

## GAMESS-2013May01 for PRIMERGY

### Webpage

<http://www.msg.ameslab.gov/GAMESS/GAMESS.html>

### Version

May 1, 2013

### Tools for Compiling

- Intel Compiler 13.1.1.163
- Intel MPI 4.0.2.003

### Necessary Files for Compiling

- gamess-2013May01.tar.gz (from GAMESS webpage)
- rungms.patch

### Content of rungms.patch

```
--- rungms 2013-08-20 17:19:34.411587000 +0900
+++ rungms.new 2013-08-20 17:19:20.322722000 +0900
@@ -59,10 +59,10 @@
# both Sun Grid Engine (SGE), and Portable Batch System (PBS).
# See also a very old LoadLeveler "ll-gms" for some IBM systems.
#
-set TARGET=sockets
-set SCR=/scr/$USER
-set USERSCR=~$USER/scr
-set GMSPATH=/u1/mike/gamess
+set TARGET=mpi
+set SCR=/work/users/$USER/scr.$$
+if (! -d $SCR) mkdir $SCR
+set GMSPATH=/local/apl/pg/gamess2013May01
#
set JOB=$1 # name of the input file xxx.inp, give only the xxx part
set Verno=$2 # revision number of the executable created by 'lkd' step
@@ -92,16 +92,10 @@
    uniq $TMPDIR/machines
endif
if ($SCHED == PBS) then
- set SCR=/scratch/$PBS_JOBID
+# set SCR=/scratch/$PBS_JOBID
    echo "PBS has assigned the following compute nodes to this run:"
    uniq $PBS_NODEFILE
endif
-#
-echo "Available scratch disk space (Kbyte units) at beginning of the job is"
-df -k $SCR
-echo "GAMESS temporary binary files will be written to $SCR"
-echo "GAMESS supplementary output files will be written to $USERSCR"
-
# this added as experiment, February 2007
# its intent is to detect large arrays allocated off the stack
limit stacksize 8192
@@ -134,6 +128,15 @@
    endif
endif

+set dir=`dirname $JOB`
+set USERSCR=`cd $dir; pwd`
+
```

```

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+echo "Available scratch disk space (Kbyte units) at beginning of the job is"
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+echo "GAMESS temporary binary files will be written to $SCR"
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+
# define many environment variables setting up file names.
# anything can be overridden by a user's own choice, read 2nd.
source $GMSPATH/gms-files.csh
@@ -742,7 +745,7 @@
    setenv I_MPI_DEBUG 0
    setenv I_MPI_STATS 0
    setenv I_MPI_FABRICS dapl
-   setenv I_MPI_DAT_LIBRARY libdat2.so
+   setenv I_MPI_DAT_LIBRARY libdat2.so.2
    # in case someone wants to try the "tag matching interface",
    # an option which unfortunately ignores the WAIT_MODE in 4.0.2!
    #--setenv I_MPI_FABRICS tmi
@@ -1436,6 +1439,7 @@
echo Files used on the master node $master were:
ls -lF $SCR/$JOB.*
rm -f $SCR/$JOB.F*
+rm -f $SCR/$JOB.nodes.mpd
#
# Clean/Rescue any files created by the VB2000 plug-in
if (-e $SCR/$JOB.V84) mv $SCR/$JOB.V84 $USERSCR
@@ -1447,13 +1451,13 @@
if (-e $SCR/$JOB.molf) mv $SCR/$JOB.molf $USERSCR
if (-e $SCR/$JOB.mkl) mv $SCR/$JOB.mkl $USERSCR
if (-e $SCR/$JOB.xyz) mv $SCR/$JOB.xyz $USERSCR
-ls $SCR/${JOB}.*.cube > $SCR/${JOB}.lis
+(ls $SCR/${JOB}.*.cube > $SCR/${JOB}.lis) >& /dev/null
if (! -z $SCR/${JOB}.lis) mv $SCR/${JOB}.*.cube $USERSCR
rm -f $SCR/${JOB}.lis
-ls $SCR/${JOB}.*.grd > $SCR/${JOB}.lis
+(ls $SCR/${JOB}.*.grd > $SCR/${JOB}.lis) >& /dev/null
if (! -z $SCR/${JOB}.lis) mv $SCR/${JOB}.*.grd $USERSCR
rm -f $SCR/${JOB}.lis
-ls $SCR/${JOB}.*.csv > $SCR/${JOB}.lis
+(ls $SCR/${JOB}.*.csv > $SCR/${JOB}.lis) >& /dev/null
if (! -z $SCR/${JOB}.lis) mv $SCR/${JOB}.*.csv $USERSCR
rm -f $SCR/${JOB}.lis
#
@@ -1487,37 +1491,37 @@
# We have inherited a file of unique node names from above.
# There is an option to rescue the output files from group DDI runs,
# such as FMO, in case you need to see the other group's outputs.
-if ($TARGET == mpi) then
- set nnodes=`wc -l $HOSTFILE`
- set nnodes=$nnodes[1]
- @ n=1
- set master=`hostname`
- # burn off the .local suffix in our cluster's hostname
- set master=$master:r
- while ($n <= $nnodes)
- set host=`sed -n -e "$n p" $HOSTFILE`
- # in case of openMPI, unwanted stuff may follow the hostname
- set host=$host[1]
- if ($host != $master) then
- echo Files used on node $host were:
- #-----FMO rescue-----
- #--if ($GDDIjob == true) then
- #-- echo "===== OUTPUT from node $host is ====="
- #-- ssh $host -l $USER "cat $SCR/$JOB.F06*"
- #--endif

