



NVIDIA® Quadro® Plex Mosaic Mode

Mosaic Mode in Windows 7

User's Guide

Table of Contents

1. Quadro Plex Mosaic Mode	3
2. Using Quadro Plex Mosaic Mode	4
3. Display Connections & configuration	9

Quadro Plex Mosaic Mode

Quadro Plex Mosaic Mode takes the multiple GPUs in a Quadro Plex Visual Computing System (VCS) and presents them as a single logical Quadro GPU to the operating system.

In this way, using multi-display hardware acceleration, Quadro Plex Mosaic Mode lets you use multiple displays to create a larger, virtual canvas with zero or minimal performance impact on 2D or 3D applications.

Each display defines a unique uniform region within a larger virtual canvas.

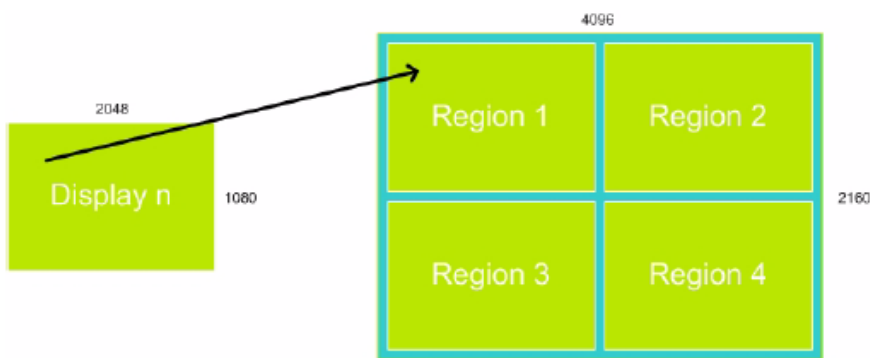


Figure 1 Quadro Plex Mosaic Mode Regions

Edge Over lap

In order to eliminate hard edges between adjacent displays, Mosaic Mode can be configured to repeat the edges of adjacent displays so that display edges can be overlapped to create a seamless composite projection.

Limitations

- **Maximum Resolution**
The maximum resolution of Quadro Plex Mosaic Mode is bounded by GPU rendering limitations (currently 8,192 x 8,192 pixels). For proper operation, do not configure display settings that will total greater than 8,192 pixels either horizontally or vertically. For example, a horizontal array of four displays (1 x 4 array) with each panel configured for 2,560 x 1,600 pixel output would exceed the 8,192 pixel horizontal limitation (10,240 x 1,600 pixels).

- **Minimum Resolution**
Quadro Plex Mosaic Mode also requires that individual displays use a resolution greater than 800 x 600 pixels. If a display in your configuration is set to this, or a lower pixel resolution (e.g. 640 x 480 or 800 X 600), the Quadro Plex system will revert to single display mode.
- **Matching Displays**
All displays must be the same type and use the same type of connection (for example, all DVI-to -DVI or all DVI-to-VGA). Mixed display use is not supported.
- **Maximum Number of Displays**
The Quadro Plex 7000 can support up to eight displays when using the NVIDIA Dual HIC (Host Interface Card).

Using Quadro Plex Mosaic Mode

Connect Your Displays

Connect all the displays that you intend to use in Quadro Plex Mosaic mode.

- All displays must be connected to the Quadro Plex and be part of the Quadro Plex Mosaic configuration. For example, a 2 x 2 configuration cannot be set with only 3 displays connected.
- Additional displays that are not part of the desired Mosaic configuration should not be connected, as this may result in unpredictable behavior.
- Mosaic mode cannot be enabled when only one display is connected to the Quadro Plex.
- All displays must be the same type and use the same type of connection (for example, all DVI-to-DVI or all DVI-to-VGA).
- The visual characteristics of displays vary by manufacturer and model from the same manufacturer. NVIDIA recommends using the same make and model for all displays.

Configure Display Settings

1. Open the NVIDIA Control Panel by right-clicking the desktop and then clicking **NVIDIA Control Panel** from context menu.
2. Configure your display settings before enabling Quadro Plex SLI Mosaic Mode (SLI Mode). Display settings may include but are not limited to:

- Desktop color settings
 - Flat panel scaling
 - Video and TV settings
- 3 Enable Quadro Plex SLI Mosaic Mode
 - I. From the **NVIDIA Control Panel** *Select a Task* pane, under *3D Settings*, select **Set SLI configuration** to open the associated page.
 - II. Under **Select the SLI configuration for your system**, click **Enable SLI technology**.
 - III. Click **Apply**.
 - 4 Verify the SLI performance mode.
 - I. From the **NVIDIA Control Panel** *Select a Task* pane, under *3D Settings*, select **Manage 3D settings** to open associated page
 - II. Check the **Antialiasing–Settings** feature to make sure it is *not* set to any of the “SLI AA” values (e.g., 16 x SLI AA, 32 x SLI AA). If it is, select a non-SLI AA setting, and then click **Apply**.
 - 5 Set the OpenGL Stereo Settings, if desired, on the Manage 3D settings page:
 - If you are not using performance stereo, make sure the stereo is disabled
 - If you are using active stereo, then enable stereo and select the appropriate stereo display mode.
 - If you are using passive stereo, then enable stereo and select the Clone mode stereo display mode.

