Market Intelligence

New Survey Shows Interest and Challenges for China 3DTV Market

During the 9th C3D World Forum & Exhibition (Shenzhen, China), China 3D Industry Association (C3D) Secretary-General Mr. Levin Tang announced the results from the *2012 3DTV Trial Channel Consumer Report*. The results are based upon an online survey of 1,200 consumers who are over 18 years old and are registered cable digital TV users. The investigation covered first-tier and second-tier cities around China, as well as some third- and fourth-tier cities selected randomly.

China's main TV broadcaster, CCTV, began broadcasting 3D content at the beginning of the year. This has been heavily promoted, and the Chinese government is encouraging TV makers to offer 3DTV models and content creators to produce 3D content. These "incentives and requests" can be a powerful engine to drive the nascent 3D industry in China — and one we will be watching very closely.

Jim Chabin, CEO of the International 3D Society, was recently in China and said the Chinese government plans to offer 10 3D channels over the next five years. These will include themes such as arts, entertainment and drama, including a 3D news channel.

But there remain hurdles in reaching this goal, as the results of the survey point out:

- 77% of consumers are generally aware of the 3DTV channel. Of these, about 60% are mostly interested in local content.

- Consumers' willingness to watch a 3DTV channel is quite high — about 95% of those surveyed. However, a limited installed base of 3DTVs and 3D-capable HD set-top boxes is limiting consumers' ability to watch 3D content.

- Consumers are most interested in 3D movie trailers and upcoming shows, while least interested in the technical details of 3D broadcasting.

- Topping the list of interest in 3D content are movies (including animation). Live-broadcast sports and variety shows are also among the favorites of consumers.

- The broadcasting of 3DTV trial channel substantially boosted the sales of 3DTV sets and spurred content production.

Feedback from consumers regarding the China 3DTV trial channel showed some serious problems. For example, consumers complained that the "program's dual-screen convergence distance is not unified or too big, and that people could not watch without adjustment." The study organizers said, "A high-quality 3D program requires convergence distance to be less than one centimeter; the picture should be clear even without eyeglasses, and the convergence distance shall remain consistent throughout the broadcasting of the program picture."

We don't quite understand this statement, as there may be some translation issues involved, but we think they are referring to the parallax of the 3D content and its impact on the 3D volume or 3D effect. The more out of screen 3D effect, the harder it is for consumers to fuse the two images. The survey organizers noted that the 3D effect seemed to vary considerably from

program to program, and even though consumers could adjust the 3D effect, one setting did not suffice for all programs.

However, the organizers concluded that there are serious technical problems that exist during the relay (broadcast), and that this may be the result of inconsistent 3D content specifications and unstable quality output.

As a result, C3D offered several suggestions for ways to improve the situation. This included:

- Expanding the number of 3D channels and stations as most Chinese households are not equipped with HD set-top boxes to receive 3D signals. The development of 3D video Websites and program downloads may be one way to augment 3D broadcasting.
- More consumer awareness of how the 3DTVs work, the use glasses, and any harmful impacts needs to be undertaken.
- 3DTV manufactures should strengthen the after-sale services, set up 3D channel demos at retail, and teach consumers how to set up and receive their 3D programming.
- More diversified content needs to be developed, especially for younger audiences who have high expectations for 3D content.

–Chris Chinnock

Content Creation Tools

Arqspin 2D Images Spin in 3D Space

3D imaging is moving closer and whetting the appetite for extended display information. Case in point is the new Arqspin technology that offers an app (iOS device) to help users create, edit and publish image "spins." These can be made for specific objects and extend the view by rotating them in free space. The company calls its Arqspin method "interactive visualization" used for sharing and embedding into Websites.
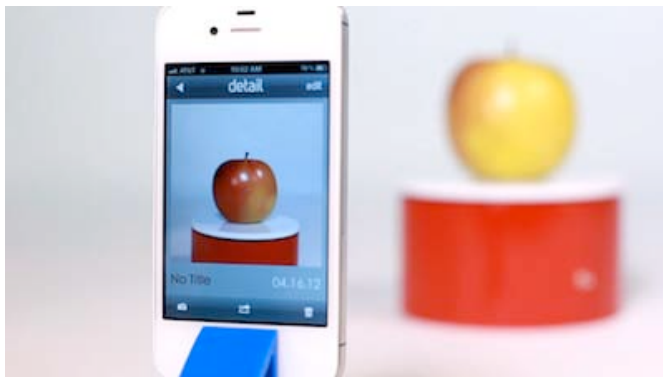
Arqspin iPhone app takes 2D images for 3D spin

