Low Latency SDK for Live Streaming Server and Client

LL SDK – SRVR – CLNT

Product Brochure

- Best in class glass to glass video latency
- Offered as SDK and System Software
- Off-the-shelf offering, reduces time to market
- Customizable for application specific requirements
- Robust and field-proven media and application technologies
- Best-in-class performance and quality
- Also available as a turnkey solution
LL SDK FOR LIVE STREAMING SERVER/CLIENT

- **Applications and Usage Scenarios**
  - Unmanned Aerial Vehicle (UAV) Navigation
  - Remotely operated vehicle (ROV) navigation
  - Industrial robotics (remote control)
  - Screen sharing, Wireless projection
  - Cloud Gaming server and client
  - Camera monitoring, PTZ control

- **Levels of Offering**
  - LL SDK is offered in two standard forms:
    - System Software
      - User Interface(s)
      - Board Support Package
      - Use case hardened SDK
    - SDK
      - UI Plugin
      - Application framework
      - System Management
      - Device Management
      - Media processing (including media framework & media transformations)

- **SDK Contents**
  - Quality tested software
  - Standard / add-on features
  - Interface for Init and runtime configurability
  - Documentation
    - User Manuals
    - API Documents
    - Integration Guide
  - Technical Datasheets and Performance Specifications
  - Sample code, examples
  - Diagnostics, tools & scripts

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**Basic Product Features are available on most platforms. Request an evaluation package to try the SDK yourself. It comes bundled with documentation and support to get you started quickly!**
**Product Capabilities**

**LL SDK for Live Streaming Server/Client**

- **System Management Features**
  - Networking and Connectivity Management
    - Management of ports, IP addresses, link status
  - Camera Management
    - PTZ control
    - Brightness, contrast, color control
    - Video signal loss detection
  - Event Action Framework
    - Event notifications
    - Association of system events or external alarm inputs to user configurable actions
  - System Management
    - Resource monitoring
    - Software updates and version management
    - Watchdog & Self Tests
    - Product License Management
  - Persistent product configuration management
    - XML based configuration storage and update

- **Configurations & User Controls**
  - Target Latency
  - Pre/post-Processing options
    - Enable/disable de-interlacing
  - Video encode properties each channels
    - Streaming resolution
    - Compression format and bit-rate, frame rate
    - Encode GOP structure and GOP size
    - Quantization parameters (quality knob)
  - Video display properties
    - Video resolution and position
    - Video composition method (PIP, PAP)
  - Audio encode properties for each channels
    - Compression format, bit-rate, Sampling Rate
  - Audio playback properties
    - Choice of audio stream to be decoded
    - Dynamic change of audio stream to decode
  - Rate control mode: Variable bit rate (VBR), Constant Bit rate (CBR), Constrained Bit Rate (CVBR)
  - Number of metadata tracks
  - Streaming format
  - Network Parameters
    - Transmission, reception IP address and ports
    - Maximum jitter to be handled

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**Media Flow Diagram - Server**

**Media Flow Diagram - Client**

The media flow shown above is only illustrative in nature and captures the typical operations for a single channel network and live recorder. However, either a network record or a live record can run independently as well. The figure illustrates the combined data flow.

**Platforms:**

- ARM
  - TI: OMAP4, OMAP5, Jacinto J6, DM8168/9, DM8148, DM385, DM6467
  - Qualcomm: APQ8060, APQ8074
  - Freescale: iMX6
  - Intel: x86, Atom
Product Capabilities

**Media Formats and Functionality**
- Video encode and decode Resolutions
  - 1080p, 720p, D1-NTSC, D1-PAL, 4CIF, CIF, SIF, VGA, QCIF, QSIF, QVGA
  - Custom Resolutions
- Pre/post processing
  - Video resizing to standard and custom resolutions
  - Video de-interlacing
  - Video frame-rate conversion
  - Audio resampling
  - Stereo/mono conversion
  - Surround sound enhancements
- Video compression and decompression
  - H.264, MPEG-2
- Audio compression and decompression
  - HE-AAC, AAC-LC, MP3, MPEG1 layer 2
- Streaming formats
  - RTP/RTCP, MPEG2-TS
- Streaming session management
  - RTSP, SAP

**Standards Compliance**
- Video input SMPTE292M, SMPTE259M, SMPTE424M
- MPEG2 video coding as per ISO/IEC 13818-2
- H264 video coding as per ISO/IEC 14496-10
- MP3 audio coding as per ISO/IEC 13818-3
- AAC audio coding as per ISO/IEC 14496-3
- MPEG-2 TS and PS packetization of data as per ISO-IEC-13818-1-2007
- RTP packetization as per RFC3550/1
- H.264 encapsulation in RTP as per RFC 3984 (Mode 0, 1)
- AAC-LC and MPEG1 Layer2 audio encapsulation in RTP as per RFC 3640, RFC 3551
- SDP communication as per RFC 4566
- RTSP Signaling as per RFC2326

**Additional Options**
- Off the shelf products
  - Hardware and SDK / System SW
- Hardware design consultation
- Consultation on end to end system design
  - Hardware and Software
- Customization

For a chosen platform, only a subset of the product capabilities may be supported. In order to know more about the platform specific support, please request our platform specific datasheets...

**Also from ITTIAM**

- VN SDK for Live / Network Recorder
- VN SDK for Network / File Transcoder
- VN SDK for Network / File Player
- VN SDK for Live / File Streaming Server

*Request for a product brochure for these VN SDK offerings

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