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# SIM2 HT300 E DLP Front Projector



I've been reviewing a lot of DLP front projectors lately, so why another one? Well, SIM2 claimed at CEDIA '04 that the HT300 E would be the first projector on the market to use the very latest iteration of TI's HD2+ DLP chip, the so-called DarkChip3 DMD (Digital Micromirror Device). The DarkChip3 (DC3) has the same 1280x720 pixel count as earlier HD2 chips, and TI only claims that it reduced the size of the mirror hinges on the DMD, used flatter mirrors with

experience with the HD2+, and the fact that SIM2 has consistently produced outstanding DLPs, I was more than curious enough to give the DC3-powered SIM2 Grand Cinema HT300 E a look.

## Features and Technology

The HT300 E is a single-box projector at \$11,995 that occupies the middle of the SIM2 lineup. SIM2's more ambitious and more expensive

**The HT300 E is tailor-made for movie lovers, and for that task the HT300 E has no peer among the DLP projectors I've seen.**

better reflectivity properties, and reduced the space between pixels for a better "fill factor." Big deal, right? Well, that's what I thought when TI rolled out its HD2+—that it would be an incremental change at most. But it turned out to be more. Given my expe-

rience with the HD2+, and the fact that SIM2 has consistently produced outstanding DLPs, I was more than curious enough to give the DC3-powered SIM2 Grand Cinema HT300 E a look. products use SIM2's LINK technology, which has a separate video-processing box to which sources are connected (see Issue 56's review of the HT500 LINK). Compared to the LINK components the connectivity of the HT300 E is barebones. In addition to a single

component/RGB input that accepts signals from 480i to 1080i, there is an RGB input on 15-pin D-sub and an HDMI input that's HDCP-compatible. My only gripe on the HT300 E's connectivity is its inclusion of just one HDMI input. Like all of SIM2's projectors, the HT300 E uses Faroudja deinterlacing with DCDi.

A number of menu items in the HT300 E are different than other SIM2 projectors I've seen. First, there is no lamp intensity adjustment, and SIM2 doesn't do iris adjustments, either, so there is no way to goose more light output out of the projector for daytime-viewing, watching sports events, etc. Each physical input has three sets of image adjustment memories that can be saved and recalled, and each has its own user-adjustable color temperature and gamma curves, which is excellent flexibility. Unfortunately, the user interface for adjusting both color temp and gamma is a step backward from what I've seen in previous SIM2 designs.

SIM2's HT500 LINK has an excellent and straightforward way of choosing color temperature—you select the temperature you want in increments of 100 degrees (6500K, for example). The HT300 E, on the other hand, shows an incomprehensible trapezoid with a cursor that moves within the grid when numbers from 1–36 are selected. The user manual makes a point of showing the CIE chromaticity chart, but doesn't adequately explain how it corresponds to the grid you see on screen. Bottom line: There is no effective way for anyone not equipped with a color analyzer to

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even get in the ballpark for color temp.

Similarly, where the SIM2 HT500 LINK allowed selection of the gamma curve by the value of the curve itself—i.e., 2.2, 2.3, etc.—the HT300 E has twelve curves numbered 1–12. The user manual doesn't say which values each number corresponds to, advising users to "choose the best curve for the signal and the image in use." (At press time, SIM2 informed me it is aware that these menu items are less than helpful, and that upcoming software updates will remedy the situation.)

SIM2 has chosen to stay with a six-segment color wheel instead of going to the seven-segment wheels some manufacturers working with the HD2+ chip-set have employed. SIM2 doesn't feel that the reduction in dithering artifacts that the extra segment imparts outweighs the loss in light output and increase in color-separation artifacts.

### Performance

Throughout the review, HD was provided by the Samsung SIR-T160 DirecTV set-top box via DVI/HDMI, and, though I used this projector to evaluate all of the DVD players reviewed in this issue, I assessed the HT300 E primarily with DVD movies through Ayre's spectacular DX-7 via DVI/HDMI.

