

ABINIT Test Farm

Software Development

Jean-Michel Beuken

Outline

- ① Introduction
- ② Reliability and Portability
- ③ Development workflow
- ④ Test farm
- ⑤ Automation with Buildbot

Introduction

- ABINIT uses a distributed version control system : Bazaar .
- The merge of all contributions in the trunk may be very painful.
- The question is :
How to secure the development efforts by diverse groups ?

By set-up of a test suite and a test farm

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 - Slave matrix
- ⑤ Automation with Buildbot
 - Builder matrix
 - Standard
 - Special
 - Status
 - On demand

Reliability

- ABINIT implements the “self-testing” software concept thanks to a extensive test suites.
- More than 500 automatic tests have been set up, they examine “almost” all capabilities of ABINIT

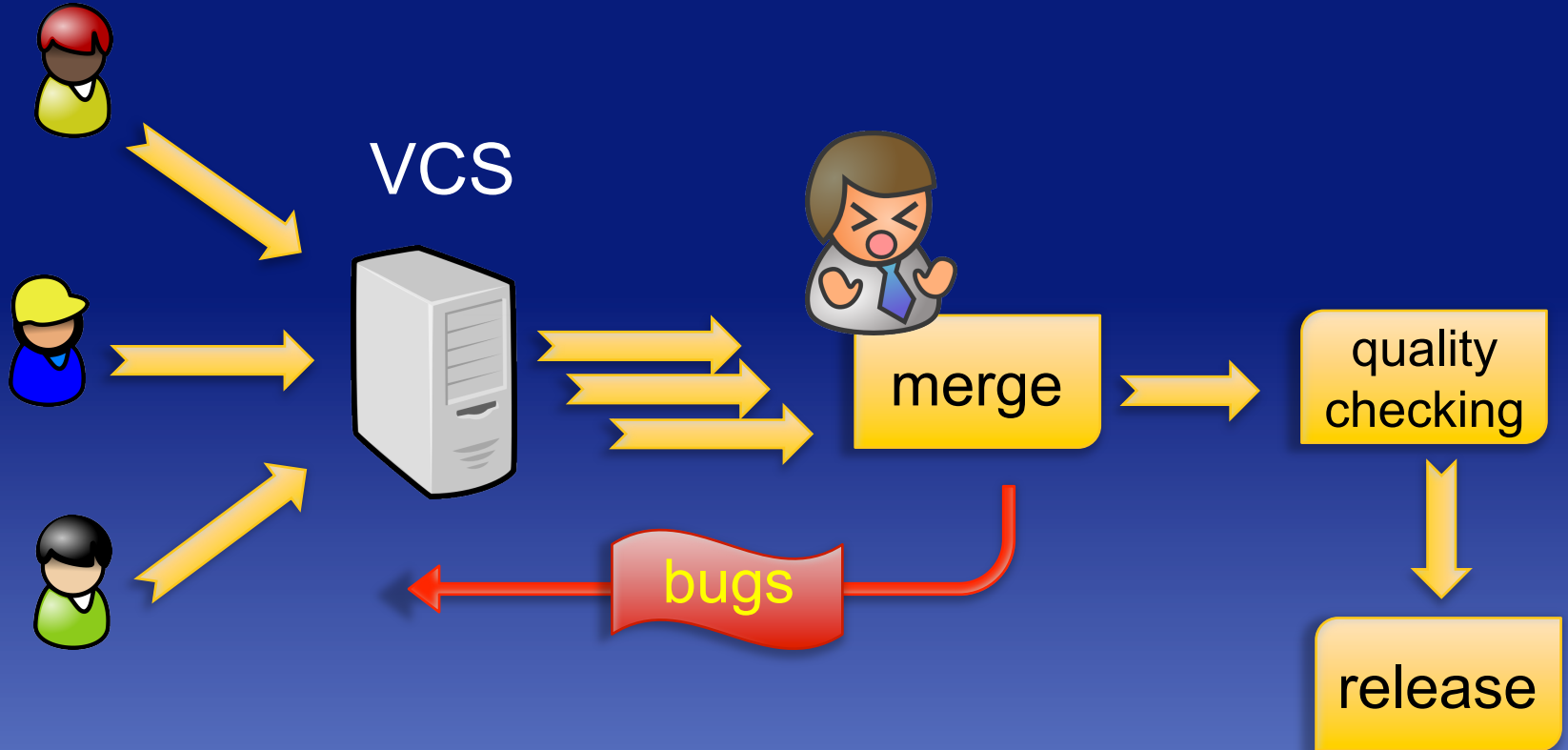
Portability

- Different groups use different “platforms” ...
 - A “platform” is a combinaison of OS , CPU, architecture (like Infiniband) and development environment (compiler, parallel model,...)
- The installation procedure proceeds with :
“configure / make / make tests”
 - for many platforms (mostly Linux...), the installation can be done “out-of-the-box”, thanks to the autotools (*autoconf*, *automake*)
 - for other platforms, we use the machine-dependent files

Outline

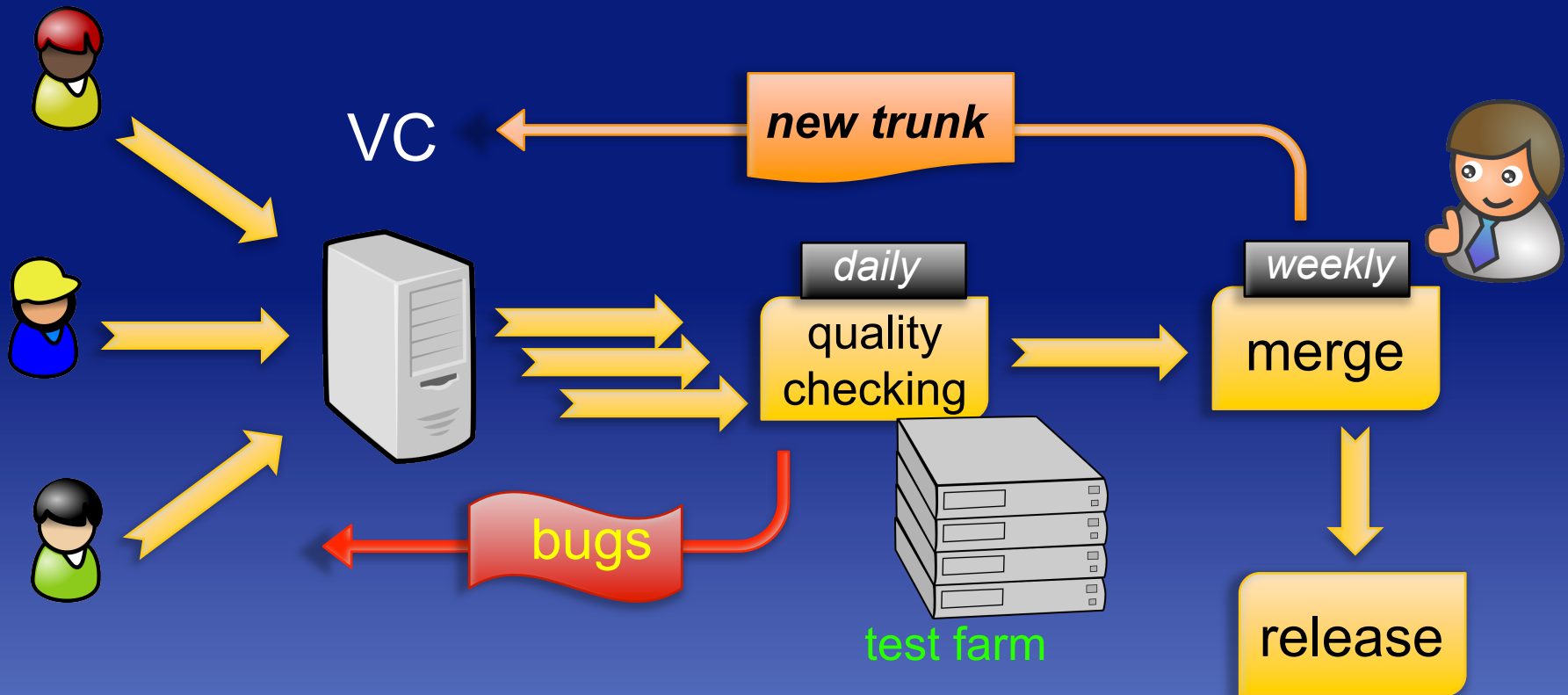
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Traditional



