

Panasonic develops LUMIX S1H full-frame mirrorless camera delivering cinematic performance and boundless creativity

Sydney, August 28 2019 - Panasonic is proud to announce the LUMIX S1H, the new full-frame mirrorless cinema camera.

The dazzling array of capabilities offered by the S1H includes:

- 6K full-frame capture in 10-bit internally, delivering new flexibility to filmmakers, enabling higher quality 6K output and greater scope to crop, pan or further stabilise in post-production while maintaining the detail of 4K resolution
- Cinema 4K/4K 60p/50p recording in 10-bit internallyⁱ to satisfy the most discerning purist
- Dual Native ISO for amazing low-light performance
- Dual I.S. (Image Stabilisation) 2 up to 6.5 stops, for powerful stabilisation correction
- V-Log/V-Gamut with 14+ stops of dynamic range, delivering rich gradation and a wide colour space

In addition, HDR (High Dynamic Range) in HLG (Hybrid Log Gamma), and Anamorphic 4:3 modes are available together with a variety of practical tools for film making, such as tally lights, a waveform monitor and a V-Log View Assist function.

The ergonomic design includes unlimited recording time via a new heat dispersion structure, a rugged, reliable body, dual SD Card slots, and a newly-designed high-luminance monitor.

The LUMIX S Series full-frame mirrorless camera system adopts the L-Mount system to provide users with a diverse and future-proof range of products. With a roadmap forecasting more than 46 interchangeable lenses to be available by 2020 (from Panasonic, Leica Camera and Sigma), the L-mount is fast becoming the most versatile camera system on the market.

Scott Mellish, Senior Product Marketing Manager, LUMIX, said: "Panasonic has a long history of developing professional cinema cameras for demanding filmmakers. We are proud to introduce this milestone camera which sets new benchmarks in what cinematographers can achieve from a mirrorless system.

"The S1H offers unlimited recording in all modes, with new heat dispersion technology, while still maintaining the weather sealing and durability that discerning customers have come to expect."

Key Capabilities

Video Recording second to none in its class

Newly designed full-frame sensor with Dual Native ISO Technology

Whenever professional-level low-light shooting is required, the LUMIX S1H is ready for action.

The newly designed 24.2-megapixel full-frame CMOS sensor (35.6 mm x 23.8mm) features Dual Native ISO technology, first introduced in the flagship VariCam lineup. The sensor can leverage a dual-base ISO setting, resulting in minimised noise and outstanding image quality

from low to high sensitivity. Dual Native ISO gives cinematographers a greater variety of artistic choices as well as the ability to use less light on the set, saving time. The LUMIX S1H's Dual Native ISOs are 640 and 4000ⁱⁱ. This feature teams up with the Venus Engine processor to deliver maximum ISO 51200 / Extended ISO 204800ⁱⁱⁱ. In addition, a low-pass filter effectively minimises moiré patterns.

High Resolution up to 6K for multiple formats

By maximising the use of the pixels in the full-frame image sensor, the LUMIX S1H has achieved 6K/24p (3:2 aspect ratio) or 5.9K 24p/25p/30p (16:9 aspect ratio) video recording for the first time in the world^{iv}. It is also the world's first full-frame digital interchangeable lens system camera to enable 10-bit 60p 4K/C4K HEVC video recording when using the image area equivalent to Super 35mm^v. The 4:2:2 10-bit 4K30p is recordable in H.264 at its full area at an impressive 400mbps utilising an All-Intra codec. It accommodates a variety of recording formats, including 4:3 Anamorphic mode, to meet professional needs.

Rich gradation and a wide color space rivalling those of cinema cameras

The LUMIX S1H features V-Log/V-Gamut with a wide dynamic range of 14+ stops, in line with the dynamic range of the Panasonic VariCam, to precisely capture everything from dark to bright areas. Subtle gradations such as skin tones are faithfully reproduced. Designed with consistent color management in mind, the S1H's recorded footage is compatible with V-Log footage recorded by VariCam, or V-Log L footage recorded by the LUMIX GH5/GH5S, enabling an easier post production workflow.

