Technical Article
Clove: Low-Power Video Solutions Based on Sitara™ AM57x Processors

TEXAS INSTRUMENTS

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Ittiam Systems is a global technology company with R&D driven solutions for media creation, management and consumption. They are the first in the industry to have used Sitara™ AM57x processors to create a video/multimedia solution called Clove. Clove is currently being used in multiple industries, including surveillance/security, aerospace, enterprise, medical and broadcast. Read more on why Ittiam Systems chose TI to help them create Clove.

What Is Clove?

Clove is a suite of versatile video solutions aimed at industrial, medical, defense, broadcast and enterprise markets. Offerings from Ittiam comprise of Media SDKs (adroitSDK) and System Solutions based on a compact, low-power hardware platform. Clove is aimed at fast designs, high-performance and versatility of solutions. Clove based solutions enable the following use cases.

- Simultaneous 1x1080p60 H.264 Encode/Decode + 1x1080p30 H.264/H.265 Decode
- Simultaneous 2x1080p30 H.264 Encode/Decode + 1x1080p30 H.264/H.265 Decode
- Simultaneous 1x1080p30 H.264 Encode + 1x1080p30 H.264 Decode + 1x1080p30 H.264/H.265 Decode

Typical use cases: Streaming server (encoder), digital video recorder (DVR), network video recorder (NVR), media player/client, transcoder, video mixer/switcher, multi-viewer

Key features include:

- Full-HD (1080p60) H.264 encode/decode, 1080p30 H.265/HEVC decode
- Multi-channel encode/decode
- High-fidelity audio
- Rich 2D/3D graphics
- Low-latency video streaming (50 msec glass to glass)
- Standards-compliant networking
- Wireless streaming

Are There Any Market Trends That Were Driving the Development of This Product? Were Your Customers Asking for This?

Ittiam's customers in industrial, aerospace, defense, medical, broadcast and enterprise segments have been exploring processor options that would allow them to have Full-HD (1080p60) video streaming/recording and graphics solutions while minimizing the power consumption for their products. TI's Sitara AM57x (AM5728, AM5718, AM5726 and AM5716) processors have been an excellent fit. Ittiam sensed this potential market need and proactively invested in developing Clove and worked in close collaboration with TI.

What Features of the TI Devices Were Important to Your Product (On-chip Peripherals, Low Power, Price, Performance, Etc)?

TI devices offer several features and performance advantages that have been important for realizing Ittiam's system solutions to meet end-customer needs.

- Rich set of on-chip peripherals on the embedded processors
- Processing power in terms of audio, video & graphics processing
- Low-power consumption
- Low cost
- Availability of good documentation (application notes, design guides etc.)
- Availability of samples for quick prototyping
- Technical support

What Were You Able to Do/enable with the TI Solution That You Weren't Able to Do before?

With TI's AM57x processors, we are now able to provide the following, while ensuring a low power operation:

- Full-HD (1080p60) video encoder and decoder solutions
- H.265/HEVC decode solutions by leveraging the processing power packed into the dual-core ARM® Cortex®-A15
- Rich graphics and high-fidelity audio processing capabilities while retaining the compact form factor and power footprint
- Low latency video streaming
- Media SDKs and System Software on Linux, VxWorks and Android operating systems
- Watch these solutions in action

What Are the Advantages of Sitara AM57x Processors?
- Embedded processors with on-chip peripherals reduce external components. This in turn helps in cutting back on development time, product dimensions and cost.
- Availability of many analog ICs along with embedded processors from a single vendor helps the design team by reducing dependencies on multiple vendors.
- All components are offered with good documentation, design guides and application notes, which reduces the design time.
- Evaluation modules and related design files are available for most of the major components. This helps in reuse of already tested design, reducing the design time and eliminating risk. This also helps in early testing of devices and interfaces.

- Excellent technical support (both on-line and via FAEs), including review on critical designs by qualified TI engineers.
- Free samples for many of the components, which helps in quick prototyping of hardware design.
- Lower cost of components.

To Learn More about Clove and AM57x Processors Visit the below Links:

- Learn more about AM57x processors now
- Order AM57x processors now
- Learn more about Clove
- Watch the Clove introductory video
- Download Clove brochure
- Check out other solutions from Ittiam

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