

# SECRETS of Home Theater and High Fidelity



## Product Review

DVDO iScan VP50 High Definition Video Processor

January, 2007

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## Introduction

The VP50 is the immediate successor to the **VP30** which I reviewed in February of 2006.

A lot has happened since the VP30 was initially released. Anchor Bay Technologies (ABT) has now made available the Precision De-interlacing daughterboard - which converts the VP30 into one of the best de-interlacers that I've seen to date. Born with the code name "Ducky Lucky" (or DL for short), the ABT102 daughterboard handled SDTV sources only.

The VP50 is the next evolutionary step beyond the VP30. Not only does it contain the "Ducky Lucky" algorithms (yet another Dale Adams masterpiece algorithm), it finally supports HDTV de-interlacing.

### Specifications:

- Video Inputs: Two Composite, Two S-Video, Two Component, Four HDMI, One RGBHV, One SDI
- Audio Inputs: Four HDMI, Two Coaxial Digital, Two Optical Digital, One Analog Pair
- Video Outputs: One Component, One HDMI
- Audio Outputs: One Coaxial Digital, One Optical Digital
- Dimensions: 2.2" H x 17" W x 10.4" D
- Weight: 8 Pounds
- MSRP: \$2,995 USA

### DVDO

[www.dvdo.com](http://www.dvdo.com)

Just like the VP30 add-on, which supports crazy cadences, and maintains a proper lock - so does the VP50. The VP50 behaves almost identically to the VP30, with better de-interlacing of HDTV sources.

The VP50 also adds a few more toys, some of which I found to be useful and some that require more work. The Gamma Correction feature is a new addition that gives you the ability to change global gamma settings (mostly useful for projectors) or individual color gamma values (mostly useful for . . . uh . . I can't think of where this might be useful).

Essentially, what's missing is the ability to custom control various data points along the gamma correction graphs instead of having them conform to the usual correction formulas. This would have allowed us to use the unit to improve display calibration from good to perfect, albeit with a reduced color range (i.e., this could cause increased banding in some cases).

The company who pioneered this idea (Lumagen) has been improving it throughout the years, and we've already seen similar features coming from companies like Pixel Magic in their Crystalio II product.

The implementation here is mostly a proof of concept, which shows that the unit is capable of such features, but that the missing ingredient is still not there (PC software to customize the graphs, or preferably on screen menus to control each point like with the Lumagen and Pixel Magic products).

ABT has pioneered the use of adaptive audio inputs for their products. The VP50 is no exception, and it contains a single analog audio input (I would have preferred at least one more), two optical digital and one coaxial digital audio input, as well as the ability to decode audio (standard formats only, not the HDMI 1.3 formats!) from the four HDMI inputs.

The audio inputs serve as both a switch and a lipsync delay engine that adapts itself to the source as necessary. I personally prefer to use a fixed delay and have all my audio driven through my A/V receiver, but many people prefer a single source that switches both video and audio for their system. While "normal folk" would typically use their A/V receiver to do both - the ABT way is to use their system for the task. The advantages are clear, but the main disadvantage was recent findings that in some combinations of sources and receivers, there were a few issues like audio dropouts, noise bursts, and other problems. ABT has been hard on the heels of these issues, and they hope that the upcoming firmware releases will mark them a historical footnote.



With regards to video inputs, the VP50 is no slouch. It contains no less than four HDMI inputs, more than enough for most people, two analog 5xBNC RGBHV inputs, two composite, and two S-Video inputs. Picture quality (PQ) on all of these inputs is exceptionally clear, and I have not seen a particular problem with those inputs.

The VP50 is capable of transcoding analog HD video to digital and vice versa (unless HDCP is active).

## Performance

Of course, most people are going to purchase the VP50 for its HDTV capabilities, but let's start with the SDTV processing. Using the DVDO (Spears & Munsil) test disk shows how far the ABT algorithms have taken us in recent years. I remember not too long ago when using the video mode was my equivalent of water torture. With fixes like the Faroudja DCDi algorithm, video was barely edible - but add something a bit more complex like 2:2 cadence or bad edits and you're in the twilight zone of video de-interlacing artifacts - jaggies, combing, line twitter, judder, and practically anything else you can guess.

