
1. Definition of Home Theater

What is Home Theater?

Home theater system is the proper combination of audio and video system at home which enable you to enjoy more dynamic sound and vivid image in a wide screen of movie theater.

This effect can be implemented with wide screen, high quality projector, Dolby digital and DTS sound effects.

Now you can enjoy surround sound field with realistic presence and Dolby digital at your home as if you are in a movie theater.

2. Concept of Sound

What is Sound Range?

People can listen to the sounds with frequency between 200Hz~20.000Hz

High	3,000Hz~20,000Hz	Highest sound (Ex- Woman's screaming, high sound of organ)
Middle	200Hz~3,000Hz	Most common sound in our daily lives (Ex- movie words, music)
Low	20Hz~200Hz	Lowest sound range that human can listen to (Ex- explosion sound, strong drum sound)

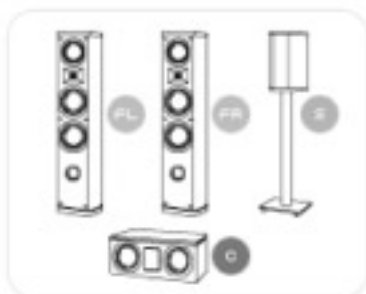
3. Home Theater Sound Format

Home theater format...



Stereo

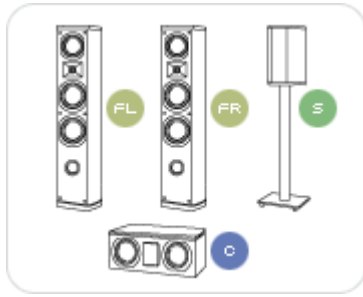
Is used in general audio and analog TV and consists of 2 channels, at front left/right



Dolby Surround

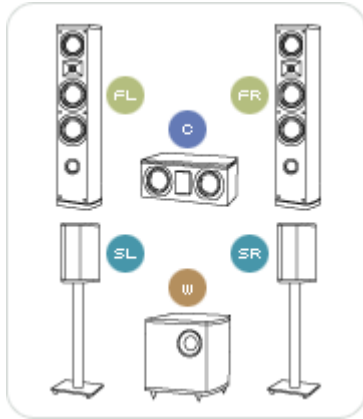
In this sound format, 4 audio channels (Front left / right / center / surround) are entered in 2 channel and reproduce in 4 channels through device with Dolby decoder.

Center channel is not completely separated so that it forms virtual center channel with help of front left / right channel.



Dolby Prologic

- Provide 4 channels (Front Left/Right/Center/Surround)
- Reinforced from Dolby Surround
- ① Center channel is completely separated
- ② Separation between channels gets higher

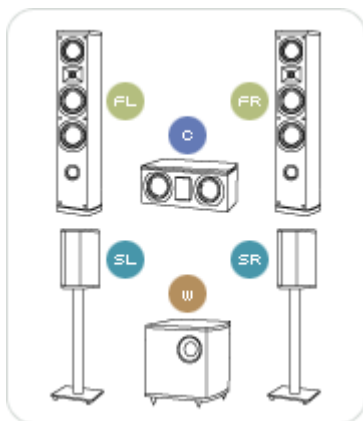


Dolby Digital

- Provide completely separate 5.1 channel (Front Left/Right, Center, Rear Left/Right, Sub Woofer)
- Main sound format of home theater
- Reinforced from Dolby Prologic
- Rear surround left/right channels give different sound
- Support sub woofer reinforcing Bass

* Dolby Digital is also called AC-301

AC-3(Audio-Coding-3) : 3rd digital audio coding Dolby Research Center has developed.

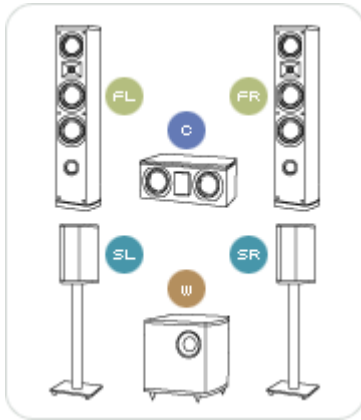


DTS(Digital Theater System)

- Technology of providing 5.1 channel sound, higher quality than Dolby Digital
- Home appliance produced to apply system installed at 1,800 theaters throughout the world.

