



# HDMI 2.1 BANDWIDTH INNOVATION CHART

				HDR (10 & 12 bit only)	bandwidth uncompressed	bandwidth compressed (DSC)
FHD	1920 x 1080 100-120p	4:4:4	8 Bit		9 Gbps	N/A
		4:4:4	10-12 Bit	X	18 Gbps	N/A
		4:2:2	8-12 Bit	X	9 Gbps	N/A
	3840 x 2160 & 4096 x 2160 24-30p	4:4:4	8 Bit		9 Gbps	N/A
		4:4:4	10-12 Bit	X	18 Gbps	N/A
		4:2:2	10-12 Bit	X	9 Gbps	N/A
UHD & 4K	3840 x 2160 & 4096 x 2160 48-60p	4:4:4	8-12 Bit	X	18 Gbps	9 Gbps
		4:2:2	8-12 Bit	X	18 Gbps	9 Gbps
		4:2:0	8 Bit		9 Gbps	9 Gbps
	3840 x 2160 100-120p	4:2:0	10-12 Bit	X	18 Gbps	9 Gbps
		4:4:4	8 Bit		32 Gbps	18 Gbps
		4:4:4	10 Bit	X	40 Gbps	18 Gbps
		4:4:4	12 Bit	X	48 Gbps	18 Gbps
4096 x 2160 100-120P	4:2:2	8-12 Bit	X	32 Gbps	9 Gbps	
	4:2:0	8 Bit		18 Gbps	9 Gbps	
	4:2:0	10-12 Bit	X	24 Gbps	9 Gbps	
	4:4:4	8 Bit		32 Gbps	18 Gbps	
	4:4:4	10 Bit	X	40 Gbps	18 Gbps	
5K	5120 x 2160 24-30p	4:4:4	12 Bit	X	48 Gbps	18 Gbps
		4:2:2	8-12 Bit	X	32 Gbps	18 Gbps
	5120 x 2160 48-60p	4:2:0	8 Bit		18 Gbps	9 Gbps
		4:2:0	10-12 Bit	X	24 Gbps	9 Gbps
		4:4:4	8-12 Bit		18 Gbps	N/A
		4:2:2	8-12 Bit		18 Gbps	N/A
	5120 x 2160 100-120p	4:4:4	8 Bit		24 Gbps	9 Gbps
		4:4:4	10-12 Bit		32 Gbps	9 Gbps
		4:2:2	8-12 Bit		24 Gbps	9 Gbps
		4:2:0	8-12 Bit		18 Gbps	9 Gbps
4:4:4		8 Bit		40 Gbps	18 Gbps	
4:4:4		10-12 Bit		N/S	18 Gbps	
	5120 x 2160 100-120p	4:2:2	8-12 Bit		40 Gbps	18 Gbps
		4:2:0	8 Bit		24 Gbps	18 Gbps
		4:2:0	10-12 Bit		32 Gbps	18 Gbps

## TMDS/FRL configuration

bandwidth	TMDS lanes	Gbps per lane
9 Gbps	3	3
18 Gbps	3	6
24 Gbps	4	6
32 Gbps	4	8
40 Gbps	4	10
48 Gbps	4	12

Note: When above 18Gbps, 4 TMDS is required  
Please see opposite side for 8K and 10K  
N/S = Not Supported

HDR  
(10 & 12 bit only)

bandwidth  
uncompressed

bandwidth  
compressed (DSC)

# HDMI 2.1 BANDWIDTH INNOVATION CHART

Resolution	Color Space	Bit Depth	Bandwidth			
			HDR (10 & 12 bit only)	bandwidth uncompressed	bandwidth compressed (DSC)	
8K	7680 x 4320 24-30p	4:4:4	8 Bit		32 Gbps	18 Gbps
		4:4:4	10 Bit	X	40 Gbps	18 Gbps
		4:4:4	12 Bit	X	48 Gbps	18 Gbps
		4:2:2	8-12 Bit	X	32 Gbps	9 Gbps
		4:2:0	8 Bit		18 Gbps	9 Gbps
		4:2:0	10-12 Bit	X	24 Gbps	9 Gbps
	7680 x 4320 48-60p	4:4:4	8-12 Bit	X	N/S	24 Gbps
		4:2:2	8-12 Bit	X	N/S	18 Gbps
		4:2:0	8 Bit		32 Gbps	18 Gbps
		4:2:0	10 Bit	X	40 Gbps	18 Gbps
		4:2:0	12 Bit	X	48 Gbps	18 Gbps
	7680 x 4320 100-120p	4:4:4	8-12 Bit	X	N/S	40 Gbps
		4:2:2	8-12 Bit	X	N/S	40 Gbps
		4:2:0	8-12 Bit	X	N/S	32 Gbps
	10K	10240 x 4320 24-30p	4:4:4	8 Bit		40 Gbps
4:4:4			10-12 Bit		N/S	18 Gbps
4:2:2			8-12 Bit		40 Gbps	18 Gbps
4:2:0			8 Bit		24 Gbps	9~24-25p, 18~30p
4:2:0			10-12 Bit		32 Gbps	9~24-25p, 18~30p
10240 x 4320 48-60p		4:4:4	8-12 Bit		N/S	32 Gbps
		4:2:2	8-12 Bit		N/S	24 Gbps
		4:2:0	8 Bit		40 Gbps	18~48, 24~50/60
		4:2:0	10-12 Bit		N/S	18~48, 24~50/60
10240 x 4320 100-120p		4:4:4	N/S		N/S	N/S
		4:2:2	8-12 Bit		N/S	48 Gbps
		4:2:0	8-12 Bit		N/S	40 Gbps

As you can see each resolution, timing and color space has an uncompressed bandwidth and a compressed bandwidth. With the HDMI 2.1 specification, all HDMI sources will have the ability to send a compressed signal or an uncompressed signal, depending on what the EDID from the display is asking for. Employing DSC compression at the source will allow most resolutions to be under 24Gbps.