

MICROPROCESSOR

BCA 3RD SEMESTER 2020

LECTURE- 6

SUBHADIP MUKHERJEE

DEPARTMENT OF COMPUTER SCIENCE

KHARAGPUR COLLEGE

COMPUTER PROGRAMMING LANGUAGE

- **Low Level Language: Main focus is to interact with the hardware**

Machine Language

Assembly Language

- **High Level Language: More complex tasks and easily understandable for the programmers**

PASKAL, FORTRAN, C, C++, JAVA, PYTHON etc.

MACHINE LANGUAGE

- 01011101000010111000101010110001100101001100011111100101
010000000001011110101110001110010101100101011011101011
100110111101000101001001011001010010

ASSEMBLY LANGUAGE

What is Assembly Language?

Assembly language may also be called *symbolic machine code*

Each assembly language is specific to a particular computer architecture and sometimes to an operating system.

ASSEMBLY LANGUAGE (CONT.)

Example 1

Move an 8-bit value into the register A

01100001

Machine Language: 10110000 01100001

Hexadecimal form: B0 61

Assembly Language: `MOV A, 61h ; Load AL with 97 decimal (61 hex)`

ASSEMBLY LANGUAGE (CONT.)

Example 2

MVI A, 32H : Store 32H in the accumulator

STA 4000H : Copy accumulator contents at address 4000H

HLT : Terminate program execution

ASSEMBLER

An assembler is a software.

Assemblers have been available since the 1950s

An assembler program creates object code by translating combinations of mnemonics and syntax for operations and addressing modes into their numerical equivalents.

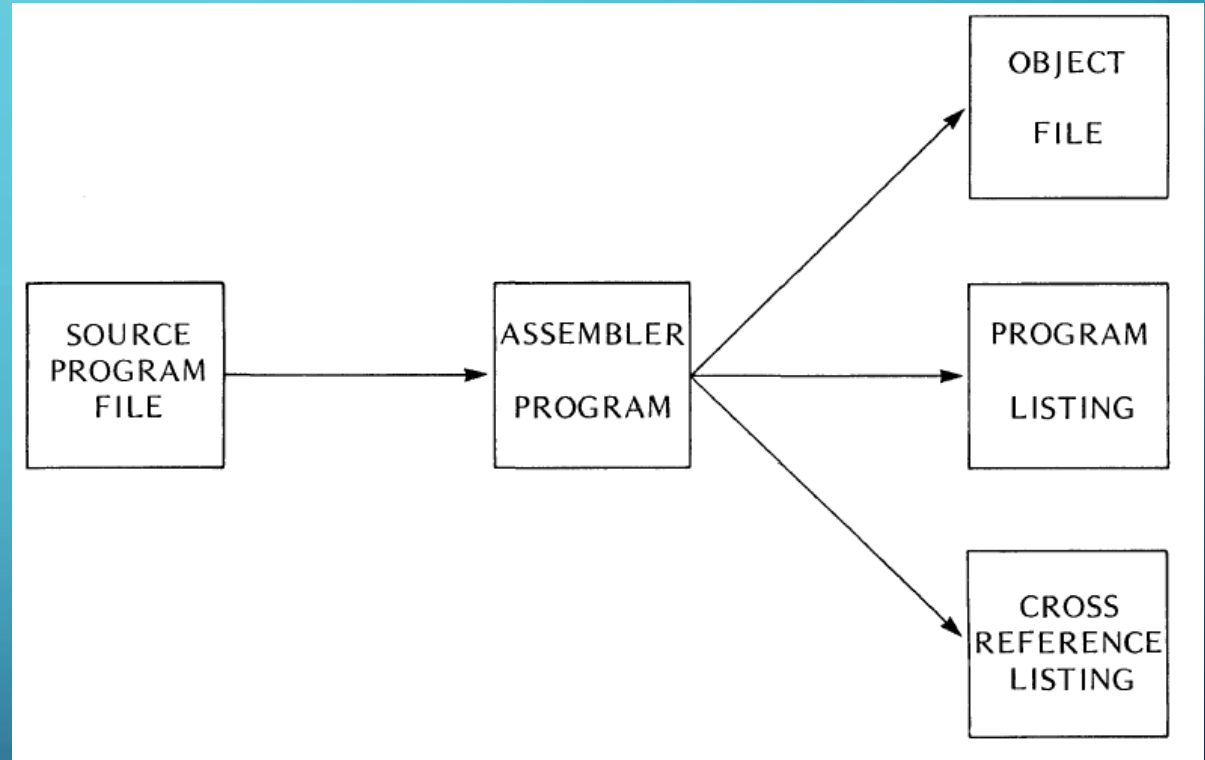
ASSEMBLER (CONT.)

What the Assembler Does?

Object Code

Program Listing

Cross-Reference Listing



ASSEMBLER(CONT.)

Various Assemblers

Macro-assemble

Cross-assembler

High-level assembler

Micro-assembler

Meta-assembler

ASSEMBLER(CONT.)

Assembler based on number of passes

One-pass assemblers go through the source code once.

Multi-pass assemblers create a table with all symbols and their values in the first passes

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THANK YOU

End of Lecture- 6

Subhadip Mukherjee

Department of Computer Science

Kharagpur College