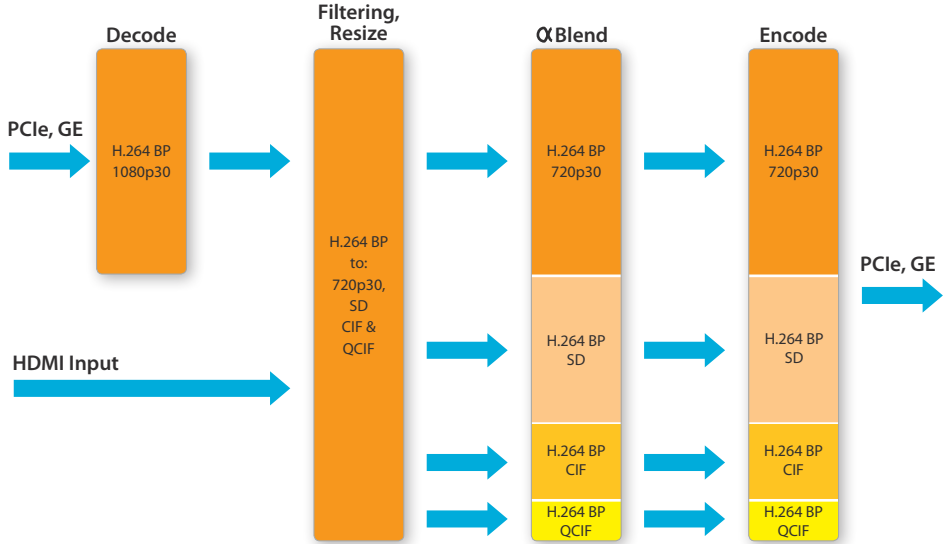
- **Host API:** The remote host application interfaces to the Axxia Media Accelerator's media platform through a well-defined Host API.
- **Media Channels:** The AXI Media software defines universal media channels that are application-specific. Media channels may be dynamically configured and run to meet current application requirements. Media channels can further be customized to meet different application needs by either modifying the channel's functionality or by adding additional components to the channel.

– For example, a transcoding media channel (TMC) will accept a compressed input from PCIe or GE, or raw video from an HDMI input. The TMC will create multiple outputs, each alpha-blended with its own graphics and compressed in a different format, resolution, and bit-rate.

– Another example would be a voice media channel (VMC) for enterprise IP-PBX applications. It would include voice transcoding, VAD, tones, ECAN, fax, modem, etc.

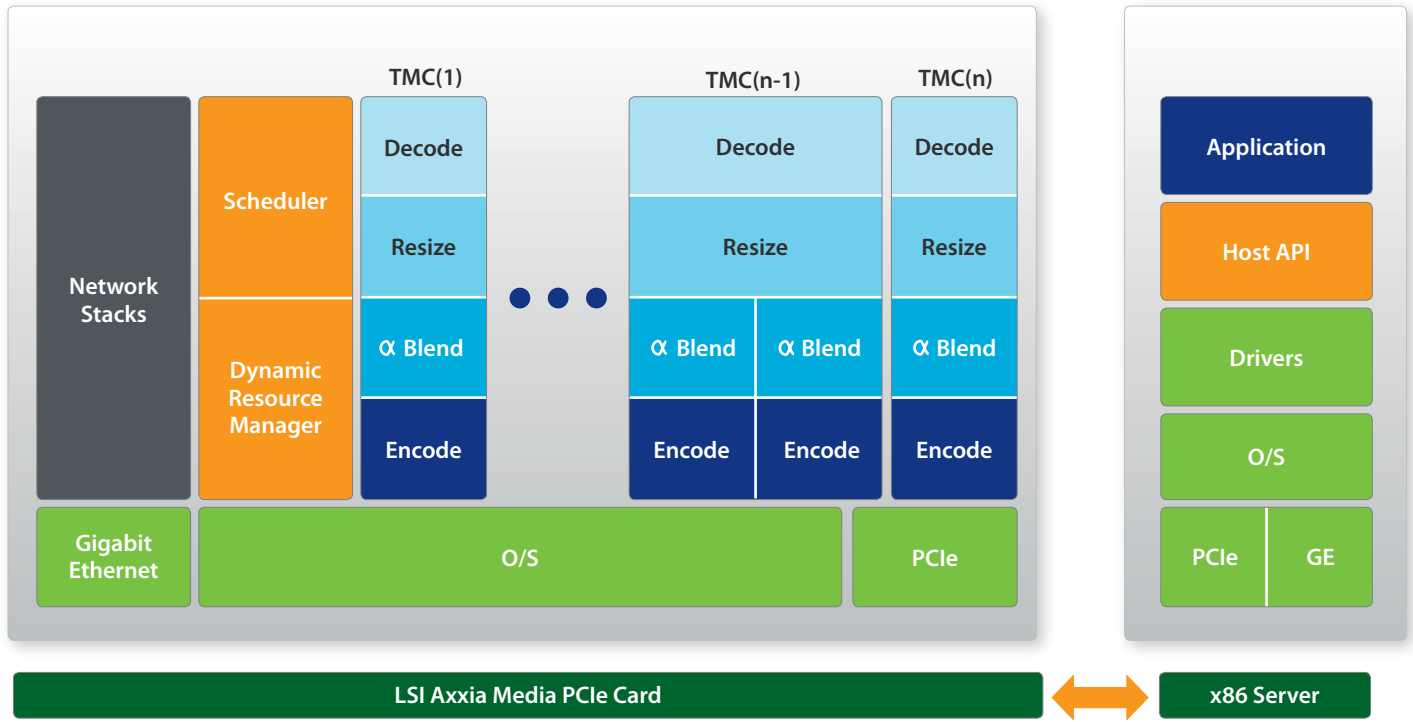
- **Media Platform:** The media platform provides the on-board framework functionality that manages the media channels. It presents a Host API to the remote host application to control and monitor the board. In addition, it manages on-board compute, memory, and I/O resources, opens and closes channels, and reports status back to the remote host.

**LSI Axxia Media Accelerator: Transcoding Media Channel (TMC) Example**



**Axxia Media Accelerator Software: Media Platform**

**Host API**



Note: Application code is developed by customer or third party; Media platform, Host API, and drivers are delivered by LSI.

For more information and sales office locations, please visit the LSI web sites at: [lsi.com](http://lsi.com)

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