The HD "Ducky Lucky" algorithms take the ABT102 and push it slightly further - they further reduce the already tiny number of cases that I watch a display and mention how bad the image looks. The image is simply maximized to the best the source can be

shown, without adding artifacts to the mix.

Next, I subjected the unit to a test round of torture. This is a test DVD that I recorded, composed of the toughest 2:2 and badly edited content available to me. It includes sequences with unmatching cadence subtitles, overlay sequences, noisy sequences, badly edited video montages, and so forth. The VP50 passed with almost a perfect record - I found slightly fewer combings than with the VP30. This puts the VP50 as the forerunner for SD de-interlacing.

Nothing is perfect, however, and the VP50 had a tough time with a Jackie Chan movie that apparently has something strange that causes most de-interlacers to think Film mode is enacted. The only way to get the unit to stop combing was to put it in Game mode. The test sequence was sent to ABT for review.

The frame rate conversion of the unit, in par with the capabilities of the VP30, is exceptional, and even when I do 50->60 Hz conversions (necessary for some displays that are incapable of supporting native rate at 50 Hz), judder is kept to a minimum.

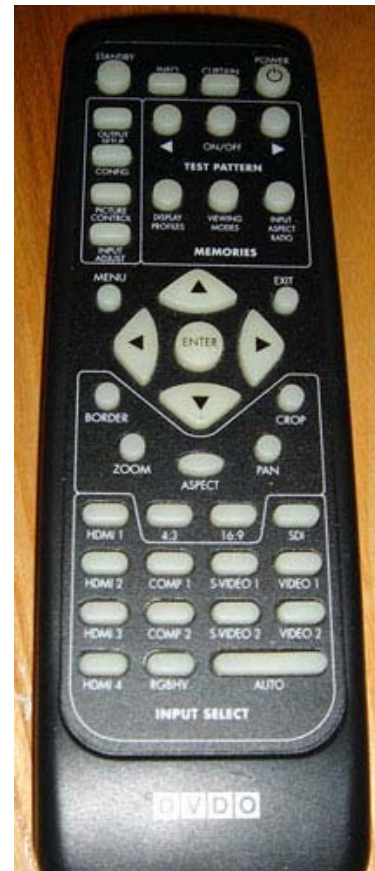
There's a generous number of Genlocked (source locked - preventing lost or repeated frames) rates for each source, more than enough. Handling of 24 fps is still pending, to be tested with more devices that provide it as an output (Sony BD players) and receive it as an input (Sony projectors).

If we add HDTV to the mix, we have to talk about 1080i-to-1080p processing. To test that, I primarily used a Pioneer PDP5000EX plasma display. First, we set the display to native rate (dot by dot) and used the VP50's built-in test patterns (ten of which I designed) to ensure that perfect matching was enacted. I did not need to change to custom timing, but this would be the point where a more experienced user could adjust the VP50's output timing to ensure everything is ok.

Once native rate mapping had been tested and I calibrated the display, it was noticeable that the VP50 needed a slightly elevated brightness setting on its analog and digital inputs. This is strange and has been reported to the company. There should be no reason why calibrated digital outputs would need anything other than 0 brightness on digital inputs.

I used several HD sources and content, including 1080i60, 1080i50 (2:2 cadence), and 720p (using only 3:2 60 Hz content). Extra details, brought out by the new processing were easily seen. The picture was exceptionally clear, and even 720p sources looked better with the VP50.

It should be noted that the unit senses 3:2 on 720p sources, which allows it to convert the signal to 48 Hz or 72 Hz without a problem. As the Pioneer plasma supports 72 Hz, I tried this, but saw no real benefit (projector owners will probably see a slightly better image with less judder).



My typical HD test sequences, composed of the typical mix of Sci fi movies (*The Fifth Element* - Lilo's birth scene, several *Star Wars* sequences) produced amazing results. Details were extra ordinarily crisp. However, even when I fed the plasma interlaced sources, it did pretty good on its own. I would expect that the reason behind this is that most 1080i content has fairly good cadence locks. The area where the VP50 "should" shine is 1080i video mode. However, I had a tough time finding anything that was in 1080i video mode to test with.

