

RELEASE NOTES: GNURL78 v13.01 MAINTENANCE PACK 1

26th February 2013

KPIT Cummins Infossystems Limited is releasing the GNURL78 v13.01 (MP1), a cross compiler tool for Renesas RL78 micro-controllers.

RL78 is a new micro-controller family to deliver solutions for Next-Generation 8-/16-bit embedded applications. To know more about RL78 micro-controller family, please visit the following link, <http://www.renesas.com/press/news/2010/news20101117.jsp>

SALIENT FEATURES:

1. The GNURL78 v13.01(MP1) toolchain is based on GCC 4.8.0 [snapshot dated 19th December 2012], Binutils 2.23.51 [snapshot dated 19th December 2012], Newlib 1.20.0 [snapshot dated 19th December 2012] and GDB 7.5 [snapshot dated 19th December 2012].
2. This release adds support for the new RL78 target variant, G10. In order to generate code for this target variant pass the "-mg10" option to the compiler. The compiler will generate code for other target variants, if this option is not passed.

ABOUT RL78 v13.01 (MP1) :

Release Version:	GNURL78 v13.01(MP1)
Release Date:	26th February 2013
Platforms Supported	Red Hat GNU/Linux v8.0 or later (or compatible distribution) Windows XP, Windows 7 (32 and 64 bit)
Language:	C, C99, C++
Targets	G1X, I1X, D1X, LIN MCP, F1X, and L1X.
Object File Format	ELF

CHANGES IN THIS MAINTENANCE PACK:

This section describes the fixes made in the GNURL78-ELF v13.01 maintenance pack 1 release.

1. GNURL78 compiler gives Internal compiler error for an interrupt handler with -mg10 option.

```
void INT_WDTI(void) __attribute__((interrupt));  
void INT_WDTI(void) { }  
int main()  
{  
    return 0;  
}
```

This bug has been fixed.

2. The GNURL78 toolchain generated incorrect opcode for the "divwu" instruction.

This bug has been fixed.

CHANGES IN THIS RELEASE:

This section describes the enhancements made and the issues fixed in v13.01 release.

1. The GNURL78 toolchain generated incorrect results for the multiplication operation with the "-mmul=g13" option for the G13 target.

This issue has now been fixed.

2. The GNURL78 toolchain generated prologue instructions ('PUSH') for the interrupt routine without selecting the register bank 'rb0'. This caused the bank 0 to get corrupted after exiting the interrupt routine.

This issue has now been fixed.

3. GNURL78 v13.01 toolchain gives "Internal compiler error" with the '__far' pointer for certain test scenarios.

This issue has now been fixed.

4. The RL78 assembler uses the new line separator character '@'. It earlier used the '|' character which caused issues while using the logical OR operator in assembly.

5. The RL78 toolchain generates "oneb" instruction for far memory access without setting the "es" register. This causes incorrect memory access.

This issue has now been fixed.

6. The RL78 toolchain supports the "__far" keyword for placing data in 20-bit memory. You may use the following declarations for declaring pointers in far and near memory,

```
char * foo; /* foo in near, points to near */  
char * _far foo; /* foo in far, points to near */  
char _far * foo; /* foo in near, points to far */  
char _far * _far foo; /* foo in far, points to far */
```

KNOWN LIMITATIONS:

This section describes the known limitations in this release. We intend to fix these limitations in our future releases.

1. The RL78 toolchain generates incorrect instructions when '.rodata' section is not placed in mirror area. The default linker script expects the compiler to place all '.rodata' in mirror area and generates code.
2. Function pointer located in near memory which point to functions in far memory is not called via the pointer as expected. The RL78 toolchain is not able to generate the 20-bit addressing required for this.

For Windows OS only:

1. The GNURL78 v13.01 toolchain installer does not support HEW integration, however it supports integration with the e2studio IDE.
2. The registry entry for Windows-7 64-bit system differs to Windows-7 32-bit system.

NOTE:

WINDOWS and GNU/LINUX:

1. The optimized libraries provided along with the Newlib libraries in the toolchain do not require a separate download.
2. The optimized libraries ('liboptm.a' and 'liboptc.a') are not provided under GNU GPL. The source code of these optimized libraries is neither released nor available on request.
3. The 'libgen' utility is not provided under GNU GPL. The source code of the "libgen" utility is neither released nor available on request.

For free technical support, please register at <http://www.kpitgnutools.com>

For your feedback and suggestions, please visit <http://www.kpitgnutools.com/feedback.php>.