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Panasonic Developers Discuss 3D

Three key Panasonic Developers were asked a variety of in-depth questions about:

- 3D Technology
- Standardization
- Commercialization
- Software Issues
- Environmental/Health Concerns
- The Business Field

Find all the questions, and their answers, here.

On the Topic of 3D Technology

Q: Does the 3D technology, which was demonstrated at CEATEC last autumn and at CES this year, have any Panasonic specific technology? If yes, describe it.

A: Panasonic's 3D technology is included. The technology displaying the high-picture quality full HD video images for the left and right eyes in frame sequential utilizing PDP high-speed light emission technology is unique to Panasonic.

Q: Among various formats of 3D technology, with or without viewing glasses, in half HD, full HD, frame sequential or line by line, which one has Panasonic selected, and why?

A: Panasonic has selected full HD video in frame sequential format. This format is used when showing Hollywood 3D movies in theaters, and has been selected to ensure that the full HD video images for the left and right eyes are displayed on the PDP screen frame by frame, ensuring the same quality as movie theaters at people's own homes.

Q: Are viewing glasses absolutely necessary with full HD format technology? Do you suppose viewing glasses will become unnecessary in the near future?

A: At present viewing glasses are necessary. Just as in movie theaters, viewing glasses are needed at home to gain the highest picture quality. We believe full HD display without viewing glasses to be a far-off technology not likely to be realized in the near future.

Q: What difference is there between the full HD format and half HD format? What are the big differences?

A: Full HD has double the video data as half HD. The difference in picture quality is apparent to ordinary people, and the fineness and quality of 3D video differs significantly. As 3D video has a more realistic look than 2D video, differences in picture quality are more apparent.

Q: Panasonic uses plasma TVs for full HD 3D; is full HD 3D possible on LCD TVs?

A: A full HD 3D can be developed on LCD TVs.

Q: What is the difference between the 3D TV format already offered by Hyundai in Japan and that of Panasonic?

A: The Hyundai 3D TV displays video by apportioning the left and right images by each scanning line, and its vertical resolution is less than half that of full HD.

Panasonic's 3D TV allows full HD 3D display with synchronized split display each frame of video for the left and right eyes.

Q: What is the difference between Panasonic's 3D and Samsung's 3D model already on sale in the U.S.A.?

A: Samsung is selling a PDP with WXGA (1366×768) resolution, and a DLP with full HD resolution.

Panasonic's 3D TV is a PDP allowing display of full HD images for the left and right eyes, achieving the maximum picture quality for 3D TV.

On the Topic of Standardization

Q: Tell us the schedule for standardization of Panasonic's current proposed 3D technology standard by the Blu-ray Disc Association (BDA).

A: Panasonic is making every effort to ensure standardization by the BDA within this year.

Q: Can 3D-capable Blu-ray Disc be played on Blu-ray Disc players already on sale? Can they be seen in 3D on such players?

A: Unfortunately, 3D-capable Blu-ray Disc played on current Blu-ray Disc players cannot be seen in 3D. If played back on current Blu-ray Disc players they can be viewed in 2D.

Q: How can you tell 3D-capable Blu-ray Disc from existing (2D) Blu-ray Disc ?

A: We believe some sort of marking on the discs will be necessary to distinguish 3D-capable Blu-ray Disc from existing 2D Blu-ray Disc, and also on 3D-capable players, and are studying them.

Q: What sort of capacity does 3D-capable Blu-ray Disc have for two-hour movies? Will it be contained on one disc?

A: As with current discs, they will have a two-layer 50 GB capacity on one disc able to store a two-hour movie.

Q: What purposes or advantages are there to standardization of 3D-capable Blu-ray Disc?

A: Standardization as package media has a significant meaning for the spread of 3D. Blu-ray Discs are expecting as a only media high-quality 3D images to provide for home use.

It would also be preferential for consumers, contents holders, and manufacturers.

Q: Can 3D-capable Blu-ray Disc be played on Play Station, XBOX, or WII?

A: We can not make any comment on other companies' products. (We expect 3D playback will be possible on the PS3. We believe XBOX and WII would not be possible to playback since they have no Blu-ray Disc drive.

Q: Can 3D-capable Blu-ray Disc be played on personal computers?

A: Technically speaking, playback could be possible.

Q: Does the 3D format you are proposing include Panasonic patents?

A: Patents have been applied for related technologies.

Q: Are transmissions in 3D supported under the new HDMI standard version 1.4?

A: Yes, they are supported.

Q: Are there any problems with 3D signal transmissions using current HDMI cables in version 1.4 standard-capable players?

A: 3D signal transmissions are possible using the current HDMI cable.

Q: Tell us the date when the HDMI version 1.4 standard is to reach to consensus.

A: It has already been standardized. From June 5 the written standards have been publicly available in the Adaptor.

Q: What sort of onscreen images would result if an HDMI standard-capable Blu-ray Disc player output 3D signals to a current model TV?

A: HDMI standard-capable Blu-ray Disc players automatically detect the input signals supported by the TV and output 2D signals, hence 2D images will be seen on the TV screen. Product-by-product confirmation will be necessary when commercializing these players.

