

**FOR IMMEDIATE RELEASE**

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**Media Contacts:**

Global Public Relations Office  
Panasonic Corporation  
Tel: 03-6403-3040 Fax: 03- 3436-6766  
Panasonic News Bureau  
Tel: 03-3542-6205 Fax: 03-3542-9018

**Panasonic Develops the World's Smallest, Slimmest,  
Highest Definition 20-inch IPS Alpha LCD Panel**

**Osaka, Japan** – Panasonic Corporation, a leader in high-definition display technology, has developed a 20-inch 4K2K (3,840 x 2,160 resolution, approx. 8.29million pixels) IPS Alpha LCD panel, the smallest<sup>\*1</sup> as a 4K2K-resolution display. The new panel has the world's highest pixel density of 216 pixels per inch (ppi) and the thickness of only 3.5 mm, the thinnest in the world<sup>\*1</sup>. A prototype panel will be unveiled at the 2012 International CES to be held in Las Vegas, United States from January 10 to 13.

*Panasonic has developed a 216 pixels-per-inch ultra-high definition 4K2K IPS Alpha panel, opening up new possibility of flat-panel displays through technological innovations.*

IPS Alpha panels are suitable for making ultra-high definition displays because of their simple pixel structure<sup>\*2</sup> - one of the characteristics of the IPS panels<sup>\*3</sup>- as well as their high contrast ratio, excellent color reproducibility with rich gradation and the industry's highest-level light transmission rate that were implemented by Panasonic's unique IPS-Pro technology<sup>\*4</sup>.

The 4K2K IPS Alpha LCD panel employs two new technologies, "Pixel structure with ultra-high aperture ration structure" and "New liquid-crystal molecular orientation process technology".

Those Panasonic's new technologies enable viewers to enjoy, from any angle, ultra-high definition videos that show fine lines and texts crisp and clear on the screen and faithfully reproduce lifelike images with subtle textures and even a sense of depth.

With the evolution of technology, flat-panel displays are now available in ultra-high definition, 3D and a variety of screen sizes. As a result, the flat-panel display market has been growing, in response to rising demand for consumer products such as TVs and mobile terminals and professional applications in the medical, educational and commercial fields.

In the flat-panel display field, Panasonic has produced many industry-leading technologies. In regard to high-definition flat-panel displays, the company introduced the world's first 150-inch 4K2K (4,096 x 2,160 resolution, approx. 8.84 million pixels) plasma display panel (PDP)<sup>\*5</sup> at

the 2008 International CES, followed by the development of a 103-inch 4K2K (3,840 x 2,160 pixels) PDP<sup>\*6</sup> in 2009. In 2010, Panasonic developed a 58-inch 4K2K (3,840 x 2,160 pixels) PDP<sup>\*7</sup> in collaboration with the NHK Science and Technology Research Laboratories. Now, the company has succeeded in producing a 4K2K panel in an even smaller size by utilizing the ultra-high definition signal processing technologies Panasonic has cultivated through the development of PDPs and maximizing the advantages and potential of IPS Alpha panels.

Panasonic continues to work to open up new possibility for flat-panel displays through technological innovations.

The detail explanations of the technologies and the main features of the new IPS Alpha panel are following.

### **Detail explanations of the technologies:**

#### **(1) Pixel structure with ultra-high aperture ratio**

Panasonic has developed a new pixel structure that significantly reduces the effects of the electric field that are generated due to the increase in pixel density, and improves IPS Alpha panel's already industry-leading light transmission rate approximately twice as much as the panels having the conventional structures<sup>\*8</sup>.

#### **(2) New liquid-crystal molecular orientation process technology**

The orientation performance of the liquid crystals in a plane parallel to the TFT (Thin Film Transistor) substrate is further improved.

### **Main features of the new IPS Alpha panel:**

#### **1) Smallest size and highest definition<sup>\*1</sup> in the world**

Thanks to the newly developed pixel structure with ultra-high aperture ratio, the effects of the electric field have been significantly decreased. As a result, the 4K2K (3,840 x 2,160: 8.29 million pixels) ultra-high definition, approximately four times the full HD (1,920 x 1,080: 2.07 million pixels) resolution, has been achieved on the world's smallest 20-inch panel, while the IPS Alpha panel's high contrast ratio and high-gradation color reproducibility are maintained. The 216 ppi resolution - the highest in the world<sup>\*1</sup> on a 4K2K display and hardly distinguishable with the naked eye - delivers details of an image with extreme precision.

#### **2) Thinnest in the world<sup>\*1</sup> and energy-efficient**

Thanks to the newly developed pixel structure with ultra-high aperture ratio, the industry's top-level IPS Alpha panel transmittance becomes approximately twice that of the conventional structures<sup>\*8</sup>. Since the new pixel structure allows for effective use of backlight, the thickness has been reduced to 3.5 mm, the thinnest in the world as a 4K2K panel. Furthermore, compared to full HD LCD panel of the same size, the new ultra-high definition 4K2K panel produces four times the volume of information using the equivalent

amount of electricity.

### 3) Wide viewing angle was achieved in all directions

An IPS Alpha panel conventionally has wide viewing angles of 178 degrees both horizontally and vertically. Thanks to the new liquid-crystal molecular orientation process technologies that further improve the liquid-crystal molecular orientation performance, the diagonal viewing angle has been significantly improved. The new IPS Alpha panel will let viewers enjoy high-quality videos with excellent color reproducibility from wider angles.

#### Specifications:

Screen size	20.4 inches
Number of pixels	8.29 million (3,840 x 2,160)
Thickness	3.5 mm
Brilliance	450 cd/m <sup>2</sup>
Color reproducibility	70%

#### Notes:

- \*1: As a 4K2K display<sup>2</sup> as of January 10, 2012, according to Panasonic's research.
- \*2: Since the pixel division is not required to improve the viewing angle, the pixel aperture ratio is high.
- \*3: IPS LCD is an abbreviation of In-Plane-Switching (lateral electric field) system TFT LCD and is an LCD mode with high picture quality, which allows for beautiful images from any angle.
- \*4: IPS LCD panel technology that utilizes unique design for high transmission rates with use of transparent electrodes etc.
- \*5: Commenced taking orders for 3D-capable 152-inch 4K2K plasma displays in July 2010.
- \*6: Exhibited at the Open House 2009 (May 21 to 24, 2009) hosted by NHK (Japan Broadcasting Corporation)
- \*7: Exhibited at the Open House 2010 (May 27 to 30, 2010)
- \*8: In comparison with Panasonic's full-HD LCD panels marketed in the fiscal year to March 2012

#### **About Panasonic**

Panasonic Corporation is a worldwide leader in the development and manufacture of electronic products for a wide range of consumer, business, and industrial needs. Based in Osaka, Japan, the company recorded consolidated net sales of 8.69 trillion yen (US\$105 billion) for the year ended March 31, 2011. The company's shares are listed on the Tokyo, Osaka, Nagoya and New York (NYSE:PC) stock exchanges. For more information on the company and the Panasonic brand, visit the company's website at <http://panasonic.net/>.

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