gputils 0.11.0

James Bowman

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Introduction

gputils is a collection of tools for Microchip (TM) PIC

Chapter 1

gpasm

1.1 Running gpasm

The general syntax for running gpasm is

```
gpasm <options> <asm-file>
```

Where options can be one of:

Option	Meaning
a <format>	Produce hex file in one of four formats: inhx8m, inhx8s, inhx16, inhx32 (the default).
c	Output a relocatable object
d symbol[=value]	Equivalent to "#define <symbol> <value>".
e [ON|OFF]	Expand macros in lisoingfile.
h	Display the help message.
i	Ignore case in source code. By default gpasms to treats "fooYa" and "FOOYA"

1.1.1   Using gpasm with "make"

On most operating systems, you can b

| base | general syntax | 21 decimal written as |

is the same as writing:

```
movwf   tmp        ; tmp = W
clrc
rlf     tmp,f      ; tmp = 2 * W
clrc
rlf     tmp,f      ; tmp = 4 * W
addwf   tmp,f      ; tmp = (4 * W) + W = 5 * W
clrc
rlf     tmp,f      ; tmp = 10 * W
```

1.3.5 $

$ expands to the address of the instruction currently being assembled. If it's used in a context other than an instruction, such as a conditional, it expands to the address the next instruction would occupy, since the assembler's idea of current address is incremented after an instruction is assembled. $ may be manipulated just like any other number:

```
$
$ + 1
$ - 2
```

and can be used as a shortcut for writing loops without labels.

```
LOOP:   BTFSS flag,0x00
        GOTO LOOP
        BTFSS flag,0x00
        GOTO  $ - 1
```

1.3.6 Suggestions for structuring your code

Nested IF operations can quickly become confusing. Indentation is one way of making code clearer. Another way is to add braces on IF, ELSE and ENDIF, like this:

```
IF (this) ; {
   ...
ELSE      ; }{
   ...
ENDIF     ; }
```

After you've done this, you can use your text editor's show-matching-brace to check matching parts of the
IF structure. In   te5 8 2n6tme2lfhroul8t5092563761 LCQas1t96j52Hadh1%llh0O8pe0t549i53T99Bdan)IljT1(j1(36ON8I657a22(01lg)

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ENDC

```
ENDC
```

Marks the end of a CBLOCK.
   See also: CBLOCK

ENDIF

```
ENDIF
```

Ends a conditional assembly block.
   See also: IFDEF, IFNDEF, ELSE, ENDIF

ENDM

```
ENDM
```

Ends a macro definition. 269109394 428.56 TddefiniWIF

```
ENDIF
```
assembly so: Q39.5570 T3j   47.85 UIF

option	description
b=nnn	Sets the tab spaces
f=<format>	Set the hex file format. Can be inhx8m, inhx8s, inhx16, or

CHAPTER

SUBTITLE

```
SUBTITLE <string>
```

This directive establishes a second program header line for use as a subtitle in the listing output. <string>

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Syntax	Description
ADDLW <imm8>	Add immediate to W

Special macros

There are also a number of standard additional macros. These macros are:

115 Duplicate Label

Duplicate label or redefining a symbol that can not be redefined.

124 Illegal Argument

gpasm encountered an illegal argument in an expression.

125 Illegal Condition

An illegal condition like a missing ENDIF or ENDW has been encountered.

126 Argument out of

1.5.2   Warnings

201 Symbol not previously defined.

The symbol being #undefined was not previously defined.

202 Argument out of range

The argument does not fit in the allocated space.

211 Extraneous arguments

Extra arguments were found on the line.

215 Processor superseded by command line

The processor was specified on the command line and in the source file.

Chapter 2

gplib

gplib is a new and incomplete tool. When complete, it will provide the ability to archive relocatable objects. These archives, or libraries, can be used to simplify linking.

Chapter 3

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ASCII,