VCS = Version Control System

Continuous integration



Continuous integration relies on computer farm management and on efficient software building automation

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Slave matrix

Intel processors

Name	Brand	CPU / Freq	# cores	RAM	OS	misc
testf	Bull Novascale	Xeon X5570/ 2.9	2xQuad	12GB	CentOS 5.5	
buda	SuperMicro	Xeon X5570/ 2.7	2xQuad	12GB	CentOS 5.5	4xGPU
green	Dell PowerEdge	Xeon L5420/ 2.5	2xQuad	16GB	Slinux 5.3	
bigmac	Apple MacPro	Xeon E5462/ 2.8	2xQuad	6GB	MacOS X	
shiva	HP Z400	Xeon W3680/ 3.3	Hexa	12GB	CentOS 5.5	
coba2	HP Z400	Xeon W3520/ 2.7	Quad	3GB	CentOS 5.5	
chpit	HP rx4640	Itanium 2 / 1.5	Quad	8GB	Debian 5	
inca	HP dc7900	Core2 Q9650/ 3.0	Quad	4GB	CentOS 5.5	
littlebuda	Asus	Core2 Q8400/ 2.7	Quad	4GB	CentOS 5.5	1xGPU
toum	HP dc8100	Core2 Q9650/ 3.0	Quad	8GB	Slinux 6.0	
woopy	HP dc8100	Core i7 860/ 2.8	Quad	8GB	Window XP	
ktulu	HP dc8100	Core i7 860/ 2.8	Quad	8GB	Ubuntu 10	

Slave matrix

other processors

Name	Brand	CPU / freq	# cores	RAM	OS	misc
chum	Sun X4200M2	AMD opteron	2xDual	32GB	CentOS 5.4	
ibm6	IBM OpenPower 520	Power6/ 4.7	2xDual	8GB	AIX 6.1	
fock	IBM OpenPower 720	Power5/ 1.6	2xDual	32GB	Suse 9.0	
max	Apple Xserve	PPC G5 / 2.0	2xMono	4GB	MacOS X 10.4	16 nodes Myrinet

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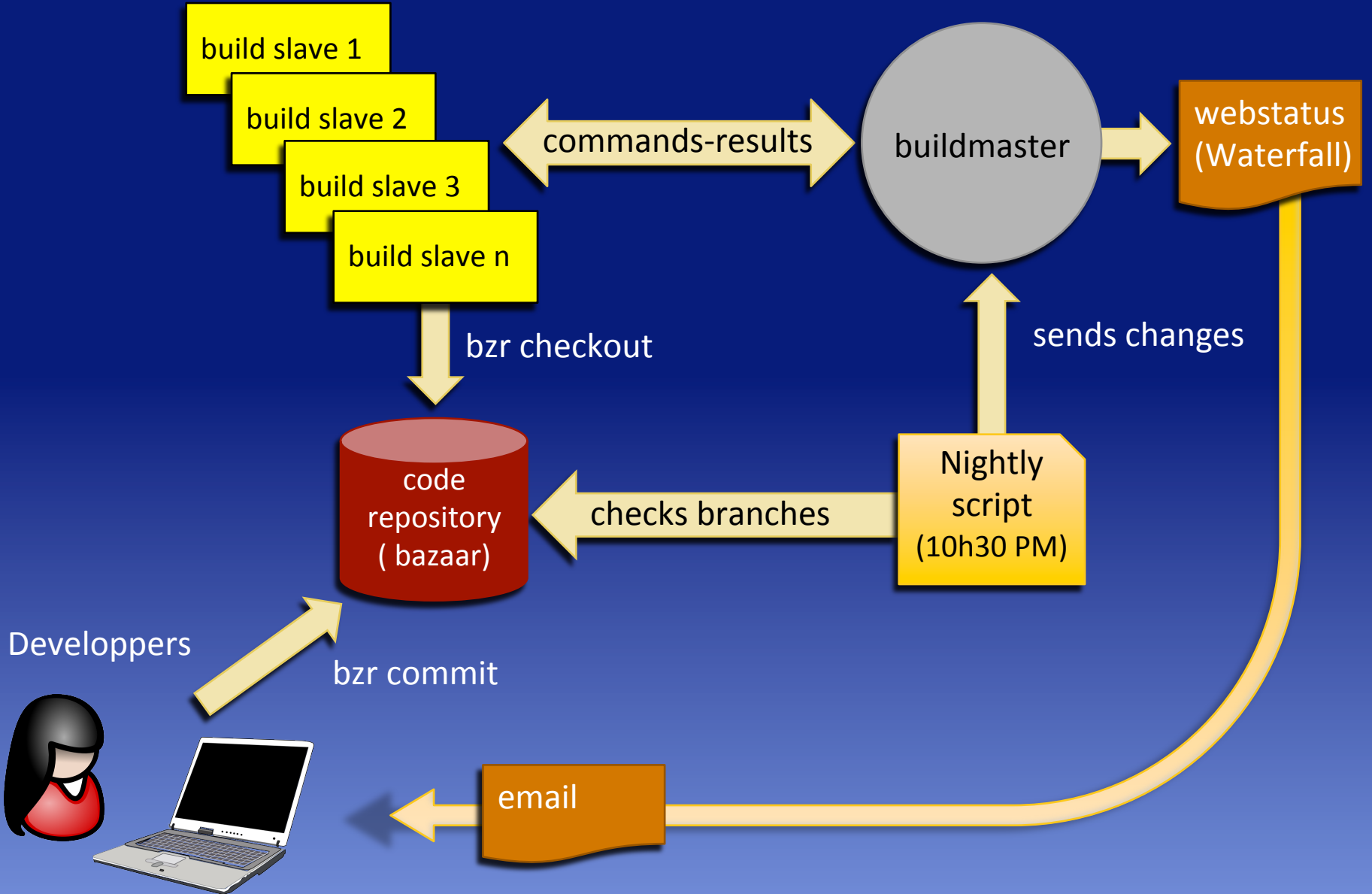
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Overview

- BuildBot is a system to automate the compile/test cycle to validate code changes. It is written in Python (<http://trac.buildbot.net>).
- The BuildBot consists of a *buildmaster* and a set of *buildslaves* connected in a star topology.
- The *buildmaster* is the **central point of control**. The buildmaster makes all decisions about what, when, and how to build.
- The *buildslaves* are responsible for doing any work that actually touches the project's source code.
- By running the builds on a variety of platforms (included the reference platform) , developers, who do not have the facilities to test their changes everywhere before “commit”, will at least know shortly afterwards whether they have broken the build or not.

