

Introduction

The OS X assembler serves a dual purpose. It assembles the output of `gcc`, Xcode's default compiler, for use by the OS X linker. It also provides the means to assemble custom assembly language code written for its supported platforms.

This document provides a reference for the use of the assembler, including basic syntax and statement layout. It also contains a list of the specific directives recognized by the assembler and complete instruction sets for the PowerPC and i386 processor architectures.

Important: The i386 Addressing Modes and Assembler Instructions section is considered preliminary. It has not been updated with the latest revisions to the i386 addressing modes and instructions. While most of the information is technically accurate, the document is incomplete and is subject to change. For more information, please see the section itself.

Organization of This Document

This document contains the following chapters:

- Using the Assembler describes how to run the assembler and its relevant input/output files. It also discusses specific options that can be passed to the assembler on the command line.
- Assembly Language Syntax describes the basic syntax of assembly language elements and expressions.
- Assembly Language Statements describes in greater detail the assembly language statements that make up an assembly language program.
- Assembler Directives describes assembler directives specific to the OS X assembler and how to use them in your assembly code.
- PowerPC Addressing Modes and Assembler Instructions contains information specific to the PowerPC processor architecture and provides a complete list of addressing modes and instructions relevant to it.
- i386 Addressing Modes and Assembler Instructions contains information specific to the i386 processor architecture and provides a complete list of addressing modes and instructions relevant to it.
- Mode-Independent Macros introduces the macros included in the OS X v10.4 SDK to facilitate the development of assembly code that runs in 32-bit PowerPC and 64-bit PowerPC environments.

This document also contains a revision history, and an index.