DSP-Z9
Digital Home Theater Amplifier

Extraordinary capabilities
for the finest home theater
performance
The DSP-Z9 was developed to achieve four ambitious goals: deliver the highest sound quality, provide the highest picture quality, present the best surround realism and be the easiest amplifier to use. We believe we succeeded in all four areas, but we invite you to judge for yourself — we’re confident that the DSP-Z9 will totally satisfy your highest expectations.

Only Yamaha could set these goals — and achieve them!
Highest Sound Quality

The DSP-Z9 offers the industry's most advanced audio technology, circuitry and component parts, backed by over a century of experience and an undiminished commitment to "natural sound."

Highest Picture Quality

As the central control unit in a home theater system, the DSP-Z9 interfaces with video source and display components to ensure that video performance is on a par with the sound quality.

Best Surround Realism

Yamaha developed its audio and cinema digital sound field processing technology decades ago and has been refining it ever since. The DSP-Z9 offers an unrivaled, breathtaking surround sound experience.

Easiest to Use

Yamaha amplifiers have a long history of introducing features that enhance operating ease. The DSP-Z9 continues this tradition with one major convenience breakthrough and many other advanced features.
Yamaha has a genuine commitment to providing absolutely the finest sound quality possible in every component we create. With over a century of experience in sound production (we made our first reed organ in 1887) and our status as a world leader in acoustic and electronic musical instruments, we are passionate about creating and reproducing sound in the most beautiful and natural way. Over the years, with each new series of components, we have improved and refined audio performance, and the DSP-Z9 maintains this tradition with an impressive array of technology and features.

**Highest Sound Quality**

**Digital ToP-ART Design**

Digital ToP-ART (Total Purity Audio Reproduction Technology) is a Yamaha product development philosophy that combines advanced digital engineering and circuit design to maximize audio signal purity. It is used in three sections of the amplifier, the High-Performance Digital Circuitry and High Current Amplification (explained right) and the High Definition CINEMA DSP circuitry (explained on page 14) each of which employ the world’s highest grade parts and most sophisticated LSIs. Digital ToP-ART enables the DSP-Z9 to deliver superb sound quality and bring out the full potential of Yamaha’s amazing CINEMA DSP technology.

**Digital Input**

In-WP1, 2, 3, 4 A/D 192 kHz/24-Bit Digital-to-Analog Converters

**Multi-Channel Inputs**

i.LINK

**Selector**

Direct Stereo

**DAC**

96 kHz/24-Bit

**VOL**

Accurate-Touch Volume Control (-80—+16.5dB)

YAC-520 LSIs for 11 Channels

**CINEMA DSP and HiFi DSP (YSS-930 x 4)**

**YPAO (Yamaha Parametric Room Acoustic Optimizer)**

**Minimal Analog Processing**

**High Performance Digital Circuitry**

This section exemplifies the Digital ToP-ART (Total Purity Audio Reproduction Technology) concept of maximizing the quality of the digital circuitry while minimizing analog circuitry, and also maintains a straight and logical circuit layout for optimum signal purity. It includes a variety of sophisticated technology, beginning with Burr-Brown 192kHz/24-bit digital-to-analog converters for all channels with DSD (Direct Stream Digital) compatibility. Accurate-Touch Volume Control LSIs (Yamaha YAC520) are also used for all channels. The digital bass and treble tone controls have turnover frequencies for the front L/R and center channels. Eight-channel analog input signals are processed by 96kHz A/D conversion for highest quality. All circuitry is on a four-layer processing board in a fully shielded cabinet for reduced digital interference.

**9-Channel Amplifier Capable of Delivering 1,890W**

When you power up your carefully assembled, top class home theater system, you expect beautiful sound and video quality, but you also want plenty of raw power. Especially at dynamic peaks, such as explosions or the climax of rock songs, you want to be thrilled and awed, without a hint of distortion marring the moment. The DSP-Z9 is built to satisfy your urge for power, surrounding you front, sides and rear with seven channels capable of outputting a huge 250 watts each, plus another 70W from the two presence (front effect) channels. That’s a total of 1,890W, which will impress your friends, and even your neighbors if you so choose. Movies will sound as if you’re in the director’s chair, and you can even enjoy multi-channel sources from only four or five speakers (even without a subwoofer, although this is not recommended), thanks to a 6-4 mixdown mode. Another point to consider is that because of this high power capability, at normal listening levels the amplifier won’t be working as hard, so distortion levels are virtually zero.

