

Release Notes: GCC 4.8.4.201604-GNURX

22nd of December, 2016

CyberThor Studios Ltd. is releasing the GCC 4.8.4.201604-GNURX, a cross compiler tool for Renesas RX micro-controllers.

SALIENT FEATURES

The GCC 4.8.4.201604-GNURX toolchain is based on:

- ❖ GCC 4.8.4 [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 4.8.4.201604-GNURX

Release Version:	GCC 4.8.4.201604-GNURX
Release Date:	22 nd of December, 2016
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:	RX100 RX200 RX600 RX64M RX700
Object File Format:	ELF



This section describes the fixes made in the GCC 4.8.4.201604-GNURX release.

GCC/Binutils:

1. *[Bug-Fix]* GNURX generates link errors in some cases when relaxation is enabled -mrelax is used. This issue has been fixed.
2. *[Improvement]* In this release we are using new, optimized, libraries.
3. *[Bug-Fix]* LTO algorithm removes HardwareVectors in some cases, even though KEEP is used in the linker script. This issue has been fixed.

INSTALLER and RPM:

1. The GCC 4.8.4.201604-GNURX 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 4.8.4.201604-GNURX" 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 all known issues for this particular release:

1. Link errors are observed when using the following options

a) `-fwrapv`

Some code is known to be causing the issue in combination with the "`-fno-diagnostics-show-caret -O2 -DSTACK_SIZE=4096 -msim -lm`" flags.

b) `-funsafe-math-optimizations`

This flag will cause problems in conjunction with `-mno-fpu` on optimization levels `-O0`, `-O1`, `O2`, `-O3`.

c) `-fno-tree-forwprop` option:

Tests known to reproduce the problem include following compile combination of flags: `-fno-tree-forwprop -fno-diagnostics-show-caret -w -O1 -DSTACK_SIZE=4096 -msim -lm`

2. In certain cases the program will time out while executing with following options:

a) `-funroll-loops`

a) `-fpeel-loops`

Both flags need to be accompanied by "`-fno-diagnostics-show-caret -w -O1 -DSTACK_SIZE=4096 -msim -lm`" for the problem to be observed.

3. The compiler is known to produce an internal compiler error, crashing therefore, when using the "`-funroll-loops`" option in combination with this series of flags in certain code "`-fno-diagnostics-show-caret -O3 -g -ftree-vectorize -DSTACK_SIZE=4096 -S -msim`"

4. The compiler will yield internal error when `-morder1` is used with "`-msim -O3 -g`". This can be observed by running the `pr26515.c` from GCC testsuite.

5. An incomplete type error can be observed when using the `-fpack-struct` option in C++. The combination of the flags that reproduce this problem is "`-fpack-struct -fno-diagnostics-show-caret -nostdinc++ -fmessage-length=0 -std=c++11 -pedantic-errors -Wno-long-long -S -msim`"



FREE SUPPORT FOR GCC 4.8.4.201604-GNURX

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/>