Robust video expression features (VFR, HFR)

The LUMIX S1H is designed to offer outstanding, multifaceted video performance. VFR (variable frame rate) functionality supports both overcranking and undercranking. Users have access to 2.5x slow (24p/60 fps) in C4K/4K and 7.5x super-slow (24p/180 fps) in FHD^{vi}. HFR (high frame rate) recording includes audio and autofocus at 120fps, allowing users to create slow-motion video in post-production, while maintaining a high bit rate and 10-bit internal recording. There are convenient tally lights on the front and rear of the camera.

4:2:2 10-bit internal recording / HDMI output

Featuring an incredibly rich colour profile, C4K/4K 24p/25p/30p 4:2:2 10-bit video is recordable in-camera. When set for 10-bit recording, the camera simultaneously delivers 4:2:2 10-bit HDMI output, making possible high-image-quality capture with an external recorder. The 4:2:2 10-bit format has approximately 128 times the information of 4:2:0 8-bit and is capable of expressing over 1 billion colours. This massive volume of colour information is highly valuable in post-production, making it possible to adjust colour dynamically and radically and even turn daylight scenes into nighttime scenes. Leveraging the expressive power of a full-frame camera takes 4K video to exciting new places.

High reliability and expandability to support professional work

5-Axis Dual I.S. 2 supporting up to 6.5 stops

Panasonic's 5-Axis Dual I.S. 2 offers excellent stability in a range of situations. A high-precision gyrosensor joins the Dual I.S. system of 5-axis in-body stabilisation and 2-axis optical stabilisation in selected lenses for highly accurate shake detection and compensation. This makes it possible to use up to 6.5 stops^{vii} slower shutter speed in both photo and video. Incredibly stable performance can be achieved when shooting handheld at much slower shutter speeds and ISO values, reducing the need to carry a tripod, gimbal or Steadicam rig. The electromagnetically-driven shutter system provides quiet, steady shooting.

High product reliability that allows unlimited video recording^{viii}

Panasonic has focused its expertise in heat management to develop and incorporate a cooling fan in the LUMIX S1H that efficiently disperses heat. This allows the camera to deliver non-stop video in every recording mode, supporting every type of long form video shooting, including documentaries, interviews and events.

The S1H fan has different settings. For example, AUTO1 starts the fan soon after shooting begins, to keep heat down and facilitate longer shoots. AUTO2 uses the fan only when necessary. Ultra-quiet performance, rugged design, and low vibrations for minimal effect on the image stabilisation system are other features that complement this new structure.

The tough body takes challenging shooting environments in its stride. The magnesium alloy full die-cast frame is highly durable, while sealing protects every seam, dial, and button, as well as the fan. The camera is dust and splash-resistant^x and designed for use at temperatures down to -10°C. The durable shutter unit will withstand around 400,000 releases.

The LUMIX S1H is equipped with two high-speed SD Memory Card slots, supporting UHS-II SD Cards and Video Speed Class 90. The 7.4-V 3,050 mAh high-capacity battery (with a long recording time of approximately 2 hours in all recording modes^x) can be quickly charged via USB PD (USB Power Delivery), using the bundled USB3.1 Type-C cable for high-speed data transfer.

Expandability for creative freedom

A HDMI Type A terminal is provided, with a cable lock holder for extra security. Time Code IN/OUT synchronisation is available via the flash synchro terminal and the bundled BNC converter cable. This streamlines the non-linear editing of footage shot with multiple cameras.

A variety of accessories can be used in common with the S1R and S1 – including a Microphone Adaptor (DMW-XLR1), Remote Shutter (DMW-RS2), Eyecup (DMW-EC6), Battery Grip (DMW-BGS1) and Battery Charger (DMW-BTC14). MIC, LINE and CONDENSER MICROPHONES are switchable. The DMW-XLR1 allows professional microphones to be connected for best audio quality. The Battery Charger also complies with USB PD and enables quick power charging in approximately two hours. The camera can be used while charging via the Battery Charger adaptor. The Panasonic External Flash (DMW-FL580L / FL360L / FL200L) can also be mounted on LUMIX S Series cameras.

