

Cmake Primer







What is CMake?

- Cross-platform, open-source build system
- Family of tools for building, testing, and packaging software
- CMake is used to control the software compilation process using platform and compiler independent configuration files
- CMake generates native makefiles or solution files
- First implemented in 2000
- Current release: 3.6.3
- Website: https://cmake.org/





Using CMake

• Command line:

```
cmake [<options>] (<path-to-source> | <path-to-existing-build>)
configures a build system for the specified cmake project dir
```

```
cmake [(-D<var>=<value>)...] -P <cmake-script-file>
executes a cmake script file
```

```
cmake --build <dir> [<options>] [-- <build-tool-options>...]
executes the build process through a generic interface
```

```
cmake -E <command> [<options>...]
gives you cross platform commands
```

PROJECT ()

4

Using CMake

• cmake-gui

File Tools Options Help					
Where is the source code:	C:/Users/Radu/Repo	sitories/chrono		Browse So	ource
Where to build the binaries:	C:/Users/Radu/Repo	sitories/BUILD/chrono		- Browse B	Build.
Search:			Grouped Advanced Add Entry	× Remove B	Entry
Name		Value			
BLAZE DIR		C:/Users/Radu/Packages/blaze-2.2			
BOOST_DIR		C:/Users/Radu/Packages/boost_1_59_0			
BUILD_ADDITIONAL_TES	STS	Ø			
BUILD_DEMOS					
BUILD_TESTING		Ø			
CH_COMPILER		COMPILER_MSVC_X64			
CH_IRRLICHTDIR		C:/Users/Radu/Packages/irrlicht-1.8.1			
CH_IRRLICHTLIB		C:/Users/Radu/Packages/irrlicht-1.8.1/lib/Wir	n64-visual Studio/Irrlicht.lib		
CMAKE_CONFIGURATIO	N_TYPES	Debug;Release;MinSizeRel;RelWithDebInfo			
CMAKE_INSTALL_PREFIX	[C:/Program Files/Chrono			
ENABLE_IRRKLANG					
ENABLE_MODULE_CASC	ADE				
ENABLE_MODULE_COSI	MULATION				
ENABLE_MODULE_FEA		Ø			
ENABLE_MODULE_FSI					
ENABLE_MODULE_IRRLI	СНТ	Ø			
ENABLE_MODULE_MATL	AB				
ENABLE_MODULE_MKL		Ø			
ENABLE_MODULE_OPEN	IGL	Ø			
ENABLE_MODULE_PARA	LLEL	Ø			
ENABLE_MODULE_POST	PROCESS	Ø			
ENABLE_MODULE_PYTH					
ENABLE_MODULE_VEHI	CLE	Ø			
ENABLE_OPENMP		Ð			
GLEW_DLL		C:/Users/Radu/Packages/glew-1.13.0/bin/Rel	lease/x64/glew32.dll		
GLEW_INCLUDE_DIR		C:/Users/Radu/Packages/glew-1.13.0/include			
GLEW_LIBRARY		C:/Users/Radu/Packages/glew-1.13.0/lib/Rele	ease/x64/glew32.lib		
GLFW_DLL		C:/Users/Radu/Packages/glfw-3.1.1/lib-vc201	13/glfw3.dll		
GLFW_INCLUDE_DIR		C:/Users/Radu/Packages/glfw-3.1.1/include/	GLFW		
CI EU 1188 187	Press Configure to	update and display new values in red, then press Ger	nerate to generate selected build files		
Carlo Carante	-				
Configure Generate		r: Visual Studio 12 2013 Win64			
MPI libraries:	C:/Program File	s (x86)/Microsoft SDKs/MPI/lib/x64/msmpi.	lib		
MPIEXEC:	C:/Program	Files/Microsoft MPI/Bin/mpiexec.exe			
MPIEXEC_NUMPROC_FLA					
MPIEXEC_PREFLAGS:					
MPIEXEC_POSTFLAGS: Chrono Engine co	ore module ====				
==== Chrono MKL modul					
Find MKL libraries	C. (Drogram Fil	a (u96) (Intel Chimaela (aempilens and liber	ning (windows /mkl / ingludo		
MAL INCLUSE dirs:	C:/Program Fil	es (x86)/IntelSWTools/compilers and libra	aries/windows/mki/include		



