Broadcast Systems SDK for Multichannel AV Decoder

BSS-MDS-SDK

Product Brochure

- Based on H.264 / MPEG2 MPEG4, HD / SD, interlaced / progressive video on DM8169/DM8168
- Target Applications: Broadcast head-end monitoring
**Multi-Channel Decoding System**

Multimedia Blocks for Multi-Channel Decoder and Multiviewer System

- **Solution Benefits**
  - High-density audio and video decoding
  - Decoding any video resolution and configurable scaling
  - Composition of all input videos as tiles in a single screen available by user configuration
  - ISO / IEC – 13818 – Part 1 compliant input TS streams
  - Multiple input interfaces: Ethernet / ASI*
  - Multiple output interfaces: HDMI / Component Video + Stereo Audio* / 3G-SDI* / Composite Output*
  - Multiple audio – video codec support
  - Reduces time to market with complete decode system implementation on DM8169/DM8168

- **Target Platform(s)**
  - DM8169, DM8168; OS: Linux
  - Solution available on TI’s DM8168 Evaluation Module / Ittiam’s neonCaster-NPM

- **Product Suite / Offering**
  - Complete Multimedia Decoding System (MDS) with media (Video and Audio) subsystem capable of decoding of 2 channels HD / SD of H264+AAC/MPEG2+MP12 interlaced / progressive video
  - API Document and User Guide for the DM8169/DM8168 Software and the Media Subsystem Software (MSS) included in the MDS application
  - Test Plan and Test Report Documents for the DM8169/DM8168 Software
  - Modular Software Architecture enables easy porting to custom hardware board
  - Application demonstrating use cases and APIs in source form for easy integration into customer specific application
  - Optional: Custom Hardware Reference Design and Associated BSP

- **Standard Features**
  - AV decoding system with input as MPEG2/H.264/MPEG4 video and AAC/MP12 audio
  - Simultaneous decoding of up to 2 HD (1080p60) or 4 1080i30 AV channels
  - Configuration available for scaling, tiling and composition into a single video buffer
  - Sample application with user configurable parameters via WebUI

- **Advanced Features**
  - Additional channels of decoding subject to use-case feasibility*
  - Low end to end delay and fixed delay support*
  - Input video aspect ratio can be maintained at output*
  - Automatic video resolution detection*
  - Windowing support for non-standard video resolutions*
  - AC3/EAC3 decode*
  - MPTS support at input*
  - Multiple scaled outputs from single source*
  - De-Interlace*
** Technical Specifications **

** MEDIA FEATURES / FORMATS **
- System Input: MPEG2-TS SPTS / MPTS * over IP / ASI*
- System Output: HDMI / Component Video + Stereo Audio / 3G-SDI* / Composite Output*
- Video Input
  - H.264 HP, MP, BP
  - MPEG2 MP
  - MPEG4 ASP
  - 1080i60, 1080p60, 1080p30, 720p60, PAL, NTSC
- Video Output
  - Up to 1920x1080 @ 60Hz
- Audio Input
  - AC-3 / EAC-3*
  - MP12
  - AAC-LC
  - HE-AAC (ADTS)*
- Audio Output
  - Stereo, multi-channel*

** USER FEATURES **
- User configurable output video resolution
- Configurable video tile options
- Configurability to chose the channel to be rendered

** EXCEPTIONS AND ERRORS **
- Comprehensive error detection, reporting and recovery mechanism

** STANDARDS COMPLIANCE **
- MPEG2 Video Decoding: ISO/IEC 13818-2
- H.264 Video Decoding: ISO/IEC 14496-10
- MP12 Audio Decoding: MPEG-2 Audio Layer III ISO/IEC 13818-3
- AAC-LC Audio Decoding: MPEG-4 AAC-LC ISO/IEC 14496-3
- HE-AAC Audio Decoding: MPEG-4 AAC-LC ISO/IEC 14496-3
- AC3 Audio Decoding: ATSC A/52B
- MPEG2 - TS: ISO/IEC 13818 – 1
- Fully interoperable with industry standard streaming servers

** PLATFORM DETAILS **
- DM8168 Evaluation Module:
  - 1.2 GHz Cortex A8
  - 600 MHz HDVICP2.0
  - 1 GHz DSP
  - 796 MHz, 32 bits DDR3
  - EZSDK 05.03.01.15

** RELIABILITY **
- Software Development as per Ittiam Quality Management System - Product Realization Process
- Production tested and proven to work on TI’s DM8168 Evaluation Module
- Proven to work over multitude of open and closed networks
- Interoperability tested with a host of industry standard video playback systems

** ROADMAP **
- Ancillary data, meta data parsing
- Re-sampling and channel conversion for audio
- Clock recovery
- Rendering Closed Caption
- Logo / Label Insertion

* - Indicates features which are customized on the MSS offering based on customer requests
• **4 CHANNEL DECODE CONFIGURATION**
  - Simultaneous decoding of up to 4 HD (1080i60) video channels (H.264/MPEG2)
  - Simultaneous decoding of 4 stereo audio channels (MP-12/AAC-LC)
  - MPEG2-TS output format: SPTS
  - MPEG2-TS output mode: CBR/VBR

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**Example Configurations**

**BSS SDK FOR AV DECODER**

- MPEG 2 TS over GbE (UDP/IP*) or ASI*

![Diagram](image)

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**ITTIAM BROADCAST SOLUTIONS**

- Ittiam’s Broadcast Solutions for Original Equipment Manufacturers (OEMs) include high quality Codecs and production ready Software Systems for applications in Contribution, Distribution and Multiscreen Delivery. Available for licensing as integrated SDKs, together with Ittiam’s neonCaster Hardware Platform, these solutions enable OEMs to significantly shorten time to market for their products.

- **neonCaster**
  - The neonCaster Gen II Hardware Platform is a configurable and scalable platform for high performance, high density broadcast applications. With support for multi-channel HD encoding and transcoding, this platform can realize a range of applications in the broadcast market. neonCaster Gen II Platform employs a flexible multi-module architecture which can be leveraged to create differentiated, cost-effective broadcast solutions. At the core of the architecture is the Netra Processor Module (NPM) which is based on Texas Instrument’s DM816x (Netra) Processor. NPM interfaces with different I/O Boards to meet Audio/Video interface requirements of the end product. The Platform is intended to be housed in a 1 RU system.