

## Release Notes: GNURX v12.01

22<sup>nd</sup> February 2012

KPIT Cummins Infossystems Limited is releasing the GNURX v12.01, a cross compiler tool for Renesas RX micro-controllers.

### SALIENT FEATURES

1. The GNURX v12.01 toolchain is based on
  - GCC v4.6.2 [Released]
  - Binutils v2.22 [Released]
  - Newlib v1.20.0 [Released] and
  - GDB v7.3.1 [Released]
2. The latest patches are applied to gcc, binutils and newlib sources.

### ABOUT GNURX v12.01

Release Version:	GNURX v12.01
Release Date:	22 <sup>nd</sup> February 2012
Platforms Supported:	Red Hat GNU/Linux v8.0 or later (or compatible distribution) Windows NT / 2000 / XP / Vista / Windows 7
Language:	C, C99, C++
Targets:	RX200 RX600
Object File Format:	ELF

## CHANGES IN THE GNURX-ELF v12.01 RELEASE

This section describes the enhancements made and the issues fixed in the v11.02 release.

### **GCC:**

1. While creating a S-REC file from the generated binary, the “rx-elf-objcopy” utility used to generate duplicate addresses.  
This bug has now been fixed.
2. The IODEFINE header files for various RX targets are updated for correct padding, alignment and access for little as well as big endian format.
3. The GNURX toolchain for GCC 4.6.2 generates internal compiler error with CoreMark benchmarking sources at the stage of linking (if '-flto' is used).  
This bug has now been fixed.
4. The GNURX compiler was using the 'scmpu' instruction while performing 'memcmp' when optimization is enabled. This instruction used to fail as it compares a string and exits when it finds a null termination '\0' in memory.  
This bug has now been fixed.

### **INSTALLER and RPM:**

1. The GNURX v11.01 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 HEW (if found) and the user's username and activation key are silently accepted if cached in the registry.
2. The GNURX ABI (Application Binary Interface) is made available on [www.kpitgnutools.com](http://www.kpitgnutools.com) website and also provided along with Linux RPM and Windows installer.

## KNOWN LIMITATIONS IN RX-ELF

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

We occasionally release maintenance packs for critical bug fixes.

### Windows and GNU/Linux:

1. The GNURX toolchain v12.01 shows a little degradation to CoreMark score (2.29) compared to the v11.03 (2.34) toolchain. This is due to GCC v4.6.2.
2. If the GNURX v12.01 toolchain is installed in a directory with spaces, linking using '-flto' (Link Time Optimization) fails in HEW. This is due to GCC 4.6.2 limitation. On command line, short path is used and hence, there is no problem in linking using '-flto'. Please refer to the below FAQ for details and work-around, <http://www.kpitgntools.com/phpmyfaq/index.php?aktion=artikel&rubrik=003001&id=523&lang=en>
3. The GNURX toolchain v12.01 generates a byte-wise code for even address aligned pointers. This causes code size increase when the '-fpack-struct' option is used. Since RX supports non-aligned access, it is expected that the compiler should use 'mov.l' wherever possible for 32 bit data, even if the structure is packed.
4. Library Generator: Please visit the following link for the known issues and limitations related to this utility: <http://www.kpitgntools.com/phpmyfaq/index.php?aktion=artikel&rubrik=010002&id=485&lang=en>

### HEW (For Windows OS only):

1. The 'Generate Makefile' feature is currently not supported in HEW. For other limitations pertaining to the single interface for the compiler, assembler, linker and library generator, please visit the following link: <http://www.kpitgntools.com/phpmyfaq/index.php?aktion=artikel&rubrik=003001&id=445&lang=en>

### 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.kpitgntools.com>

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