

TPC Benchmark™ H Full Disclosure Report for



SPARC M10-4S

**Using
Oracle Database 11g Release 2
Enterprise Edition
with Partitioning**

February 5, 2014

First Edition

First Edition – February 5, 2014

*SPARC M10-4S
using Oracle Database 11g Release 2 Enterprise Edition
with Partitioning*

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Benchmark results are highly dependent upon workload, specific application requirements, system design and implementation. Relative system performance will vary as a result of these and other factors. Therefore, TPC Benchmark™ H should not be used as a substitute for a specific customer application benchmark when critical capacity planning and/or product evaluation decisions are contemplated.

All performance data contained in this report were obtained in a rigorously controlled environment. Results obtained in other operating environments may vary significantly. We do not warrant or represent that a user can or will achieve similar performance. No warranty of system performance or price/performance is expressed or implied in this report.

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Abstract

Overview

This report documents the methodology and results of the TPC Benchmark H test conducted with the Oracle Database 11g Release 2 based on a SPARC M10 Server in conformance with the requirements of the TPC-H Benchmark Specification.

The benchmark results are summarized in the following table.

Software	Hardware	Total System Cost	QphH @1000GB	Price/QphH @1000GB
Solaris 11	SPARC M10-4S	¥497,594,500	326,454.1	¥1,524.25

The Transaction Processing Performance Council (TPC) developed the TPC-H Benchmark. The TPC was founded to define transactions processing benchmarks and to disseminate objective, verifiable performance data to the industry.

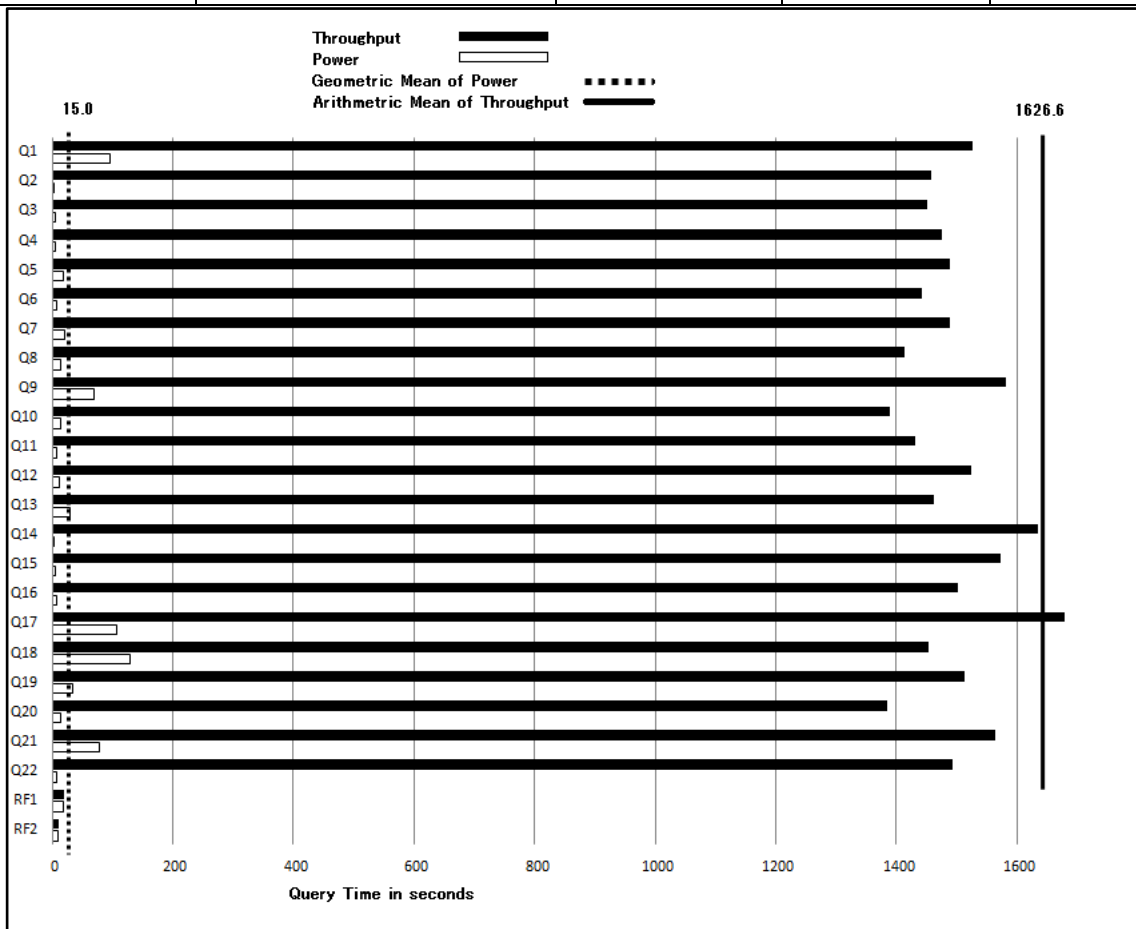
Standard and Executive Summary Statements

The Executive Summary and Numerical Quantities Summary of the benchmark results for the SPARC M10-4S can be found in the following pages.

