

# Rotel RSP-1068

Robert Deutsch

# R

Rotel has been in the audio business for four decades, and they were among the first to recognize the importance of the developing home theater market. The last Rotel surround preamp-processor I reviewed was the RSP-1066, in January 2003, and it was a honey: good-sounding, full-featured, and priced at an affordable \$1499.

However, all products that include digital components suffer from the phenomenon of built-in obsolescence, and no manufacturer of such products can afford to rest long on their laurels. For pre-pros, there are always new DSP chips and D/A converters coming down the pipeline, and the folks at Dolby Labs and DTS are always introducing new surround modes. The Rotel RSP-1068 is an evolution of the RSP-1066 that incorporates more advanced digital technology, even more features, and additional refinements of analog circuitry.

## > SURROUND PREAMPLIFIER- PROCESSOR

### Technology and Features

A surround preamplifier-processor has three digital components: A/D converter (for analog sources that are to undergo processing rather than being passed through), DSP chip (for surround and other audio-processing functions), and D/A converter (for producing the analog output). For the RSP-1068, all three components have been significantly upgraded from those used in the RSP-1066. The A/D converters are now 24-bit/96kHz compared to 20/48 in the RSP-1066; the new DSP chip is a 32-bit Cirrus Logic CS49400, replacing the 24-bit CS49326 (a big increase in processing capability); and the new DACs are 24/192, not 24/96.

Less glamorous than the changes in chips but probably at least as important for sound quality is the change in power supply: the EI transformer has been replaced by a toroidal unit with higher output, and there are bigger power-supply capacitors and bigger heatsinks to accommodate the additional current. The circuit boards are made of a high-quality fiberglass that, according to Rotel's Mike Bartlett, is of a grade typically seen in much more expensive products.

On the video side, the RSP-1068 has 100MHz bandwidth component-video switching, which is high enough for HDTV. (The RSP-1066 I reviewed had only 10MHz bandwidth switching, though it was improved to 100MHz in later production.) And new with the RSP-1068 is its ability to convert composite and S-video signals to component video.

The RSP-1066 had a pretty extensive collection of inputs and outputs; the RSP-1068

## SPECIFICATIONS

**RSP-1068** surround preamplifier-processor

**Decoding formats:** Dolby Digital, Pro Logic II, Pro Logic IIx, Surround EX; DTS 5.1, 96/24, Neo:6; Rotel XS, 4 DSP music modes; HDCD, MP3, MPEG-2 multichannel

### Audio

**Frequency response:** 10Hz–120kHz, ±3dB (analog bypass); 10Hz–95kHz, ±3dB (digital input)

**THD:** <0.08%

**IM distortion:** <0.008%

**Signal/noise:** 95dB (analog bypass), 92dB (Dolby Digital, DTS), both IHF A-weighted

**Input sensitivity/impedance:** 200mV/100kΩ

**Output level/impedance:** 1.0V/1kΩ

**Contour (LF/HF):** ±6dB @ 50Hz/15kHz

**Analog inputs:** 8 L&R RCA, 8 multichannel inputs

**Digital inputs:** 3 coaxial, 2 TosLink optical

**Analog outputs:** Front L&R, Center 1&2, Surround L&R, Center Back 1&2, Subwoofer 1&2, 4 L/R Record outputs

**Digital outputs:** 1 coaxial, 1 TosLink optical

**Zone 2 outputs:** 1 L&R RCA

### Video

**Frequency response:** 3–100MHz (component)

**Signal/noise:** 45dB

**Input/output impedance:** 75Ω

**Output level:** 1.0V

**Inputs:** 5 composite, 5 S-video, 3 component

**Outputs:** 4 composite, 4 S-video, 1 component, 1 Zone 2 composite

**Other ports:** RS-232, 2 12V triggers, 3 IR

**Dimensions:** 17.01" × 4.8" × 13.43" (W×H×D)

**Weight:** 18.5 lbs

**Price:** \$1699

Rotel  
(978) 664-3820  
www.rotel.com



ROTEL  
SURROUND SOUND PROCESSOR RSP-1058

VIDEO 1  
STEREO

VOL 45

STANDBY

dts  
DC SERVO  
POWER  
REVISION  
HCCD

DISC TUNER TAPE VIDEO 1 VIDEO 2 VIDEO 3 VIDEO 4 VIDEO 5  
DOLBY DIGITAL DTS DSD MAST MUTE ZONE REC



retains all these and adds a third set of component-video inputs and a Zone 2 composite-video output—and the multichannel

