



## MPEG Audio Layer III Decoder

### GENERAL DESCRIPTION

The W9987D is a highly integrated CD-based MPEG Audio Layer 3 decoder chip with Digital Voice Recorder (DVR) function built-in. Within the chip a DSP core and a micro controller, W8058 (8052 with internal 64K byte ROM), are built in. The DSP is used for Audio Decoder/DVR function and the micro controller is used for system control. The W9987D has also integrated many peripheral controllers such that it can directly interface to audio codec, CD interface, DRAM, etc. to minimize PC board area and system cost.

### FEATURES

#### Single-chip MPEG Audio Decoder with Voice Recorder /Decoder

- 43 MIPS 16-bit DSP with internal PM and DM for MP3 decoder, C3 decoder and ADPCM functions
- 43 Mhz double-frequency W8058 micro controller with internal 64 Kbytes program ROM and 6 Kbytes data RAM
- I<sup>2</sup>S, SSI, CC97 and SPDIF audio codec serial interface
- SDRAM and EDO mode DRAM interface
- 24 GPIO for keypad and system control

#### MPEG 1/2/2.5 Layer3 Decoder

- ISO/IEC 11172-3 MPEG 1 audio layer 3 decoder
- ISO/IEC 13818-3.2 MPEG 2 audio layer 3 decoder
- MPEG 2.5 lower sampling frequencies audio decoder
- Support all the sampling frequencies of 48, 44.1, 32, 24, 22.05, 16, 12, 11.025, and 8 KHz

#### Digital Voice Recorder/Decoder

- PCM and ADPCM for Voice encode and decode
- 8 KHz voice sampling frequency with 16-bit resolution
- Hardware auto repeat function

#### Digital Sound Control

- Digital volume control and stereo channel mixer
- Digital bass and treble control

**Low power 2.5V (core) and 3.3V (I/O) Operation, with 5V input tolerance**

**128-pin LQFP Package**

### APPLICATIONS

Following figure shows a typical portable CD player using W9987D.

