

IBM ThinkPad 770 Advanced Audio

Fact Sheet

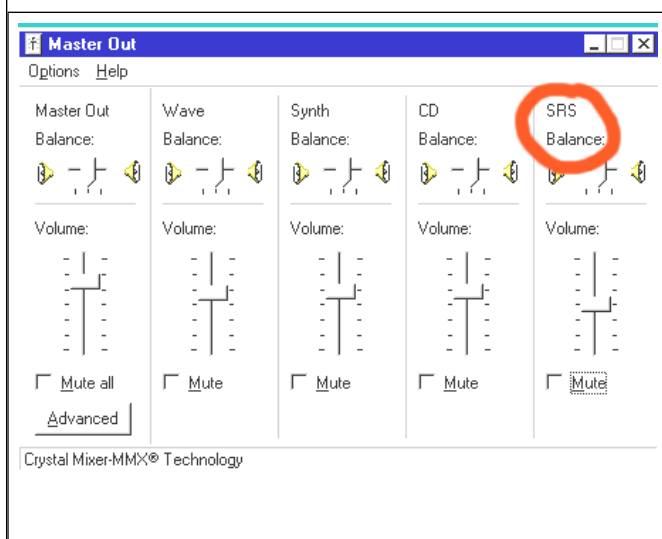
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The IBM ThinkPad 770 provides audio features commonly not found in notebook computers. In addition to 16 bits, 44 KHz stereo record and playback, support for SRS 3-D and Dolby Digital audio playback are included on selected models. The purpose of this Fact Sheet is to describe the benefits of SRS 3-D and Dolby Digital audio and explain how it is supported on the ThinkPad 770.

I. SRS 3-D Stereo Sound

Sound Retrieval System (SRS) creates a three-dimensional sound image from any audio source with only two conventional stereo speakers. Whether the signal is mono, stereo or surround sound encoded, SRS expands the audio material and gives the user the sensation of audio coming from more than two speakers.

SRS is supported on all IBM ThinkPad 770 either with the internal speakers or when two speakers are connected to the ThinkPad's headphone jack.



To enable SRS, open the Audio Mixer and make sure SRS is enabled (not MUTE).

II. Dolby Digital



Over the past couple of years Dolby Laboratories has used the term Dolby Digital to refer to a new digital system in the film and theater industries, and has used the term Dolby Surround AC-3 to refer to the system in the home theater market. In practice both the cinema and home theater applications are variations of the same basic technology (slightly different data rates). So to minimize the

possibility of confusion by consumers Dolby Laboratories has decided that Dolby's consumer multichannel digital format will be known by the same name used in the film and theater industries -- **Dolby Digital**. This is expected to help consumers more readily identify products that feature it, and to help distinguish it from Dolby Surround and Dolby Pro Logic formats which are based on analog matrix technology.

Dolby Digital provides 5 discrete full frequency (3Hz to 20,000 Hz) audio channels plus a limited frequency (3Hz to 120Hz) channel for additional bass. It is therefore many times referred to as "5.1" channels. All six channels are digital, which means they can be transferred without loss from the producer's mixing console to your playback system. All six channel digital information are packed (encoded) into less space than a single channel on a Compact Disc requires.

Dolby Digital can be found on many DVD and laserdisc movies

III. Dolby Digital support using the ThinkPad's internal speakers

The ThinkPad 770 can take advantage of Dolby Digital material on DVD movies and titles. Dolby Digital is an encoded digital stream that first must be decoded before it is usable. When using the ThinkPad's internal speakers, the decoding is done via a software program. The software program is included with the DVD and Enhanced Video Adapter option and requires no user intervention once installed. The software decoder takes the Dolby Digital stream and extracts stereo information which is then passed to the ThinkPad's audio chip.

IV. ThinkPad 770 support of Dolby Digital using external speakers.

There are two ways of connecting external speakers to the IBM ThinkPad 770. One is through the headphone jack which provides stereo (two channels) of audio information. When using the headphone jack, decoding works exactly as when using internal speakers. SRS 3-D stereo sound may be used to add separation.

Full 5.1 channel discrete playback is also supported on the IBM ThinkPad 770 when used

with an external receiver with a Dolby Digital decoder.

The IBM DVD and Enhanced Video Adapter option provides a Dolby Digital audio port. This port provides the *encoded* Dolby Digital signal to

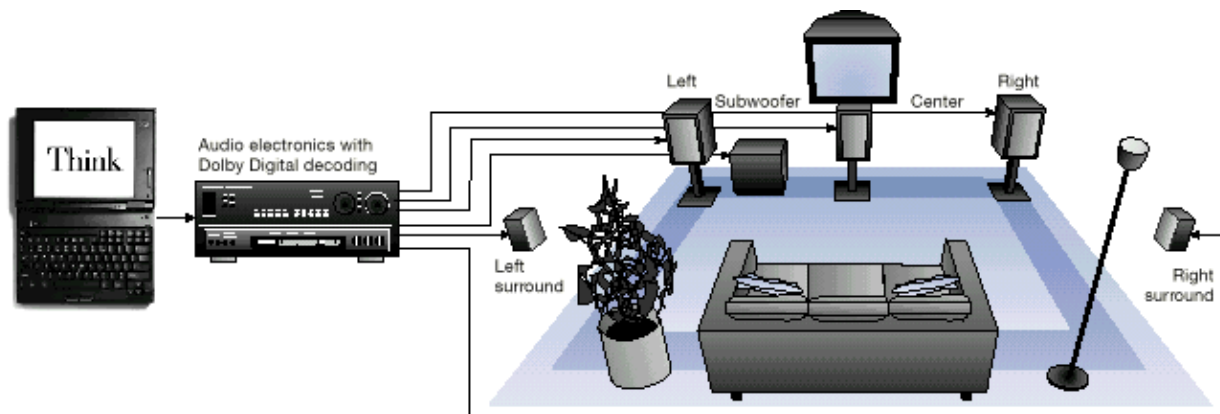


an external receiver (not included) which has a Dolby Digital decoder.



To the Dolby Digital port an adapter (included with the IBM ThinkPad 770) is connected. This adapter is the same used on the IBM ThinkPad 755 and 760.

A single audio cable with RCA type connectors is used to connect the IBM ThinkPad 770 to an



external receiver with Dolby Digital decoder (not included)..

When used in conjunction with an external receiver, the IBM ThinkPad 770 is connected and operates very much the same as a consumer DVD player. Most consumer DVD players require the use of an external Dolby Digital enabled receiver to produce the six discrete audio channels.

In summary, the IBM ThinkPad 770 provides a choice of audio options from CD quality stereo playback, 3D stereo audio, and discrete 5.1 channel Dolby Digital.

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