

Display Core Debug tools

DC Visual Confirmation

Display core provides a feature named visual confirmation, which is a set of bars added at the scanout time by the driver to convey some specific information. In general, you can enable this debug option by using:

```
echo <N> > /sys/kernel/debug/dri/0/amdgpu_dm_visual_confirm
```

Where *N* is an integer number for some specific scenarios that the developer wants to enable, you will see some of these debug cases in the following subsection.

Multiple Planes Debug

If you want to enable or debug multiple planes in a specific user-space application, you can leverage a debug feature named visual confirm. For enabling it, you will need:

```
echo 1 > /sys/kernel/debug/dri/0/amdgpu_dm_visual_confirm
```

You need to reload your GUI to see the visual confirmation. When the plane configuration changes or a full update occurs there will be a colored bar at the bottom of each hardware plane being drawn on the screen.

- The color indicates the format - For example, red is AR24 and green is NV12
- The height of the bar indicates the index of the plane
- Pipe split can be observed if there are two bars with a difference in height covering the same plane

Consider the video playback case in which a video is played in a specific plane, and the desktop is drawn in another plane. The video plane should feature one or two green bars at the bottom of the video depending on pipe split configuration.

- There should **not** be any visual corruption
- There should **not** be any underflow or screen flashes
- There should **not** be any black screens
- There should **not** be any cursor corruption
- Multiple plane **may** be briefly disabled during window transitions or resizing but should come back after the action has finished

Pipe Split Debug

Sometimes we need to debug if DCN is splitting pipes correctly, and visual confirmation is also handy for this case. Similar to the MPO case, you can use the below command to enable visual confirmation:

```
echo 1 > /sys/kernel/debug/dri/0/amdgpu_dm_visual_confirm
```

In this case, if you have a pipe split, you will see one small red bar at the bottom of the display covering the entire display width and another bar covering the second pipe. In other words, you will see a bit high bar in the second pipe.

DTN Debug

DC (DCN) provides an extensive log that dumps multiple details from our hardware configuration. Via debugfs, you can capture those status values by using Display Test Next (DTN) log, which can be captured via debugfs by using:

```
cat /sys/kernel/debug/dri/0/amdgpu_dm_dtn_log
```

Since this log is updated accordingly with DCN status, you can also follow the change in real-time by using something like:

```
sudo watch -d cat /sys/kernel/debug/dri/0/amdgpu_dm_dtn_log
```

When reporting a bug related to DC, consider attaching this log before and after you reproduce the bug.