❖ Comparison of DTS and Dolby Digital(DD)

SPEC	구분		설명
	DTS	DD	
S/N Ratio	High	Low	Signal to Noise ratio. The higher the S/N ratio, the clearer the sound gets
Compression	Low	High	Less compression of original sound results in less loss of reproduction and clearer sound.
Sound Separation	Big	Little	The bigger the sound separation, the clearer the sound from each speaker.
Transmission	Many	Few	The more information it transmits per second, the clearer the sound gets.



Dolby Prologic

- Latest technology reproducing music CD recorded in 2 channel, cassette tape and video tape made in Dolby Prologic into 5.1 channel.
- Surround speaker that makes you feel more natural, deeper and wider than existing Dolby Prologic.
(Ex-Profound sound adds more realistic presence from 5 speakers and sub woofer when you watch soccer match.)

DTS (Digital Theater System)

THX (Abbreviation of Tomlison Holman's Experiment)

- THX is not a sound format like a Dolby or DTS, but is a standard of sound. Like standard KS mark in Korea, THX means good certification in sound effects.
- THX issues certificate when a movie, theater or home theater system satisfy proper standards.

4. Home Theater Components

- R Display (Flat, Orjection, LCD, PDP TV, Projector, etc.)
- R DVD Receiver or DVD Player + AV Receiver
- C1 Speaker System (2EA) C2 Rear Speaker (2EA) C3 Center Speaker C4 Subwoofer



Type of Amp/Receiver

* **Pre Amp**

A device that receives, adjusts and sends signal from source devices (tape deck, CD player, radio tuner, etc.) to power amplifier.

* **Power Amp**

A device that amplifies the signal from Pre Amp into big sound so that speaker can vibrate.

* **Integrated Amp**

A device that combines pre-amp and power amp into one.

* **Receiver**

A device that contains tuner for radio broadcasting and integrated amp.

A/V Receiver



General Amplifier

- Support 2 channels (Left, Right Speaker)
- Mainly reproduce music
- No decoder : cannot cope with various sound formats



A/V Receiver

- Support multi-channel (support 5.1 channel)
Launch products supporting 6.1 channel and 7.1 channel recently.
- Reproduce music and movie sound realistically
- Has decoder
Can cope with various sound formats such as Dolby Digital.

DTS

- Rich input/output
- Use digital signal type and has no sound

A/V Receiver



A device of implementing home theater more conveniently with radio and A/V receiver embeded in DVD player.

How to Select Amp/Receiver

- Select the products that can support both Dolby Digital and DTS since they require both for vivid sound
 - Performance of amp gets better in output(W) but high output is a burden in narrow house.
 - Important to match output(W) and capacity(Unit) of amp and speaker.
 - It is advantageous for beginners to purchase DVD receiver type that has amp and radio tuner in DVD player
 - If the budget is tight, it is recommended to continue to upgrade after purchasing a low-priced system.
- * Computer will be of no use when it is outdated.
- * But, home theater system can be utilized in various ways due to feature of A/V device.

Speaker

Speaker system consists of speaker unit and enclosure.

The type and price range are diverse from expensive big speaker to miniature thin speaker.

Difference between famous speaker and big A/V speaker

- Speaker units are similar(there are a few several speaker unit makers in the world)
 - Design, finishing, assembling and tuning process of enclosure are different.
- (Prestige speakers are made manually in whole processes of manufacturing)

Famous speaker brands: B&W, JBL, BOSE, Definitve, B&O, etc.



Tallboy Type

A speaker directly installed on the floor without separate speaker in the height of 90 ~ 120 cm.



Bookshelf Type

A small speaker that can be placed in bookshelf. Good for utilization of space since it can be mounted on the wall when installing home theater system in a narrow space.

Speaker Structure

Speaker Unit



- Divided into for high tone, middle tone and low tone
- Tweeter : for high pitch
Smallest unit suitable for feature of high tone reproduction
- Mid-Range : for middle tone
Mid sound reproduction ability is the most critical standard of speaker evaluation
- Woofer : for low tone
Much bigger size than other speaker unit

Enclosure



- Case of speaker unit
- Enclosure sways sound quality of reproduction
- Low tone is almost scattered without enclosure, and only high sound tone is heard.

Type of Speaker System

Full Range Speaker

A speaker system producing sound with one speaker unit.

2 Way Type

A speaker system designed using units of 2 woofers for bass and tweeter for high tone.

3 Way Type

Difference between foreign prestige speaker and big A/V maker's speaker.