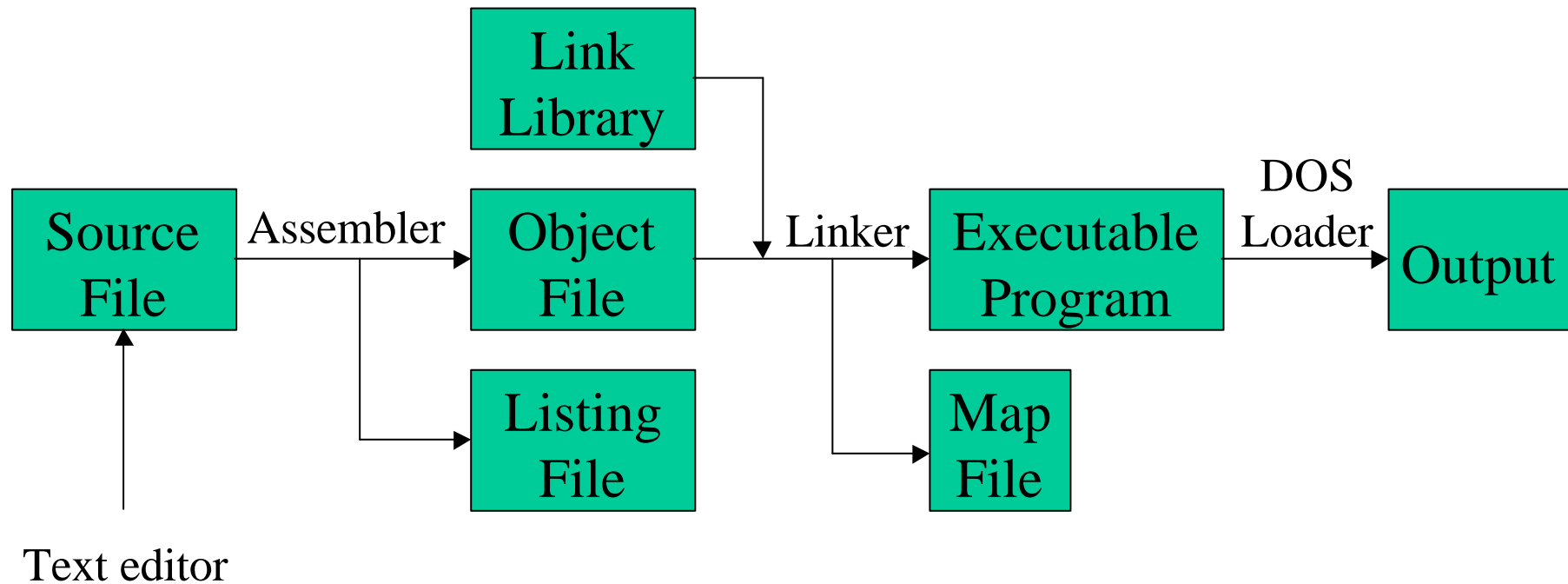


Assembling, Linking, and Executing a Program

Assemble-Link-Execute Cycle



Prepare a Program for Execution

- Assemble to create .OBJ file
- Link to create .EXE file
- Load to create a program segment prefix (PSP)

Assemble

- **The assembler translates a program written in assembly language into an object program. Note that a program may be written on more than one file.**
- **The Borland assembler for the Intel 80x86 is called TASM.**

Assembling a Source Code

```
TASM [optn] source [,object][,listing][,crossref]
```

- **Source file -- .ASM**
- **Object file -- .OBJ**
- **List file -- .LST**
 - produces listing of source and object code and error diagnostics.
- **Crossref -- .XRF**
 - produces cross reference: list of all identifiers and where they are referenced in the program.

Command for Assembling

```
TASM filename.ASM
```

**produces an object file prog1.OBJ in
current directory**

```
TASM A:\filename,A:\,A:\,A:\
```

**generates an object file, a listing file and a
cross reference file in A:**

Linking

- **The linker links all objects files together and produces an executable program.**
- **The Borland linker program is called TLINK**

Linking

```
TLINK objfile,exefile [,mapfile]
```

- **Objfile -- use .OBJ file**
- **exefile -- generate .EXE file**
- **mapfile -- generate .MAP file**
 - relative location and size of each segment
 - reports on any linker errors

Examples

TLINK filename.OBJ

produce executable file prog1.exe in current directory

TLINK filename.OBJ, ,filename.map

**produce executable file prog1.exe and map file
prog1.map in current directory**

TLINK filename.OBJ, ,CON

produce map on the console (i.e. Monitor)

TLINK filename.OBJ+filename.OBJ,filename.EXE

Linking for .COM File

- By default the TLINK program generates .EXE files.
- When linking a .COM program

TLINK /t filename.OBJ

Execute a Program

- To execute a program type its name at the DOS command prompt.

Example

C:>\filename

– use DEBUG program

C:>\debug filename.EXE

Cross-Reference Listing

```
TCREF Xreffile, reffile
```

- **xreffile** -- cross-ref generated by TASM
- **reffile** -- the .REF file