Panasonic brings a total solution to 3D imaging

Panasonic is capable of providing an end-to-end solution for 3D—from producing images to authoring 3D Blu-ray Disc™ contents for professional use in presentations and a variety of business situations.

The Panasonic 3D Innovation Center was established to accelerate the development and commercialization of 3D solutions. By taking full advantage of the collective strengths of the Panasonic Group, we foster the development of 3D-related technologies and services, and are committed to creating new business models and strengthening our total solutions to meet customer needs.

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Panasonic Hollywood Laboratory (PHL)

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Achieving the Ultimate Reality with Large-Screen FULL HD 3D Images.
Opening New Business Possibilities.

Images take on new dimensions of depth and texture.
The technology in which the left-eye and right-eye 3D images are sent to the viewer is the key to 3D image quality. For this, FULL HD 3D uses something called the Frame Sequential technology. The left and right images are alternately displayed at high speed (60 frames per second for each eye x 2 = 120 frames per second*). When viewed with special glasses that open and close shutters in sync with the displayed frames, the brain creates the sensation of depth from the visual disparity to form 3D images.

*The frame rate varies depending on the 3D image signal being reproduced. For example, 3D images are reproduced at 120 fps (frames per second) for a 60 Hz input signal, and 100 fps for a 50 Hz input signal.

Newly developed Fast-Decay Phosphors are used for the red and green phosphors. High-speed, alternating FULL HD signals for each eye — Frame Sequential technology This reduces the afterimage time to 1/3 that of conventional phosphors while simultaneously expanding the scope of colour reproduction. As a result, brighter, sharper images are produced for 3D content.

According to a Panasonic survey, as of June 9, 2010, for a FULL HD 3D-compatible flat-panel display.

High-speed alternating, FULL HD signals for each eye — Frame Sequential technology

Ultra-high-speed drive technology achieves clear 3D images with minimal double images

FULL HD 3D images require a display speed of 120 frames per second, which is twice the ordinary speed. If panel with slow response simply can’t keep up with the necessary image processing, a double image will appear when the images for the left and right eyes overlap on the screen (also called crosstalk). In addition to new short-decay-time phosphors that make the afterimage time 1/3, a high-precision Motion Vector Prediction function helps to achieve highly precise illumination. Ultra-high speed drive technology, which achieves the necessary drive (1/3) to reduce perception, also narrows double images even on large screens to produce clear and detailed 3D images.

High-speed illumination achieved with high-precision Motion Vector Prediction.

The VX200 Series features the world’s first* high-precision Motion Vector Prediction function. Its precise luminous control predicts the luminous speed of each image to ensure the drive speed and produce clear 3D images even on a large screen.

*According to Panasonic survey, as of June 9, 2010, for a FULL HD 3D-compatible flat-panel display.

High-precision 3D Eyewear control technology

High-precision timing controls for the opening and closing of the shutters minimise unwanted light leakage to enable clear 3D viewing. The remarkable beauty of the FULL HD 3D images is further enhanced by matched 3D Eyewear — both a 3D plasma display and 3D Eyewear — to achieve precisely timed operation.

Large-screen, FULL HD 3D realism brings some exciting new possibilities to business

Compatible with Various 3D Imaging Methods

In addition to Frame Sequential technology, Panasonic's 1,400,000+ FULL HD 3D panel models are compatible with both the Side-by-Side and Top-and-Bottom methods.

• Open both shutters simultaneously to ensure the precise luminous speed of each image for use with Side-by-Side imaging.
• Open both shutters simultaneously to ensure the precise luminous speed of each image for use with Top-and-Bottom imaging.
• Panasonic's 3D Eyewear is capable of matching the luminous characteristics of the panel with both the Side-by-Side and Top-and-Bottom methods.

High-precision timing controls for the opening and closing of the shutters minimise unwanted light leakage to enable clear 3D viewing.

High-precision 3D Eyewear control technology

High-precision timing controls for the opening and closing of the shutters minimise unwanted light leakage to enable clear 3D viewing.
The technology in which the left-eye and right-eye 3D images are sent to the viewer is the key to 3D image quality. For this, FULL HD 3D uses something called the Frame Sequential technology. The left and right images are alternately displayed at high speeds (30 frames per second for each eye x 2 = 60 frames per second). When viewed with special glasses that open and close shutters in sync with the displayed frames, the brain creates the sensation of depth from the visual disparity to form 3D images.

The frame rate varies depending on the 3D image signal being reproduced. For example, 3D images are reproduced at 120 fps (frames per second) for a 60 Hz input signal, and 100 fps for a 50 Hz input signal.

