

University Based Gratia Collector Hardware Requirements

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At the request of the OSG Executive Director (Ruth Pordes), the Gratia Operations team has generated the following "University" based Gratia collector hardware specifications based on three (3) tiers of "University" clusters.

Tier 3 = Under 100 worker nodes & under 100 TBytes of storage:

Tier 2 = Under 1000 worker nodes & under 1000 TBytes of storage:

Tier 1 = Over 1000 worker nodes or over 1000 TBytes of storage:

Tier 3 – Gratia Collector System configured as follows:

- Case: 2U "tool-less" rack mount server case with sliding rack rails.
- CPU: Intel Core 2 duo @ 2.5 GHz or greater
- Memory: 2 GBytes of memory
- Gigabit Ethernet
- System disk: minimum 300 GBytes
- Gratia database disk: 2 x 1 TByte 7.2K RPM
- Raid controller: Gratia database disks configured as Raid-1 (net 1 TB).
- Operating System: RHEL 5 or SL 5, 32 bit
- Estimated Cost = \$1,000.

Tier 2 – Gratia Collector System configured as follows:

- Case: 2U "tool-less" rack mount server case with sliding rack rails.
- CPU: dual Intel Core 2 duo or Intel Core 2 quad @ 2.5 GHz or greater
- Memory: minimum 4 GBytes of memory
- Gigabit Ethernet
- System disk: minimum 300 GBytes
- Gratia database disk: 4 x 1 TByte 7.2K RPM
- Raid controller: Gratia database disks configured as Raid-10 (net 2 TB).
- Operating System: RHEL 5 or SL 5, 32 bit
- Estimated Cost = \$1,400.

Tier 1 – Gratia Collector System configured as follows:

- Case: 2U "tool-less" rack mount server case with sliding rack rails.
- CPU: dual Intel Core 2 quad 2.5 GHz or greater
- Memory: minimum 8 GBytes of memory
- Gigabit Ethernet
- System disk: minimum 300 GBytes
- Gratia database disk: 6 x 1.5 TByte 7.2K RPM
- Raid controller: Gratia database disks configured as Raid-10 (net 4 TB).
- Operating System: RHEL 5 or SL 5, 64 bit
- Estimated Cost = \$2,400.

Just for completeness, here are the individual system specifications for the new "Tier 0" Fermilab gratia servers (we have a total of 4 systems, 2 for OSG and 2 for Fermilab - each pair of systems are being configured to run in a redundant mode to offer both high performance and high availability):

- SuperMicro SC836TQ-R800B 3U rack mount Chassis with sliding rack rails for industry standard square hole racks and space for sixteen (16) hot-swap sas/sata 3.5" disk drives.
- SuperMicro X8DTi-F Mainboard with Intel 5520 (Tylesburg) chipset.
- Dual (2) Xeon X5570 ("Nehalem") quad (4) core CPUs @ 2.93 GHz.
- 48 GBytes of DDR3-1333 memory (6 sticks of 8 GBytes each).
- Dual redundant power supply (800 watts each supply).
- DVD/CD for software installation.
- Dual LSI Logic MegaRAID 8708ELP or 8708EM2 SAS/SATA controllers with battery backup:
 - First controller configured with two (2) volumes, each individual volume consisting of two (2) disks in a RAID 1 configuration.
 - Second controller configured with one (1) volume, consisting of eight (8) disks in a Raid 10 configuration.
- Four (4) 3.5" 300 GByte 15K RPM Serial Attach Scsi (SAS) disks.
- Eight (8) 3.5" 1 TByte 7.2K RPM Serial Attach Scsi (SAS) disks.
- Redhat Enterprise 5 (SLF 5) 64-bit Operating System.

Estimated cost = \$13,000 each.