SMMU – System MMU

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# SMMU Introduction

SMMU converts virtual addresses to physical addresses for external peripheral devices. This allows multiple external devices to perform direct memory access (DMA) to the entire range of the system physical memory.

As an example, certain peripheral devices limited to accessing only 24 bits of address space would now be able to access all 64 bits addresssing through the memory translation tables of the SMMU.

SMMU registers are configured through ARM Trusted firmware (ATF) BL31 SMC calls by the Crytography device drivers. The ATF performs default SMMU initializations of the stream IDs through the system manager and SMMU secure registers configuration during the boot-up process.

# References: -

1. <https://www.scribd.com/document/750859791/Learn-the-Architecture-Smmu-Software-Guide-109242-0100-01-En>
2. <https://altera-fpga.github.io/rel-24.2/linux-embedded/smmu/smmu/>
3. <https://www.openeuler.org/en/blog/wxggg/2020-11-21-iommu-smmu-intro.html>
4. SMMU spec

https://developer.arm.com/documentation/ihi0070/latest/