Using CMake

• ccmake

serban@euler33:~/Repositories/BUILD/ch	rono	- 🗆	\times
	Page 1 of 1		
BLAZE_DIR	<mark>/</mark> usr/local/include		
BUILD_ADDITIONAL_TESTS	ON		
BUILD_DEMOS	ON		
BUILD_TESTING	ON		
CH_COMPILER	COMPILER_GCC_X64		
CMAKE_BUILD_TYPE	Release		
CMAKE_INSTALL_PREFIX	/usr/local		
ENABLE_MODULE_CASCADE	OFF		
ENABLE_MODULE_COSIMULATION	OFF		
ENABLE MODULE FEA	ON		
ENABLE MODULE FSI	OFF		
ENABLE MODULE IRRLICHT	OFF		
ENABLE MODULE MATLAB	OFF		
ENABLE MODULE MKL	ON		
ENABLE MODULE OPENGL	ON		
ENABLE MODULE PARALLEL	ON		
ENABLE MODULE POSTPROCESS	OFF		
ENABLE MODULE PYTHON	OFF		
ENABLE MODULE VEHICLE	ON		
ENABLE OPENMP	ON		
GLEW INCLUDE DIR	/usr/local/include		
GLEW LIBRARY	/usr/lib64/libGLEW.so		
GLFW INCLUDE DIR	/usr/local/include/GLFW		
GLFW LIBRARY	/usr/local/lib/libglfw.so		
GLM INCLUDE DIR	/usr/local/include		
IOMP5 LIBRARY	/usr/local/intel/2016/compilers and libraries 2016.2.181/linux/compiler/	lib/inte	164
MATH LIBRARY	/usr/local/intel/2016/compilers and libraries 2016.2.181/linux/compiler/		
MPI EXTRA LIBRARY	/usr/local/openmpi/1.10.0/lib/libmpi.so	110, 111001	
MPI LIBRARY	/usr/local/openmpi/1.10.0/lib/libmpi cxx.so		
PTHREAD LIBRARY	/usr/lib64/libpthread.so		
USE PARALLEL CUDA	OFF		
USE PARALLEL DOUBLE	ON		
USE PARALLEL SIMD	ON		
	014		

BLAZE DIR: Path to a file. Press [enter] to edit option Press [c] to configure Press [h] for help Press [q] to quit without generating Press [t] to toggle advanced mode (Currently Off)

CMake Version 2.8.11

Υ.



The CMake build process

- Consists of two stages:
 - 1. Create standard (platform-specific) build files from the configuration files
 - 2. Use the platform native build tools for the actual building
- Creating the build files
 - always prefer out-of-source builds
 - if using cmake-gui, select the generator (for Chrono, make sure to use 64-bit)
 - [iterate] set options → configure
 - generate



Chrono CMake configuration

Using cmake-gui on Windows



Specify source and build locations

Press Configure to update and display new velues in red, then press Generate to generate selected build files. Configure		Radu/Repositories/chronoBUILD		-	
where to build the binaries: C;/Users/Radu/Repositories;/chronoBUILD Browse Build ware Grouped Advanced Add Entry # Remove Entry Name Value					
eerch: Grouped Advanced Add Entry Remove En Name Value Press Configure to update and display new values in red, then press Generate to generate selected build files.					
Name Value Press Configure to update and display new values in red, then press Generate to generate selected build files.		::/Users/Radu/Repositories/chronoBUILD		-	
Press Configure to update and display new values in red, then press Generate to generate selected build files.				Grouped Advanced Add Entry	# Remove Entry
	vame		Value		
Configure Generate Current Generator: None	1		d, then press Generate	to generate selected build files.	
	Configure Generate	Current Generator: None			



Select generator

ile Tools Options Help	
Where is the source code: C:/Us	rs/Radu/Repositories/chrono Browse Source
Where to build the binaries: C:/Us	rs/Radu/Repositories/chronoBUILD Browse Build
Search:	Grouped Advanced Advanced Advanced Remove Entry
Name	Value
	🛦 cmake-gui ? X
	Specify the generator for this project
	Visual Studio 12 2013 Win64
	° Use default native compilers
	^c Specify native compilers
	^c Specify toolchain file for cross-compiling
	^C Specify options for cross-compiling
	< Back Finish Cancel
Pre	s Configure to update and display new values in red, then press Generate to generate selected build files.
Configure Generate Cu	rent Generator: None



