FUJITSU

F^{2}MC-16 Family

16-bit Microcontroller

SOFTUNE Assembler Additional Manual

Fujitsu Ltd.

1. List of Added Options

The added start-up options are listed in *Table 1*.

■ List of Added Options

Table 1   List of Added Options

Format	Function outline	Initial value
Target-dependent option		
`-div905`	Does not replace *DIV/DIVW* instruction with alternative instruction	Does not replace
`-Xdiv905`	Replaces *DIV/DIVW* instruction with alternative instruction	
`-div_check`	Does not issue warning message warning to *DIV/DIVW* instruction	Issues warning message
`-Xdiv_check`	Issues warning message to *DIV/DIVW* instruction	

2. Details of Added Options

The added start-up options are explained.

■ **Added Options**

There are four added options as follows:

- `-div905` · · · · · · · · **Does not replace** *DIV/DIVW* **instruction with alternative instruction**
- `-Xdiv905` · · · · · · · **Replaces** *DIV/DIVW* **instruction with alternative instruction**
- `-div_check` · · · · **Does not issue warning message warning to** *DIV/DIVW* **instruction**
- `-Xdiv_check` · · · **Issues warning message to** *DIV/DIVW* **instruction**

2.1 `-div905` and `-Xdiv905`

These options relate to nonconformity in the "DIV A,Ri" and "DIVW A,RWi" instructions of the MB90500 series.

The `-div905` option does not replace the *DIV/DIV*W instruction with an alternative instruction.

The `-Xdiv905` option replaces the *DIV/DIVW* instruction with an alternative instruction.

These options are valid only for the F^{2}MC-16 family (MB90500 series).

■ `-div905`

[Format]

```
-div905
```

[Explanation]

This option does not replace the *DIV/DIVW* instruction with an alternative instruction.

[Example]

```
fasm907s -cpu mb90500 test –div905
```

<Caution>

- The `-div905` option is valid only for the F^{2}MC-16 family (MB90500 series).

■ `-Xdiv905`

[Format]

```
-Xdiv905
```

[Explanation]

This option replaces the *DIV/DIVW* instruction with an alternative instruction.

[Example]

```
fasm907s -cpu mb90500 test -div905 –Xdiv905
```

<Caution>

- The `-Xdiv905` option is valid only for the F^{2}MC-16 family (MB90500 series).

■ **Nonconformity in "DIV A,Ri" and "DIVW A,RWi" Instructions of MB90500 Series**

If the value of a bank register (DTB, ADB, USB, SSB) is 00_H, the remainder resulting from the execution of the "DIV A,Ri" and "DIVW A,RWi" instructions is stored in a general-purpose register used as the instruction operand.

However, if the bank register value is not 00_H, the remainder is stored in the bank memory specified by the bank register at the same address as that of the general-purpose register used as the operand.

For the bank register corresponding to each instruction, see *Table 1-2-2*.

Table 1-2-2　Bank Register Corresponding to Each Instruction

Instruction	Bank register
DIV A,R0 DIV A,R1 DIV A,R4 DIV A,R5 DIVW A,RW0 DIVW A,RW1 DIVW A,RW4 DIVW A,RW5	DTB
DIV A,R2 DIV A,R6 DIVW A,RW2 DIVW A,RW6	ADB
DIV A,R3 DIV A,R7 DIVW A,RW3 DIVW A,RW7	USB *1 SSB

*1: USB is used if the S-bit of the CCR register is set.
SSB is used otherwise.

Example: Remainder resulting from operation of DIV A,R0 when DTB = 053_H / RP = 003_H

The address of R0 is $00180_H + 003_H * 010_H + 08_H = 0001B8_H$.

Since the bank register specified by "DIV A,R0" is DTB, the memory bank takes on 053_H.

Thus, the remainder is stored at $05301B8_H$.

The V30L04 or later version of `fasm907s` has a function for replacing the above instructions with trouble-free equivalent instruction strings, thereby circumventing problems.

There is no problem if the bank register value is 00_H.

The F^2MC-16F families and the MB90400 series of the F^2MC-16LX families do not have such nonconformity.

2.2 `-div_check` and `-Xdiv_check`

These options relate to nonconformity in the "DIV A,Ri" and "DIVW A,RWi" instructions of the MB90500 series.

The `-div_check` option issues a warning message to the *DIV/DIVW* instruction.

The `-Xdiv_check` option does not issue a warning message to the *DIV/DIVW* instruction.

These options are valid only for the F^{2}MC-16 family (MB90500 series).

■ `-div_check`

[Format]

```
-div_check
```

[Explanation]

This option issues a warning message to the *DIV/DIVW* instruction.

[Example]

```
fasm907s -cpu mb90500 test -div_check
```

<Caution>

- The `-div_check` option is valid only for the F^{2}MC-16 family (MB90500 series).

■ `-Xdiv_check`

[Format]

```
-Xdiv_check
```

[Explanation]

This option does not issue a warning message to the *DIV/DIVW* instruction.

[Example]

```
fasm907s -cpu mb90500 test -div_check –Xdiv_check
```

<Caution>

- The `-Xdiv_check` option is valid only for the F^{2}MC-16 family (MB90500 series).

3. Added Error Message

The added error message is shown below.

■ Added Error Message

W1805A	Invalid instructions (DIV, DIVW) are detected

[Program processing]

        Continues processing