Overview (2)

- Once the build is started, the build process controls how it proceeds with a series of **BuildSteps**, which are things like shell commands, bzd checkout command, configure command, make tests, etc
- At each point in the build cycle, status information is saved.
(as waiting to build, starting build, starting a BuildStep, finishing the build).
These informations are used to update the main status web page (waterfall).
- By running the builds on a variety of platforms (included the reference platform) , developers, who do not have the facilities to test their changes everywhere before “commit”, will at least know shortly afterwards whether they have broken the build or not.



Design at LLN

- Currently :
 - Nightly (10h30 PM) , buildbot builds all modified public branches and trunk-private
 - The *buildmaster* runs on “archives.abinit.org” host
 - Four cores are mandatory by builder
 - Seventeen builders are active and stable for nightly tests (on 14 slaves)
 - Developers are able to connect directly to the slaves and to access their tested branch to analyze/correct the problem under the right environment.

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Builder matrix

standard builders

Name	Compiler	MPI	MATH	misc	nightly
testf_gcc44	gcc 4.4.4	Open MPI 1.4.2		ref	yes
testf_gcc44_serial	gcc 4.4.4			ref	yes
buda_gcc43_mpiio	gcc 4.3.2	MPICH2 1.2.1			
bigmac_gcc43	gcc 4.3.2	Open MPI 1.3.1			yes
bigmac_gcc44_noplugs	gcc 4.4.3	Open MPI 1.4.1			yes
littlebuda_gcc45_gpu	gcc 4.5.1	MPICH2 1.3.1	Atlas	gpu	yes
woopy_gcc45	gcc 4.5.1	MPICH2 1.3.1		windows	yes
toum_gcc46	gcc 4.6.0	Open MPI 1.4.3			no
chpit_intel11	ifort 11.1.038	Open MPI 1.4.3			yes
coba2_intel11	ifort 11.1.073	Open MPI 1.4.3	MKL	FTTW3	yes
green_g95	g95 0.93	OpenMPI 1.4.3		mem leaks	yes
green_intel10_sernoplug	ifort 10.1				yes
fock_xlf_sernoplug	xlf 9.1	MPICH 1.2.7			yes
ibm6	xlf 12.1	POE			yes

Builder matrix

special builders

Name	Compiler	MPI	MATH	misc	nightly
inca_gcc44_sdebug	gcc 4.4.5	MPICH2 1.2.1	ATLAS		yes
<ul style="list-style-type: none"> • make seq • checks 12 abirules (“defined but not used”, “Unused variable”, “Unused dummy argument”) • checks 7 buildsys (“check-build-examples”, “check-cpp-options”,...) 					
shiva_gcc45_distchk	gcc 4.5.1	MPICH2 1.3.0	GotoBlas2		yes
<ul style="list-style-type: none"> • tests less used options (e.g. bindings, smp, exports, clib, stdin, • tests the “Build system” (e.g. make distcheck) • tests robodoc • tests infos (e.g. doc) • tests parents • tests “web” links (in doc/) 					
max_gcc44	gcc 4.4.4	OpenMPI-GM			yes
<ul style="list-style-type: none"> • Myrinet Network • 16 nodes with 2 CPU • tests the Case_10 in Parallel test suite 					

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ABINIT last build	build successful	build successful	build successful
current activity	idle	idle	idle
time (CEST) changes	testf_gcc44	testf_gcc44_serial	green_intel10
14:35:15 trunk	cleaning done stdio	cleaning done stdio	
	failed (98) stdio	succeeded stdio	
14:23:44	uploading summary.log	uploading summary.log	succeeded stdio
	all tests done stdio xreport extralog full_output fidifflog summary	seq tests done stdio xreport extralog full_output fidifflog summary	uploading summary.log stderr checkout done stdio
13:49:32	downloading to Analysis	to Analysis	set props: username compilo version revno mybranch stdio property changes
	make mj4 done stdio make	make mj4 done stdio make	Build 177
	buildbot.ac copied stdio buildbot_ac	buildbot.ac copied stdio buildbot_ac	
	configure stdio config_mk config_log	configure stdio config_mk config_log	
13:45:01	touch done stdio	touch done stdio	
13:44:09	makemake done stdio	makemake done stdio	
	checkout done stdio	checkout done stdio	
	cleaning done stdio	cleaning done stdio	
13:43:44	set props: username compilo version revno mybranch stdio property changes	set props: username compilo version revno mybranch stdio property changes	
	Build 182	Build 163	

```
trunk_6.7.1-private/r574
=====
Tests SEQ start at 13:49 and done after      1480s

test built_in OK
=====
Serie #tests #succes #passed #failed #missing
=====
atompaw      1         1         0         0         0
bigdft      13        13         0         0         0
etsf_io       9         9         0         0         0
fast        27        27         0         0         0
gwdp        31        31         0         0         0
libxc       10        10         0         0         0
tutoplugs    4         4         0         0         0
tutorespfn  40        40         0         0         0
tutorial    53        53         0         0         0
unitary      4         4         0         0         0
v1          96        96         0         0         0
v2          95        95         0         0         0
v3          93        93         0         0         0
v4          94        94         0         0         0
v5         100       100         0         0         0
v6          74        74         0         0         0
wannier90    3         3         0         0         0
paral       59        59         0         0         0
mpio        9         9         0         0         0
=====
Paral Tests DONE ( time elapsed: 528s )
=====
Powered by Analysis V2.6.8rc1
Date : 04/04/2011
=====
```

```
make multi multi_nprocs=4
make[1]: Entering directory `/home/buildbot/ABINIT/testf_gcc44/pouillon_5.9.3-pub
cd prereqs && make -j4
make[2]: Entering directory `/home/buildbot/ABINIT/testf_gcc44/pouillon_5.9.3-pub
Making all in linalg
make[3]: Entering directory `/home/buildbot/ABINIT/testf_gcc44/pouillon_5.9.3-pub
make -f ../../prereqs/linalg/linalg.mk
make[4]: Entering directory `/home/buildbot/ABINIT/testf_gcc44/pouillon_5.9.3-pub
gzip -cd /home/buildbot/ABINIT/testf_gcc44/pouillon_5.9.3-public/prereqs/linalg/1
touch uncompress-stamp
lapack-abinit_5.8 has been uncompressed.
touch configure-stamp
lapack-abinit_5.8 has been configured.
cd blas && make FC="/usr/local/openmpi_gcc44/bin/mpif90" FFLAGS=" -g -ffree-line
make[5]: Entering directory `/home/buildbot/ABINIT/testf_gcc44/pouillon_5.9.3-pub
/usr/local/openmpi_gcc44/bin/mpif90 -g -ffree-line-length-none -O2 -c caxpy.f
/usr/local/openmpi_gcc44/bin/mpif90 -g -ffree-line-length-none -O2 -c ccopy.f
/usr/local/openmpi_gcc44/bin/mpif90 -g -ffree-line-length-none -O2 -c cdotc.f
/usr/local/openmpi_gcc44/bin/mpif90 -g -ffree-line-length-none -O2 -c cdotu.f
/usr/local/openmpi_gcc44/bin/mpif90 -g -ffree-line-length-none -O2 -c cgemv.f
/usr/local/openmpi_gcc44/bin/mpif90 -g -ffree-line-length-none -O2 -c cgemm.f
/usr/local/openmpi_gcc44/bin/mpif90 -g -ffree-line-length-none -O2 -c cgemv.f
```