Auditor

In order to verify compliance to the TPC-H benchmark specification, Francois Raab, of Infosizing Inc., audited the benchmark configuration, environment, and methodology used to produce and validate the test results, and the pricing model used to calculate the price/performance.

	SPARC M10-4S with Oracle Database 11g Release 2		TPC-H Rev. 2.16.0 TPC-Pricing 2.0.0	
			Report Date February 5, 2014	
Total System Cost	Composite Query per Hour Metric		Price / Performance	
¥ 497,594,500	326,454.1 QphH@1000GB		¥ 1, 524. 25 ¥ / QphH@1000GB	
Database Size	Database Manager	Operating System	Other Software	Availability Date
1000 GB	Oracle Database 11g Release 2 Enterprise Edition with Partitioning	Oracle Solaris 11 11.1.8.4.0	C++ Compiler	February 5, 2014



Database Load Time = 01:33:47
 Load Includes Backup: N
 Data Storage / Database Size = 65.8
 Memory to Database Size Percentage = 300%

Storage Redundancy Levels:
 Base Tables: Level Three
 Auxiliary Data Structures: Level Three
 DBMS Temporary space: Level Zero
 OS and DBMS software: Level One

System Configuration:
 Processors:
 Memory:
 Storage:

SPARC M10-4S Server
 4 SPARC64™ X 3.0 GHz processors (each is 1 chip, 16 cores, 32 threads)
 2TB
 7 Expansion File Unit with a total of
 70 2.5" 200GB SAS SSD
 2 ETERNUS DX410 S2 with a total of
 72 3.5" 400GB SAS SSD
 72 3.5" 15Krpm 300GB SAS HDD
 1 2.5" 10Krpm 600GB SAS HDD (Internal for SPARC M10-4S)
 4 2.5" 200GB SAS SSD (Internal for SPARC M10-4S)
 65,800GB (1 GB = 1024 * 1024 * 1024 bytes)

Total Storage:



SPARC M10-4S

With Oracle Database 11g

Release 2

TPC-H Rev. 2.16.0
TPC-Pricing 2.0.0

Report Date
February 5, 2014

Description	Part Number	Price Source	Unit Price	Qty	Extended Price	3yr. Maint. Price
Server Hardware						
SPARC M10-4S Base Unit (2 x SPARC64™ X 3.0GHz CPU, Solaris 11.1 Pre-installed)	SPMCBAA1EF	1	14,193,000	1	14,193,000	6,948,720
CPU Module (2 x SPARC64™ X 3.0GHz CPU)	SPMC1AA1F	1	3,222,000	1	3,222,000	1,577,160
CPU Activation (2 CPU cores)	SPMC1RU21F	1	279,000	32	8,928,000	4,366,080
Eight 32GB DDR3 DIMMs	SPMD2CB1F	1	3,450,000	8	27,600,000	13,512,960
Power Cable	SP0X62D03F	1	9,000	2	18,000	0
600GB SAS HDD	SPME3A11F	1	86,000	1	86,000	41,760
200GB SAS SSD	SPME3Y22F	1	463,000	4	1,852,000	905,760
6Gbps SAS PCIe	SE0X7SA2F	1	102,000	7	714,000	143,640
SAS cable 1.5m	CBL-SASM01	1	23,000	14	322,000	0
8 Gb FC PCIe, QLogic, Dual Port	SE0X7F22F	1	640,000	2	1,280,000	259,920
FC cable 2m	CBL-MLLB02	1	25,000	4	100,000	0
19-inch rack 42U (W=700mm) Model 2742 (Base)	19R-274A2	1	208,000	1	208,000	0
19-inch rack 42U (W=700mm) Model 2742 (Expansion)	19R-274B2	1	198,000	1	198,000	0
Blank Panel (1U)	19RB26BP1	1	1,000	12	12,000	0
PRIMERGY TX100 S3 Base Unit	PYT10PT3S	1	22,800	1	22,800	48,960
Power Cord (AC100V/2m)	PYBCBP101	1	2,000	1	2,000	0
Server View Suite DVD(Tools) & Document	PYBSVT1	1	100	1	100	0
Celeron G1610 (2.60GHz/2C2T/2MB/1333MHz)	PYBCP10CK	1	18,000	1	18,000	4,320
Memory 2GB (One 2GB 1600 UDIMM)	PYBME02UB	1	9,000	1	9,000	1,800
Internal DVD-ROM Drive	PYBDV103	1	5,000	1	5,000	1,800
3.5" SATA HDD 250GB (7200rpm)	PYBPH252A	1	11,000	1	11,000	2,160
Color LCD Monitor 17"	VL-17BSE	1	40,200	1	40,200	14,400
OADG Keyboard (USB/109 Key)	PYBKBU1T1	1	5,000	1	5,000	1,800
Optional Mouse (USB/Optical)	PYBMSU102	1	3,000	1	3,000	1,800
Support Desk Standard24 (Red Hat Enterprise Linux Basic Support 2CPU/1guest) 3yr.	PYBSPR3A01	1	0	1	0	392,000
Red Hat Enterprise Linux 6.4 (media bundled)	PYBLB64	1	1,000	1	1,000	0
Server Hardware Subtotal					58,850,100	28,225,040
Storage						
Expansion File Unit	SE0X9FL3F	1	441,000	7	3,087,000	624,960
200GB SAS SSD	SE0X3Y32F	1	463,000	70	32,410,000	15,850,800
ETERNUS DX 410 S2 Base Unit	ET412SA	1	3,480,000	2	6,960,000	998,640
Dual Host Interface (8Gbit/s, FC, 4port)	ETNHF22	1	2,000,000	2	4,000,000	577,440
Cache Memory	ETNM24	1	3,800,000	4	15,200,000	2,172,960
Drive Enclosure	ETNAD2D	1	900,000	24	21,600,000	3,170,880
One SSD (3.5inch) 400GB MLC for DX400 S2	ETNS4HE	1	1,278,000	72	92,016,000	13,737,600
One Disk Drive (3.5inch) 300GB/15krpm SAS for DX400 S2	ETND3HD	1	350,000	72	25,200,000	3,862,080
Storage Subtotal					200,473,000	40,995,360



SPARC M10-4S
With Oracle Database 11g
Release 2

TPC-H Rev. 2.16.0
TPC-Pricing 2.0.0

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Description	Part Number	Price Source	Unit Price	Qty	Extended Price	3yr. Maint. Price
Server Software						
Oracle Database 11g Release 2 Enterprise Edition, Processor License	D23QGF481	1	6,289,900	32	201,276,800	83,598,720
Oracle Partitioning, Processor License	D23QH2381	1	1,525,000	32	48,800,000	20,240,000
Software support for Solaris Development Tools		2	130,440	3	0	391,320
Server Software Subtotal					250,076,800	104,230,040
Total					509,399,900	173,450,440
Discount						(185,255,840)
3yr. Cost of Ownership					¥ 497,594,500 JPY	
QphH@1000GB						326,454.1
¥/QphH@1000GB						¥1,524.25JPY

Notes:

Price Source: 1=Fujitsu Ltd., 2=Oracle Corp. Japan
Discounts are applied to total cost.

Results independently audited by: Francois Raab of InfoSizing, Inc. (www.sizing.com)

Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details, see the pricing sections of the TPC benchmark specifications. If you find that the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.



SPARC M10-4S
using Oracle Database 11g
Release2

TPC-H Rev. 2.16.0
TPC-Pricing 2.0.0

Report Date
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Numerical Quantities

Measurement Results

Database Scale Factor	= 1000 GB
Total Data Storage / Database Size	= 65.8
Start of Database Load	= 01/28/2014 06:28:15
End of Database Load	= 01/28/2014 08:02:02
Database Load Time	= 01:33:47
Query Streams for Throughput Test	= 256
TPC-H Power	= 239,865.4
TPC-H Throughput	= 444,300.3
TPC-H Composite Query-per-Hour Metric (QphH@1,000GB)	= 326,454.1
Total System Price Over 3 Years	= ¥ 497,594,500
TPC-H Price/ Performance Metric (¥/QphH@1,000GB)	= ¥ 1,524.25

Measurement Interval

Measurement Interval in Throughput Test (Ts)	= 45,634seconds
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Duration of Stream Execution

