# 8°Hi∨e Pro

Threat Level

## Hiveforce Labs THREAT ADVISORY

### 爺 VULNERABILITY REPORT

**ARM's Zero-Day Flaw Leads to Improper GPU Memory Processing** 

Date of Publication June 13, 2024

Admiralty Code

TA Number TA2024229

# Summary

Discovered: June 2024

Affected Products: Bifrost and Valhall GPU kernel drivers

**Impact:** Arm has issued a warning about a security vulnerability, CVE-2024-4610, which has been actively exploited in the wild. This memory-related vulnerability impacts the Bifrost and Valhall GPU kernel drivers. It allows a local non-privileged user to perform improper GPU memory processing operations, potentially granting access to already freed memory.

#### ⇔ CVEs

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CVE	NAME	AFFECTED PRODUCT	ZERO -DAY	CISA KEV	РАТСН
CVE-2024- 4610	Arm Mali GPU Kernel Driver Use-After-Free Vulnerability	Bifrost and Valhall GPU kernel drivers	<b>&gt;</b>	8	<u> </u>

# **Vulnerability Details**

Arm has addressed a memory-related vulnerability in Bifrost and Valhall GPU kernel drivers that is being actively exploited in the wild. The security issue tracked as CVE-2024-4610, is a use-after-free (UAF) vulnerability affecting all versions of Bifrost and Valhall drivers from r34p0 through r40p0.

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Bifrost and Valhall GPU kernel drivers are integral components in software environments that power devices equipped with Arm GPUs based on the Bifrost and Valhall architectures. These GPUs are widely deployed in mobile devices and embedded systems and these drivers facilitate efficient operation of graphics and compute tasks. This issue arises from a use-after-free error resulting from improper GPU memory processing operations. Essentially, a local non-privileged user can manipulate GPU memory operations inappropriately, potentially gaining

access to memory that has already been freed.

Use-after-free (UAF) flaws occur when a program continues to reference a memory location after it has been freed. This flaw can lead to various security risks, including denial of service, information disclosure, and arbitrary code execution. Arm has addressed this issue in the latest version of the Bifrost and Valhall GPU Kernel Driver, r41p0. It is crucial for administrators to update their systems to this new version as soon as possible to protect against this vulnerability.

### Vulnerabilities

CVE ID	AFFECTED PRODUCTS	AFFECTED CPE	CWE ID	
CVE-2024- 4610	Bifrost GPU Kernel Driver: All versions from r34p0 to r40p0 Valhall GPU Kernel Driver: All versions from r34p0 to r40p0	cpe:2.3:a:arm:bifrost_gpu_k ernel_driver:*:*:*:*:*:*:*:* cpe:2.3:a:arm:valhall_gpu_k ernel_driver:*:*:*:*:*:*:*:*:*	CWE-416	

#### Recommendations

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**Update:** To mitigate this risk, it is essential to update the Bifrost and Valhall GPU Kernel Driver to the latest version, r41p0.

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**Vulnerability Management:** Implement a robust vulnerability management process to ensure that software and systems are regularly assessed for vulnerabilities and updated with the required security patches. Prioritize critical vulnerabilities identified by security advisories and vendors to mitigate the risk of exploitation by threat actors.

#### Potential <u>MITRE ATT&CK</u> TTPs

TA0042	TA0002	<u>TA0040</u>	T1588	
Resource Development	Execution	Impact	Obtain Capabilities	
T1588.006 Vulnerabilities	T1499 Endpoint Denial of Service	0101010000 11010110001 。	010101010100	

#### Signation Patch Details

It is important that you upgrade the Bifrost and Valhall GPU Kernel Drivers to the most recent version, r41p0, in order to mitigate this risk.

Links: <u>https://developer.arm.com/downloads/-/mali-drivers/bifrost-kernel</u>

https://developer.arm.com/downloads/-/mali-drivers/valhall-kernel

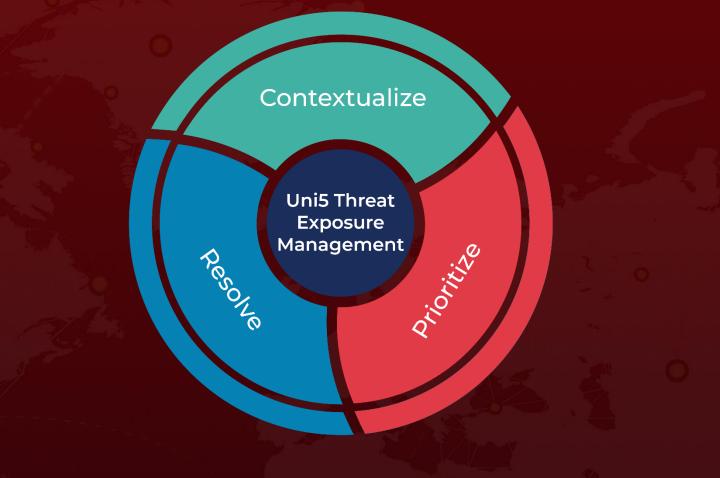
#### Si References

https://developer.arm.com/Arm%20Security%20Center/Mali%20GPU%20Driver%20Vulnerab ilities

# What Next?

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