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# Introduction

This document describes the dump system of ELF object format files for the CVengine compiler (CCIMP).

## Notation of This Document

### Notational convention

This document is written according to the following notational convention.

... The same format will continue.

[ ] The item in square brackets can be omitted.

{ } One of the items in curly brackets should be selected.

<Item> The item in angle brackets is replaced with a specific string (not enclosed in double quotation marks (" ")) corresponding to that item.1

 One or more spaces or tabs

" " Characters enclosed in double quotation marks (" ")

CR Carriage return

LF Line feed

HT Horizontal tab

1 Note however that angle brackets (< >) are to be used only when it is difficult to distinguish the item from other items. Thus, also in this document, angle brackets will not be added in particular if the item can be read clearly.

Messages and strings should be enclosed with double quotation marks (" "). (Note that escape characters, such as \" or \\, should be added to characters that have a special meaning in a string, e.g. double quotation mark (") or backslash (\).)

The following mark is used to indicate undetermined items.

TBD

#### Notational convention of specifications not open to users

Specifications that are not disclosed to users are indicated with the following notation in this document. Note that the color and color name to be used must be among the colors and color names included in the color map of the drop-down list that appears when clicking the relevant toolbar button (Font Color button) of Microsoft Word 2007.

The notation is as follows:

Not open to users

For example, this line is a description for a specification not open to users.

The contents are written in a tabular form of only a single cell (without ruled lines). Not open to users is explicitly shown in red on the first line, and the reason for not being open to users (can be omitted) is enclosed in parentheses and in the color of 50% gray on the second line. Details of the specification not open to users are written from the third line. The table cell is shaded in 50% gray.

# About the Product

## Position of Product

This product is a tool for dumping ELF object format files for the CVengine compiler (CCIMP).

This product which is a tool for in-house development is basically not disclosed to general users.

## Outline

This product has a function to output information in a file in the text format with an ELF object format file as the input. The outline of the main functions is as follows:

* Outputs header information.
* Outputs section information.
* Outputs symbol information.
* Outputs the disassembly list for code and data in sections.
* Outputs in the Hex format.
* Outputs debugging information.

## Supported Environment

This tool operates in the following operating environment.

[Hardware environment]

Conforms to the operating environment of CS+.

[OS environment]

Conforms to the operating environment of CS+.

## Supported Cores

This tool supports the following cores: IMP-X5-V3M, IMP-X5-V3M2, IMP-X5-V3H and IMP-X6-V3U.

Note that if a core that is not supported or a file in the ELF object format of the microcomputer is entered, no error results and the system outputs incorrect dump results.

Not open to users

Incorrect dump results of a core or microcomputer that is not supported:

* In actuality, a dump can be obtained for H8, SH, RX, RH, RL, and other cores that were supported by helfdmp Ver. 0.53, which is the base of selfdmp. However, because selfdmp and helfdmp have been developed separately, the latest specifications are applied to only the supported cores. Although it may seem that the dump results of non-supported cores are correct, they are incorrect. Therefore, use this tool for only supported cores.

# Installation

## Installation

1. Place the execution module in a desired folder.

2. Set the path for that folder to environment variable PATH.

For the method of setting PATH, refer to the manual of the OS.

## Uninstallation

1. Delete the execution module.

2. Delete the path name set in environment variable PATH.

# Manipulation Method

## Command Input Format

The following should be entered on the command line.

command-name[option]...input-file-name[input-file-name or option]...

command-name: selfdmp

option: The leading hyphen (-) is followed by one alphabetical character.

Multiple options can be specified continuously.

Example) selfdmp -h -c file1.o

The following code has the same meaning as the above code.

selfdmp -hc file1.o

## Output of Result

The dump result is output to the standard output.

However, the result can also be output to a file by specifying the appropriate option.

## Type and Function of Options

A list of options is shown in this section. The letters in options are case-sensitive. When an option not included in the list of options is specified, an error will occur.

### List of options

Table 4.3.1 shows a list of options.

Table 4.3.1 List of Options

|  |  |  |  |
| --- | --- | --- | --- |
| Classification | Option | Specification Format | Description |
| ELF header | -h | -h | Outputs the ELF header, program headers, and section headers.  When a library is specified, the library header and module list are output. |
| Disassembly list | -D | -D | Outputs the disassembly list. |
| Relocation list | -r | -r | Outputs the relocation list. |
| String table | -t | -t | Outputs the string table. |
| Line information | -n | -n | Outputs the line information (.debug\_line) of debugging information. |
| Call frame information | -f | -f | Outputs the call frame information (.debug\_frame) of debugging information. |
| All information | -a | -a | Outputs all information. |
| Library header | -H | -H | Outputs the library header. |
| Hex format | -c | -c | Outputs the section contents in the Hex format. |
| Assembly source | -S | -S | Outputs the assembly source program. |
| Symbol table | -s | -s | Outputs the symbol table. |
| Debugging information | -d | -d | Outputs debugging information (.debug\_info). |
| Macro information | -m | -m | Outputs macro information.  However, not supported in IMP. |
| Look-up tables | -l | -l | Outputs the look-up tables (.debug\_pubnames and .debug\_aranges) of debugging information. |
| Result output to file | -o | -o | Outputs the dump result to a file. |
| Section specification | -N | -Nsection\_name | Outputs only the contents of the specified sections. |
| Library module specification | -M | -Mmodule\_name | Outputs only specific modules in the library. |
| Hidden title (non-disclosure) | -T | -T | Does not output the title that is usually displayed at startup of this tool. |
| Extended option (non-disclosure) | -X | -Xtp | Specifies a special output method.  This should be specified in combination with the -D and -S options.  However, not supported in IMP. |
| Disassembly list with external reference/external definition directives | -@D | -@D | Outputs the disassembly list with external reference/external definition directives. |
| Individual display of continuous relocation list | -@r | -@r | Individually displays continuous relocations. |
| Debugging information with type information | -@f | -@f | Outputs debugging information (.debug\_info) with type information added for each attribute. |
| Structure definition of debugging information | -@a | -@a | Outputs the structure definition information (.debug\_abbrev) of debugging information. |
| Location information of debugging information | -@l | -@l | Outputs the location information (.debug\_loc) of debugging information. |
| Library header without symbol list | -@m | -@m | Outputs the library header and module list.  A list of external symbols is not output. |
| Help display for options with @ | -@@ | -@@ | Displays help messages for options with @. |

### Priority of options

There is no priority for specifying options.

All options are logically ORed.

### Details of options

#### ELF header

[Option]

-h

[Function]

Outputs the ELF header, program headers, and section headers.

When a library is specified, the library header and module list are output.

[Format]

-h

[Interpretation when omitted]

If all options including other options have not been specified with only the file name being specified, the operation is the same as that when the -h option is specified.