input/output now has eight channels rather than seven. The RS-232 connection allows a host of new changes, including discrete volume access for both the main and second zones, discrete power on and off commands for Zone 2, etc. Like the RSP-1066, the RSP-1068 is software-upgradeable.

The power of the RSP-1068's new 32-bit DSP chip permits a great deal of additional flexibility in audio signal processing. The tone controls (which Rotel refers to as equalization) may now be separately adjusted for each channel (except in the multichannel bypass mode, of course). There are also independent crossover adjustments for each channel, independent subwoofer settings for each surround mode, and a wider selection of subwoofer crossover frequencies, as well as user-specified power-on volume, volume-change speed, and maximum volume. Also included is a feature that I've seen only in very high-end pre-pros, and not all of them: all-channel audio delay, which corrects problems with lip-syncing created by the delay of the video signal due to extensive video processing.

The surround modes include the usual Dolby and DTS array, plus the new Dolby Pro Logic IIx for 6.1- and 7.1-channel systems, Rotel's own XS 6.1 and 7.1 surround, and DTS 24/96. In my opinion, the range of surround formats and modes has now reached a level that I can describe only as *bewildering*; however, the RSP-1068's owner's manual has some of the clearest explanations I've seen of these formats and modes.

## Setup

For those experienced in setting up home theater systems, integrating the RSP-1068 into one should not prove too difficult. Conversely, for the individual who has not yet mastered setting the time on a VCR, the process can be daunting in the extreme. So many cables, so many plugs—so many ways to screw up. And then, assuming you've made all the connections correctly, you have to specify the speaker configuration, set levels and delays for each speaker, determine the subwoofer crossover settings and level (which can be different for each surround mode), match up video and audio inputs, set up the default surround modes for each input, adjust the tone controls for fronts, center, and surrounds, and make a host of other settings that may make you wish for the simplicity of 2-channel stereo.

In short, the price of the flexibility you get with a pre-pro like the RSP-1068 is correspondingly more complex setup and operation. What helps in this case is the logical arrangement of the various functions and the well-written owner's manual. (However, I question the decision to place the instructions for setup, including speaker configuration, at the end of the manual. It seems to me that this should be one of the *first* things to be covered.) For surround processing of digital sources, the decoding is usually automatic, with no override possible. With digital sources for which manual surround selection is possible, I was generally content to use the default modes, but it was good to have alternatives available when the default didn't sound quite right. My home theater system has five speakers rather than six or seven, because a) finding

## REVIEW SYSTEM

### Sources

Marantz DV-8400 DVD-Audio/Video/SACD player  
JVC HR-4700U S-VHS VCR  
Bell ExpressVu Model 6000 digital satellite receiver

### Display

Marantz VP-12S2 DLP projector  
Stewart FireHawk screen (100" diagonal, 16:9)