Two things immediately struck me

upon firing up the HT300 E—one real and one apparently not as real. The first and most striking was that the image looked subtly higher in resolution than other DLPs I've seen, but in a more seamless, organic way. Since the pixel count is the same 1280x720 as other DLPs, I've no doubt this is due to the DarkChip3's increased fill factor, which means less "dead space" around the pixels. The HT300 E has the same allure that D-ILA projectors have always had in this regard, which admirers of CRT front projectors have been quick to latch onto. I found this image density and solidity sensational with the best movie transfers on DVD and HD alike, and decidedly un-digital in feel. Each successive iteration of the HD2 family of DMDs (Digital Micromirror Device, the general name for Digital Light Processing chips) has been a step forward, and the DC3 is no exception.

The thing I noticed that turned out to be somewhat illusory was the immediate sensation of extraordinary dynamics and contrast. Let me explain. Watching the HT300 E I was utterly convinced its contrast was right up there with the best I've seen. Given that the HT300 E's grayscale performance and color performance were so excellent (see Setup and Calibration Notes) I didn't adjust the grayscale and didn't feel compelled to measure the contrast ratio until I was finalizing

this review. I was quite shocked to find it to measure around 1400:1 when calibrated for home-theater viewing. This is outstanding, but not equal to either the Sharp Z12000's 1800:1 or the Marantz VP-12S3's 2100:1.

What does this mean? Nothing to me, except to show how deceptive test numbers can sometimes be. When I watched movies with this projector, the image always felt punchy and dynamic, and, at the same time, rich and extraordinarily film-like. I think even the most demanding movie viewers (and I consider myself just that) will be as thrilled as I was watching movies on this projector.

Another contributor to the HT300 E's gorgeous image quality was its color palette. Greens and reds have been bugaboos for some DLPs, but not for the HT300 E. Reds are deep and pure, making reds, browns, and flesh tones look extraordinarily righteous. The HT300 E's greens never strayed to the lime region that plagues other designs. Greens of different shades were so vividly differentiated I could even tell which stadiums use the new artificial "field turf" surface on *NFL Sunday Ticket* games!

With HD, as you can see in the measurements in the technical sidebar, the HT300 E showed more resolution when fed 720p test signals than 1080i. Though the difference wasn't noticeable in practice, if you buy this projector I'd suggest some back and forth with your HD STB to see which rate looks best.

With component-video outputs, you'll see little to complain about in 480p DVD or HD. But you also won't have any trouble seeing that the HDMI connection is higher in resolution and bandwidth (and the measurements back this up). Of course, the bottleneck is that there's only one HDMI input, so if you have a DVI/HDMI-equipped DVD player and STB, you're hosed. I like the extra resolution enough that I'd either switch manually between sources (a minor

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pain in the neck, but that's the way I do it) or buy a DVI/HDMI switcher like the Gefen reviewed by Randy Tomlinson in Issue 59, which at \$250 is a very cost-effective solution.


How does the HT300 E stack up against its competitors like the \$10k Sharp Z12000 and the \$13k Marantz VP-12S3? I've stated before that premium HD2+ single-chip DLP projectors like these three have the best black levels of any fixed-pixel devices and are currently my choice for price/performance in front projectors. No single-chip DLP I've yet seen matches the HT300 E's sense of seamless and natural resolution with the DC3 chip. The Sharp is competitive with the SIM2 with respect to its CRT-like blacks, gamma performance, and shadow detail on movies, but the Sharp's colors aren't as pleasing, with a red that's more orange-ish than I prefer. The Marantz's colors are at least as good as the SIM2's, especially its deep reds. But, while the Marantz has better contrast ratio than either the Sharp or the SIM2, its gamma curve makes it look a hair more like video than film. Both the

Sharp and Marantz have irises that can be opened up for more light output for sports or other run-of-the-mill TV watching, which make for a punchier image with that kind of material. The SIM2 isn't deficient in light output but is clearly optimized for movie-watching above all else, and at that it excels.

