

Facing DTV projects based on HbbTV 2.0.1 and Freeview Play standards? SERAPHIC and Fluendo provide you with a turnkey solution

Fluendo, the influential multimedia provider of GStreamer based solutions, has worked alongside the global leader of digital TV browser solution provider SERAPHIC, to develop a fully compliant HbbTV 2.0.1 and Freeview Play solution, through the integration of SERAPHIC's Sraf HTML5 browser HbbTV Edition and the Fluendo SDK.



Hybrid broadcast broadband TV (or "HbbTV") is a global initiative aimed at harmonizing the broadcast and broadband delivery of entertainment services to consumers, through connected TVs, set-top boxes and multiscreen devices. By leveraging existing specifications from other standards including OIPF, CEA, DVB, MPEG-DASH and W3C, HbbTV is developed to improve the video user experience for consumers by enabling innovative, interactive services over broadcast and broadband networks.

Freeview Play, the subscription-free catch-up and on-demand TV service, offers a mix of linear channels and on-demand programming, giving viewers access to content from BBC iPlayer, the ITV Hub, All 4, My5 and UKTV Play. Freeview Play is on track to becoming the next generation platform that viewers access TV!

Why Sraf HbbTV?

Sraf HbbTV is the world leading HbbTV solution, which is compliant with the latest HbbTV 2 specification.

Built on Blink based Sraf HTML5 Browser engine, Sraf HbbTV is a market-proven, platform-independent software solution that enables device manufacturers, SoC vendors, middleware providers and operators, to quickly launch or upgrade HbbTV capable devices and services with affordable cost.

Sraf HbbTV provides a flexible architecture to deliver high performance and rapid porting on various SoC platforms. Even more, it has been already preintegrated with the major DTV/STB SoCs and can be used to develop products on turnkey solutions with zero porting and integration effort. Being an advanced hybrid platform, it not only delivers the latest HbbTV compliance but also supports a wide range of popular catch-up TV services and portal services.

Sraf HbbTV solution is ready for certification on reference platforms and compliant with the latest test suite from HbbTV Association, with the industry leading Ligada Test framework.

Why Fluendo SDK?

The Fluendo SDK enables the cross platform development of multimedia playback and recording applications based on GStreamer.

Our SDK includes a complete set of tools (playback, streaming, audio/video codecs, formats, interfaces) that completely hide GStreamer's programming complexity through a clear and easy-to-use API.

The Fluendo SDK takes care of the complete multimedia pipeline, from media retrieval (downloading, streaming, file reading) all the way to rendering, including all intermediate steps like demuxing, decoding, colorspace conversions, etc., guaranteeing an optimal processing. Regardless of the origin of the file (Internet or locally stored), all major file formats (containers) and codecs are supported, even the ones related with Adaptive Bitrate Streaming technologies: MPEG-DASH, Apple HLS, Microsoft Smooth Streaming.

The Fluendo SDK is written in C and it is perfectly integrated with the Sraf HbbTV via a customized Media Adaptor. Our solution runs on the CPU, so it does not require special conditions to run on any hardware, other than compiling for the appropriate processor. However, there are a few places where special hardware can be used if available: Hardware-accelerated video decoding, video rendering and SPDIF support are some examples.



Figure 1. ZDF mediathek powered by Sraf HTML5 Browser
Copyright ZDF content: ZDF mediathek



Figure 2. Das Erste powered by Sraf HTML5 Browser
Copyright Das Erste content: Das Erste

Specification

Product Highlights

Fully functional HbbTV Application Manager Application Management Integration APIs for Broadcast Application (AIT), Broadcast Independent Application, XML AIT, Key Events, Teletext and etc CE-HTML Object Video Leverages Media -Player Adaptor as HTML5
All Adaptors and Integration APIs are Based on IPC to Avoid Additional Efforts

HbbTV 2 Highlights

- Ad Insertion
- Companion Screen
- Clear key encryption
- Encrypted Media Extension
- Media Synchronization
- TTML based Subtitle
- Web Audio

Standard Compliance

- ETSI TS 102 796 v1.1.1
- ETSI TS 102 796 v1.2.1
- ETSI TS 102 796 v1.3.1
- CEA-2014-A HbbTV
- JavaScript APIs as defined in OIPF DAE v2.3