Spins are created by using an iPhone or iPad with the app, plus a hardware "stage." The capture process is about 60 seconds on a basic iPhone4S, where the app takes a series of pictures and compresses them for a 360-degree view of the object. The company sells its stage-rotating platform, letting users rotate a 3D object, for scanning with a constant rate of speed. The app is also being upgraded to

support 3D labeling that will rotate with the object.

Target applications for the solution include education (particularly archaeology and architecture), online commerce, manufacturing, medicine, industrial design, even journalism and culinary arts.

We came across another AS-3D app from UK-based Inition that targets point-of-sale images called DepthCatcher software, which allows positioning of objects in 3D space with discrete control over the depth using on-screen controls. It converts live 2D scene into AS-3D using a single-lens camera, and even Webcams. The company said it allows users to create 3D content "in a matter of minutes."

For now, the software is only compatible with Alioscopy AS-3D displays, but the company said it will extend support for Philips and Dimenco displays "soon" along with future upgrades that will create playlists. *–Steve Sechrist*

Autodesk App Turns iPad Photos into 3D Models

Autodesk (San Rafael, CA) has announced a new app called 123D Catch, which was released in beta a year ago, is now available for iPad on the App Store. This app lets users take images from their iPad camera and upload them to the Autodesk cloud service that transforms the images into a 3D model.

"The Autodesk family of 123D products breaks down barriers between the physical and digital, empowering users to customize the world around them," said Samir Hanna, vice president, Consumer Products, Autodesk. "The launch of 123D Catch for iPad allows anyone to capture, explore, experiment and experience the 3D design and personal fabrication process."

Captures made in 123D Catch can also be used as the foundation for further 3D modeling, 3D animation, or used to create a 3D printed object. Part of the 123D family of products, 123D Catch users can take advantage of a connected group of Autodesk software, fabrication services for 3D printing and laser cutting, and a community of like-minded individuals focused on 3D design and personal fabrication.

A short video can be viewed here.

While not specifically mentioned, the captured models should interface with Auto CAD, Maya or 3DS max also, which can then be used to output stereo pairs of images. *–Chris Chinnock*

TV

Sharp Introduces 3D, 4K TVs

Sharp Corporation (Osaka, Japan) announced on April 18 its latest 3D Aquos G Series for sale in Japan with not less than six new models, including a gigantic 80-inch model. With size ranging from 40 up to 80 inches and prices ranging from 160,000 up to 950,000 yen, ($2,347 to $11,737), these new TVs comes with UV2A panels, LED backlight, a 7,000,000:1 dynamic contrast ratio, 240Hz panel, and Sharp's latest audio engine. Like previous models, the G Series comes with DLNA support and Sharp Aquos Android remote control.

All of the systems are, of course, FHD (1920 x 1080). They have four subpixels per pixel, red, green, blue and yellow, for a total of 8,290,000 subpixels compared to 6,220,000 subpixels in a RGB set. While these TVs are 3D, this was not emphasized in the Sharp releases. Presumably, active shutter glasses are required.

Photo credit: Sharp

Sharp also announced that it will offer 4K TV in Japan before the end of this year. According to Akihabara News, Sharp will be demonstrating these 4K TVs at the 2012 CEATEC October 2–6 at the Makuhari Messe outside Tokyo. *–Matthew Brennesholtz*

Speculation Rises on Apple's New TV Products

We read about and listened to much speculation about Apple's TV products, which are expected to be launched this year. Since Apple has not confirmed any of this, put it in the rumor category, but probably with some elements of truth. Some of the most insightful comments came in a panel discussion at NAB, led by Marty Shindler, in a session called "Predictions for the Street: The Power Payers Behind the Great Content Shift."

