



# **GCC 3.3.x**



# **Vs**

# **.Net2003**

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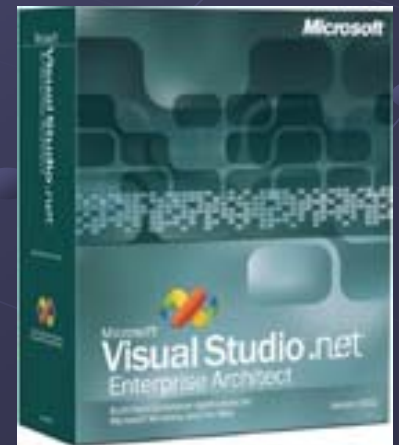
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# Introduction

- Actually best language?
- C/C++ is used in about 50% of projects
- Support x86,x86\_64,MMX,SSE,SSE2,SSE3  
... and clones
- Embedded systems: StrongArm, PXA,...

# Popular compilers

- Borland C/C++ 5.6
- Digital Mars C/C++ 8.34
- **GNU C/C++ 3.3.x**
- Intel C/C++ 7.0
- Metrowerks CodeWarrior 8.3
- Microsoft Visual C++ 6.0
- **Microsoft Visual C++ .NET2003**
- Watcom C/C++ 12.0



# GCC homepage

http://www.gnu.org/software/gcc/gcc.html

Go Google search 100

## About GCC

- Mission Statement
- Mailing lists
- Timeline
- Contributors
- Steering Committee

## Documentation

- Installation
- Supported Platforms
- Testing
- Manual
- FAQ
- Further Readings

## Download


- Releases
- Snapshots
- Mirror sites
- Binaries

## Development

- Development Plan
- (tentative timeline)
- Contributing
- ... Why?
- Open projects
- Front ends
- Back ends
- Extensions
- CVS read access
- Rsync read access
- CVSup mirrors
- CVS write access

## Welcome to the GCC home page!

GCC is the GNU Compiler Collection, which currently contains front ends for C, C++, Objective-C, Fortran, [Java](#), and Ada, as well as libraries for these languages ([libstdc++](#), [libgcj](#),...). [Further frontends](#) are available.



Major decisions about GCC are made by the [steering committee](#), guided by the [mission statement](#).

We encourage everyone to [contribute changes](#) and help testing GCC, and we provide access to our development sources with [anonymous CVS](#) and [weekly snapshots](#).

We strive to provide regular, high quality [releases](#), which we want to work well on a variety of native (including GNU/Linux) and cross targets. To that end, we use an extensive [test suite and automated regression testers](#) as well as various [benchmark suites and automated testers](#) to maintain and improve quality.

**Current release series:** [GCC 3.3.2](#) (released 2003-10-17)  
Branch status: [2003-10-29](#) (open for regression fixes).

**Previous release series:** [GCC 3.2.3](#) (released 2003-04-25)  
This is the last release from the 3.2.x series; the branch has been closed after the release.

**Active development (mainline):** will become GCC 3.4 ([current changes](#))  
[Stage 3](#); open for all maintainers.

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## News/Announcements


**October 18, 2003**  
Bernardo Innocenti of Develer S.r.l. has contributed the [m68k-uclinux target](#) and improved support for ColdFire cores, based on former work by Paul Dale (SnapGear, Inc.) and Peter Barada (Motorola, Inc.).

**October 17, 2003**  
[GCC 3.3.2](#) has been released.

# What we are looking for?

- Compilation Time
- Speed of generated code
- Size of generated code
- Language support
- Features
- Developing tools
- Automatic Vectorization with SWAR
- Expense

# How testing? KNOPPIX !

 <http://www.knoppix.net/> Go Google search 100

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FROM ZERO TO GNU/LINUX IN FIVE MINUTES

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## Welcome to Knoppix.net

This website is about Knoppix, a Free and Open Source Live Linux CD. Knoppix is a GNU/Linux distribution that boots and runs completely from cd. It includes recent linux software and desktop environments, with programs such as OpenOffice.org, Abiword, The Gimp, Konqueror, Mozilla, and hundreds of other quality open source programs.

Knoppix.net is a resource for users, developers, and testers of Knoppix. The official website for Knoppix is on Klaus Knopper's website, at [knopper.net/knoppix/index-en.html](http://knopper.net/knoppix/index-en.html).

If you would like to learn more about Knoppix, you could look at the [FAQ's and Documentation](#), discuss it in the [forums](#), or just try it out! - You can download it ( 700MB ) or buy it from a CD distributor, more info on the [download / buy page](#).

If you have found a bug in Knoppix, you can report it on the [Bug tracking site](#).

