

User Manual

Multi-Display Splitter Box

Aetina MSB-DP24H/MSB-DP28H/MSB-DP39H

Version	Date	Description	Authors
v01	2020/12/30	Initial Release.	Emily Chou

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1. General Overview

Aetina Multi Monitors Marvel (M3 Box) series is the simple, flexible and powerful multi-display splitter box to support a spectacular Ultra HD video wall with up to 4/8/9/12/16 displays. With plug & play design, M3 Box does not need to install any driver, providing 1:1 pixel to pixel meticulous output quality without any pixel loss. Ultra-High Resolution, High Compatibility.

M3 Box is Aetina's powerful and easy-to-use video wall splitter box, compatible with the content sources from various professional graphics card or integrated GPU. A single M3 Box to drive up to four, eight, nine, and more multi-monitors for Ultra HD display no matter in landscape or portrait mode. It is ideal for building high-density video wall solutions required to deploy in the space-limited configuration.

1.1 Features

- Support EDID Caching
- Easy and quick installation without driver
- Active/Passive cooling, low power consumption, low-profile metal case
- Designed for any custom configurations with Aetina's MView Power software
- Ideal for industrial multi-display applications including process control centers, video-walls, digital signage, surveillance, advertising and more.

1.1.1 System Require

- Standard X86 PC with Graphic Card
- Power Supply: 5V 3A DC
- DP Cable need meet DP 1.4 SPEC
- HDMI Cable need meet HDMI 1.4 or 2.0 SPEC
- Graphic Card need Support DP1.4 HBR 3 DisplayID™ Protocol, Each Port Input resolution 3840x1080@60Hz, Each Port output resolution 1920x1080@60Hz
- Display Monitor: 1920x1080@20-120Hz LCD/LED or Projector Display through HDMI Interface
- If need use Multi-Box for large Video Wall Windows OS, Graphic Card Driver need support Display Combine Function
INTEL: Collage Mode
AMD: Eyefinity Mode
NVIDIA: Surround or Mosaic Mode

1.1.2 Box Architecture

MSB-DP24H

- FPGA Architecture
- Dimensions: 107.0mm (W) x 95.0mm (D) x 35.0mm (H) with Metal Case
- Power Consumption : 10 W

- Power Supply : 5V 2A DC

MSB-DP28H & MSB-DP39H

- FPGA Architecture
- 173.0mm (W) x 105.0mm (D) x 35.0mm (H) with Metal Case
- Power Consumption : 15 W
- Power Supply : 5V 3A DC

1.1.3 I/O Interface

MSB-DP24H

- I/O
 - Maximum Input DisplayPort: 3840 x 1200
 - Maximum Output HDMI: 1920 x 1200
 - Maximum resolution over in HDMI: 7680 x 1200 (4 x 1 mode)

MSB-DP28H

- I/O
 - Maximum Input DisplayPort: 7680 x 1200
 - Maximum Output HDMI: 1920 x 1200
 - Maximum resolution over in one box: 15360 x 1200 (8 x 1 mode)

MSB-DP39H

- I/O
 - Maximum Input DisplayPort: 5760 x 1200
 - Maximum Output HDMI: 1920 x 1200
 - Maximum resolution over in one box: 5760 x 3600 (3 x 3 mode)

1.1.4 Cooling System

- Passive for MSB-DP24H
- Active Fan for MSB-DP28H and MSB-DP39H

1.1.5 Operating System Support

- Windows® 10 64-bit

Note:

1. MSB-DP28H only support NVIDIA GPU Card.

1.2 Configuration

Table 1.1 lists the SKU configuration currently available for the MDS M3 Box.

Specification	MSB-DP24H	MSB-DP28H	MSB-DP39H
Architecture	Video Horizontal Data Splitter		
Power Consumption	10 W	15 W	15 W
Connectors	Input: DisplayPort x 2 Output: HDMI x 4	Input: DisplayPort x 2 Output: HDMI x 8	Input: DisplayPort x 3 Output: HDMI x 9
Maximum output	4	8	9
Board ID firmware	V7	V21	V17
Operating Temperature	0 to +45 °C	0 to +45 °C	0 to +45 °C
Storage Temperature	-20°C – +65°C	-20°C – +65°C	-20°C – +65°C
Operating Humidity	5~95%, No Condensation.	5~95%, No Condensation.	5~95%, No Condensation.

Table 1.1 Box configuration

MSB-DP24H



MSB-DP28H



MSB-DP39H



Figure 1.1 MSB-DP24H/MSB-DP28H/MSB-DP39H

2. Getting Started

Before you begin installing your new M3 Box, please make sure your graphics card already installed the driver and you have the proper system requirements and have completed the required pre-installation tasks as outlined in this chapter.

2.1 System Recommended for graphics card

- AMD Ryzen 7 or Intel Core i7 processor or latest.
- 8GB of system memory; 16GB or more recommended for better performance.
- Graphics card with two or three output DisplayPort at least
- Internet access for software installation.
- Operating System:
 - Windows® 10 64-bit

2.2 Performing a Quick Installation

Experienced users and system administrators can follow these brief instructions for installing graphics card. Other users should refer to the detailed installation instructions.

1. Uninstall the drivers and software for any installed graphics card(s).

*Note: If you are using a motherboard containing an on-board graphics solution and do not intend to use it as part of a multiple monitor display, disable it.

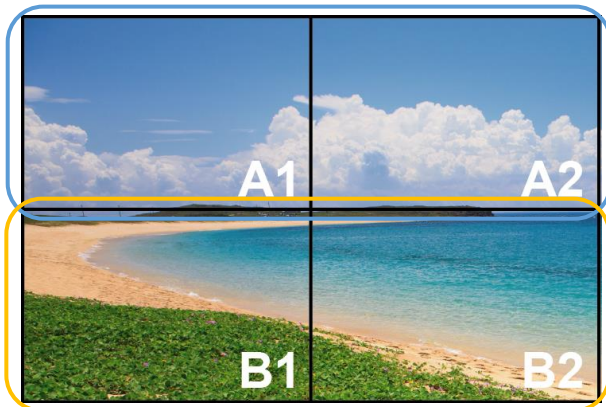
2. Shut down and disconnect your computer system.
3. Remove any installed graphics card(s).
4. Install your new graphics card.
5. Reassemble and connect your computer system.
6. Install the graphics drivers from the official website of GPU Brand what your used.