Set configuration options

Where is the source code: C:/Users/Radu/Repositories/chrono	Browse Source
Vhere to build the binaries: C:/Users/Radu/Repositories/chrono	oBUILD • Browse Build
earch:	Grouped Advanced Add Entry
Name	Value
BUILD_ADDITIONAL_TESTS	
BUILD_DEMOS	2
UILD TESTING	2
CH COMPILER	COMPILER MSVC X64
MAKE_CONFIGURATION_TYPES	Debug;Release;MinSizeRel;RelWithDebInfo
CMAKE_INSTALL_PREFIX ENABLE_MODULE_CASCADE	C:/Program Files/Chrono
NABLE_MODULE_COSIMULATION	
NABLE_MODULE_FEA	
NABLE_MODULE_FSI	
NABLE_MODULE_IRRLICHT	i de la companya de l
NABLE_MODULE_MATLAB	
ENABLE_MODULE_MKL	
NABLE_MODULE_OPENGL	
NABLE_MODULE_PARALLEL	
NABLE_MODULE_POSTPROCESS	i i i i i i i i i i i i i i i i i i i
NABLE_MODULE_PYTHON	
NABLE_MODULE_VEHICLE	2
NABLE_OPENMP	
API_EXTRA_LIBRARY	MPI_EXTRA_LIBRARY-NOTFOUND
1PI_LIBRARY	C:/Program Files (x86)/Microsoft SDKs/MPI/lib/x64/msmpi.lib
Press Configure to update and d	isplay new values in red, then press Generate to generate selected build files.
Press Configure to update and d Configure Generate Current Generator: Visual Studi	



Set new configuration options

A CMake 3.3.0 - C:/Users/Radu/Repositories/chronoBUILD	- 🗆 X
File Tools Options Help	
Where is the source code: C:/Users/Radu/Repositories/chrono	Browse Source
Where to build the binaries: C:/Users/Radu/Repositories/chronoBUILD	Browse Build
Search:	Grouped Advance Entry * Remove Entry
Name	Value
CH_IRRLICHTDIR CH_IRRLICHTLIB ENABLE IRRKLANG BUILD_ADDITIONAL_TESTS BUILD_DEMOS BUILD_TESTING	C:/Users/Radu/Packages/irrlicht-1.8.1 CH_IRRLICHTLIB-NOTFOUND © © ©
CH_COMPILER CMAKE_CONFIGURATION_TYPES CMAKE_INSTALL_PREFIX ENABLE_MODULE_CASCADE ENABLE_MODULE_COSIMULATION	COMPILER_MSVC_X64 Debug;Release;MinSizeRel;RelWithDebInfo C:/Program Files/Chrono
ENABLE_MODULE_FEA ENABLE_MODULE_FSI ENABLE_MODULE_IRRLICHT ENABLE_MODULE_MATLAB	8 0 2
ENABLE_MODULE_MKL ENABLE_MODULE_OPENGL ENABLE_MODULE_PARALLEL	
ENABLE_MODULE_POSTPROCESS ENABLE_MODULE_PYTHON ENABLE_MODULE_VEHICLE ENABLE OPENMP	2 2 2
MPI_EXTRA_LIBRARY MPI_LIBRARY	MPI_EXTRA_LIBRARY-NOTFOUND C:/Program Files (x86)/Microsoft SDKs/MPI/lib/x64/msmpi.lib
	ed, then press Generate to generate selected build files.
Configure Generate Current Generator: Visual Studio 12 2013 Win64	207 HMM81 HOPODTOSTOOL OHEOHOL DEAL MEMOOL FOHTOTOL ASMIG TEMOROMOU
	/Radu/Repositories/chrono/src/tests/fea :/Users/Radu/Repositories/chrono/src/tests/fea ers/Radu/Repositories/chrono/src/tests/fea
Configuring incomplete, errors occurred! See also "C:/Users/Radu/Repositories/chronoBUILD/CMakeFiles/CMa See also "C:/Users/Radu/Repositories/chronoBUILD/CMakeFiles/CMa	



