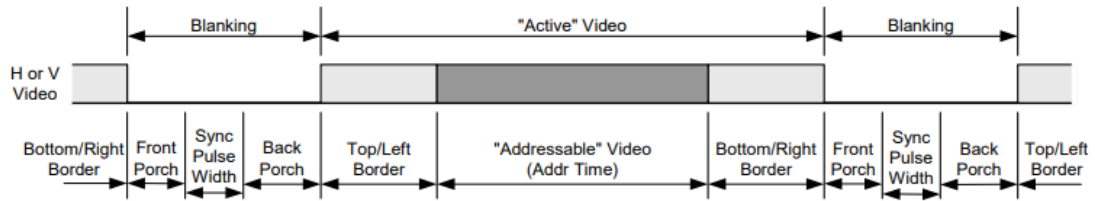# UMCC Training

VESA Display Parameter Detail info

Horizontal Total Pixel= H Active Pixel+ Blanking Pixel

Vertical Total Pixel = V Active Pixel+ Blanking Pixel

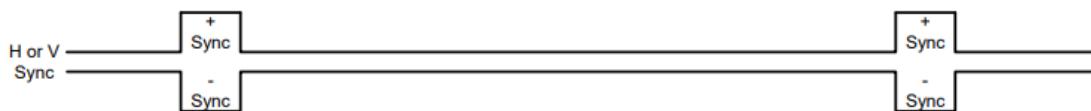Blanking= Front Porch+ SYNC Width+ Back Porch

Each Frame Display get from H Total x V Total x V-Rate

H Total= H Active+ (H Front Porch+ H SYNC Width+ H Back Porch)

V Total= V Active+ (V Front Porch+ V SYNC Width+ V Back Porch)

Pixel CLK =H Total x V Total x V Rate (Vertical Refresh Rate)

H & V SYNC Polarity
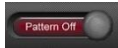
UMCC Display Parameter setting info

DPHM Box Input & Output Bandwidth

- DP1.4 Input Bandwidth Max Pixel CLK: 1030MHz
- HDMI 2.0 Output Max Pixel CLK=550Mhz per Port

UMCC Provide HDMI output Resolution and parameter Adjustment function (Hard Code EDID)

 UMCC Turn On/Turn Off   Embedded test Pattern
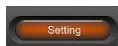
 Embedded RGBW Pattern   Identify Multi-Device ID

 Reset to Factory Default   UMCC Setting

 Apply New Setting   multi-device info   Multi-Device Apply
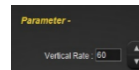
 H SYNC Polarity   V SYNC Polarity   Vertical Rate

 H Display Parameter   V Display Parameter

Horz Blank (H Blanking)   Vert Blank=(V Blanking)

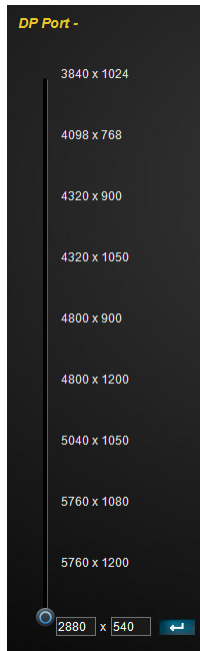Horz offset (H Front Porch)   Vert offset=(V Front Porch)

Horz Sync width (H Sync width)   Vert Sync width=(V Sync width)

H / V Blanking – Front Porch – Sync width=Back Porch

DP Input resolution:

DP In	HDMI Out		DP In	HDMI Out	
3840x1024	1280x1024 x3		5120x1024	1280x1024 x4	
4098x768	1366x768 x3		5464x768	1366x768 x4	
4320x900	1440x900 x3		5760x900	1440x900 x4	
4320x1050	1440x1050 x3		5760x1050	1440x1050 x4	
4800x900	1600x900 x3		6400x900	1600x900 x4	
4800x1200	1600x1200 x3		6400x1200	1600x1200 x4	
5040x1050	1680x1050 x3		6720x1050	1680x1050 x4	
5760x1080	1920x1080 x3		7680x1080	1920x1080 x4	
5760x1200	1920x1200 x3		7680x1200	1920x1200 x4	
Customize Resolution			Customize Resolution		
2880x540	960x540 x3		7680x2160	1920x2160 x4	

Detail Parameter setting Example:

Display Mode:1920x1080@60Hz

H Active=1920, H Blanking=280 (Front Porch=88, SYNC width=44 Back Porch=148, 88+44+148=280)

V Active=1080 V Blanking=30 (Front Porch=3, SYNC width=5 Back Porch=22, 3+5+22=30)

How to Count Pixel CLK

H Total (H Active+Blanking=1920+280=2200)

V Total (V Active+Blanking=1080+30=1110)

V Rate (60) = 2200x1110x60=146,520,000Hz=146.52 MHz (Pixel CLK)

Display Mode:3840x2160@60Hz

H Active=3840, H Blanking=280 (Front Porch=88, SYNC width=44 Back Porch=148, 88+44+148=280)

V Active=2160 V Blanking=30 (Front Porch=3, SYNC width=5 Back Porch=22, 3+5+22=30)
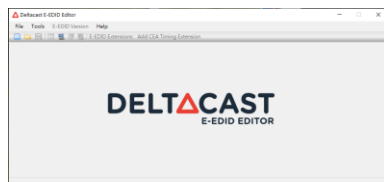
How to Count Pixel CLK

H Total (H Active+Blanking=3840+280=4120)
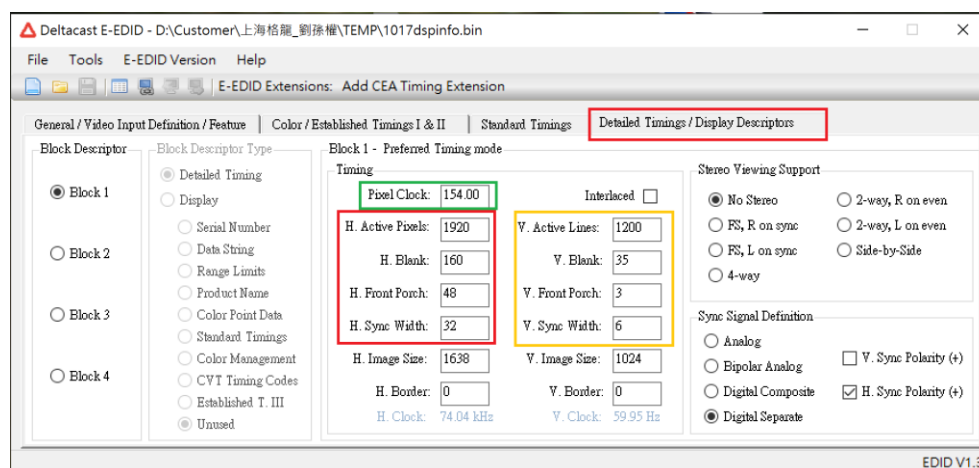
V Total (V Active+Blanking=2160+30=2190)

V Rate (60) = 4120x2190x60=541,368,000Hz=541.368MHz (Pixel CLK)

V Sync polarity: 60Hz Normal setting to "+" ,   30Hz or Projector need to setting "-"

How to analysis EDID

1. Save Monitor EDID to bin fie by any EDID tool
2. Open EDID bin file
3. Select Detailed Timing to get H and V time info

Analysis:

  RED H Active=1920 Blanking=160

  ORG V Active=1200 Blanking=35

  GREEN V Rate=60

H Total=1920+160=2080

V Total=1200+35=1235

Pixel CLK= 2080x1235x60=154,128Mhz