**High Current Amplification**

Although power rating is often the first thing people look at in a amplifier, high power output does not necessarily mean good sound. High current level is a much more important factor, so Yamaha developed the High Current Amplification system, which overcomes two problems common
to ordinary amplifiers. The first is a difference in voltage between the power supply and amplifier circuits caused by current fluctuations. This was solved by using custom-made, high-grade block electrolytic capacitors and a copper grip for one-point grounding. Another current drop is generally seen between the amplifier circuit and the speaker terminals, caused by the cables, speaker output relays, copper circuit boards, and so on. To avoid this problem, we used an extra-large, low-impedance toroidal transformer and gold-plated speaker relay contacts. As a result, the DSP-Z9 achieves low impedance, high current power from input (power supply circuit) to output (speaker terminals). This drives the speakers much more smoothly and dynamically, for better sound from all sources, including 2-channel audio.

Choice of Signal Paths for Optimum Quality
The DSP-Z9 gives you a choice of specialized signal paths, ensuring that you can obtain the purest signal quality possible. Pure Direct provides the shortest possible signal path for two-channel or multi-channel analog inputs, with no signal processing and no display. Straight outputs the original analog or digital signal without any post-processing. i.LINK provides a digital connection for DVD-Audio Linear PCM, Super Audio CD DSD (Direct Stream Digital) and other high quality audio sources. And Direct provides a direct connection for analog stereo/multi-channel input and digital stereo/multi-channel (via i.LINK) input, with a dimmed display.
Symmetrical Power Amplifier Circuitry
The High Current Amplification system uses a symmetrical, full push-pull circuit configuration with a complementary FET input stage. This ensures balanced output with no signal interference and highest slew rate (rate at which signal changes; affects high frequency response). Furthermore, the massive toroidal transformer and large capacity block electrolytic capacitors (28,000µF) ensure a consistently stable power supply.

Effective Linear Damping
Level variations due to high impedance tend to reduce an amplifier’s damping factor (ability to control unwanted speaker cone movement at low frequencies), and frequency variations cause it to fluctuate. Yamaha’s Linear Damping circuit cancels the effect of these variations, maintaining a high, stable damping factor for superior sound articulation and frequency response.

Accurate Touch Volume Control
No one expects more from a volume control than up and down — except Yamaha. We decided that controlling the volume could be made both easier and more accurate, and the result is the Accurate Touch Volume Control. It lets you make delicate adjustments within a narrow range, yet enables you to move to very high or low levels more quickly. Its extreme accuracy, with negative gang error of less than 0.5dB, due to a high signal resolution analog design in conjunction with ultra-precise digital control circuits (Yamaha original YAC-520 LSIs) for all channels. The wide control range extends from –80dB to +16.5dB, with narrow 0.5dB steps throughout the entire range for delicate control, even at low volumes.

High Grade Construction with Independent Chambers and Anti-Vibration Design
The DSP-Z9 uses a heavy-duty, rigid chassis construction with separate chambers for individual chambers for left and right power amplifiers, power supply and control section to prevent any chance of internal interference. This thick chassis also has electromagnetic shielding. The extremely large aluminum-extruded heat sinks have anti-resonance characteristics and ensure effective heat dissipation. Supporting all this are Yamaha’s ToP-ART base and feet, which provide stability and further vibration-damping.

9-Band Graphic Equalizer
In addition to the many audio parameters that can be adjusted via the on-screen menus, the DSP-Z9 gives you an even greater degree of sound field control with the inclusion of a 9-band graphic equalizer. You can use it to “fine tune” the sound field to achieve the optimal imaging for movie sound.

Digital Tone Controls
The front left, front right and center channels have digital tone controls, allowing an extremely precise degree of control over the front sound field.

Subwoofer Crossover Selection
The DSP-Z9 provides a choice of nine subwoofer crossover frequencies: 40, 60, 80, 90, 100, 110, 120, 160 and 200 Hz. In addition to providing a wider range than other amplifiers, the steps from 80 to 120 Hz are only 10 Hz apart for more precise selection. This choice of crossovers lets you “fine-tune” the audio system by selecting the optimum frequency to maximize amplifier/speaker efficiency and also ensures best performance from a wider variety of speakers (small to large).
Only the Finest Parts are Used in This Amplifier

At this degree of extreme sound quality, each and every part in the amplifier makes a difference. Yamaha technicians tested, selected and in many cases custom-designed all parts, and then tested them in groups to ensure that they sounded good together. Particularly noteworthy parts, in addition to the transformer and capacitors, include:

- Schottky Barrier diodes allow fast switching for high S/N ratio.
- Thick PC board wiring with 1.6mm diameter copper jumper cables.
- Two direct signal path speaker relays with gold-plated crossover connections and shielding.
- Gold-plated extruded, extra-large speaker terminals.

