

Alt_x86 Business Case

The x86 ISA has grown over the years as more powerful implementations add additional registers, instructions and data sizes. So far this has been handled by additional prefix instructions. Inspired by <https://en.wikipedia.org/wiki/X86> decided to devise a unified instruction format that supports a RISC subset and an x86 addressing mode subset with scaled index. The register fields are limited to four bits and the op-code field to eight bits. Four data sizes are supported and variable length immediates. Op-codes are reserved for prefix instructions which can be used to augment the op-code field size, the register field size and the number of register fields. The augmented op-code field size can be used to encode data sizes and operations for the huge number of multi-media instructions.