

Release Notes: GCC 4.9.2.201904-GNURL78

28th of November, 2019

CyberThor Studios Ltd. is releasing the GCC 4.9.2.201904-GNURL78, a cross compiler tool for Renesas RL78 micro-controllers.

SALIENT FEATURES

The GCC 4.9.2.201904-GNURL78 toolchain is based on:

- ❖ GCC 4.9.2 [released]
- ❖ Binutils 2.24 [released]
- ❖ Newlib 3.1.0 [released]
- ❖ GDB 7.8.2 [released]

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

ABOUT GCC 4.9.2.201904-GNURL78

Release Version:	GCC 4.9.2.201904-GNURL78
Release Date:	28 th of November, 2019
Platforms Supported:	Red Hat GNU/Linux v8.0 or later (or compatible distribution) Windows XP or later
Language:	C, C++
Targets:	G1X, I1X, D1X, LIN MCP, F1X, and L1X
Object File Format:	ELF



CHANGES IN GCC 4.9.2.201904-GNURL78

This section describes the fixes made in the GCC 4.9.2.201904-GNURL78 release.

GCC:

1. *[Improvement]* Implemented the `__builtin_rl78_setpswisp(x)` and `__builtin_rl78_getpswisp()` instructions to get and set the ISP bits of the PSW register.

For example:

```
char f1(char a)
{
    __builtin_rl78_setpswisp(a);
    return __builtin_rl78_getpswisp();
}
```

INSTALLER and RPM:

1. The GCC 4.9.2.201904-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 4.9.2.201904-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.



This section describes the known issues in the GCC 4.9.2.201904-GNURL78 release.

1. ES is used without being initialized.

Workaround:

In order to initialize ES, the address should be stored in a *far* pointer before usage. So instead of:

```
((volatile reg __far*)0x000FFF).bit._1 = 0;
```

the code will be:

```
volatile reg __far *address0 = 0x000FFF;  
(*address0).bit._1 = 0;
```

2. The `__far` keyword is not supported for C++ projects.

3. OPTLIB library.

The OPTLIB library feature is considered deprecated starting with this release, due to the following reasons:

1. It does not contain all the headers and defines of the ANSI/ISO standard.
2. Partial implementation of library functions (e.g. standard I/O functions are not all implemented)
3. The math library sacrifices precision for speed/code size (not IEEE754 compliant)

Eventually, it will be completely removed from the product, but it is still available in this release.

You should begin planning now to employ alternate methods for any applications, code, or usage that depend on this feature.



FREE SUPPORT FOR GCC 4.9.2.201904-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/>