[Description]

This option is used to output the ELF header, program headers, and section headers.

An output example is shown in the following.

|  |  |
| --- | --- |
| (1)  (2)  (3)  (4) | ELF/DWARF File Dump tool Ver. 0.58(imp)  Copyright (C) 1999-2017 Renesas Electronics Corporation  ;File: "01.o"  ------------------------------------------------------------------------------  [ELF Header]  CPU:IMP-X5-V3M, Type:32bit/LittleEndian/ExecutableFile  EntryAddress:0x00000000, Flags:0x05010000, SectionNameString:7  -------------- FileOffset EntSize EntryNumber  ProgramHeader: 0x000005bb 0x20 4  SectionHeader: 0x0000063b 0x28 8  ------------------------------------------------------------------------------  [Program Header]  No Type FileOffset V-Address P-Address FileSize MemSize Flags Align  0. LOAD 0x00000034 0xfff00000 0xfff00000 0x00000008 0x00000008 r-- 4  1. LOAD 0x0000003c 0x00000000 0x00000000 0x00000028 0x00000028 r-x 4  2. LOAD 0x00000064 0xf8000000 0xf8000000 0x00000004 0x00000004 r-- 4  3. LOAD 0x00000068 0xf4000000 0xf4000000 0x00000400 0x00000400 r-- 4  ------------------------------------------------------------------------------ |

|  |  |
| --- | --- |
| (5) | [Section Header]  No Type Flags Address FileOffset Size Link Info Align EntSize  0. NULL ---- 0x00000000 0x00000000 0x00000000 0 0 0 0  ""  1. PROGBITS --a- 0xfff00000 0x00000034 0x00000008 0 0 4 0  "UNIFORM"  2. PROGBITS -xa- 0x00000000 0x0000003c 0x00000028 0 0 4 0  ".TEXT"  3. PROGBITS --a- 0xf8000000 0x00000064 0x00000004 0 0 4 0  "LWM\_COMM"  4. PROGBITS --a- 0xf4000000 0x00000068 0x00000400 0 0 4 0  "IMPC"  5. STRTAB ---- 0x00000000 0x00000468 0x0000004c 0 0 1 0  ".strtab"  6. SYMTAB ---- 0x00000000 0x000004b4 0x000000d0 5 0 4 0x10  ".symtab"  7. STRTAB ---- 0x00000000 0x00000584 0x00000037 0 0 1 0  ".shstrtab"  ------------------------------------------------------------------------------ |

\* For the output example when a library is specified, see the output example of the -H option.

(1) Title

The tool name, version, and copyright are output.

This is common for all options except for the -T option.

(2) File name

The input filename is output.

This is common for all options except for the -T option and when no options are specified.

(3) ELF header

CPU: CPU type

Type: Bit size/Endian type/File type

EntryAddress: Entry address, Flags: Additional information for each CPU, SectionNameString: Number of section name string section

ProgramHeader: Offset in a file of the program header, entry size, number of entries

SectionHeader: Offset in a file of the section header, entry size, number of entries

(4) Program header

No: Entry number

Type: Type

FileOffset: Offset in a file

V-Address: Virtual address

P-Address: Physical address

FileSize: Size in a file

MemSize: Memory size

Flags: Attribute

Align: Alignment

(5) Section header

No: Entry number

Type: Type

Flags: Attribute

Address: Address

FileOffset: Offset in a file

Size: Size

Link: Related link with other sections

Info: Additional information

Align: Alignment

EntSize: Entry size

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Disassembly list

[Option]

-D

[Function]

Outputs the disassembly list.

[Format]

-D

[Interpretation when omitted]

The disassembly list is not output.

[Description]

This option is used to output the disassembly list for code sections and data sections.

An output example is shown in the following.

------------------------------------------------------------------------------

[Disassemble List]

(1) (2) (3) (4) (5) (6)

fff00000 .section UNIFORM

fff00000 \_a:

fff00000 01000000 .DCW 0x00000001 # integer : 1, float : 1.40e-045

fff00004 \_b:

fff00004 02000000 .DCW 0x00000002 # integer : 2, float : 2.80e-045

00000000 .section .TEXT

00000000 \_func:

00000000 11088430 ADD R16,R16,R17

00000004 1f00a000 BRAR R31

00000008 \_main:

00000008 20000204 MOVI R2,32

0000000c 0140f419 MOVU R17,1

00000010 0000f419 MOVU R16,0

00000014 00009f04 CALL R31,\_func

00000018 00001104 MOVI R17,0

0000001c 00f85104 SETHI R17,-134217728

00000020 0011a40c STI R16,R17,0

00000024 0000c000 TRAP

f8000000 .section LWM\_COMM

f8000000 \_c:

f8000000 00000000 .DCW 0x00000000 # integer : 0, float : 0.00e+000

f4000000 .section IMPC

f4000000 \_\_\_stack:

f4000000 00000000 .DCW 0x00000000 # integer : 0, float : 0.00e+000

f4000004 00000000 .DCW 0x00000000 # integer : 0, float : 0.00e+000

f4000008 00000000 .DCW 0x00000000 # integer : 0, float : 0.00e+000

f400000c 00000000 .DCW 0x00000000 # integer : 0, float : 0.00e+000

f4000010 00000000 .DCW 0x00000000 # integer : 0, float : 0.00e+000

f4000014 00000000 .DCW 0x00000000 # integer : 0, float : 0.00e+000

f4000018 00000000 .DCW 0x00000000 # integer : 0, float : 0.00e+000

f400001c 00000000 .DCW 0x00000000 # integer : 0, float : 0.00e+000

f4000020 \_\_\_stackEnd:

------------------------------------------------------------------------------

(1) Address

(2) Hex code

Output in the arrangement according to the endian type.

(3) Symbol name

(4) Directive or opcode

(5) Data, operand, or section name

(6) Comment

Integer or float values are to be output for data sections.

If where to delimit data is made obvious by a label or alignment boundary, the contents in data sections are divided at output with a data size of .DCB or .DCH so that data is delimited at that location.

For others, data is divided into 4-byte units by .DCW and output.

For a non-common section, data of each thread allocated to the same address is output for only the first.

For an instruction that references a symbol in a code section, the symbol name is output to an operand only when the symbol actually exists at the reference destination. However, if multiple symbols are allocated to the same address, the output symbol may differ from the actual symbol name in the source program because the symbol name that is found first will be output.

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Relocation list

[Option]

-r

[Function]

Outputs the relocation list.

[Format]

-r

[Interpretation when omitted]

The relocation list is not output.

