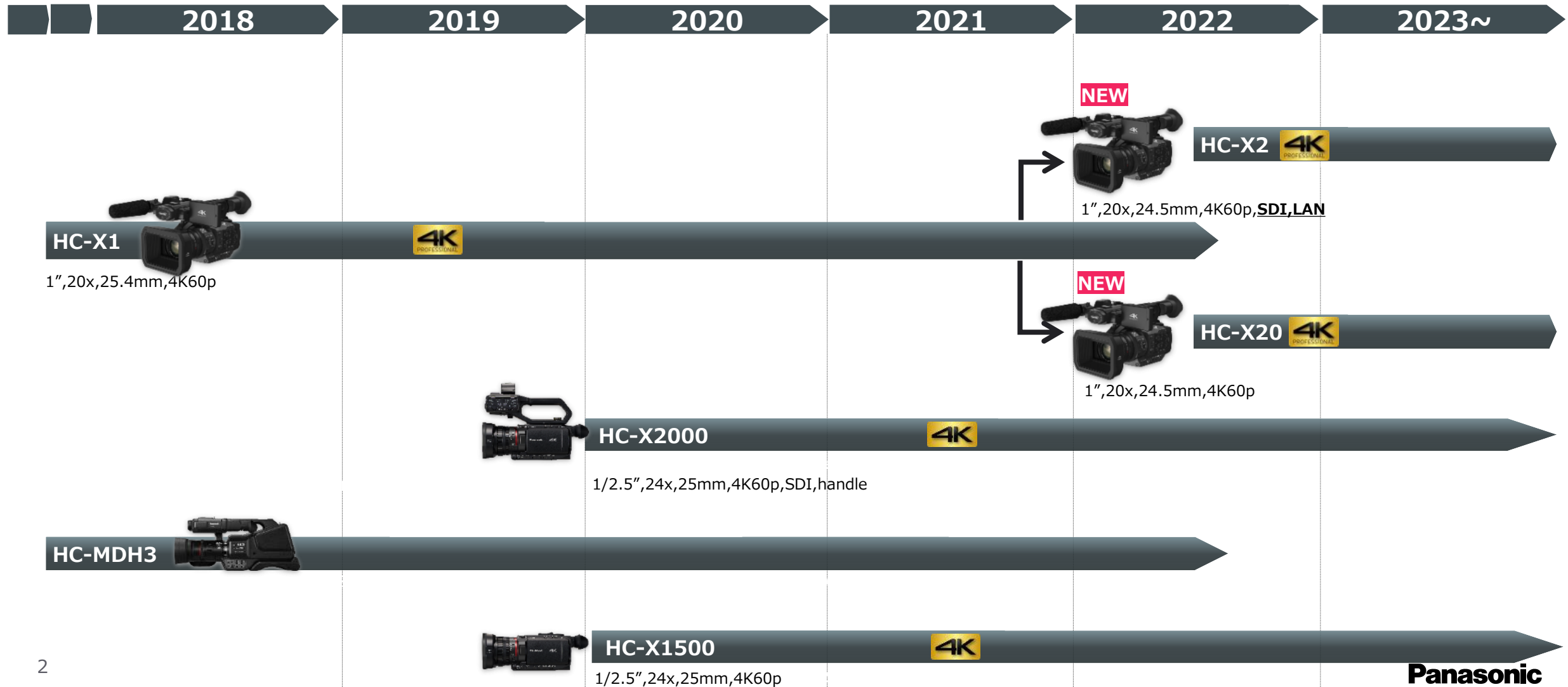


Panasonic
New Camcorder

HC-X2
HC-X20

Panasonic semi-professional camcorder lineup



Product concept and target user

카메라맨을 위한 자유로운 캠코더

Event



1' 센서

4K60p

³ 장시간 배터리

Interview



광각 24.5mm

AF·얼굴 추적

세개의 매뉴얼 링

On Location
(low light)



24x i.zoom

O.I.S (흔들림 보정)

인터페이스

Use Case



Concept of use case

야외행사, 로케이션 촬영, 인터뷰 등

- 카메라맨은 어떠한 환경에서도 일정한 비디오 품질을 제공하는 다목적 캠코더를 필요로 함.
기동성과 긴 촬영 시간 모두 필요. 이러한 수요는 디카나 스마트폰으로는 쉽게 대체될 수 없음.

