



# DTV Stack

All the software you need for digital television.

Modern system-on-chip (SOC) designs provide highly-integrated hardware solutions for digital television. Avtrex's digital television (DTV) stack provides all the software required for a complete television solution. In addition, the DTV stack can be used in conjunction with other Avtrex software modules to provide enhanced capabilities integrated directly into the television.

## COMPLETELY CUSTOMIZABLE

Avtrex understands that every television manufacturer has unique requirements for appearance and operation of the on-screen display (OSD). The DTV Stack makes it easy to change:

- menu style: overlay, cascading, PIP, pop-up dialog, etc.
- colors, borders, and graphic elements
- fonts, wording, and languages supported
- controls for unique features

## ON-SCREEN PROGRAM INFORMATION AND GUIDE

Avtrex utilizes Program and System Information Protocol (PSIP) data available in digital programming, but this data can be augmented by external data sources to provide:

- "info button" support for on-screen display of detailed information about the currently tuned program
- full "grid" style guide and/or mini-guide with a few lines of guide information taking only minimal screen area
- continuous guide data updating with optional automatic background scan whenever a tuner is available

## PARENTAL CONTROL

Encoded program rating information ("V-chip" ratings) can be used to permit or deny access to any category of programming

- setup and override of ratings permissions is controlled by a numeric password (PIN code)
- access can also be limited to certain channels or certain times of day
- limits can be set on a child-by-child basis (coming soon)

## COMPANION MODULES

Avtrex offers additional capability modules that can be easily integrated

- digital media player: photos, music, and videos
- personal video recorder (PVR): highly featured with local or networked HDD



A picture-in-picture style menu system



A grid program guide with PIP



A 4:3 grid program guide design with different colors and themes



SOFTWARE FOR DIGITAL ENTERTAINMENT DEVICES

# Features and Specifications

## Tuning

### ATSC SUPPORT

- Complete support for the North American standard for broadcast digital television signals
- Support for two tuners to provide picture-in-picture (PIP) or 2nd channel recording

### NTSC SUPPORT

- Complete support for legacy analog broadcast signals in cases where a digital signal is unavailable
- Integrated channel map combines digital and analog channels for maximum user convenience

### QAM (DIGITAL CABLE) SUPPORT

- CableCARD allows direct connection to digital cable so no extra set top box is required (coming soon)

### CHANNEL SCAN AND CHANNEL MAP MANAGEMENT

- Additive channel scanning allows re-scanning at different times or under different atmospheric conditions to capture stations with hard-to-tune signals
- Fixed frequency scanning provides a continuous scan of a particular frequency for antenna orientation and fine-tuning
- Channel disable provides the ability to remove channels with unacceptable reception and channels that are never watched from the channel map.
- Favorite channels allows a viewer to quickly select several channels of interest and move between them easily

## Video Presentation

**SCREEN FORMAT COMPENSATION** provides an appropriate set of picture scaling options for any shape television

- 4:3 televisions provide viewer choice between letter box and zoom for widescreen programming
- 16:9 televisions provide viewer choice between pillar box, stretch, and zoom for 4:3 programming

**PICTURE-IN-PICTURE (PIP)** provides options of size, position, and number of windows

- A PIP window, showing a picture either from a second tuner or another input source, can be set in various positions and sizes to minimize interference with main-window material
- Side-by-side viewing of two shows simultaneously
- Picture-outside-picture (POP) provides a central primary video window with multiple surrounding windows; the video for these windows can come from multiple tuners or external inputs - alternatively, the windows can be sequentially updated with frames from a single tuner source

## Closed Captions

- Digital closed captions (conforming to the EIA-708B standard) are decoded and displayed when available
- Analog closed captions (conforming to the EIA-608B standard) are used if EIA-708B captions are not available
- Closed caption data can be auto-enabled on audio mute
- A preferred closed caption language can be set; captions will always be displayed in this language if available
- The screen rendition of closed captions can be controlled, including such aspects as color, background, size, and font style (all EIA-708B standard controls are offered)

## Video Control

- "Freeze screen" appears to pause the television picture and freezes the current frame (note: unlike PVR pause, when unfrozen

the program returns to the current active broadcast)

- A screen saver with a choice of patterns can be enabled to activate after a predetermined length of time
- Basic video controls include brightness, contrast, hue, saturation, and sharpness

## Audio Control

- Basic audio controls include treble, bass, and balance
- Built-in speakers can be enabled and disabled
- Any additional audio processing functionality (e.g. 3-D effects) can be controlled
- Avtrex provides optional sound effects for system functions and remote control feedback

## Clock

- The system automatically extracts a digital time signal from the ATSC stream with robust support for ignoring channels which broadcast the incorrect time
- "Sleep" function (turn off after a preset period) is included
- Multiple "alarms" can be set, automatically tuning to a channel at a preset day and time

## Input Management

Naming and selection of inputs including: composite, s-video, component, DVI/HDMI, VGA, 1394(future)

## Language Selection (OSD)

Complete Unicode support allows localization for any market

## Installation Wizard

Setup wizard creates a great out-of-box experience



SOFTWARE FOR DIGITAL ENTERTAINMENT DEVICES