Iterate until all dependencies are resolved

ile Tools Options Hel	0		
/here is the source code:	C:/Users/Radu/Repositories/chrono		Browse Source
/here to build the binarie	s: C:/Users/Radu/Repositories/chronoBUIL	D ·	Browse Build
earch:		Grouped Advanced Add Entry	Remove Entry
Name		Value	
UILD_ADDITIONAL_T	ESTS	Ø	
BUILD DEMOS		Ø	
BUILD TESTING		2	
CH COMPILER		COMPILER_MSVC_X64	
CH IRRLICHTDIR		C:/Users/Radu/Packages/irrlicht-1.8.1	
CH IRRLICHTLIB		C:/Users/Radu/Packages/irrlicht-1.8.1/lib/Win64-visualStudio/	Irrlicht lib
MAKE_CONFIGURATI	ON TYPES	Debug;Release;MinSizeRel;RelWithDebInfo	
MAKE_INSTALL_PREF		C:/Program Files/Chrono	
NABLE_IRRKLANG			
NABLE_MODULE_CAS	SCADE		
NABLE MODULE CO			
NABLE_MODULE_FEA		Ø	
NABLE MODULE FSI			
NABLE_MODULE_IRR	LICHT	2	
NABLE_MODULE_MA			
NABLE_MODULE_MK			
NABLE_MODULE_OP			
NABLE MODULE PAR			
NABLE_MODULE_POS			
NABLE_MODULE_PVT			
NABLE_MODULE_VEH		Ø	
NABLE_MODULE_VEP	licte	Ø	
		MPI_EXTRA_LIBRARY-NOTFOUND	
MPI_EXTRA_LIBRARY MPI_LIBRARY		C:/Program Files (x86)/Microsoft SDKs/MPI/lib/x64/msmpi.lib	
	Press Configure to update and display	r new values in red, then press Generate to generate selected build files.	
Configure Genera	te Current Generator: Visual Studio 12	2013 Win64	
add test VEH HMM add test VEH qua add test VEH tir add test VEH fou add test VEH sin add test VEH col add test VEH tir	rtērVehicle eRig rToroidalTires gleToroidalTire lisionToroidalTire		<u>^</u>



Generate native build files (VS solution file)

A CMake 3.3.0 - C:/Users/Radu/Repositories/chronoBUILD	- 0	×
File Tools Options Help		
Where is the source code: C:/Users/Radu/Repositories/chrono	Browse S	ource
Where to build the binaries: C:/Users/Radu/Repositories/chronoBUILD	- Browse	Build
Search:	Grouped Advanced Advanced Add Entry * Remove	Entry
Name	Value	
BUILD_ADDITIONAL_TESTS	2	
BUILD_DEMOS	Ø	
BUILD_TESTING	2	
CH_COMPILER	COMPILER_MSVC_X64	
CH_IRRLICHTDIR	C:/Users/Radu/Packages/irrlicht-1.8.1	
CH_IRRLICHTLIB	C:/Users/Radu/Packages/irrlicht-1.8.1/lib/Win64-visualStudio/Irrlicht.lib	
CMAKE_CONFIGURATION_TYPES	Debug;Release;MinSizeRel;RelWithDebInfo	
CMAKE_INSTALL_PREFIX	C:/Program Files/Chrono	
ENABLE IRRKLANG		
ENABLE_MODULE_CASCADE		
ENABLE_MODULE_COSIMULATION		
ENABLE_MODULE_FEA	2	
ENABLE MODULE FSI		
ENABLE_MODULE_IRRLICHT	Ø	
ENABLE_MODULE_MATLAB		
ENABLE_MODULE_MKL		
ENABLE_MODULE_OPENGL		
ENABLE_MODULE PARALLEL		
ENABLE_MODULE_POSTPROCESS		
ENABLE_MODULE_PYTHON	9	
ENABLE_MODULE_VEHICLE	-	
ENABLE_OPENMP		
MPI_EXTRA_LIBRARY MPI_LIBRARY	MPI_EXTRA_LIBRARY-NOTFOUND C:/Program Files (x86)/Microsoft SDKs/MPI/lib/x64/msmpi.lib	
	ew values in red, then press Generate to generate selected build files.	
Configure Generate Current Generator: Visual Studio 12 201	13 Win64	
add test VEH quarterVehicle add test VEH fourToroidalTires add test VEH fourToroidalTire add test VEH collisionToroidalTire add test VEH collisionToroidalTire add test VEH guarteracejka add		
Generating done		



