



# GNUPro™ 04r1 Tools for Embedded Systems Development

June 21, 2004

## Overview

Red Hat's GNUPro 04r1 toolsuite for embedded software development provides:

- Easy-to-install versions of the full suite of industry-standard GNU cross development tools and libraries for embedded systems—targeting ARM/XScale, MIPS, MN10300, PowerPC and V850 architectures
- GNUPro documentation, including a "Getting Started" guide and tutorials
- Fast, knowledgeable support through direct access with our world-class support experts

This new release includes support for the PowerQUICC III (BookE) instruction set, NEC's V850 architecture and Matsushita's MN10300 and AM33 family of cores. This release also includes many new optimization and usability enhancements. In particular, the C++ language front-end has been completely rewritten for improved language conformance, and precompiled headers are now supported for Linux and Solaris hosted tools.

## Description

GNUPro, recognized as the world's most popular embedded development tools suite, is a collection of tools and runtime technologies that enables the creation, deployment, and testing of target software components for devices.

The core of the GNUPro toolsuite include specially configured, built, tested, and supported versions of the GNU development tools:

- GCC version 3.4
- GDB version 6.1
- Insight, the graphical debugger interface, version 6.1
- GNU binutils version 2.15
- The newlib ISO C runtime library, version 1.11

Additional GNUPro enhancements to the core GNU utilities include processor-specific optimizations, cross-development usability enhancements, and bug fixes backported from the very latest development sources for these tools.

All GNUPro 04r1 compilers for embedded development generate ELF object files and DWARF2 debug info by default.



The following target configurations are supported:

<b>Configuration</b>	<b>Targets</b>	<b>Description</b>
arm-elf	<ul style="list-style-type: none"><li>• Simulator</li><li>• GDB Remote Stub</li></ul>	<p>Generates ARMv4 and ARMv5 compatible code, supporting ARM7, ARM9, ARM10, ARM11 and XScale families of processors.</p> <p>New features in GNUPro 04r1 include:</p> <ul style="list-style-type: none"><li>• Support for the "mapping symbols" specified by the ARM EABI.</li><li>• Support for ARM 11 cores.</li><li>• Recognition of the new ARM v6 ISA. The new media instructions are not supported yet, but the write buffer is supported.</li><li>• Support for the Cirrus EP9312 part with its Maverick floating point co-processor.</li></ul>
mips-elf	<ul style="list-style-type: none"><li>• Simulator</li><li>• GDB Remote Stub</li></ul>	<p>Generates MIPS1 compatible code by default using the O32 ABI.</p> <p>New features in all GNUPro 04r1 MIPS tools include:</p> <ul style="list-style-type: none"><li>• ABI conformance improvements.</li><li>• Reduced reliance on assembler macros in compiler output, improving the compiler's ability to schedule instructions.</li><li>• Numerous small optimizations including division and memory-move improvements.</li></ul>
mips64-elf	<ul style="list-style-type: none"><li>• Simulator</li><li>• GDB Remote Stub</li></ul>	<p>Generates MIPS32 compatible code default using the O64 ABI.</p> <p>See mips-elf, above, for more info.</p>
mipsisa64-elf	<ul style="list-style-type: none"><li>• Simulator</li><li>• GDB Remote Stub</li></ul>	<p>Generates MIPS64 compatible code by default, using the EABI binary interface.</p> <p>See mips-elf, above, for more info.</p>
mn10300-elf	<ul style="list-style-type: none"><li>• Simulator</li><li>• GDB Remote Stub</li></ul>	<p>Generates ELF code for the MN10300 and AM33 family of processors.</p>
powerpc-eabi	<ul style="list-style-type: none"><li>• Simulator</li><li>• GDB Remote Stub</li></ul>	<p>Generates PowerPC compatible ELF object files.</p>
powerpc-eabispe	<ul style="list-style-type: none"><li>• GDB Remote Stub</li></ul>	<p>Generates PowerPC compatible ELF object files for the BookE family of processors.</p>
v850-elf	<ul style="list-style-type: none"><li>• Simulator</li><li>• GDB Remote Stub</li></ul>	<p>Generates V850 compatible ELF object files.</p>



This latest release of Red Hat's GNUPro for embedded systems development runs on:

- Red Hat Enterprise Linux 2.1 and v.3 for x86
- Sun Solaris 2.6, 2.7, 2.8 and 2.9 for sparc
- Microsoft Windows 2000 and XP

## Availability

GNUPro 04r1 support offerings for embedded systems development are available immediately. See <http://www.redhat.com/embedded> for more information.

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