Set up Quadro Plex Mosaic (SLI Mosaic) Mode

1. From the *Select Task* navigation pane, under *Workstation*, click **Manage Quadro Plex Settings** to open the associated page.

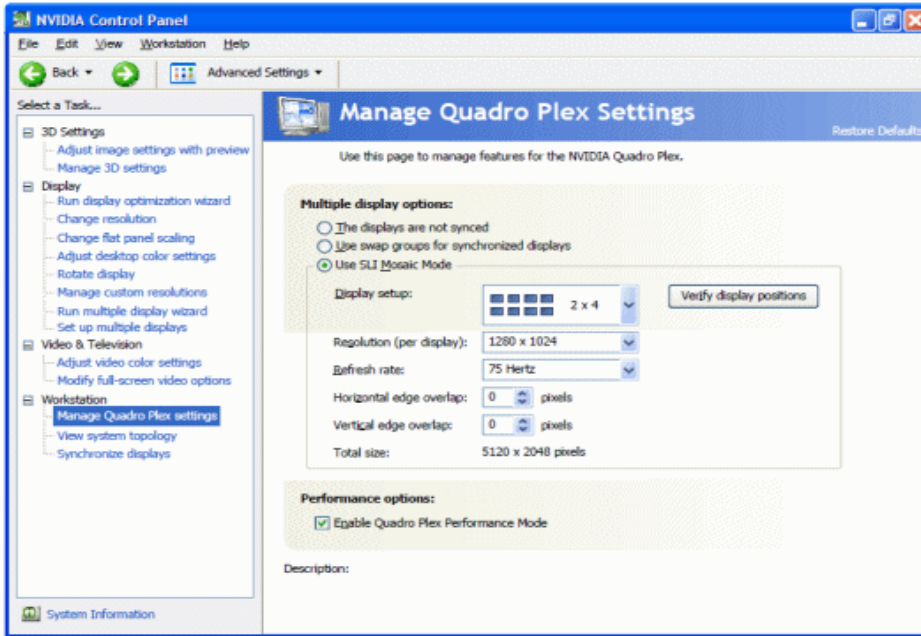


Figure 2: NVIDIA Control Panel Manage Quadro Plex Settings Page

2. Click the **Use SLI Mosaic Mode** check box to enable SLI Mosaic Mode Settings.
3. Click the **Display setup** list arrow and then select the display configuration that matches your arrangement

Note: Available configurations list the number of display rows (vertical) by the number of display columns (horizontal). For example, a 1 x 4 configuration would be used for a single row of 4 displays lined up side-by-side; a 2 x 1 configuration would be used for a single column with 2 displays stacked one on top of the other.

4. Click **Verify display positions** to make sure your displays are attached to the correct Quadro Plex connectors.

A diagram appears on each display in the mosaic surface and indicates which Quadro Plex output is being driven.

Figure 2.1 shows an example of the diagrams that should appear in each display of a 2X2 Quadro Plex SLI mosaic arrangement.



Figure 2.1: 2 x 2 Verify Display Example

If the diagrams match your display layout, you can close all the diagrams by clicking the “X” in the upper right corner of any of the diagrams.

If the diagrams do not match your display layout, then make the necessary corrections as follows:

- **Note: Do not disconnect the displays while the system is still powered on. Doing so can disable Mosaic mode.**
 - a. Determine and make a note of the correct connections, using the diagrams as a guide.
 - b. Close all applications and shut down your system.
 - c. Rearrange the display connections.
 - d. Turn your system back on and verify the configuration.
- 5. Set the resolution per display.

Click the **Resolution (per display)** list arrow and then select the resolution to which you want each display set. Make sure your settings fall within the following limits:

- Maximum total resolution : 16Kpixels (horizontal or vertical)
- Minimum individual display resolution: 800 x 600

6. Set the refresh rate.

Click the **Refresh rate** list arrow and then select the refresh rate you want applied to all displays.

➤ **Note: The refresh rate list box contains the refresh rates that are available for the resolution selected.**

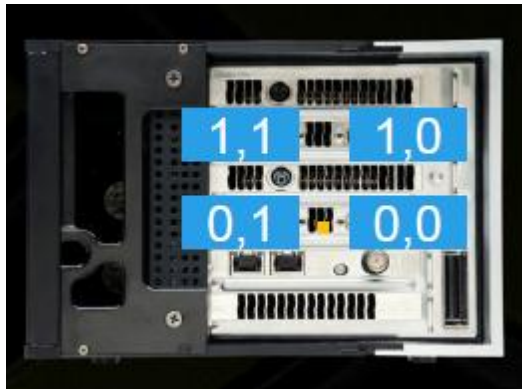
7. Set the Horizontal and/or Vertical edge overlap as needed to accommodate your display configuration.

For example, you can introduce gaps (negative overlap) to accommodate bezel displays.

