Chapter 10

Programming in C

Lesson 06

Program Build Process and Development Tools

Build process for obtaining the final hex-file

- *Step 1 —Compiler* translates the high level language program into an object file so that it can be linked with other object files, for example, from an assembler or from another source   code   file

Build process for obtaining the final hex-file

- *Step 2 — Linker* links the relocatable object files and generates another object executable file

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Build process for obtaining the final hex-file

- *Step 3 — Locator* prepares a final binary executable codes file by relocation of the addresses.
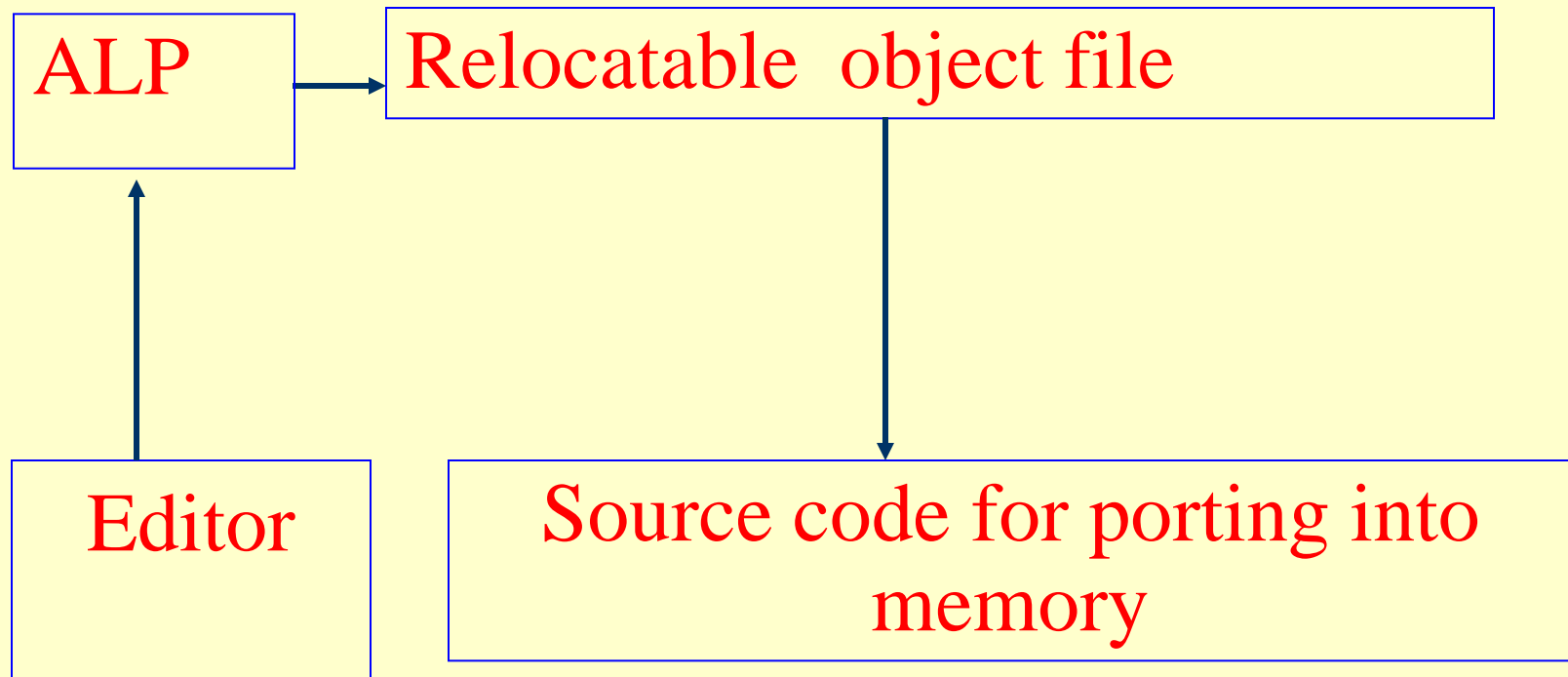
- Compiler and linkers also give the error messages

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Development Tools

- Compiler

- Assembler

- Linker

- Library Manager

- Simulator and Debugger

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Development Tools Exemplary Sources

- Keil
- IAR

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Build Process Using Assembler

ALP	→	Relocatable object file

Editor	Source code for porting into memory

Build Process Using Compiler (Keil, SDCC)

