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Portable Projectors Slim Down, Get Bright

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by Art Kingdom

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Anyone old enough to have volunteered to help their teacher avoid fumbling with 16mm film or overhead projectors likely marvels at today's portable projectors that come complete with an amazing amount of technology in a surprisingly small and easy-to-use package.

"What we considered portable projectors 15 years ago weighed 20 lbs.," said Richard McPherson, NEC senior product manager for projectors. "Now, portable can be an 8-lb. projector or much less."

You can still buy an overhead projector but it probably makes more sense to take advantage of the latest advances, especially if you want a crowded auditorium to see what you are presenting.

"You need a larger screen too because you need to spread that information out so that everybody can see it," said McPherson, "Today's projectors are made to accommodate a large screen."

Portable projectors can fit into a shirt pocket or be large enough that it is probably better if it is permanently installed. They can, among other things, connect to wireless networks or project data and images from smart phones and tablets. Low-cost operation and maintenance have become key features and important selling points.

"Computers, and the need for different resolutions as-well-as more complicated content, have driven much of the advancements in features found in today's projectors," said McPherson, "The more content the greater the need for higher resolution."



Casio XJ-H2650

BRIGHTNESS AND RESOLUTION

McPherson advises that clients base their buying decisions on a projector's brightness, resolution and versatility. This includes the ability to change projector lenses as necessary. Also, buyers should determine how the projector will most frequently be used in order to match features with the desired price point.

Other potential features include edge-blending and stacking capabilities. Edge-blending allows the use of multiple projectors to produce a massive image on a screen without discernible lines between video segments. Stacking uses multiple projectors with software that overlaps single images and increases brightness at a cost that can be less than buying a single projector with higher light output.

"Depending the situation, they may need three projectors one day and only need one the next," said McPherson

Projectors used in small, well-lit venues can use projectors with moderate brightness. Larger rooms need even greater light output.

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Epson PowerLite 1835

“If you’re looking at a specific classroom or lecture hall, you may need to place that projector in the back of the room or in a projection booth or maybe a rear-projection application is best,” said McPherson, “We have different lenses to support any of these applications.”

The prospective projector’s native resolution should be matched to the output resolution

of the device that will most often be connected, such as a laptop computer. XGA (Extended Graphics Array, 1,024x768 pixels) should be acceptable for PowerPoint and that will save money. Super Extended Graphics Array (SXGA, 1,280x1024 pixels) is considered the best for detailed images, although 1080p HD video will obviously require more pixels. Another thing to consider is that a higher native resolution projector can display both high- and low-resolution images, while a low native resolution projector may be able to show higher-resolution images, but will usually have distortion or artifacts.



Hitachi CP-WX3030WN

CARRY THAT WEIGHT

Users should consider how often they plan to carry their portable projector to different locations. Clearly, weight and overall size are important factors in portability, but keep in mind that a smaller, lighter projector may cost more.

An example of a small but full-feature projector is the LED Aaxa KP-600-01. At just 1.3 lbs., it can fit into a lap-top case and has a lamp life of 15,000 hours. The KP-600-01 is DLP and features WXGA (wide XGA, 1,280x800 pixels) and a brightness of 300 lumens. An optional battery provides more than 75 hours of power.



Aaxa KP-600-01

The KP-600-01 has built-in speakers, 4:3 and 16:9 aspect ratios, HDMI and VGA, as well as composite A/V connections and microSD and USB readers. USB plug-and-play allows instant set up. The projector makes an image size up to 100 inches (diagonal) in low-light conditions.

Larger in size and meant for mid-to-large meeting rooms where semi-professional high brightness

performance is required, the NEC P451W has a brightness of 4,500 lumens and is designed for screen sizes up to 140 inches. It weighs 4.1 lbs. and supports advanced connectivity with remote control and monitoring over both wired and an optional wireless network. The P451W’s lamp-life is rated at 6,000 hours.

The P451W helps avoid unnecessary installation costs with an optical zoom capability of 1.7x, as well as vertical lens shift plus vertical and horizontal keystone correction. Lens shift is the ability to move the projector image up or down, left or right while keeping the projector stationary. Vertical and horizontal keystone correction centers the projected image on the screen wherever the projector is located. A manual wall color correction function rounds out the P451W’s ease-of-use features.

The P451W offers a free promotional DisplayNote presenter license to share, present, and collaborate with multiple participants across multiple devices (*displaynote-nec.com*).

Brightness is a key feature of the Epson PowerLite 1965, which features 3 LCD primary color chips that yield a brightness spec of 5,000 lumens. It has multiple remote control and management functions, as well as nearly a dozen interfaces.