8. Click **Apply** to save your changes.

Quadro Plex 7000: 4 Display Mosaic Connections

Connect the numbered connector to the display located at the corresponding mosaic position.



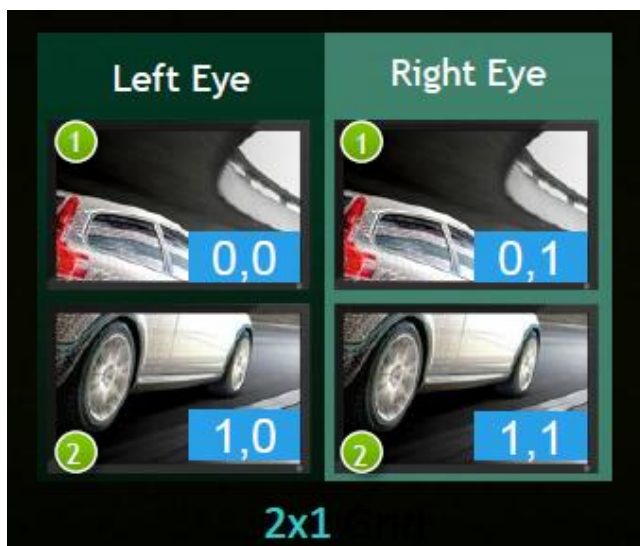
Command line configuration

```
configureMosaic.exe set rows=2 cols=2
```

```
configureMosaic.exe set rows=2 cols=2 out=0,0 out=0,1 out=1,0 out=1,1
```

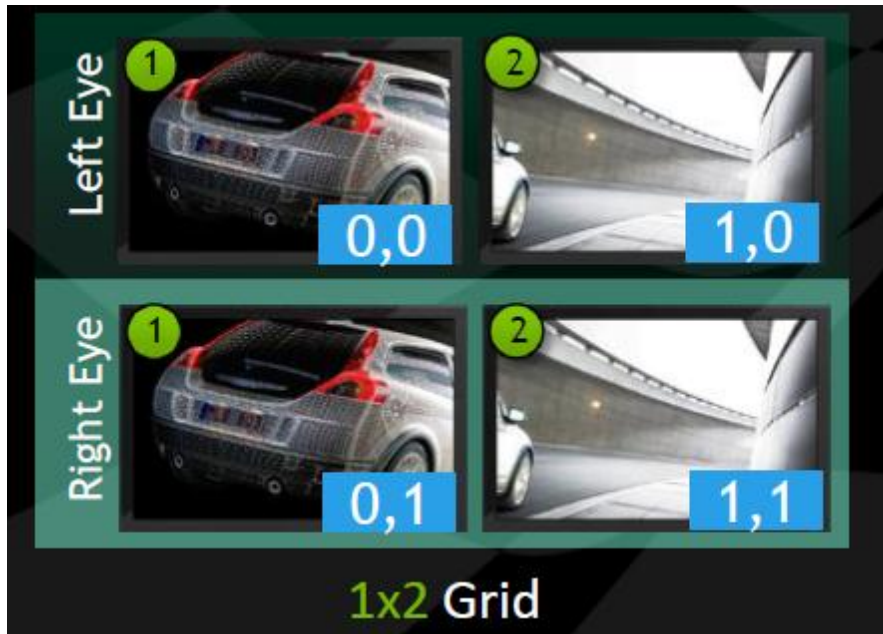

Quadro Plex 7000: 4-Display Connections for 2-Display Passive Stereo

Connect the numbered connection to the display at the corresponding mosaic position.



Command line configuration #

ConfigureMosaic.exe set rows=2 cols=1 passivestereo



Command line configuration #

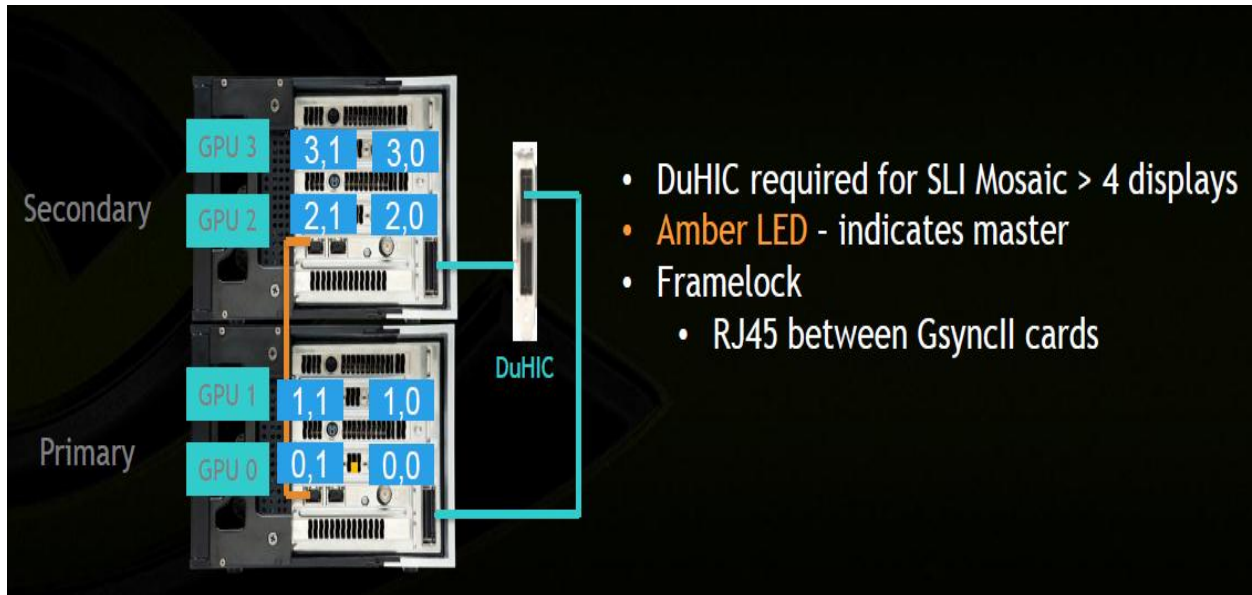
configureMosaic.exe set rows=1 cols=2 passivestereo

