MagicGate Encryption/Decryption LSI
Supports ATRAC Audio Device and ATRAC CD

CXD5070-□□□ GG

The ATRAC Audio Device standard (ATRAC AD) media format has been adopted in the Walkman Stick and Walkman Square, which have generated much excitement recently. Encryption and decryption functions that conform to the MagicGate copyright protection technology and inter-device authentication functions are required to support ATRAC AD.
At the same time as being able to implement these functions by control with a simple API, the CXD5070 also supports the ATRAC CD standard.

- **ATRAC AD support**
  - **Encryption/decryption functions**
  - **Inter-device authentication functions**
- **ATRAC CD support**
  - **Decryption function**
- **Simple API**

ATRAC AD Support

Encryption/decryption functions

Equipment that supports ATRAC AD can save audio data that was encrypted for copyright protection on storage media such as flash memory or a hard disk. Since the CXD5070 includes decryption functions for this encrypted data that was stored by a device that supports ATRAC AD, it can easily implement music data playback.

Furthermore, equipment that supports ATRAC AD and that can acquire audio data from an audio data input terminal or a disk drive can encrypt the acquired audio data and store it on a recording device. The CXD5070 includes both the key generation function required for encryption that conforms to MagicGate as well as encryption functions and thus can implement high-speed ripping.

ATRAC AD Support

Inter-device authentication functions

When audio data is safely transmitted between equipment that supports ATRAC AD or over a connection with a PC on which an application that supports ATRAC AD has been installed, it is necessary to verify and authenticate that the connected device can be trusted.
The CXD5070 includes the necessary data and key generation and protection functions for this inter-device authentication. This allows the CXD5070 to form safe inter-device connection environments.

ATRAC CD Support

Decryption function

It is necessary to decrypt data encrypted in conformance with the MagicGate standard to play back audio data recorded under the ATRAC CD standard.
The CXD5070 includes functions for decrypting this ATRAC CD encrypted data and can easily implement embedded ATRAC CD playback functions.

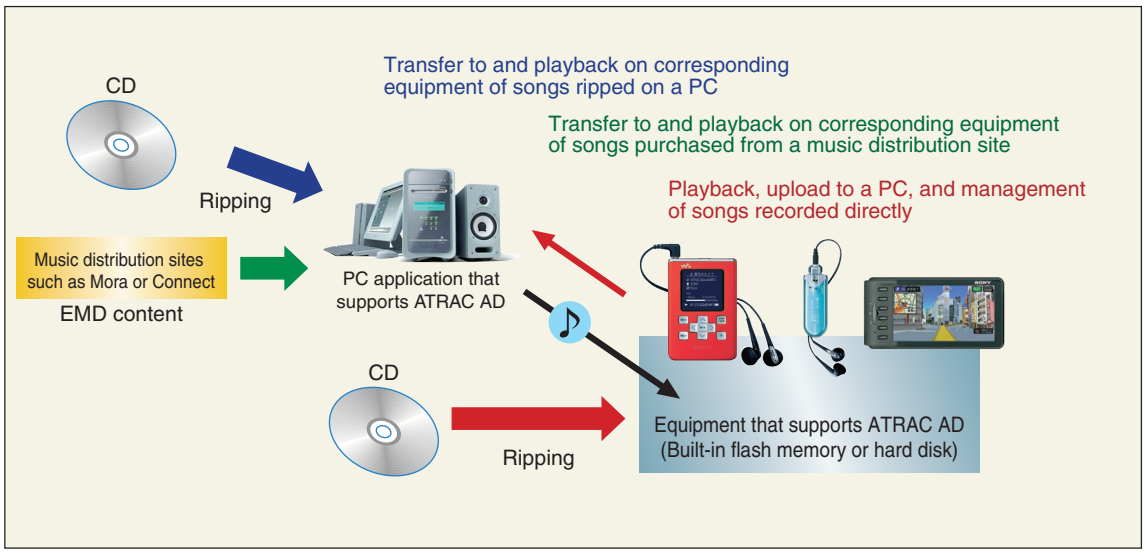
Simple API

The CXD5070 performs complex processing internally using common interfaces, minimal communication functions, and a simple API and can support the implementation of ATRAC AD equipment.

