

# UPDATE ON TWR DATA 2003 AT UCI

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- **Status of TWR Data 2003**
- **Merging and filtering the data**
- **Upcoming plan**

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# Status of TWR data 2003

- The entire data set 2003 (**over 15 TB**) transferred to the SRB system in San Diego
- All data stored on hard drive: SRB system has 'virtually' **unlimited time and space capabilities**
- Muon DAQ data filtered by the Zeuthen group also transferred to SRB system
- Two ways for TWR data filtering:
  - Implement TWR-reader and use Siegliende framework: but TWR-reader not yet available.
  - **Implement and use merging package (current method used)**

# Data Merging

- Merging package:
  - **TWR-READER**: converts twr-binary into ROOT-binary format
  - **MERGER**: merges TWR-ROOT and F2k files into a single F2k file with waveforms
- Tests done on current reader & merging package **version 2004: works fine for data 2003.**
- Tests done first on local '**Pentium 32-bit**' machines
- Next step: implementation of merging package on **TeraGrid cluster (Itanium 64-bit).**

# THE TERAGRID CLUSTER WE ARE USING

[tg-login.sdsc.teragrid.org](http://tg-login.sdsc.teragrid.org)

COMPONENT	DESCRIPTION
Architecture	Linux Cluster
Access Nodes	quad-processor ECC SDRAM memory: 8 GB 2 nodes (8 processors)
Compute Nodes	dual-processor ECC SDRAM memory: 4 GB 128 nodes (256 processors)
Processor	Intel® Itanium® 2, 1.3 GHz Integrated 3 MB L3 cache Peak performance 5.2 Gflops
Network Interconnect	Myrinet 2000, Gigabit Ethernet, Fiber Channel
Disk	1.6 TB NFS
Operating System	Linux 2.4.19-SMP (SuSE SLES 8.0)
Compilers	Intel: Fortran77/90/95 C C++ GNU: Fortran77 C C++

# TeraGrid software implementation

- TeraGrid has different architecture:
  - Intel Itanium 64-bit
  - ( a PC usually has a Pentium 32-bit )
- All software needs to be compiled on this architecture
- Software needed for the merger:
  - **ROOT** (compiled and installed successfully)
  - **RDMC** (compiled and installed successfully)
  - **TWR-reader & merger** (compiled and installed successfully)
- **Important:** Memory allocation of 64-bit machines has to be taken into account. It does work differently on 32-bit machines. (otherwise lots of segmentation violations!!!)

# Status and Upcoming Plan

- Merging tests done on L1 muon DAQ data:
  - A deficit of 25-30% of merged events observed due to different trigger configuration
  - To ensure to merge same events: GPS time and same OM-hits configuration are taken into account
- TeraGrid cluster reads and merges properly the data
- Test done on 10x2 nodes (in tot. 256 processors available)
- Merging of all filter-levels (L1, L2,...) is underway
- Soon filter data with waveforms available:
  - Total size of L1 TWR filter data ~ 1TB
- WF info included in F2k data to improve results on many AMANDA analyses.