Generated solution file

🛛 🔁 📜 = 🛛 chrono	BUILD			- 🗆	×
File Home Shi	are View				<u>∧ </u> ?
in to Quick Copy Paste access	Paste shortcut to ▼ to ▼	New item •	Properties Open Select Properties History Invert Open Select	none selection	
		New			
$\leftarrow \rightarrow \land \land \models \diamond$	Radu > Repositories > chronoBUILD		マ ひ Search chro	noBUILD	Q
	□ Name	Date modified	Type Si	ze · ·	^
📌 Quick access	bin 📕	11/8/2016 2:51 PM	File folder		
늘 Desktop		11/8/2016 2:52 PM	File folder		
🔈 Downloads	chrono_vehicle	11/8/2016 2:52 PM	File folder		
🛅 Documents	🖈 📙 cmake	11/8/2016 2:52 PM	File folder		
🔚 Pictures	🖈 📙 CMakeFiles	11/8/2016 2:53 PM	File folder		
📜 Packages	🖈 📙 src	11/8/2016 2:53 PM	File folder		
Repositories	🖈 📜 Testing	11/8/2016 2:51 PM	File folder		
SBEL svn	🖈 💭 ALL_BUILD.vcxproj	11/8/2016 2:53 PM	VC++ Project	46 KB	
L Google Drive	ALL_BUILD.vcxproj.filters	11/8/2016 2:53 PM	VC++ Project Filters	1 KB	
	Chrono.sln	11/8/2016 2:53 PM	Microsoft Visual Stud	157 KB	
声 Box Sync	cmake_install.cmake	11/8/2016 2:53 PM	CMAKE File	2 KB	
💱 Dropbox	CMakeCache.txt	11/8/2016 2:53 PM		44 KB	
	💭 Continuous.vcxproj	11/8/2016 2:53 PM	VC++ Project	25 KB	
le OneDrive 🍊	Continuous.vcxproj.filters	11/8/2016 2:53 PM	VC++ Project Filters	1 KB	
, This PC	CPackConfig.cmake	11/8/2016 2:51 PM	CMAKE File	4 KB	
	CPackSourceConfig.cmake	11/8/2016 2:51 PM	CMAKE File	4 KB	
荸 Network	CTestTestfile.cmake	11/8/2016 2:53 PM	CMAKE File	1 KB	
🔩 Homegroup	DartConfiguration.tcl	11/8/2016 2:51 PM	TCL File	3 KB	
- ·····	Experimental.vcxproj	11/8/2016 2:53 PM	VC++ Project	25 KB	
	BJ Experimental.vcxproj.filters	11/8/2016 2:53 PM	VC++ Project Filters	1 KB	~
32 items 1 item sele	cted 156 KB				



Build project

Chrono - Microsoft Visual Studio	▼6 🖓 Quick Launch (Ctrl+Q) 🔎 🗕 🗖 🗙
FILE EDIT VIEW PROJECT BUILD DEBUG TEAM	NSIGHT TOOLS TEST ARCHITECTURE ANALYZE
WINDOW HELP	NSIGHT TOOLS TEST ARCHITECTORE ANALIZE Radu Serban ·
🔋 🖸 🗸 🖸 🕆 🎦 💾 🚰 🥍 🤊 – 🤆 – 🕨 Local Window	ws Debugger 👻 Debug 👻 x64 🔹 🖳 🎜 🖕
Solution Explorer - 4 ×	
÷	
Search Solution Explorer (Ctrl+;)	
Solution 'Chrono' (130 projects)	
ALL_BUILD	
ChronoEngine	
ChronoEngine_fea	
ChronoEngine_irrlicht	
ChronoEngine_vehicle	
ChronoModels_vehicle	
Continuous	
Desidemo_archive	
demo_aux_ref demo_ballDEM	
▷ 10 demo_ballDEM ▷ 10 demo_bricks	
 ▷ 1 Image: Barbon Stress ▷ 1 Image: Barbon Stress 	
 demo_chlunctions demo_cohesion 	
A demo-collision	
 demo_collision demo_collision_2d 	
 demo_collision_zu demo_collision_trimesh 	
 demo_collisionDEM 	
demo_convergence	
Mainter demo_conveyor	
▶ Same_conds	
Image: A state of the state	
Image: A demo_decomposition	
demo_earthquake	
demo_emit_cluster	
demo_emit_processor	
demo_emitter	
demo_FEA_ancfShell	
Image: Antipage: Antipa	
Image: Antipartic Action of Actio	
demo_FEA_cables	Output · 구 ×
demo_FEA_contacts	Show output from:
demo_FEA_cosimulate_load	
demo_FEA_dynamics	
demo_FEA_electrostatics	
demo_FEA_loads	
▷ 🔄 demo_FEA_thermal 🔍	
Solution Explorer Class View	Find Results 1 Error List Output
Parsing files in solution (743 of 1306) - c:\Users\Radu\Repositorie	s\chrono\src\chrono fea\ChElementSpring.cpp