Q: Are you considering standard recording specifications for 3D video?

A: We will be able to enter into concrete analysis of this once it becomes clear that full 3D broadcasting will begin.

Q: In what way will sound signals differ from their existing form in 3D video?

A: We are studying a level equivalent to current sound signals.

Q: What other uses do you foresee in addition to movies for 3D video?

A: We believe highly entertaining 3D contents will be developed for travel documentaries, concerts, sports and more, with highly realistic sensations for the viewers.

Q: Are you considering 3D video broadcasting standards? How would these be different to those for the BS11 Channel currently being broadcast in Japan?

A: We are considering such standards but have not decided yet. BS11 uses a non-standardized side-by-side format (half horizontal resolution).

Q: Tell us the status of interest in 3D video broadcasting in other countries.

A: We have heard that experimental broadcasting under BSkyB has begun in the U.K. (side-by-side format).

Q: Are there any plans to form an organization active in the industry to promote 3D-capable Blu-ray Disc software, an organization similar to the BDA Global Promotion Committee (GPC), the DVD Entertainment Group, and HDMI LLC?

A: We hope to see promotion of the 3D format by the BDA GPC once standardization is done.

Q: Are there moves in the industry to create a demonstration disc for promotion of 3D-capable Blu-ray Disc software?

A: This remains undecided.

Q: What is the reaction of Hollywood and movie industries in Europe and Japan to the introduction of 3D-capable Blu-ray Disc software?

A: Major studios in Hollywood have shown a strong interest in 3D; enthusiasm is also growing in Europe and Japan.

Q: Will 3D-capable Blu-ray Disc contain both full HD and half HD? Is there a possibility of software being sold with only half HD or full HD? What is your position on compatibility in such a case?

A: Panasonic recommends ensuring one single technologically superior full HD standard. If companies independently record half HD video on Blu-ray Discs using their own format, compatibility problems would result and disrupt the market.

Q: If half HD contents were watched on a full HD TV, would the resulting images be in half HD ?

Otherwise, what images would result if full HD contents were watched on a TV capable only of the half HD format?

A: We can not make any comment on specific products.

Q: Do you foresee a format war occurring if differing 3D video standards are established?

A: In order to avoid market disruption due to various standards, ensuring one single standard with superior technology is needed.

Panasonic recommends ensuring one single technologically superior full HD standard.

On the Topic of Commercialization

Q: When do you plan to launch 3D-capable Blu-ray Disc players/televisions?

A: We plan to launch 3D-capable televisions and Blu-ray Disc players in 2010.

Q: When will professional-use 3D-capable camcorders be released?

A: We are currently considering such a product but commercialization timing has not been decided yet.

Q: Do you plan to release 3D-capable recording equipment?

A: There are no decisions for the commercialization due to the absence of recording standards.

Q: What size in inches will the 3D-capable televisions be? Will you release 103-inch ones? What size will the smallest be?

A: We are studying the product lineup to ensure many families can experience enjoyment of 3D. We will give more details when commercialization has been decided.

Q: How will 3D-capable flat-panel televisions be different to normal ones? What will be the price difference in dollars with normal televisions?

A: We are studying a higher-end television. There are no ideas yet regarding price differences.

Q: Will the 3D-capable flat-panel television be enclosed with a set of viewing glasses?

A: The viewing glasses are needed for 3D viewing; we are considering including viewing glasses with the television set.

Q: Tell us your estimates of commercialization of 3D-capable products by your competitors.

A: We have no information on commercialization by other companies. In North America Samsung has already released 3D-capable PDP and DLP rear projection televisions with their own half HD format since 2007. In Japan Hyundai has released an LCD television with its own half HD format.

Q: Does Panasonic have any plans to launch a 3D television without using viewing glasses?

A: We have no plans to launch a 3D television without using viewing glasses. We believe full HD display without viewing glasses to be a far-off technology not likely to be realized in the near future.

Q: Are the 3D television viewing glasses specific to Panasonic televisions, or will they be compatible for all companies?

A: The specifications of the viewing glasses will depend on our display format, hence each company will most likely end up with its own viewing glasses.

Q: Can spectacle-wearers use the 3D television viewing glasses?

A: We are developing a pair of viewing glasses to be worn over normal glasses.

Q: Do you plan to make various types of 3D television viewing glasses, for adult/children, and for men/women?

A: Currently we are developing universal type viewing glasses.

Q: Will any other company launch a 3D television without using viewing glasses? What will the advantages of having viewing glasses be in that case?

A: We have no information on commercialization by other companies. We believe full HD display without viewing glasses to be a far-off technology not likely to be realized in the near future.

Using the viewing glasses extends the viewing area to a practical level. Viewing glasses are in use in 3D movie theaters and remain the best method available now.

Q: What will the 3D television viewing glasses be officially called?

A: We are still studying this point. Panasonic currently calls them "3D (Active) Shutter Glasses" inside the company.

Q: Will the 3D television viewing glasses be under the Panasonic brand?

A: We are currently studying this point.