[Description]

This option is used to output the relocation list. An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[Relocation Table] ".relaUNIFORM"

Offset Operation

(3) (4) (5) (6) (7)

0x00000000 R\_IMP\_ABS32(lowW(3:\_x))

0x00000004 R\_IMP\_DIR32(3:\_x+4)

------------------------------------------------------------------------------

(1) Title

(2) Section name

(3) Offset in the section for the destination where relocation is reflected

(4) Relocation name

(5) Operator of relocation with the continuation flag ON

(6) Symbol table registration number

(7) Symbol name and addend value

[Relationship with other options]

When the -N option is specified, only relocations accompanying the specified sections are output.

This option is invalid when the "-@@" option is specified.

#### String table

[Option]

-t

[Function]

Outputs the string table.

[Format]

-t

[Interpretation when omitted]

The string table is not output.

[Description]

This option is used to output the string table of symbols and section names.

An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[String Table] ".strtab"

(3) (4)

00000000: ""

00000001: "01.c"

00000006: "UNIFORM"

0000000e: ".TEXT"

00000014: "LWM\_COMM"

0000001d: "IMPC"

00000022: "\_\_\_stack"

0000002b: "\_\_\_stackEnd"

00000037: "\_a"

0000003a: "\_b"

0000003d: "\_c"

00000040: "\_func"

00000046: "\_main"

------------------------------------------------------------------------------

[String Table] ".shstrtab"

00000000: ""

00000001: "UNIFORM"

00000009: ".TEXT"

0000000f: "LWM\_COMM"

00000018: "IMPC"

0000001d: ".strtab"

00000025: ".symtab"

0000002d: ".shstrtab"

------------------------------------------------------------------------------

(1) Title

(2) Section name

(3) Section offset

(4) String

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Line information

[Option]

-n

[Function]

Outputs the line information (.debug\_line) of debugging information.

[Format]

-n

[Interpretation when omitted]

The line information is not output.

[Description]

This option is used to output the line information. An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[Line Number Information] ".debug\_line"

(3) (4) (5) (6)

00000000: Unit #0 (len:0x0000007b,ver:2)

(7) prologue\_length = 0x00000046

(8) minimum\_instruction\_length = 4

(9) default\_is\_stmt = false

(10) line\_base = -1

(11) line\_range = 8

(12) opcode\_base = 10

Statement Program Prologue

(13) standard\_opcode\_lengths = 0,1,1,1,1,0,0,0,1

(14) include\_directories:

(15) (16)

1. "C:\RSO\TP\"

2. "C:\HiICS\CCIMP\inc\"

(17) file\_names:

(18) (19) (20) (21) (22)

1. "test.c",dir:1,time:0,len:0

2. "builtin.h",dir:2,time:0,len:0

---------------------------------------------------------------------

Opcode Address File Line Column Statement BasicBlock EndSequence

(23)

DW\_LNE\_set\_address(0x00000000)

DW\_LNE\_set\_address(0x00000000)

Special:0x10(line:+5,addr:+0x0)

(24) (25) (26) (27) (28) (29) (30)

0x00000000 1 6 0 false false false

Special:0x15(line:+2,addr:+0x4)

0x00000004 1 8 0 false false false

DW\_LNE\_set\_address(0x00000018)

Special:0x0e(line:+3,addr:+0x0)

0x00000018 1 11 0 false false false

Special:0x15(line:+2,addr:+0x4)

0x0000001c 1 13 0 false false false

Special:0x2c(line:+1,addr:+0x10)

0x0000002c 1 14 0 false false false

Statement Program

DW\_LNS\_advance\_pc(+0x4)

DW\_LNS\_advance\_line(-1)

DW\_LNS\_copy

0x00000030 1 13 0 false false false

Special:0x1c(line:+1,addr:+0x8)

0x00000038 1 14 0 false false false

Special:0x1c(line:+1,addr:+0x8)

0x00000040 1 15 0 false false false

DW\_LNE\_set\_address(0x0000005c)

Special:0x0e(line:+3,addr:+0x0)

0x0000005c 1 18 0 false false false

Special:0x15(line:+2,addr:+0x4)

0x00000060 1 20 0 false false false

DW\_LNS\_advance\_pc(+0x14)

DW\_LNE\_end\_sequence

0x00000074 1 20 0 false false true

---------------------------------------------------------------------

------------------------------------------------------------------------------

(1) Title

(2) Section name

(3) Offset in line information (.debug\_line section)

(4) Unit number of line information

(5) Size of a relevant unit (size of this item itself is excluded)

(6) Version (DWARF2: 2/DWARF3: 3)

(7) Size of the Statement Program Prologue part (size of this item itself is excluded)

(8) Minimum size of an instruction code

(9) Initial value of is\_stmt

(10) Predetermined value for the operation of special opcodes

(11) Predetermined value for the operation of special opcodes

(12) Value of the first special opcode (DWARF2: 10/DWARF3: 13)

(13) Number of operands of standard opcode

(14) Directory path for an input file

(15) Index number of a directory path

(16) String of a directory path

(17) Input file name

(18) Index number of an input file name

(19) String of an input file name

(20) Index number (15) that indicates the directory of the input file

(21) Final update time of a file (fixed to 0x00 in a Renesas tool)

(22) File size (fixed to 0x00 in a Renesas tool)

(23) Opcode name

(24) Program address

(25) Index number (18) that indicates the input file

(26) Line number

(27) Column number

(28) is\_stmt register value

(29) basic\_block register value

(30) prologue\_end register value

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Call frame information

[Option]

-f

[Function]

Outputs the call frame information (.debug\_frame) of debugging information.

[Format]

-f

[Interpretation when omitted]

The call frame information is not output.

[Description]

This option is used to output the call frame information. An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[Call Frame Information] ".debug\_frame"

(3) (4) (5) (6) (7) (8) (9) (10) (11)

00000000: CIE (len:0x0000004c,id:-1,ver:1,aug:"",code:4,data:-4,ret\_reg:PCRA)

(12)

DW\_CFA\_def\_cfa(R2,0)

DW\_CFA\_undefined(R0)

DW\_CFA\_undefined(R1)

DW\_CFA\_same\_value(R2)

DW\_CFA\_same\_value(R3)

DW\_CFA\_undefined(R7)

DW\_CFA\_undefined(R8)

DW\_CFA\_undefined(R9)

DW\_CFA\_undefined(R10)

DW\_CFA\_undefined(R11)

DW\_CFA\_undefined(R12)

DW\_CFA\_undefined(R13)

DW\_CFA\_undefined(R14)

DW\_CFA\_undefined(R15)

DW\_CFA\_undefined(R16)

DW\_CFA\_undefined(R17)

DW\_CFA\_undefined(R18)

DW\_CFA\_undefined(R19)

DW\_CFA\_undefined(R20)

DW\_CFA\_undefined(R21)

DW\_CFA\_undefined(R22)

DW\_CFA\_undefined(R23)

DW\_CFA\_undefined(R24)

DW\_CFA\_undefined(R25)

DW\_CFA\_same\_value(R26)