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Michael Pachter of Wedbush Securities said Apple has a big advantage if it enters the TV market: "It has a huge base of fanboys who will buy anything it makes. In addition, I think the key to its success will be that Apple will solve the TV search and control issue." Wedbush outlined the problem by noting that no one can figure out those complex remote controls, and it is impossible to really search for content you want.

Other panelists agreed, noting that the iPhone and iPad will be the remote control, and since Apple has done such a great job with redefining the interface on these devices, it is not a stretch to visualize the company doing the same for TV interaction — including voice commands.

The panelists also speculated on how Apple will come to market with its new TVs. Most seemed to agree that the company will focus on a "distribution not retail play." By this they meant that Apple will work with service providers, mostly telecom providers like AT&T, to offer a bundled package. The deal will include guaranteed bandwidth for high-image quality, content from AT&T's U-verse payTV service, TVs with built-in DVRs, and iPad/iPhone control.

There is also speculation about how TV leaders like Samsung and LG will react. Some think these companies see Apple's TV entry as a major threat and that new alliances, particularly with Google, may be in the offing. But alliances may go further than technology too, with content licensing and original programming not out of the realm of possibility.

Meanwhile, a CNET story said French designer Philippe Starck thinks Apple will give birth to a "revolutionary" new product in just eight months, according to his interview with French newspaper *Le Figaro*. He did not reveal any details, however.

But he did reveal that he met in California with the late Steve Jobs once a month for seven years and that he continues to travel there to see Jobs' widow Laurene Powell.

Other news reports speculated that Starck might be working on a remote control that would power the TV, citing this as an area where Starck and his team could contribute their design expertise. On the other hand, this could be work for the new iPhone 5 too.

His design style is considered simple yet elegant, which fits right into the Apple mindset. And he's already brought his talents to the world of tech by designing speakers, headphones, and even external hard drives. *–Chris Chinnock*

LG Close to Google TV Launch

According to some news reports, LG Electronics is likely to soon launch its new Google TVs. LG has not confirmed any release date and a check of the U.S. site showed no sign of the new sets as of April 29.

The reports originated with analysts with the Korean financial firm Shinhan Investment, who noted that these Google TVs will be the first to support 3D using passive polarized glasses.

The *Korea Herald* said the 3D LED TVs are said to be available in 47- and 55-inch sizes, with respective prices of $1,600 and $2,100. *–Chris Chinnock*

Sony, Panasonic and BenQ Jump on Passive 3D Bandwagon

Recognizing the market success that LG and partners have had with passive 3DTVs, Sony and Panasonic are now abandoning their active-only stance and adding passive TVs to their line. Samsung is now the only major TV maker that has not adopted a passive 3D solution.

According to a report by the *Korea Times*, the head of LG's Korean LCD TV division, Nho Seok-ho, said, "Panasonic and Sony are planning to expand the lineup of 3D-enabled TVs this year. The key point is that their upcoming models will use LG's technology." The paper also quoted Nho as saying, "Panasonic and Sony were initially ready to adopt Samsung's technology, but they've decided to cut costs and improve their bottom lines by using the cheaper version."

Sony has already launched two passive 3DTVs in China — the Bravia KLV-32HX550 and KLV-42HX650. They even make an appearance on the Sony China Website.

Panasonic already unveiled its ET5-series passive 3DTVs at CES back in January. These sets are now available in the U.S.

LG is also planning to add a 60-inch model to its 3DTV lineup to go with its 65- and 72-inch sets in June.

BenQ used the Softex Taipei event to unveil its plans for 3DTVs too. According to a *DigiTimes* report, BenQ's X series will have 46 and 55-inch models that have film-type patterned retarder 3D displays and cloud computing. *–Chris Chinnock*

Education Market

3D at the Upcoming ISTE Conference

The ISTE 2012 educational conference, scheduled for San Diego in June, is offering four presentations in the area of eS3D. Click on any link to learn more.

