PN-K321 Recommended Video Cards

<Rev1.3>

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Sharp Information and Imaging Company of America
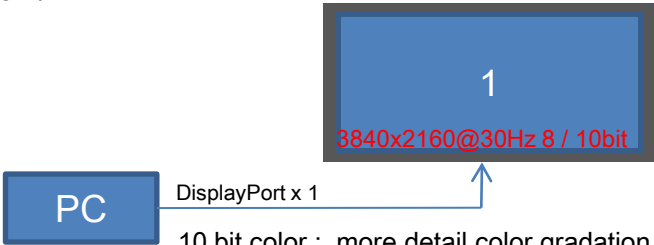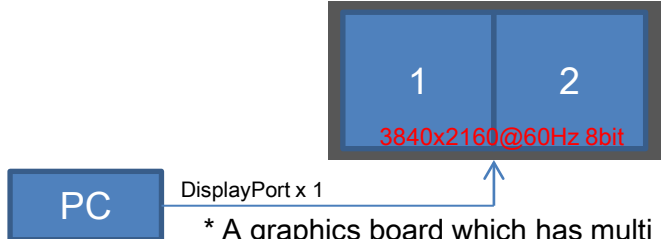
About this document

Please follow all manufacture's instructions when installing and configuring a particular video card.

【Attention】

-Sharp can not guarantee that the recommended Video Cards described are compatible with the selected PC.

-This document is provided to guide the customer with the selection of compatible Video Cards for use with the Sharp PN-K321 Ultra-HD display.

Please don't pass this information to other manufacturers of similar products.

PN-K321 Connections

	30Hz Mode (Default)	60Hz Mode (for smoother movie play)
DisplayPort	**Single Stream Mode [SST]** - show image with 30Hz by one cable - 10bit color image can be displayed*. *A graphics board which has 10bit color mode is needed. 1 3840x2160@30Hz 8 / 10bit PC — DisplayPort x 1 10 bit color : more detail color gradation 8 bit color : normal PC's color gradation	**Multi Stream Mode [MST]** - show image with 60Hz by one cable - for smoother movie play 1 2 3840x2160@60Hz 8bit PC — DisplayPort x 1 * A graphics board which has multi stream mode for DisplayPort is needed.
HDMI	**HDMI Single [HDMI DUAL: OFF]** - show image with 30Hz by one cable 1 3840x2160@30Hz 8bit PC — HDMI x 1	**HDMI DUAL [HDMI DUAL: ON]** - show image with 60Hz by two cable - for smoother movie play 1 2 3840x2160@60Hz 8bit PC — HDMI x 2 * A graphics board which has multi stream mode for DisplayPort is needed.

➡ DisplayPort Mode

Single Stream (SST) Mode and Multi Stream (MST) mode can be selected.

1. Single Stream Mode (default): up to 3,840×2,160 pixels / 30Hz

2. Multi Stream Mode*: up to 3,840×2,160 pixels / 60Hz

* A graphics board which has multi stream mode for DisplayPort is needed.

<How to set the Multi Stream Mode>
OSD MENU > DisplayPort Stream > [MST]

Resolution (PC)

"○" means "supported".

Screen Resolution		Vsync (Hz)	DisplayPort	HDMI 1 or HDMI 2	HDMI Dual *1
VESA	640×480	60	○	○	—
		72	○	○	—
		75	○	○	—
	800×600	56	○	○	—
		60	○	○	—
		72	○	○	—
		75	○	○	—
	848×480	60	○	○	—
	1024×768	60	○	○	—
		70	○	○	—
		75	○	○	—
	1152×864	75	○	○	—
	1280×768	60	○	○	—
		75	○	○	—
	1280×800	60	○	○	—
	1280×960	60	○	○	—
	1280×1024	60	○	○	—
		75	○	○	—
	1360×768	60	○	○	—
	1400×1050	60	○	○	—
	1600×1200	60	○	○	—
	1680×1050	60	○	○	—
	1920×1200	60	○	–	–
	3840×2160	60	○※3※6	—	○※4
		50	○※3※6	—	○※4
		30	○	○	○※4
		25	○	○	–
		24	○	○	○※4
	4096×2160※2	24	—	○	○※5
Wide	1280×720	60	○	○	—
	1920×1080	60	○	○	—
US TEXT	720×400	70	○	○	—