Newly developed Fast-Decay Phosphors are used for the red and green phosphors. High-speed, alternating, FULL HD signals for each eye—Frame Sequential technology—reduce the afterimage time to 1/3 that of conventional phosphors while simultaneously expanding the scope of colour reproduction. As a result, brighter, sharper images are produced for 3D content.

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Large-screen, FULL HD 3D realism brings some exciting new possibilities to business.

High-speed, alternating, FULL HD signals for each eye — Frame Sequential technology

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• Someone in authority should responsibly convey the precautions for use of the 3D Eyewear to the user.
• Be sure to read the safety precautions and usage precautions in the User’s Manual to ensure correct, comfortable viewing.
• In the event that you experience dizziness, nausea, or other discomfort while viewing 3D images discontinue use and rest your eyes.
• Parents/guardians should monitor children’s viewing habits to avoid their prolonged use without rest periods.
• Use only the 3D Eyewear recommended Panasonic 3D devices.

Ultra-high-speed drive technology achieves clear 3D with minimal double images

FULL HD 3D images require a display speed of 120 frames per second (fps), which is twice the ordinary speed. A panel with slow response simply cannot keep up with the necessary image processing. As a result, a double image will appear when the images for the left and right eyes overlap on the screen (also called crosstalk). In addition to new short-decay-time phosphors that reduce the afterglow time to 1/3, a high-precision Motion Vector Prediction function helps to achieve highly precise illumination. Ultra-high-speed drive technology, which achieves the necessary high speed for 3D content to previous models, also narrows double images even on large screens to produce clear and detailed 3D images.

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The VX200 Series features the world’s first* high-precision Motion Vector Prediction function. Its precise luminous control predicts the movement of image points to increase the drive speed and produce clear 3D images even on large screens.

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High-precision 3D Eyewear control technology

High-precision timing control for the opening and closing of the eyeshield monocrystals ensures light leakage to reduce crosstalk. The remarkable beauty of the FULL HD 3D images is further enhanced by advanced Panasonic components — both a 3D plasma display and 3D Eyewear — to achieve precisely timed operation.
Achieving Large-Screen Displays with Naturally Colourful High-Resolution Images

Newly developed Professional-quality engine doubles colour reproduction capability

The new professional-quality engine raises the colour processing of each pixel from the conventional* 20-bit level to 30-bit processing. By faithfully reproducing all of the colour and luminance signals output by image sources, it produces smooth, vibrant colours across the entire screen.

* PF12 Series.

A Wide colour gamut faithfully reproduces the colours and textures required by professionals

Professional displays require a level of colour reproduction that portrays various materials in their natural colours for product designs and image applications. With the wide colour gamut of this panel, the natural colours and textures of materials can be faithfully reproduced, meeting versatile market needs.

* The colour gamut used in current digital cinemas, which is also based on demand specifications compiled by major Hollywood movie companies for Digital Cinema standards.

The Colour Gamut screen is simulated. It may vary from actual specifications.

Conventional* engine
(20-bit processor)

New engine
(30-bit processor)

The colour balance is easily lost because white balance is adjusted after RGB conversion. White balance is adjusted simultaneously with RGB conversion, so the colour balance is uniform.

* PF12 Series.

Colours are decompressed to widen the colour gamut, by using a process that is the opposite of that used by Hollywood colourists when they apply detailed compression to original colours. This wide colour gamut approaches that of Digital Cinema*, to enable colouring that was previously not possible.

DIGITAL CINEMA COLOUR
This lets you set the hue for each RGB colour from the HDTV colour gamut of the initial settings. You can adjust the colours while viewing a simplified chroma diagram.

HDTV COLOUR (ITU-R BT.709)
This sets the display to the HDTV standard colour gamut.

CUSTOM
This lets you set the hue for each RGB colour from the given range of the colour settings. You can select the desired colour by using a simplified chroma diagram.

<table>
<thead>
<tr>
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<tbody>
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</tr>
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<tbody>
<tr>
<td>This sets the display to the native colour gamut of the VX200 Series.</td>
</tr>
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</table>

A wide-angle display makes it easy to see the whole image at a glance.

A chroma diagram shows the colour settings, making it easy to select the desired hue and brightness.
Achieving Large-Screen Displays with Naturally Colourful High-Resolution Images

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The colour gamut used in current digital cinemas, which is also based on demand specifications compiled by major Hollywood movie companies for Digital Cinema standards.

The Colour Gamut screen is simulated. It may vary from actual specifications.

YUV (4:4:4) signal is input.

RGB conversion

White balance

The colour balance is easily lost because white balance is adjusted after RGB conversion. White balance is adjusted simultaneously with RGB conversion, so the colour balance is uniform.

