

A large teal graphic element on the left side of the slide, consisting of a large trapezoidal shape with a smaller parallelogram shape above it, both pointing towards the right.

## AMD FIREPRO DISPLAY OUTPUT CAPABILITIES

Roger Quero

# 4K / UHD Display Types

- LCD of monitor or TV all refresh at a minimum of 60Hz
- 4K Displays vary at the input

Type 1 :3840x2160 30Hz

Type 2 :Dual Input

Type 3 :3840x2160 60Hz ( MST )

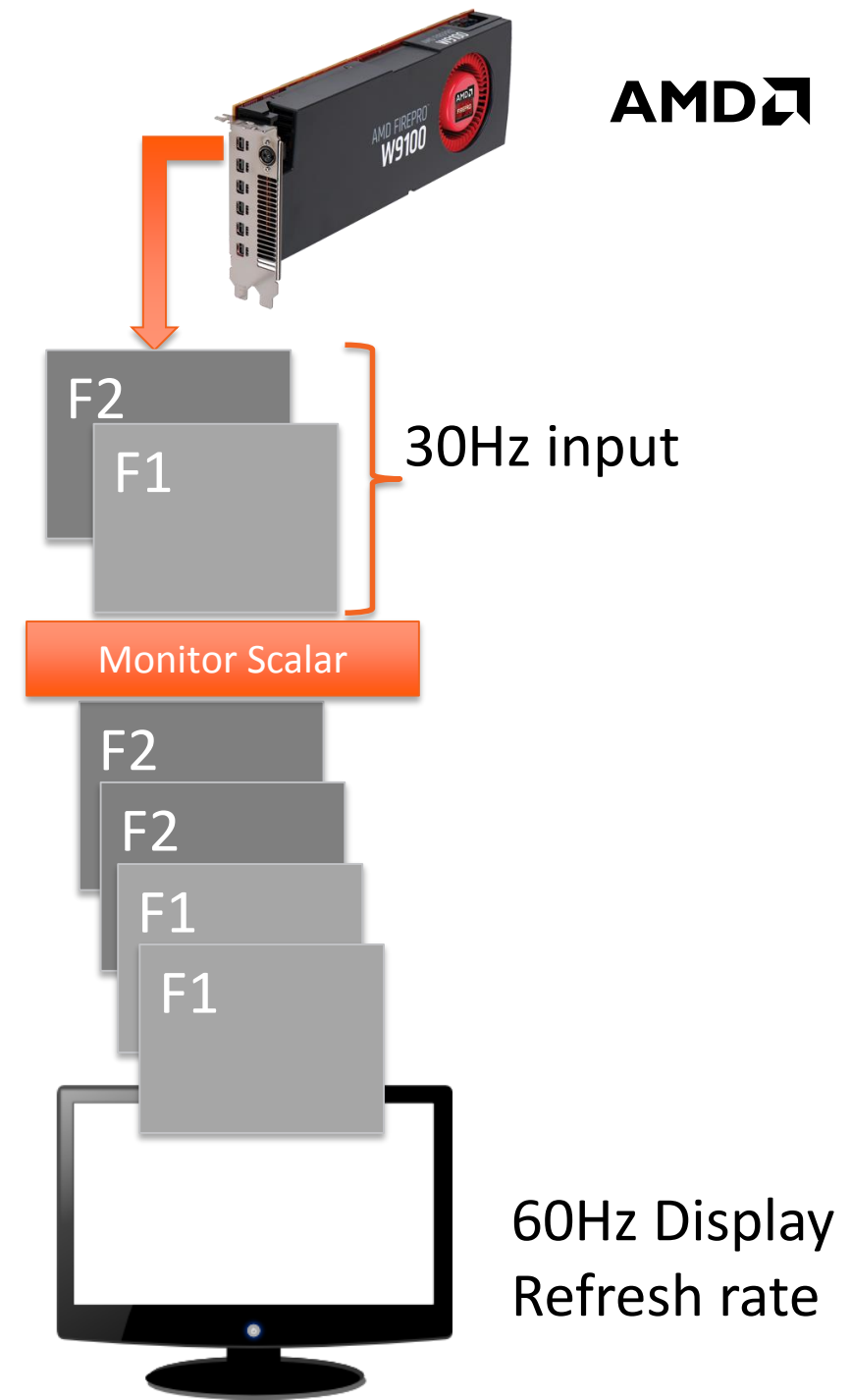
Type 4 :3840x2160 60Hz ( SST )

