

Software enablement of Aarch64 in FreeBSD World

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A-profile features: Feature Names

https://developer.arm.com/downloads/-/exploration-tools/feature-names-for-a-profile

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Feature names in A-profile architecture

The tables on this page list all the features that are in A-profile architecture.

2022 Architecture Extensions

Note: Some 2022 Architecture features are not yet included.

Feature Name	Short description		
FEAT_ABLE	Address Breakpoint Linking Extension		
FEAT_ADERR	Asynchronous Device error exceptions		
FEAT_AIE	Memory Attribute Index Enhancement		
FEAT_ANERR	Asynchronous Normal error exception		
FEAT_CLRBHB	Support for Clear Branch History instruction		
FEAT_CHK	Check Feature Status		
FEAT_CSSC	Common Short Sequence Compression instructions		
FEAT_CSV2_3	Cache Speculation Variant 2 version 3		
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FreeBSD : Context | Highlights



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FreeBSD : Resources Overview



How to Contribute

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Friends who run FreeBSD are a great resource. No book can replace chatting on the phone or across a pizza with someone w accomplishments, and faces the same challenges. If you do not have many friends who use FreeBSD, consider creating FreeB	oracte a r	ninve cimilar de o o The Apr 22.7017 Antre 192	
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FreeBSD@ Arm64 : 10 years and counting!



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A-profile architecture Enablement

Ongoing development

Looking Ahead

1	 SPE Investigation is complete 2 modes of Feature support Single-CPU – Prototyping done, final clean up WiP Single thread between multi-CPUs – TBD 	 MTE Investigation to be picked up in CY24.Q3 Next steps : Feature enablement
2	 VHE Support Bhyve [Hypervisor] support is WiP In-Kernel merge gated on Bhyve support upstream 	 2 Large Physical Address (LPA2) Pre-work <u>support</u> enabled [In-Kernel] Partner use case sought for upstream merge
3	 SVE 1.0 : Initial Kernel <u>patches</u> under review SVE 2.0 : Pick up investigation in the upcoming cycles 	 SMMU PMU SMMUv3 driver to enable by default Host : MSI Support Guest : Add Bhyve support PMU Bhyve Host support enabled Bhyve guest OS support to be picked up in the upcoming quarters

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Additional Reading

□<u>arm64 Platform support List</u> □ FreeBSD Journal **FAQs** □ <u>FreeBSD Foundation</u> □ <u>FreeBSD Security Information</u> □<u>Newsletter</u> Partner Ecosystem Engagement □<u>Netflix</u> □<u>Juniper</u> □ <u>Klara</u> □<u>NetApp</u> □ <u>Nvidia</u> and many more! Arm Developer Landing Page

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Thank you