DW\_CFA\_same\_value(R27)

DW\_CFA\_same\_value(R28)

DW\_CFA\_same\_value(R29)

DW\_CFA\_same\_value(R30)

DW\_CFA\_same\_value(R31)

DW\_CFA\_register(PCRA,R31)

DW\_CFA\_nop

DW\_CFA\_nop

DW\_CFA\_nop

(3) (4) (13) (14) (15) (16)

00000050: FDE (len:0x0000000c,CIE:0x00000000,loc:0x00000000,range:0x00000018)

00000060: FDE (len:0x00000038,CIE:0x00000000,loc:0x00000018,range:0x00000044)

(12) (17)

DW\_CFA\_advance\_loc4(+0x4) loc:0x0000001c

DW\_CFA\_def\_cfa\_offset(8)

DW\_CFA\_advance\_loc4(+0x4) loc:0x00000020

DW\_CFA\_offset(R26,-4)

DW\_CFA\_advance\_loc4(+0x4) loc:0x00000024

DW\_CFA\_offset\_extended(PCRA,-8)

DW\_CFA\_advance\_loc4(+0x2c) loc:0x00000050

DW\_CFA\_restore\_extended(PCRA)

DW\_CFA\_advance\_loc4(+0x4) loc:0x00000054

DW\_CFA\_restore(R26)

DW\_CFA\_advance\_loc4(+0x4) loc:0x00000058

DW\_CFA\_def\_cfa\_offset(0)

DW\_CFA\_nop

DW\_CFA\_nop

0000009c: FDE (len:0x0000002c,CIE:0x00000000,loc:0x0000005c,range:0x00000018)

DW\_CFA\_advance\_loc4(+0x4) loc:0x00000060

DW\_CFA\_def\_cfa\_offset(4)

DW\_CFA\_advance\_loc4(+0x4) loc:0x00000064

DW\_CFA\_offset\_extended(PCRA,-4)

DW\_CFA\_advance\_loc4(+0x8) loc:0x0000006c

DW\_CFA\_restore\_extended(PCRA)

DW\_CFA\_advance\_loc4(+0x4) loc:0x00000070

DW\_CFA\_def\_cfa\_offset(0)

DW\_CFA\_nop

DW\_CFA\_nop

DW\_CFA\_nop

------------------------------------------------------------------------------

(1) Title

(2) Section name

(3) Offset in call frame information (.debug\_frame section)

(4) Block separation (CIE: Common Information Entry or FDE (Frame Description Entry))

(5) Size of the CIE part (size of this item itself is excluded)

(6) Used to distinguish between CIE and FDE. -1 (0xffffffff) for CIE.

(7) Version (DWARF2: 1/DWARF3: 3)

(8) Terminating character of continuous data blocks (fixed to the null character in a Renesas tool)

(9) Alignment source value of an instruction address

(10) Alignment source value of a data address

(11) Return address register

(12) Instruction (DW\_CFA\_xxx)

(13) Size of the CIF part (size of this item itself is excluded)

(14) Offset in call frame information (.debug\_frame section) of CIE to which FDE belongs

(15) Initial position

(16) Range (size) from initial position (15)

(17) Position of the calculation result of instruction (12)

\* (15) is the start address of the function, (16) is the size of the function, and (17) is the program address in this output example.

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### All information

[Option]

-a

[Function]

Outputs all information.

[Format]

-a

[Interpretation when omitted]

Output is performed according to the options specified individually.

[Description]

The operation of this option is the same as that when the following option is specified.

-hDrstdnmfl@l

For an output example, see the output example of each individual option.

[Relationship with other options]

The -a option is valid also when the above option is specified at the same time.

This option is invalid when the "-@@" option is specified.

#### Library header

[Option]

-H

[Function]

Outputs the library header.

[Format]

-H

[Interpretation when omitted]

If all options including other options have not been specified with only the library file name being specified, the operation is the same as that when the -H option is specified.

[Description]

This option is used to output the library header and module list.

An output example is shown in the following.

|  |  |
| --- | --- |
| (1)  (2)  (3)  (4)  (5)  (5) | ELF/DWARF File Dump tool Ver. 0.58(imp)  Copyright (C) 1999-2017 Renesas Electronics Corporation  ;File: "lib.a"  ------------------------------------------------------------------------------  [Library Header]  CPU:IMP, Attr:UserLibrary/LittleEndian, Modules:2  ------------------------------------------------------------------------------  [Module]  FileOffset Size UpdateTime ModuleName  0x00000055 0x0000018e 2016-12-22 09:55:57 "M1"  "\_func"  0x000001e3 0x00000216 2016-12-22 09:37:14 "M2"  "\_subA"  "\_subB"  ------------------------------------------------------------------------------ |

(1) Title

The tool name, version, and copyright are output.

(2) Library file name

The input file name is output.

(3) Library header

CPU: CPU type

Attr: Library attribute/Endian type

Modules: Number of modules

(4) Module list

FileOffset: Offset in a file

Size: Size of a file

UpdateTime: Update time of a module

ModuleName: Module name

(5) Symbol list

External symbol names in a module

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Hex format

[Option]

-c

[Function]

Outputs the section contents in the Hex format.

[Format]

-c

[Interpretation when omitted]

The Hex format is not output.

[Description]

This option is used to output the contents of all sections in the Hex format.

An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[Section #1] "UNIFORM"

(3) (4) (5)

00000000: 0100 0000 0200 0000 ........

------------------------------------------------------------------------------

[Section #2] ".TEXT"

00000000: 1108 8430 1f00 a000-2000 0204 0140 f419 ...0.... ....@..

00000010: 0000 f419 0000 9f04-0000 1104 00f8 5104 ..............Q.

00000020: 0011 a40c 0000 c000 ........

------------------------------------------------------------------------------

[Section #5] ".strtab"

00000000: 0030 312e 6300 554e-4946 4f52 4d00 2e54 .01.c.UNIFORM..T

00000010: 4558 5400 4c57 4d5f-434f 4d4d 0049 4d50 EXT.LWM\_COMM.IMP

00000020: 4300 5f5f 5f73 7461-636b 005f 5f5f 7374 C.\_\_\_stack.\_\_\_st

00000030: 6163 6b45 6e64 005f-6100 5f62 005f 6300 ackEnd.\_a.\_b.\_c.

00000040: 5f66 756e 6300 5f6d-6169 6e00 \_func.\_main.

------------------------------------------------------------------------------

(1) Entry number of a section

(2) Section name

(3) Offset in a section

(4) Hex value

(5) ASCII characters are output when the Hex value in byte units matches the ASCII code.

[Relationship with other options]

When the -N option is specified, only the contents of the specified sections are output in the Hex format.

This option is invalid when the "-@@" option is specified.

#### Assembly source

[Option]

-S

[Function]

Outputs the assembly source program.

