Lab Assignment - 8

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Problem statement : Write x86/64 ALP to identify the CPU type.

Objectives : To learn displaying processor identification information using CPUID instruction.

Theory

1. Explain CPUID instruction (information returned by CPUID instruction) in detail

→ CPUID returns processor identification and feature information in the EAX, EBX, EDX registers. The instruction's output is dependent on the contents of the EAX register upon execution. For Example, the following pseudocode loads EAX with 00H and causes CPUID to return a maximum return value and the vendor identification string in the appropriate registers.

Platform : Online NASM compiler

System Calls used

sys_write call

sys_exit call

Conclusion: Thus the program is implemented in assembly language to display processor identification information using CPUID instruction.

FAQs

1. Which flag is use to test for the CPUID instruction?

→ When CPUID executes with EAX set to 1, additional information is returned to the EBX register :- Brand index (low byte of EBX) - this number provides an entry into a brand string table that contains brand strings for IA-32 processors
CLFLUSH instruction in 8 bytes increments. Local APIC ID (high byte of EBX) this number is the 8-bit ID that is assigned to the local & APIC ID ~~this~~ that is assigned to the local APIC on the processes during power up.

When CPUID executes with EAX = 1 return feature infor-mation in ECX and EDX

2) Which flag is used for CPUID instruction?

→ The ID flag (bit 21) in the EFlags register indicates support for the CUPID instruction. If a software procedure can set and clear the flag, the processor executing the procedure supports the CPUID instruction

3) Draw the output diagram of CPUID instruction if EAX = 0

→ When the CPUID executes with EAX = 0, the processor returns the highest value of the CPUID recognises for returning basic processor returns the highest value of the CPUID recognises for returning basic processor information. The value is returned in the EAX register and processor specific