Recommended (3840×2160 rows highlighted)

*1 One screen is composed by using both HDMI 1 and HDMI 2 simultaneously.
*2 Displays a reduced image, except in Dot by Dot. In Dot by Dot, the image will be cut down to panel size then displayed.
*3 Displays by using multi-stream.
*4 The signal of each two HDMI input terminal is 1920 x 2160.
*5 The signal of each two HDMI input terminal is 2048 x 2160.
*6 The signal of each right-and-left screen on one monitor is 1920 x 2160.

* All are compliant only with non-interlaced.
* Depending on the connected PC, images may not be displayed properly even if the compatible signal described above is input.

3,840×2,160 Compatible Video Cards

		Test configuration	3840x2160						
			60Hz / 8bit Color			30Hz / 10bit Color		30Hz / 8bit Color	
			DP*1	HDMI Dual	HDMI 1 Or 2	DP*1	HDMI 1 Or 2	DP*1	HDMI 1 Or 2
NVIDIA	NVIDIA	NVS 510	△※3,5	-	-	-	-	△3	-
		Quadro K600	△※5	-	-	✓	-	✓	△※7
		Quadro K5000	△※5,9	△※4,8	-	✓	-	✓	△※4,8
	ELSA	GeForce GTX670　GD670-2GEBXA	△※5	-	-	-	-	✓	△※7
	ZOTAC	GeForce GTX680 ZTGTX650Ti-GD5R001/ZT-60103-10P	△※5	-	-	-	-	✓	△※7
	ASUS	GeForce GTX TITAN　GTXTITAN-6GD5	△※5	-	-	-	-	✓	△※7
	ASUS	GeForce GTX760　GTX760-DC20C-2GD5	△※5	-	-	-	-	✓	△※7
AMD	AMD	FirePro W600	△※3,6	-	-	△※2	-	△※3	-
		FirePro W5000	△※6	-	-	△※2	-	✓	-
		FirePro W8000	△※6	-	-	△※2	-	✓	-
	SAPPHIRE	RadeonHD7750 SAHD775-1GD5R0/11202-00-20G	△※6	-	-	-	-	✓	△
	SAPPHIRE	RadeonHD7970 SAHD797-3GD5R001/21197-00-40G	△※3,6	-	-	-	-	△※3	△

"✓" means "excellent"
"△" means "OK with specific limitation"
" - " means "impossible"

Evaluation set 1：HP Z400　Workstation、Windows7 Professional SP1 32bit
Evaluation ser 2：HP Z620　Workstation、Windows8 Professional 64bit
Evaluation set 3：HP Z620　Workstation、Windows7 Professional SP1 64bit

Driver software version			
Nvidia		AMD	
Quadro/ NVS	Geforce	FirePro	Radeon
331.65	327.23	12.104.2	13-9
331.65	327.23	12.104.2	13-9
331.65	327.23	12.104.2	13-9

*1:DP stands for Display Port
*2 Windows AERO is not activated .(deactivated automatically)
*3: Using Mini Display port –Display Port conversion cable
*4 Using DVI–HDMI conversion cable
*5 PN-K321 main unit Firm ware update is required (In case of you use windows8 please deactivate "FAST START UP" on windows 8)
*6 Need to use AMD Eyefinity technology to combine two picture image into one image.
*7:Depend upon version of driver software may not be possible. Confirmed with driver software version 320.86
*8:Confirmed with driver software version 320.00 and 320.86
*9. In case it need to reboot PC

 < NOTICE >
*As for Nvidia　Quadro/NVS　Geforce series, On DisplayPort connection with 3,840×2,160 resolution at 60Hz display
　　1. PN-K321 main unit Firm ware update is required (As above mentioned ※5)
　　2. Graphic board driver version should be updated 331.65 (Quadro/NVS series) 327.23 (Geforce series) or after
*Depend on PC circumstances, BIOS display might be skip when its start up.
*Above contents are would not be guarantee at every PC environment and subject to change without any advance notice.。