# 4K Display Type 1



## Type 1 – 3840x2160 30Hz

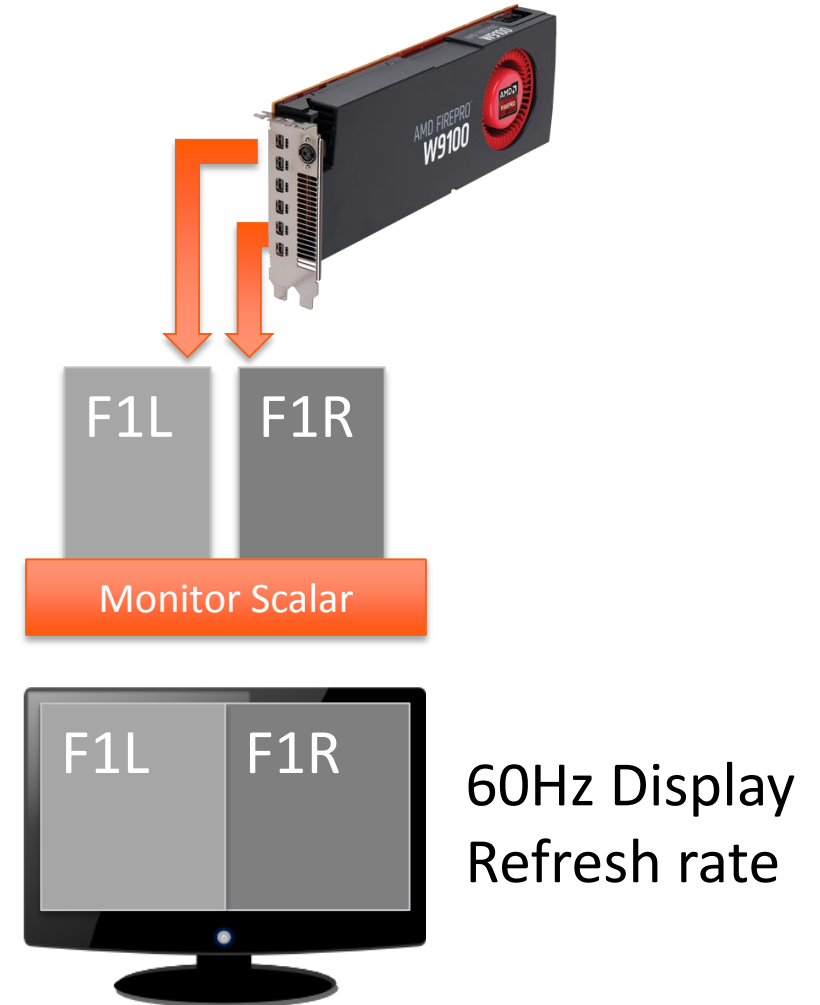
- The GPU will transmit 3840x2160 30Hz over a single cable
- The scalar in the display will convert 30Hz signal to 60Hz
  - Typical conversion uses a technique called frame-doubling
  - Each frame is presented to the user twice, for a total refresh rate of 60Hz
  - User can easily perceive frame lag due to the low refresh rate @ the input
  - Supported via HDMI 1.4 @ 2.97GHz, and DisplayPort 1.x