3D settings



Using Two Quadro Plex 7000 Units

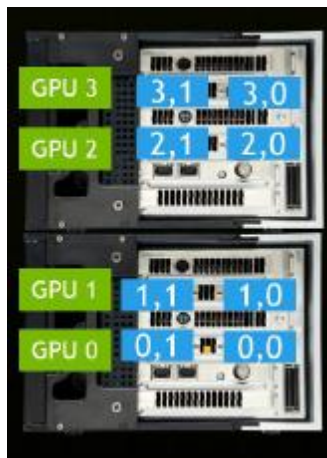
To implement a monitor layout that consists of more than four displays, you will need two Quadro Plex 7000 systems connected to a Dual Output HIC (Dual HIC) card installed in your host system. You will also need to synchronize the displays across the Quadro Plex systems: connect the Quadro Plex systems to each other using an RJ45 cable connected to the G-Sync connectors and then configure using the NVIDIA Control Panel Synchronize Display page.

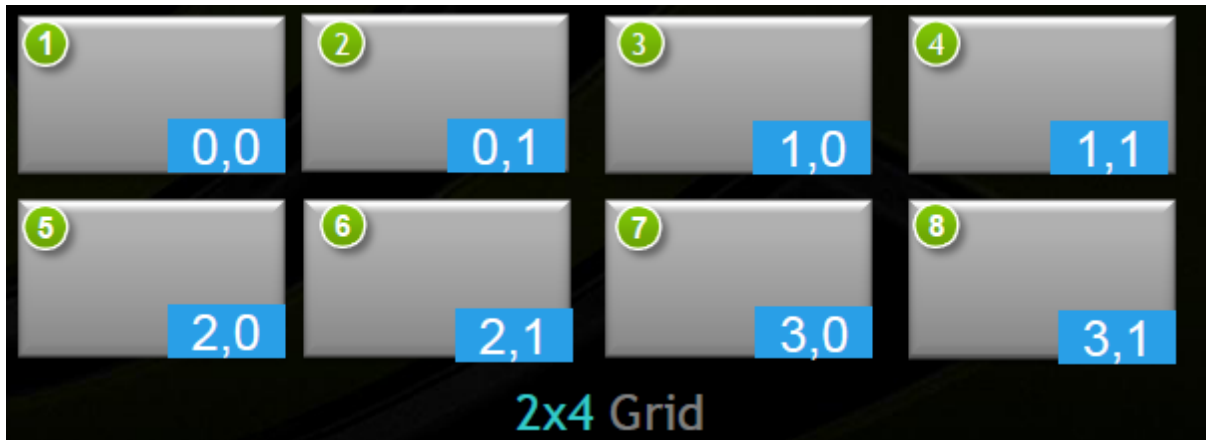


Dual Quadro Plex 7000: 8-Display Mosaic Connections

This section describes the display connections available when two Quadro Plex 7000 systems are connected to a Dual Host Interface Card (Dual HIC).

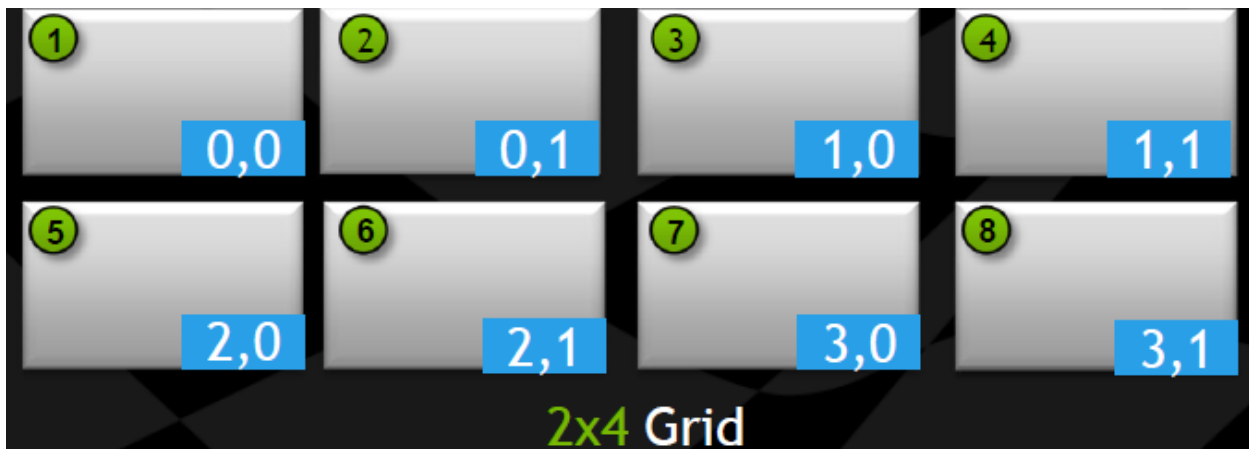
Connect the numbered connector to the display located at the corresponding mosaic position.





