

What Causes Screen Flickering Issues On Framework Laptops With Linux, And How Can I Fix Them?

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By Vipin PG | Published March 24, 2026 | Updated March 24, 2026 | Topic: Solution | 6 min read

On Framework laptops, Linux screen flickering is usually caused by one of four things: Intel PSR (Panel Self Refresh) issues, AMD kernel or display-driver regressions, VRR/Adaptive Sync problems, or hardware-level behavior that shows up even before Linux fully loads. Framework community reports and ArchWiki guidance show that the fix depends heavily on whether your machine is Intel or AMD, and whether the flicker happens all the time, only after suspend/wake, only at low brightness, or only in one app such as Firefox.

1) First, identify the pattern before changing anything

1. Check whether your laptop is Intel or AMD : `'lspci | grep -Ei 'vga|3d|display'`
2. Check whether the flicker happens:
 - only on the internal display
 - only after suspend/resume
 - only at low brightness
 - only in Wayland or only in Firefox/video playback
 - even in the BIOS or a live USB
3. Update to the latest available BIOS , distro updates, kernel, and Mesa packages before deeper troubleshooting. Framework's own Linux guidance centers around keeping BIOS and Linux packages current, and several Framework threads show flicker behavior changing across kernel releases.

2) If you have an Intel Framework laptop, disable PSR first

The most common Linux-specific cause on Intel Framework systems is Panel Self Refresh (PSR). ArchWiki explicitly notes that PSR can cause screen flickering, and the Framework Laptop 13 ArchWiki page says disabling PSR has been reported to work on Framework hardware.

1. Edit your GRUB defaults: `'sudo nano /etc/default/grub'`
2. Find this line: `'GRUB_CMDLINE_LINUX_DEFAULT="..."'`
3. Add this kernel parameter inside the quotes: `'i915.enable_psr=0'`
4. Rebuild GRUB: `'sudo update-grub'` On Fedora, use: `'sudo grub2-mkconfig -o /boot/grub2/grub.cfg'` On UEFI Fedora systems, this is commonly: `'sudo grub2-mkconfig -o /boot/efi/EFI/fedora/grub.cfg'`
5. Reboot: `'sudo reboot'`

If the flicker stops after this, leave PSR disabled. The tradeoff is that PSR is a power-saving feature, so battery life can be slightly worse.

3) If you have an AMD Framework laptop, update first, then test kernel-specific workarounds

On AMD Framework models, the issue is more often tied to kernel regressions, amdgpu display behavior, or VRR handling rather than PSR. Framework users have reported flicker appearing on newer kernels and disappearing after rolling back to an older kernel branch. On Framework 16, Framework staff also documented a VRR-related EDID bug and posted the kernel patch path; later posts confirmed the fix was backported to kernel 6.7.12 and working for some users by 6.9.2.

1. Update everything fully: '# Fedora sudo dnf upgrade --refresh # Ubuntu / Debian sudo apt update sudo apt full-upgrade'
2. Reboot and test again.
3. If the flicker began after a recent kernel update, boot an older kernel from GRUB and compare behavior.
4. If your distro offers an LTS kernel, test that branch. Framework community reports specifically describe flicker on newer kernels that stopped after rolling back to 6.6.

4) If the issue is corruption or flicker after suspend/wake on AMD, try this amdgpu workaround

A confirmed Framework community workaround for AMD-based display corruption/flicker after resume or display power events is to disable scatter/gather display with this kernel parameter: `amdgpu.sg_display=0`. In one solved Framework thread, this workaround restored correct display behavior after the screen turned off and back on.

1. Edit GRUB: 'sudo nano /etc/default/grub'
2. Add this to 'GRUB_CMDLINE_LINUX_DEFAULT': 'amdgpu.sg_display=0'
3. Regenerate GRUB: '# Ubuntu / Debian sudo update-grub # Fedora sudo grub2-mkconfig -o /boot/grub2/grub.cfg'
4. Reboot: 'sudo reboot'

If this fixes the issue, keep it as a workaround until a kernel or Mesa update resolves the underlying bug.