Pro cam



- ① 어떠한 환경에서도 긴 시간 촬영이 가능
- ② 환경변화에 따른 유연성
(ND필터, 핸들, 조정링)
- ③ 렌즈 교환 없이 고배율 줌과 정확한 AF
(넓고 적당한 피사계 심도)

ILC



- ① 장시간 촬영의 어려움
- ② 환경 변화에 따른 설정 시간
필요.
유연성 부족

Concept of our camcorder line-up



1인 설정

1인 동시 영상 촬영 및 인터뷰



HC-X2000



HC-X1500

Professional



NEW HC-X2



NEW HC-X20

Amateur



다수 설정

영상 촬영은 독립적이고
전문 카메라맨과 함께

HC-X2 Key Features

Video Picture quality

- 4K60p(H.265)
- 4K 10bit recording
- Various codecs
- V-Log
- Low light
- New engine



**Run&Gun camcorder
with rich connectivity**

Basic performance

- Wide 24.5mm
- High Zoom (x20/ iAx24)
- Fast AF (w face detec)
- Stabilization
- Bright LCD
- WiFi
- Unlimited recording time
- Long battery life
- Battery bundled
- SD double slot

Connectivity

- 다양한 스트리밍 프로토콜
- 이더넷에 직접 연결
- SDI와 HDMI 동시 출력
- EVF와 LCD 동시 출력
- 프록시 레코딩(듀얼 코덱)
- 원격 제어(ROP 경유)



- SDI/LAN/XLR
- Various direct keys
- Triple rings

HC-X20 Key Features

Video Picture quality

- 4K60p(H.265)
- 4K 10bit recording
- Various codecs
- V-Log
- Low light
- New engine



Run&Gun camcorder

Basic performance

- Wide 24.5mm
- High Zoom (x20/ iAx24)
- Fast AF (w face detec)
- Stabilization
- Bright LCD
- WiFi
- Unlimited recording time
- Long battery life
- Battery bundled
- SD double slot




Connectivity

- Various streaming protocols
- Direct connection to Ethernet
- SDI and HDMI simultaneous out
- EVF and LCD simultaneous out
- Proxy recording dual codec
- Remote control (via ROP)



- SDI/LAN/XLR
- Various direct keys
- Triple rings

Comparison (X2000 vs X20 vs X2)

	HC-X2000	HC-X20	HC-X2
			
Size/Weight	129x159x257 mm / 1.5kg	169x195x388.4 mm / 2.41kg	173x195x390 mm / 2.47kg
Operability	Double rings with handle	Triple rings with handle	Triple rings with handle
Sensor (effective)	1/2.5", 8.6M(8.3M)	1.0", 20M(15M)	1.0", 20M(15M)
Angle of view	Wide 25.0mm	Wide 24.5mm	Wide 24.5mm
Zoom (optical / i.Zoom)	x24 / x32(UHD), x48(FHD)	x20/ x24(UHD), x32(FHD)	x20/ x24(UHD), x32(FHD)
Codec	UHD/60p 4:2:0 10bit UHD/30p 4:2:2 10bit	Same as X2000	Same as X2000
AF	Intelligent AF+Face detection	Same as X2000	Same as X2000
OIS	5-Axis Hybrid O.I.S. +	Same as X2000	Same as X2000
ND Filter	Off, 1/4, 1/16, 1/64	Same as X2000	Same as X2000
HLG/V-Log	NA/NA	NA/NA	Yes / Yes
TC IN/OUT	NA	NA	Yes
HDMI/SDI	Yes / Yes	Yes / NA	Yes/Yes ※Dual output
LAN terminal	NA	NA	Yes
WiFi	Yes	Yes	Yes
Live Streaming	○(RTP/RTSP/RTMP/RTMPS)	Same as X2000	Same as X2000

Comparison (X1 vs X20 vs X2)

	HC-X1	HC-X20	HC-X2
			
Size/Weight	173x195x392 mm / 2.4kg	169x195x388.4 mm / 2.41kg	173x195x390 mm / 2.47kg
Operability	Triple rings with handle	Same as X1	Same as X1
Sensor (effective)	1.0", 20M(9.46M)	1.0",20M(15M)	1.0",20M(15M)
Angle of view	Wide 25.4mm	Wide 24.5mm	Wide 24.5mm
Zoom (optical /i.Zoom)	x20/ NA(UHD), x30(FHD)	x20/ x24(UHD), x32(FHD)	x20/ x24(UHD), x32(FHD)
Codec	UHD/60p 4:2:0-8bit	UHD/60p 4:2:0 10bit UHD/30p 4:2:2 10bit	UHD/60p 4:2:0 10bit UHD/30p 4:2:2 10bit
AF	Intelligent AF	Intelligent AF+Face detection	Intelligent AF+Face detection
OIS	5-Axis Hybrid O.I.S. +	Same as X1	Same as X1
ND Filter	OFF,1/4,1/16,1/64	Same as X1	Same as X1
HLG/V-Log	NA / NA	NA / NA	Yes / Yes
TC IN/OUT	Yes	NA	Yes
HDMI/SDI	Yes / NA	Yes / NA	Yes/Yes ※Dual output
LAN terminal	NA	NA	Yes
WiFi	NA	Yes	Yes
Live Streaming	NA	Yes (RTP/RTSP/RTMP/RTMPS)	Yes (RTP/RTSP/RTMP/RTMPS)