C source file → Relocatable object file

Editor → C source file

Relocatable object file → Link library functions and object files

Link library functions and object files → Locator- absolute Source code for porting into memory
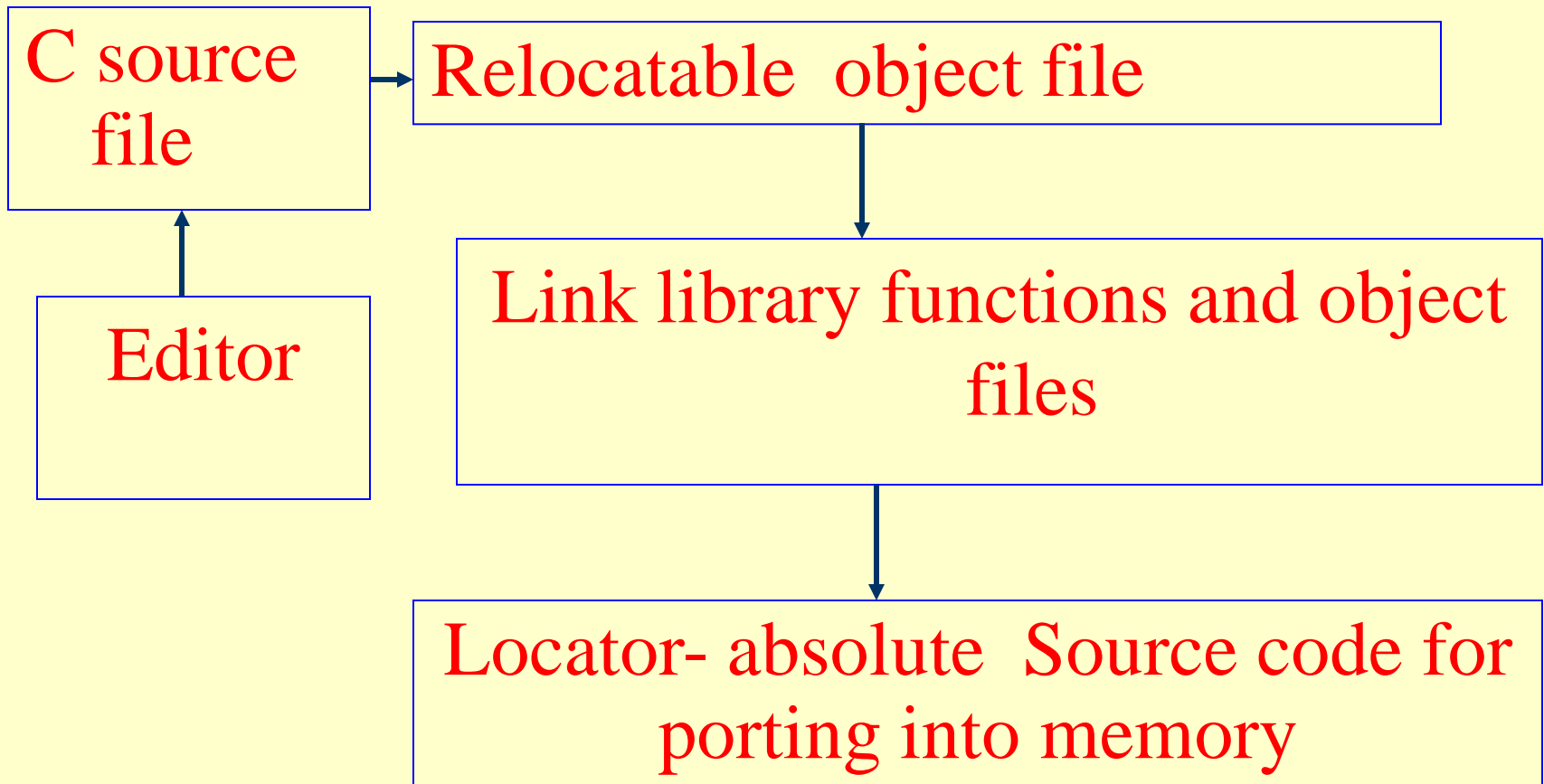
Typical 8051 simulator and debugger

- Consists of the following—

(a) simulation of the IOs and simulation of interrupts

(b) source and assembler language debugger,

(c) powerful handling of the breakpoints, the points where the critical examination of variables, or registers are checked

(d) macro-type commands for debugging.

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GNU Tools

- Free software
- GNUC/C++ compiler
- GNU Build System
- GNU assembler, linker

GNU Build System

- Simplifies development of portable programs

- Automatic configuration

- Auto make file generation

- Automatic distributed building

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Summary

We learnt

- Development Tools
- Build process from editor and compiler
- Build process from assembler
- GNU, Keil and SDCC Compilers

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End of Lesson 06 on

Program Build Process and Development Tools