(1) Large, powerful toroidal transformer
(2) Extra-large, custom-made block electrolytic capacitors (28,000µF)
(3) Schottky Barrier diodes
(4) Gold-plated extruded, extra-large speaker terminals
(5) Direct signal path speaker relay
(6) High quality selected parts
As one of the first companies to popularize "home theater" and a leader in the field, Yamaha is naturally committed to visual as well as audio excellence. We want our customers' enjoyment of movies and other video sources to be totally satisfying.

Our home theater line includes a number of high performance products, including projectors, DVD players and a plasma monitor, but in terms of our home theater components, we design them to deliver the finest possible video signal to the display component. The DSP-Z9 accomplishes this more adroitly than any other amplifier, so you enjoy superb image quality to complement the incredible surround sound.

**Digital Video Up and Down Conversion**

One way of ensuring the highest video quality for your home theater system is to use the best possible video signal. The DSP-Z9 automatically upgrades the input signal (composite to S-Video or component, S-Video to component) to the one that your monitor/TV can accept. This means that you simply use the best possible cable between the amplifier and the monitor/TV, and then whatever the source is, you are assured of getting the highest possible quality.

**Digital Video Processing Board**

All digital video processing circuitry is on a single board, housed in its own separate chamber to completely avoid interference from other circuitry.

**Digital Video Up and Down Conversion**

Up video conversion (composite to S-Video and component, S-Video to component) as well as down video conversion (S-Video to composite) is automatically applied to incoming signals.

* 480i and 576i (PAL) only
DCDi Processing
The DSP-Z9 is the first receiver to offer Faroudja’s DCDi Processing, which is selectable and ensures that images are smooth and natural, without staircasing or jaggies.

Noise Shaped Video™
This technology, from Analog Devices, uses oversampling and advanced techniques such as multi-bit sigma-delta processing and bit-shuffling to improve converter performance by moving converter noise to an area of the spectrum where it can be removed by an analog filter. This improves the accuracy of signal representation, allowing images to be displayed at much higher resolutions.

Progressive Scan Video Output and Other Video Technologies
The DSP-Z9 is the first amplifier to provide Progressive Scan Video Output, for use with high definition monitors. With almost twice as much video data, it provides a sharper, noise-free picture with clearer details. The progressive circuit is an 3:2 Pull-Down Detection type, and gives you the benefit of progressive scanning even if your DVD player does not have it. Other video technologies include 216MHz/12-bit Video D/A Conversion, Motion Adaptive Noise Reduction, Cross Color Suppression, Aspect Ratio Conversion, a Time Base Corrector that prevents the wavy distortion seen in video tapes and TrueLife Enhancer by Faroudja that brings out details in the picture, producing a more life-like image.

HDTV (720i/1080i) Compatible Component Video Out
The frequency response of the component video monitor out signal is 5Hz–100MHz, making it compatible with HDTV monitors.

Image Adjustment
To ensure that the high quality image looks precisely the way you want it to, the DSP-Z9 includes an extremely detailed Image Adjustment function. You can select three modes, Cinema, Standard or Dynamic, and within those modes, you can “fine-tune” five parameters: Enhancer, 3D NR, Brightness, Contrast and Saturation. You can then store your final adjustments in the user memory for recall at any time.
4-Layer DSP Processing Board in DSP Chamber

All of the DSP IC chips and related circuitry are located together on a 4-layer board, which provides a number of advantages. The dimensions are smaller (2/3 previous types), so signal paths are shorter and there is more space for the large power supply components. Digital interference is reduced and impedance is lower as well.

Yamaha Uses Actual Sound Field Data

Yamaha developed a technique called Single Point Quad Miking to precisely capture the acoustic patterns of sound spaces. This complex data is stored and processed on extremely sophisticated LSIs designed and manufactured by Yamaha.