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New engine (30-bit processor)

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<td>The Colour Gamut menu is enhanced to offer various colour reproduction options.</td>
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</table>

A chroma diagram is displayed, enabling you to set the hue for each RGB colour from the HDTV standard colour gamut. You can adjust the saturation, luminance, and hue simultaneously.
A Wide Range of Applications Benefit from Large-Screen FULL HD 3D Images

Ultra-large-screen Panasonic plasma displays faithfully express colours with their meticulous image quality. The stereoscopic effect with 3D characteristics gives a realistic perception. These displays are extremely effective for professional applications that support business activities.

**CAD/CAM design previews**
- Use for CAD/CAM and architectural designs and for reviewing completed designs.
- Reproduce large-scale objects with life-size images on large 3D screens.
- Faithful image and texture reproduction increases accuracy in design review.

**Educational use**
- Use life-size 3D to display images such as the human anatomy, which cannot be properly visualised from a 2D image.
- Fully experience surgeries that are often difficult to perform in real life. The large screen allows everyone to share information in group study sessions.

**Driving schools**
- Can be used as a training device for driving expensive or driving cars.
- Experience realistic simulation experiences.
- Various types of training can be conducted by switching image content.

**Showrooms**
- Can be used to display the full colour variations of products in a space too small to display the actual products in all colours.
- Realistic 3D images enable customers to feel as if they are looking at actual products.
- The large screen allows customers to check small details that are otherwise easy to miss.
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- Faithful color and texture reproduction increases accuracy in design review.

**Educational use**
- Use life-size 3D to display images such as the human anatomy, which cannot be properly visualized from a 2D image.
- Virtual experience makes it possible to experience real-life situations.
- The large screens allow everyone to share information in group study sessions.

**Driving schools**
- Can be used as a training device for piloting airplanes or driving cars.
- Experience a realistic simulation environment.
- Various types of training can be conducted by switching image content.

**Showrooms**
- Can be used to display the full color variations of products in a space that is too small to display the actual products in all colors.
- Enables a realistic simulation experience.
- Various types of training can be conducted by switching image content.

The large screens allow customers to check small details that are otherwise easy to miss.
**Museum highlights**

- Enables virtual display of invaluable artwork.
- Allows visitors to see details of artwork which they cannot see clearly through a showcase.
- Can be used to display pieces that are lent out.

**New museum services**

- Display finely detailed items that are invisible to the naked eye.
- Easily provide virtual experiences using photographic images or computer graphics.
- Networking with other facilities offers a wider range of image-based exhibits.

**Amusement facilities**

- Can be used to display content dynamically on the large screen.
- Attracts customers during events by serving as a highlight of the facility.
- Provide new services, such as encounters with life-size characters.

Application Examples for Ultra Large-Screen 3D Displays

![Image of a large screen display with a virtual experience]
Museum highlights

• Enables virtual display of valuable artwork.
• Allows visitors to see details of artwork which they cannot see clearly through a showcase.
• Can be used to display artifacts that are not out.

New museum services

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• Networking with other facilities offers a wider range of image-based exhibits.

Amusement facilities

• Can be used to display content dynamically on the large screen.
• Attracts customers during events by serving as a highlight of the facility.
• Provides new services, such as encounters with life-size characters.
* The dark-room contrast ratio of the panel unit that can be displayed gives you high-quality images with tonal nuances that have never before been possible.

Native contrast of 5,000,000:1 distinguish light areas from dark areas in the image. Measured in "Dynamic" picture measurement point.

8,192 equivalent steps of gradation boost detailed expression.

In order to achieve images that are displayed at 24 frames per second, the 3D 24p Smooth Film feature is used to process sequential frames and create new frames between the original frames. This naturally reproduces smoother 3D images, and to doing so, our engineers use both the left-eye and right-eye views to render 3D images, it produces exceptional three-dimensional depth.

Easy save preferred settings with Picture Profile.

Process images with External Scaler Mode.

Blue-Only Mode.

Web Browser Control.

Customizes your system SLOT 2.0.
Native contrast of 5,000,000:1* gives you high-quality images with rich textures.

- A high native contrast of 4,000,000:1 clearly obliterates light areas from dark areas in the images. Even the finest details is a sight you are unlikely to recognize, in images with obvious details. Textures are beautifully expressed, so you can enjoy a right view to fine details at long distance and closer.

Moving-picture resolution of 1,080 lines. Clear motion images in sports and action movies.

By shortening the display time for each frame, three-dimensional images achieve a 1,080 lines of moving-picture resolution.* This clearly shows detailed motions even in fast-motion scenes, and makes you wonder if the image is real. It also clearly shows object movement and creates a sense of reality, so your mind can easily follow the action. When displaying moving images, it produces eastern detailed images.

