DSPASM Structured Assembler V1.04.02 for the FAA or GREEN_DSP

Release Note

Thank you for using the DSPASM structured assembler for the FAA or GREEN_DSP.

This document describes the supported features and points for caution. Read this document before using the product.

Contents

1. Introduction

The DSPASM is a structured assembler for the flexible application accelerator (FAA) or GREEN_DSP, which is integrated in certain RL78 MCUs from Renesas.

1.1 System Requirements

The operating environment is as follows.

1.1.1 PC

- IBM PC/AT compatible machine (Windows 10 or Windows 8.1)
- Processor: At least 1 GHz
- Memory capacity: 2 GB or more recommended; at least 1 GB (2 GB or more for 64-bit editions of Windows)

1.1.2 Development Tools Supported by the DSPASM

The DSPASM can be used in combination with the following development tools.

- CC-RL compiler for RL78 MCUs from Renesas Electronics
- LLVM for Renesas RL78
- GCC for Renesas RL78
- IAR Embedded Workbench

2. Overview

The DSPASM generates an object file for the CPU from an input source file written in assembly language. The source file can be linked with the program for the CPU.

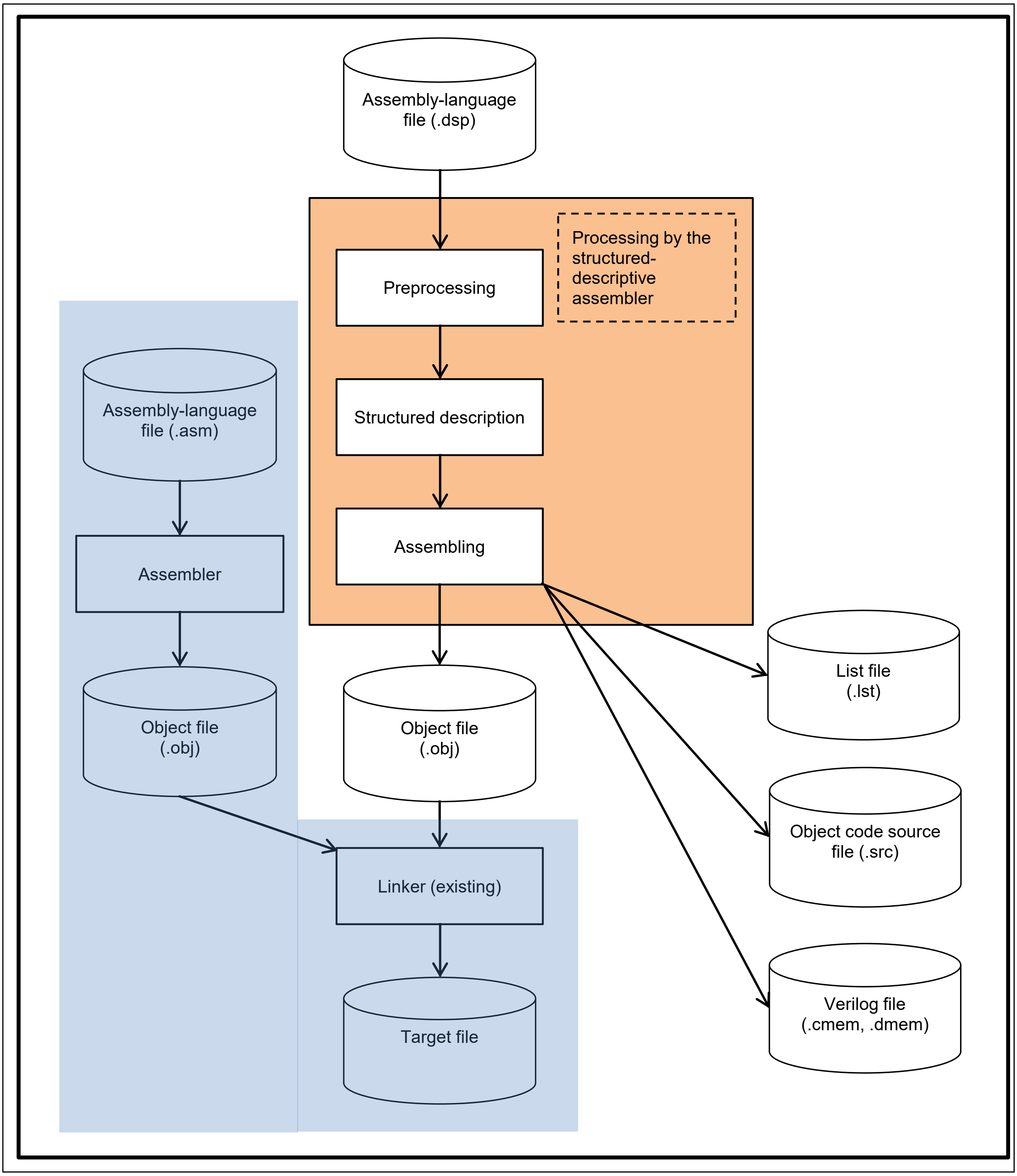

Figure 2 Example of the Use of the DSPASM

3. Features

The basic steps in using the assembler are as follows.

The following shows an example of a program for use on the FAA incorporated in RL78 MCU.

Assemble the program for the FAA with the DSPASM and obtain an object file for CC-RL.

```
dspasm -format obj -dsp rl78_111_dsp -cpuLittleEndian -littleEndianData faasrc.dsp
```

Compile the program for the RL78 MCU with CC-RL.

```
ccrl -cpu=S3 -dev=DR7F101GLG.DVF -c main.c
```

Link the main.obj object file for the RL78 MCU with the faasrc.obj object file for the FAA and produce the output in the executable file format for the RL78 MCU.

Specify the -dsp_memory_area option for rlink to indicate that the FAA uses memory.

```
rlink -device=DR7F101GLG.DVF -auto_section_layout -dsp_memory_area -output=main.abs main.obj
faasrc.obj
                                                        (Enter this code on a single line.)
```

4. Points for Caution

For points for caution, refer to the user's manual.

Revision History

Rev.	Date	Description	
		Page	**Summary**
1.00	Apr.01.23	-	Newly created.

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)

   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.
2. Processing at power-on

   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.
3. Input of signal during power-off state

   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.
4. Handling of unused pins

   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.
5. Clock signals

   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.
6. Voltage application waveform at input pin

   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).
7. Prohibition of access to reserved addresses

   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.
8. Differences between products

   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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