Chrono CMake configuration

Using ccmake on Linux

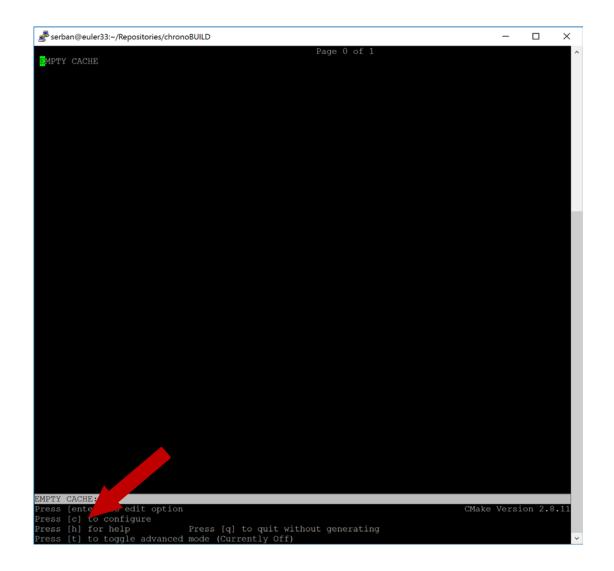


Prepare out-of-source build

serban@euler33:~/Repositories/chronoBUILD	-	\times
erban@euler33 ~/Repositories/chrono]\$ pwd rv/home/serban/Repositories/chrono		^
erban@euler33 ~/Repositories/chrono]\$ cd		
erban@euler33 ~/Repositoriesl\$ mkdir chronoBUILD		
erban@euler33 ~/Repositories]\$ cd chronoBUILD erban@euler33 ~/Repositories/chronoBUILD]\$ ccmake/chrono		



Initial configuration





Default settings

serban@euler33:~/Repositories/chronoB	UILD	_		×
	Page 1 of 1			
VILD_ADDITIONAL_TESTS	* <mark>O</mark> FF			
ILD_DEMOS	ON			
ILD_TESTING	ON			
COMPILER	COMPILER_GCC_X64			
AKE_BUILD_TYPE	*			
AKE_INSTALL_PREFIX	/usr/local			
ABLE_MODULE_CASCADE	*OFF			
ABLE_MODULE_COSIMULATION	*OFF			
ABLE_MODULE_FEA	OFF			
ABLE_MODULE_FSI	OFF			
ABLE_MODULE_IRRLICHT	OFF			
ABLE_MODULE_MATLAB	OFF			
ABLE_MODULE_MKL	OFF			
ABLE MODULE OPENGL	*OFF			
ABLE MODULE PARALLEL	OFF			
ABLE MODULE POSTPROCESS	OFF			
ABLE MODULE PYTHON	OFF			
ABLE MODULE VEHICLE	OFF			
ABLE OPENMP	*ON			
I EXTRA LIBRARY	/usr/local/openmpi/1.10.0/lib/libmpi.so			
I LIBRARY	/usr/local/openmpi/1.10.0/lib/libmpi cxx.so			
LD ADDITIONAL TESTS: Build ss [enter] to edit option	additional test programs	CMake Ver	sion 2.8	3.1
ess [enter] to edit option ess [c] to configure	additional test programs ress [q] to quit without generating	CMake Ver	sion 2.8	8.11