Command line configuration #

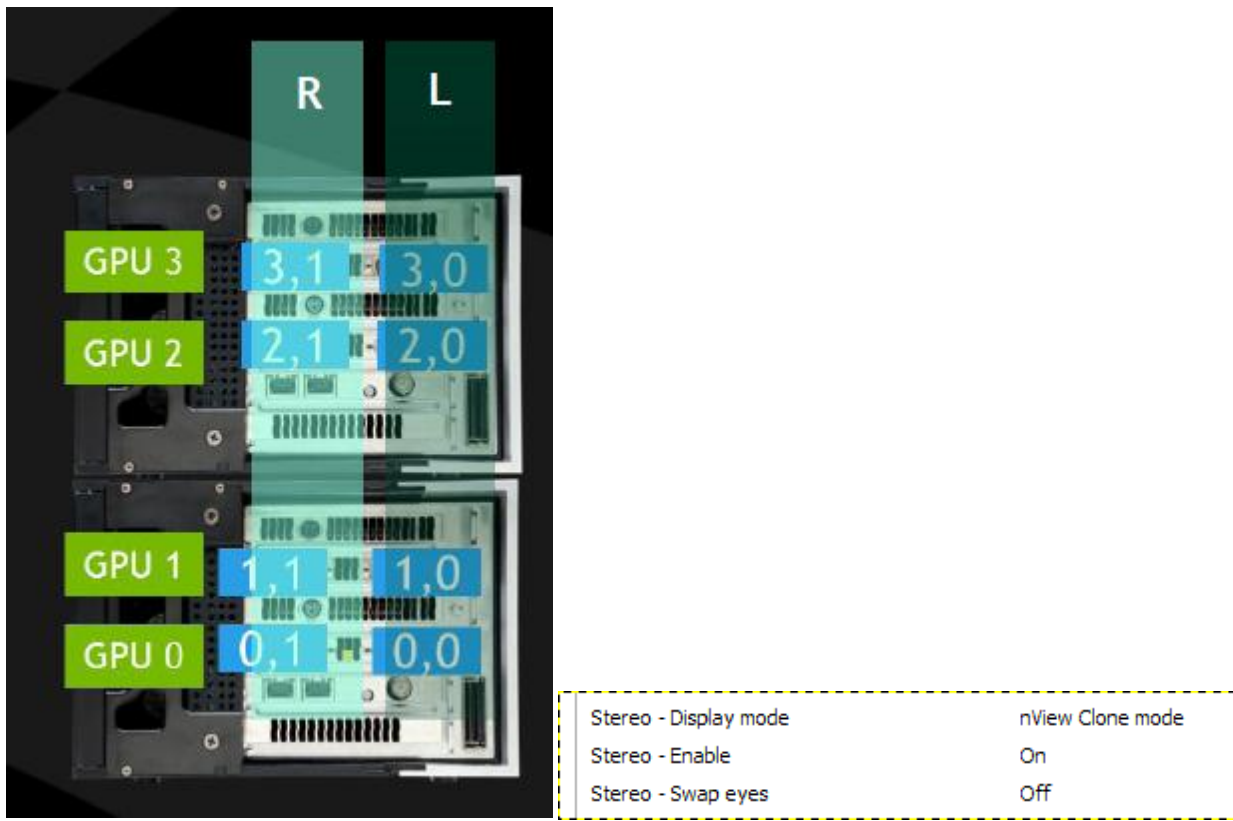
configureMosaic set rows=2 cols=4 out=0,0 out=0,1 out=2,0 out=2,1 out=1,0
out=1,1 out=3,0 out=3,1