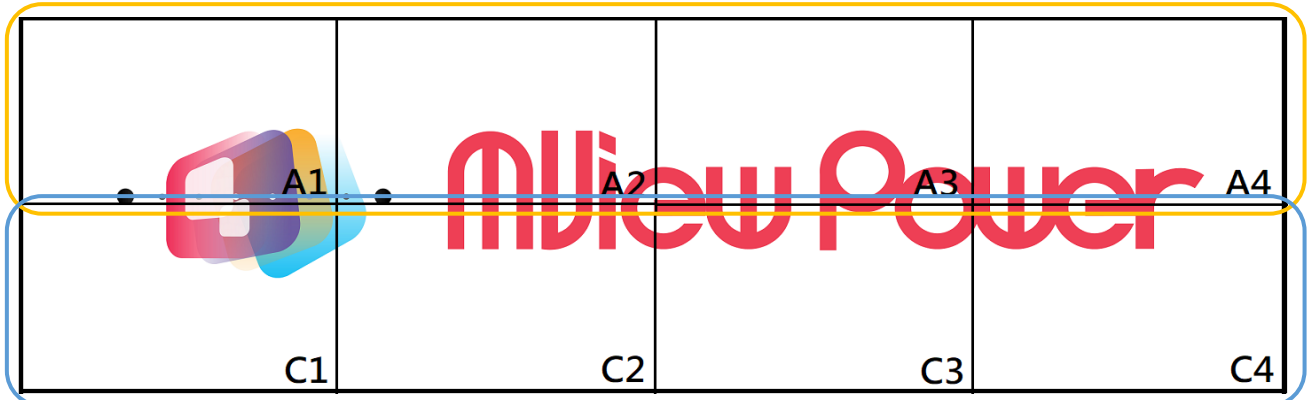
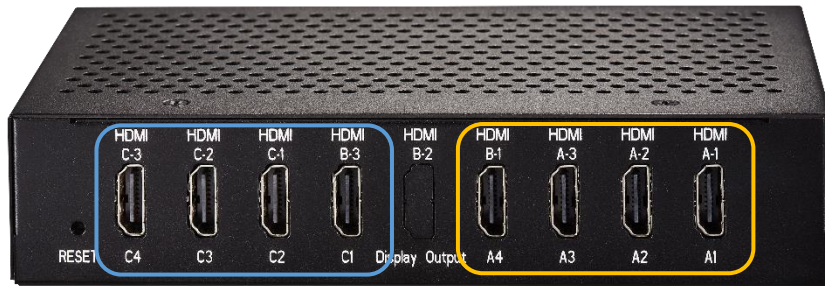
3. Hardware and Software Installation

3.1 How to install the M3 Box

Please follow the instructions from Step 1 to Step 4.

1. Connector M3 Box Power Supply.
2. Connector DP Cable from Graphic card to M3 Box DP Port
3. And make sure the connection of HDMI Cable to M3 Box and monitor
4. Turn on PC, Install Graphic card Driver First
5. Display Driver will detect 2/3/4 of 3840x1080/5760x1080/7680x1080 Monitor





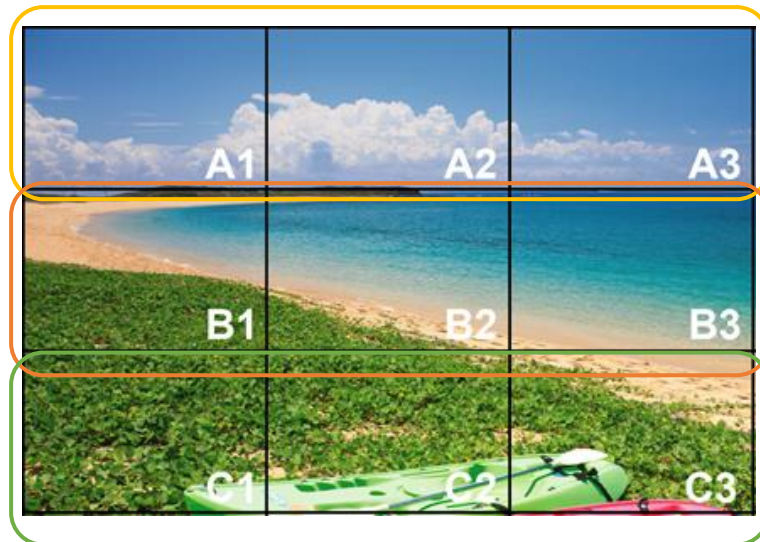
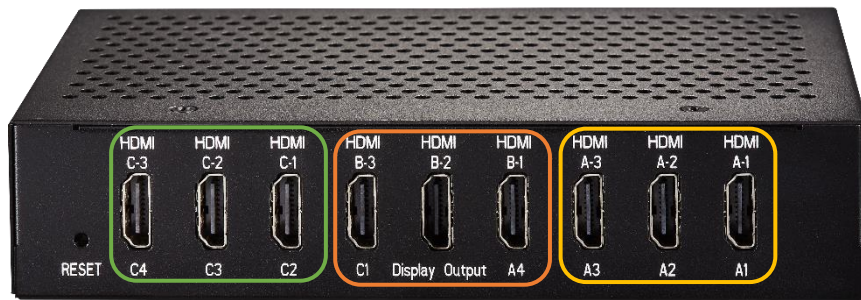
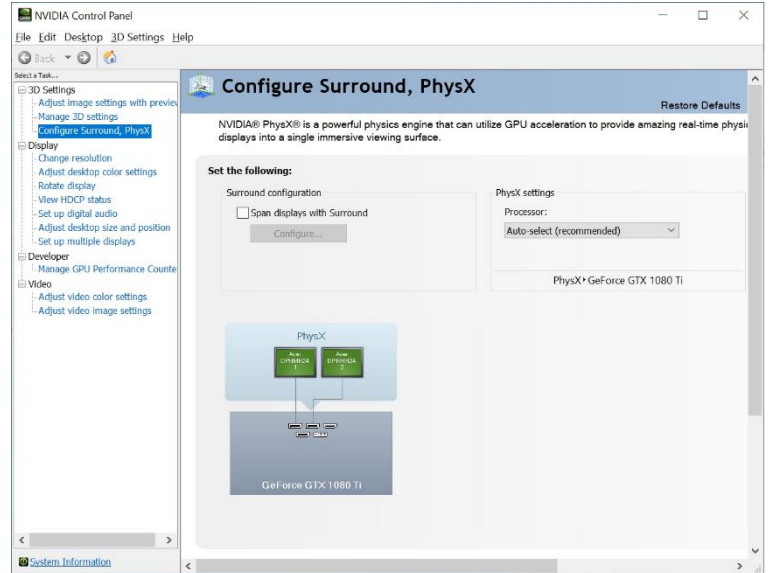
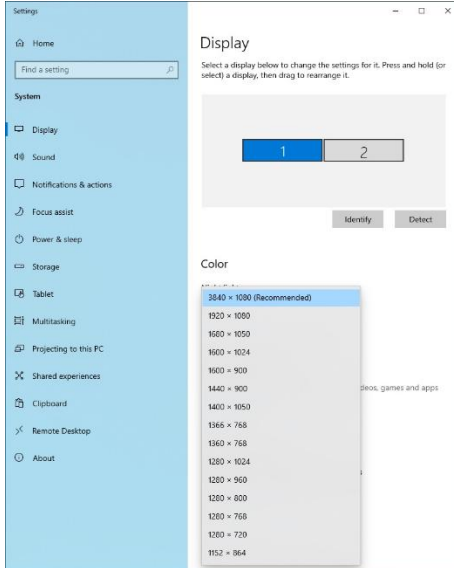


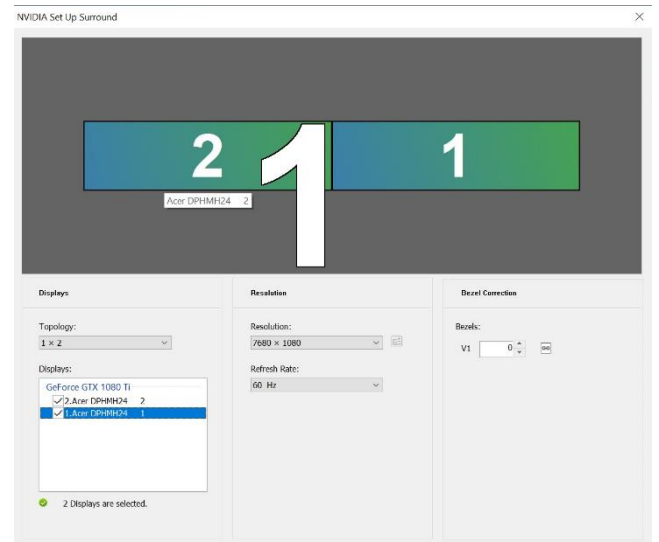
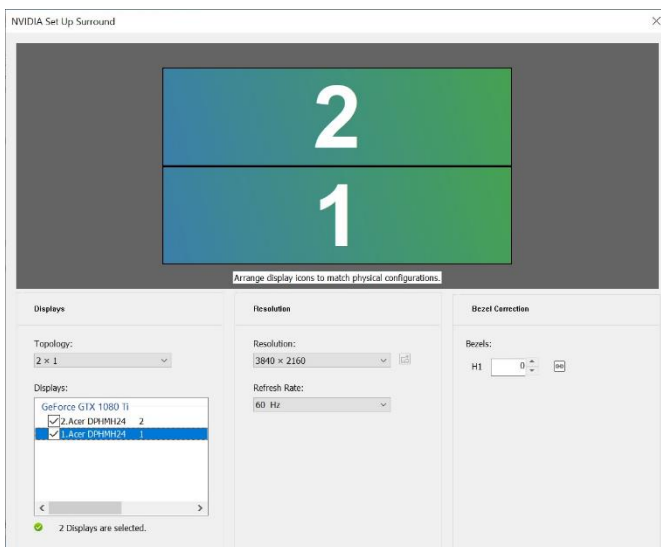
Figure 3.1 M3 Box displays configuration