High-Definition CINEMA DSP Circuitry

The DSP-Z9 has six times greater DSP capacity than previous models, thanks to an increase from 48kHz A/D converters to 96kHz/24-bit types that can accept 96kHz signals for direct digital conversion and processing. Higher density processing enables approximately triple the amount of early reflection data to be handled, for significantly richer surround sound performance. The DSP-Z9 also employs 192kHz/24-bit D/A conversion and DSP processing and Yamaha’s 32-Bit Floating-Point Quantization System LSIs (YSS-930 x 4) for high precision decoding of Dolby Pro Logic IIx, Dolby Digital, DTS Digital Surround, DTS 96/24, DTS-ES Discrete 6.1, DTS-ES Matrix 6.1 and DTS Neo:6 formats. There are 55 surround programs available, with 79 variations, including Quad-Field CINEMA DSP programs for 6.1-Channel Digital Surround. SILENT CINEMA for surround sound through headphones and Virtual CINEMA DSP for two-speaker systems are also included.

Conventional multichannel systems base their sound on Dolby Digital and DTS decoding, using relatively simple matrix and steering techniques to create surround sound effects. Yamaha’s CINEMA DSP Digital technology is much more sophisticated. It naturally decodes the Dolby Digital and DTS movie sound formats, but it also draws on a huge memory of real-world data from actual venues (especially for the music programs) and input from movie sound technicians. This data is stored and processed on Yamaha-developed LSIs, the most powerful audio chips in the world.

Our latest technology, Quad-Field CINEMA DSP actually creates four independent sound fields (front, left surround, right surround and surround back) that merge to envelop you in an unmatched surround sound experience. You hear movies and music with accurate sound localization, smooth movement across the sound space, exceptional clarity and remarkably realistic presence. It will seem as if the walls of your room have disappeared and you are in the middle of your own immense theater!
55 Surround Sound Programs
The DSP-Z9 offers a huge range of 55 surround sound programs to choose from, plus another 24 variations of the CINEMA DSP movie programs. For video material, you can select the program that matches your video source, with 12 choices from games and TV sports to Sci-Fi movies. For music, you have 21 choices ranging from European concert halls to disco ambiance. Each sound field is created from acoustic data recorded at the actual venues, stored and processed by highly sophisticated Yamaha technology. There are also 16 straight movie sound programs to choose from, plus another 24 variations of the CINEMA DSP movie programs. Naturally, you can experiment with different programs for each source, and you can also use the GUI menus to adjust numerous parameters for each program. With CINEMA DSP, you will never be bored or dissatisfied with the sound of your system

Audio Delay for Adjusting Lip-Sync
The YSS-930 LSI in the DSP-Z9 provides synchronization of images and sound, which is called lip-sync. The video signal goes through the video processor circuit before it is displayed, which takes time, so it lags behind the audio. The YSS-930 accurately aligns them and even allows the lip-sync parameters to be adjusted using the Audio Delay mode.

Night Listening Mode
When you’re listening to movies late at night and turn down the volume during loud scenes, dynamic range suffers and you may miss some dialogue and other sounds. By using the Night Listening Mode, you can reduce the volume and still enjoy proper tonal balance and dynamic range. You hear dialogue clearly and the music and action are just as exciting (without the screams and explosions disturbing others).

Enjoy Surround Sound through Headphones
SILENT CINEMA makes it possible to hear large-scale surround sound through ordinary headphones! This is a variation of CINEMA DSP technology that Yamaha developed to let you listen in private to movies and other multi-channel sources for hours without listening fatigue.

Surround Sound from Only Two Speakers
With just two left and right speakers, the Virtual CINEMA DSP mode will create two additional "virtual" rear speakers, giving you the sense of being in a full-scale surround sound field. So even in rooms with no space for rear speakers, you can enjoy the exciting effects of Dolby Digital and DTS movie sound formats.
Easiest to Use

Each generation of Yamaha amplifiers brings an evolution of our popular features while adding innovative enhancements to improve the operating experience. This is why even though our amplifiers are the most technologically advanced, they remain remarkably easy to use and enjoy. The DSP-Z9 continues this tradition with improved on-screen displays, a second menu-dedicated remote control and the all-new YPAO function. Although the DSP-Z9 looks like a formidable machine, you’ll soon appreciate just how convenient and enjoyable it is to use.