Comparison (Sony Z150 vs Pana X2)

Sony PXW-Z150



1 inch sensor
Triple rings / ND filter
FHD 60p/4K**30P**
12x Optical Zoom
Wide **29mm**
TC IN/OUT : **NA**
LAN : **NA**
Livestreaming : **NA**
Proxy : **NA**
SDI/HDMI dual output : **NA**

Panasonic HC-X2



1 inch sensor
Triple rings / ND filter
FHD**60P**/4K**60P**
20x Optical Zoom
Wide **24.5mm**
TC IN/OUT : **Yes**
LAN : **Yes**
Livestreaming : **Yes**
Proxy : **Yes**
SDI/HDMI dual output : **Yes** **Panasonic**

Detail comparison (Pana X1 vs X2 vs Sony Z150)

Model No.		Panasonic HC-X1	Panasonic HC-X2	SONY Z150
Design				
Size (w/battery)		173 x 195 x 346 mm	173 x 195 x 346 mm	171x188x371mm
Weight(w/battery)		2.4kg	2.4kg	2.3kg
DC IN		12V	12V	12V
Battery bundled (Recording Time)		Yes (about 205min)	Yes (about 205min)	No (260min(NP-F770 option))
Movie Quality	Resolution	UHD/60p 4:2:0-8bit 150Mbps	UHD/60p 4:2:0 10bit 200Mbps UHD/30p 4:2:2 10bit 150Mbps	UHD/30P 4:2:0 8bit/100Mbps FHD/60p 4:2:2 10bit/ 50Mbps
	Sensor	1.0"	1.0"	1.0"
	Pixels(Effective)	20M(9.46M)	20M(15.0M)	21M(14.2M)
	Zoom	20x Optical Zoom F2.8-4.5	20x Optical Zoom F2.8-4.5	12 x Optical F2.8-4.5
	Wide-angle	24mm(24p),25.4mm(60p)	24.5m	29mm
	OIS	Power OIS(4K) 5-Axis Hybrid O.I.S. +/Power OIS (UHD/FHD)	5-Axis Hybrid O.I.S. + (UHD/FHD)	Sift lens system
AF		intelligent AF	Intelligent AF + Face detection	Face detection
Recording mode		Mov, MP4, AVCHD	Mov, MP4, AVCHD	XAVC Long, MPEG HD422 * MPEG HD420 HQ *, DVCAM, XAVC Proxy * Option
VFR		120fps(FHD),	120fps(FHD), 60fps(4K)	120fps(FHD)
HDR/Log		NA	HLG/V-Log	HLG
Proxy		NA	Yes	NA
Card slot		SD (UHS-I U3) x2	SD (UHS-I U3) x2	SD x2, SD/MSx1
SDI/HDMI OUT/同時出力		BNC(3G) *UX180 /NA(Type A)/NA	BNC(3G)/Yes (Type A 2.0)/Yes	BNC(3G)/Yes(Type A)/NA
Microphone/Audio IN		Stereo/XLR x2	Stereo/XLR x2	Stereo/XLR x2 , 4ch audio
Headphone		Stereo mini (Φ3.5)	Stereo mini (Φ3.5)	Stereo mini (Φ3.5)
TC In/Out		NA / Yes	Yes/Yes	NA / NA
Remote IN		Φ2.5/Φ3.5	Φ2.5	Φ2.5
USB HOST/DEVICE		NA (TypeA) /Yes (Micro-B)	Yes /Yes (Type-C)	Yes / Yes(Multi/Micro)
LCD/View Finder		3.5"(1.15M)/0.39"(1.77M)	3.5" (2.76M)/0.39"(1.77M)	3.5"(1.56M)/0.39"(1.44M)
Wi-Fi		Yes Wi-Fi Dongle	Yes	Yes
Ethernet		NA	Yes wired LAN	NA
Streaming		NA	RTSP/RTP/RTMP/RTMPS	NA

3.5' High visibility LCD display

HC-X1 had an issue of LCD brightness when used in outdoor

New LCD device and backlight system is applied for HC-X2 and X20 to outperform competitors

	X1	X2/X20 X2000 X1500	Z150 (SONY)	XF605 (Canon)
Display Size	3.5 inch	3.5 inch	3.5 inch	3.5 inch
Pixel	1.15 Mil dot	2.76 Mil dot	1.56 Mil dot	2.76 Mil dot
タッチパネル	Resistive film method	Capacitive sensing method	—	Capacitive sensing method
Max brightness	490cd/m2	1300cd/m2	415cd/m2	800cd/m2
Visibility at Outdoor	Bad	Excellent	So so	OK Better than Z150