### Preamp-Processor

Primare SP31.7

### Power Amp

Primare A30.5 Mk.II

### Speakers

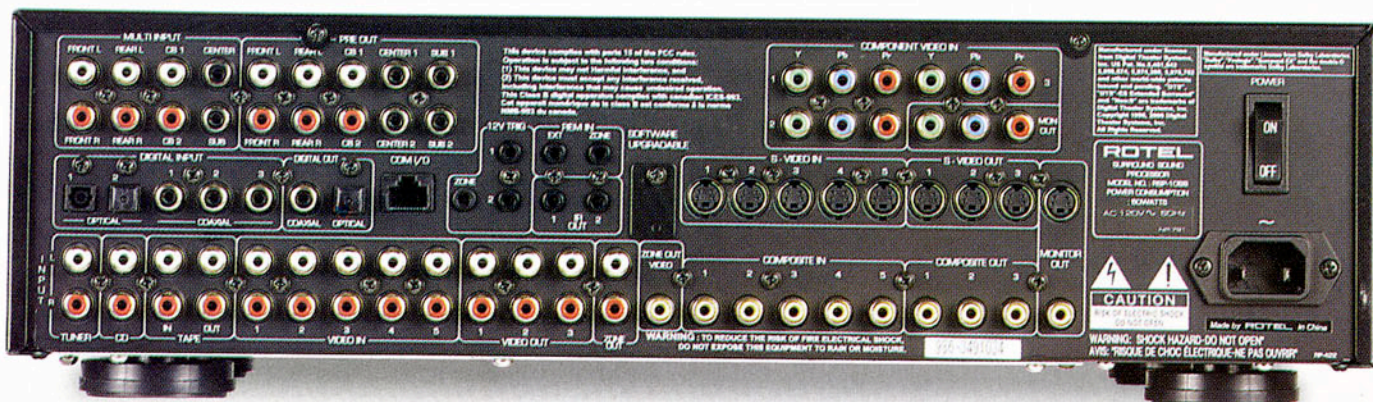
Dunlavy SC-1 (5)  
Bag End Infrasub-12 subwoofer

### Cables

**Digital:** Transparent Premium 75Ω  
**Interconnect:** Transparent MusicLink Plus  
**Speaker:** Transparent The Wall Plus  
**Video:** Transparent Premium S-video, component video;  
Monster DVI-500, Ultralink RGB

### Misc.

PS Audio Ultimate Outlet  
PS Audio P-300 power-line conditioner



space for the extra speakers would be very difficult in my room, and b) I'm not convinced that the extra speakers would provide a corresponding sonic benefit.

The metamorphosis of the RSP-1066 into the RSP-1068 has brought with it some welcome changes in setup and operational logic. The onscreen display is now available at the component as well as the composite and S-video outputs—very useful. Delay for individual speakers is set simply by entering speaker-to-listener distances rather than the more cumbersome procedure used in the RSP-1066, which involved calculating delay times.

And the RSP-1068 has a new remote control, the RR-1050, which addresses most of the criticisms I had of the RR-969 remote used for the RSP-1066. Input selection is now controlled by buttons in the main part of the remote rather than by ones hidden under a sliding panel. (But the important EQ and manual Surround Mode selection buttons are still hidden—maybe the *next* Rotel remote will correct this.) The RR-1050 can control several other components in addition to the RSP-1068; it's a learning remote with preprogrammed codes for Rotel equipment.

One operational quirk is that when a source has been selected, the remote switches over to control the operation of the selected component. If you then want to control the RSP-1068 (which I would expect to be the default mode), you have to press the Audio button. One highly welcome change with the RR-1050 is that Mute (located just below the Volume Down control, where it belongs) can now be overridden by pressing Volume Up,

rather than only by pressing the Mute button again, as was the case with the RR-969. Pressing a switch on the side of the remote illuminates most of the buttons, but only when there's very little ambient light, thanks to a light sensor—nifty.

#### Music and Movies

No matter how numerous and elaborate the features, or how complex the various audio processing parameters, a preamp-processor ultimately succeeds or fails on the basis of its overall sound quality (and whether or not it visibly degrades the image quality). My usual routine in evaluating a pre-pro is first to listen to it informally for a couple of weeks, giving the unit a chance to break in, with just approximate settings. Once it seems that the component's sound has settled down, I then tweak the various settings and listen with a more critical mindset to some familiar music sources (CD, SACD, DVD-Audio), and watch/listen to DVDs.