[Format]

-S

[Interpretation when omitted]

The assembly source program is not output.

[Description]

This option is used to output the assembly source program for code sections and data sections.

An output example is shown in the following.

.public \_\_\_stack

.public \_\_\_stackEnd

.public \_a

.public \_b

.public \_c

.public \_func

.public \_main

.section UNIFORM

\_a:

.DCW 0x00000001 # integer : 1, float : 1.40e-045

\_b:

.DCW 0x00000002 # integer : 2, float : 2.80e-045

.section .TEXT

\_func:

ADD R16,R16,R17

BRAR R31

\_main:

MOVI R2,32

MOVU R17,1

MOVU R16,0

CALL R31,\_func

MOVI R17,0

SETHI R17,-134217728

STI R16,R17,0

TRAP

.section LWM\_COMM

\_c:

.DCW 0x00000000 # integer : 0, float : 0.00e+000

.section IMPC

\_\_\_stack:

.DCW 0x00000000 # integer : 0, float : 0.00e+000

.DCW 0x00000000 # integer : 0, float : 0.00e+000

.DCW 0x00000000 # integer : 0, float : 0.00e+000

.DCW 0x00000000 # integer : 0, float : 0.00e+000

.DCW 0x00000000 # integer : 0, float : 0.00e+000

.DCW 0x00000000 # integer : 0, float : 0.00e+000

.DCW 0x00000000 # integer : 0, float : 0.00e+000

.DCW 0x00000000 # integer : 0, float : 0.00e+000

\_\_\_stackEnd:

The output format is a state in which "(1) Address" and "(2) Hex code" are excluded from the disassembly list and directives to perform external reference or external definition for global symbols are output.

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Symbol table

[Option]

-s

[Function]

Outputs the symbol table.

[Format]

-s

[Interpretation when omitted]

The symbol table is not output.

[Description]

This option is used to output information on all symbols.

An output example is shown in the following.

------------------------------------------------------------------------------

[Symbol Table] ".symtab"

(1) (2) (3) (4) (5)

Index Info Value Size Section/Name

0. l- 0x00000000 0x00000000 <UNDEF>

1. l-file 0x00000000 0x00000000 <ABS>/01.c

2. l-sect 0xfff00000 0x00000000 UNIFORM/UNIFORM

3. l-sect 0x00000000 0x00000000 .TEXT/.TEXT

4. l-sect 0xf8000000 0x00000000 LWM\_COMM/LWM\_COMM

5. l-sect 0xf4000000 0x00000000 IMPC/IMPC

6. g- 0xf4000000 0x00000000 IMPC/\_\_\_stack

7. g- 0xf4000020 0x00000000 IMPC/\_\_\_stackEnd

8. g-obj 0xfff00000 0x00000004 UNIFORM/\_a

9. g-obj 0xfff00004 0x00000004 UNIFORM/\_b

10. g-obj 0xf8000000 0x00000004 LWM\_COMM/\_c

11. g-func 0x00000000 0x00000008 .TEXT/\_func

12. g-entry 0x00000008 0x00000020 .TEXT/\_main

------------------------------------------------------------------------------

(1) Symbol table registration number

(2) Symbol information (attribute, type)

(3) Address

(4) Size

(5) Belonging section/Symbol name

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Debugging information

[Option]

-d

[Function]

Outputs debugging information (.debug\_info).

[Format]

-d

[Interpretation when omitted]

Debugging information is not output.

[Description]

This option is used to output debugging information. An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[Debug Information] ".debug\_info"

(3) (4) (5) (6) (7) (8)

00000000: Unit #0 (len:0x000000f7,ver:2,abbrev:0x00000000,addr:4)

(9)

0000000b: DW\_TAG\_compile\_unit

DW\_AT\_name("test.c")

DW\_AT\_comp\_dir("C:\RSO\TP")

DW\_AT\_producer("Renesas Electronics CCIMP Compiler")

DW\_AT\_language(C89)

DW\_AT\_stmt\_list(->line:0x00000000)

DW\_AT\_low\_pc(0x00000000)

DW\_AT\_high\_pc(0x00000074)

0000004e: . DW\_TAG\_base\_type

DW\_AT\_name("long")

DW\_AT\_encoding(signed)

DW\_AT\_byte\_size(4)

00000056: . DW\_TAG\_const\_type

DW\_AT\_type(->info:0x0000004e)

0000005b: . DW\_TAG\_subprogram

DW\_AT\_name("sub(long, long)")

DW\_AT\_decl\_file(1:test.c)

DW\_AT\_decl\_line(6)

DW\_AT\_low\_pc(0x00000000)

DW\_AT\_high\_pc(0x00000018)

DW\_AT\_frame\_base(@(0,R2))

DW\_AT\_return\_addr(R31)

0000007b: . . DW\_TAG\_formal\_parameter

DW\_AT\_name("x")

DW\_AT\_decl\_file(1:test.c)

DW\_AT\_decl\_line(6)

DW\_AT\_type(->info:0x0000004e)

DW\_AT\_location(->loc:0x00000000)

{

0x00000000-0x00000004 R16

}

00000088: . . DW\_TAG\_formal\_parameter

DW\_AT\_name("y")

DW\_AT\_decl\_file(1:test.c)

DW\_AT\_decl\_line(6)

DW\_AT\_type(->info:0x0000004e)

DW\_AT\_location(->loc:0x00000013)

{

0x00000000-0x00000004 R17

}

00000095: . . Null entry

00000096: . DW\_TAG\_subprogram

DW\_AT\_external(true)

DW\_AT\_name("func")

DW\_AT\_decl\_file(1:test.c)

DW\_AT\_decl\_line(11)

DW\_AT\_low\_pc(0x00000018)

DW\_AT\_high\_pc(0x0000005c)

DW\_AT\_frame\_base(->loc:0x00000026)

{

0x00000018-0x0000001c @(0,R2)

0x0000001c-0x00000058 @(8,R2)

0x00000058-0x0000005c @(0,R2)

}

DW\_AT\_return\_addr(->loc:0x0000007e)

{

0x00000018-0x00000024 R31

0x00000024-0x00000050 @(-8,<FB>)

0x00000050-0x0000005c R31

}

000000af: . . Null entry

000000b0: . DW\_TAG\_subprogram

DW\_AT\_external(true)

DW\_AT\_name("main")

DW\_AT\_decl\_file(1:test.c)

DW\_AT\_decl\_line(18)

DW\_AT\_low\_pc(0x0000005c)

DW\_AT\_high\_pc(0x00000074)

DW\_AT\_frame\_base(->loc:0x00000052)

{

0x0000005c-0x00000060 @(0,R2)

0x00000060-0x00000070 @(4,R2)

0x00000070-0x00000074 @(0,R2)

}

DW\_AT\_return\_addr(->loc:0x000000a8)

