



Technical Memo

Sony Corporation© 2021

Conditions of Use:

- (1) Only Sony Group employees are permitted to access and use this information. To disclose or disseminate to any other parties is forbidden.
- (2) Destroy or erase any and all portion of this information promptly in an irrecoverable and secure fashion, after achieving the purpose of use of this information.
- (3) Do not copy, replicate, reproduce, alter, translate, transmit, sell, lease, or distribute this information in whole or in part without the prior written permission of the author.
(Notwithstanding foregoing, it is permitted to copy and distribute this information to the Sony Group employees whose duties a need-to-know.)
- (4) Please notify immediately any leakage, loss, theft, misappropriation, or other misuse of this information by e-mail to the following address:
somk-qcs-tissnexim-adm@jp.sony.com

Revision of Information:

This information may be changed or updated at any time without any prior notice. Please confirm that this information is up-to-date before using it.

RANK 3

Revised :

Issued : December 14, 2021

Subject: Software release [V1.90]

Revise Point(s)

Issue No.HDCM21-066

Target Models / Destination

Model Name	Dest
HDCU3500	SY3
HDCU5000	J2

Model Name	Dest
HDCU3500	SYL
HDCU5000	UC5

Model Name	Dest
HDCU5000	CED
HDCU5500	SY3

Model Name	Dest
HDCU5000	CNB
HDCU5500	SYL

[Description]

The latest software and PLD of the HDCU3500/HDCU5500/HDCU5000 is released. (V1.90)

Upgrade the software/PLD as necessary.

Upgrade the firmware in accordance with the procedure below.

Upgrade the peripheral units by referring to the related technical memo.

[Installable Combinations]

If want to use the functions added in this V1.90, upgrade the following peripherals.

HDC3100, HDC3500, HDC5500, HDC5000	: V3.00 or higher
HDCE-TX30, HDCE-RX30	: V1.13 or higher
MSU-3000, MSU-3500	: V1.30 or higher
RCP-3500, RCP-3501	: V1.30 or higher
RCP-3100	: V1.30 or higher
MSU-1000, MSU-1500	: V3.80 or higher
RCP-1500, RCP-1501, RCP-1530	: V3.80 or higher

Related technical memo

HDCM21-063 (HDC3100, HDC3500, HDC3500/H, HDC5500, HDC5000)

HDCM21-050 (HDCE-TX30, HDCE-RX30)

HDCM21-054 (MSU-3000, MSU-3500)

HDCM21-053 (RCP-3500, RCP-3501)

HDCM21-057 (RCP-3100)

HDCM21-056 (MSU-1000, MSU-1500)

HDCM21-055 (RCP-1500, RCP-1501, RCP-1530)

HDCM20-042 (Device Setting Plug-in Software for IP Live System Manager (LSM) of
HDCU3100/3170/5000/5500/3500, V2.4.1)

[Applicable Serial Number]

Model/Destination	Serial Number
HDCU3500/L2	
HDCU3500/T1	
HDCU3500/UL1	
HDCU5500/L2	
HDCU5500/T1	
HDCU5500/UL1	
HDCU5000 (CED)	
HDCU5000 (CNB)	
HDCU5000 (J2)	
HDCU5000 (UC5)	

[Change Point]

< New Function >

1. Support S-Gamut3/S-Gamut3.Cine

S-Gamut3 and S-Gamut3.Cine can be set when HDR MODE is set to CINEMA.

<HDR>	SO6 TOP	<HDR>	SO6 TOP
HDR MODE : CINEMA		HDR MODE : CINEMA	
SDR GAIN : -----		SDR GAIN : -----	
(HDR CONTRAST : ----)		(HDR CONTRAST : ----)	
(HDR TARGET WHITE: -----)		(HDR TARGET WHITE: -----)	
HDR BLACK OFFSET : -----		HDR BLACK OFFSET : -----	
HDR BLACK COMPRESSION: ---		HDR BLACK COMPRESSION: ---	
HDR OETF : (S-Log3)		HDR OETF : (S-Log3)	
HDR LOOK : (---)		HDR LOOK : (---)	
HDR COLOR SPACE :→S-Gamut3		HDR COLOR SPACE :→S-Gamut3.Cine	
4K COLOR SPACE : (S-Gamut3)		4K COLOR SPACE : (S-Gamut3.Cine)	

The controllable items of PAINT item at the time of CINEMA setting are as follows.