# 4K Display Type 2

## Type 2 – Dual Input

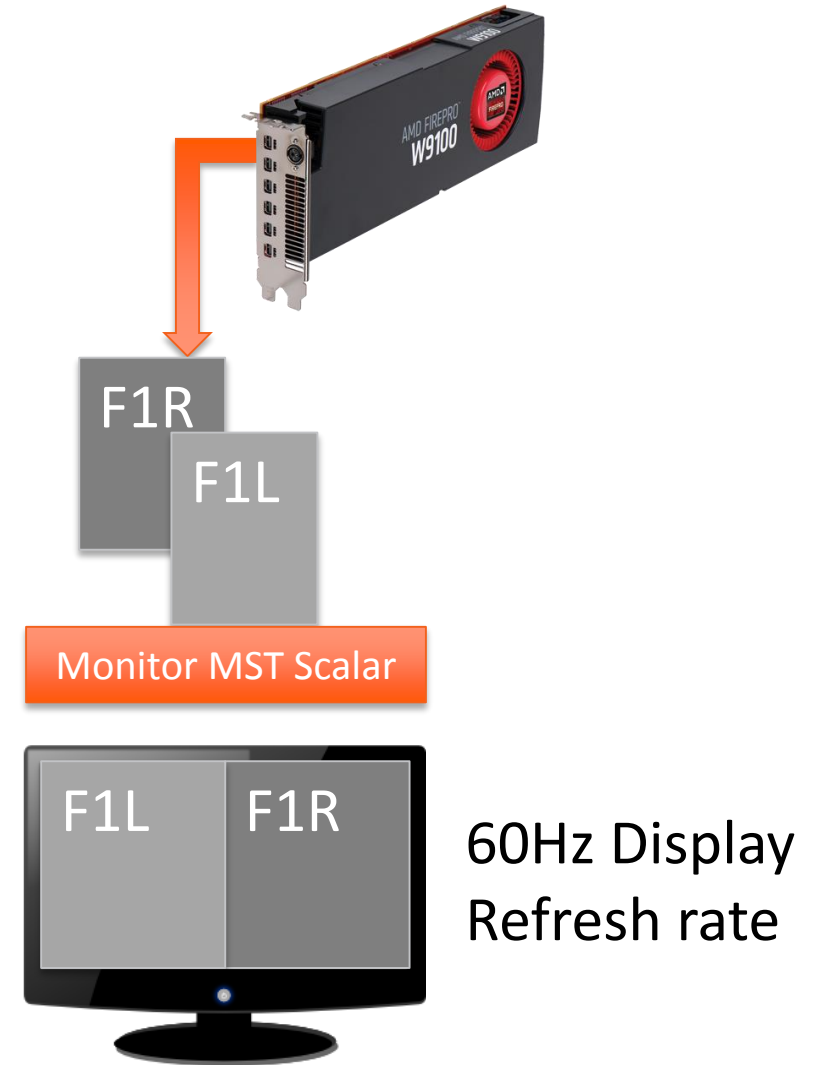
- The GPU will transmit 1920x2160 60Hz per output ( requires two outputs/cables and two display pipes )
  - Requires two inputs on the display
- The scalar in the display will stitch the two surfaces to present one 3840x2160 surface to the user
- Eyefinity SLS mode is required for applications to span both surfaces in Fullscreen Exclusive mode
- Supported via DL-DVI, HDMI, and DP
  - Only the same interfaces can be paired ( ie. DP+DP, HDMI+HDMI, DVI+DVI )