A World’s First! — YPAO (Yamaha Automatic Parametric Room Acoustic Optimizer)

Some components have a graphic equalizer (in fact, this one does too) which admittedly, can be a bit difficult to use. Parametric equalizers are even more effective, but only audio professionals can use them. The DSP-Z9 is the first amplifier to give you the benefits of a 10-band (selected from before optimizing)

1) Speaker Connections
Checks for missing connections and subwoofer phase control (here the right surround speaker is not connected).

2) Speaker Distance
Measures speaker distances from the listening point and corrects for differences down to 5cm.

3) Speaker Size
Checks speaker sizes (large or small) and subwoofer crossover frequency.

4) Speaker Frequency Response
Measures and optimizes each speaker’s frequency response using the 10-band parametric equalizer.

5) Sound Pressure Level
Measures and aligns the sound pressure levels of all speakers.

Speaker position before optimizing
Virtual speaker position after optimizing

Measures speaker distances from the listening point and down to 5cm.
Microphone, which you simply place in the position where you most frequently listen. Activating the YPAO function causes test tones to be emitted from the speakers. These tones are picked up by the Optimizer Microphone and then analyzed. Based on the results, a variety of audio parameters are precisely calibrated to optimize the sound at the listening position. The factors that are analyzed are speaker positions, speaker connections and phasing, speaker size, speaker distances, sound pressure levels and speaker frequency response. In short, the DSP-Z9 not only delivers better sound, it delivers the BEST sound for each and every room.

On-Screen Display with GUI and Dedicated Remote Control
The DSP-Z9 has the best looking and easiest to use on-screen display you've ever seen. This is due in part to the high quality video circuitry, which provides sharp, clear images. The GUI (Graphical User Interface) includes extensive yet easily understandable setup menus and has been designed to make it easy to select and adjust desired functions. And to further simplify operation, Yamaha has provided a second remote control dedicated to GUI use. The large round cursor control in the center makes it easy to navigate the on-screen menus and enter desired commands. It also has power, volume and mute buttons.

Easy Setup and Operation
The DSP-Z9 has an ergonomic design that ensures simple, convenient operation. Everything from the layout of the controls to the appearance and selection of the operating menus has been planned to make using it easy and enjoyable.

Wide Range of Detailed Menus
The remote control lets you access and adjust a wide range of menus on the on-screen display, for total operational control. You can use the Auto Setup menu to select which speaker parameters will be automatically adjusted, or you can adjust speaker and system parameters yourself via Manual Setup, which includes four menus. Basic for setting speaker and subwoofer parameters, Sound for adjusting Cinema EQ, Graphic EQ and other audio functions, Video for selecting Picture Mode, Resolution and five other settings, and Option for Multi-Zone and other functions. There are also Input Select, i.LINK Select, Stereo/Surround, Memory Guard and Signal Info menus.

Program Name and Surround Sound Indications
The front panel display presents comprehensive information about operating status, including the program name, whether it is a Tri-Field or Quad-Field CINEMA DSP program, and much more. You’ll never be confused about what mode you are in.
Ideal for Use in Custom Installations
The DSP-Z9 has numerous features designed to facilitate use in customized multi-room installations. These include Zone 2 coaxial, video (including S-Video) and audio outputs for multi-room control capability, two trigger outputs for automatic power-on of other components, speaker A/B and A+B selection, an RS-232C interface and remote control IR code input/output compatibility. In addition, the Rec Out Selector also functions as a Zone 2 selector.

Extensive Connections for All the Components You Want!
As shown here, the range of connections on the DSP-Z9’s rear panel is large enough to meet all of your system building needs. Note that a number of these terminals are fixed and assignable, meaning that they can be independently assigned to sources of your choice or defaulted to fixed settings.

A/V Rec Out/Zone 2 Selector
The Rec Out Selector lets you choose which source you want to record. As you are recording, you can listen to that source or to the source selected by the Input Selector. The Rec Out Selector also functions as a Zone 2 Selector.

Dialogue Lift
When using a center speaker positioned below the screen, dialogue may not be heard with maximum clarity. The Dialogue Lift function causes part of the center channel sound to be output from the left and right presence speakers, so the center speaker sounds as though it is right where you are sitting.

Fixed and Assignable Terminals
Yamaha offers terminals that can be either independently assigned to sources or defaulted to fixed settings.

Detachable Power Cable
The inlet-type power cable is separate, rather than attached to the unit. It is a thicker type (16-gauge) than ordinary power cables, for higher power handling capacity.