{

0x0000005c-0x00000064 R31

0x00000064-0x0000006c @(-4,<FB>)

0x0000006c-0x00000074 R31

}

000000c9: . . Null entry

000000ca: . DW\_TAG\_variable

DW\_AT\_external(true)

DW\_AT\_name("a")

DW\_AT\_decl\_file(1:test.c)

DW\_AT\_decl\_line(2)

DW\_AT\_type(->info:0x00000056)

DW\_AT\_location(0xf0018000)

000000da: . DW\_TAG\_variable

DW\_AT\_external(true)

DW\_AT\_name("b")

DW\_AT\_decl\_file(1:test.c)

DW\_AT\_decl\_line(3)

DW\_AT\_type(->info:0x00000056)

DW\_AT\_location(0xf0018004)

000000ea: . DW\_TAG\_variable

DW\_AT\_external(true)

DW\_AT\_name("c")

DW\_AT\_decl\_file(1:test.c)

DW\_AT\_decl\_line(4)

DW\_AT\_type(->info:0x0000004e)

DW\_AT\_location(0xf0000000)

000000fa: . Null entry

------------------------------------------------------------------------------

(1) Title

(2) Section name

(3) Offset in debugging information (.debug\_info section)

(4) Unit number of debugging information

(5) Size of a relevant unit (size of this item itself is excluded)

(6) Version (DWARF2: 2/DWARF3: 3)

(7) Offset in the structure definition (.debug\_abbrev section) of debugging information that is paired with debugging information of the relevant unit

(8) Address size

(9) Tag name of debugging information and attribute information

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Macro information

[Option]

-m

[Function]

Outputs the macro information.

[Format]

-m

[Interpretation when omitted]

The macro information is not output.

[Description]

This option is omitted because it is not supported in IMP.

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Look-up tables

[Option]

-l

[Function]

Outputs the look-up tables (.debug\_pubnames and .debug\_aranges) of debugging information.

[Format]

-l

[Interpretation when omitted]

The look-up tables of debugging information are not output.

[Description]

This option is used to output the look-up tables of debugging information.

An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[Name Lookup Table] ".debug\_pubnames"

(3) (4) (5) (6) (7)

Unit #0 (len:0x00000032,ver:2,info:0x00000000,size:0x000000fb)

(8) (9)

offset:0x000000ca name:"a"

offset:0x000000da name:"b"

offset:0x000000ea name:"c"

offset:0x00000096 name:"func"

offset:0x000000b0 name:"main"

------------------------------------------------------------------------------

(1) (2)

[Address Range Table] ".debug\_aranges"

(3) (4) (5) (6) (10) (11)

Unit #0 (len:0x00000030,ver:2,info:0x00000000,addr:4)

(12) (13)

address:0xf0018000 len:0x0000000c

address:0x00000000 len:0x00000074

address:0xf0000000 len:0x00000004

address:0xed800000 len:0x00000400

------------------------------------------------------------------------------

(1) Title

(2) Section name

(3) Unit number of a relevant table

(4) Size of a relevant unit (size of this item itself is excluded)

(5) Version (DWARF2: 2/DWARF3: 2)

(6) Offset in the .debug\_info section\*1

(7) Size of the .debug\_info section\*1

(8) Offset in the target TAG of the .debug\_info section\*1

(9) Symbol name

(10) Address size

(11) Segment size\*2 (fixed to 0x00 in a Renesas tool)

(12) Start address of a section

(13) Section size

\*1: .debug\_info section: Unit of debugging information that is paired with the table of the relevant unit.

\*2: Segment size: ",seg: size value" is output when the size value is other than 0.

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Result output to file

[Option]

-o

[Function]

Outputs the dump result to a file.

[Format]

-o

[Interpretation when omitted]

The dump result is output to the standard output.

[Description]

This option is used to output the dump result to a text file.

The file name is the same as the input file name with the extension changed to ".dmp".

[Relationship with other options]

When more than one input file is specified, an output file is separately created for each input file.

This option is invalid when the "-@@" option is specified.

#### Section specification

[Option]

-N

[Function]

Outputs only the contents of the specified sections.

[Format]

-Nsection\_name

-Nsection\_no

[Interpretation when omitted]

The contents of all sections will be output.

[Description]

Only the contents of the sections specified by the section name or section number will be output.

[Relationship with other options]

This option is valid when the -c option or -r option is specified.

This option is invalid when the "-@@" option is specified.

#### Library module specification

[Option]

-M

[Function]

Outputs only specific modules in the library when the input file is a library or outputs all modules in the library (when -MALL is specified).

[Format]

-Mmodule\_name

-MALL

[Interpretation when omitted]

When the input file is a library, the operation is the same as that when the -H option is specified.

[Description]

This option is used to output specific modules in the library.

An output example in which two modules (-MM1 and M2) are specified is shown in the following.

|  |  |
| --- | --- |
| (1)  (2)  (3)  (2)  (3) | ELF/DWARF File Dump tool Ver. 0.58(imp)  Copyright (C) 1999-2017 Renesas Electronics Corporation  ;File: "lib.a", Module: "M1"  ------------------------------------------------------------------------------  [ELF Header]  CPU:IMP-X5-V3M, Type:32bit/LittleEndian/RelocatableFile  EntryAddress:0x00000000, Flags:0x05010000, SectionNameString:4  :(Omitted)  ------------------------------------------------------------------------------  ;File: "lib.a", Module: "M2"  ------------------------------------------------------------------------------  [ELF Header]  CPU:IMP-X5-V3M, Type:32bit/LittleEndian/RelocatableFile  EntryAddress:0x00000000, Flags:0x05010000, SectionNameString:5  :(Omitted) |

(1) Title

The tool name, version, and copyright are output.

(2) Library file name and module name

The input file name and module name are output.

(3) Module in the library

The specified module in the library is output.

Note that for an output example, see the output example of each individual option.

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Hidden title (non-disclosure)

[Option]

-T

[Function]

Does not output the title that is usually displayed at startup of this tool.

[Format]

-T

[Interpretation when omitted]

The title is output.

[Description]

This option is used to disable output of the tool name, version, copyright, and file name which are usually displayed at startup of this tool.

Output examples are shown in the following.

* When the -T option is not specified

selfdmp 01.o

ELF/DWARF File Dump tool Ver. 0.58(imp)

Copyright (C) 1999-2017 Renesas Electronics Corporation

;File: "01.o"

------------------------------------------------------------------------------

[ELF Header]

* When the -T option is specified

selfdmp -T 01.o

------------------------------------------------------------------------------

[ELF Header]

[Relationship with other options]

The -T option needs to be specified before specifying other options or input file names.

This option is invalid when the "-@@" option is specified.

#### Extended option (non-disclosure)

[Option]

-X

[Function]

Specifies a special output method.