BuildSteps

```

franc Case_gwl_4
==== < .(MPI version, prepared for a i386_darwin9.8.0_gnu4.3 computer) ===
Tests > .(MPI version, prepared for a x86_64_linux_gnu4.4 computer)
17
test < .Starting date : Sat 9 Apr 2011.
> .Starting date : Wed 6 Apr 2011.
304
==== < .Using single precision arithmetic ; gwpc = 4 =====
> .Using double precision arithmetic ; gwpc = 8 sing
373
==== < min sum_G |a(n,k,G)| = 0.916063 =====
at > min sum_G |a(n,k,G)| = 0.916064 0
b 433
et < New Fermi energy : 2.684006E-01 Ha , 7.303553E+00 eV 0
> New Fermi energy : 2.684006E-01 Ha , 7.303552E+00 eV 0
457
< .Using single precision arithmetic ; gwpc = 4 0
> .Using double precision arithmetic ; gwpc = 8 0
505
< min sum_G |a(n,k,G)| = 0.916063 0
tuto > min sum_G |a(n,k,G)| = 0.916064 0
tutor < New Fermi energy : 2.668076E-01 Ha , 7.260204E+00 eV 0
tut > New Fermi energy : 2.668076E-01 Ha , 7.260203E+00 eV 0
un 589
< .Using single precision arithmetic ; gwpc = 4 0
> .Using double precision arithmetic ; gwpc = 8 0
637
< min sum_G |a(n,k,G)| = 0.916063 0
> min sum_G |a(n,k,G)| = 0.916064 0
697
< New Fermi energy : 2.665659E-01 Ha , 7.253627E+00 eV 0
> New Fermi energy : 2.665658E-01 Ha , 7.253625E+00 eV 0
721
< .Using single precision arithmetic ; gwpc = 4 0
wann > .Using double precision arithmetic ; gwpc = 8 0
769
< min sum_G |a(n,k,G)| = 0.916063 0
> min sum_G |a(n,k,G)| = 0.916064 0
822
==== < 5 8.445 -9.686 -3.216 -5.577 0.817 -0.224 -8.957 0.729 9.175 =====
Paral > 5 8.445 -9.686 -3.216 -5.577 0.817 -0.225 -8.957 0.729 9.175
829
==== < New Fermi energy : 2.664293E-01 Ha , 7.249911E+00 eV =====
Power > New Fermi energy : 2.664292E-01 Ha , 7.249907E+00 eV
Date 853
< .Using single precision arithmetic ; gwpc = 4
> .Using double precision arithmetic ; gwpc = 8
====
901

```

<http://www.abinit.org/developers/abinit-dev-status/nightly-builds/abinit-6.7/build-status-6.7.html>

Summary

branch	date	testf gcc44	testf gcc44 serial	bigmac gcc43	bigmac gcc44 noplugs	buda gcc43 mpiio	chpit intel11	chum psc	coba2 intel11	fock xlf sernoplug	green g95	green intel10 sernoplug	ibm6 xlf12	inca gcc44 sdebug	littlebuda gcc45 gpu	max gcc44	shiva gcc45 distchk	woopy gcc45	history	
aromero/6.7.1-public/520	01/04	OK	OK	OK	OK	OK	OK	OK			OK	OK			OK	OK			->	
beuken/6.7.1-public/517	21/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	->
boulangue/6.7.1-public/511	12/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	->
bruneval/6.7.1-public/511	01/04	OK	OK	OK	OK	OK	OK	OK		OK	OK	OK	OK	OK		OK		OK		->
caliste/6.7.1-public/516	12/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	->
cea_bruyeres/6.7.1-training/510	13/03	OK	OK	OK	OK	OK	OK	OK		OK	OK	OK	OK		OK	OK		OK		->
cespejo/6.7.1-public/517	01/04				OK					OK		OK								->
deutsch/6.7.1-public/514	31/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK			OK	OK	OK	->
flavio/6.7.1-public/512	28/03	OK	OK	OK	OK	OK	OK	OK		OK	OK	OK	OK	OK	OK	OK		OK		->
franco/6.7.1-public/536	02/04	OK	OK		OK	OK		OK	OK		OK	OK	OK	OK	OK			OK	OK	->
gmatteo/6.7.1-public/519	02/04	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		OK	OK	OK		->	
gmatteo/6.7.1-training/566	01/04	OK	OK		OK	OK		OK	OK	OK	OK	OK	OK		OK	OK	OK	OK	OK	->
gonze/6.7.1-public/567	03/04	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	SKIP	OK	OK	OK	SKIP	->	
gonze/6.7.1-public/569	04/04	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	OK	SKIP	SKIP	SKIP	OK	->	
gonze/6.7.1-training/522	13/03	SKIP	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	->
gonze/6.7.1-training/526	04/04	OK	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	->
jacques/6.7.1-public/519	21/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	->
leroux/6.7.1-public/522	18/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	->
mverstra/6.7.1-public/513	04/04	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		OK	OK	OK	->
sponce/6.7.1-public/536	01/04	OK	OK	OK	OK	OK	OK	OK		OK	OK	OK	OK			OK		OK		->
stankovski/6.7.1-public/512	03/04				OK		OK	OK	OK			OK				OK		OK	OK	->
trunk/6.7.1-private/574	04/04	OK	OK	OK	OK	OK		OK	OK	OK	OK	OK	OK		OK		OK	OK	OK	->
trunk/6.7.1-training/509	07/03	OK	OK	OK	OK	OK	OK	OK		OK	OK	OK	OK	OK		OK				->
waroquiers/6.7.1-public/515	24/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	->

view by slave

buildbot slave : testf (2 x Xeon Quad-Core / CentOS 5.4) with gcc44

This first table concerns the reference platform. On this reference platform, all tests are expected to succeed. Passed or failed tests are highlighted in red to indicate that the corresponding branch will not be merged in the trunk unless the associated issue has been fixed, or discussed with the merge master. The orange colour appears for the abirule tests. For a branch to be merged in the trunk, the automatic tests for other platforms must also succeed or pass (see below).

(#success / #passed / #failed)