Field work is also streamlined with Bluetooth 4.2 Low Energy connection and secure 5GHz Wi-Fi (IEEE 802.11ac) providing convenient remote control and sharing with other devices, and fast data transmission. Lumix Sync for iOS/Android devices enables photo transmission to a smartphone or tablet via easy wireless connection. It also allows remote control of the camera using a smartphone or tablet. Lumix Tether software enables tethered shooting. Users can control the camera by connecting it to a PC via USB. Images can be viewed on a large PC screen while shooting, which is helpful in commercial photoshoots of portraits, products and so on, where continuous confirmation is required.

High operability for intuitive control

Three large, high-resolution displays for smooth confirmation of images on the spot

The 3.2-inch, 2,330K-dot in 3:2 aspect touch rear monitor is enhanced with approximately 150% higher luminance for excellent visibility in outdoor shooting, compared with the LUMIX S1R/S1. The brand new multi-hinge design both tilts and rotates so that users can easily change angles without unplugging cables such as HDMI or USB. Other useful features include Live View Boost, which boosts sensitivity so the user can check compositions in the dark. Night Mode puts a red cast over the viewfinder and/or the LCD display, so the photographer's vision is not affected when shooting night scenes.

The new high-resolution Status LCD is the largest in its class at 1.8 inches. Adopting MIP (Memory In Pixel technology) for low power consumption, it is ideal for always-on use even when the camera power is off. It shows the recordable time for video, number of images, remaining battery and other major settings on a black/white switchable background. The backlit screen ensures high visibility and the fast response supports time code counting and audio monitoring.

The S1H uses the LVF (Live View Finder) introduced in the S1R/S1, to support ultra high-speed response, minimum distortion and high optical performance. The LVF boasts the world's highest 5,760k-dot resolution. The high-speed OLED technology delivers a smooth 120 fps display, a minimum time lag of less than 0.005 sec and an exceptional 10,000:1 high contrast ratio. The 0.78x magnification ratio can be switched to 0.7x or 0.74x, an excellent feature for glasses-wearers who can adjust the magnification in order to see the full frame.

Convenient customisable Fn buttons are located on the front of the S1H. The new sub video button is intuitive, so in a confined space, or where a rig blocks access, it is easier for operators to start and stop recording.

Impressive still camera performance

High Resolution mode and HLG Photo mode

The S1H offers High Resolution mode and HLG Photo^{xi} mode to take full advantage of the high-resolution sensor's exceptional ability to produce highly detailed, true to life images.

High Resolution mode will be welcomed by studio photographers who want to produce enormous billboard-sized prints without losing detail, utilising sensor shift technology. It captures and combines eight consecutive images in-camera for outstanding results – from reproducing the delicate colours of natural landscapes to intricate fine arts for archival images. It produces a 96-megapixel equivalent (12,000 x 8,000-pixel) RAW and/or JPEG image.

HLG Photo delivers a wider dynamic range that ensures more natural contrast. This format enables compatibility with HDR displays, preserving the brightest highlights and deepest shadows. The user can playback these vibrant images as HSP^{xii} files on the latest Panasonic HLG-compliant 4KTV via HDMI cable connection or on other HLG-compliant devices. HLG Photos can be produced as an HSP file with compressed high-brightness signals in full resolution (5,888 x 3,312 in 16:9).

High-speed, high-precision AF system

Panasonic has achieved high-speed AF with its advanced control technology incorporating the major devices – lens, sensor and imaging engine. The lens and sensor communicate at

a maximum 480 fps. Contrast AF with DFD technology allows the LUMIX S1H to achieve an ultra high-speed, high-precision AF of approximately 0.08 sec^{xiii}. The LUMIX S1H also boasts high speed burst shooting at 9 fps (AFS) or 6 fps (AFC). It also excels in low-light shooting, with -6EV^{xiv} luminance detection performance in Low Light AF, thanks to the higher sensitivity and optimised tuning of the sensor.

The high-precision shutter unit operates at a maximum 1/8000 second. The external flash can be synchronised with the industry's fastest shutter speed of a maximum 1/320 second^{xv}. The Highlight Weighted Light Metering Mode meters light with the priority on highlighted parts, to prevent them from washing out.