[Format]

-X{tp | cseg | nolabel}

[Interpretation when omitted]

Special output is not performed.

[Description]

This option is used to customize the output method when disassembly is specified.

- tp: The description is omitted because it is only for V850.

- cseg: The description is omitted because it is only for V850.

- nolabel: No labels will be output.

Output examples are shown in the following.

* When the -Xnolabel option is not specified

selfdmp -D 01.o

[Disassemble List]

00000000 .section .TEXT

00000000 \_f1:

00000000 04100000 MOVI R16,0

00000001 0450f800 SETHI R16,-134217728

00000002 04110001 MOVI R17,1

00000003 0ca45000 STI R17,R16,0

00000004 00a0001f BRAR R31

00000005 \_f2:

00000005 1a0082fc ADDI R2,R2,-4

00000006 0ca7c200 STI R31,R2,0

00000007 049f0000 CALL R31,\_f1

00000008 0c87c200 LDI R31,R2,0

00000009 1a008204 ADDI R2,R2,4

0000000a 00a0001f BRAR R31

* When the -Xnolabel option is specified

selfdmp -D -Xnolabel 01.o

[Disassemble List]

00000000 .section .TEXT

00000000 04100000 MOVI R16,0

00000001 0450f800 SETHI R16,-134217728

00000002 04110001 MOVI R17,1

00000003 0ca45000 STI R17,R16,0

00000004 00a0001f BRAR R31

00000005 1a0082fc ADDI R2,R2,-4

00000006 0ca7c200 STI R31,R2,0

00000007 049f0000 CALL R31,\_f1

00000008 0c87c200 LDI R31,R2,0

00000009 1a008204 ADDI R2,R2,4

0000000a 00a0001f BRAR R31

[Relationship with other options]

This should be specified in combination with the -D and -S options.

This option is invalid when the "-@@" option is specified.

#### Disassembly list with external reference/external definition directives

[Option]

-@D

[Function]

Outputs the disassembly list with external reference/external definition directives.

[Format]

-@D

[Interpretation when omitted]

The disassembly list is not output.

[Description]

This option is used to output external reference/external definition directives at the beginning of the disassembly list.

[Disassemble List]

.extern \_func

.public \_a

.public \_b

.public \_main

00000000 .section uniform

00000000 \_a:

00000000 01000000 .DCW 0x00000001 # integer : 1, float : 1.40e-045

00000004 \_b:

00000004 02000000 .DCW 0x00000002 # integer : 2, float : 2.80e-045

00000000 .section .text

00000000 \_main:

00000000 fc82001a ADDI R2,R2,-4

00000004 00c2a70c STI R31,R2,0

00000008 0040f419 MOVU R17,\_b

0000000c 0000f419 MOVU R16,\_a

00000010 00009f04 CALL R31,\_func

00000014 00c2870c LDI R31,R2,0

00000018 0482001a ADDI R2,R2,4

0000001c 1f00a000 BRAR R31

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Individual display of continuous relocation list

[Option]

-@r

[Function]

Individually displays continuous relocations with the continuation flag ON.

[Format]

-@r

[Interpretation when omitted]

The relocation list is not output.

[Description]

This option is used to output the relocation list. An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[Relocation Table] ".relaUNIFORM"

Offset Operation

(3) (4) (5) (6)(7)(8)

0x00000000 0x82:R\_IMP\_OPlowW(3:\_x,0)

0x00000000 0x43:R\_IMP\_ABS32

0x00000004 0x03:R\_IMP\_DIR32(3:\_x,4)

------------------------------------------------------------------------------

(1) Title

(2) Section name

(3) Offset in the section for the destination where relocation is reflected

(4) Relocation type value

(5) Relocation name

(6) Symbol table registration number

(7) Symbol name

(8) Addend value

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Debugging information with type information

[Option]

-@f

[Function]

Outputs debugging information (.debug\_info) with type information added for each attribute.

[Format]

-@f

[Interpretation when omitted]

Debugging information is not output.

[Description]

This option is used to output debugging information.

A comparison output example (DW\_TAG\_compile\_unit) is shown in the following.

<For the -d option: Debugging information>

------------------------------------------------------------------------------

[Debug Information] ".debug\_info"

00000000: Unit #0 (len:0x000000f7,ver:2,abbrev:0x00000000,addr:4)

0000000b: DW\_TAG\_compile\_unit

DW\_AT\_name("test.c")

DW\_AT\_comp\_dir("C:\RSO\TP")

DW\_AT\_producer("Renesas Electronics CCIMP Compiler")

DW\_AT\_language(C89)

DW\_AT\_stmt\_list(->line:0x00000000)

DW\_AT\_low\_pc(0x00000000)

DW\_AT\_high\_pc(0x00000074)

:(Omitted)

<For the -@f option: Debugging information with type information>

------------------------------------------------------------------------------

[Debug Information] ".debug\_info"

00000000: Unit #0 (len:0x000000f7,ver:2,abbrev:0x00000000,addr:4)

(1)

0000000b: DW\_TAG\_compile\_unit(=1)

(2)

DW\_AT\_name:string("test.c")

DW\_AT\_comp\_dir:string("C:\RSO\TP")

DW\_AT\_producer:string("Renesas Electronics CCIMP Compiler")

DW\_AT\_language:data2(C89)

DW\_AT\_stmt\_list:data4(->line:0x00000000)

DW\_AT\_low\_pc:addr(0x00000000)

DW\_AT\_high\_pc:addr(0x00000074)

:(Omitted)

(1) Entry code of an abbreviation table for the structure definition (.debug\_abbrev section) of debugging information

(2) Type information of an attribute

The output format is a state in which "(1) Entry code" and "(2) Type information of attribute" are added to the debugging information output.

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Structure definition of debugging information

[Option]

-@a

[Function]

Outputs the structure definition information (.debug\_abbrev) of debugging information.

[Format]

-@a

[Interpretation when omitted]

The structure definition information of debugging information is not output.