3D 24p Smooth Film enhances 3D image depth

In order to achieve smooth images that are displayed at 24 frames per second, three-dimensional images must achieve an equivalent picture 24 frames per second when displayed. This clearly shows detailed motions even in fast-motion scenes, and makes you wonder if the image is real. It also clearly shows object movement and creates a sense of reality, so your mind can easily follow the action. When displaying moving images, it produces eastern detailed images.

Easily save preferred settings with Picture Profile

The Picture Profile will save your favorite settings that you have made for color and other image parameters. You can retrieve the settings at any time, to enjoy images just the way you like them. You can use it any way you like, such as using the shape to build up images, or creating a new frame between left- and right-eye images, it produces eastern detailed images.

Process images with External Scaler Mode*

With this advanced function, you can process images easily the way you want them. It lets you create the image with an external scaler instead of using the display to build up images.

8,192 equivalent steps of gradation boost detailed expression

The extremely high performance that makes it possible to display 8,192,192 equivalent steps of gradation is achieved in a remarkably high level of performance when displaying 8,192,192 equivalent steps of gradation. This clearly shows detailed motions even in fast-motion scenes, and makes you wonder if the image is real. It also clearly shows object movement and creates a sense of reality, so your mind can easily follow the action. When displaying moving images, it produces eastern detailed images.

Blurry natural gradations

A 32-inch Super Resolution 4K2K Panel

This is the world’s first 4K2K (ultra high-definition) display with an 8,000,000:1 contrast ratio. It offers excellent picture quality in an ultra-thin, super-high-definition 1080p format. The display can be used to play Blu-ray discs, and videos and movies with a 4K2K resolution. It also plays high-definition game images with a resolution of 1080p, in full-screen mode. This makes it perfect for enjoying two-channel sound with full control and other surround sound systems.

* The TH-152UX1 is not equipped with Memory Lock.

800 lines (at 5-second measurement point) 1080 lines (at 5-second measurement point) 2:3 Pull-Down

The moving image blurs.

Smooth movement is not possible. The depth suddenly changes, causing unnatural image.

Blue-Only Mode [OFF]

A Blue-Only Mode, which is essential for monitor calibration, is included. It allows the red and green images to be cut, and displays only the blue signal in a monitor image. This mode is used mainly for adjusting the color tone (internal and external photos, and the color tone of the output image) to be accurately set.

Customizes your system SLOT 2.0

This network function lets you operate displays by remote control and monitor their status through a LAN connection. Since it supports the "PJLink™*2 Class 1" industry standard, it enables you to use it as an effective remote display operation. You can also control the display from another location, enabling it even easier to use. The network function lets you use the same protocol as Panasonic products, so other devices can be controlled by operating the system.

• The TH-152UX1 is not equipped with Memory Lock.
### Specification

**4K2K Plasma Display TH-152UX1W**

**Display**
- Screen size (Diagonal): 152-inch (3,862 mm)
- Aspect Ratio: 16:9
- Effective Display Area (W × H): 3,416 × 1,901 mm
- Resolution (H × V): 4,096 × 2,160 pixels
- Pixel Pitch (H × V): 0.834 × 0.834 mm

**Panel Characteristics**
- Gradation: 17:9 steps (equivalent)
- Panel Life*: Approx. 100,000 hours

**Full HD 3D**

**RADIATION REGULATIONS**

**SAFETY REGULATIONS**
- Altitude: 0 to 1,500 m
- Temperatures: 0°C to 35°C
- Cabinet Colour: Black (Aluminum Hairline Finish)
- Weight: Approx. 197.0 kg

**OPERATING ENVIRONMENTAL**
- Temperature: 0°C to 35°C
- Humidity: 20% to 80% (non-condensation)
- Altitude: 0 to 1,500 m

**SAFETY REGULATIONS**
- UL60065, CAN/CSA-22.2-No.60065-03, EN60065
- IEC60065-0-85, IC:60065-0-85, EN60065-000T, IEC60065-000T
- FCC Part 15 Class-B
- IEC60065-0-00T, IC:60065-0-00T, EN60065-000T
- 0.30 W

**MECHANICAL**
- Dimensions (W × H × D): 2,015 × 1,195 × 99 mm
- Weight: Approx. 117.0 kg

**ELECTRICAL**
- Power Requirements: 200 - 240 V AC, 50 Hz/60 Hz
- Power Consumption: 1,200 W
- Stand-by Condition: 0.5 W