# 4K Display Type 3

## Type 3 – 3840x2160 60Hz (MST)

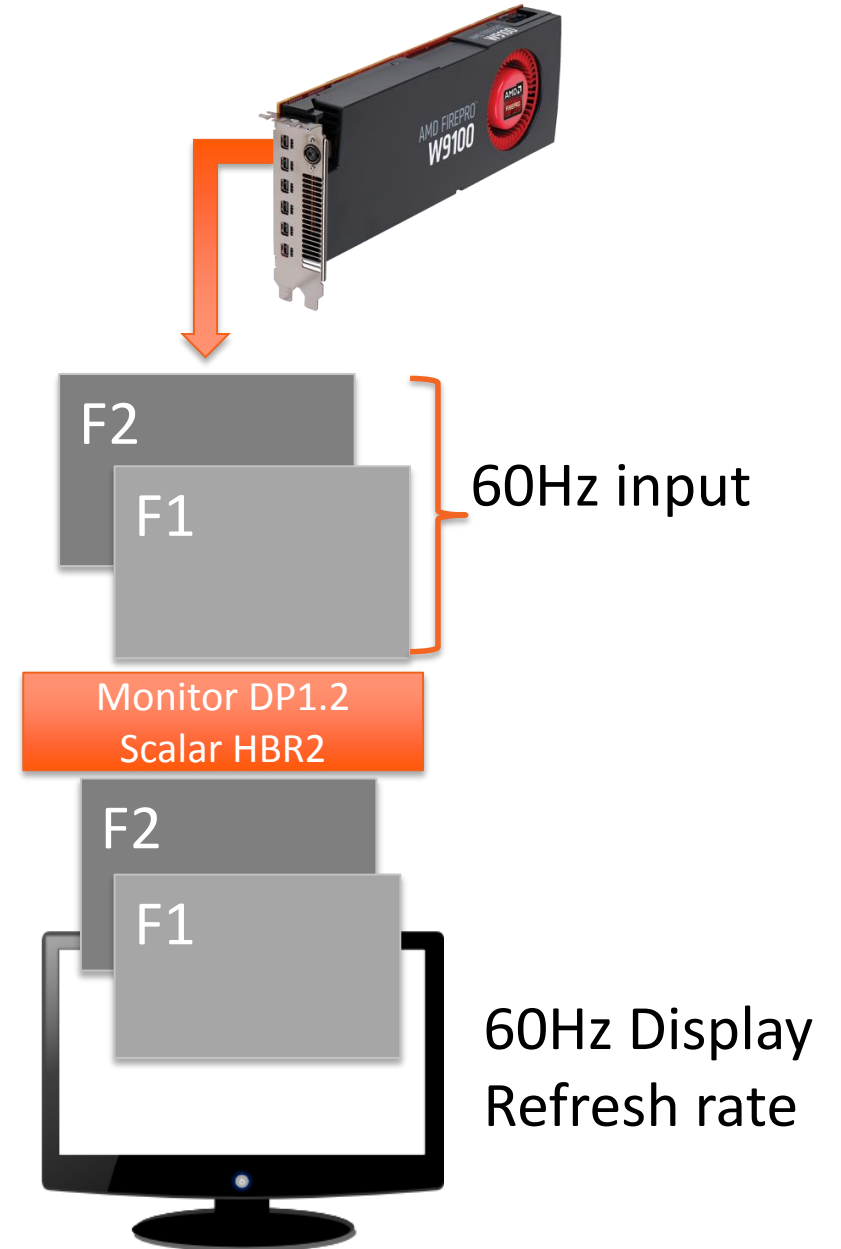
- The GPU will transmit a total of 3840x2160 60Hz per output ( requires one output/cable and two display pipes )
  - 1920x2160 60Hz per display pipe/stream
  - Requires one DP1.2 HBR2 input on the display
- The MST capable scalar in the display will stitch the two surfaces to present one 3840x2160 surface to the user
- Eyefinity SLS mode is required for applications to span both surfaces in Fullscreen Exclusive mode
- Supported via DP1.2 HBR2 only