3.2 Display setting with M3 Box

3.2.1 MSB-DP24H Setting step

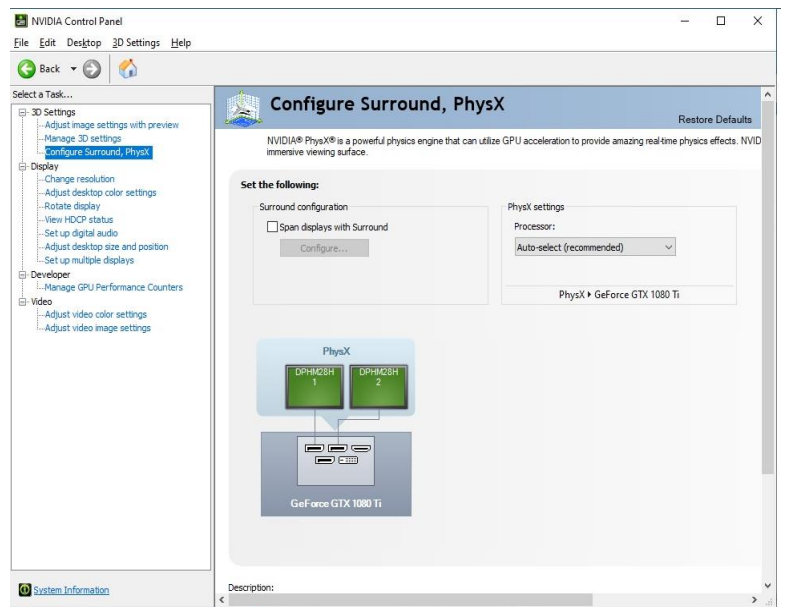
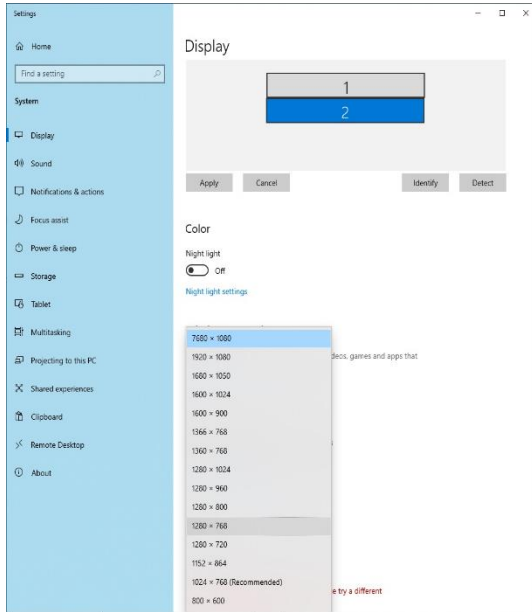


- Turn on NV Control Panel
- Enable Surround function Choose 2x1 or 1x2

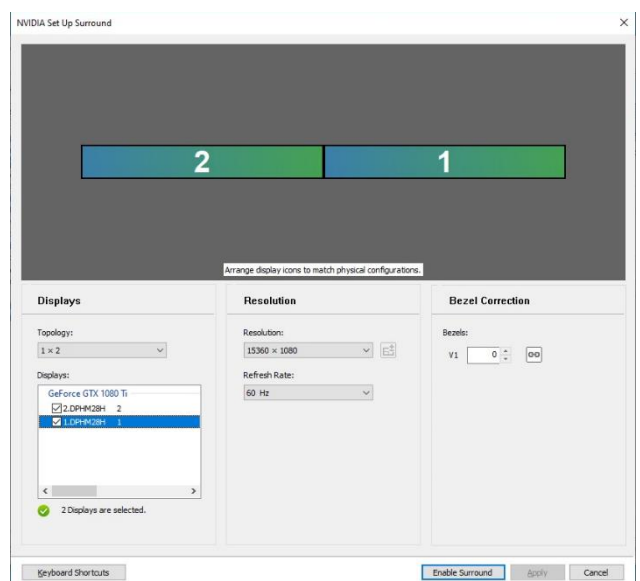
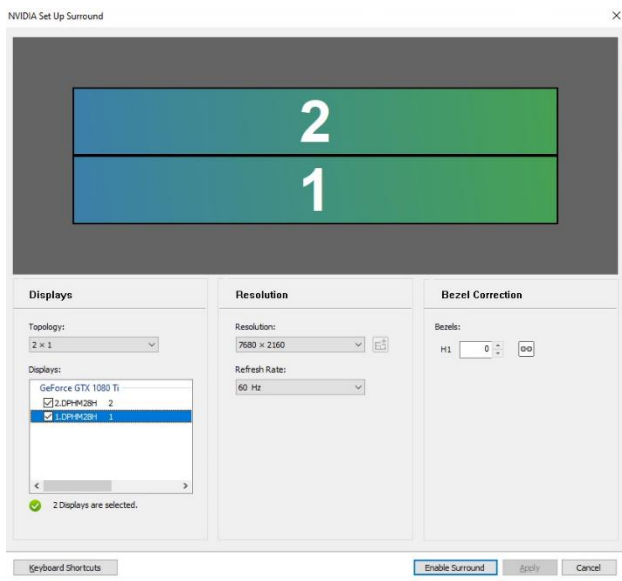


- Plus 2 of MSB-DP24H which can Get 2x2 or 1x4 mode option
- Press Right button of mouse to call NVIDIA control panel, choose Surround
- Follow the Video Wall Layout and sort by correct position by each display, enable the Surround
- Will got one large desktop resolution after Surround enable

