# The System from Scratch Assembler Specification

Version 0.0.0

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## 1 Introduction

The System from Scratch Assembler (or sfsasm) is a program.

## 2 Syntax

- 2.1 Literals
- 2.2 Labels
- 2.3 Defines
- 2.4 Instructions

#### 2.5 Directives

In addition to the instructions supported by the System from Scratch ISA, sfsasm supports several pseudo-instruction directives for manipulating memory contents within the program being assembled. Directives are similar in syntax to instructions, with a directive name followed by some operands. Each directive name begins with a . to distinguish them from actual instructions.

The .align directive inserts zero bytes starting from the current location in memory so the start of the next entry in memory will have an address which is a multiple of the operand to .align. The operand to .align can be an octal, hexadecimal, or positive decimal literal or the name of a define.

### 2.6 Comments

sfsasm supports single-line comments. In sfsasm, a single-line comment starts with // and ends with a new line. Comments can occur anywhere in the code and are ignored by the assembler.

```
Comments

// This is a single-line comment.

jmp my_label; // Comments are ignored by the assembler.

//

// Multi-line comments can be effectively created by
// joining together several single-line comments.
//
```

```
my_define = 1
my_other_define = my_define
.data my_other_define
my_define = 2
.data my other define
```