# 4K Display Type 4

## Type 4 – 3840x2160 60Hz (SST)

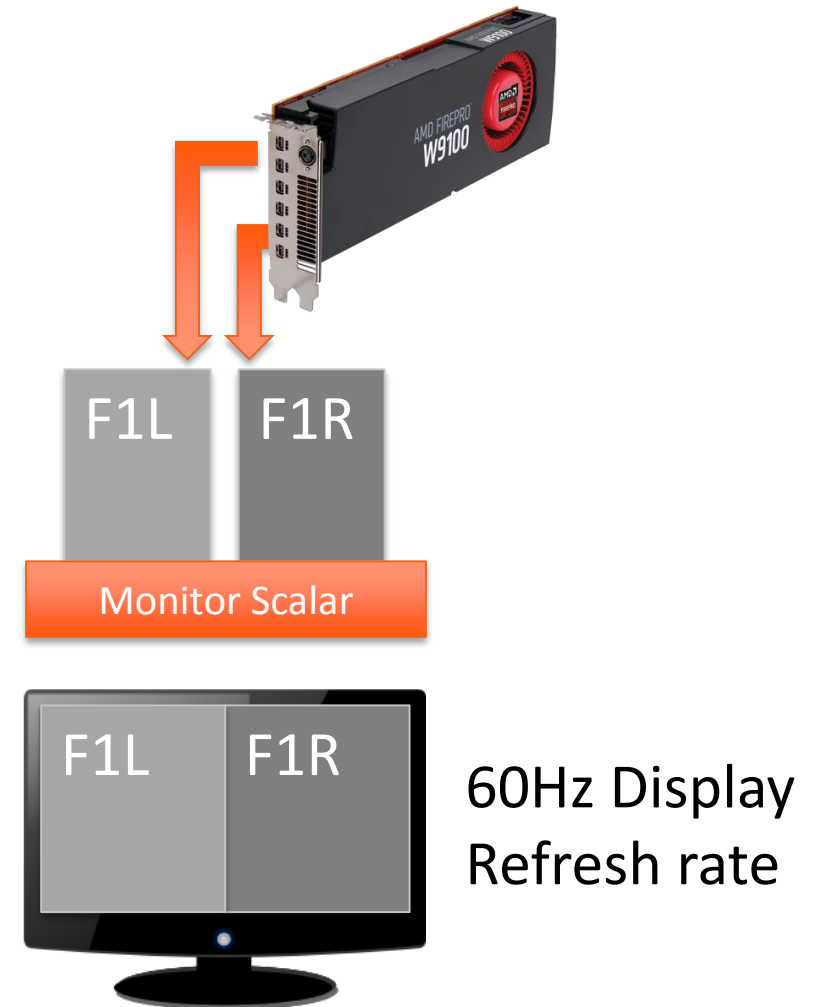
- The GPU will transmit 3840x2160 60Hz per output ( requires one output/cable and one display pipe )
- The DP1.2 scalar in the display must support 567Mpix/s or higher pixel clock
- Supported via DP1.2 HBR2 only



# 5Kx3K Displays

## 5Kx3K displays works similarly to the Type 2 – Dual Input

- The GPU will transmit 2560x2880 60Hz per output ( requires two outputs/cables and two display pipes )
  - Requires two inputs on the display
- The scalar in the display will stitch the two surfaces to present one 5120x2880 surface to the user
- Eyefinity SLS mode is required for applications to span both surfaces in Fullscreen Exclusive mode
- Requires DP 1.2 HBR2



# W9100 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 4 (MST)	Type 4 (SST)
mDP 1	Yes	Yes (up to 5K)	Yes ( 2 pipes )	Yes
mDP 2	Yes		Yes ( 2 pipes )	Yes
mDP 3	Yes	Yes (up to 5K)	Yes ( 2 pipes )	Yes
mDP 4	Yes		Yes ( 2 pipes )	Yes
mDP 5	Yes	Yes (up to 5K)	Yes ( 2 pipes )	Yes
mDP 6	Yes		Yes ( 2 pipes )	Yes
Total ( Simultaneous )	6	3	3 <sup>2</sup>	1 <sup>1</sup>