Power Run	Seed	RF1 Start RF1 End	Duration	Query Start Query End	RF2 Start RF2 End
	128080202	2014-01-28 21:06:32 2014-01-28 21:17:54	00 00:11:22 682	2014-01-28 21:06:13 2014-01-28 21:06:32	2014-01-28 21:17:54 2014-01-28 21:18:04

Throughput Stream	Seed	Query Start Query End	Duration	RF1 Start RF1 End	RF2 Start RF2 End
1	128080203	2014-01-28 21:18:11	00 09:39:50	2014-01-29 07:52:34	2014-01-29 07:52:53
		2014-01-29 06:58:01	34,790	2014-01-29 07:52:53	2014-01-29 07:53:03
2	128080204	2014-01-28 21:18:11	00 09:35:58	2014-01-29 07:53:03	2014-01-29 07:53:22
		2014-01-29 06:54:09	34,558	2014-01-29 07:53:22	2014-01-29 07:53:32
3	128080205	2014-01-28 21:18:11	00 09:37:00	2014-01-29 07:53:32	2014-01-29 07:53:51
		2014-01-29 06:55:11	34,620	2014-01-29 07:53:51	2014-01-29 07:54:01
4	128080206	2014-01-28 21:18:11	00 09:36:49	2014-01-29 07:54:01	2014-01-29 07:54:19
		2014-01-29 06:55:00	34,609	2014-01-29 07:54:19	2014-01-29 07:54:30
5	128080207	2014-01-28 21:18:11	00 09:34:23	2014-01-29 07:54:30	2014-01-29 07:54:48
		2014-01-29 06:52:34	34,463	2014-01-29 07:54:48	2014-01-29 07:54:58
6	128080208	2014-01-28 21:18:11	00 09:30:37	2014-01-29 07:54:58	2014-01-29 07:55:17
		2014-01-29 06:48:48	34,237	2014-01-29 07:55:17	2014-01-29 07:55:27
7	128080209	2014-01-28 21:18:11	00 09:39:24	2014-01-29 07:55:27	2014-01-29 07:55:46
		2014-01-29 06:57:35	34,764	2014-01-29 07:55:46	2014-01-29 07:55:56
8	128080210	2014-01-28 21:18:11	00 09:39:57	2014-01-29 07:55:56	2014-01-29 07:56:15
		2014-01-29 06:58:08	34,797	2014-01-29 07:56:15	2014-01-29 07:56:26
9	128080211	2014-01-28 21:18:11	00 09:31:03	2014-01-29 07:56:26	2014-01-29 07:56:44
		2014-01-29 06:49:14	34,263	2014-01-29 07:56:44	2014-01-29 07:56:55
10	128080212	2014-01-28 21:18:11	00 09:39:57	2014-01-29 07:56:55	2014-01-29 07:57:13
		2014-01-29 06:58:08	34,797	2014-01-29 07:57:13	2014-01-29 07:57:24
11	128080213	2014-01-28 21:18:11	00 09:35:58	2014-01-29 07:57:24	2014-01-29 07:57:42
		2014-01-29 06:54:09	34,558	2014-01-29 07:57:42	2014-01-29 07:57:53
12	128080214	2014-01-28 21:18:11	00 09:34:23	2014-01-29 07:57:53	2014-01-29 07:58:12
		2014-01-29 06:52:34	34,463	2014-01-29 07:58:12	2014-01-29 07:58:22
13	128080215	2014-01-28 21:18:11	00 09:39:33	2014-01-29 07:58:22	2014-01-29 07:58:41
		2014-01-29 06:57:44	34,773	2014-01-29 07:58:41	2014-01-29 07:58:52
14	128080216	2014-01-28 21:18:11	00 09:36:51	2014-01-29 07:58:52	2014-01-29 07:59:11