**CONTROL TERMINAL**
- Serial: D-Sub 9-pin (RS-232C compatible)
- LAN: RJ45 10 BASE-T/100 BASE-TX, Compatible with PJLink™
- 3D Shutter Out: M3 Jack x 1 (Optional 3D IR Transmitter)

**PRODUCT FICHE**

**Manufacturer:** Panasonic Corporation

<table>
<thead>
<tr>
<th>Model</th>
<th>TH-152UX1W</th>
<th>TH-85VX200W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>TH-152UX1W</td>
<td>TH-85VX200W</td>
</tr>
<tr>
<td>Energy efficiency class</td>
<td>O</td>
<td>E</td>
</tr>
<tr>
<td>Display resolution</td>
<td>1,920 × 1,080</td>
<td>1,920 × 1,080</td>
</tr>
<tr>
<td>Effective Display Area (W × H)</td>
<td>2,269 × 1,276 mm</td>
<td>2,015 × 1,195 mm</td>
</tr>
<tr>
<td>Pixel Pitch (H × V)</td>
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<tr>
<td>Native Contrast**</td>
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<tr>
<td>Stand-by Condition</td>
<td>0.5 W</td>
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</tr>
</tbody>
</table>

**RADIATION REGULATIONS**

| Dimension (W × H × D) | 2,412 × 1,419 × 129 mm | 2,262 × 1,195 × 109 mm |
| Weight | Approx. 195.0 kg | Approx. 177.0 kg |

**OPERATING ENVIRONMENTAL**
- Temperature: 0°C to 40°C
- Humidity: 20% to 80% (non-condensation)

**SAFETY REGULATIONS**
- UL60065, IEC60065, EN60065, GOST

**MECHANICAL**
- Dimensions (W × H × D): 2,412 × 1,419 × 129 mm
- Weight: Approx. 217 kg
- Approx. 217 kg

**RADIATION REGULATIONS**

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- Dimensions (W × H × D): 2,262 × 1,195 × 109 mm
- Weight: Approx. 217 kg
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### Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>Width</th>
<th>Height</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH-152UX1W</td>
<td>3600</td>
<td>260</td>
<td>147</td>
</tr>
<tr>
<td>TH-103UX1W</td>
<td>2412</td>
<td>141</td>
<td>746</td>
</tr>
<tr>
<td>TH-85UX1W</td>
<td>1980</td>
<td>1217</td>
<td>558</td>
</tr>
</tbody>
</table>

### Optional Accessories

#### Mounting Options
- **Pedestal**
  - TY-ST152UX1 (for 152-inch model)
  - TY-ST103PF9 (for 103-inch model)
  - TY-ST85P12 (for 85-inch model)

- **Wall-Hanging Bracket (Vertical)**
  - TY-WK152UX1 (for 152-inch model)
  - TY-WK103PV9 (for 103-inch model)
  - TY-WK85PV12 (for 85-inch model)

- **Floor Stand**
  - TY-ST85PF12 (for 85-inch model)

#### Function Boards
- **BNC Dual Video Terminal Board**
  - TY-FB9BD

- **HD-SDI w/Audio Terminal Board**
  - TY-FB10HD

- **Dual HD-SDI Terminal Board**
  - TY-FB11DH

- **DVI-D Terminal Board**
  - TY-FB11DD

#### Peripherals
- **3D IR Transmitter**
  - TY-3DTRW

#### Included Accessory
- **Remote Control Transmitter**
- **Illuminated Buttons**
  - Light up for easy access and operation in the dark.

#### Optional 3D Eyewears
- **3D Eyewear**
  - TY-EW3D10E
  - *VX200 Series only
  - *Included with each VX200 Series is one pair of 3D Eyewear necessary to view the 3D content.
  - *3D Eyewear are also available as optional accessories.

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1. Use the appropriate optional accessories for installation, and install in a manner that facilitates maintenance and safe use.
2. In addition to the cost of the main unit, expenses are incurred for shipping, transport, installation, construction, etc.
3. Because this product uses 200-VAC power, power source construction may be required.
4. The TH-152UX1, TH-85UX200 and TH-103UX200, and the special installation options that they require, are all built to order.
Panasonic brings a total solution to 3D imaging

Panasonic is capable of providing an end-to-end solution for 3D – from producing images to authoring 3D Blu-ray Disc™ contents for professional use in presentations and a variety of business situations.

Panasonic 3D Innovation Center

The Panasonic 3D Innovation Center was established to accelerate the development and expansion of 3D businesses. By taking full advantage of the collective strengths of the Panasonic Group to spur the development of its 3D-related technologies and services, we are thus committed to creating new business models and strengthening total solutions to meet customer needs ahead of the times.