<sup>1</sup> Up to six per board has been demonstrated, but only one is officially supported

<sup>2</sup> Hawaii has six display pipes



# W9000 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 4 (MST)	Type 4 (SST)
mDP 1	Yes	Yes (up to 5K)	Yes ( 2 pipes )	Yes
mDP 2	Yes		Yes ( 2 pipes )	Yes
mDP 3	Yes	Yes (up to 5K)	Yes ( 2 pipes )	Yes
mDP 4	Yes		Yes ( 2 pipes )	Yes
mDP 5	Yes	Yes (up to 5K)	Yes ( 2 pipes )	Yes
mDP 6	Yes		Yes ( 2 pipes )	Yes
Total ( Simultaneous )	6	3	3 <sup>2</sup>	1 <sup>1</sup>



<sup>1</sup> Up to six per board has been demonstrated, but only one is officially supported

<sup>2</sup> Tahiti has six display pipes

# W8000 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 2	Yes		Yes ( 2 Pipes )	Yes
DP 3	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 4	Yes		Yes ( 2 Pipes )	Yes
Total ( Simultaneous )	4	2	3 <sup>2</sup>	1 <sup>1</sup>



<sup>1</sup> Up to four per board has been demonstrated, but only one is officially supported

<sup>2</sup> Tahiti has six display pipes

# W7000 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 2	Yes		Yes ( 2 Pipes )	Yes
DP 3	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 4	Yes		Yes ( 2 Pipes )	Yes
Total ( Simultaneous )	4	2	3 <sup>2</sup>	1 <sup>1</sup>



<sup>1</sup> Up to four per board has been demonstrated, but only one is officially supported

<sup>2</sup> Pitcairn has six display pipes

# W5000 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 2	Yes		Yes ( 2 Pipes )	Yes
DL-DVI	Yes <sup>2</sup>	No	No	No
Total ( Simultaneous )	2 (DP) <sup>2</sup>	1	2	1 <sup>1</sup>



<sup>1</sup>Up to two per board has been demonstrated, but only one is officially supported

<sup>2</sup>Current Type 1 and Type 2 monitors do not support DL-DVI input

# V3900 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	No	Yes ( 2 Pipes )	No
DL-DVI	Yes <sup>1</sup>	No	No	No
Total ( Simultaneous )	1 (DP) <sup>1</sup>	0	1	0



<sup>1</sup>Current Type 1 and Type 2 monitors do not support DL-DVI input

# V4900 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes	Yes ( 2 Pipes )	No
DP 2	Yes	(up to 5K)*	Yes ( 2 Pipes )	No
DL-DVI	Yes <sup>1</sup>	No	No	No
Total ( Simultaneous )	2 (DP) <sup>1</sup>	1	2	0