3.2.2 MSB-DP28H Setting step

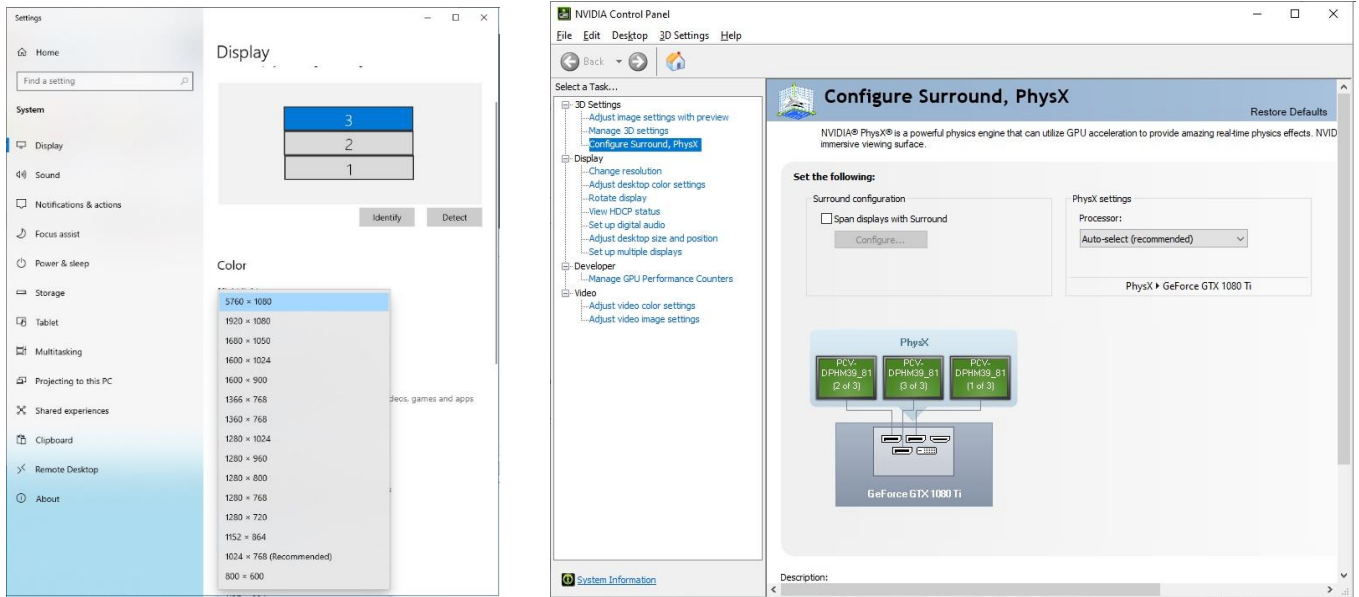


- Turn on NV Control Panel
- Enable Surround function Choose 2x1 or 1x2



- Plus 2 of MSB-DP28H which can Get 2x4 or 1x8 mode option
- Press Right button of mouse to call NVIDIA control panel, choose Surround
- Follow the Video Wall Layout and sort by correct position by each display, enable the Surround
- Will got one large desktop resolution after Surround enable

3.2.3 MSB-DP39H Setting step



- Turn on NV Control Panel
- Enable Surround function 3x1
- Press Right button of mouse to call NVIDIA control panel, choose Surround
- Follow the Video Wall Layout and sort by correct position by each display, enable the Surround
- Will got one large desktop resolution after Surround enable of MSB-DP39H which can Get 3x3 mode option

Note:

1. Need to power off box and reboot system when the DP to DP Cable unplugged or loose.

3.3 Install MView Power (Option)

Aetina MView Power is the brilliant, intuitive, and easy-installation video-wall editing and management software. Support the editable player, scheduling, local control, and remote monitoring. It is built inside the M3 Player and also supports for Aetina M3 Box. With MView Power, integrators can define display format, as well as efficiently execute advanced pictures and videos.

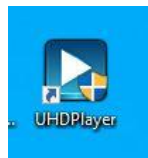
It simplifies the process of video wall content design and management, enabling setup in three quick steps - selecting objects, edit, and play. MView Power features dynamic multi-layer object mixing and flashing animation for any desirable visual effects.

After installing the driver, download MView Power from Aetina's contact window.

The system related requirements are described as follows:

- Work platform: Microsoft Windows® 10 64-bit or more.
- Resolution: Single screen resolution at least 1920 x 1080
- Other equipment: mouse, keyboard.
- This manual is for software version: v5.0 or higher

Please confirm whether the system has the old version of the **MView Power** software before installing. If it is, please go to "Control Panel -> All Console Items -> Programs and Features" to remove it. After confirming, please execute the install program "UHDSetup.exe" and follow the instructions from Step 1 to Step 4. After the system is installed, the **MView Power** shortcut will appear on the desktop.



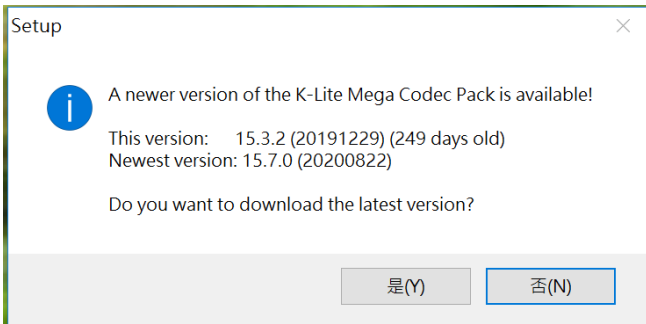
Please follow the install step to setup **MView Power** in your OS, Please note the Step 2 will be installed. K-Lite Codec Please remember Thumbnails -> Click on Select All



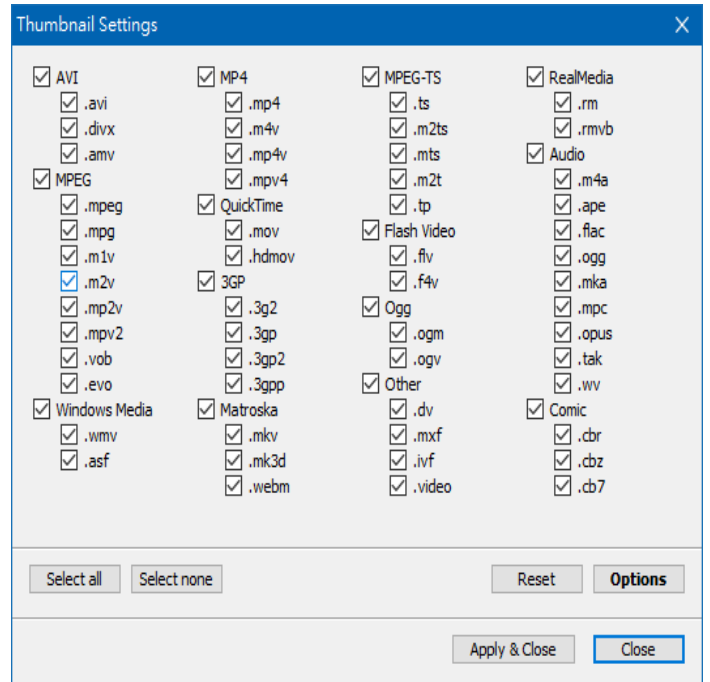
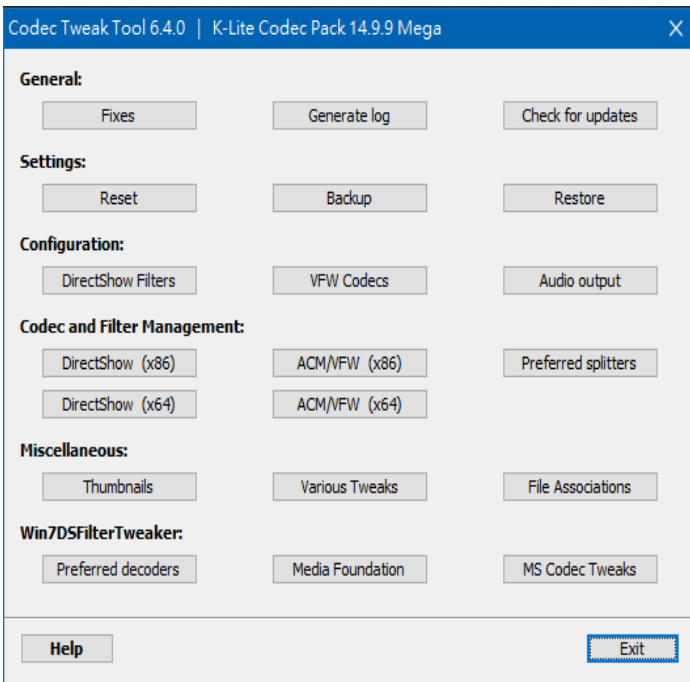
Install Priority:

Merge Codec -> K-Lite Codec ->

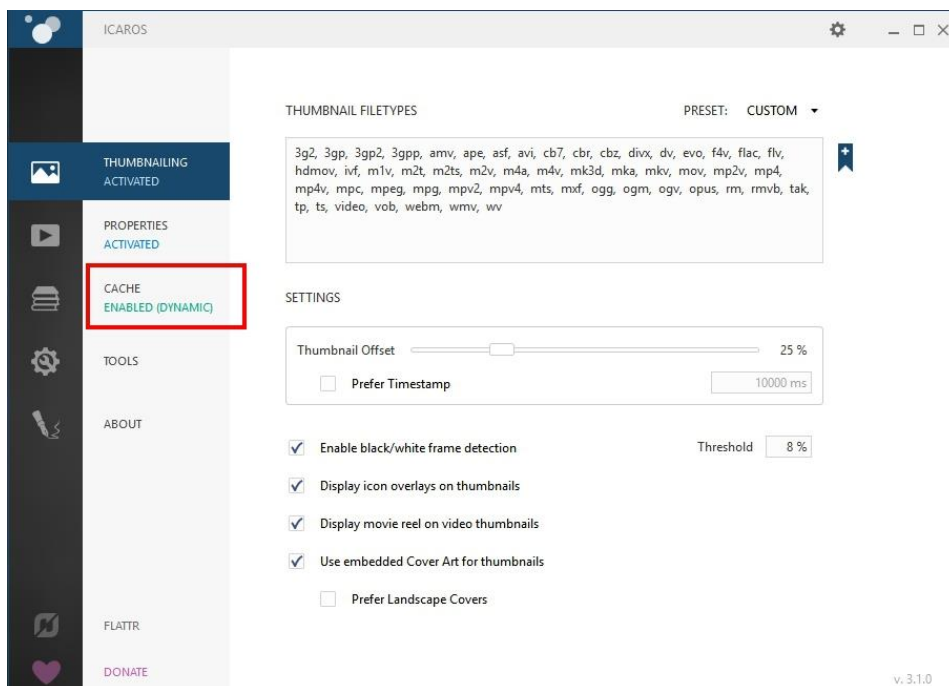
Icaros -> UHDPlayer



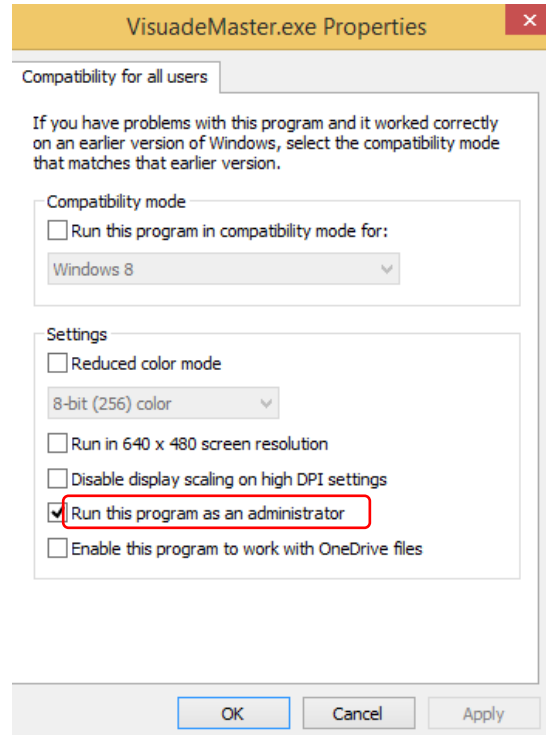
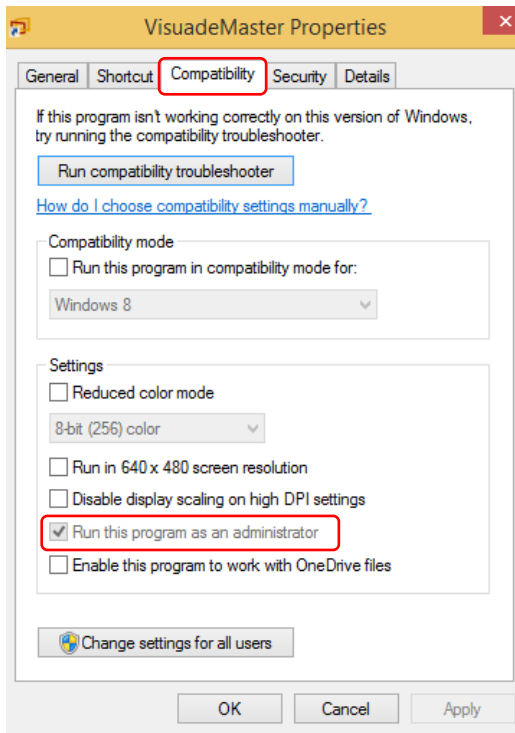
Noted: Keep current version, don't update to latest of Version. Select No.



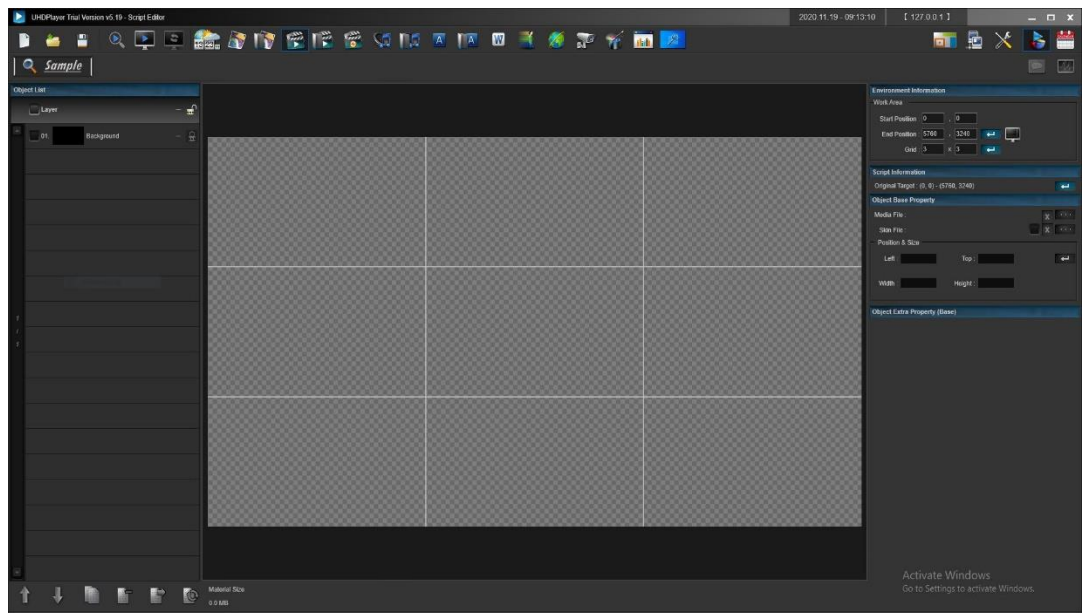
Please remember CACHE -> Click on ENABLED (DYNAMIC)



After the finished All install, press the right button on **MView Power** shortcut -> Content -> Compatibility -> Change all user settings -> Execute this program as the system administrator.



Operation screen after installation.



4. Functional Description

4.1 Board Architecture

The M3 Box series form factor.