Interfaces for the PowerLite 1965 include WiFi network connectivity with security protocols for use with smart phones and mobile computing, and HDMI. The 1965 has vertical and

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horizontal keystone correction ± 30 degrees. Lamp-life is up to 4,000 hours in eco-mode and up to 2,500 in normal mode. The projector's native resolution is XGA.

The Christie LW401 is also a three-LCD unit that promotes brightness and versatility. It creates 4,000 lumens and has 1,280x800-pixel WXGA wide-



Christie LW401

screen resolution. Christie offers a number of optional lenses with repeatable position recall capabilities, and also has an optional wireless module for device flexibility and easy presentation set-up.

The LW401's lamp is a long-life 245-Watt UHP (ultra-high performance) model that is predicted to last up to 2,500

hours in normal use and 4,000 hours in eco-mode. Built-in security features limit access to the projector's controls and menus. The LW401 is compatible with AMX Device Discovery and Crestron RoomView, making the projector easier to connect to control systems. Christie notes that the LW401 can be used at altitudes up to 10,000 feet.

LOWER-COST OPERATION

With 5,000 hours of lamp life in normal mode and 6,000 hours in eco mode, the Hitachi CP-WX3030WN puts emphasis on lower cost of operation. It automatically changes the brightness of the lamp according to the brightness level of the screen. It also automatically changes the brightness of the lamp if there is no change in the screen image. Power-saving standby mode is less than 0.5 Watt.

ImageCare technology completes the theme by controlling lamp power, decreasing energy usage and improving contrast ratio. The CP-WX3030WN produces 3,000 lumens at WXGA (1,280x800-pixel) resolution. An optional multi-functional switcher provides wired and wireless source selection as well as switching options for connected devices. The projector can also accommodate a USB memory stick.



Panasonic PT-VW330U

Panasonic also focuses on lowering the cost of operation with its PT-VW330U. Weighing in at 7.7 lbs., the PT-VW330U has a 3LCD lamp configuration and focuses on reduced maintenance. The lamp has a 5,000 hour replacement cycle and the projector's proprietary 3-layer filter is designed for replacement after 6,000 hours. Resolution is 1,280x800 pixels, with 3,000 lumens of brightness.

The PT-VW330U's inputs include HDMI, composite and S-video, and it has a built-in 10-Watt audio amplifier and speaker, with a microphone input. There is also a built-in closed-caption decoder.

The Canon LV-7490 combines brightness with low maintenance. It is Canon's first 4,000-lumen portable LCD projector, and it has projected lamp life up to 5,000 hours. It has native XGA resolution at 1,024x768 pixels and a 1.2x optical zoom lens. This allows location of the projector in the best spot in a room, and projection throw distances from 4.6 to 41.7 feet with screen sizes of 40 to 300 inches.

The Canon LV-7490 has stereo inputs, and outputs allow audio to be played through external speakers. Its built-in RJ-45 port enables centralized control and monitoring from a networked PC.

WHERE'S THE LAMP?

Casio has taken a different path towards high brightness, resolution and low maintenance with its XJ-H2650 lamp-free projector technology. By combining a laser, a fluorescent

element and LEDs, Casio developed a mercury-free light source that produces true high brightness. Red is emitted by a high-lumen red LED, blue is emitted by a high-lumen blue LED, and green is made by converting blue laser light using a phosphor element.

This provides 10-times longer light-source life than Casio's original mercury lamp, while retaining savings for lamp replacement. Light-source life of the laser-and-LED hybrid is estimated at an industry-leading 20,000 hours, which makes the technology a good choice for projectors placed in awkward or inaccessible locations.

The Casio Hybrid Light Source features quick startup and shutdown, reaching maximum brightness in less than eight seconds and requires no cooling-down period. Auto-brightness adjustments save power and reduce eye fatigue. The projector's native resolution is WXGA at 1,200 x 800 pixels.

Casio provides a 3-year warranty on the projector and 3-years or 6,000-hour usage on the light source. Inputs include RGB/component, HDMI, composite video, audio and USB. Wireless capability is available through USB, and each light-source projector comes with an RJ-45 Ethernet port.

As far as the future of portable projectors, NEC's McPherson sees solid-state lighting sources such as LED, organic light emitting diodes (OLED), and polymer light emitting diodes (PLED) becoming "major role players." Manufacturers, he reports, are also preparing for the eventual shift to 4K-resolution projectors. With today's crop of portable projectors, it is easier than ever to carry high-quality large-screen images with you to a meeting.

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