		2014-01-29 06:55:02	34,611	2014-01-29 07:59:11	2014-01-29 07:59:21
15	128080217	2014-01-28 21:18:11	00 09:32:07	2014-01-29 07:59:21	2014-01-29 07:59:40
		2014-01-29 06:50:18	34,327	2014-01-29 07:59:40	2014-01-29 07:59:50
16	128080218	2014-01-28 21:18:11	00 09:45:13	2014-01-29 07:59:50	2014-01-29 08:00:10
		2014-01-29 07:03:24	35,113	2014-01-29 08:00:10	2014-01-29 08:00:20
17	128080219	2014-01-28 21:18:11	00 09:36:37	2014-01-29 08:00:20	2014-01-29 08:00:39
		2014-01-29 06:54:48	34,597	2014-01-29 08:00:39	2014-01-29 08:00:50
18	128080220	2014-01-28 21:18:11	00 09:31:30	2014-01-29 08:00:50	2014-01-29 08:01:08
		2014-01-29 06:49:41	34,290	2014-01-29 08:01:08	2014-01-29 08:01:19
19	128080221	2014-01-28 21:18:11	00 09:31:40	2014-01-29 08:01:19	2014-01-29 08:01:38
		2014-01-29 06:49:51	34,300	2014-01-29 08:01:38	2014-01-29 08:01:48
20	128080222	2014-01-28 21:18:11	00 09:31:40	2014-01-29 08:01:48	2014-01-29 08:02:07
		2014-01-29 06:49:51	34,300	2014-01-29 08:02:07	2014-01-29 08:02:17
21	128080223	2014-01-28 21:18:11	00 09:32:13	2014-01-29 08:02:17	2014-01-29 08:02:36
		2014-01-29 06:50:24	34,333	2014-01-29 08:02:36	2014-01-29 08:02:47
22	128080224	2014-01-28 21:18:11	00 09:37:12	2014-01-29 08:02:47	2014-01-29 08:03:06
		2014-01-29 06:55:23	34,632	2014-01-29 08:03:06	2014-01-29 08:03:16
23	128080225	2014-01-28 21:18:11	00 09:35:17	2014-01-29 08:03:16	2014-01-29 08:03:38
		2014-01-29 06:53:28	34,517	2014-01-29 08:03:38	2014-01-29 08:03:48
24	128080226	2014-01-28 21:18:11	00 09:33:59	2014-01-29 08:03:48	2014-01-29 08:04:07
		2014-01-29 06:52:10	34,439	2014-01-29 08:04:07	2014-01-29 08:04:18
25	128080227	2014-01-28 21:18:11	00 09:36:37	2014-01-29 08:04:18	2014-01-29 08:04:36
		2014-01-29 06:54:48	34,597	2014-01-29 08:04:36	2014-01-29 08:04:47
26	128080228	2014-01-28 21:18:11	00 09:36:37	2014-01-29 08:04:47	2014-01-29 08:05:06
		2014-01-29 06:54:48	34,597	2014-01-29 08:05:06	2014-01-29 08:05:16
27	128080229	2014-01-28 21:18:11	00 09:35:30	2014-01-29 08:05:16	2014-01-29 08:05:35
		2014-01-29 06:53:41	34,530	2014-01-29 08:05:35	2014-01-29 08:05:45
28	128080230	2014-01-28 21:18:11	00 09:46:15	2014-01-29 08:05:45	2014-01-29 08:06:04
		2014-01-29 07:04:26	35,175	2014-01-29 08:06:04	2014-01-29 08:06:15
29	128080231	2014-01-28 21:18:11	00 09:46:18	2014-01-29 08:06:15	2014-01-29 08:06:34
		2014-01-29 07:04:29	35,178	2014-01-29 08:06:34	2014-01-29 08:06:44