5) If flicker happens with VRR / Adaptive Sync, turn VRR off

Framework has documented Linux VRR problems on AMD systems, especially where the panel does not correctly advertise VRR capability through EDID. On some Framework models, VRR support depended on kernel fixes, and multiple Framework users reported that simply disabling Variable Refresh Rate stopped desktop or video flicker.

1. If you enabled VRR in GNOME, disable it: 'gsettings reset org.gnome.mutter experimental-features'
2. Or open Settings > Displays and turn off Variable Refresh Rate / Adaptive Sync if your desktop exposes that option.
3. On KDE Plasma, open System Settings > Display and Monitor and disable Adaptive Sync.

If the problem only started after enabling VRR, this is the most likely fix.

6) If the flicker only happens in Firefox on Wayland, change this Firefox setting

If the system is otherwise stable and the flicker mainly shows up during fullscreen video or Firefox on Wayland, this is often an application-specific compositor issue rather than a laptop-wide display failure. ArchWiki recommends changing Firefox's 'widget.wayland.opaque-region.enabled' setting in that case. Framework users on Ryzen systems reported the same workaround helping reduce fullscreen flicker.

1. Open Firefox.
2. Go to: 'about:config'

3. Search for: 'widget.wayland.opaque-region.enabled'
4. Set it to: 'false'
5. Restart Firefox.

7) If the flicker happens only at low brightness, treat it differently

There are Framework Linux reports where the internal screen flickers only at very low brightness, especially shortly after a cold boot, and becomes stable again at higher brightness or after warming up for a few minutes. That pattern is different from a normal compositor bug. In those cases, software updates are still worth trying, but if the same behavior appears repeatedly at low brightness, the issue may be firmware, panel, or mainboard related rather than a simple desktop setting problem.

1. Test at 90% brightness and above.
2. Then lower brightness gradually and see whether the flicker returns only below a threshold.
3. Check whether the same behavior appears in:
 - another Linux distro live USB
 - the BIOS or pre-boot screen
4. If it also happens outside your installed OS, open a support case with Framework.

Quote: Important: If the display flickers in BIOS, during boot, or on a live USB before your usual desktop environment loads, do not treat it as just a Wayland or GNOME problem. That points more strongly to firmware, cable, panel, or mainboard-level trouble.

8) A practical order to try fixes

1. Update BIOS, kernel, Mesa, and all packages.
2. Intel: add 'i915.enable_psr=0' .
3. AMD: try an older/LTS kernel if the issue started after an update.
4. AMD resume/display corruption: add 'amdgpu.sg_display=0' .
5. Disable VRR/Adaptive Sync .
6. If it is only Firefox on Wayland, set 'widget.wayland.opaque-region.enabled=false' .
7. If it also happens in BIOS/live USB or only at low brightness from cold boot, contact Framework support.

Why This Happens

Framework laptops tend to expose Linux display issues more visibly because they use modern high-DPI internal panels, recent Intel and AMD graphics stacks, and features such as PSR and VRR that depend on correct interaction between the panel, firmware, kernel DRM driver, Mesa, and compositor. On Intel, PSR is a known source of flicker. On AMD, Framework has publicly documented at least one VRR/EDID bug, and community reports show that some flicker problems track specific kernel versions rather than one distro or desktop environment. When the flicker appears before Linux is fully loaded or only at certain brightness levels, that points away from a pure software bug and more toward firmware or hardware behavior.

Useful commands for diagnosis

```
# GPU and driver
lspci | grep -Ei 'vga|3d|display'
uname -r

# Kernel messages related to graphics
dmesg | grep -Ei 'amdgpu|i915|drm|display|psr|vrr|freesync'
```

```
# Current desktop session type
echo $XDG_SESSION_TYPE
# Check BIOS version
sudo dmidecode -s bios-version
```

If you want the shortest answer: Intel Framework + Linux flicker usually means disable PSR. AMD Framework + Linux flicker usually means update BIOS/kernel/Mesa, disable VRR, and if needed test an older kernel or add `amdgpu.sg_display=0`. If it flickers in BIOS or on a live USB, stop tuning Linux and treat it as a Framework support case.