

Specifications

Feature	Cortex-A78AE
Architecture	Armv8.2-A (AArch32 at ELO only)
Main Extensions	Armv8.1 extensions Armv8.2 extensions Armv8.3 (LDAPR instructions only) Armv8.4 Dot Product Cryptography extensions RAS extensions
Pipeline	Out-of-order
Superscalar	Yes
Physical Addressing (PA)	48-bit
Large Physical Address Extensions (LPAE)	Yes
TrustZone for Cortex-A	Yes
Neon and Floating Point Unit	Included with INT8 Dot Product and IEEE FP16
Floating Point Unit only	Included
Interrupt Controller	External GICv4
Bus Protocol	ACE or CHI
L1 I-Cache/D-Cache	32KB -64kB
L2 Cache	256-512kB
L3 Cache	Optional 512kB-4MB
Dual Core Lock-Step (DCLS)	Yes
Functional Safety Support	ASIL D Systematic ¹ & ASIL D Diagnostic ²
Cryptography Unit	Supported (separately licensable), with cryptography extensions
Error Code Correction (ECC)/Parity	Yes
Accelerator Coherency Port (ACP)	Optional
Peripheral Port	Optional
Generic Timer	Armv8-A
Non-intrusive debug (trace)	Included

¹Suitable for up to ASIL D systematic development

²Contributes towards up to ASIL D hardware diagnostic metrics

Related Products

Mali-G78AE

Mali-G78AE is a highly scalable GPU that enables configurable workload separation and virtualization. Mali-G78AE is designed to the IEC 61508 and ISO 26262 safety standards for industrial and automotive applications respectively and is ASIL B SIL 2 safety-capable.

Mali-C71AE

As an advanced high-performance ISP, Mali-C71AE delivers key visual information to both computer vision systems and human display for clear and convenient viewing. Mali-C71AE is the first Arm ISP with built-in features for functional safety.

CoreLink CMN-600AE

High performance coherent mesh network supporting up to ASIL D/SIL 3 safety requirements for a wide range of automotive and industrial applications, featuring CCIX enabled coherent multichip support, quality-of-service (QoS) and flexible system-level cache.

Corelink GIC-600AE

Arm's newest Interrupt controller, the GIC-600AE is fully software compatible with the GIC-600 and is engineering with safety mechanisms to meet demanding safety requirements up to and including ASIL D/ SIL 3. The GIC-600AE supports the GIC v4 standard and is the interrupt controller for choice for the Cortex-A78AE.

CoreLink MMU-600AE

MMU-600AE enables high performance virtualization for a wide range of automotive applications with safety mechanisms to meet safety requirements up to ASIL D/SIL 3. It is software compatible with MMU-600 and supports the MMU v3.1 architecture.



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