The VP50 uses the familiar ABT user interface, which is very friendly and easy to get used to. Custom input and out aspect ratios should cover every conceivable user requirement. My main annoyance with the custom input aspect ratio was the inability to assign custom aspect ratios to 2-3 buttons on the original remote. Discrete timing information posted on ABT's website will let anyone with a Pronto (or Pronto discrete code compatible) remote to directly access aspect ratios. I guess I'm old fashioned, but I prefer to learn the remote control button features directly from a remote when possible.

Output profiles are very useful and can be assigned to be recalled on a per-input and even per-format basis. This allows you to quickly switch from your plasma to your projector (analog vs. digital outputs) and could be a nice prelude to a multi-zone processor (no consumer multi-zone processor has been announced so far, though!)

The Prep feature is one innovation I found very interesting. As a processor owner, you are often told to configure your sources to output interlaced signals rather than de-interlaced. After all, a processor can only improve on something that hasn't already been "corrupted" by another processor. However, there are quite a few situations where you can't really conform to that requirement. Many people already have a terrible DVD player that they want hooked up and improved upon. Several STBs only support progressive HDTV output, even when the original source material is SDTV. De-interlacing in these cases is usually pretty bad, and a processor can't really do much to help.

Prep was basically designed to overcome this core issue. It senses these conditions and re-interlaces the original data and detects (using similar techniques that are used to detect cadence) the two field sources and then de-interlaces them again, this time doing it properly.

How well does this work? To be fully honest, the verdict is still out. I need to test this with a lot more sources to be fully convinced that it works. I'm still convinced, of course, that processors should get the source material as closely as possible to the original content (i.e., SDTV should be sent as interlaced format, 720p should be processed as such and 1080i should be passed as is). My intial tests show that Prep does improve upon typical de-interlacers found in most DVD players and does make a difference when presented with progressive sources. How much of a difference? Like I said, I am not convinced the difference is night and day, I would say that it's far closer to optimal than what you would get without a processor in the middle.

Something that ABT has not improved upon in quite a while is the scaling algorithm. While it was sufficient for 720p projectors, which needed 480i (SD) scaled to 720p, representing a 50% increase in the number of scan lines, 1080p displays show that the ABT scaling algorithm needs to be addressed quickly. Feeding SD content to such a display, particularly one that has letterbox marks shows clear ringing that is the result of a less than ideal scaling algorithm. Processors like the Lumagen HDQ ring far less given the same input and output conditions. Of course, given a less rigorous scaling ratio (e.g., with 720p displays), the situation is far less noticeable. However, ABT should start

investing in a better scaling algorithm in the very near future.

A nice addition that users have been asking for in recent years, is an alternate silver front panel for the unit. I personally believe that there are two types of processor owners. The first are the practical users that hide the unit, along with other black anodized equipment, in the back of the room and set to show absolutely no visible lighting. The other kind puts everything right in front where everyone can ask why that person (let's use me as an example) has fifteen different boxes doing what most people only need four pieces of equipment to do. The most visibly challenging pieces in my equipment rack are processors, which don't really have any visible reason for being on the rack. Such people need their devices to be as flashy and obscurely designed as possible (see Faroudja, Extron, and Algorith box designs for good examples of what I mean).

Unfortunately, both the silver and black front panels don't really deliver the goods. ABT should hire a designer to get out of the rut - practical boxes are out and good looking pieces are in. The VP50 has all the potential of being such a piece, it has nice buttons and back lit LCD in front. It just needs a better box design to go along with it for those users. I know of at least one case (a scaler by Key Digital) where users revolted against the typical black anodized design of a processor and simply redesigned it and started producing alternate front panel designs.

Last but not least, the VP50 hosts an optional precision SDI input. With the proliferation of HDMI enabled players, even those that are capable of passing along interlaced output (e.g., Oppo 970), I see less of a need to support SDI. It primarily serves the good old CRT projector community, but those are becoming a rare breed that suffer from a serious lack of HDCP disabled sources. Although I still own an SDI player (my good old trusty Panasonic RP56), I think ABT should eliminate that input and employ the valuable back panel space for something a bit more useful, or just space the HDMI jacks farther apart.

## Conclusions

In summary, the DVDO iScan VP50 is a great digital video processor. It still needs some work (audio glitches, aspect ratio, some features like the overscan), but it's probably the best deal for the cash at this point in time, particularly for anyone needing HD de-interlacing.

**- Ofer LaOr -**

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