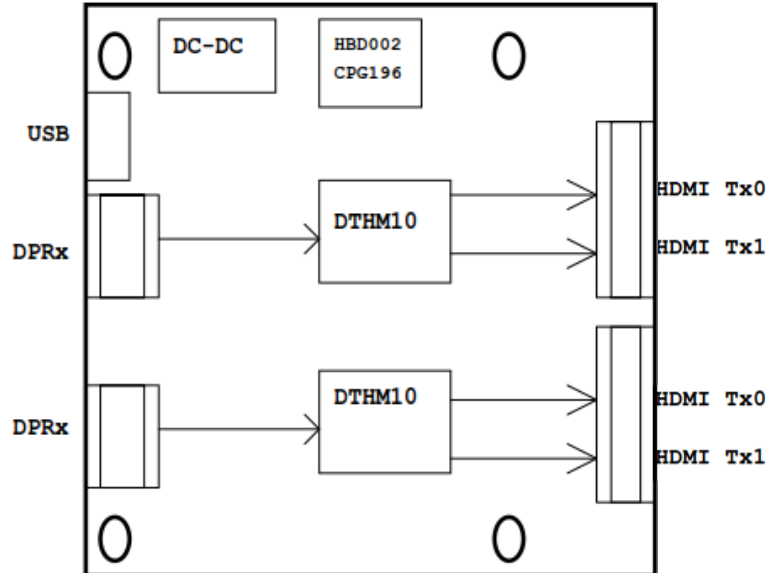


Figure 4.1 MSB-DP24H Block diagram

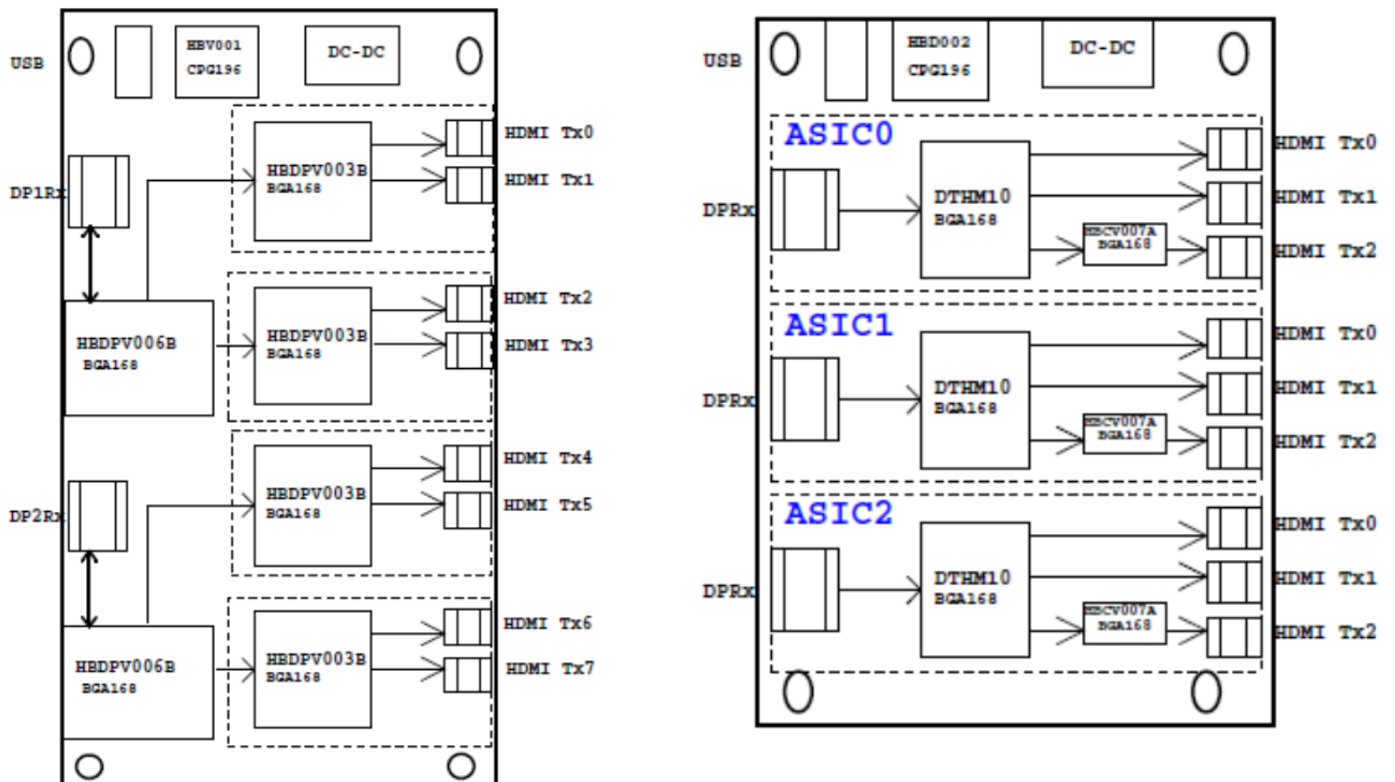


Figure 4.2 MSB-DP28H(Lift) & MSB-DP39H(Right) Block diagram

4.2 I/O Resources

The MSB-DP24H provides four digital output channels, MSB-DP28H provides eight digital output channels and MSB-DP39H provides nine digital output channels. All the digital output channels can be active at the same time.

4.2.1 EDID caching

The M3 Box series prevents display default configuration reset while monitor malfunction or disconnection, optimizes displaying quality and stability.

4.2.2 Hot Plug

The M3 Box series supports Hot Plug detect for digital monitors.

4.3 Display resolution example

Table 4.1 lists is the display configuration for the M3 Box.

M/N GPU	MSB-DP24H		MSB-DP28H		MSB-DP39H	
	Landscape Mode	Portrait Mode	Landscape Mode	Portrait Mode	Landscape Mode	Portrait Mode
AMD	4 x 3	2 x 6	-	-	9 x 1*	3 x 3
	7,680 x 3,600	3,840 x 7,200	-	-	15,120 x 1,050	5,760 x 3,600
NVIDIA	4 x 2 / 8 x 1	2 x 4	8 x 2	4 x 4	9 x 1	3 x 3
	7,680 x 2,400 / 15,360 x 1,200	3,840 x 4,800	15,360 x 2,400	7,680 x 4,800	15,120 x 1,050	5,760 x 3,600
INTEL	3 x 2	2 x 3	-	-	9 x 1	3 x 3
	5,760 x 2,400	3,840 x 3,600	-	-	15,120 x 1,050	5,760 x 3,600

Note*: On AMD GPU table list, MSB-DP39H only supported RX5600 XT & RX5700 XT.

Table 4.1 M3 Box display configuration

5. Mechanical Specifications

5.1 Dimensions

The Actual dimensions of the M3 Box are shown below.