Throughput Stream	Seed	Query Start Query End	Duration	RF1 Start RF1 End	RF2 Start RF2 End
30	128080232	2014-01-28 21:18:11	00 09:45:34	2014-01-29 08:06:44	2014-01-29 08:07:03
		2014-01-29 07:03:45	35,134	2014-01-29 08:07:03	2014-01-29 08:07:13
31	128080233	2014-01-28 21:18:11	00 09:39:50	2014-01-29 08:07:13	2014-01-29 08:07:32
		2014-01-29 06:58:01	34,790	2014-01-29 08:07:32	2014-01-29 08:07:42
32	128080234	2014-01-28 21:18:11	00 09:32:10	2014-01-29 08:07:42	2014-01-29 08:08:01
		2014-01-29 06:50:21	34,330	2014-01-29 08:08:01	2014-01-29 08:08:12
33	128080235	2014-01-28 21:18:11	00 09:36:32	2014-01-29 08:08:12	2014-01-29 08:08:31
		2014-01-29 06:54:43	34,592	2014-01-29 08:08:31	2014-01-29 08:08:41
34	128080236	2014-01-28 21:18:11	00 09:36:01	2014-01-29 08:08:41	2014-01-29 08:09:00
		2014-01-29 06:54:12	34,561	2014-01-29 08:09:00	2014-01-29 08:09:11
35	128080237	2014-01-28 21:18:11	00 09:41:12	2014-01-29 08:09:11	2014-01-29 08:09:30
		2014-01-29 06:59:23	34,872	2014-01-29 08:09:30	2014-01-29 08:09:40
36	128080238	2014-01-28 21:18:11	00 09:39:56	2014-01-29 08:09:40	2014-01-29 08:09:59
		2014-01-29 06:58:07	34,796	2014-01-29 08:09:59	2014-01-29 08:10:09
37	128080239	2014-01-28 21:18:11	00 09:34:23	2014-01-29 08:10:09	2014-01-29 08:10:28
		2014-01-29 06:52:34	34,463	2014-01-29 08:10:28	2014-01-29 08:10:39
38	128080240	2014-01-28 21:18:11	00 09:39:24	2014-01-29 08:10:39	2014-01-29 08:10:58
		2014-01-29 06:57:35	34,764	2014-01-29 08:10:58	2014-01-29 08:11:08
39	128080241	2014-01-28 21:18:11	00 09:36:42	2014-01-29 08:11:08	2014-01-29 08:11:27
		2014-01-29 06:54:53	34,602	2014-01-29 08:11:27	2014-01-29 08:11:38
40	128080242	2014-01-28 21:18:11	00 09:34:18	2014-01-29 08:11:38	2014-01-29 08:11:57
		2014-01-29 06:52:29	34,458	2014-01-29 08:11:57	2014-01-29 08:12:07
41	128080243	2014-01-28 21:18:11	00 09:38:09	2014-01-29 08:12:07	2014-01-29 08:12:26
		2014-01-29 06:56:20	34,689	2014-01-29 08:12:26	2014-01-29 08:12:37
42	128080244	2014-01-28 21:18:11	00 09:37:00	2014-01-29 08:12:37	2014-01-29 08:12:56
		2014-01-29 06:55:11	34,620	2014-01-29 08:12:56	2014-01-29 08:13:06
43	128080245	2014-01-28 21:18:11	00 09:36:54	2014-01-29 08:13:06	2014-01-29 08:13:25
		2014-01-29 06:55:05	34,614	2014-01-29 08:13:25	2014-01-29 08:13:35
44	128080246	2014-01-28 21:18:11	00 09:40:23	2014-01-29 08:13:35	2014-01-29 08:13:56
		2014-01-29 06:58:34	34,823	2014-01-29 08:13:56	2014-01-29 08:14:07
45	128080247	2014-01-28 21:18:11	00 09:40:42	2014-01-29 08:14:07	2014-01-29 08:14:26
		2014-01-29 06:58:53	34,842	2014-01-29 08:14:26	2014-01-29 08:14:36
46	128080248	2014-01-28 21:18:11	00 09:53:05	2014-01-29 08:14:36	2014-01-29 08:14:54
		2014-01-29 07:11:16	35,585	2014-01-29 08:14:54	2014-01-29 08:15:05
47	128080249	2014-01-28 21:18:11	00 09:44:26	2014-01-29 08:15:05	2014-01-29 08:15:24
		2014-01-29 07:02:37	35,066	2014-01-29 08:15:24	2014-01-29 08:15:34
48	128080250	2014-01-28 21:18:11	00 09:45:18	2014-01-29 08:15:34	2014-01-29 08:15:53
		2014-01-29 07:03:29	35,118	2014-01-29 08:15:53	2014-01-29 08:16:03
49	128080251	2014-01-28 21:18:11	00 09:46:08	2014-01-29 08:16:03	2014-01-29 08:16:22
		2014-01-29 07:04:19	35,168	2014-01-29 08:16:22	2014-01-29 08:16:33
50	128080252	2014-01-28 21:18:11	00 09:37:27	2014-01-29 08:16:33	2014-01-29 08:16:52
		2014-01-29 06:55:38	34,647	2014-01-29 08:16:52	2014-01-29 08:17:02
51	128080253	2014-01-28 21:18:11	00 09:39:53	2014-01-29 08:17:02	2014-01-29 08:17:24
		2014-01-29 06:58:04	34,793	2014-01-29 08:17:24	2014-01-29 08:17:34
52	128080254	2014-01-28 21:18:11	00 09:36:32	2014-01-29 08:17:34	2014-01-29 08:17:53
		2014-01-29 06:54:43	34,592	2014-01-29 08:17:53	2014-01-29 08:18:03
53	128080255	2014-01-28 21:18:11	00 09:40:50	2014-01-29 08:18:03	2014-01-29 08:18:22
		2014-01-29 06:59:01	34,850	2014-01-29 08:18:22	2014-01-29 08:18:32
54	128080256	2014-01-28 21:18:11	00 09:42:33	2014-01-29 08:18:32	2014-01-29 08:18:51
		2014-01-29 07:00:44	34,953	2014-01-29 08:18:51	2014-01-29 08:19:01
55	128080257	2014-01-28 21:18:12	00 09:45:12	2014-01-29 08:19:01	2014-01-29 08:19:21
		2014-01-29 07:03:24	35,112	2014-01-29 08:19:21	2014-01-29 08:19:31
56	128080258	2014-01-28 21:18:12	00 09:39:23	2014-01-29 08:19:31	2014-01-29 08:19:50
		2014-01-29 06:57:35	34,763	2014-01-29 08:19:50	2014-01-29 08:20:00
57	128080259	2014-01-28 21:18:12	00 09:46:44	2014-01-29 08:20:00	2014-01-29 08:20:19
		2014-01-29 07:04:56	35,204	2014-01-29 08:20:19	2014-01-29 08:20:29
58	128080260	2014-01-28 21:18:12	00 09:45:12	2014-01-29 08:20:29	2014-01-29 08:20:48
		2014-01-29 07:03:24	35,112	2014-01-29 08:20:48	2014-01-29 08:20:59