Auto Priority Input Terminal Selection and Auto Decoder Selection
Digital input terminals are provided to handle any kind of digital input. Functions are programmed to select priority in order of coaxial digital, optical digital and analogue when different digital formats are input from the same source. The
sound decoder is also automatically selected and processed according to the combination of the format of input signals and the selected sound field programmes, while DSP sound field processing is optimized at the same time.

**Video Inputs on Front Panel**
A panel on the front of the amplifier flips up to reveal a number of controls and video input terminals. These include video and audio terminals as well as optical digital and S-Video inputs. This makes it convenient to connect a game machine for DVD games or even movies, or other devices such as a camcorder.

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**DSP-Z9 Inputs and Outputs**

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<th>Analog</th>
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<th>Optical</th>
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**Other Connection Features**
- Speaker configuration of analog multi-channel input (C/SL/SR/SBL/SBR/Subwoofer/None)
- Level setting for each input

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**Direct Access Remote Control**
The remote control can "learn" the functions of other components, so you can use it as a single remote for the entire system. It has a large memory capacity and comes pre-encoded with many television and component codes. The buttons in the component control area have different functions for each type of component, selected by pressing the input button. The input name is shown in the LCD window, and you can change each name. Frequently used functions are easily accessible on the front, while others are located under the sliding panel. Finally, 15 different macros (multi-command) functions can be programmed.

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**Fixed**, **Fixed/Assignable**, and **Assignable** Terminals. RF (AC-3) terminal for LD input is assignable as coaxial digital terminal. HDTV (720p/1080i) Compatible Component Video Out.
DSP-Z9 Main Specifications

AUDI O SECTION

Maximum Power
- Front Channels: 250 W + 250 W
- Center Channel: 250 W
- Surround Channels: 250 W + 250 W
- Surround Back Channel: 250 W + 250 W
- Presence Channel: 70 W + 70 W

Minimum RMS Output Power (8 ohms, 20 Hz—20 kHz, 0.01% THD)
- Front Channels: 170 W + 170 W
- Center Channel: 170 W
- Surround Channels: 170 W + 170 W
- Surround Back Channel: 170 W + 170 W
- Presence Channel: 50 W + 50 W

High Dynamic Power, Low-Impedance Drive Capability: Yes

Damping Factor (8 ohms, 20 Hz—20 kHz):
- 200 (front/center, speaker A)

Input Sensitivity/Impedance
- Phono (MM): 2.5 mV/47 k-ohms
- CD: 200 mV/47 k-ohms

Frequency Response: 10 Hz—100 kHz ±0, -3 dB

Total Harmonic Distortion (20 Hz—20 kHz)
- CD (Front/Center In, Sp Out, 85 W/8 ohms): 0.005%

Signal-to-Noise Ratio (CD, 250 mV): 100 dB

Speaker/Headphone Tone Control Characteristics (Front/Center/Subwoofer)
- Bass Boost/Cut: +6 dB/–6 dB (50 Hz)
- Treble Boost/Cut: +6 dB/–6 dB (20 kHz)
- Turnover Frequency: 135 Hz/250 Hz/500 Hz
- Crossover Characteristics (Subwoofer Out): 40, 60, 80, 90, 100, 110, 120, 160 and 200 Hz

Cinema Equalizer
- High Shaving Filter: Frequency 1 kHz — 12.7 kHz
- Parametric Equalizer: Frequency 1 kHz — 12.7 kHz

Manual Graphic Equalizer (Front/Center/Surround/Surround Back/Presence)
- f=63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz and 16 kHz
- Q=1.2, 3.0, 6.0, +6 dB/-6 dB

YPAO (Yamaha Parametric Room Acoustic Optimizer)
- +6 dB/-30 dB, 10 bands
- in 25 bands

Crossover Characteristics (Subwoofer Out)
- 40, 60, 80, 90, 100, 110, 120, 160 and 200 Hz

CINEMA DSP (Yamaha's unique technology for the creation of sound fields)
- Powerfully reproducing the three-dimensional environment that movie sound engineers aim to convey, in any audio format from monaural to the latest 6.1-channel digital surround. It is compatible with DVD and all other AV sources.

Yamaha CINEMA DSP Technology has received a patent in the U.S. (Patent No. 5,261,005).

For details please contact:
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DSP-Z9 Digital Home Theater Amplifier