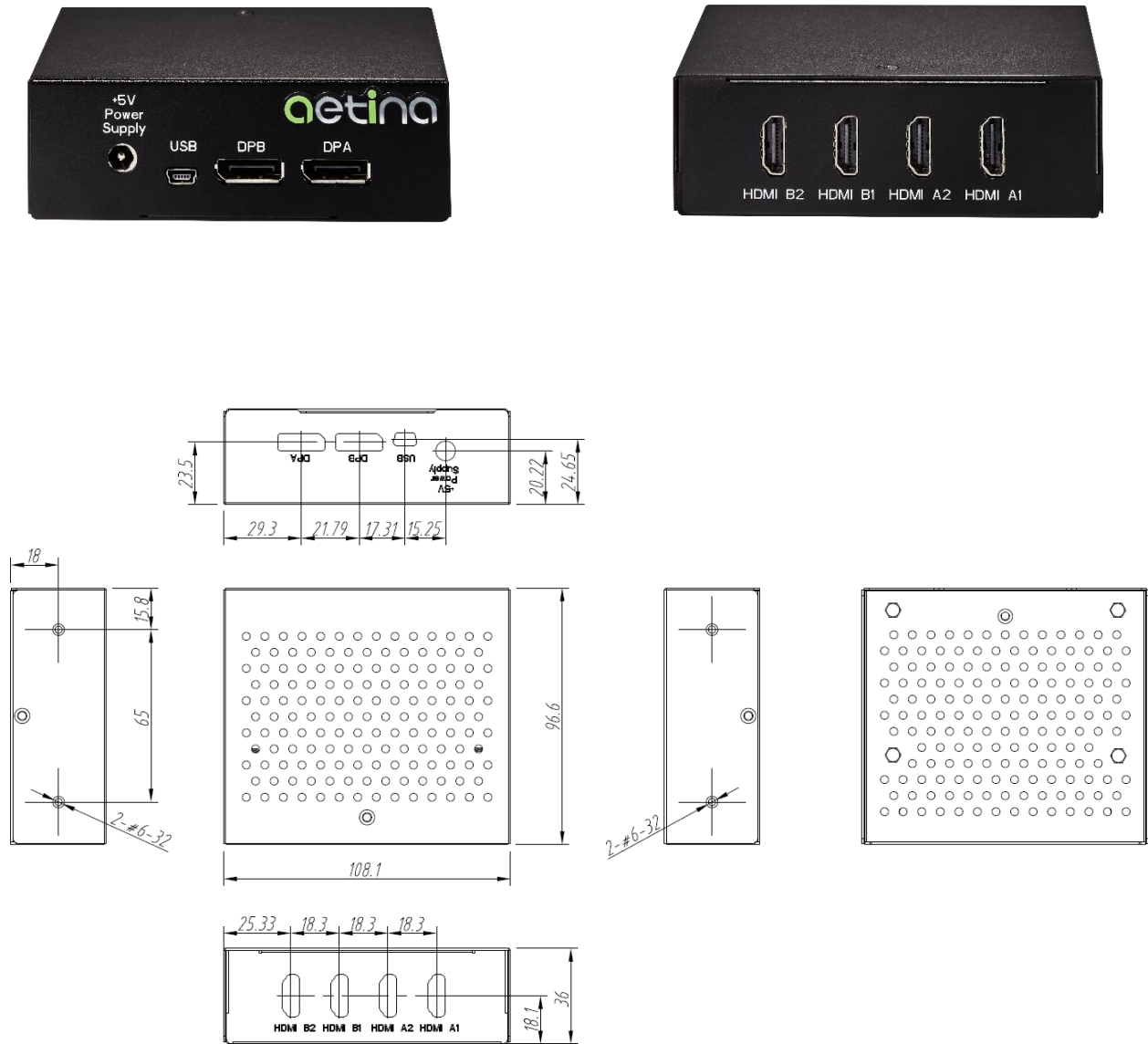


Figure 5.1: Dimensions of MSB-DP24H (107 x 95 x 35 mm)

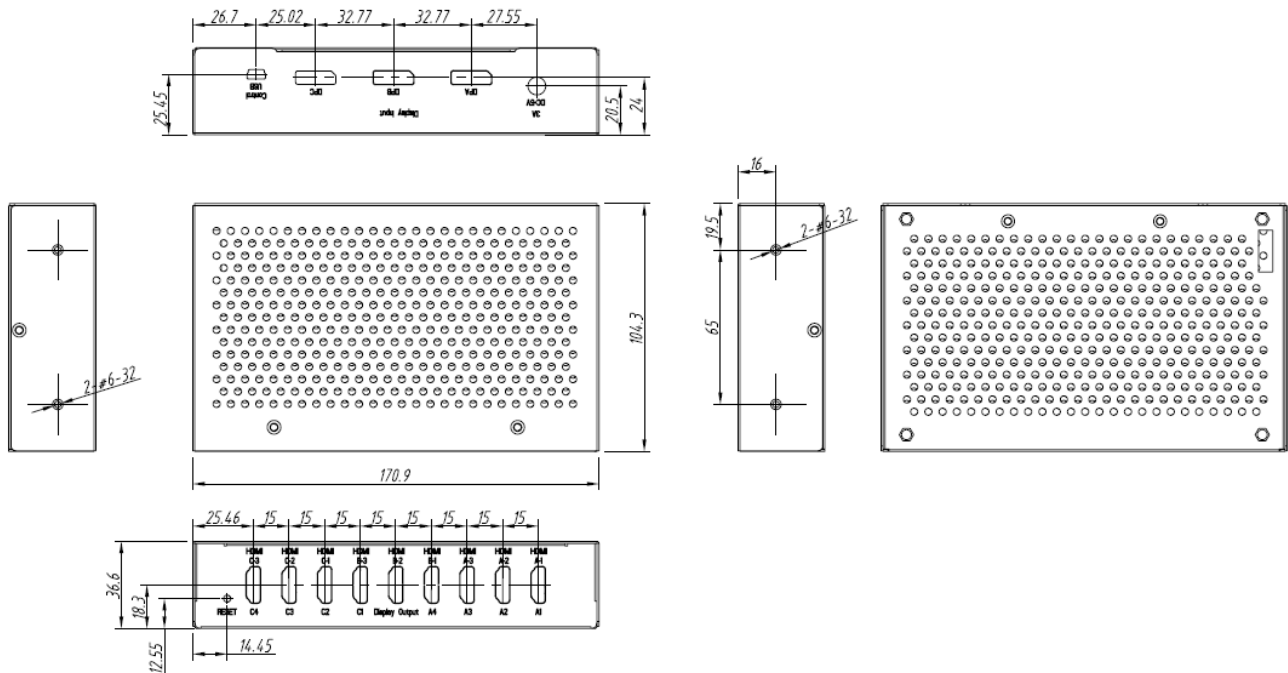
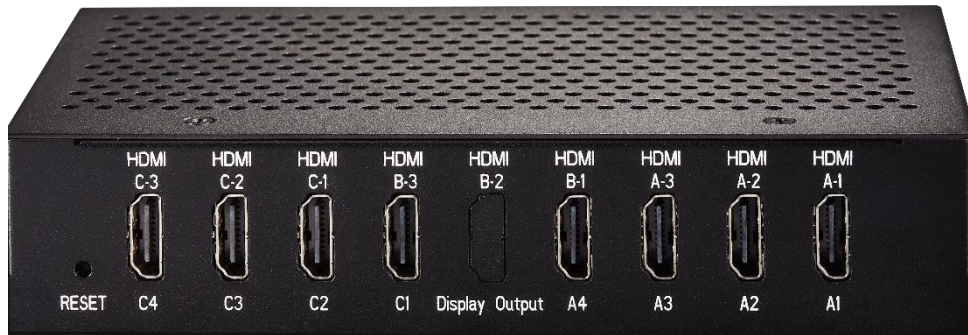
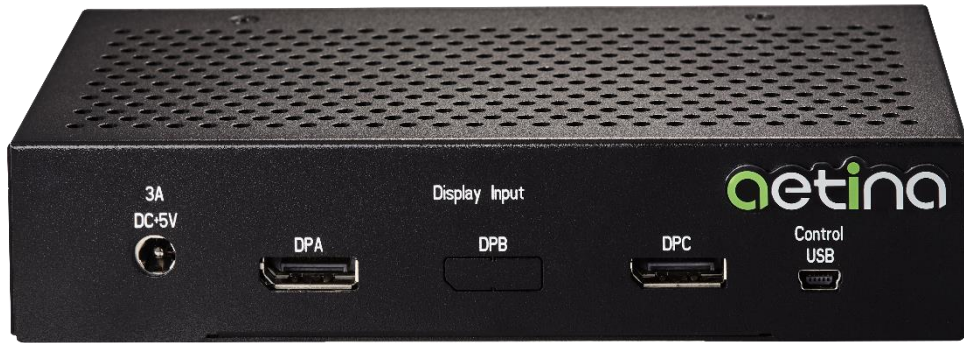