When 3D Comes to Your School
Saturday, 6/23/2012, 12:30 p.m.–3:30 p.m.
Presenter: *Len Scrogan, University of Colorado-Denver*

This is a comprehensive three-hour workshop on everything you need to know about creating a stereo 3D classroom or pilot project in your school or district.

3D in Education
Tuesday, 6/26/2012, 5:00 p.m.–6:15 p.m.
Nancye Blair, McKeel Elementary Academy with Len Scrogan

This is a birds-of-a-feather gathering for teachers or leaders interested in learning or talking about teaching with stereoscopic 3D. It is an open-ended discussion focusing on emerging resources and best practices for using 3D technologies to increase student engagement and learning gains.

[Insight Media logo]

[Exploring 3D Technology in the Classroom: Strategies and Lessons Learned](#)
Tuesday, 6/26/2012, 1:00 p.m.–3:00 p.m.
Carole Hruskocy, Regis University with Sandra Foster

How does 3D technology in a science classroom affect learning and teaching? Explore this emerging technology and find out the results from a third-year extension of the BVS3D research study, presented by University researchers in a two-hour, stay-as-long-as-you-want poster session.

[Teaching in 3D: Why It Works, Why It Matters](#)
Tuesday, 6/26/2012, 10:00 a.m.–12:00 p.m.
Presenter: *Len Scrogan, University of Colorado-Denver*

Discover how stereo 3D visualization technology is being used effectively in K–12 classrooms, how it affects student thinking and performance, and why it matters. Presented in a two-hour, stay-as-long-as-you-want poster session. –Len Scrogan

School Safety Drill to be Filmed in 3D

A unique School Safety Summit is taking place on May 2, 2012, in Pueblo County, Colorado. They are planning the largest hands-on school safety exercise ever staged anywhere. They will be simulating a crisis that involves a high-wind school building collapse, resulting in a complex evacuation of 450 children and the coordinated response efforts of 400 adults.

Since this large-scale activity is custom tailored for major video production, the school district is providing three primary shooting locations, the school buses (for the evacuation), the school and district staff as actors, the children (with parental releases), and a new mobile communications unit designed by SchoolSAFE Communications. The county is providing first responders as actors from fire, law enforcement, and emergency management, as well as five ambulances, a rescue helicopter, fire equipment, and other public safety vehicles. All local media organizations will also participate, many providing reporters and news crews as actors in the simulation. VIP observers from across the state, coordinated by State Senator Steven King's office, will observe the exercise and draft the *Summit Final Report*.

Now comes the 3D part. School Safety Partners and Panasonic will capture the entire event in stereo 3D, with the intent of producing classroom-based simulations and training segments, with follow-through equipment sales, for the school safety market. Clearly, there exists a strong and burgeoning role for 3D in school safety and emergency preparedness training.

Funding for this activity has been provided by the Federal Emergency Management Agency and the U.S. Department of the Army. *–Len Scrogan*

School Safety, John Simmons, johnsimmons@schoolsafetypartners.org

3D HealthActivities Heat up

There's a full court press under way on the 3D vision health front:

American Optometric Association (AOA). The upcoming AOA 2012 National Conference, being held in Chicago at the end of June, is offering four major sessions on 3D vision. The last session is a full-day mini-conference, called "The 3D Experience: Your Opportunity." The AOA is getting serious about reaching their own ranks, as well as incoming optometry students, as they launch a two-year effort to spread the positive and important public health news.

VPI Research Conference. The Vision Performance Institute of Pacific University is launching a major symposium focused on 3D vision health. Their 6th Annual Research Conference, being held in Oregon this June, is entirely focused on providing current vision health information to researchers, medical folks, manufacturers, developers and practitioners alike.

COVD 2012. Visual therapists (*COVD*) are also lining up to provide key educational sessions focused on 3D viewing and the use of 3D in treatment therapies at their annual conference, being held in August in Texas. *–Len Scrogan*

What's Wrong With This Picture?

Can you see anything peculiar in this snapshot of the first showing of *Titanic 3D* in Shanxi, China?

