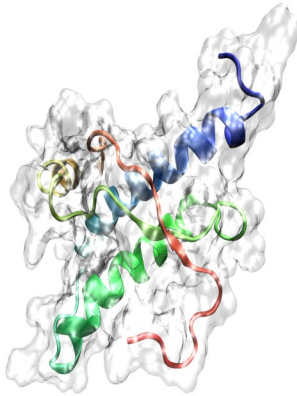
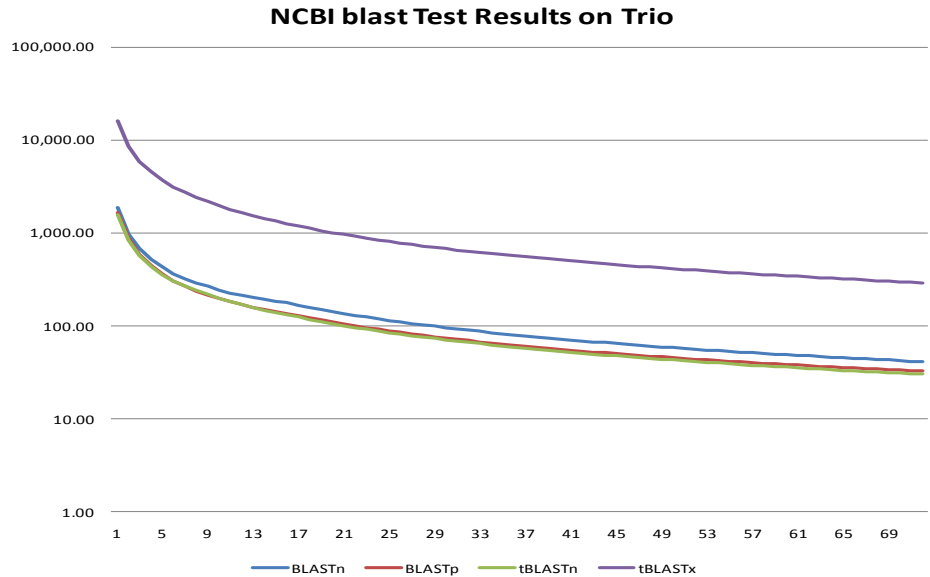



**Trio™ Departmental SuperComputer**

# NCBI BLAST Performance



*Life is a BLAST!*



Search Name	Query Type	# of Query	# of Sequences	Sequences per second	End Process Time—72 Cores	Speed Up with 64/72 Cores
<b>Blastn</b>	Nucleotide	100	8,409,602	204,645	41.09 sec	41/45
<b>Blastp</b>	Peptide	40	8,097,822	249,968	32.4 sec	46/51
<b>Tblastn</b>	Peptide	10	8,409,602	280,020	30.03 sec	47/53
<b>Tblastx</b>	Nucleotide	10	8,409,602	28,949	4 min 52 sec	49/55

The National Center for Biotechnology Information (NCBI) Basic Local Alignment Search Tool (BLAST) was executed on a Trio™ Departmental Supercomputer against the full nt and nr database.

The benchmarks were run four times. Both databases resided in global shared memory which eliminated HDD access latency and improved performance. Scaling efficiency values based on peak theoretical performance are shown as a point of reference. Speed-up performance was calculated at 47 times for 64-cores and 53 times for 72 cores (73% efficient); at a rate of 5.14 million searched per second. It took approximately 2 hours to finish a single run with 72 cores versus 4 days, 18 hours on a single core.

### Trio™ Test System Configuration

Processors: 72 2.6 GHz AMD Opteron™ Cores  
 Memory: 384 GB 667 MHz DDR2 (8 GB DIMMs)  
 (Global Shared Memory of 300 GB)  
 Node Interconnect: 40 Gbps InfiniBand

Trio™ Departmental Supercomputers are now available with 96 2.4 GHz AMD Opteron™ cores and 384 GB, 768 GB or 1.54 TB DDR3 memory.

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