Branch (build link)	date	Make	builsys	abirules	distchk	built-in	atompaw	fox	bigdft	etsf_io	fast	gwdp	libxc	seq	tplugs	trespfn	tutor	unit	v1	v2	v3	v4	v5	v6	wan90	paral	mpio
beuken/6.7.2-public/582	05/04-10:14	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	31/0/0	10/0/0	SKIP	4/0/0	40/0/0	53/0/0	4/0/0	96/0/0	95/0/0	93/0/0	94/0/0	100/0/0	74/0/0	3/0/0	59/0/0	9/0/0
franco/6.7.2-public/584	06/04-23:17	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	31/0/0	10/0/0	SKIP	4/0/0	40/0/0	52/1/0	4/0/0	96/0/0	95/0/0	92/0/1	94/0/0	100/0/0	74/0/0	3/0/0	59/0/0	9/0/0
gonze/6.7.2-public/582	05/04-17:47	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	31/0/0	10/0/0	SKIP	4/0/0	40/0/0	53/0/0	4/0/0	96/0/0	95/0/0	93/0/0	94/0/0	100/0/0	74/0/0	3/0/0	59/0/0	9/0/0
gonze/6.7.2-training/592	08/04-09:29	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	31/0/0	10/0/0	SKIP	4/0/0	40/0/0	53/0/0	4/0/0	96/0/0	95/0/0	93/0/0	94/0/0	100/0/0	76/0/0	3/0/0	31/0/31	1/0/8
jacques/6.7.2-public/583	08/04-00:00	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	31/0/0	10/0/0	SKIP	4/0/0	40/0/0	53/0/0	4/0/0	96/0/0	95/0/0	93/0/0	94/0/0	100/0/0	74/0/0	3/0/0	59/0/0	9/0/0
stankovski/6.7.2-public/586	08/04-00:44	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	29/0/2	10/0/0	SKIP	4/0/0	40/0/0	53/0/0	4/0/0	96/0/0	95/0/0	91/0/2	94/0/0	100/0/0	74/0/0	3/0/0	59/0/0	9/0/0
trunk/6.7.2-private/584	07/04-23:16	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	31/0/0	10/0/0	SKIP	4/0/0	40/0/0	53/0/0	4/0/0	96/0/0	95/0/0	93/0/0	94/0/0	100/0/0	74/0/0	3/0/0	59/0/0	9/0/0
trunk/6.7.2-training/586	08/04-12:54	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	31/0/0	10/0/0	SKIP	4/0/0	40/0/0	53/0/0	4/0/0	95/0/1	95/0/0	92/0/1	94/0/0	97/2/1	73/0/1	3/0/0	59/0/0	9/0/0

view by committer

stankovski/6.7.2-public/586

(#success / #passed / #failed)

Slave	date	Make	builsys	abirules	distchk	built-in	atompaw	fox	bigdft	etsf_io	fast	gwdp	libxc	seq	tplugs	trespfn	tutor	unit	v1	v2	v3	v4	v5	v6	wan90	paral	mpio	
testf_gcc44	08/04-00:44	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	29/0/2	10/0/0	SKIP	4/0/0	40/0/0	53/0/0	4/0/0	96/0/0	95/0/0	91/0/2	94/0/0	100/0/0	74/0/0	3/0/0	59/0/0	9/0/0	
testf_gcc44_serial	08/04-00:29	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	29/0/2	10/0/0	33/0/0	4/0/0	40/0/0	53/0/0	4/0/0	96/0/0	95/0/0	91/0/2	94/0/0	100/0/0	74/0/0	3/0/0	SKIP	SKIP	
bigmac_gcc43	08/04-03:04	OK	SKIP	SKIP	SKIP	OK	1/0/0	2/0/0	13/0/0	9/0/0	27/0/0	SKIP	10/0/0	SKIP	0/4/0	35/5/0	40/13/0	4/0/0	95/1/0	88/7/0	81/10/2	79/15/0	79/21/0	53/21/0	0/3/0	39/20/0	7/2/0	
bigmac_gcc44_noplugs	08/04-02:27	OK	SKIP	SKIP	SKIP	OK	SKIP	SKIP	SKIP	SKIP	27/0/0	17/12/2	SKIP	SKIP	SKIP	35/5/0	45/8/0	4/0/0	95/1/0	88/7/0	82/9/2	79/15/0	85/15/0	62/12/0	SKIP	46/13/0	7/2/0	
buda_gcc43_mpio	08/04-01:09	OK	SKIP	SKIP	SKIP	OK	1/0/0	2/0/0	13/0/0	9/0/0	27/0/0	29/0/2	10/0/0	SKIP	4/0/0	40/0/0	53/0/0	4/0/0	96/0/0	95/0/0	91/0/2	94/0/0	100/0/0	74/0/0	3/0/0	57/2/0	9/0/0	
chpit_intel11	08/04-05:35	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	SKIP	9/1/0	SKIP	0/4/0	32/8/0	34/19/0	4/0/0	93/3/0	86/9/0	79/12/2	76/18/0	74/26/0	51/23/0	0/3/0	39/20/0	8/1/0	
chum_psc	08/04-01:33	FAIL	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP
coba2_intel11	08/04-01:00	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	17/12/2	9/1/0	SKIP	0/3/1	31/9/0	36/17/0	4/0/0	95/1/0	83/12/0	83/8/2	73/21/0	69/31/0	57/17/0	0/3/0	43/16/0	8/1/0	
fock_xif_sernoplug	08/04-04:50	FAIL	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP
green_g95	08/04-03:53	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	25/4/2	9/1/0	SKIP	0/4/0	36/4/0	50/3/0	4/0/0	96/0/0	87/8/0	82/9/2	81/13/0	83/17/0	65/9/0	0/3/0	50/9/0	7/2/0	
green_intel10_sernoplug	08/04-01:54	OK	SKIP	SKIP	SKIP	OK	SKIP	SKIP	SKIP	SKIP	27/0/0	17/12/2	SKIP	28/5/0	SKIP	33/7/0	41/12/0	4/0/0	96/0/0	84/11/0	81/10/2	82/12/0	84/16/0	58/16/0	SKIP	SKIP	SKIP	
ibm6_xif12	08/04-03:53	FAIL	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP
inca_gcc44_sdebug	08/04-03:14	OK	6/0/1	8/0/4	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	19/10/2	10/0/0	SKIP	0/4/0	35/5/0	44/9/0	4/0/0	96/0/0	88/7/0	82/9/2	79/15/0	84/16/0	61/13/0	0/3/0	47/12/0	7/2/0	
littlebuda_gcc45_gpu	08/04-01:20	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	19/10/2	10/0/0	SKIP	0/4/0	35/5/0	46/7/0	4/0/0	96/0/0	88/7/0	82/9/2	78/16/0	86/14/0	61/13/0	0/3/0	47/12/0	7/2/0	
max_gcc44	08/04-05:42	OK	SKIP	SKIP	SKIP	OK	0/1/0	SKIP	13/0/0	9/0/0	27/0/0	SKIP	9/1/0	SKIP	0/4/0	33/7/0	37/16/0	4/0/0	96/0/0	85/10/0	81/10/2	80/14/0	78/22/0	50/24/0	0/3/0	50/19/0	SKIP	
shiva_gcc45_distchk	08/04-03:32	OK	SKIP	SKIP	SKIP	OK	1/0/0	2/0/0	13/0/0	8/1/0	27/0/0	17/12/2	9/1/0	SKIP	0/4/0	32/8/0	41/12/0	4/0/0	95/1/0	83/12/0	83/8/2	79/15/0	83/17/0	60/14/0	0/3/0	45/14/0	7/2/0	
woopy_gcc45	08/04-03:41	OK	SKIP	SKIP	SKIP	OK	1/0/0	SKIP	13/0/0	9/0/0	27/0/0	14/15/2	10/0/0	SKIP	0/4/0	34/6/0	41/12/0	4/0/0	96/0/0	86/9/0	83/8/2	79/15/0	81/19/0	61/13/0	0/3/0	45/14/0	SKIP	

“history by committer”