Sony Z150

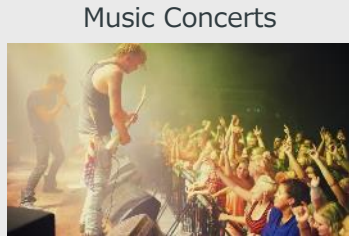
Panasonic X2/X20
※Image is X2000
but same LCD device
used for X2 and X20

Canon XF605

HC-X2, X20 Live streaming

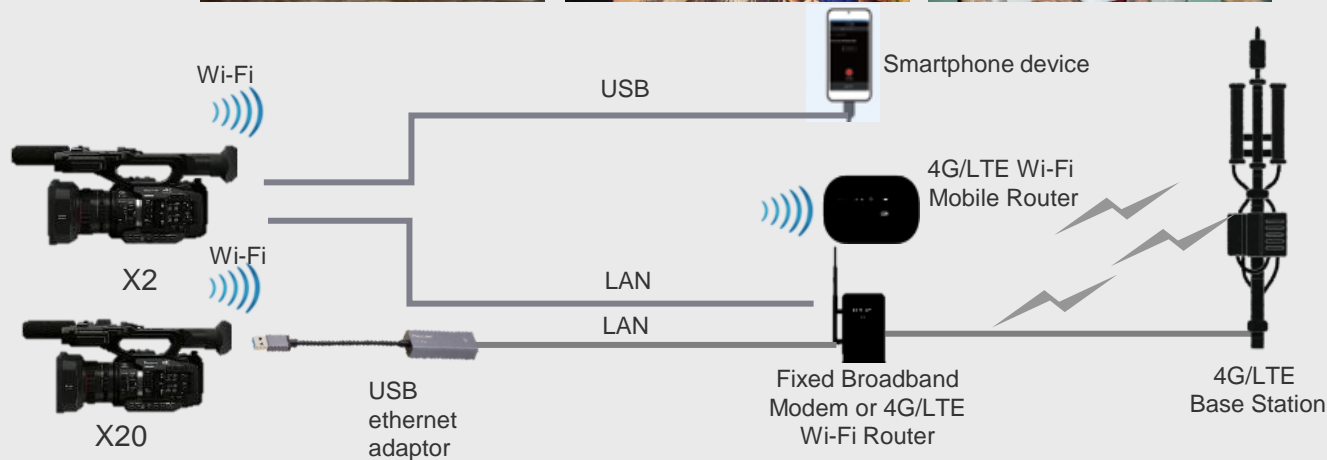
A Live Streaming Function That Connects Directly to Facebook or YouTube Live

- Supports RTMP (Real Time Messaging Protocol), the protocol used when streaming with Adobe Flash. RTSP/RTP/RTMP/RTMPS-Compatible.
- Supports streaming distribution of RTMP-compatible content, such as live video distribution services. * If RTMP is used, the bit rate is fixed.
- While streaming, recording (with modes below FHD) onto SD cards in the camera is also possible.
- Ideal for



■ Streaming Formats

Interface	LAN (X10 only)	Wired connection (video streaming, camera control) 100/1000BASE-TX (RJ45)
	Wi-Fi	Wireless connection (video streaming, camera control)
Video streaming *Under consideration	H.264 1920x1080,1280x720,640x360, maximum 60fps (60/30, 50/25, 24 fps)	
Bit rate *Under consideration	Maximum 24Mbps (FHD/60fps)	
Video compression method	H.264/MPEG-4 AVC Main Profile, High Profile	
Audio compression method	AAC-LC	
Network protocol	RTSP/RTP/RTMP/RTMPS	
System frequency	59.94Hz (NTSC)/50Hz(PAL)	



- * See the RTMP setting guide for the set-up method.
- * See the "Connection Confirmed Live Video Services" for information on connection confirmed live video distribution services.
- * If some factor causes services such as Facebook or YouTube to stop and continuous operation is not possible, streaming distribution with this unit may not be possible.

Live streaming feature comparison

	X20	X2	GH5 II	SONY Z90/NX80	Canon XF605
Wired LAN streaming	Yes ※requires USB-LAN adapter	Yes	Yes ※requires USB-LAN adapter	Yes ※requires a dongle	Yes
WiFi direct streaming	Yes	Yes	Yes	Yes	NA
USB tethering	NA	Yes	Yes	NA	NA
Format	FHD60p	FHD60p	4K60p ※when wired Lan	FHD60p	FHD60p
Codec	H.264	H.264	H.264/H.265	H.264	H.264
Video recording while streaming	Yes	Yes	NA	Yes	Yes

HC-X20, X2 Exterior Design

Carry over basic exterior design from HC-X1 with our signature red ring



X2



X20



X2000



X1500

Panasonic