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Practical No 1

Aim : To install and configure TASM using DosBox.

Software required : TASM, DOSBOX

Assembly language programming consist of following steps.

Asembling the program :

The assembler is use to convert the assembly language instruction to machine code it is used immediatly after writing the assembly language program. The assemble start by checking the syntax or validity of the structure of each each instruction in the sources file if any error are found. the assembler display, a report on these error along with brief explanation of their nature. However if the program does contain any error, the assemble produces an object file that has the same name as the original file but with the "obj" extension

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Linking the program :-

The linker is use to convert object file into an executable file the exucatable file is the final set of machine code instruction that can be directly exucuted by the microprocesor, it is the different than the object ~~fille~~ file in the sense that is self contained and re-located An object file may represent one segment of a long program. This segment can not operate by itself, and must be integrated with other object file representing the rest of the program, in order to product that final self contained executable file

Executing the program

The exeoutable contain the machine code... it can be load in the RAM and executed by the microprocessor simply by typing from the Do, prompt · the name of the file followed by the carriage Return key (Enterkey). if the program produces an output on the screen or sequence of control signals to control a piece of hardware. However if the program manipulates data in memory.

nothing would seem to have happened as a result of executing program.

TASM is one of the software used for programming the microprocessor 8086. it is very popular for domestic and commercial use. TASM stands for Turbo assembler. The TASM software package come with following file mentioned below.

① Edit ② TASM ③ TLINK ④ TD.

EDITOR : an editor is a program which allow you to create a file containing the assembly language statement for your program. As you type in your program, the editor store the ASCII codes for all letters and numbers in sucessive RAM location. when you have typed in all of your program, you have save the file on hard disk. This file is called source file. The next step is to process the source file with an assembler.

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ASSEMBLER : an assembler program is use to translate assembly language mnemonics for instruction to the corresponding codes. When you run the assembler it read the source file on your program from .asm file created using edit command.

Syntax of assembler is: TASM FILE NAME ASM. The output of assembler is object file contains the binary code for the instruction and information about the address of the instruction.

LINKER : a linker is a program used to link several object file into one lang object file and convert to ex file.

DEBUGGER : The debugger allows you to look at the content of register and memory location after you program runs, and return the program Syntax of debugger is : TD filename.

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Following are Directives which should be present in TASM program.

① Model.
possible MODELS are :
TINY : code and data must fit in same 64 k seg. ~~but~~

SMALL : code and data have seperate segment ~~but must~~ each less than 64 k format of our experiments.

MEDIUM : code may be large than 64k but DATA be less than 64 k.

COMPACT : code is less than 64 k. but he greater than 64 k

LARGE : ~~Both~~ data and code can be greater than 64 k.

② Data : The data is used to seperate variable declaration. each group of variable declaration should be proceded by a data directive.

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③ code : The code is used to seperate assembly language instruction each group of assembly language instruction should be proceded by code directive.

Conclusion : Basic command of TASM such as tasm edit link etc and basic directive such as model, data, code were studies sucessfully.

Step to install and configure TASM on ubuntu

ALP programming 8086 using TASM in ubuntu

Installing turbo Assembler (TASM) in ubuntu : To do assembly language programming we need assembler one of them is Turbo Assembler (TASM), for performing Assembly language programming in Linux with TASM we need to do following.

Step 1 : update the Package and dependencies open the terminal in Linux (ctrl + Alt + T) and run the following command.

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(These command are not compulsory, if they not run, sometime that cause installation problem)

- sudo apt-get update
- sudo apt-get install -f

Step 2: Install DOSBOX

Dosbox emulates ~~and~~ an intel x86 PC compiele with sound graphic, mouse, joystick, modem etc necessary for running Assembly language program.

Step 3: Downlod The TASM to linux
Download the package for TASM by linking on below link. that automatically download a zip file.

step 4: Extract the file and Place it after downloading the file. Creat a directory for tasm in your home directory and extract files into the directory.

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HOME / TASM

Step 5 : Running a ALP program
Creat a ALP program and above and save with extension . asm the program must be save in tasm directory.

Eg. sum . asm

step 6 : open DoxBox and manding virtual c Drive :

To open Doxbox type dosbox in terminal and press enter . To mount the virtual C Drive type the following command in DoxBox .

- mount e/ Home / <username>
- mount e/ home / cse
- Y : \> e :

step 7 : Navigate To TASM directory using the cd command in Linux navigate to the TASM directory in Dox box

C : \Cd TASM

C : / TASM

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Step 8 : Run the program

for running the programming we need to do folbwing.

- tasm filename.asm
- tlink filename
- td filename.exe

C:/TASM > tcum add.asm
C:/TASM > tlink add
C:/TASM > td add.cum

Conclusion : So in this way you can instal TASM on your system and execute x86 code an gous machine.

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