	Display on the panel	Reflection in SDR output	Reflection in CINEMA output
Gain	Yes		
White	Yes		
ColorTemp	Yes		
Detail	No	No	No
4K Detail	No	No	No
HD Detail	No	No	No
SkinDetail	No	No	No
Saturation	No	No	No
Matrix	No	No	No
OHB Matrix	No	No	No
Low Key Saturation	No	No	No
Knee	Yes	Yes	No
AutoKnee	No	No	No
Knee Saturation	Yes	Yes	No
BlackGamma	No	No	No
Gamma	Yes	Yes	No
(SDR)UserGamma	Yes	Yes	No
White Clip	No	No	No
Black	Yes	Yes	No
Flare	Yes		
V Mod Saw	Yes		
BlackShading	Yes		
WhiteShading	Yes		

SDR GAIN	Yes (0.0dB Fixed representation)	No	No
HDR BlackOffset	No	No	No
HDR Knee	No	No	No
HDR WhiteClip	No	No	No
HDR BlackClip	No	No	No
HDR BlackCompression	No	No	No
HDR UserGamma	No	No	No
HDR TargetWhite	No	No	No

2. Support HDR User Gamma

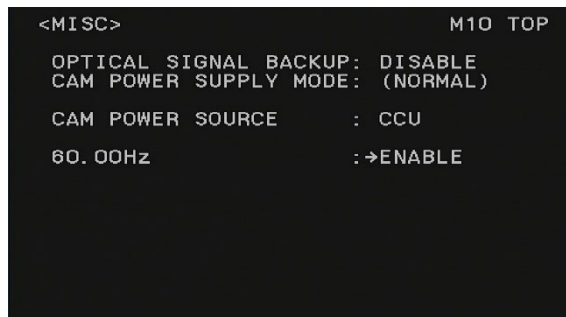
Added a function that can reflect HDR User Gamma Table created by RAW Viewer application.

Refer to HDCM21-054 of MSU-3000/MSU-3500.

Note: The camera requires Software option HZC-UG50 to use this function.

3. Added 60.00P format

If 60.00Hz is set to ENABLE in <MISC> M10 page of the CCU menu, 60.00Hz format can be selected for CAMERA FORMAT.



Note: When using the 60.00Hz format, input 1080/60.00i for the Reference signal. If input NTSC or PAL to the Reference signal, do not input NTSC or PAL as it cannot be synchronized.

4. Support CCU Assign

Added support for CCU Assign function.

Refer to HDCM21-054 of MSU-3000/MSU-3500.

5. Added Skin Detail Zoom Link function

When connecting to HDC3500, Skin Detail Zoom Link can be used for the following formats.

UHD/59.94P(4K/HDR), UHD/29.97P(4K/HDR), UHD/23.98P(4K/HDR), UHD/50P(4K/HDR),

UHD/25P(4K/HDR), UHD/24P(4K/HDR), UHD/60P(4K/HDR), UHD/30P(4K/HDR),

1080/59.94P(4x), 1080/59.94P(3x), 1080/59.94P(2x), 1080/50P(4x), 1080/50P(3x), 1080/50P(2x)

6. Added IP format below 30P

When HKCU-SFP50 option is installed in HDCU3500/HDCU5500/HDCU5000, added support for IP output when using CAMERA FORMAT below.