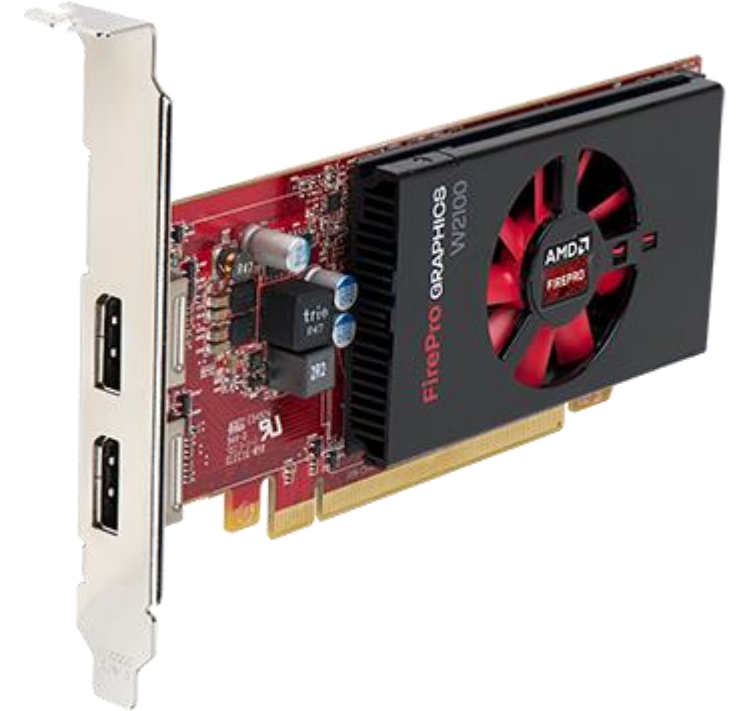


<sup>1</sup>Current Type 1 and Type 2 monitors do not support DL-DVI input

\*Still requires validation – not guaranteed

# W2100 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 2	Yes		Yes ( 2 Pipes )	Yes
Total ( Simultaneous )	2	1	1 <sup>2</sup>	1 <sup>1</sup>



<sup>1</sup>Up to two per board has been demonstrated, but only one is officially supported

<sup>2</sup>Oland has two display pipes

# W4100 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
mDP 1	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
mDP 2	Yes		Yes ( 2 Pipes )	Yes
mDP 3	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
mDP 4	Yes		Yes ( 2 Pipes )	Yes
Total ( Simultaneous )	4	2	3 <sup>2</sup>	1 <sup>1</sup>



<sup>1</sup> Up to four per board has been demonstrated, but only one is officially supported

<sup>2</sup> Verde has six display pipes



# W5100 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 2	Yes		Yes ( 2 Pipes )	Yes
DP 3	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 4	Yes		Yes ( 2 Pipes )	Yes
Total ( Simultaneous )	4	2	3 <sup>2</sup>	1 <sup>1</sup>



<sup>1</sup> Up to four per board has been demonstrated, but only one is officially supported

<sup>2</sup> Bonaire has six display pipes

# W7100 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 2	Yes		Yes ( 2 Pipes )	Yes
DP 3	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 4	Yes		Yes ( 2 Pipes )	Yes
Total ( Simultaneous )	4	2	3 <sup>2</sup>	3 <sup>1</sup>



<sup>1</sup> Up to four per board has been demonstrated, but only three are officially supported

<sup>2</sup> Tonga has six display pipes

# W8100 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 2	Yes		Yes ( 2 Pipes )	Yes
DP 3	Yes	Yes (up to 5K)	Yes ( 2 Pipes )	Yes
DP 4	Yes		Yes ( 2 Pipes )	Yes
Total ( Simultaneous )	4	2	3 <sup>2</sup>	1 <sup>1</sup>



<sup>1</sup> Up to four per board has been demonstrated, but only one is officially supported

<sup>2</sup> Hawaii has six display pipes

# V7900 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes	Yes ( 2 Pipes )	Yes
DP 2	Yes	(up to 5K)*	Yes ( 2 Pipes )	Yes
DP 3	Yes	Yes	Yes ( 2 Pipes )	Yes
DP 4	Yes	(up to 5K)*	Yes ( 2 Pipes )	Yes
Total ( Simultaneous )	4	2	3 <sup>1</sup>	0



<sup>1</sup> Cayman has six display pipes

\*Still requires validation – not guaranteed

# V5900 – 4K Display Support

	Type 1 (30Hz)	Type 2 (Dual Input )	Type 3 (MST)	Type 4 (SST)
DP 1	Yes	Yes	Yes ( 2 Pipes )	No
DP 2	Yes	(up to 5K)*	Yes ( 2 Pipes )	No
DL-DVI	Yes <sup>1</sup>	No	No	No
Total ( Simultaneous )	2 (DP) <sup>1</sup>	1	2	0



<sup>1</sup>Current Type 1 and Type 2 monitors do not support DL-DVI input

\*Still requires validation – not guaranteed