

Step	Input	Output
Preprocessing	Source code _s (.c)	Preprocessed code _p (.i)
Compiler	Preprocessed code _p (.i)	Assembly code _a (.s)
Assembler	Assembly code _a (.s)	Object file / code _b (.o)
Linker	Object file (.o) + libraries (.so)	Executable file / code _{fnl} (.o / .out / .exe)

Time to experiment!

To view intermediate files, you can use GCC, but with flags

- 1) After preprocessing, you can use the -E flag to obtain the .I file after preprocessing

```
[akr@KoushikReddys-MacBook-Pro experimennt2 % vi exp2.c
[akr@KoushikReddys-MacBook-Pro experimennt2 % cat exp2.c
#include<stdio.h>

int main () {
    printf("hello");
    return 8;
}

[akr@KoushikReddys-MacBook-Pro experimennt2 % gcc -E exp2.c -o exp2.i
[akr@KoushikReddys-MacBook-Pro experimennt2 % cat exp2.i
# 1 "exp2.c"
# 1 "<built-in>" 1
# 1 "<built-in>" 3
# 433 "<built-in>" 3
# 1 "<command line>" 1
# 1 "<built-in>" 2
# 1 "exp2.c" 2
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/stdio.h" 1 3 4
# 61 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/stdio.h" 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/_stdio.h" 1 3 4
# 69 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/_stdio.h" 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/_bounds.h" 1 3 4
# 27 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/_bounds.h" 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/sys/cdefs.h" 1 3 4
# 808 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/sys/cdefs.h" 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/sys/_symbol_aliasing.h" 1 3 4
# 809 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/sys/cdefs.h" 2 3 4
# 874 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/sys/cdefs.h" 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/sys/_posix_availability.h" 1 3 4
# 875 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/sys/cdefs.h" 2 3 4
# 992 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/sys/cdefs.h" 3 4
# 1 "/Library/Developer/CommandLineTools/usr/lib/clang/17/include/ptrcheck.h" 1 3 4
# 993 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/sys/cdefs.h" 2 3 4
# 28 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/_bounds.h" 2 3 4
# 70 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/_stdio.h" 2 3 4

# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/Availability.h" 1 3 4
# 196 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/Availability.h" 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/AvailabilityVersions.h" 1 3 4
# 197 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/Availability.h" 2 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/AvailabilityInternal.h" 1 3 4
# 33 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/AvailabilityInternal.h" 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/AvailabilityVersions.h" 1 3 4
# 34 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/AvailabilityInternal.h" 2 3 4
# 198 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/Availability.h" 2 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/AvailabilityInternalLegacy.h" 1 3 4
# 34 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/AvailabilityInternalLegacy.h" 3 4
# 1 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/AvailabilityInternal.h" 1 3 4
# 35 "/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include/AvailabilityInternalLegacy.h" 2 3 4
```

My

actual code, before preprocessing, is still there, but a few hundred lines follow it.

- 2) You can see the assembly code after the compilation by using the flag -S