Product Bulletin

TMS320DRE310 Eureka DAB Digital Radio Solution

Key Benefits

- **Industry's lowest system cost** provided by low-cost baseband and analog parts especially for radios that include MP3/WMA CD
- **Most integrated DAB baseband** reduces cost and design time for adding features such as recording/playback, time-shifted audio, TII, FM/ensemble switching, TPEG and announcement support
- Addresses the data bit rates needed for a **Digital Multimedia Broadcast** design
- **Worldwide field and factory support** to simplify the task of digital radio design

Through the addition of new peripherals and audio features, TI presents the most highly integrated Digital Audio Broadcasting (DAB) baseband in the industry, the TMS320DRE310 DSP-based baseband. The programmability of this new solution helps receiver manufacturers and designers easily differentiate their Eureka DAB receivers, while keeping both power and cost to a minimum. The DRE310 baseband enables a variety of applications, including portable and handheld radios. It is especially well-suited for the automotive market, providing such DAB features as TPEG and announcement support, while increasing the number of audio and data bit rates supported and integrating MP3 and Windows Media Audio (WMA) CD support onto the same silicon.

The Basics – Digital Baseband and Receiver System

Figure 1 shows the architecture of the programmable TMS320DRE310 DSP-based digital baseband and total receiver solution. The ETSI 300 401-compliant DRE310 baseband performs channel and source decoding on a single chip. In addition, the digital baseband can decode all Eureka modes and perform user interface functions. The DRE310 baseband accepts a wider range of audio and data bit rates than previous TI baseband solutions. An increased audio rate of up to 384 kilobits per second (kbps) allows the system to receive the full range of digital audio signals and the supported data rates can process Digital Multimedia Broadcast (DMB) applications. TI also builds the ADC, DAC, power amplifier, and various power management devices for this application.

Beyond the Basics — Advanced Applications

The TMS320DRE310 DSP-based baseband is the first to include on-chip support for features such as record and playback from Flash

Figure 1. Eureka DAB Digital Radio Solution

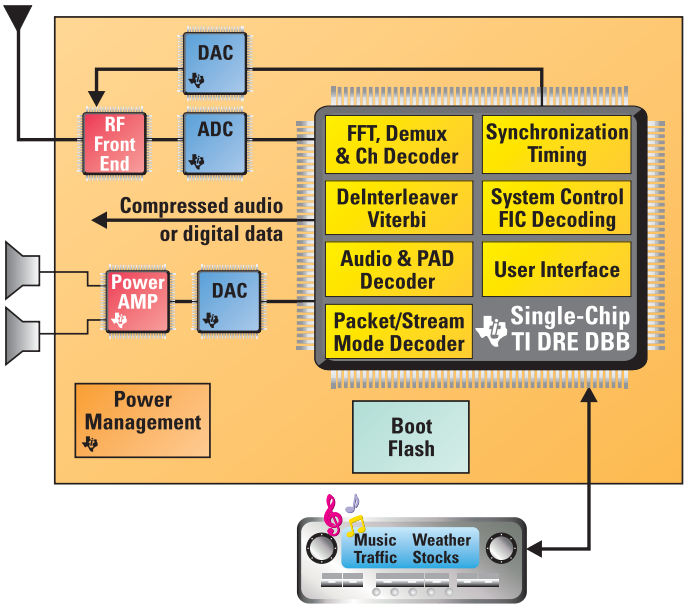
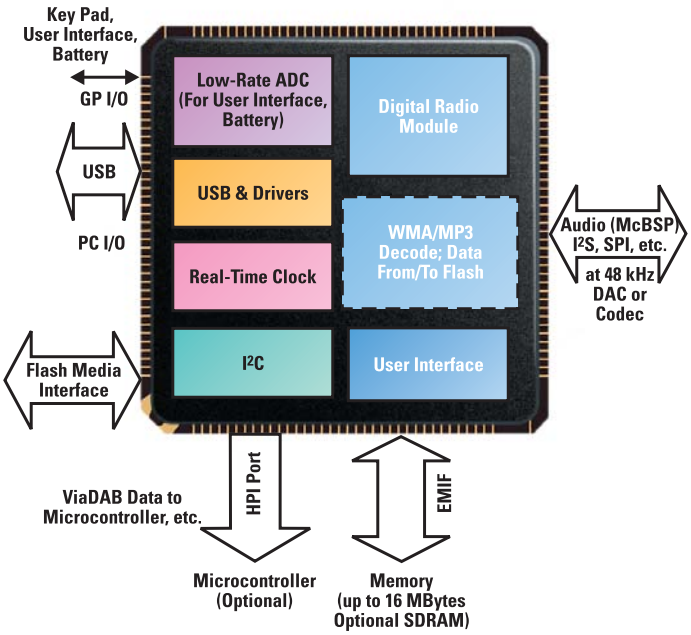


Figure 2. TMS320DRE310 Digital Baseband



memory and MultiMedia Card (MMC), as well as time-shift recording and the capability for simultaneously listening to and recording of different channels. As Figure 2 shows, the DRE310 baseband is also capable of MP3 and WMA decoder support on the same chip.

With this level of integration and increased Eureka DAB capability, the DRE310 DSP-based baseband will power several types of applications, including: home, portable, handheld, PC and automotive.

Automotive DAB/CD radios, which require the ability to decode the variety of broadcasted bit rates and support different CD audio decoders, such as WMA, MP3 and PCM, will benefit from the DRE310 DAB features, such as TII, FM switching, ensemble switching, TPEG and announcement support.

Portable and handheld applications will have the ability to read and write to memory cards, utilizing the DRE310 baseband's direct interface to MMC, Memory Stick™ and SD. These applications will also benefit from the on-chip USB 2.0 full-speed (12 Mbps) interface, which allow both an easy connection to the PC and record/playback capabilities.

Other additional features and specifications of the DRE310 baseband are:

- Does not require external memory for DAB operation
- Can interface to an external microcontroller or memory (not required for operation)
- Disturbance-free operation during multiplex sub-channel reconfiguration or ensemble switch
- Can feed data to external TPEG or MOT decoder
- ADC for keypad interface, battery, etc.
- I²C port
- Real-time clock
- 144-lead TQFP or 179-lead μ*BGA

Roadmap

The DRE310 baseband from TI will redefine digital radio by enabling feature rich and integrated end products, while maintaining low cost and power. Future products will continue to build upon the success of the TMS320DRE200 and TMS320DRE310 DSP-based basebands. Contact the TI Digital Radio group for more information about the roadmap details at **digitalradio@ti.com**.

Support, Availability, Packaging and Pricing

TI's extensive worldwide field support simplifies the task of digital radio design using the DRE310 DSP-based baseband. Evaluation modules (EVMs) are expected to be available in the fourth quarter of 2003, as will documentation, including user's guides and application notes. To speed design and make purchasing easier, TI will offer the DRE310 baseband bundled with other components, including analog parts, such as power management and data converters.TI's TMS320DRE310 Eureka DAB digital baseband processor is expected to sample in the fourth quarter of 2003. The DRE310 baseband will be available in either a 179-lead MicroStar™ ball-grid array (BGA) or a 144-lead thin quad flatpack (TQFP). Pricing is U.S. $18 each in sampling quantities of 1K or less.

For more information, please contact the nearest TI sales office or visit our website at **www.ti.com/digitalradio**

TEXAS INSTRUMENTS

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