

TVrefpak

ATSC & DCR Protocol Suite for Digital TV

TVrefpak is a suite of protocols for analog plus digital terrestrial and uni-directional digital cable ready TV sets in the US market. TVrefpak contains all the FCC mandated protocols for digital TV sets in the US market. These protocols are tied together by a user interface called the RefUIapp which provides a user interface suitable for a reference board.

All components of TVrefpak are completely portable to any real-time operating system and target silicon. They use BitRouter's kernel abstraction layer which contains approximately thirty OS calls and can be ported to a new OS with minimal effort. A hardware abstraction layer is used to port to any target silicon.

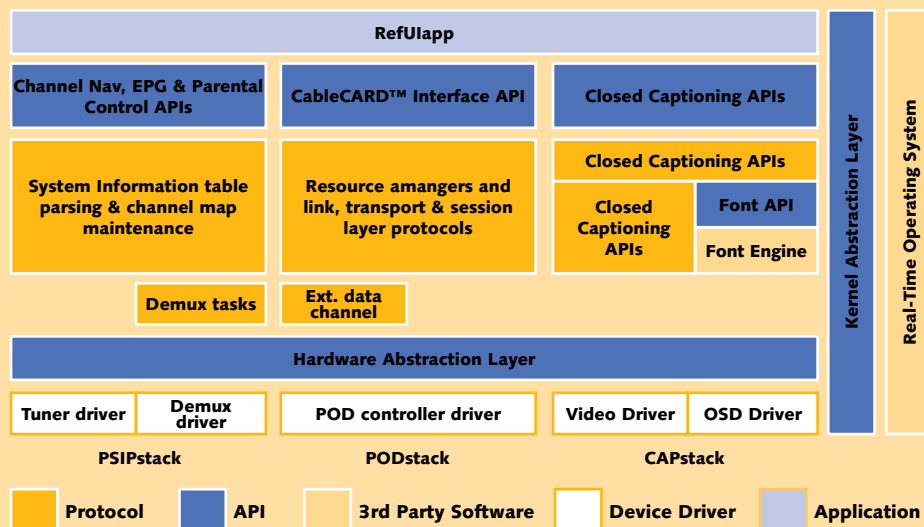
TVrefpak works with Linux and most major real-time operating systems.

TVrefpak consists of the following components:

PSIPstack	SI data parsing per ATSC PSIP A65/B for terrestrial and SCTE 65 2002 for digital cable
CAPstack	Digital closed captioning per EIA-708-B
PODstack	CableCARD™ interface stack. Implements SCTE 28 2004 and SCTE 41 2004
RefUIapp	Customizable GUI for reference boards

ARCHITECTURE

The following diagram shows the software architecture for a complete digital TV set.



RefUIapp

RefUIapp is a complete user interface for a DTV reference board. It shows the capabilities of the underlying hardware and proper functioning of all underlying protocols. Its interface is designed to allow a technical evaluation of the reference board and accompanying software.

PSIPstack

PSIPstack is BitRouter's implementation of the ATSC A/65B PSIP (Program and System Information Protocol for Terrestrial Broadcast and Cable, Rev. B) and ANSI/SCTE 65 2002 (formerly DVS 234, Service Information Delivered Out-of-Band for Digital Cable Television) protocols. It includes support for the optional ATSC Directed Channel Change table and full support for processing of SCTE 18 2002 (formerly DVS 208, Emergency Alert Message for Cable, approved as a joint standard with CEA as ANSI-J-STD-042-2002). APIs are provided to support auto programming, channel navigation, retrieval of EPG information and retrieval of private data. PSIPstack supports both analog and digital tuners and stores both analog and digital channels in its channel map. More details on PSIPstack can be found in the PSIPstack data sheet located at www.bitrouter.com/products/psipstack.htm.

PODstack

PODstack implements the CableCARD™ Interface mandated by the FCC for digital televisions as specified by ANSI/SCTE 28 2004 and amended by and SCTE 41 2004. OEM Specific functionality is isolated in a CableCARD™ Interface API for easy adaptability to individual models. The implementation is provided with a unique CableCARD™ software simulator. More details on PODstack can be found in the PODstack data sheet located at www.bitrouter.com/products/podstack.htm.

CAPstack

CAPstack implements the digital TV closed captioning standard specified by EIA-708-B and mandated by the FCC order number "FCC 00-259". It is a complete implementation of the EIA-708-B standard. CAPstack also implements analog closed captioning specified by CEA-608-B. The implementation provides a generic font API to allow any commercial font engine to be used. An API is provided to allow applications to change font and display settings as per the FCC mandate. More details on CAPstack can be found in the CAPstack data sheet located at www.bitrouter.com/products/capstack.htm.