Browser Core Features

HTML5 (Canvas, Web Storage, Web Components, WebRTC, Web Workers, Web Socket, Audio/Video Tags, ServerSent Events, Web Cryptography API, Web Animations, WebAudio, WebGL, etc.) HTML4.01 (XHTML 1.1, XHTMLBasic 1.1, XML 1.1, RSS feed, etc.) CSS3 (3D Transforms, CSS3 Animations & Transitions, CSS3 Media Queries and Selectors, CSS3 Opacity, CSS3 Outline, CSS3 Background) CSS1, CSS2.1 XHTML 1.1
Image support: GIF, JPEG, PNG, SVG
Extensions of CE-HTML profiling
New URI scheme dvb:// support TLS 1.2

JavaScript Extensions

- Application Management
- Audio/Video Component
- Audio/Video Control Object
- Companion Screen
- Capabilities C
- onfiguration and Settings
- Channel and Channel List
- Download Manager
- Download Trigger
- DRM Agent
- DSM-CC Contents Access
- DSM-CC Stream Event Listener
- Gateway Information
- HTML5 Media Elements

- Object Factory
- Parental Rating and Parental Control Programme
- Metadata
- Media Synchronization Scheduled Recording Search manager
- Scheduled Content and Hybrid Tuner TTML based Subtitle
- Video Broadcast
- Other HbbTV OIPF APIs

Supported CPUs

- ARM
- MIPS
- x86

Standard Compliance

- ROM: < 50MB (ARM Linux)
- RAM:<128MB

Documents

- Sraf HTML5 Browser Integration Guide
- Sraf HbbTV Adaptor API Specification
- Sraf HbbTV AMP Integration API Specification

Supported Formats

Video Decoders

AVC (H.264), HEVC (H.265), AV1, MPEG4 part 2, MPEG2, WMV (7, 8, 9 and VC1), Divx3, Hardware accelerated video decoder (H.264, MPEG2, MPEG4, VC1 depending on the hardware/API: DXVA2, VDPAU, VAAPI, XvBA, VDA, VT, QuickSync)

Audio Decoders

AAC/HE-AAC, AC3/EAC3, MP3, WMA (7, 8, 9, 10, Pro, Lossless and Speech), iLBC, LPCM

Streaming Protocols

MPEG-DASH, HTTP Live Streaming, RTSP Streaming, Smooth Streaming, Progressive Download

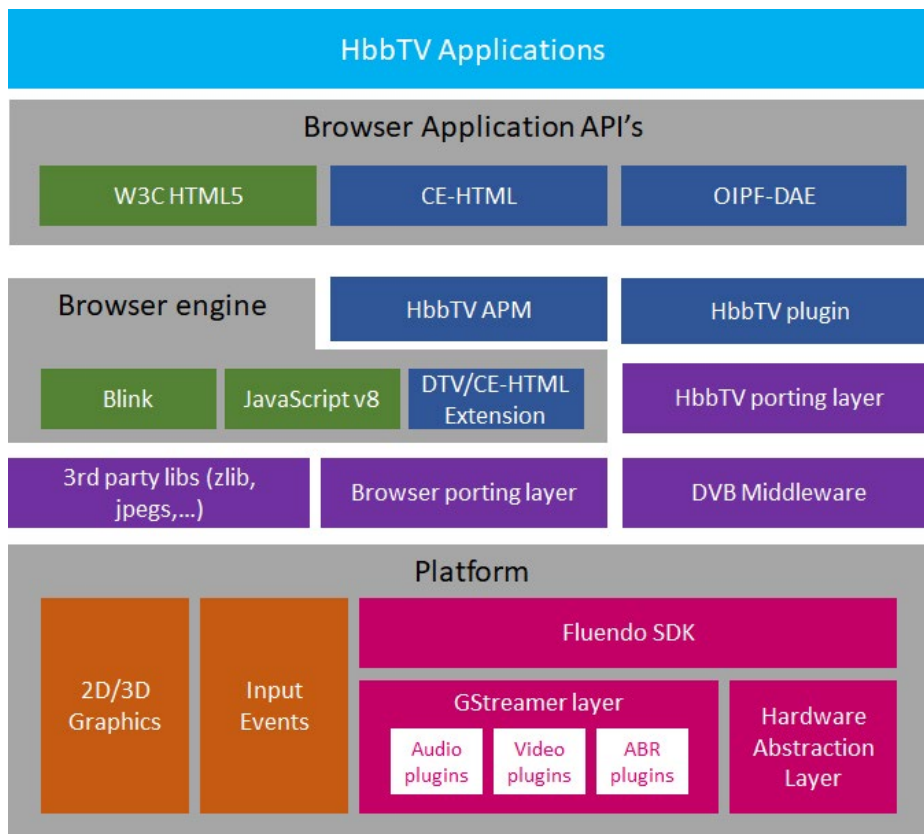


Figure 3. Sraf HTML5 Browser HbbTV Edition Module Diagram and the Fluendo SDK

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