Figure 5.2: Dimensions of MSB-DP28H (173 x 105 x 35 mm)

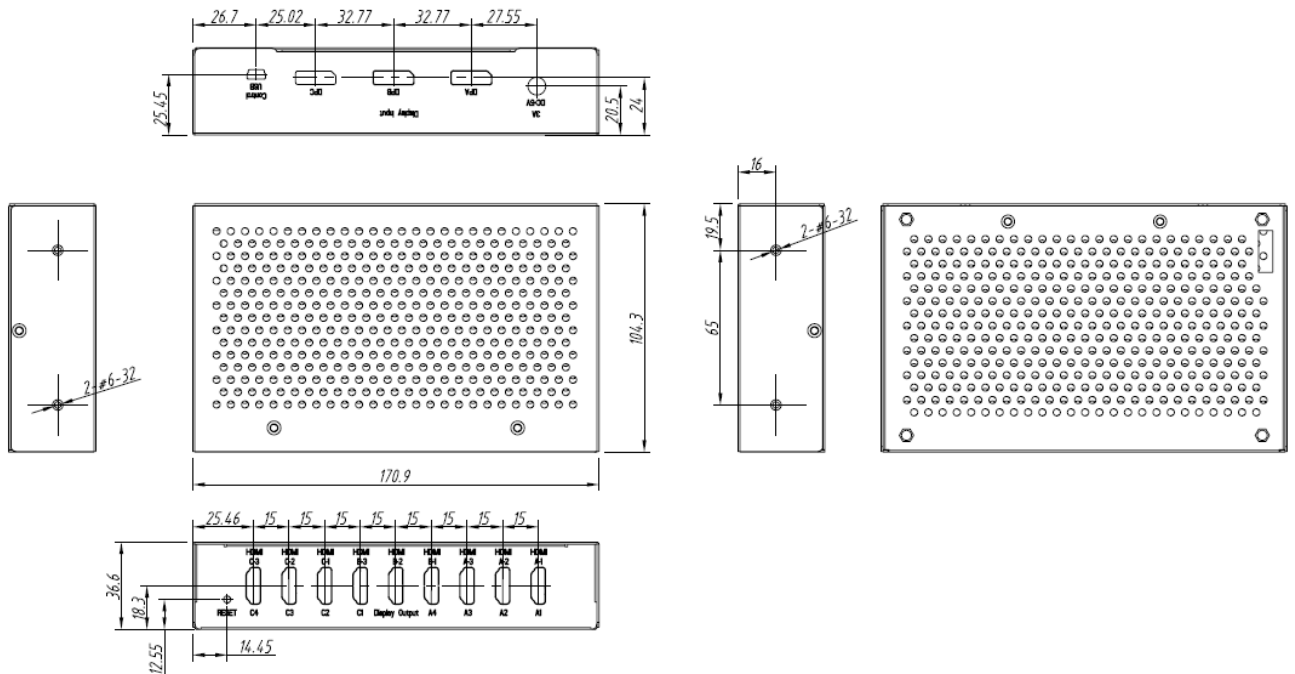
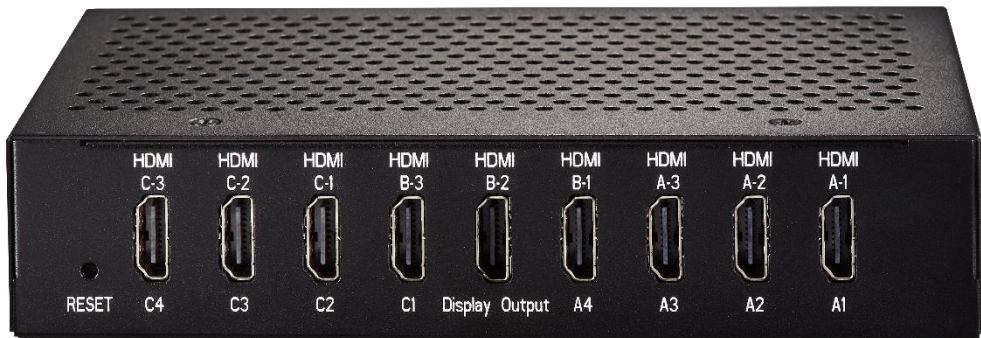
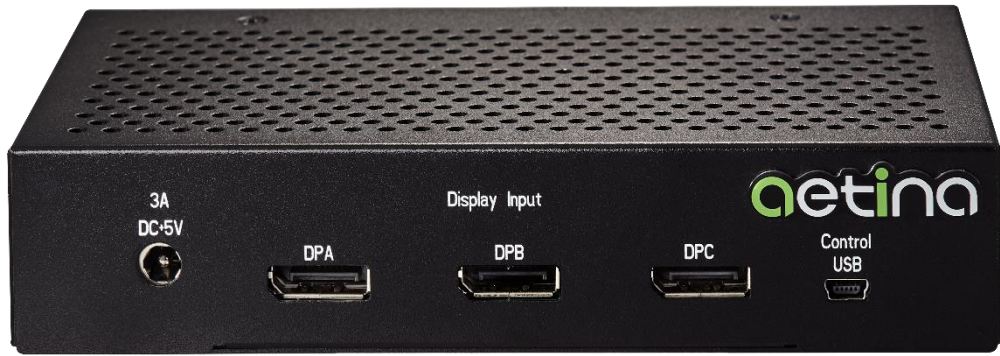


Figure 5.3: Dimensions of MSB-DP39H (173 x 105 x 35 mm)

5.2 Compatibility test

Table 5.1 is the GPU lists for the M3 Box test.

Brand	Items	MSB-DP24H	MSB-DP28H	MSB-DP39H
AMD	FirePROW4100	V	X	V
AMD	FirePROWX9100	V	X	V
AMD	RX5600	V	X	V
AMD	RX5700	V	X	V
AMD	RX6800	V	X	X
NVIDIA	GTX980	V	X	V
NVIDIA	GTX1080	V	V	V
NVIDIA	GTX2080	V	V	V
NVIDIA	GTX3090	V	V	V
NVIDIA	Quadro P4000	V	V	V
NVIDIA	Quadro P6000	V	V	V
INTEL	HD630	V	X	V

Table 5.1 Compatibility test table of M3 Box with GPU

6.Certificates

6.1 Certifications

Conformité Européenne (CE)

Federal Communications Commission (FCC)

7. Appendix

7.1 Ordering Information

Table 7.1 Models available

Model Number	Description
MSB-DP24H	4-displays, Multi-display Splitter Box, Input DP x 2 + Output HDMI x 4, 0°C to +45°C Accessories: DP to DP cable x 2 + Adapter 5V 3A DC x 1
MSB-DP28H	8-displays, Multi-display Splitter Box, Input DP x 2 + Output HDMI x 8, 0°C to +45°C Accessories: DP to DP cable x 2 + Adapter 5V 3A DC x 1
MSB-DP39H	9-displays, Multi-display Splitter Box, Input DP x 3 + Output HDMI x 9, 0°C to +45°C Accessories: DP to DP cable x 3 + Adapter 5V 3A DC x 1

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