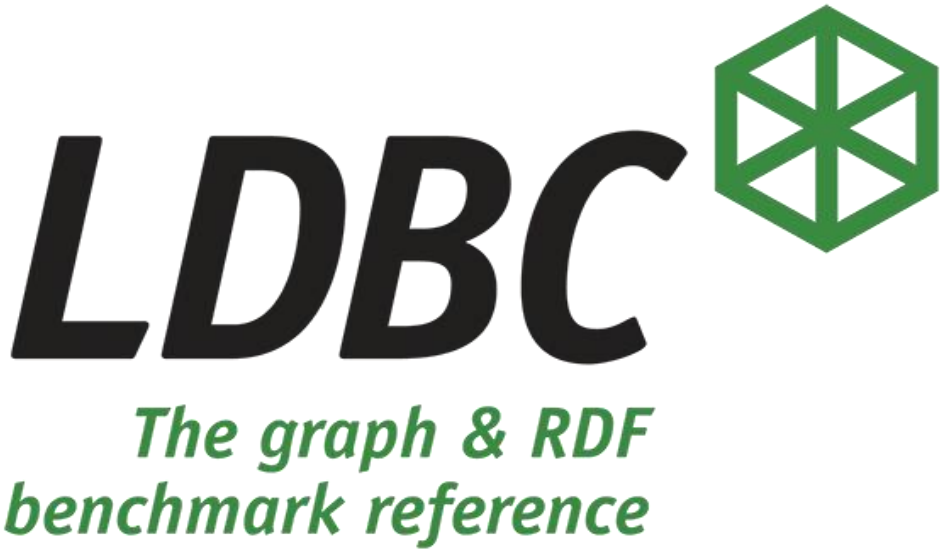

Social Network Benchmark
Interactive Workload
Full Disclosure Report

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24/04/2015

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Preface

This is the Full Disclosure Report for the LDBC SNB interactive audit results for Sparksee 5.1.1 by Sparsity Technologies, Scale Factor SF10, on a single server configuration.

General Terms

Test sponsor of this benchmark is Sparsity Technologies, Spain. Sparsity technologies is a leading provider of graph database and applications that use the graph to add value to our customers. Our high end technologies, based on top research, combine the experience of University researchers and Industrial professionals. We have a vast Industrial experience to push your development to a more competitive customer solution. Sparsity was created based on the technologies developed at DAMA-UPC, and have successfully provided solutions to clients such as Barclays, Acceso, CA Technologies, MPG and contributed to leading European Projects such as LDBC and CoherentPaaS.

This report contains an audited LDBC benchmark run. The results have been gathered by an independent and impartial auditor, who has validated the implementation of the queries and the overall system's configuration conform to the description of the benchmark and his strict requirements.

1. System Description

1.1 Database System

Vendor Name	Sparsity Technologies
Database Name	Sparksee
Version No	5.1.1

Table 1: DBMS Characteristics

1.2 Database Engine Configuration

Cache Configuration	Default
Transaction Isolation Level/Model	Serializable
Special settings	sparksee.io.rollback=false sparksee.io.recovery=true sparksee.io.recovery.checkpointTime=0

Table 2: Database Engine Configuration

1.3 Platform Description

Model	
Processors	2X INTEL XEON E5-2630 V3
Memory	8X 32GB LRDIMM, 2133 MT/S
No Disks/Type/Storage Configuration	2X80GB SSD SATA MLC 6GB/S IN HOT-PLUG DRIVE 1X2TB SATA 6GB/S 7,2K RPM 3,5" HDD
Network Adapters	BROADCOM 5720
Operating System	DEBIAN GNU/LINUX 7.8 (WHEEZY)
File System	EXT4
No Threads	32
No Cores	16
Memory	256 GB
Total Disks Capacity	2.16 TB

Table 3: System Configuration

Storage	Intel Corporation Wellsburg 6-Port SATA Controller
RAID/HBA controller	Not installed

Table 4: No Disks/Type/Storage/Configuration

1.4 Network Infrastructure Information

Model	Not applicable
Network Switches	Not applicable
Wiring Information	Not applicable

Table 5: Network Infrastructure Information

2. Data Generation & Loading

2.1 Dataset Information

2.1.1 Description

Scale Factor	30
Data Format	CSV
Data Generator Version	v.0.2.0
Time Compression ratio	0.16

Table 6: Dataset characteristics

2.1.2 Data Generator Parameters

```
ldbc.snb.datagen.generator.scaleFactor: 10
ldbc.snb.datagen.serializer.compressed:false
ldbc.snb.datagen.serializer.personSerializer:
        ldbc.snb.datagen.serializer.snb.interactive.CSVPersonSerializer
ldbc.snb.datagen.serializer.invariantSerializer:
        ldbc.snb.datagen.serializer.snb.interactive.CSVInvariantSerializer
ldbc.snb.datagen.serializer.personActivitySerializer:
        ldbc.snb.datagen.serializer.snb.interactive.CSVPersonActivitySerializer
ldbc.snb.datagen.generator.numThreads:4
ldbc.snb.datagen.serializer.updateStreams:true
```