Command line configuration#

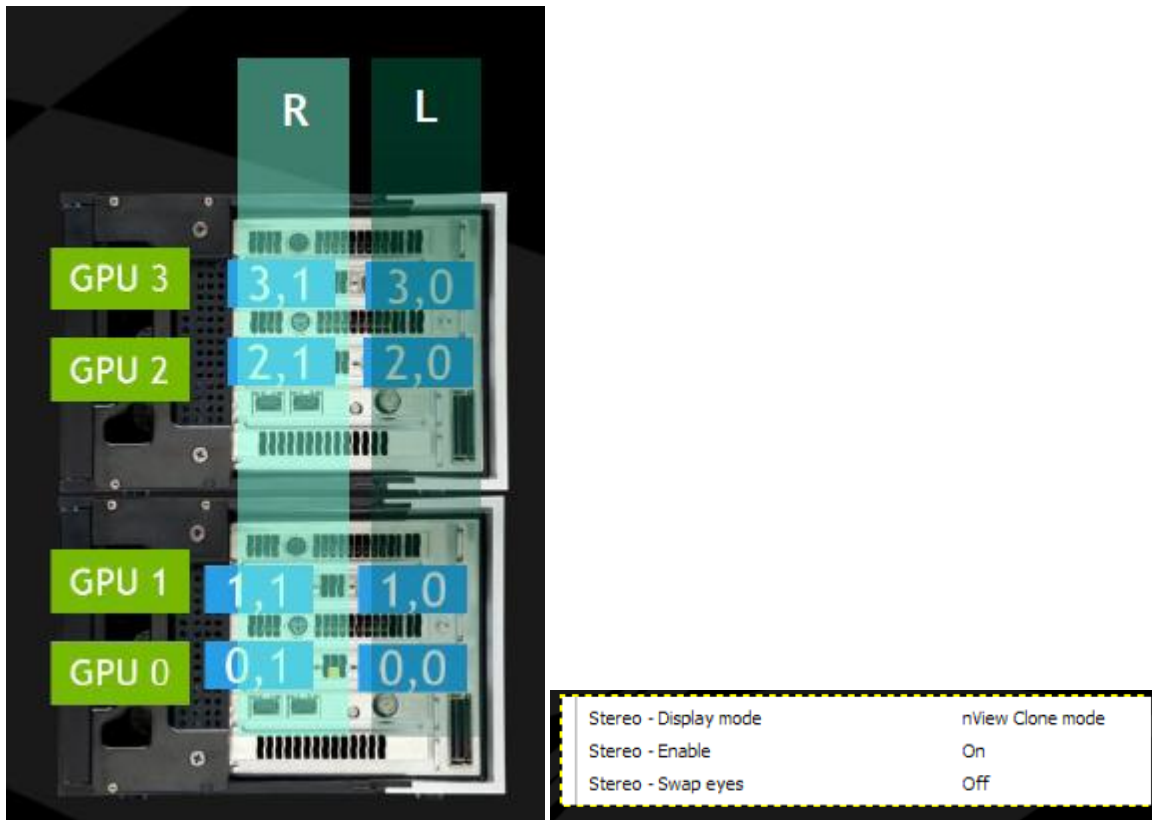
configureMosaic set rows=2 cols=4

Passive Stereo



Command line configuration

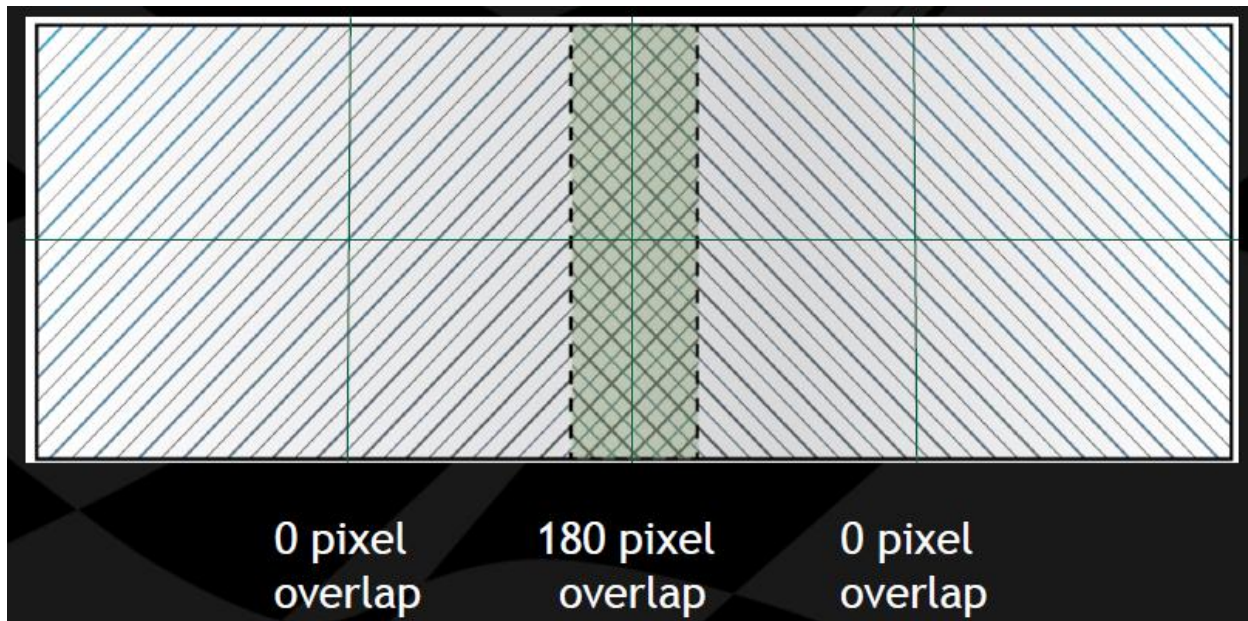
```
configureMosaic set rows=2 cols=2 passivestereo
```



