RELEASE NOTES: GNURL78 v12.01 (MAINTENANCE PACK 1)

4th April 2012

KPIT Cummins Infosystems Limited is releasing the GNURL78 v12.01 (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 v12.01 (MP1) toolchain is based on
   - GCC v4.7 [snapshot dated 21st March 2012],
   - Binutils v2.22 [snapshot dated 21st March 2012],
   - Newlib v1.19.0 [snapshot dated 21st March 2012] and
   - GDB v7.3.1 [snapshot dated 21st March 2012].

2. This version of toolchain gives much better performance in terms of optimization compared to the earlier release (v11.03).

3. The target specific option "-mmul= " specifies the type of hardware multiplication support to be used.
   - The default is none, which uses software multiplication functions.
   - The g13 option is for the hardware multiply/divide peripheral only on the RL78/G13 targets.
   - The rl78 option is for the standard hardware multiplication defined in the RL78 software manual.

4. Register ordering for the RL78 GDB is modified.

ABOUT RL78 v12.01 (MP1)

Release Version:	GNURL78 v12.01 (MP1)
Release Date:	4th April 2012
Platforms Supported	Red Hat GNU/Linux v8.0 or later (or compatible distribution) Windows NT/2000/XP/Vista/Windows 7 (32 and 64 bit)
Language:	C, C99, C++
Targets	G12, G13 and G14
Object File Format	ELF

CHANGES IN THIS MAINTENANCE PACK:

This section describes the fixes made in the GNURL78-ELF v12.01 maintenance pack 1 release.

1. The RL78 toolchain returns incorrect value for division of char by a char. The below simple test case fails on the RL78 simulator.

```
#include <stdio.h>
typedef unsigned char       uint8_t;

uint8_t DEC_BCD(uint8_t x)
{
   uint8_t y;
   y = x /10;
   return (y);
}
int main(void)
{
   uint8_t temp;
   int new;
   temp = 33;
   new = DEC_BCD(temp);
   printf("ans:: %d\n\r",new); // It should be 3, but returns 55.
   return 0;
}
```

This bug has been fixed.

CHANGES IN THIS RELEASE:

2. This version gives much enhanced optimization (size as well as speed) performance compared to earlier release.

3. The RL78 GDB does not show any messages when it loads the output file for debugging.
   This bug has been fixed.

4. Register ordering for the RL78 GDB is modified.

For Windows OS only:

1. The GNURL78 v12.01 (MP1) toolchain installer does not support HEW integration.

2. The registry entry for Windows-7 64-bit system differs to Windows-7 32-bit system.

KNOWN LIMITATIONS:

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

1. The optlib function 'sin' fails with this version of the toolchain.

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.

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