

ACCESS

Model system status

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ACCESS model systems team
15 May 2009



Australian Government
Bureau of Meteorology

The Centre for Australian Weather and Climate Research
A partnership between CSIRO and the Bureau of Meteorology



ACCESS Model Systems Team



- Supercomputer
- Porting
- Model versions
- Plans/issues



New Supercomputer



- ANU 12 000 core Sun Constellation system
 - Intel Nehalem quad core processors, 2 per node
 - Linux
 - 140 Tflops peak, similar to new Met Office system
 - Available towards end of year
- BOM 4 000 core Sun Constellation system
 - Available for initial use locally June-July
- Presently have access to a moderate scale example machine in San Diego for application porting
 - Working on porting NWP system
 - Climate model will be simple given experience at NCI



Current NCI systems



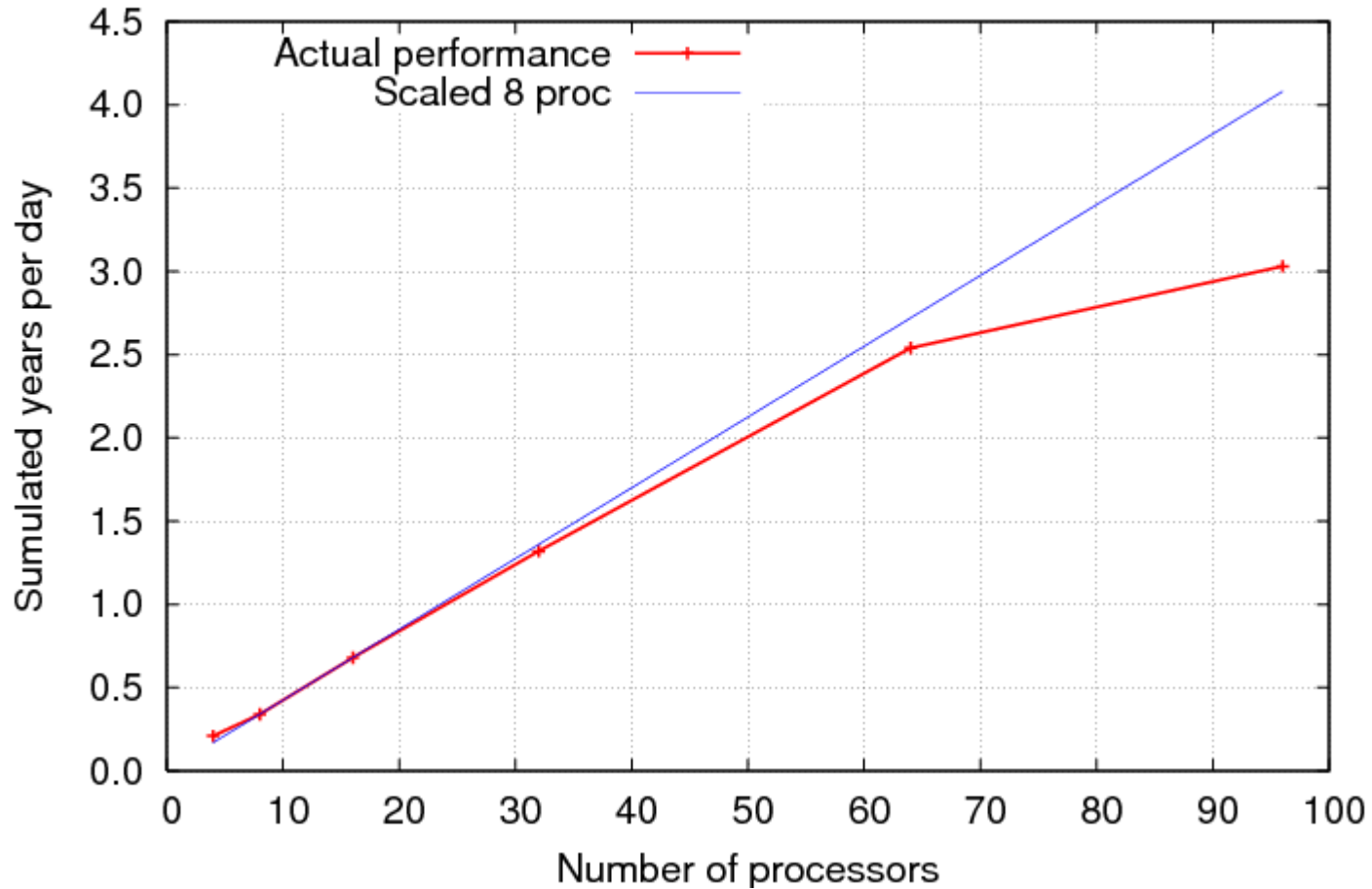
- 1928 processor SGI Altix (AC)
 - 1.6 GHz Intel Itanium2 processors
- 1248 processor SGI Altix XE 1300 (XE)
 - Each node has 2 quad core Intel Xeon 2.8 GHz processors
- UM and AusCOM run equally well on both
- AusCOM 7.5 years/day on 64 processors
- UM approx 3x slower than AusCOM
 - No work on optimisation yet



ACCESS on NCI systems



HadGEM2-A N86 L38 on NCI XE



NCI systems



- From start of 2009, CSIRO share is 1.4 M processor/hours per quarter (650 proc. equivalent)
- CAWCR share is 450,000
- Plus 270,000 share of XE.
- Effectively 360 processors for CAWCR, approx 10-12 SX-6 nodes equivalent
- Accounts:
 - P66 general work
 - P73 for coupled model development for AR5
- Planning a demonstration of how to get started with the UM at NCI



Issues: UM versions



- **Currently running**
 - 6.4 for NWP
 - 6.3 for climate (HadGEM2)
 - 6.6 for UKCA
- **We have external release of 7.1**
 - Includes UKCA, HadGEM3 coupling code
 - All Met Office NWP configurations currently use 7.1
 - Currently being tested
- **Need to move climate version to 7.1**
- **7.3 will have Met Office IBM optimisations. Internal release expected April. Externally ???**



Climate versions



- Initial AMIP experiment was done with HadGEM1a like version, but with PC2
 - Harun doing a repeat check experiment at NCI
- Now have exact HadGEM2 setup with vn 6.6
 - Test this at NCI
 - Test same atmospheric configuration in 7.1



Climate model data



- Data available from OpenDAP server at <http://opendap.csiro.au/opendap/ACCESS/>
- Apart from our run, also have data from Met Office HadGEM2-A and HadGEM3 experiments
- What extra diagnostics should we save from new runs? See list at <http://d2:8011/um/wiki/ACCESSClimateModelExperimentsVarList>



Climate model development



- **CABLE**
 - CABLE is running in 3D UM
 - Changing ancillary files, fixing model diagnostics
 - More soil levels, vegetation classes
- **Coupled ocean model**
 - Coupling interface complete
 - Problems with memory usage
 - Problems with interpolation around coastlines and some atmospheric fields



Issues on NCI systems



- Optimisation
- Where to post-process and store data
- Data transfer
- Where to run UIs
- University collaboration?





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Thank you

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