Summary for trunk/6.7.1-private

revno	date	testf gcc44	testf gcc44_serial	bigmac gcc43	bigmac gcc44_noplugs	buda gcc43_mpiio	chpit intel11	chum psc	coba2 intel11	fock xlf_seroplug	green g95	green intel10_seroplug	ibm6 xlf12	inca gcc44_sdebug	littlebuda gcc45_gpu	max gcc44	shiva gcc45_distchk	woopy gcc45
574	04/04	OK	OK	OK	OK	OK	👤	OK	OK	OK	OK	OK	OK	👤	OK	👤	OK	OK
566	31/03	OK	OK	OK	OK	OK	OK	OK	OK	👤	OK	OK	👤	OK	OK	OK	👤	OK
565	31/03	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	👤	SKIP	SKIP	SKIP
563	30/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	👤	OK	OK	OK
562	28/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	👤	OK	OK
561	27/03	OK	👤	OK	OK	OK	OK	OK	OK	👤	OK	👤	OK	OK	OK	SKIP	👤	OK
560	27/03	👤	SKIP	👤	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	👤	SKIP	SKIP	SKIP	SKIP
558	26/03	OK	OK	👤	OK	OK	OK	👤	OK	OK	👤	OK	OK	👤	OK	OK	OK	OK
557	27/03	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	OK	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP
556	27/03	SKIP	SKIP	OK	SKIP	SKIP	SKIP	OK	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP
555	27/03	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	OK	SKIP	SKIP	SKIP	SKIP	SKIP
551	19/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
550	19/03	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	👤	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP
549	19/03	OK	OK	SKIP	SKIP	OK	SKIP	SKIP	👤	SKIP	SKIP	SKIP	SKIP	SKIP	OK	SKIP	SKIP	SKIP
548	19/03	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤
547	19/03	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤	👤
539	12/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
538	12/03	👤	👤	SKIP	SKIP	👤	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP
529	08/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
528	06/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
523	04/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
522	04/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	👤	OK
521	04/03	OK	OK	OK	OK	OK	SKIP	OK	OK	SKIP	OK	OK	SKIP	OK	OK	SKIP	👤	SKIP
520	03/03	OK	OK	OK	OK	OK	OK	OK	OK	OK	SKIP	SKIP	OK	OK	OK	OK	OK	OK
519	03/03	👤	OK	SKIP	SKIP	SKIP	👤	👤	SKIP	👤	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP
518	02/03	OK	OK	OK	OK	OK	👤	OK	OK	OK	OK	OK	👤	OK	OK	👤	👤	OK
517	02/03	OK	OK	OK	OK	OK	OK	OK	👤	OK	OK	OK	OK	OK	OK	OK	OK	SKIP
516	01/03	OK	OK	OK	OK	OK	OK	OK	👤	OK	OK	OK	OK	OK	OK	OK	OK	SKIP
513	01/03	👤	👤	SKIP	SKIP	👤	SKIP	SKIP	👤	SKIP	SKIP	SKIP	SKIP	SKIP	👤	SKIP	SKIP	SKIP
512	01/03	OK	OK	OK	OK	OK	OK	OK	👤	OK	OK	OK	OK	OK	OK	OK	OK	SKIP
511	01/03	OK	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP	SKIP

Outline

- ① Introduction
- ② Reliability and Portability
- ③ Development workflow
- ④ Test farm
 - Slave matrix
- ⑤ **Automation with Buildbot**
 - Overview
 - Builder matrix
 - Standard
 - Special
 - Status
 - **On demand**

“on demand”

- Build “on demand” from a web interface for “power developers”

On demand

Version :
Status

Username :

Branch :

Revno : (0 = last)

Slave :

Compiler :

Current Load on Slaves

testf	bigmac	buda	chpit	chum	coba2	fock	green	ibm6	inca	lbuda	max	shiva	woopy
0.00	0.00	0.16	0.00	0.00	0.06	0.00	0.00	0.00	0.04	2.61	0.00	0.00	0
8	8	8	4	4	4	4	8	4	4	4	2	4	4

- ✓ testf
- bigmac
- buda
- chpit
- chum
- coba2
- fock
- green
- ibm6
- inca
- ktulu
- littlebuda
- max
- shiva
- toum
- woopy
- All Nightly Slaves
- Fast Nightly Slaves
- On-demand only slaves

Builder matrix

builders : on_demand

Name	Compiler	MPI	MATH	misc	world
buda_gcc44	gcc 4.4.4	OpenMPI 1.4.3			yes
<ul style="list-style-type: none"> fast test for developpers (same hardware as reference slave) 					
buda_gcc44_abirules	gcc 4.4.4	MPICH2 1.2.1			yes
<ul style="list-style-type: none"> part of inca : compil, test_in and test abirules only 					
green_intel11	ifort 11.1.073	OpenMPI 1.4.3	MKL	FFTW3	no
<ul style="list-style-type: none"> prepare and install Green production package 					
buda_gcc45_math	gcc 4.5.2	OpenMPI 1.4.3			no
<ul style="list-style-type: none"> tests FFTW3 + SCALAPACK (soon, will replace buda_gcc43_mpiio) 					
ktulu_gcc44	gcc 4.4.4	OpenMPI 1.4.x	ATLAS	FFTW3	no
<ul style="list-style-type: none"> tests the official debian packages (gcc, fftw3, atlas, openmpi and soon abinit + plugins) 					
toum_gcc46	gcc 4.6.0	OpenMPI 1.5.x	GSL		no
<ul style="list-style-type: none"> tests new gcc 					

"on demand for the world"

On demand form

The branch will be tested on slave buda, in one of these two cases :

- (1) all reference tests on "buda_gcc44"
- or (2) abirules tests only (no other test) on "buda_gcc44_abi"

Active version :

Username : (bzzr login)

Branch :

Revno : (0 = last)

The default case is (1) all reference tests.
In this case, you can request the source package to be sent to you :

Send the package if all tests succeed

If you click on the following, (2) only the abirules will be tested :

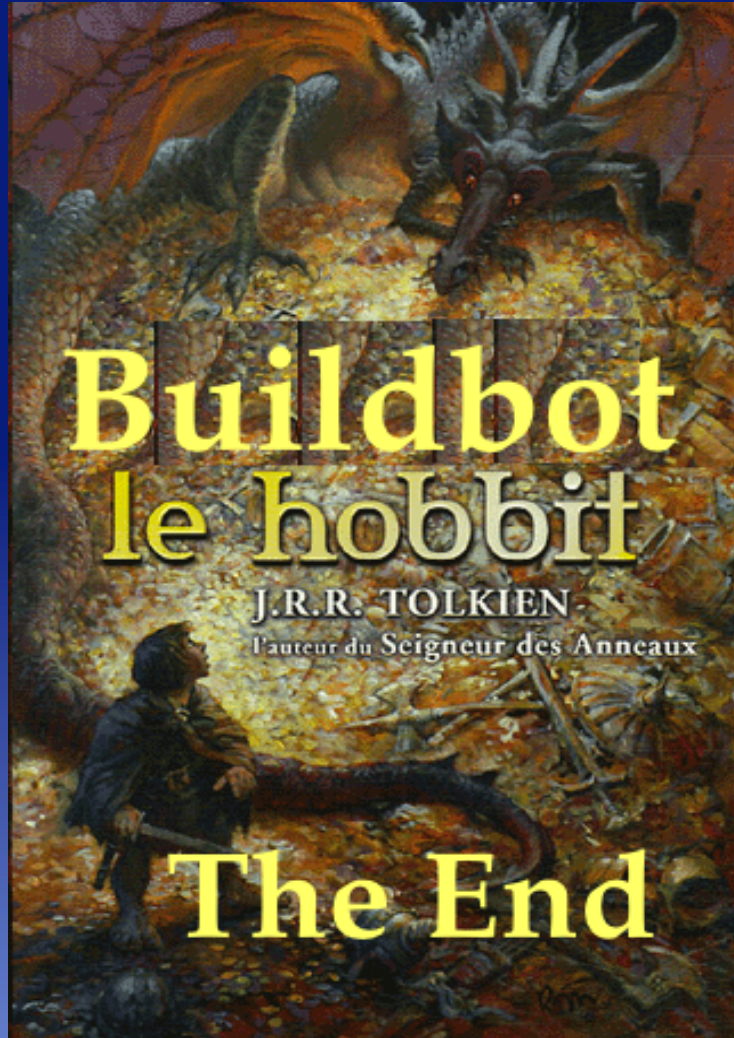
Testing abirules

Please note that if you test only the abirules, the package will not be sent.