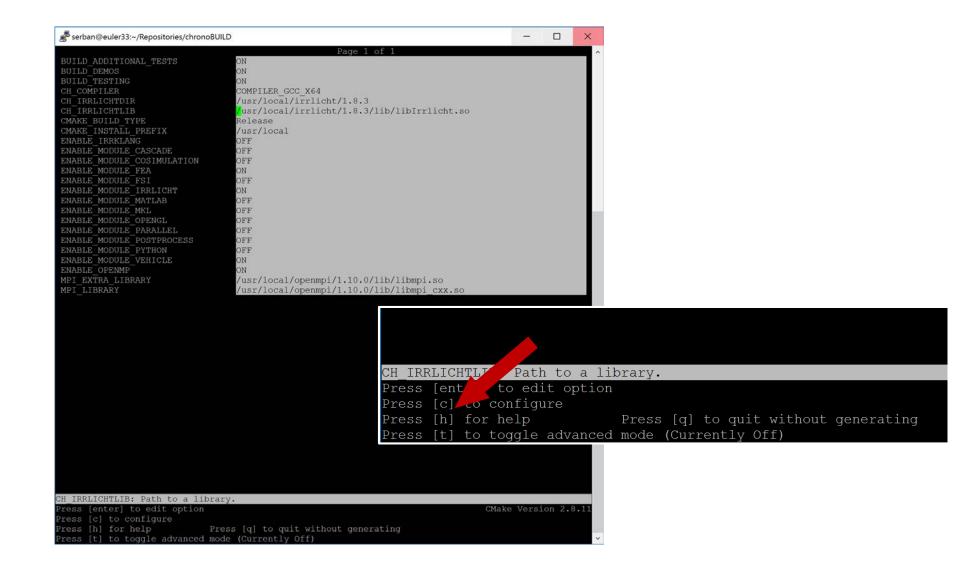


Set options

	BUILD	<u> </u>		×
UILD ADDITIONAL TESTS	*ON			
UILD DEMOS	N N N			
UILD TESTING	N			
H COMPILER	COMPILER 64			
MAKE BUILD TYPE	Release			
AKE INSTALL PREFIX	/usr/local			
VABLE MODULE CASCADE	OFF			
VABLE MODULE COSIMULATION	OFF			
ABLE MODULE FEA	ON			
VABLE MODULE FSI	OFF			
VABLE MODULE IRRLICHT	ON			
ABLE MODULE MATLAB	OFF			
ABLE MODULE MKL	*OFF			
ABLE MODULE OPENGL	OFF			
ABLE MODULE PARALLEL	OFF			
ABLE MODULE POSTPROCESS	OFF			
ABLE MODULE PYTHON	OFF			
ABLE MODULE VEHICLE	OT N			
ABLE OPENMP	ON			
PI EXTRA LIBRARY	/usr/local/openmpi/1.10.0/lib/libmpi.so			
PI LIBRARY	/usr/local/openmpi/1.10.0/lib/libmpi cxx.so			
ABLE MODULE VEHICLE: Enable	the Chrono Vehicle module			
ess [enter] to edit option	the Chrono Vehicle module	CMake Versi	on 2.8	.1
ess [enter] to edit option ess [c] to configure	the Chrono Vehicle module Press [q] to quit without generating	CMake Versi	on 2.8	.1

