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build everywhere

Requisites

**MULTI
THREAD**

**2D
GUI**

**3D
GUI**

SOCKET

DATABASE

LANGUAGE

COMPILER

**PERFORMANCE
LIBRARY**

**SWAR
SUPPORT**

S.O. (SW) multi-platform

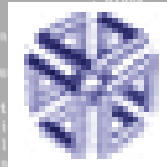
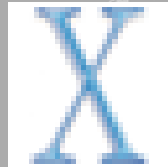
**SOURCE
CODE**

**.obj
.o**

COMPILER

API

API



ISA (HW) multi-platform

.obj

.o

.exe

.a

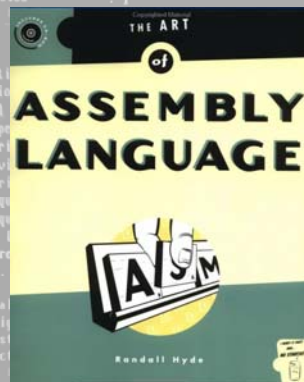
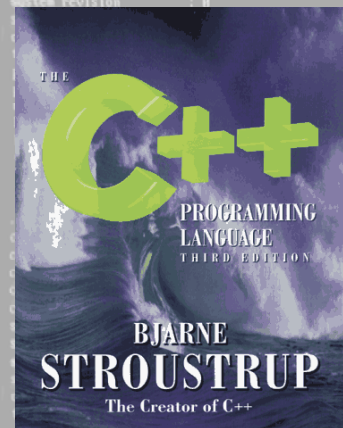
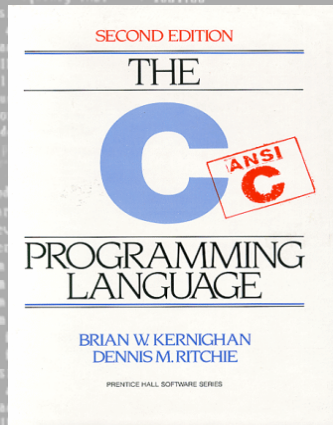
LINKER

ISA

ISA



Language



C

C++

ASM

JAVA, PERL, ...

Multi thread

Hand-made wrapper

Open Thread (OSG)

Pthread



<http://sources.redhat.com/pthreads-win32>

2D GUI

Simple DirectMedia Layer

<http://www.libsdl.org/index.php>



wxWindows

<http://www.wxwindows.org>



GLUT

<http://www.opengl.org/resources/libraries/glut.html>

<http://www.xmission.com/~nate/glut.html>



3D GUI

Open Scene Graph

<http://www.openscenegraph.org>

OpenRM

<http://www.openrm.org>

OpenSG

<http://www.opensg.org>

OpenRM Scene Graph



Database

MySQL

<http://www.mysql.com>



Berkeley DB

<http://www.sleepycat.com>

Makers of Berkeley DB



MS Access

<http://mdbtools.sourceforge.net>

MDB Tools
Unlocking Your Data...

Socket

Hand-made wrapper

SDL_net

http://www.libsdl.org/projects/SDL_net

Apache

<http://apr.apache.org>

Apache

Portable Runtime Project

Performance library

Intel C compiler

<http://www.intel.com/software/products/compilers>

ATLAS

<http://math-atlas.sourceforge.net>

To compile under Windows see:

L.Benini: "Ottimizzazioni microarchitetturali per high performance computing", Scienze dell'Informazione, thesis, 2003-2004

Intel® Compilers

Makefile

SCONS

<http://www.scons.org>



Cmake

<http://www.cmake.org>



PERL script

<http://www.perl.org>



My choice

C + ASM

Pthread

SDL

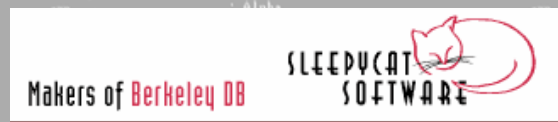
OSG

BerkleyDB

ATLAS

Hand-made socket wrapper

SCONS



Alternative

Java



SLOW – SLOW – SLOW!

Why do you not write an O.S. with Java?

Cygwin



GNU + Cygnus
+ Windows =

cygwin™

Linux → Windows

(not fully free)

Wine



Windows → Linux

(not direct API)

GNU Libtool



GNU Libtool - The GNU Portable Library Tool

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Originally by Gordon Matzigkeit, 1996.

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Current Release Versions

Stable Release	GNU Libtool 1.5.10	19 September 2004	Changelog
Development Release	GNU Libtool 1.9f	23 October 2004	Changelog
Daily CVS Snapshot	GNU Libtool 2.1a	Today	

Introduction

GNU libtool is a generic library support script. Libtool hides the complexity of using shared libraries behind a consistent, portable interface.

To use libtool, add the new generic library building commands to your Makefile, Makefile.in, or Makefile.am. See [the documentation](#) for details.

Availability

The latest official stable release is available via ftp from your nearest GNU mirror. Download instructions and a list of ftp mirror sites are [here](#).

