Evolution of ARMv8.x-A

Security

SIMD/Floating Point(FP)

System/Memory

Side Channel Attack Shock

ディープラーニングなどを強化

セキュリティを大幅強化

サーバー向け機能強化やディープラーニング対応

Armv8.0-A(2011)	Armv8.1-A(2014)	Armv8.2-A(2015)	Armv8.3-A(2016)	Armv8.4-A(2017)	Armv8.5-A(2018)	Armv8.6-A(2019)		Armv9

Security-related (top section):
- General Matrix Multiply (GEMM)
- BFloat16
- Virtualization: Fine grained traps
- Wait-for-Event (WFE)
- High precision timer
- Branch Target Indicators (BTI)
- Memory Tagging
- Random Number instructions
- Memory Partitioning and Monitoring (MPAM)
- Cryptographic Hashes
- SHA-3
- Secure EL2
- Dot products(8-bit)
- Pointer Authentication   extend
- Advanced SIMD complex number
- Nested virtualization
- RCpc (Release Consistent processor consistent)
- Larger architected caches
- Half-precision(FP16) floating point data processing
- RCpc (Release Consistent processor consistent)
- Reliability, Availability, Serviceability (RAS) Extension
- Atomic read-writ
- Virtualization Host Extensions (VHE)
- Statistical Profiling Extension

Bottom section:
- Scalable Vector Extension (SVE)
- General Matrix Multiply (GEMM)
- BFloat16