- 1) When set to CAMERA FORMAT: HIGH, UHD/29.97P(4K/HDR),1080/29.97P(4K/HDR)
 When set to CAMERA FORMAT: ULTRA, 3840x2160/29.97P
 Added IP OUTPUT FORMAT: 3840x2160/29.97PsF/SQD, 3840x2160/29.97P/6G, 1080/29.97PsF
- 2) When set to CAMERA FORMAT: HIGH, UHD/23.98P(4K/HDR),1080/23.98P(4K/HDR)
 When set to CAMERA FORMAT: ULTRA, 3840x2160/23.98P
 Added IP OUTPUT FORMAT: 3840x2160/23.98PsF/SQD, 3840x2160/23.98P/6G, 1080/23.98PsF
- 3) When set to CAMERA FORMAT: 1080/29.97PsF
 Added IP OUTPUT FORMAT: 1080/29.97PsF
- 4) When set to CAMERA FORMAT: 1080/23.98PsF
 Added IP OUTPUT FORMAT: 1080/23.98PsF
- 5) When set to CAMERA FORMAT: HIGH, UHD/25P(4K/HDR), 1080/25P(4K/HDR)
 When set to CAMERA FORMAT: ULTRA, 3840x2160/25P
 Added IP OUTPUT FORMAT: 3840x2160/25PsF/SQD, 3840x2160/25P/6G, 1080/25PsF
- 6) When set to CAMERA FORMAT: HIGH, UHD/24P(4K/HDR), 1080/24P(4K/HDR)
 When set to CAMERA FORMAT: ULTRA, 3840x2160/24P
 Added IP OUTPUT FORMAT: 3840x2160/24PsF/SQD, 3840x2160/24P/6G, 1080/24PsF
- 7) When set to CAMERA FORMAT: 1080/25PsF
 Added IP OUTPUT FORMAT: 1080/25PsF
- 8) When set to CAMERA FORMAT: 1080/24PsF
 Added IP OUTPUT FORMAT: 1080/24PsF

< Specification change >

Add authentication password of Web menu

For enhanced security from V1.90 or higher, it is necessary to set an authentication password when accessing Web menu for the first time.

Password setting procedure

- 1) Input IP address of this CCU in the Web browser.

* If set PORT of <IP ADDRESS> in NETWORK menu to LAN-COM in the setting menu of this CCU, IP address and subnet mask of this CCU are displayed on the menu screen.

* When DISP/MENU lever of front panel is pushed up to the DISP side for 3 seconds, IP address and subnet mask are displayed on the CCU No. display.

- 2) Input your username and password.

Input the username (admin) and the password set in the pop-up displayed by Web browser. If the password has not been set, the password setting screen is displayed.

* Notes: As a security measure, if authentication fails multiple times, this CCU deny access from that PC for a while. This state is cleared after 5 minutes. The password can be reset by step <WEB MENU> -> RESET PASSWORD in the NETWORK menu of this CCU.

< Improvement >

1. **Added the function to display HDR Target White in the menu**

Display HDR Target White (how many nit the brightness white of 100nit in SDR is in HDR)

* Added HDR Target White to CCU menu

* Added 26 HDR White Target to SR Live Metadata

2. **Added the function to set HDR Black Compression in the menu**

Set whether to decrease the low-brightness area with respect to HDR output.

```

<HDR>                                SO6 TOP
HDR MODE          : LIVE HDR
SDR GAIN          : -6.0dB
(HDR CONTRAST    : 201%)
(HDR TARGET WHITE : 229nit)
HDR BLACK OFFSET  : 0.0
HDR BLACK COMPRESSION: ON
HDR OETF          : S-Log3
HDR LOOK          : Live
HDR COLOR SPACE   : BT2020
4K COLOR SPACE    : (BT2020)
  
```

3. **Added output link display at the time of HFR output to the status display screen**

The following is an example for camera format 3840x2160/50P

```

*4K/HFR Link*                        06/10
SDI-OUT 1
3840x2160/50P/SQD/3G-A
SDI-OUT  1:Link1      2:Link2
SDI-I/O   1:Link3      2:Link4
UHD-SDI A
3840x2160/50P/12G
UHD-SDI  A:Link1      B:Link1
          C:Link1      D:Link1
          E:Link1      F:Link1
          G:Link1      H:Link1
  
```

4. **Warning display on panel when the format between CAM and CCU does not match format**

It is possible to display mismatch information on panel.

< Correction >

1. Fix the symptom that rarely fails the transfer of the HDR-SDR conversion parameter in LIVE HDR mode.
2. Fix the symptom that IP OUT4 may not be displayed on page 1 of OUTPUT FORMAT IP in CCU menu.

[Preparation]

< Data for update >

File name: **hdcu5000_v1.90.zip**

* Obtain it from Software Download site.