Leonard Press, a well-known optometrist, observed in his blog that a number of people are watching the film without glasses. He explained, when "you're experiencing one of the 3Ds of stereoscopic 3D viewing — discomfort, dizziness, or lack of depth — one way to cope is to simply watch without the 3D glasses, but the experience is clearly not the same and most likely is out of focus due to the effects necessary to create 3D-ness for your movie-going neighbors." Again, and this time internationally speaking, our educational challenges remain constant. *–Len Scrogan*

Conference of World Affairs Talks to 3D —— Sort of

Last month the 64th Annual Conference on World Affairs was again held at the University of Colorado in Boulder. For the first time in memory, a panel session on the topic of 3D appeared, entitled "The Future of 3D." Although one panelist failed to appear — and the session actually had little to say about the future of 3D — the session proved to be a continued sign of the educational challenges we face. One panelist worked in the rendered 3D industry, and his
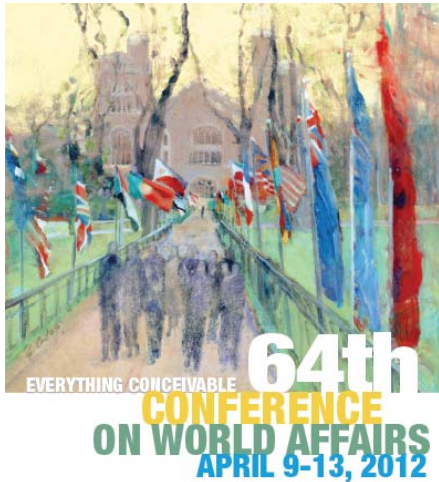
observations simply didn't fit. The other was a special effects guru from Hollywood, who mostly spoke about the poor quality of 2D-to-3D cinema conversions during the past few years.

The final panelist was a respected film critic with the Ebert organization. His comments were the most intriguing. He claimed, "3D is like chicken gizzards. Some people like it; some people don't. For some of us — it just makes us sick."

Most of the audience nodded their heads in agreement. Okay, I confess, that triggered me. At the end of the presentation, I was the second member of the audience to rush the microphone for the audience participation component of the panel. The first question to the panel came from a distinguished octogenarian medical doctor and university educator. I know his work. He has been designing a new approach to medical school education, now being planned for implementation in Europe. They are working hard to imagine the best and high-leverage roles for 3D in medical schooling. He chided the panel for talking about entertainment so exclusively and asked them about the potential of 3D in education. All three panelists agreed that 3D would certainly be able to play a strong role in education, but the examples they provided were sadly primitive. Oh well. Now it was my turn.

My heart beat loudly. I directed my question to the film critic. The chicken gizzard guy. After briefly introducing my work with the American Optometric Association (AOA) on 3D and vision health, I asked him politely and softly how he reconciled the statement, "For some of us — it just makes us sick" with recent medical research findings that 3D is, in fact, not harmful, and that his or the audience's discomfort might point to an underlying vision issue. The film critic quickly backtracked, suggesting that that's just how he reacts, and that he was not aware of these recent findings. He suggested it sounds like a good thing to know, in his estimation. I left the podium. Twenty minutes later, at the conclusion of the panel, I offered him a copy of the *AOA See Well* report. He took the report with no challenges, accompanied with kind words of curiosity and sure interest. Another myth builder bites the dust. *–Len Scrogan*

Colorado School Embraces Passive 3D Approach

A unique classroom project is underway at an innovative middle school in picturesque Fort Collins, Colorado. This involves a hard-fought effort to implement a passive 3D solution in a classroom context. That's interesting because most K–12 3D pilot projects use active glasses. The school is Preston Middle School, a neighborhood Science, Technology, Engineering and Math (STEM) school.

Preston serves roughly 920 students from sixth to eighth grade. "Cutting-edge technology implementation already drives all curriculum throughout the building," said Matt Way, the Building Technology coordinator at Preston. "Ninety percent of classrooms have interactive

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SMART Boards, and 472 netbooks are available for student use. And we have a videoconferencing system that allows students to be able to interact with a wide variety of venues across the world."