[Description]

This option is used to output the structure definition information of debugging information. An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[Debug Abbreviation Table] ".debug\_abbrev"

(3)

00000000:

(4) (5) (6)

1 = DW\_TAG\_compile\_unit, DW\_CHILDREN\_yes

(7) (8)

DW\_AT\_name DW\_FORM\_string

DW\_AT\_comp\_dir DW\_FORM\_string

DW\_AT\_producer DW\_FORM\_string

DW\_AT\_language DW\_FORM\_data2

DW\_AT\_stmt\_list DW\_FORM\_data4

DW\_AT\_low\_pc DW\_FORM\_addr

DW\_AT\_high\_pc DW\_FORM\_addr

2 = DW\_TAG\_base\_type, DW\_CHILDREN\_no

DW\_AT\_name DW\_FORM\_string

DW\_AT\_encoding DW\_FORM\_data1

DW\_AT\_byte\_size DW\_FORM\_data1

3 = DW\_TAG\_const\_type, DW\_CHILDREN\_no

DW\_AT\_type DW\_FORM\_ref\_addr

4 = DW\_TAG\_subprogram, DW\_CHILDREN\_yes

DW\_AT\_name DW\_FORM\_string

DW\_AT\_decl\_file DW\_FORM\_udata

DW\_AT\_decl\_line DW\_FORM\_udata

DW\_AT\_low\_pc DW\_FORM\_addr

DW\_AT\_high\_pc DW\_FORM\_addr

DW\_AT\_frame\_base DW\_FORM\_block1

DW\_AT\_return\_addr DW\_FORM\_block1

5 = DW\_TAG\_formal\_parameter, DW\_CHILDREN\_no

DW\_AT\_name DW\_FORM\_string

DW\_AT\_decl\_file DW\_FORM\_udata

DW\_AT\_decl\_line DW\_FORM\_udata

DW\_AT\_type DW\_FORM\_ref\_addr

DW\_AT\_location DW\_FORM\_data4

6 = DW\_TAG\_subprogram, DW\_CHILDREN\_yes

DW\_AT\_external DW\_FORM\_flag

DW\_AT\_name DW\_FORM\_string

DW\_AT\_decl\_file DW\_FORM\_udata

DW\_AT\_decl\_line DW\_FORM\_udata

DW\_AT\_low\_pc DW\_FORM\_addr

DW\_AT\_high\_pc DW\_FORM\_addr

DW\_AT\_frame\_base DW\_FORM\_data4

DW\_AT\_return\_addr DW\_FORM\_data4

7 = DW\_TAG\_variable, DW\_CHILDREN\_no

DW\_AT\_external DW\_FORM\_flag

DW\_AT\_name DW\_FORM\_string

DW\_AT\_decl\_file DW\_FORM\_udata

DW\_AT\_decl\_line DW\_FORM\_udata

DW\_AT\_type DW\_FORM\_ref\_addr

DW\_AT\_location DW\_FORM\_block1

------------------------------------------------------------------------------

(1) Title

(2) Section name

(3) Offset in structure definition information (.debug\_abbrev section) of debugging information

(4) Entry code of an abbreviation table

(5) Tag name of debugging information

(6) Availability of children of a debugging information tag

(7) Attribute

(8) Type information of attribute

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Location information of debugging information

[Option]

-@l

[Function]

Outputs the location information (.debug\_loc) of debugging information.

[Format]

-@l

[Interpretation when omitted]

The location information of debugging information is not output.

[Description]

This option is used to output the location information of debugging information. An output example is shown in the following.

------------------------------------------------------------------------------

(1) (2)

[Location Lists] ".debug\_loc"

(3) (4) (5) (6)

Start End Location Expression

00000000: 0x00000000-0x00000004 R16

0x00000000-0x00000000

00000013: 0x00000000-0x00000004 R17

0x00000000-0x00000000

00000026: 0x00000018-0x0000001c @(0,R2)

0x0000001c-0x00000058 @(8,R2)

0x00000058-0x0000005c @(0,R2)

0x00000000-0x00000000

00000052: 0x0000005c-0x00000060 @(0,R2)

0x00000060-0x00000070 @(4,R2)

0x00000070-0x00000074 @(0,R2)

0x00000000-0x00000000

0000007e: 0x00000018-0x00000024 R31

0x00000024-0x00000050 @(-8,<FB>)

0x00000050-0x0000005c R31

0x00000000-0x00000000

000000a8: 0x0000005c-0x00000064 R31

0x00000064-0x0000006c @(-4,<FB>)

0x0000006c-0x00000074 R31

0x00000000-0x00000000

------------------------------------------------------------------------------

(1) Title

(2) Section name

(3) Offset in location information (.debug\_loc section) of debugging information

(4) Start address

(5) End address

(6) Allocation destination in the above address range

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Library header without symbol list

[Option]

-@m

[Function]

Outputs the library header and module list.

A list of external symbols is not output.

[Format]

-@m

[Interpretation when omitted]

The library header and module list are not output.

[Description]

This option is used to output the library header and module list.

An output example is shown in the following.

|  |  |
| --- | --- |
| (1)  (2)  (3)  (4) | ELF/DWARF File Dump tool Ver. 0.58(imp)  Copyright (C) 1999-2017 Renesas Electronics Corporation  ;File: "lib.a"  ------------------------------------------------------------------------------  [Library Header]  CPU:IMP, Attr:UserLibrary/LittleEndian, Modules:2  ------------------------------------------------------------------------------  [Module]  FileOffset Size UpdateTime ModuleName  0x00000055 0x0000018e 2016-12-22 09:55:57 "M1"  0x000001e3 0x00000216 2016-12-22 09:37:14 "M2"  ------------------------------------------------------------------------------ |

(1) Title

The tool name, version, and copyright are output.

(2) Library file name

The input file name is output.

(3) Library header

CPU: CPU type

Attr: Library attribute/Endian type

Modules: Number of modules

(4) Module list

FileOffset: Offset in a file

Size: Size of a file

UpdateTime: Update time of a module

ModuleName: Module name

[Relationship with other options]

This option is invalid when the "-@@" option is specified.

#### Help display for options with @

[Option]

-@@

[Function]

Displays help messages for options with @.

[Format]

-@@

[Interpretation when omitted]

The help messages for options with @ is not displayed.

[Description]

This option is used to display help messages for only options with @.

An output example is shown in the following.

ELF/DWARF File Dump tool Ver. 0.59(imp)

Copyright (C) 1999-2017 Renesas Electronics Corporation

Usage: selfdmp [<options>] <file>...

Options:

-@D display disassemble list (with .import/.export)

-@r display relocation with standard format

-@f display debug info with form kind

-@a display abbreviation table

-@l display location lists and range lists

-@m display library module list excluding symbols

[Relationship with other options]

This option is given priority over other options, and only help messages for options with @ are displayed when this option is specified.

# List of Messages

|  |  |
| --- | --- |
| Message | Description |
| read error. | Failed to read a file. |
| illegal format. | The file format is illegal. |
| can't create "file". | Could not create "file". |
| can't open "file". | Could not open "file". |
| no files. | No input file is specified. |
| illegal option "option". | The specification of the "option" option is illegal. |
| "file" is not ELF file. | "file" is not in the ELF format. |
| not enough memory. | The operation memory of the PC is insufficient. |
| \*\*\*\*\* Out length error \*\*\*\*\* | Internal error (IMP-specific) |
| \*\*\*\*\* Never comes here!! \*\*\*\*\* | Internal error (IMP-specific) |
| \*\*\*\*\* Not undefined instruction \*\*\*\*\* | There is an undefined operand. (IMP-specific) |