My initial impression of the RSP-1068's sound was that it was clean, detailed, dynamic, and transparent, but a bit more bright and aggressive than what I remembered of the RSP-1066. It was as if, in designing the RSP-1068, Rotel had decided to go for greater transparency and detail while giving up some of the RSP-1066's more "forgiving" sonic character. Fair enough—this is a tradeoff that designers of high-end preamplifiers often make, and the RSP-1068's tradeoff was certainly an acceptable one.

However, as I continued listening to the RSP-1068 over a period of several weeks, it seemed to me that the sound was undergoing

a significant change. The brightness and aggressiveness became less pronounced, to the point that these descriptors no longer seemed to apply. Of course, it could be argued that I was just getting used to the sound, and that the "break-in" was in my mind, not in the equipment—a sort of habituation phenomenon that is always part of the process of evaluating a new piece of equipment. But I think there was more to it than that. I had not observed a break-in phenomenon of similar magnitude with the RSP-1066. I have no idea why the break-in would be greater for the RSP-1068; all I can do is report that it *was*.

With the RSP-1068 fully broken-in, the sound was very impressive indeed. "All That Jazz," on the DVD of *Chicago*, was tremendously exciting, the orchestral details coming through with great clarity, voices sharply defined in space, and no excessive sibilance or harshness. The surround effects were first-rate, and I was at times surprised by voices coming from the rear that I had not identified as clearly before. In the opening scene of *Tomorrow Never Dies*, the announcement of "One minute to impact" came very clearly from the PA system in the war room. My sense is that the latest DSP chips, as implemented in such products as the RSP-1068, continue to improve the effectiveness of decoding Dolby Digital and DTS soundtracks, with gains in basic sound quality as well as improved directionality of surround effects.

The RSP-1068 performed very well in the analog mode, too. I played various SACD and DVD-A discs, and the RSP-1068 effectively demonstrated that these high-resolution formats indeed sound superior to Dolby

Digital and DTS for music reproduction. When I switched between the SACD and CD layers of hybrid discs, the RSP-1068 was sufficiently transparent to reveal the more airy top end of the SACD layer.

In my new video-projector setup, I use a DVI connection for DVD, RGB for HDTV, and S-video for ordinary TV and VCR signals—I don't really need the RSP-1068's component-video inputs/outputs. However, I did a comparison of HDTV via component video routed through the RSP-1068 vs. directly to the projector; both component connections produced a softer picture than RGB, but there was no visible degradation through the RSP-1068. Rotel's claim that the RSP-1068's video circuitry has sufficient bandwidth for HDTV is confirmed.

I also checked out the Temporary Group Delay feature, intended to correct for lip-sync problems due to video-processing delays. My Marantz VP-12S2 projector does not have a significant inherent delay, but some HDTV shows do have lip-sync problems, and the RSP-1068 was effective in correcting for them. The fact that the adjustment is tempo-

rary, canceled when the source is changed or the unit is turned off, means that there's less likelihood you'll end up watching a show with delay compensation that's not needed.

## Comparison and Conclusion

The last preamp-processor I reviewed, and which I still had on hand while reviewing the RSP-1068, was the Primare SP31.7 (\$3995; see January 2004). The SP31.7 is a beautifully built piece of equipment that provided the best sound quality I've experienced in my home theater. When I reviewed the RSP-1068's predecessor, the RSP-1066, I described it as an excellent performer offering outstanding value for the price, but I thought it sounded just a bit "electronic" compared to a much higher-priced prepro, the Anthem AVM 20 (\$3199). Because I consider the Primare SP31.7 to sound even better than the AVM 20, I expected the RSP-1068 to once again sound "good for the



money," but not really competitive with the more-than-twice-the-price Primare.

When fully broken-in, the RSP-1068 came *astomishingly* close to the SP31.7 in sound quality. The overall clarity, dynamics, and surround effects fully matched the more expensive processor, and the Rotel's feature set and ergonomics are actually superior. The Primare still maintains a lead in the natural transparency of its highs, but the difference is very small indeed. Rotel has come up with another great product at an affordable price. 