



# AU8822 Product Brief

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## Single-Chip GB20600-2006 DTV + PAL ATV Demodulator

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### AU8822 Product Overview

The AU8822 is a fully GB20600-2006 compliant, high performance channel decoder supporting all analog and digital terrestrial TV broadcast modes and standards for the China market. The AU8822 is based on a unique patent protected architecture called FADE™ (fully adaptive demodulation and equalization), which enables the AU8822 to provide the “best in class” performance among all demodulators in the DTMB receiver market. The AU8822 is a high performance SOC, integrating a both DTMB and Analog TV demodulators, PAL/NTSC video decoder with 3D comb filter, an integrated high speed 12-bit ADC, programmable IF input and automatic mode detection circuit.



Based around Auvitek’s unique FADE™ Based around Auvitek’s unique FADE™ demodulation architecture, the AU8822 sets a new bar in DTMB receiver performance and builds on Auvitek’s history of high volume shipments of market leading single-carrier ATSC channel decoders. The solutions based on the AU8822 are able to experience (i) stable reception in all modes of operation, (ii) faster lock and channel change times and (iii) consistent performance across a wide range of network topologies. The inclusion of a high-quality PAL, NTSC analog TV video and audio decoder in the AU8822 makes it possible for the manufacturer to develop high-performance solutions that support legacy reception.

### AU8822 Key Features and Performance

#### Multiple Demodulation Formats

- GB20600-2006 compliant demodulator
- All Single and Multi carrier modes supported
- PAL/NTSC analog TV demodulation and A/V separation
- Modulation: 4QAM-NR, 4QAM, 16QAM, 32QAM, 64QAM
- FEC Code Rates: 0.4, 0.6 and 0.8
- Guard Interval: PN420, PN595, PN945
- Time De-Interleaver: None, 240, 720

#### Analog Video and Audio Decoder

- 3D comb filter, VBI data slicer
- Macrovision Support, color controls
- FM stereo/mono auto detection and decoding
- 3-band audio equalizer

#### Performance

- Wide dynamic range -93 to +20 dBm
- Echo Span
  - Single Carrier: -47 to +47 us
  - Multi Carrier : +/- 0.95 \* GI
- C/N ratio: <12.5 dB, 16QAM
- Fast auto channel search and detection
- Excellent multi-path performance
- Best in Class SFN performance
- Optimized for best performance in all conditions (fading, echoes, impulse noise, etc.)

#### Package & Power

- 80 pin LQFP package (10mmx10mm)
- Typ. Power: < 600 mW
- Low standby power: <20mW

## AU8822 Target Segments

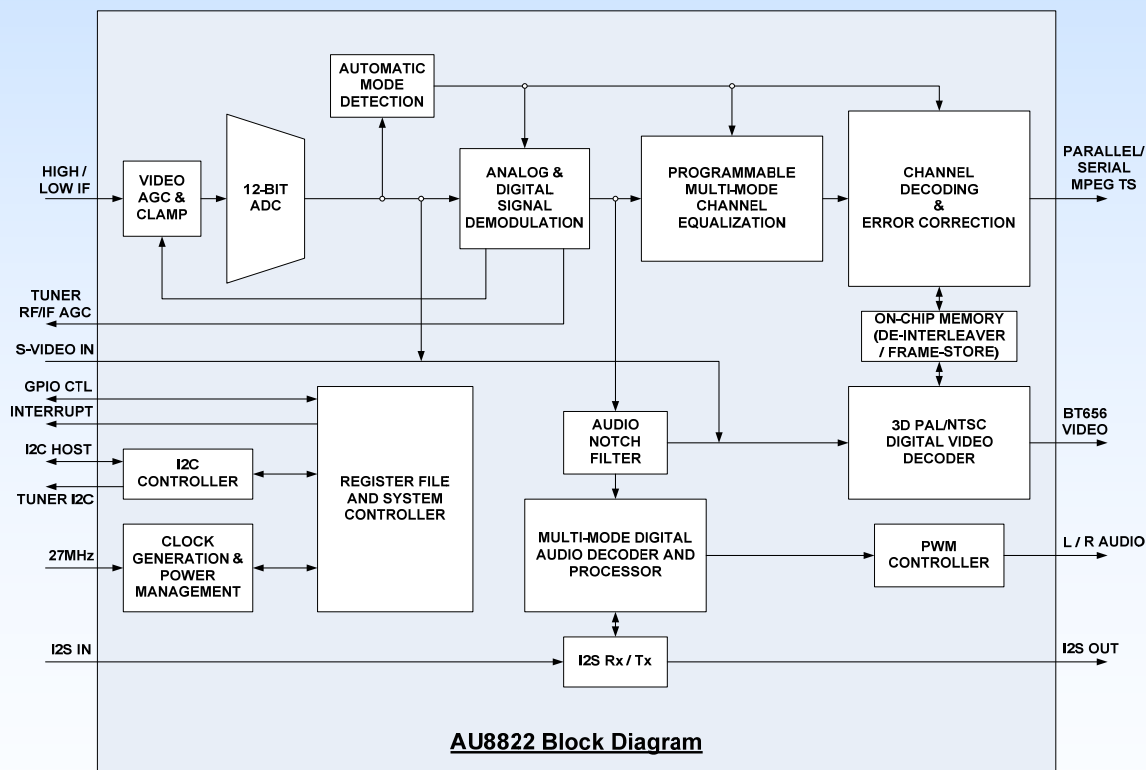
The AU8822 can be used with either a can or silicon tuner to customize solutions for different market segments. In combination with AU0828(USB controller), which ships in volume in the ATSC PCTV market, the AU882x can be used to develop a USB TV stick for the PC and Laptop market segments.

- Flat Panel HDTV's
- Set Top boxes
- DVD Players / Recorders
- PC-TV for Laptops and Desktops
- Static A/V CE devices
- Portable A/V CE devices

## Description

The AU8822 directly accepts either low or high IF inputs from either silicon or can tuner modules and is fully programmable. Both RF and IF tuner AGC outputs are precisely controlled by the AU8822 in order to maximize channel demodulation performance. For GB20600-2006 compliant formats, the AU8822 utilizes a proprietary highly segmented equalizer architecture to achieve the best possible dynamic echo cancellation performance. The channel demodulator supports all GB20600-2006 multi and single-carrier modes with no external memory required. Decoded MPEG transport streams are available in both serial and parallel formats. For analog PAL broadcasts or legacy analog inputs, the video data is decoded using an advanced 3D digital comb filter that includes color and image controls, and a complete VBI processor. Video output in BT656 format. Audio data is processed in the multi-standard decoder. Audio output is in either stereo pulse-width-modulated or I<sup>2</sup>S formats. For ease of system integration, the AU8822 also includes I<sup>2</sup>S audio inputs and I<sup>2</sup>C compatible control interface.

## Block Diagram



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