```

```

- #-----FMO rescue-----
- ssh $host -l $USER "ls -l $SCR/$JOB.*"
- ssh $host -l $USER "rm -f $SCR/$JOB.*"
- endif
- @ n++
- end
-# clean off the last file on the master's scratch disk.
- rm -f $HOSTFILE
- #
- if ($?_MPI_STATS) then
- if ($!_MPI_STATS > 0) mv $SCR/stats.txt ~/$JOB.$NCPUS.stats
- endif
-endif
+###if ($TARGET == mpi) then
+### set nnodes=`wc -l $HOSTFILE`
+### set nnodes=$nnodes[1]
+### @ n=1
+### set master=`hostname`
+### # burn off the .local suffix in our cluster's hostname
+### set master=$master:r
+### while ($n <= $nnodes)
+### set host=`sed -n -e "$n p" $HOSTFILE`
+### # in case of openMPI, unwanted stuff may follow the hostname
+### set host=$host[1]
+### if ($host != $master) then
+### echo Files used on node $host were:
+### #-----FMO rescue-----
+### #--if ($GDDIjob == true) then
+### #-- echo "===== OUTPUT from node $host is ====="
+### #-- ssh $host -l $USER "cat $SCR/$JOB.F06*"
+### #--endif
+### #-----FMO rescue-----
+### ssh $host -l $USER "ls -l $SCR/$JOB.*"
+### ssh $host -l $USER "rm -f $SCR/$JOB.*"
+### endif
+### @ n++
+### end
+##### clean off the last file on the master's scratch disk.
+### rm -f $HOSTFILE
+### #
+### if ($?_MPI_STATS) then
+### if ($!_MPI_STATS > 0) mv $SCR/stats.txt ~/$JOB.$NCPUS.stats
+### endif
+###endif
#
# IBM SP cleanup code...might need to be something other than 'rsh'.
#

```

## Procedure of Compiling

```

#!/bin/csh -f
umask 022
set file_gamess=/home/users/${USER}/build/games2013May01/games2013May01.tar.gz
set work=/work/users/${USER}
set gamess=games2013May01
set patch_rungms=/home/users/${USER}/build/games2013May01/ccpg/rungms.patch
#-----
cd ${work}
if (-d ${gamess}) then
  mv ${gamess} ${gamess}-erase
  rm -rf ${gamess}-erase &
endif
#-----
tar xzf ${file_gamess}
mv gamess ${gamess}
cd ${work}/${gamess}

```

```

expect <<EXPECT
spawn ./config
expect "After the new window is open"
send "\r"
expect "please enter your target machine name:"
send "linux64\r"
expect "GAMESS directory?"
send "\r"
expect "GAMESS build directory?"
send "\r"
expect "Version?"
send "\r"
expect "Please enter your choice of FORTRAN:"
send "ifort\r"
expect "Version?"
send "12\r"
expect "hit <return> to continue after digesting this message."
send "\r"
expect "hit <return> to continue to the math library setup."
send "\r"
expect "Enter your choice of 'mkl' or 'atlas' or 'acml' or 'none':"
send "mkl\r"
expect "MKL pathname?"
send "/opt/intel/mkl\r"
expect "MKL version (or 'skip')?"
send "skip\r"
expect "hit <return> after you have digested this warning."
send "\r"
expect "please hit <return> to compile the GAMESS source code activator"
send "\r"
expect "please hit <return> to set up your network for Linux clusters."
send "\r"
expect "communication library ('sockets' or 'mpi')?"
send "mpi\r"
expect "Enter MPI library (impi, mvapich2, mpt, sockets):"
send "impi\r"
expect "Please enter your impi's location:"
send "/opt/intel/impi/4.0.2.003\r"
expect "Do you want to try LIBCCHEM"
send "no\r"
expect eof
EXPECT
#-----
cd ${work}/${games}/ddi
./compddi >& compddi.log
cd ${work}/${games}
./compall >& compall.log
./lked >& lked.log
#-----
chmod -R o-rwx source object
find . -name "src" | xargs chmod -R o-rwx
#-----
patch -p0 < ${patch_rungms}

```