http://wwwold.abinit.org/on_demand/

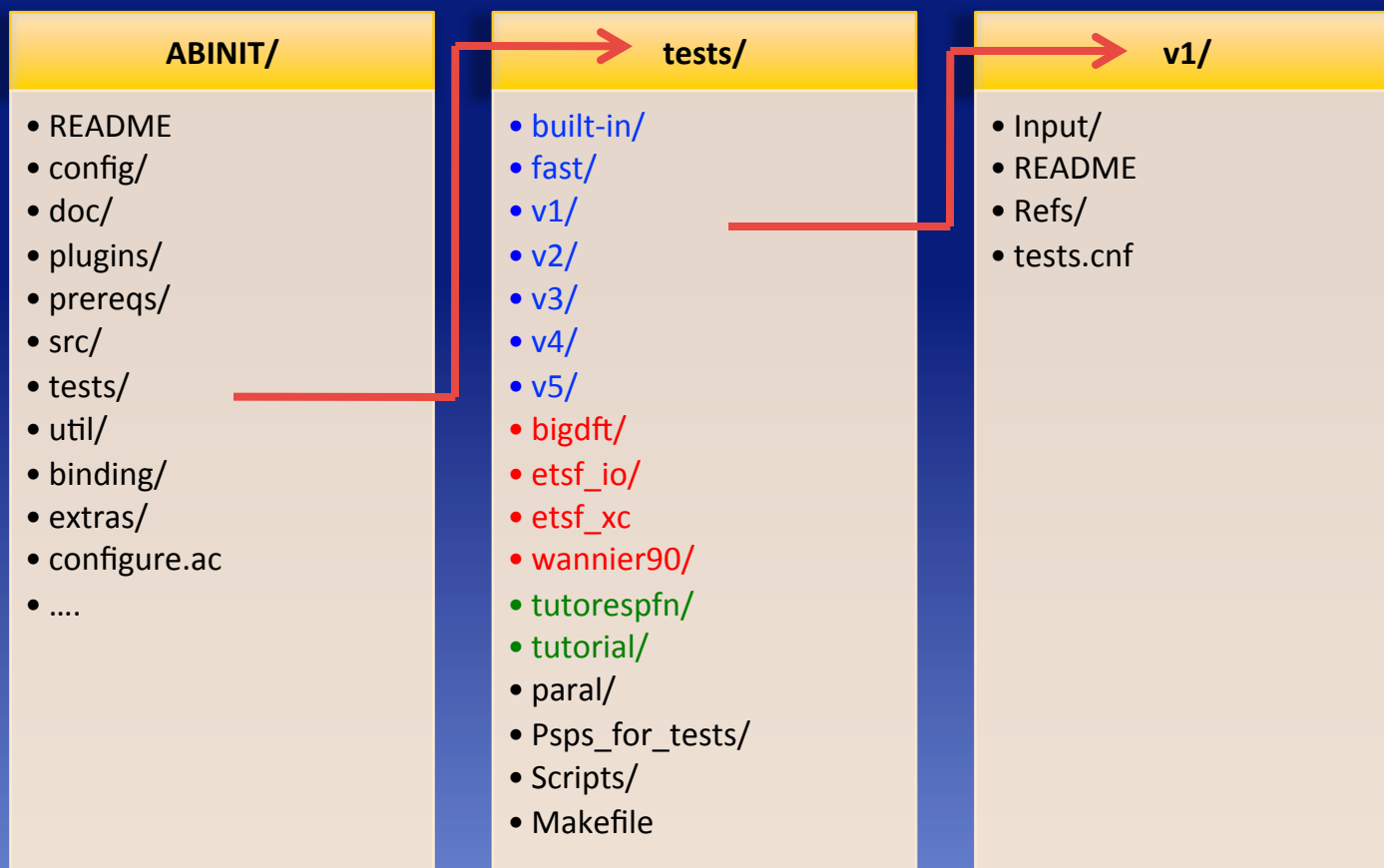
Buildbot : *in future*

- tests a input file (with download of *.in, psps,...)
- support of Scalapack
- ...

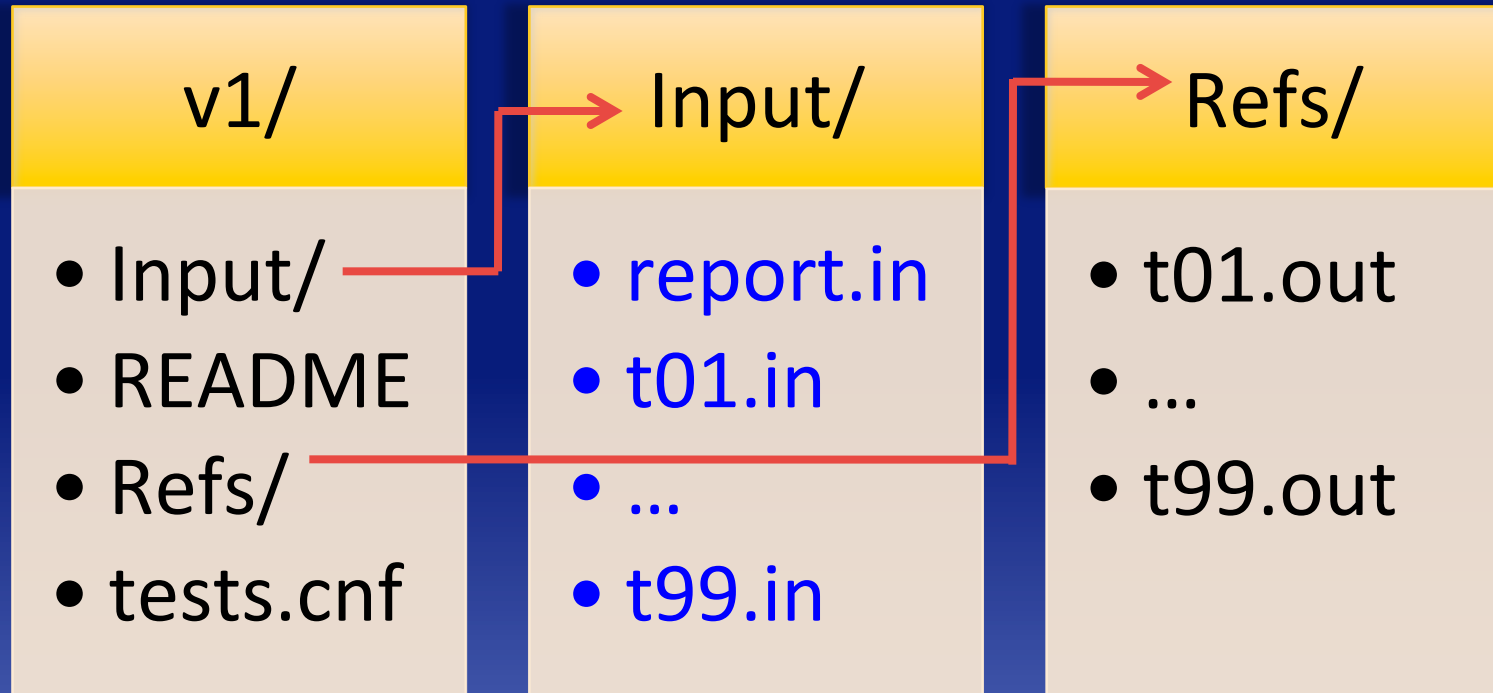


ABINIT test suite (1)

How is organize the ABINIT test suite ?