Throughput Stream	Seed	Query Start Query End	Duration	RF1 Start RF1 End	RF2 Start RF2 End
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60	128080262	2014-01-28 21:18:12	00 09:36:31	2014-01-29 08:21:29	2014-01-29 08:21:48
		2014-01-29 06:54:43	34,591	2014-01-29 08:21:48	2014-01-29 08:21:58
61	128080263	2014-01-28 21:18:12	00 09:38:55	2014-01-29 08:21:58	2014-01-29 08:22:17
		2014-01-29 06:57:07	34,735	2014-01-29 08:22:17	2014-01-29 08:22:27
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		2014-01-29 06:55:05	34,613	2014-01-29 08:22:46	2014-01-29 08:22:56
63	128080265	2014-01-28 21:18:12	00 09:38:08	2014-01-29 08:22:56	2014-01-29 08:23:15
		2014-01-29 06:56:20	34,688	2014-01-29 08:23:15	2014-01-29 08:23:25
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		2014-01-29 07:12:16	35,644	2014-01-29 08:23:44	2014-01-29 08:23:55
65	128080267	2014-01-28 21:18:12	00 09:39:23	2014-01-29 08:23:55	2014-01-29 08:24:13
		2014-01-29 06:57:35	34,763	2014-01-29 08:24:13	2014-01-29 08:24:24
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67	128080269	2014-01-28 21:18:12	00 09:36:23	2014-01-29 08:24:53	2014-01-29 08:25:12
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		2014-01-29 06:58:08	34,796	2014-01-29 08:25:41	2014-01-29 08:25:52
69	128080271	2014-01-28 21:18:12	00 09:44:32	2014-01-29 08:25:52	2014-01-29 08:26:11
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		2014-01-29 07:02:48	35,076	2014-01-29 08:26:40	2014-01-29 08:26:50
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		2014-01-29 06:59:17	34,865	2014-01-29 08:27:38	2014-01-29 08:27:48
73	128080275	2014-01-28 21:18:12	00 09:39:52	2014-01-29 08:27:49	2014-01-29 08:28:08
		2014-01-29 06:58:04	34,792	2014-01-29 08:28:08	2014-01-29 08:28:18
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		2014-01-29 07:03:24	35,112	2014-01-29 08:28:37	2014-01-29 08:28:47
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		2014-01-29 07:02:40	35,068	2014-01-29 08:29:06	2014-01-29 08:29:16
76	128080278	2014-01-28 21:18:12	00 09:44:36	2014-01-29 08:29:16	2014-01-29 08:29:35
		2014-01-29 07:02:48	35,076	2014-01-29 08:29:35	2014-01-29 08:29:46
77	128080279	2014-01-28 21:18:12	00 09:42:43	2014-01-29 08:29:46	2014-01-29 08:30:05
		2014-01-29 07:00:55	34,963	2014-01-29 08:30:05	2014-01-29 08:30:15
78	128080280	2014-01-28 21:18:12	00 09:40:12	2014-01-29 08:30:15	2014-01-29 08:30:34
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79	128080281	2014-01-28 21:18:12	00 09:47:16	2014-01-29 08:30:44	2014-01-29 08:31:04
		2014-01-29 07:05:28	35,236	2014-01-29 08:31:04	2014-01-29 08:31:14
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		2014-01-29 07:06:05	35,273	2014-01-29 08:31:33	2014-01-29 08:31:43
81	128080283	2014-01-28 21:18:12	00 09:39:25	2014-01-29 08:31:43	2014-01-29 08:32:03
		2014-01-29 06:57:37	34,765	2014-01-29 08:32:03	2014-01-29 08:32:13
82	128080284	2014-01-28 21:18:12	00 09:44:28	2014-01-29 08:32:13	2014-01-29 08:32:33
		2014-01-29 07:02:40	35,068	2014-01-29 08:32:33	2014-01-29 08:32:43
83	128080285	2014-01-28 21:18:12	00 09:48:00	2014-01-29 08:32:43	2014-01-29 08:33:02
		2014-01-29 07:06:12	35,280	2014-01-29 08:33:02	2014-01-29 08:33:12
84	128080286	2014-01-28 21:18:12	00 09:52:43	2014-01-29 08:33:12	2014-01-29 08:33:31
		2014-01-29 07:10:55	35,563	2014-01-29 08:33:31	2014-01-29 08:33:41
85	128080287	2014-01-28 21:18:12	00 09:56:34	2014-01-29 08:33:41	2014-01-29 08:34:00
		2014-01-29 07:14:46	35,794	2014-01-29 08:34:00	2014-01-29 08:34:11
86	128080288	2014-01-28 21:18:12	00 09:40:55	2014-01-29 08:34:11	2014-01-29 08:34:30
		2014-01-29 06:59:07	34,855	2014-01-29 08:34:30	2014-01-29 08:34:40
87	128080289	2014-01-28 21:18:12	00 09:41:11	2014-01-29 08:34:40	2014-01-29 08:34:59
		2014-01-29 06:59:23	34,871	2014-01-29 08:34:59	2014-01-29 08:35:10

