Release Notes: GCC 4.9.2.201801-GNURL78

2nd of April, 2018

CyberThor Studios Ltd. is releasing the GCC 4.9.2.201801-GNURL78, a cross compiler tool for Renesas RL78 micro-controllers.

SALIENT FEATURES

The GCC 4.9.2.201801-GNURL78 toolchain is based on:

- GCC 4.9.2 [released]
- Binutils 2.24 [released]
- Newlib 2.2.0 [released]
- GDB 7.8.2 [released]

The latest patches are applied to GCC, Binutils and Newlib sources.

ABOUT GCC 4.9.2.201801-GNURL78

Release Version:	GCC 4.9.2.201801-GNURL78
Release Date:	2nd of April, 2018
Platforms Supported:	Red Hat GNU/Linux v8.0 or later (or compatible distribution) Windows XP, Windows 7, Windows 8, Windows 10
Language:	C, C99, C++
Targets:	G1X, I1X, D1X, LIN MCP, F1X, and L1X
Object File Format:	ELF

CHANGES IN GCC 4.9.2.201801-GNURL78

This section describes the fixes made in the GCC 4.9.2.201801-GNURL78 release.

GCC/Binutils:

1. *[Improvement]* New options added:
   - *-msave-cs-in-interrupts*: Save CS register in interrupts
   - *-muse-es*: Save ES register in interrupts

2. *[Bug Fix]* Fixed the value saved in MDUC register used in *div/mod* instructions.

3. *[Improvement]* Multiplication registers are now displayed by name instead of addresses.

4. *[Improvement]* Following options have been enabled by default in order to achieve code size improvements: *-fdata-sections*, *-ffunction-sections*, *-frtl-lfact*, *-frtl-seqabstr*, *-ftree-seqabstr*. Additionally the following options have been disabled for code size optimization *-fpartial-inlining*.

5. *[Improvement]* Adjustments have been made to *PARAM_SINK_FREQUENCY_THRESHOLD* and *PARAM_MAX_STORES_TO_SINK* for *-sink-frequency-threshold* and *max-stores-to-sink* options.

6. *[Bug Fix] -mmul=none* now works properly with *-mcpu=g14* or *-mcpu=g13*

7. *[Improvement]* The *-dse* option has been adjusted for better code size results.

8. *[Bug Fix]* Record the content for the *mov* instruction to prevent elimination.

INSTALLER and RPM:

1. The GCC 4.9.2.201801-GNURL78 Installer onwards supports the 'Custom Installation' and 'Default Installation' modes. The 'Default Installation' mode is set by default where the tools are installed into the default location at "C:\Program Files\GCC 4.9.2.201801-GNURL78" and the user's username and activation key are silently accepted if cached in the registry.
2. The GNURL78 ABI (Application Binary Interface) is made available on our GNU Tools support website (https://gcc-renesas.com) and also provided along with Linux RPM and Windows installer.

Notes:

This installer does not provide an option to integrate the GNURL78 toolchain with e2 studio, as the e2 studio IDE will automatically detect the GNURL78 toolchain installation on start-up for integration. Alternatively, you may use the 'Toolchain Management' feature in e2 studio to achieve this.

For details on e2 studio please visit the following link below:
http://www.renesas.com/products/tools/ide/ide_e2studio/index.jsp

There is no support in this installer to integrate toolchain with the HEW IDE.

KNOWN ISSUES IN GCC 4.9.2.201801-GNURL78

This section describes the known issues in the GCC 4.9.2.201801-GNURL78 release.

1. When using the *-fdata-section* option, the *_far* variables are saved in *rodata* instead of *frodata*.
2. There is an issue regarding the usage of *optlib* in GNU ISO 2011 C++ projects.
3. The *mov* and *clr1* instructions are not evaluated consistently when SFR or SADDR addresses are used.
4. When SFR addresses are used in conjunction with the *far* keyword, the ES register is referred but not initialized.

FREE SUPPORT FOR GCC 4.9.2.201801-GNURL78

For free technical support, please register at
https://gcc-renesas.com

For your feedback and suggestions, please visit
https://gcc-renesas.com/help/contact-us/