### Latest News

- [Remastering Knoppix article at O'reilly Linux Devcenter](#)
- [New Knoppix release V3.3-2003-11-19](#)
- [New Knoppix release V3.3-2003-11-14](#)
- [New V3.3-2003-11-03 release](#)
- [Knoppix and Wireless](#)
- [System recovery with Knoppix](#)
- [Version 3.3 2003-09-24 - Small Bug Fix.](#)
- [Knoppix 3.3 full changelog](#)
- [New Knoppix Release V3.3 2003-09-22](#)
- [Knoppix is distributed by PCM magazine in the Netherlands!](#)

### Latest Forum Posts

- [Addition to the remastering guide](#) (0)
- [ext3 mounted as ext2\(solved\)](#) (1)
- [help for internet connection sharing???](#) (0)
- [KNOPPIX installation from a remote machine](#) (2)
- [Toshiba A15-S127, networking, USB Drive problems w/3.3](#) (0)
- [getting kicked...](#) (0)
- [backspace in reflection](#) (2)
- [Cannot Play Audio CDs](#) (5)
- [is it called knoppix??](#) (1)
- [verizon wireless internet service](#) (1)

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[www.eg3.com/linux](http://www.eg3.com/linux)

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# Software Patents ?

## Closed because of "Software-Patents"

In the next few days, the European Parliament will decide about the legalisation and adoption of so-called "software patents" in Europe, which are already used by large companies in other countries to put competitors out of business. This can lead to the termination of many software projects such as KNOPPIX, at least within Europe, because the holders of the over 30,000 already granted "software patents" (currently without a legal foundation) can claim exclusive rights and collect license fees for trivial things like "progress bars", "mouseclicks on online order forms", "scrolling within a window" and similar. That way, software developers will have to pay the "software-patentholders" for using these features, even in their own, completely self-developed applications, which can completely stall the development of innovative software for small and medium companies. Apart from this, the expense for patent inquiries and legal assistance is high, for even trying to find out if the self-developed software is *possibly* violating "software-patents", if you want to continue to market your software. Contrary to real patents, "software-patents" are, in the current draft, monopolization of business ideas and methods, even without any tangible technical implementation.

**More about the current major problem at <http://swpat.ffii.org/index.en.html>**

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# Compilation Time

- Some test results...

- Compilation Time in *ms*

- Source:

*Dr. Dobb's Journal Oct 2003*

	GCC	.NET
C1	1368	<b>243</b>
C2	<b>886</b>	1640
C3	<b>182</b>	336
Pch	39234	<b>3343</b>
whereis	3261	<b>1523</b>
zlib	4890	<b>2703</b>



# Speed of generated code

- Some test results...

- Execution Time in *ms*

- Source:  
*Dr. Dobb's Journal Oct 2003*

	GCC	.NET
T1	7714	7813
T2	1679	1843
T3	6809	2341
T4	385	406
T5	1590	887
zlib	11310	9117

# Size of generated code

- Some test results...
- Size of code in *Kbytes*
- .NET outperforms GCC!
- *Source:*  
*Dr. Dobb's Journal Oct 2003*

	GCC	.NET
T1	98	45
T2	95	40
T3	95	40
T4	458	53
T5	453	49
zlib	151	102

# Language support

- GCC has the BEST language support.
- GCC supports AT&T and Intel Assembler syntax
- .NET supports MS proprietary extensions:
- MFC (Microsoft Foundation Class)
- ATL (Active Template Library)
- WTL (Windows Template Library)
- Managed C++

# Language support 2

A key question:  
Do you need Microsoft Extensions



Consider:

SDL, wxWindows, QT

OpenGL, OpenRM, OpenSceneGraph, Demeter, ...

# Automatic Vectorization .NET

- .NET uses natively MMX,SSE,SSE2
- In our project .NET with vectorization has gained a speedup of 2x over VS6+sp5 and GCC 3.3.x
- try:***-nologo -W4 -wd4244 -wd4018 -EHsc -G7 -Ox -arch:SSE2***
- A bunch of error when moving C++ from VS6 to .NET2003 !!!
- Very less with GCC 2.95.2 to GCC 3.3.x

# Automatic Vectorization GCC

- GCC 3.3.x declares to use vectorization but... we were not able to see difference!!!

Homeover try:

- **ADVFLAGS = -march=athlon-mp -mcpu=athlon-mp -mmmx -msse -m3dnow -mfpmath=sse -momit-leaf-frame-pointer -minline-all-stringops -mno-push-args -maccumulate-outgoing-args -m128bit-long-double**
- **ADVFLAGS = -march=pentium4 -mcpu=pentium4 -mmmx -msse -msse2 -mfpmath=sse -momit-leaf-frame-pointer -minline-all-stringops -mno-push-args -maccumulate-outgoing-args -m128bit-long-double**



# Online Resource

- DrDobb's Journal [www.ddj.com](http://www.ddj.com)
- FSF and GCC homepage
- Microsoft homepage , MSDN
- SPRITE Linux Day Proceeding

# Neural Network Lab

## Chief

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## Ph.D student

Dr. Matteo Roffilli

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Dr. Cristiano Campeggiani

Dr. Omar Schiaratura

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# Medical Imaging Group

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*Prof. Renato Campanini*

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*Dr. Giuseppe Palermo*

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# THANKS FOR YOUR ATTENTION!



## Any question?

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