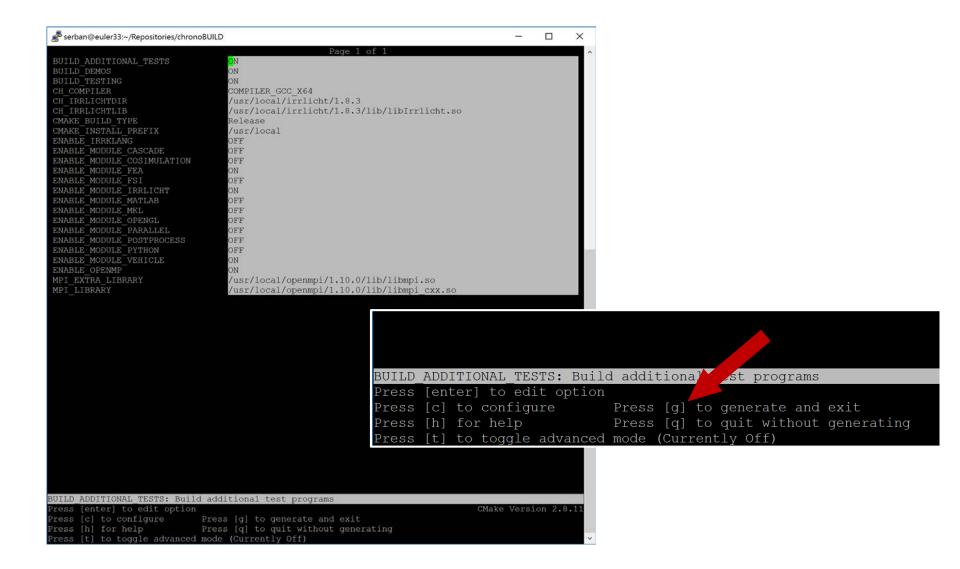


Iterate



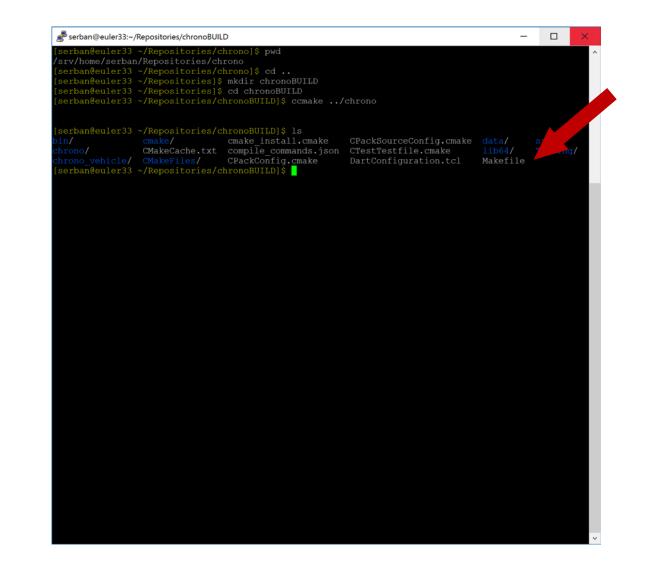


Generate native build files (Unix makefiles)





Generated makefile





Build project

% make

serban@euler33:~/Repositories/chronoBUILD -	- 0	
4%] [4%] [4%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/C		
4%] [4%] [4%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/C		
48] [48] [48] Building CAN Object Sic/chiono/chakeriles/chionobingine.di//physics/c		
4%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChBody.cpp.o		
4%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChBodyFrame.cpp		
4%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkForce.cpp		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChlinkMask.cpp.o		
5%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkDistance.	cpp.o.	
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLink.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkMasked.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkLock.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkBase.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkMarkers.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkBrake.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkBushing.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkGear.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkLinActuator.cpp.		
<pre>iiiding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkEngine.cpp.o iiiding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkPulley.cpp.o</pre>		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkSpringCB.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkScrew.cpp.o		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkSpring.cpp.o		
ilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/chLinkPneumaticActuato		
5%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkWheel.cpp		
5%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkClearance		
5%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkPointSpli	ne.cpp.o	
6%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkTrajector		
6%] [6%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkMa		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkRackpinion.cpp.o		
6%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkRevolute.		
6%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkRevoluteS		
6%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkRevoluteT		
<pre>cpp.o 6%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChLinkUniversal</pre>		
7%] [7%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChGlobal		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChSystem.cpp.o		
78] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChEvents.cpp.o		
78] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChSolvmin.cpp.o		
7%] [7%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChContro		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChProbe.cpp.o		
7%] [8%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChContro		
uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/Chlterative.cpp.o		
8%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChRef.cpp.o		
8%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChGenericConstr		
8%] [8%] Building CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChPartic		
.0 uilding CXX object src/chrono/CMakeFiles/ChronoEngine.dir/physics/ChPhysicsItem.cpp.o		