



Oracle Database Semantic Technologies Performance Summary for Sun M8000 Server

Degrees of Parallelism	Data set	Load (B triples/min.)	Inference (M triples/min.)	Query load  inference (M answers/min.)
128	LUBM 8K	1.1B / 28' 11" *	869M / 62'	149+ m in 4.3'
64	LUBM 8K	1.1B / 53' 49"	869M / 114'	149+ m in 4.3'

Setup:

Hardware: Sun M8000 -- 16 SPARC64 VII+ 3.0 GHz CPUs [64 total Cores 128 Parallel Threads] -- 512 GB Ram -- Dual F5100 Flash Arrays (160 total drives)

Storage required: 330GB + 110GB of temporary table space

Software: Oracle Database 11.2.0.2.0 + Patch 9825019: SEMANTIC TECHNOLOGIES 11G R2 FIX BUNDLE 3

SGA_TARGET=256G and PGA_AGGREGATE_TARGET=206G

* 1.1B / 28' 11" means 1.1 billion triples in 28 minutes and 11 seconds

Configuration 1: Load Performance on Sun M8000

Data Set	Triples Loaded	Time	Degrees of Parallelism
LUBM 8K	1.1B	28', 11" 53', 49"	DOP = 128 DOP = 64

SQL*Loader invoked in 117 background sessions with "parallel=true, direct=true"

Setup:

Hardware: Sun M8000 -- 16 SPARC64 VII+ 3.0 GHz CPUs [64 total Cores 128 Parallel Threads] -- 512 GB Ram -- Dual F5100 Flash Arrays (160 total drives)

Storage required: 330GB + 110GB of temporary table space

Software: Oracle Database 11.2.0.2.0 + Patch 9825019: SEMANTIC TECHNOLOGIES 11G R2 FIX BUNDLE 3
SGA_TARGET=256G and PGA_AGGREGATE_TARGET=206G



Configuration 1: Inference Performance on Sun M8000

Data Set (# Triples)	Triples Inferred	Time	Degrees of Parallelism
LUBM 8K (1.1B)	869M	62' 114'	DOP = 128 DOP = 64

- **Inference:** OWLPrime + components:
INTERSECT, INTERSECTSCOH, SVFH
- **Options used:** RAW8, hash partitioning, and sub partitioning

Configuration 1: Query Performance on Sun M8000

DOP 64 &128: **149,248,509 answers generated for LUBM 8K in 259.62 sec.**

Ontology LUBM 8K 1.1 billion triples & .9 billion inferred		LUBM Benchmark Queries						
OWLPrime & new inference components	Query	Q1	Q2	Q3	Q4	Q5	Q6	Q7
	# answers	4	2528	6	34	719	83.6M	67
	Complete?	Y	Y	Y	Y	Y	Y	Y
	Time (sec)	0.02	19.46	0.01	0.01	0.04	16.39	16.39
	Query	Q8	Q9	Q10	Q11	Q12	Q13	Q14
	# answers	7790	2.2M	4	224	15	37118	63.4M
	Complete?	Y	Y	Y	Y	Y	Y	Y
	Time (sec)	1.1	186.48	0.01	0.01	0.03	6.15	13.52