"At Preston, teachers and students are excited to learn and implement new technologies," Way explained. Now, the staff and students at Preston Middle School are very eager to make 3D learning a daily activity. "Two years ago, Preston received a Supporting Partnerships in Innovative Education grant for a 3D passive system. A team of staff members spent a year researching, interviewing 3D experts along the way, and finally built a 3D lab."

Matt Way, Preston Middle School

Just this spring, Way was able to test and successfully get sample 3D videos to play in the DepthQ player on a new 3D Christie system in the school's North Media Classroom. That enabled him to move forward with routing cables and mounting the 3D projector. Last week, Way exclaimed, "We were able to get the 3D Blu-ray software working to be able to play commercial 3D Blu-ray Discs as a secondary option for us, as well." Interestingly, the school settled on a silver screen surface that is painted on a display surface. And it had its first taste of filming in 3D after purchasing their first 3D stereo video camera.

The technical hurdles behind them, the challenge now is to launch into effective teaching and learning with 3D. "Research shows students comprehend quicker and retain information longer when using 3D methods," Way said. "Currently, we are looking for 3D curriculum to demonstrate difficult concepts." My sense is that Preston needs more than 3D curriculum, but 3D partners who want to field-test curriculum, peripherals, hardware, and displays in the classrooms well beyond the school's dedicated 3D lab. Preston Middle School represents a tremendous field-testing environment, seedbed opportunity, or a case study setting for motivated companies. *–Len Scrogan*

Preston's "painted" silver screen, along with unfortunate ceiling lighting placement.

Preston Middle School, Matt Way, mway@psdschools.org

300% Growth for 3D Education Providers? — Hear About it at 3DComm

I know what you're thinking: "Aren't we talking about the movie 300?" No, in this case "300" refers to 300%. That is the percentage of growth for educational 3D content providers over the past two-and-a-half years.

I will be talking about this statistic and releasing my all-new 2012 list of stereoscopic 3D educational content providers at the Insight Media 3D Comm seminar on June 13–14 in Las Vegas. Look for my presentation, entitled "Remapping for 2012: 3D and the Education Marketspace." Be there for the scoop. –Len Scrogan

3D Industry

NAD Asks Samsung to Discontinue 3DTV Superiority Claims

As many of our readers know, Samsung and LG Electronics have had a long-running advertising battle over 3DTVs. Samsung has promoted its approach, which uses active shutter glasses, while LG Electronics has pushed its passive polarized glasses approach. At times, the war of words and messages got a bit nasty. Recently, LG took its case to the National Advertising Division (NAD) of the Council of Better Business Bureaus, the advertising industry's self-regulatory forum. The result: NAD has recommended that Samsung Electronics discontinue certain advertising claims for the company's 3D televisions.

NAD noted in its decision that the evidence demonstrated that consumers receive full 3D imaging and may enjoy the 3D television experience with both parties' technologies.

Samsung asserted that its claims are literally true. But, NAD determined that the claims at issue — even if accepted as technically true — could reasonably be interpreted by consumers as conveying messages of superior overall 3D picture quality.

Following its review of the evidence in the record, NAD concluded that the advertiser's substantiation was insufficient to provide a reasonable basis for messages conveyed by the claims — that Samsung active 3D televisions provide a superior 3D picture viewing experience to passive 3D televisions, including LG Cinema 3D televisions.

NAD recommended that the advertiser discontinue claims that:

- "Passive 3DTVs, with patterned film on the screen, will not be able to deliver the detail"
- "Passive 3D technology … effectively cut 1080p resolution in half (540p) to each eye "
- Passive 3D televisions deliver "visible jagged lines" when operating in 2D or 3D mode

However, NAD concluded that the Samsung's claim that its active 3D television provides a greater vertical range of viewing angle was adequately supported and that consumers would not reasonably interpret the advertiser's claim as meaning that Samsung's active 3D televisions also provide a superior horizontal viewing angle to passive 3D televisions.

Samsung said it "strongly disagrees with NAD's decision. Samsung's claims that Active 3D technology is capable of delivering superior resolution compared to passive 3D are fully supported by technical and scientific evidence."