On the Topic of Software Issues

Q: When do you plan to release 3D movie software? What plans do you have regarding region codes for Japan, North America, Europe, Asia and so on?

A: There has been no official announcement yet from the movie studios of the release of full HD 3D titles. We believe it will not happen until after standardization is settled at the least. Panasonic encourages studios to ensure viewers can see as many titles as possible upon commercialization.

Q: How many titles have already been created in 3D? Give us the figures for each movie company.

A: A lot of 3D titles by Disney, Fox, WB, SPE, etc have already been shown at the theater.

2008 13 titles

2009 31 titles

Http://3dguy.tv/3d-movie-list/

Q: Which movie companies have already decided to release 3D movie Blu-ray Disc software?

A: We believe an official announcement from the movie studios on the release of full HD 3D titles will not be made before standardization is settled.

Q: What number of 3D movie software titles do you assume to be released upon the sale of 3D Blu-ray Disc players or televisions?

A: Panasonic encourages studios to ensure as many titles as possible upon commercialization.

Q: What number of 3D movie software titles do you assume to be released by the end of the first year?

A: We believe approximately 20 titles will be released on full HD 3D.

Q: What number of 3D movie software titles do you plan to or assume will be released within three years?

A: We believe 80-100 titles will be released on full HD 3D.

Q: What other sort of titles do you think will be released in 3D Blu-ray Disc software in addition to movies, such as educational videos, music videos, opera or stage performances, sports matches?

A: We believe titles will be released for travel documentaries, concerts, sports, and music with highly realistic sensations for viewers thanks to 3D.

Q: Do you think 3D movie software will be released in full HD, half HD, and various other formats by different companies?

In that case, what number of full HD Blu-ray Disc titles do you think will be released upon initial release, by the end of 2010, and after three years?

A: We believe full HD 3D movie software will be released.

Q: Do you plan to use the same discs for 3D movie Blu-ray Disc as for normal 2D movies, or will they be sold separately? In such a case, what do you plan or assume the price difference will be between the two?

A: The title contents and sales methods will be decided by the movie companies; Panasonic has no information on this subject. We expect large numbers of excellent titles to be sold.

Q: What number of titles of 3D games using this method do you assume to be released? How many of these will be in full HD?

A: Panasonic has no information on this subject. We expect large numbers of excellent titles to be sold.

At the beginning of June, a 3D game called "AVATAR" was released at the Ubisoft Entertainment at E3 Expo. (720p-compatible)

On the Topic of Environment/Health Concerns

Q: What is the recommended 3D viewing environment? Are there any major differences with current video in terms of distance from the television, brightness, angles, or height?

A: We are investigating the 3D television viewing environment. Viewing distance should be three times or more the height of the screen. We recommend sitting with one's eyes on a level with the screen. The brightness of the room, angle, and television placement should be fine as they are already.

Q: Does the recommended 3D viewing environment change according to the technology format?

A: The 3D without viewing glasses has much restriction of viewing position compared to the binocular 3D with viewing glasses.

Q: Are there any health concerns for continuous long-hours viewing of 3D video? Are there any concerns for watching a regular two-hour length movie? Would breaks be necessary if playing a game for several hours? Would different warnings to those for movies become necessary?

A: We are investigating points of concern in viewing 3D video.

If you watch 3D television under the recommended conditions (above Q&A No.1), We believe there is no difference between watching 3D television and 3D films in a movie theater.

Q: Should the upper body be held upright when viewing 3D? Will the 3D be effective if viewed from a lying down posture?

A: The upper body does not need to be upright, but it is recommended that one's eyes be on the same level as that of the screen to reduce strain on the eyes.

Q: Are warnings necessary for watching 3D for long periods of time?

A: We are investigating points of concern in viewing 3D video.

Q: Are there any industry guidelines or risk studies regarding watching 3D for long periods of time?

A: We are investigating points of concern in viewing 3D video.

The International Standards Organization (ISO) has formulated and published the guidelines ISO IWA3. In Japan the 3D Consortium has published the 3DC Safety Guidelines.

Q: Give us any opinions and ideas you have on the wording of warnings for catalogs and websites.

A: We are investigating points of concern in viewing 3D video.

Q: Are there any differences in the level of mental or eye strain for full and half HD formats? Does any technological data backing this up exist?

A: Details on the question are not publicly available.

Q: Are there any legal requirements for warnings of effects on physiological or psychological health?

A: We are investigating points of concern in viewing 3D video.

On the Topic of Business Field

Q: What are your estimates on the amount of business activity likely in hardware and software for the 3D business field overall?

A: 3D television will be an entirely new experience for consumers, which should bolster the market for this area. We are continuing to study details of 3D business operations

Q: Do you believe 3D Blu-ray Disc software will become dominant in sales of Blu-ray Disc?

A: We believe titles created with 3D will increase.The contents creators will choose display styles matching the particular work involved.

Q: How many 3D Blu-ray Disc players and televisions do you think will be sold?

A: 3D television will be an entirely new experience for consumers, which should bolster the market for this area. We are continuing to study details of 3D business operations.