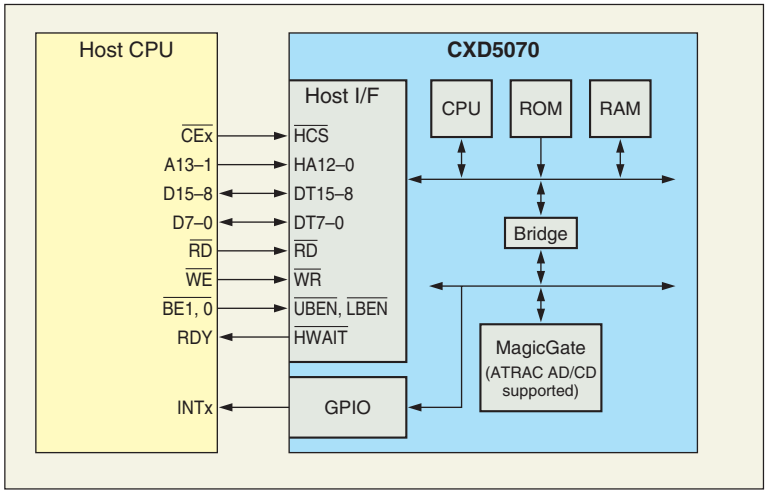
* "ATRAC AD" and "ATRAC CD" are trademarks of Sony Corporation.
* "MagicGate" is a trademark of Sony Corporation.

V O I C E

This IC was created with the cooperation of many groups. For example, cooperation between LSI designers and firmware designers made it possible to include both the CPU and the firmware on the chip and allows the chip to be used in actual practice as though it were a logic chip. We strongly recommend that you look into using the CXD5070. We designed the API to be as simple as possible for ease of use. Also, we received a lot of help from the members of the ATRAC Audio Device Standards group during development. Thus I welcome this opportunity to thank all these people.



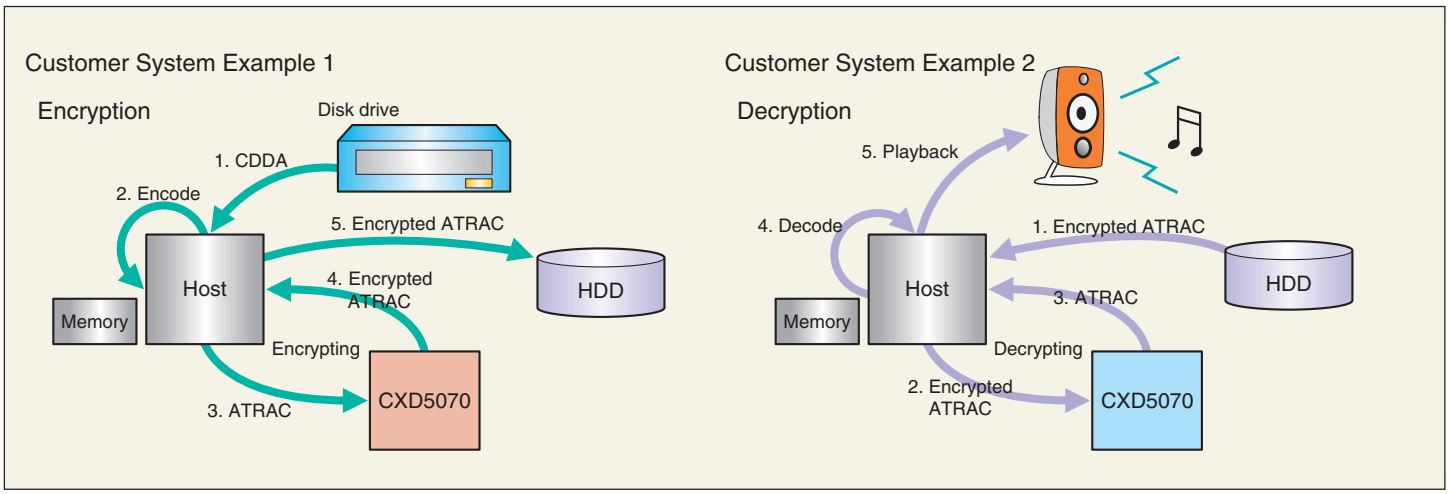
■ **Figure 1 The CXD5070 Makes All These Possible**



■ **Figure 2 Block Diagram and Connection Example**

■ **Table 1 Chip Overview**

Product	CXD5070-□□□GG
Functions	ATRAC AD encrypting and decrypting, ATRAC CD decrypting
Interface	Host interface (16 bits)
Supply voltage	3.3 V (I/O), 1.2 or 1.8 V (core)
Operating frequency	Max. 22.6 MHz@1.2 V, Max. 40 MHz@1.8 V
Operating temperature range	–30 to +85°C
Package	108-pin LFBGA



■ **Figure 3 Customer System Examples**