As mentioned earlier these other HD2+ projectors use the new-fangled seven-segment color wheels, and SIM2 doesn't. Who's right? Everyone! Neither the Sharp nor Marantz projectors troubled me with rainbows. I consider myself medium-sensitive to rainbows, and only occasionally did I see them on those projectors—usually at crisp black-to-white transitions, such as a white shirt with a tuxedo. With the Sharp and Marantz projectors rainbows were sometimes present, but not nearly enough to take me out of the movie experience. With the HT300 E, I can't recall a single instance in which I actually saw a rainbow artifact. SIM2's six-segment wheel pays dividends in this regard. If you're extra-sensitive to rainbows the HT300 E might be one for you.

And yet the Sharp and Marantz projectors do show less dithering noise at low light levels, just as the two companies claim. During some nighttime sequences the SIM2 looked a little grainier and a little noisier than I remember the others looking.

## Conclusion

There is intense competition among single-chip DLP projectors in this price range. I wish I could say one stands head and shoulders above the others, but each has its own unique advantages. The SIM2's advantages include a DMD that's TI's best yet. The HT300 E has a seamless look that makes its 1280x720 pixel count look more high-rez, more cohesive, and less digital in ways that are hard to describe but easy to see. In addition, its color fidelity is excellent, and it excels down near black, so that movies look sumptuous and rich. The HT300 E is tailor-made for movie lovers, and for that task the HT300 E has no peer among the DLP projectors I've seen. And that's what carries the day for me, making this projector a slam-dunk high recommendation. 


## Setup and Calibration

**A**s usual, measurements were taken at the plane of my 80" (16:9) Stewart Filmscreen StudioTek 130 screen. The projector was about 14 feet from the screen and was set up for home-theater viewing, with no white or black crush or color shift at the high-end. Set up in this fashion the HT300 E delivered 12.69fL on a 100 IRE white window and 0.009fL on a black frame. This translates to a sturdy but not spectacular 1400:1 contrast ratio. That noted, I not only had no problem with the dynamics of the HT300 E, I subjectively found it excellent, as I said in the review.


Using a color analyzer and viewing an 80 IRE window I scrolled the color temps until I found one closest to 6500K. This was color temp No. 36 and not only was it dead-on at 6500K at 80 IRE, it was within 100K of 6500K through most of the range from 20 IRE to 100 IRE, never varying more than 200K at any point, and produced gorgeous colors.

Very slight chromatic aberration was evident on the far sides of the screen, less than a pixel in width, which is excellent. I also fed luma and chroma bursts from an Accupel signal generator via DVI and component video at a variety of signal resolutions. With DVI, 480p bursts at a single pixel's width were visible, which is as good as it gets. At 720p the single-pixel-width full-bandwidth luma and chroma bursts were visible, with very minor banding and noise, which is as good as I've seen. At 1080i however, there was a significant roll-off at the highest luma and chroma frequencies, which essentially means that when 1080i goes in less than full 720p comes out. Sharp's less expensive Z12000 does better with 1080i via DVI, and I'd like to see this projector do better.

Component-video tests were a mixed bag. The 480p was excellent in resolution, but noisier than I'd like; 480i on the other hand didn't show any resolution at the single-pixel-width bursts. HD 720p signals showed very strong resolution at single-pixel widths but also more noise and banding artifacts than I wanted to see. 1080i showed no resolution at the single-pixel-width area of the bursts, but showed less noise and banding. **SB**



- Seamless, solid, very un-digital resolution
- Rich blacks, killer contrast (measurements be damned!)
- Gorgeous colors



- 1080i signals lose resolution
- Only one HDMI input

### SPECIFICATIONS

Technology: Single-chip DLP front projector  
Resolution: 1280 x 720  
Inputs: One HDMI, one RGB/component on RCAs, one each composite and S-video  
Dimensions: 16" x 11" x 16"  
Weight: 12 lbs.

### MANUFACTURER INFORMATION



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10108 USA Today Way  
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Price: \$11,995