Advantages

Fully portable

Direct API

ISA fully supported

Gcc

Cross-compiling

FREE for commercial use

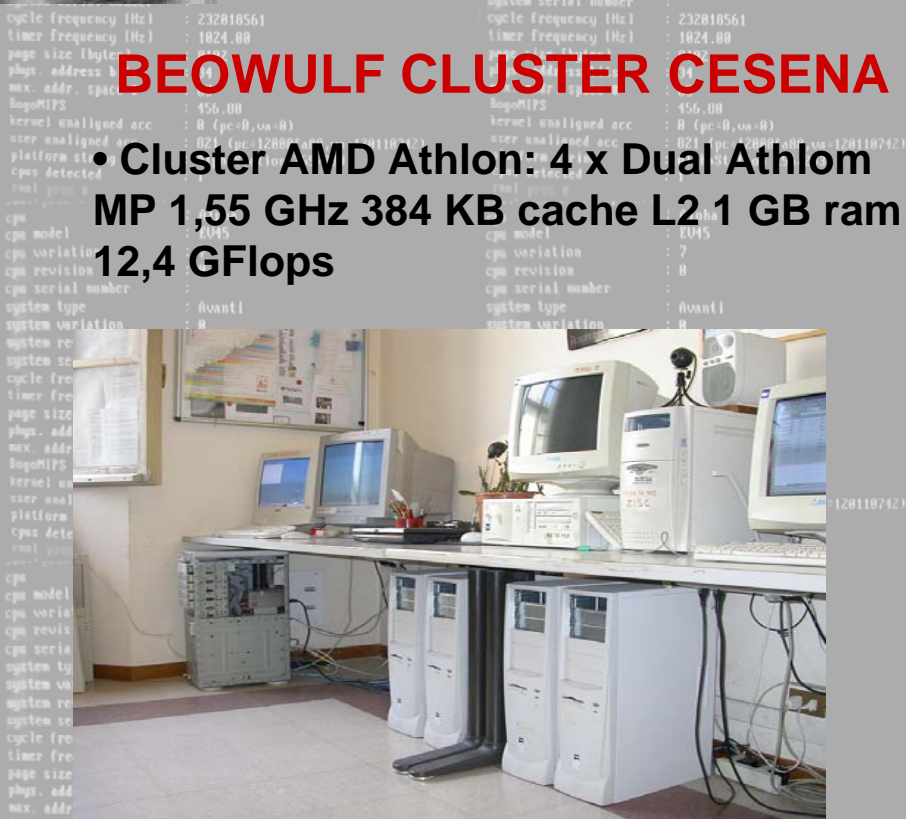


Twilight Laboratory



BEOWULF CLUSTER CESENA

- Cluster AMD Athlon: 4 x Dual Athlon MP 1,55 GHz 384 KB cache L2 1 GB ram 12,4 GFlops



HIGH PERFORMANCE 64 BIT ARCHITECTURE

- Dual Opteron: 1,6 GHz 1 MB cache L2 2 GB RAM 5,6 GFlops



BEOWULF CLUSTER BOLOGNA

- Cluster IBM: 2 x Dual Xeon 2,6 GHz 512 KB cache L2 2 GB Ram 10,4 GFlops





Twilight 'OC' Team



```

cycle frequency (Hz) : 232010561
timer frequency (Hz) : 1024.00
page size (bytes) : 0192
phys. address bits : 34
max. addr. space : 63
BogoMIPS : 456.00
kernel unaligned acc : 0 (pc=0,va=0)
user unaligned acc : 021 (pc=12000fa00,va=120110742)
platform string : AlphaStation 255/233
cpus detected : 1

```



Ph.D. student
Matteo 'TK' Roffilli



Fellows
Enrico 'Cippo' Angelini



Luca Benini

Andrea 'l'Abusivo' Bernardi



Omar 'Funny' Schiaratura



Max Zanoni

Christian 'il Guru' Zoffoli



Working Students



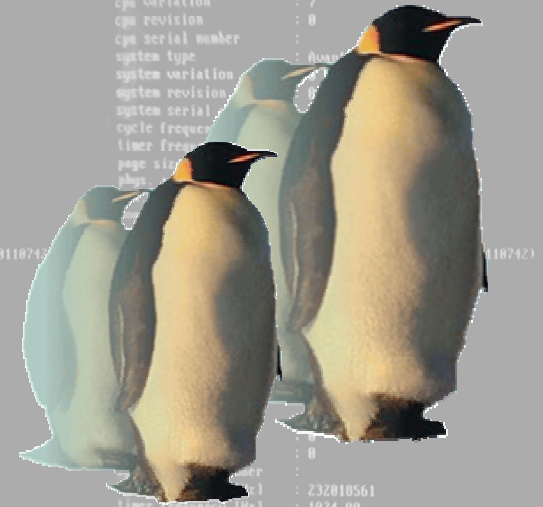
Luca Bolognesi
Claudio 'Megavox' Magalotti



Mattia Nori
Federico 'Bronsky' Bozzetto

Francesco Turrone

THANKS TO
Dott. Filippo Domenicucci
for hardware support



THANKS FOR YOUR
ATTENTION!

Any question?

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