0 c1.0JamesBowmanFebruary24,2003

Contents

Introduction

gputils is a collection of tools for Microchip (TM) PIC microcontrollers. It includes gpasm, gplink, and gplib. Each tool is intended to be an open source replacement for a corresponding Microchip (TM) tool. This manual covers the basics of running the tools. For more details on a microcontroller, consult the manual for the specific PICmicro product that you are using.

This document is part of gputils.

gputils is free softwrare;you can redistribute it and/or

Chapter 1

gpasm

1.1   Running gpasm

The general syntax for running gpasm is

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

Where options can be one of:

base	general syntax	21 decimal written as
binary	B'[01]*'	B'10101'
octal	O'[0-7]*'	O'25'
decimal	D'[0-9]*'	D'21'
hex	H'[0-F]*'	H'15'
hex	0x[0-F]*	0x15

When you write a number without a specifying prefix such as "45", gpasm uses the current radix (base) to interpret the number. You can change this radix with the RADIX directive, or with the "-r" option on gpasm's command-line. If you do not start hexadecimal

O'o0-7]*'

1.3 Directives

1.3.1 Code generation

To   the memory location gpasm will start assembling code, use the   directive. If you don't specify an address with   gpasm assumes 0x0000.

1.3.2 Configuration

You can choose the   for your PIC implementation using the   directive
                                       the

```
                    ; tmp =   W
addwf     tmp,f
```

```
                              ; tmp =    W
          clrc
```

is the same as writing:

```
rlf       tmp,f
          movwf     tmp         ; tmp = W
          clrc
          rlf       tmp,f
```

__IDLOCS

```
__IDLOCS <expression> or __IDLOCS <expression1>,<expression2>
```

Sets the PIC processor's identification locations. For 12 and 14 bit processors the four id locations are set to the hexadecimal value of expression. For 18cxx devices idlocation expression1 is set to the hexadecimal value of expression2.

__MAXRAM52 0 Td (processor')Tj 41.1036a.4962ssor'

option	description
b=nnn	Sets the tab spaces
f=<format>	

CHAPTER

14 Bit Devices (PIC16CXX)

Special macros

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

Syntax	Description
ADDCF <f>,<dst>	Add carry to <f>, result in <dst>
B <addr>	Branch

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. The command line has precedence.

216 Radix superseded by command line

The radix was specified on the command line and in the source file. The command line has precedence.

217 Hex format superseded by command line

The hex file format was specified on the command line and in the source file. The command line has precedence.

218 Expected DEC, OCT, HEX. Will use HEX.

gpasm encountered an invalid radix.

219 Invalid RAM location specified.

gpasm encountered an invalid RAM location as specified by the __MAXRAM and __BADRAM directives.

222 Error messages can not be disabled

Error messages can not be disabled using the ERRORLEVEL directive.

The ID locations value specified is too large.

305 Using default destination of 1 (file).

No destination was specified so the default location was used.

308 Warning level superseded by command line

The warning level was specified on the command line and in the source file. The command line has precedence.

309 Macro expansion superseded by command line

Macro expansion was specified on the command line and in the source file. The command line has precedence.

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,

Chapter 3

gplink

gplink is a new and incomplete tool. When complete, it will provide the ability to link relocatable objects to produce an executable object.

Chapter 4

Utilities

4.1 gpdasm

gpdasm is open source disassembler for Microchip's popular PICmicro (TM) line of microcontrollers. gpdasm is part of gputils.

4.1.1 Running gpdasm

The general syntax for running gpdasm is

```
gpdasm <options> <hex-file>
```

Where options can be one of:

Option	Meaning
h	Display the help message.
i	Display hex file information
l	

4.2