Command line configuration #

`configureMosaic set rows=1 cols=4 passivestereo`

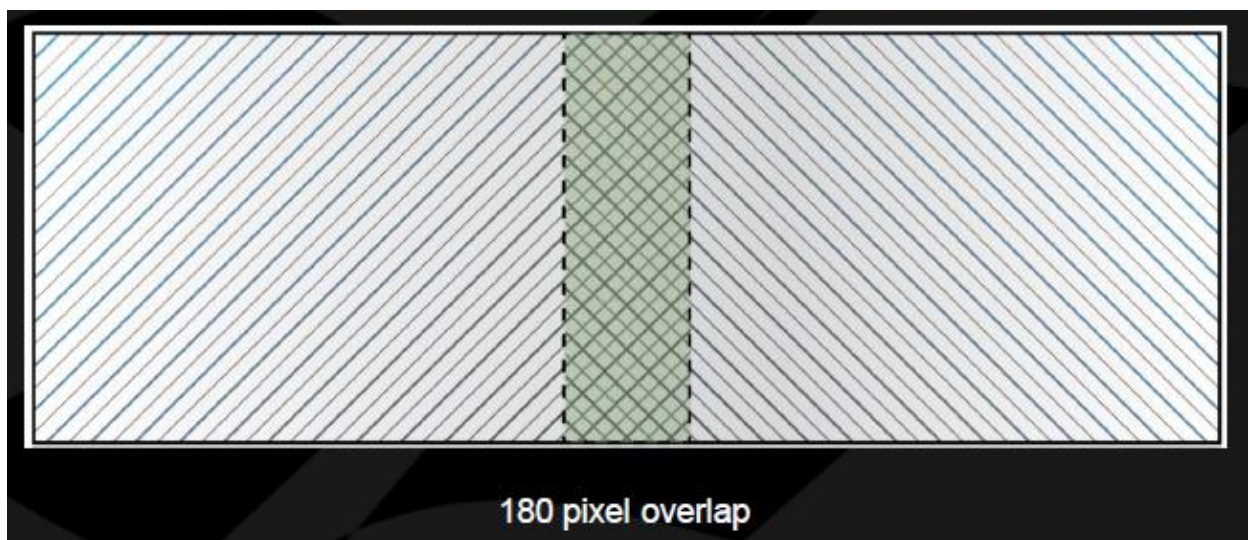
Blending 4K Projectors:



Command line configurator #

`configureMosaic.exe set rows=2 cols=4 overlapcol=0,180,0`

2 channel Overlap



Command line configuration 3

`configureMosaic.exe set rows=1 cols=2 overlap=180, 0`

Portrait Mode - Windows 7 Only

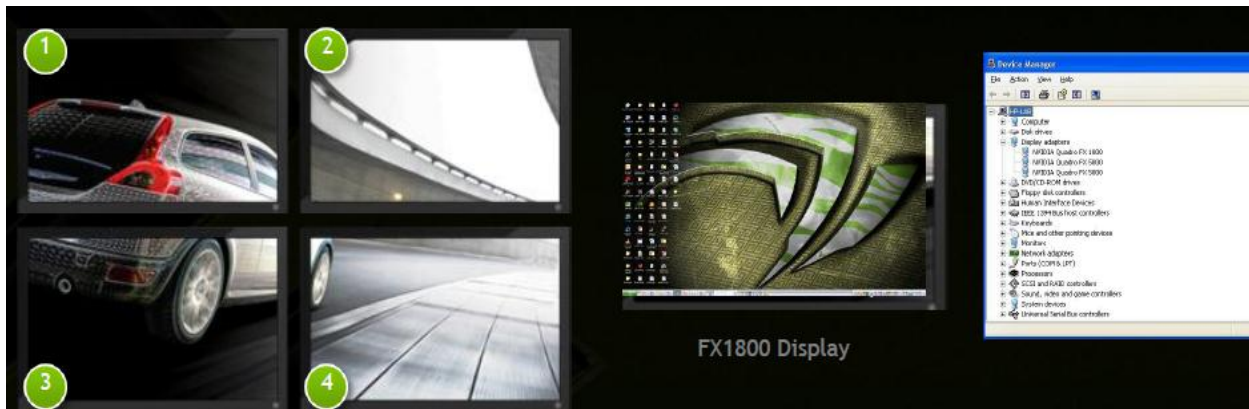


Command line configuration

```
configureMosaic set rows=1 cols=4 rotate=90
```

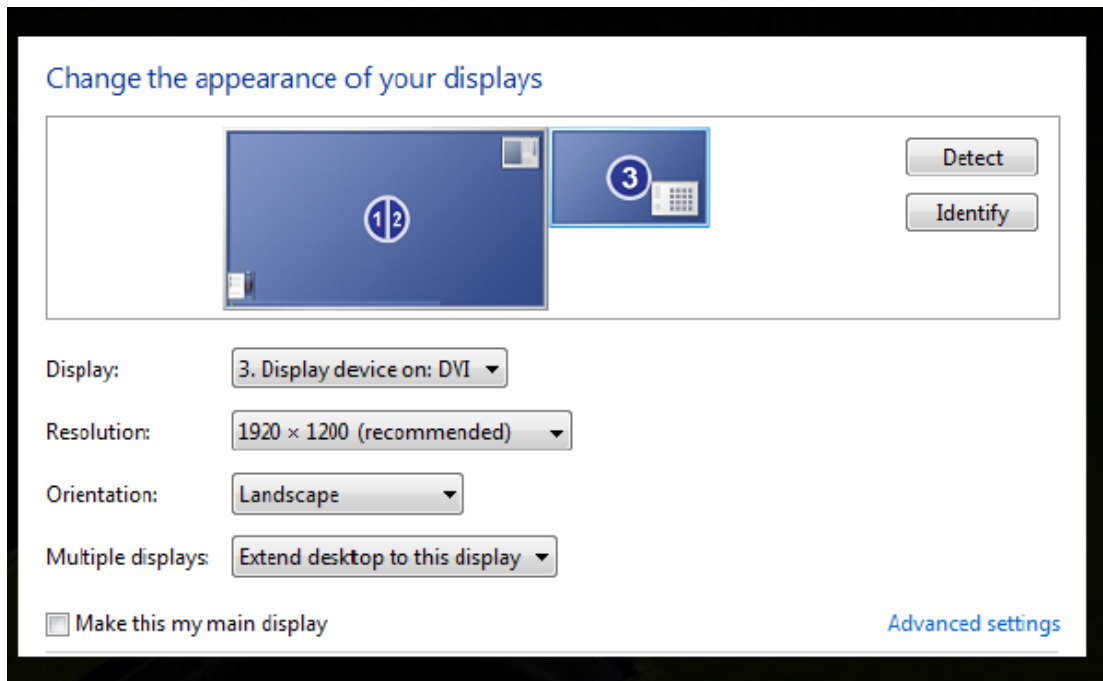
Mosaic +1 Mode

One Quadro Plex 7000 and One Quadro graphic board (control display)

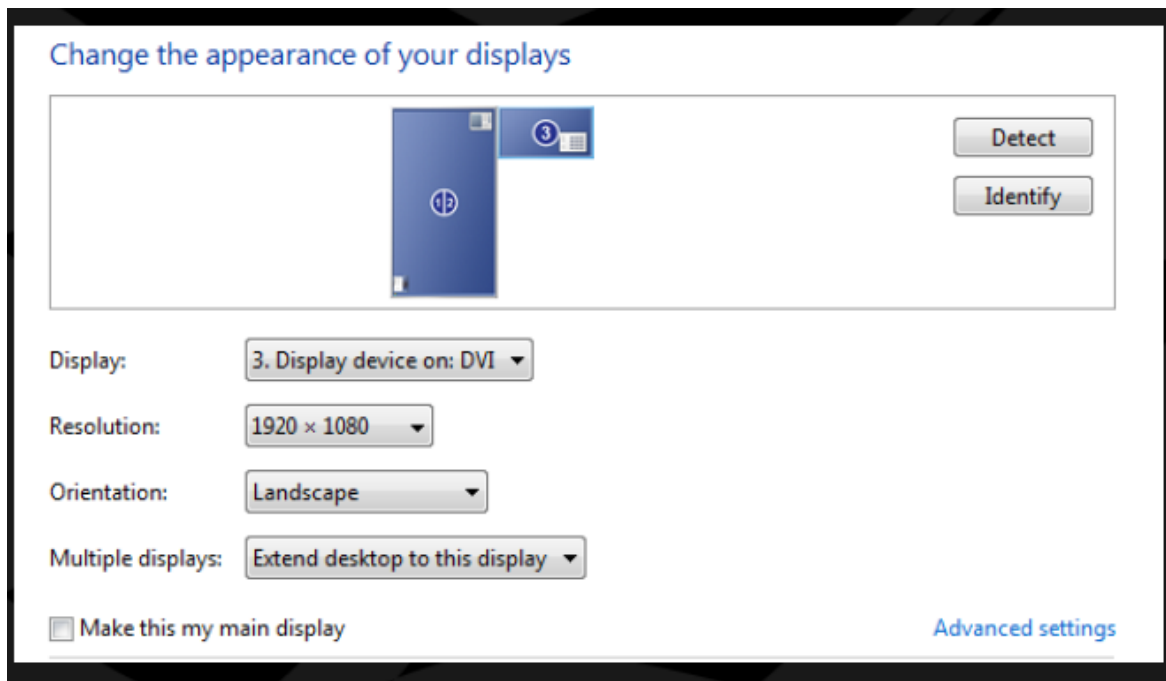


Command line configuration

```
configureMosaic set rows=2 cols=2 nextgrid rows=1 cols=1
```

Rotate 90° Mosaic +1



Command line configuration#

configureMosaic set rows=2 cols=2 rotate=90 nextgrid rows=1 cols=1

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