Panasonic's face/eye detection technology makes it possible to capture people in crisp focus, with the Eye AF capability detecting the pupil of the eye in precise focus for impressive portrait shooting. The S Series also incorporates Advanced AI Technology that detects specific subjects – humans and fast-moving animals. The camera keeps tracking these subjects even when they are not facing the camera.

S1H pricing and availability

The LUMIX S1H will be available in Australia in October 2019 from photographic specialists and consumer electronics retailers. The body is available in black.

- Body only (DC-S1HGN-K) RRP: \$5999
- Kit (DC-S1HMKIT) with LUMIX S 24-105mm F4 MACRO O.I.S. (S-R24105) RRP: \$7599

For further information, please visit www.panasonic.com.au

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ⁱ As a full-frame digital interchangeable lens system camera, as of August 27, 2019. Panasonic research. In Super 35mm-equivalent size

ⁱⁱ When recording mode is set to V-Log. The sensitivity varies depending on the recording mode.

ⁱⁱⁱ When recording mode is set to V-Log. The sensitivity varies depending on the recording mode.

^{iv} As a full-frame digital interchangeable lens system camera, as of August 27, 2019. Panasonic research.

^v As a full-frame digital interchangeable lens system camera, as of August 27, 2019. Panasonic research. In Super 35mm-equivalent size. Corresponding to 4K (4096×2160) as defined by Digital Cinema Initiatives (DCI).

^{vi} The degree of effect varies depending on the recording format and frequency, and the angle of view narrows if a frame rate over 150fps is selected.

^{vii} Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=105mm when S-R24105 or focusing distance f=200mm when S-R70200 is used.] Firmware must be updated to the latest version.

^{viii} Recording time varies depending on the battery capacity and memory card capacity. When the camera's temperature rises above the specified operation temperature, the camera may automatically stop video recording to protect it from heat damage.

^{ix} Dust and Splash Resistant. To avoid damage when using camera under these conditions, it must be used in accordance with the associated instructions in the manual.

^x When the battery is fully charged. The recordable time varies depending on the shooting condition and settings.

^{xi} "HLG (Hybrid Log Gamma)" is an international standard (ITU-R BT.2100) HDR format.

^{xii} "HSP" is an HDR picture format using HLG format video technology.

^{xiii} 11EV, at wide-end with S-R24105 (CIPA) in LVF120 fps setting.

^{xiv} At ISO100, F1.4, AFS

^{xv} The guide number decreases when the shutter speed is set to 1/320 of a second. As a Digital Single Lens Mirrorless Camera, as of August 27, 2019. Panasonic research.