ABINIT test suite (2)



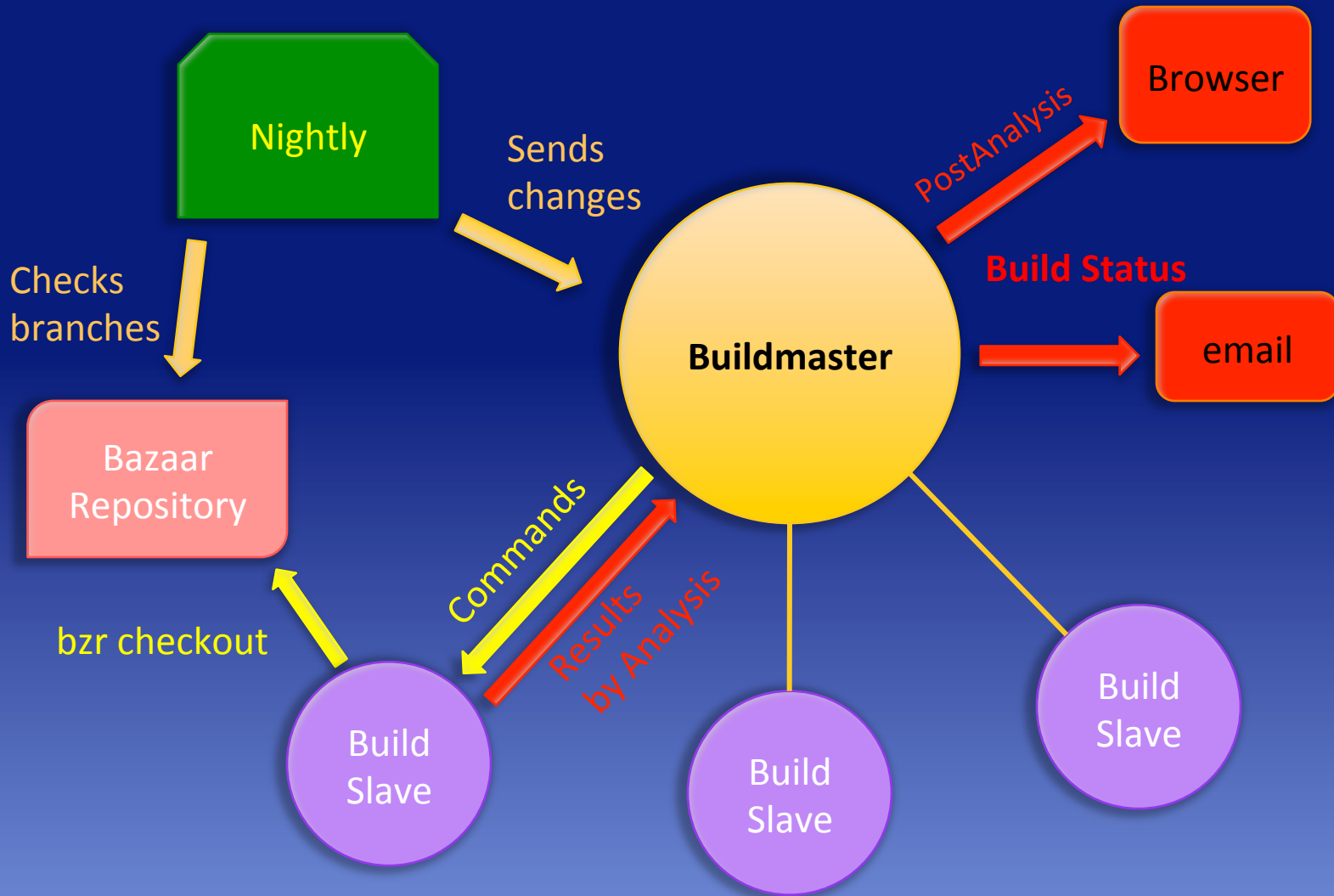
report.in :

Case_01	tolnlines=	0	tolabs=	0.0	tolrel=	0.0
Case_02	tolnlines=	0	tolabs=	0.0	tolrel=	0.0
Case_03	tolnlines=	0	tolabs=	0.0	tolrel=	0.0
Case_04	tolnlines=	0	tolabs=	0.0	tolrel=	0.0
...						

ABINIT test suite (3)

- Scripts/fldiff.pl
 - compare 2 output files from ABINIT line by line with arithmetic comparisons of floating point substrings
- Making tests (in ABINIT/tests/)
 - Sequential tests
 - make test_in
 - make tests_acc
 - grep Summary */*/fldiff.report | grep failed
 - Parallel tests : platform dependent...
 - make tests_paral paral_host=chum-gcc43 paral_mode=seqpar
 - grep Summary paral*/*/fldiff.set* | grep fatal
- On reference platform aka chum (with gfortran43/openmpi), all tests (seq & paral) **MUST** succeed

Buildbot : *BuildProcesses*



Test farm at LLN

testf



ABINIT Reference platform

Bull Novascale R423-E2

Intel 2 x Quad-Core Xeon Nehalem 2.9 GHz

12GB Ram

CentOS 5.3

Compilers : gfortran441, ifort11.1

MPI : OpenMPI 1.3.3

chum



Sun Galaxy X4200M2

AMD 2 x Dual-Core Opteron 2.8 GHz

32GB Ram

CentOS 5.3

Compilers : PGI 7.3.5, Pathscale 3.2

gfortran42, gfortran43, g95,

sunstudio 12, ifort9.1, ifort10.1

MPI : MPICH 1 & 2, OpenMPI 1.3.x

Test farm at LLN

chpit



HP Integrity rx4640 server
Intel 4 x Itanium2 1.5 GHz
8 GB Ram
Debian 5.0.1

Compilers : ifort11.1, gcc441

MPI OpenMPI 1.3.x

bigmac



Apple Mac Pro
Intel 2 x Quad-Core Xeon 2.8 GHz
6 GB Ram
Mac OS X 10.5 Server

Compilers : gfortran43, ifort10.1

MPI : OpenMPI 1.3

Test farm at LLN

green



DELL PowerEdge
2 x Quad-Core Xeon Hapertown 2.5 Ghz
16 GB Ram
Scientific Linux 5.3
Compilers : ifort 10.1, g95, gcc42
MPI : MPICH 1.3.x

fock



IBM OpenPower 720
2 x Dual Core Power5 1.65GHz
32GB Ram
Suse 9.3
Compilers : xlf 9.1
MPI : MPICH 1.2.7

- **Opportunity to run on** :
 - cluster of 18 x Apple Xserver bi-proc PPC G5 2GHz/4Gb per node
- **Very soon** : 1 new slave based on Intel 2 x Quad Core Xeon + GPUs