2.3. Bulk Loading

Loading Time	63min 10s

Table 7: Bulk Loading Time

3. Benchmark Test Driver

3.1. Basic test driver configuration details

No of worker threads	16
No of write streams	8

Table 8: Basic Test Driver Configuration Details

3.2. Configuration Parameters for Driver Warmup

Warmup using the first 40,000 operations

3.3. Configuration Parameters for Driver Execution

See user_parameters.properties, startup with 16 worker threads and TCR = 0.61

4. Performance Metrics

Duration	Operations	Throughput	% above threshold
20.2min	**123,000**	**101.2**	**4.71%**
Query	**Count**	**Mean**	**% Execution**
Complex 1	1,045.0	380.5	3.14%
Complex 2	734.0	408.3	2.37%
Complex 3	296.0	746.4	1.74%
Complex 4	755.0	356.1	2.12%
Complex 5	411.0	420.9	1.37%
Complex 6	115.0	605.8	0.55%
Complex 7	503.0	368.3	1.46%
Complex 8	1,812.0	387.3	5.54%
Complex 9	95.0	2,960.5	2.22%
Complex 10	776.0	472.0	2.89%
Complex 11	1,430.0	395.1	4.46%
Complex 12	618.0	419.6	2.05%
Complex 13	1,430.0	1,255.9	14.18%
Complex 14	554.0	1,714.2	7.50%
Short 1	13,345.0	47.4	4.99%
Short 2	13,343.0	30.4	3.21%
Short 3	13,342.0	32.7	3.45%
Short 4	13,234.0	51.3	5.36%
Short 5	13,234.0	23.5	2.46%
Short 6	13,232.0	21.6	2.26%
Short 7	13,231.0	20.7	2.17%
Update 1	6.0	922.2	0.04%
Update 2	3,088.0	174.0	4.24%
Update 3	5,014.0	149.5	5.92%
Update 4	93.0	176.6	0.13%
Update 5	7,647.0	165.4	9.99%
Update 6	1,117.0	111.8	0.99%
Update 7	2,198.0	166.3	2.89%
Update 8	302.0	137.8	0.33%

Table 10: Execution Summary

Query	Min	Max	Mean	50th	90th	95th	99th
Complex 1	D	4,903.0	380.5	57.0	913.6	1,163.8	3,355.5
Complex 2	1.0	4,979.0	408.3	89.5	939.8	1,408.4	3,292.2
Complex 3	162.0	4,663.0	746.4	552.0	1,374.5	1,571.0	3,385.4
Complex 4	1.0	4,807.0	356.1	57.0	886.0	1,016.4	3,119.5
Complex 5	2.0	4,380.0	420.9	212.0	975.0	1,409.0	2,965.2
Complex 6	2.0	5,188.0	605.8	319.0	1,180.2	1,293.2	2,957.9
Complex 7	1.0	4,815.0	368.3	65.0	899.0	1,036.3	2,934.0
Complex 8	9.0	5,519.0	387.3	79.0	926.0	1,062.8	3,118.4
Complex 9	1,493.0	5,999.0	2,960.5	2,965.0	3,781.4	4,350.5	5,897.5
Complex 10	8.0	5,378.0	472.0	174.5	1,036.5	1,197.5	3,356.0
Complex 11	6.0	5,449.0	395.1	93.0	934.0	1,146.3	3,066.2
Complex 12	17.0	4,414.0	419.6	113.0	996.6	1,414.5	3,057.8
Complex 13	7.0	6,219.0	1,255.9	1,220.5	1,967.1	2,881.2	4,290.7
Complex 14	107.0	8,346.0	1,714.2	1,440.0	3,529.8	4,905.2	6,188.5

Table 11: Complex reads detail

Query	Min	Max	Mean	50th	90th	95th	99th
Short 1	1.0	5,497.0	47.4	17.0	69.0	120.0	1,004.6
Short 2	1.0	5,494.0	30.4	22.0	49.0	65.0	129.0
Short 3	1.0	5,003.0	32.7	21.0	45.0	57.0	120.6
Short 4	1.0	5,499.0	51.3	17.0	72.0	129.0	1,011.0
Short 5	1.0	5,498.0	23.5	16.0	36.0	50.0	110.3
Short 6	1.0	3,369.0	21.6	15.0	35.0	47.0	91.0
Short 7	1.0	3,438.0	20.7	14.0	31.0	39.0	84.7

Table 12: Short Reads detail

Query	Min	Max	Mean	50th	90th	95th	99th
Update 1	28.0	1,719.0	922.2	865.5	1,551.5	1,635.3	1,702.3
Update 2	6.0	6,228.0	174.0	23.0	753.6	998.3	2,978.0
Update 3	6.0	6,468.0	149.5	23.0	547.5	964.7	1,869.8
Update 4	9.0	2,762.0	176.6	28.0	926.4	983.8	1,417.9
Update 5	6.0	6,423.0	165.4	23.0	665.8	988.0	2,454.0
Update 6	10.0	5,504.0	111.8	24.0	60.0	905.4	1,711.6
Update 7	10.0	7,747.0	166.3	27.0	610.2	977.3	2,493.3
Update 8	6.0	4,939.0	137.8	23.0	120.8	865.8	1,883.8

Table 13: Updates detail

5. Recovery

Time to Recover	0.424ms

Table 14: Recovery

6. Pricing Summary

	Item	*Price*
	SPARKSEE 5.1.1 SME LARGE 3Y	21,600.00 €
	DELL R730	8,827.94 €
TOTAL		30,427.94 €

Table 15: Pricing Information

7. Attachment's CheckList

DATAGEN PARAMS.INI	Attached
DRIVER'S LDBC-CONFIGURATION.PROPERTIES	Attached
DRIVER'S LDBC-RESULTS.JSON	Attached
VENDOR SPECIFIC CONFIGURATION FILES	sparksee.cfg

Table 9: Checklist