MOV Formats							HLG	VFR	59.94Hz	50.00Hz	24.00Hz	
FULL	6K (3:2)	5952 x 3968	4:2:0 10-bit	LongGOP	HEVC	200Mbps	Yes	-	23.98p	-	24.00p	
	5.4K (3:2)	5376 x 3584	4:2:0 10-bit	LongGOP	HEVC	200Mbps	Yes	-	29.97p	25.00p	-	
	5.9K (16:9)	5888 x 3312	4:2:0 10-bit	LongGOP	HEVC	200Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p	
	C4K	4096 x 2160	4:2:2 10-bit	All-Intra	H.264	400Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p	
			4:2:2 10-bit	LongGOP	H.264	150Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p	
			4:2:0 8-bit	LongGOP	H.264	100Mbps	-	-	29.97p / 23.98p	25.00p	24.00p	
	4K	3840 x 2160	4:2:2 10-bit	All-Intra	H.264	400Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p	
			4:2:2 10-bit	LongGOP	H.264	150Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p	
			4:2:0 8-bit	LongGOP	H.264	100Mbps	-	-	29.97p / 23.98p	25.00p	24.00p	
	FHD	1920 x 1080	4:2:2 10-bit	All-Intra	H.264	200Mbps	Yes	-	59.94p / 29.97p / 23.98p	50.00p / 25.00p	24.00p	
			4:2:0 10-bit	LongGOP	HEVC	150Mbps	Yes	-	119.88p (HFR)	100.00p (HFR)	-	
			4:2:2 10-bit	All-Intra	H.264	100Mbps	Yes	-	59.94i	50.00i	-	
			4:2:2 10-bit	LongGOP	H.264	100Mbps	Yes	-	59.94p / 29.97p / 23.98p	50.00p / 25.00p	24.00p	
			4:2:0 10-bit	LongGOP	HEVC	100Mbps	Yes	-	47.95p (HFR)	-	48.00p (HFR)	
			4:2:0 8-bit	LongGOP	H.264	100Mbps	-	Yes	59.94p / 29.97p / 23.98p	50.00p / 25.00p	24.00p	
	Super 35mm		4:2:2 10-bit	All-Intra	H.264	400Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p	
			4:2:0 8-bit	LongGOP	H.264	100Mbps	-	Yes	29.97p / 23.98p	25.00p	24.00p	
	PIXEL/PIXEL	C4K	4096 x 2160	4:2:0 10-bit	LongGOP	HEVC	200Mbps	Yes	-	59.94p / 47.95p (HFR)	50.00p	48.00p (HFR)
				4:2:2 10-bit	LongGOP	H.264	150Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p
				4:2:0 8-bit	LongGOP	H.264	150Mbps	-	-	59.94p	50.00p	-
				4:2:0 8-bit	LongGOP	H.264	100Mbps	-	Yes	29.97p / 23.98p	25.00p	24.00p
				4:2:2 10-bit	All-Intra	H.264	400Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p
				4:2:0 10-bit	LongGOP	HEVC	200Mbps	Yes	-	59.94p / 47.95p (HFR)	50.00p	48.00p (HFR)
		4K	3840 x 2160	4:2:2 10-bit	LongGOP	H.264	150Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p
4:2:0 8-bit				LongGOP	H.264	150Mbps	-	-	59.94p	50.00p	-	
4:2:0 8-bit				LongGOP	H.264	100Mbps	-	Yes	29.97p / 23.98p	25.00p	24.00p	
4:2:2 10-bit				All-Intra	H.264	400Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p	
4:2:0 10-bit				LongGOP	HEVC	200Mbps	Yes	-	47.95p (HFR)	50.00p	48.00p (HFR)	
4:2:0 8-bit				LongGOP	H.264	100Mbps	-	Yes	29.97p / 23.98p	25.00p	24.00p	
Anamorphic				4:2:2 10-bit	All-Intra	H.264	400Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p
4K(4:3)		3328 x 2496	4:2:0 10-bit	LongGOP	HEVC	200Mbps	Yes	-	47.95p (HFR)	50.00p	48.00p (HFR)	
			4:2:2 10-bit	LongGOP	H.264	150Mbps	Yes	-	29.97p / 23.98p	25.00p	24.00p	
			4:2:0 8-bit	LongGOP	H.264	150Mbps	-	-	-	50.00p	-	
			4:2:0 8-bit	LongGOP	H.264	100Mbps	-	Yes	29.97p / 23.98p	25.00p	24.00p	
			4:2:2 10-bit	All-Intra	H.264	200Mbps	Yes	-	59.94p / 29.97p / 23.98p	50.00p / 25.00p	24.00p	
			4:2:0 10-bit	LongGOP	HEVC	150Mbps	Yes	-	119.88p ^{*1} (HFR)	100.00p ^{*1} (HFR)	-	
FHD		1920 x 1080	4:2:2 10-bit	All-Intra	H.264	100Mbps	Yes	-	59.94i	50.00i	-	
			4:2:2 10-bit	LongGOP	H.264	100Mbps	Yes	-	59.94p / 29.97p / 23.98p	50.00p / 25.00p	24.00p	
			4:2:0 10-bit	LongGOP	HEVC	100Mbps	Yes	-	47.95p (HFR)	-	48.00p (HFR)	
			4:2:0 8-bit	LongGOP	H.264	100Mbps	-	Yes ^{*2}	59.94p / 29.97p / 23.98p	50.00p / 25.00p	24.00p	
			4:2:2 10-bit	LongGOP	H.264	50Mbps	Yes	-	59.94i	50.00i	-	