The files below can be obtained by extracting **hdcu5000_v1.90.zip**.

hdcu5000_app.pkg	Software file
hdcu5000_updater.pkg	Updater file
hdcu5000_os.pkg	OS file
hdcu5000_sy.pkg	PLD file
hdcu5000_vif.pkg	PLD file
hdcu5000_tx1_high.pkg	PLD file
hdcu5000_tx1_ultra.pkg	PLD file
hdcu5000_tx1_hfr720.pkg	PLD file
hdcu5000_tx2.pkg	PLD file
hdcu5000_net1.pkg	PLD file
hdcu5000_net2.pkg	PLD file

* All latest software/PLD files as of this technical memo are supplied from the Software Download site.

< Others >

USB memory 1 piece

[Upgrading Procedure]

Use the USB memory for upgrading. Refer to the MAINTENANCE MANUAL for the procedure.

* Upgrade in the order of OS -> APPLICATION -> PLD or forced upgrading.

[Confirmation after Upgrading]

Confirm the versions in the APPLICATION item of the menu of HDCU5000/5500/3500, DIAGNOSIS - <VERSION1> (D03) page.

APPLICATION	V1.90 (Change item)
UPDATER	V1.00
OS	V1.90 (Change item)
SY	V1.22
VIF	V1.60 (Change item)
TX1(HIGH)	V1.62 (Change item)
TX1(ULTRA)	V1.62 (Change item) (Display only when installing HDCU5000/5500, HKCU-FB50)
TX1(HFR720)	V1.60 (Change item)
TX2	V1.60 (Change item) (Display only when installing HDCU5000/5500, HKCU-FB50)
NET1	V2.25 (Change item) (Display only when installing HKCU-SFP50)
NET2	V2.29 (Change item) (Display only when installing HKCU-SFP50)
ENC1	V1.01 (Display only when installing HKCU-REC50/55)
ENC2	V1.06 (Display only when installing HKCU-REC50/55)

[Software History] HDCU3500/HDCU5500/HDCU5000

	V1.03 Initial release	V1.30 HDCM19-054	V1.31 HDCM19-067	V1.31 HDCM19-071	V1.44 HDCM19-212	V1.45 HDCM20-017	V1.50 HDCM20-027
APPLICATION	V1.03	V1.30	V1.31	←	V1.44	V1.44	V1.50
UPDATER	V1.00	←	←	←	←	←	←
OS	V1.00	←	←	V1.05	V1.10	←	V1.20
SY	V1.00	←	←	←	V1.20	←	V1.21
VIF	V1.02	V1.10	←	←	V1.28	←	V1.30
TX1(HIGH)	V1.06	V1.10	←	←	V1.23	←	V1.25
TX1(ULTRA)	V1.06	V1.10	←	←	V1.22	←	V1.25
TX2	V1.04	V1.10	←	←	V1.25	←	←
NET1	V2.04	V2.05	←	←	←	←	V2.24
NET2	V2.04	V2.05	←	←	←	←	V2.26
	-	-	-	-	V1.01 HDCM20-008	←	←
ENC1(XAVC)	-	-	-	-	V1.01	←	←
ENC2(REC55)	-	-	-	-	V1.06	←	←

	V1.60 HDCM20-040	V1.70 HDCM20-051	V1.71 HDCM20-051	V1.80 HDCM21-027	V1.82 HDCM21-052	V1.90 HDCM21-066
APPLICATION	V1.60	V1.70	V1.71	V1.80 V1.81	V1.82	V1.90
UPDATER	←	←	←	←	←	←
OS	←	←	←	V1.80	V1.81	V1.90
SY	←	←	V1.22	←	←	←
VIF	V1.40	V1.42	←	V1.52	V1.52	V1.60
TX1(HIGH)	V1.33	V1.40	←	V1.51	V1.51	V1.62
TX1(ULTRA)	V1.33	←	←	V1.51	V1.51	V1.62
TX1(HFR720)	-	-	-	V1.51	V1.51	V1.60
TX2	←	←	←	V1.50	V1.50	V1.60
NET1	←	←	←	←	←	V2.25
NET2	←	←	←	V2.27	V2.27	V2.29
	←	←	←	←	←	←
ENC1(XAVC)	←	←	←	←	←	←
ENC2(REC55)	←	←	←	←	←	←