However, Samsung stated that it "respects NAD as a self-regulatory body and will comply with NAD's recommendations. With the launch of Samsung's 2012 television models, we already are in the process of transitioning our marketing materials to highlight the new features and advantages available in our active 3D line up." *–Chris Chinnock*

Glasses-Free 3D Displays

NLT Technologies Introduces High-Resolution Multi-View 2D/3D Display

NLT Technologies (NLT) (Kawasaki, Japan), formerly NEC LCD Technologies, has released a new 3.1-inch 6-view glasses-free 3D display. This display was first shown as a prototype at SID'11 and is now being marketed thru Renesas Electronics America (Santa Clara, CA) and Renesas Electronics Europe GmbH (Dusseldorf, Germany). It will be shown at SID'12 in booth 343.
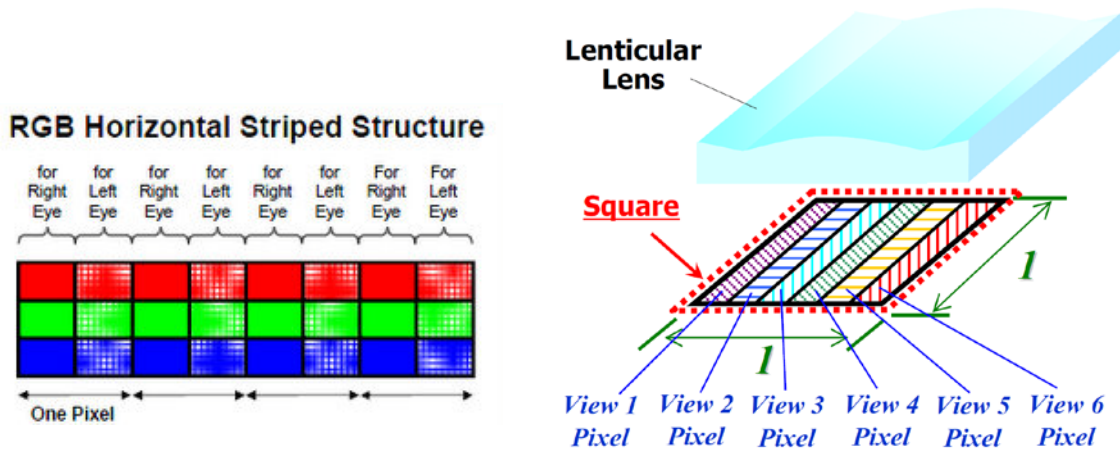
NLT's HDDP Pixel structure (left) uses a horizontal RGB stripe two columns used for the two views (odd columns for one eye view and even columns for the other eye view). NLT's HxDP structure (right) uses a horizontal RGB stripe but with six columns for the six views

NLT's HxDP technology is an advancement to the company's HDDP (Horizontally Double-Density Pixels) technology, which uses a horizontal RGB stripe instead of the conventional vertical RGB stripe to create sub-pixels. Alternate columns then produce the two views needed for a stereo image.

The HxDP architecture expands this concept to provide six columns for each view. This creates a panel with 2562 x 240 addressable columns. In 3D mode, each view has a resolution of 427x240 (WQVGA). The resolution is the same in 2D mode as each of the six columns receives the same data.

One common issue with 3D displays is 3D cross talk, which occurs when the human visual system mixes left-eye and right-eye information, causing the 3D effects to be limited or

decreased. NLT's new HxDP 3D technology results in displays with reduced levels of overall 3D cross talk and a wide 3D viewing area, allowing easy viewing of the images.

"As interest in 3D technologies increases for consumer and industrial markets, there is a growing need to support both two-view and multi-view technologies and products, particularly for applications like 3D CAD/CAM, gaming or medical imaging," said Omid Milani, Vice President, Displays, Renesas Electronics America. "Applying advanced technologies like NLT's HxDP technology to industrial applications helps to create a more comprehensive user experience and improve overall results by providing more accurate and realistic imaging capabilities."

The new HxDP LCD module complements the company's existing HDDP family, including a 2.5-inch 3D LCD HVGA module and also NLT Technologies' 7.2-inch SVGA HDDP 3D LCD module currently in production. –*Chris Chinnock*

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