Throughput Stream	Seed	Query Start Query End	Duration	RF1 Start RF1 End	RF2 Start RF2 End
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89	128080291	2014-01-28 21:18:12	00 09:47:02	2014-01-29 08:35:39	2014-01-29 08:35:58
		2014-01-29 07:05:14	35,222	2014-01-29 08:35:58	2014-01-29 08:36:08
90	128080292	2014-01-28 21:18:12	00 09:47:33	2014-01-29 08:36:08	2014-01-29 08:36:27
		2014-01-29 07:05:45	35,253	2014-01-29 08:36:27	2014-01-29 08:36:38
91	128080293	2014-01-28 21:18:12	00 09:45:31	2014-01-29 08:36:38	2014-01-29 08:36:57
		2014-01-29 07:03:43	35,131	2014-01-29 08:36:57	2014-01-29 08:37:07
92	128080294	2014-01-28 21:18:12	00 09:41:30	2014-01-29 08:37:07	2014-01-29 08:37:26
		2014-01-29 06:59:42	34,890	2014-01-29 08:37:26	2014-01-29 08:37:36
93	128080295	2014-01-28 21:18:12	00 09:45:12	2014-01-29 08:37:36	2014-01-29 08:37:55
		2014-01-29 07:03:24	35,112	2014-01-29 08:37:55	2014-01-29 08:38:05
94	128080296	2014-01-28 21:18:12	00 09:46:07	2014-01-29 08:38:05	2014-01-29 08:38:25
		2014-01-29 07:04:19	35,167	2014-01-29 08:38:25	2014-01-29 08:38:35
95	128080297	2014-01-28 21:18:12	00 09:43:18	2014-01-29 08:38:35	2014-01-29 08:38:54
		2014-01-29 07:01:30	34,998	2014-01-29 08:38:54	2014-01-29 08:39:04
96	128080298	2014-01-28 21:18:12	00 09:41:30	2014-01-29 08:39:04	2014-01-29 08:39:23
		2014-01-29 06:59:42	34,890	2014-01-29 08:39:23	2014-01-29 08:39:34
97	128080299	2014-01-28 21:18:12	00 10:06:06	2014-01-29 08:39:34	2014-01-29 08:39:53
		2014-01-29 07:24:18	36,366	2014-01-29 08:39:53	2014-01-29 08:40:03
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		2014-01-29 07:13:30	35,718	2014-01-29 08:40:22	2014-01-29 08:40:32
99	128080301	2014-01-28 21:18:12	00 09:47:10	2014-01-29 08:40:32	2014-01-29 08:40:52
		2014-01-29 07:05:22	35,230	2014-01-29 08:40:52	2014-01-29 08:41:02
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		2014-01-29 07:04:52	35,200	2014-01-29 08:41:24	2014-01-29 08:41:34
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		2014-01-29 07:05:28	35,236	2014-01-29 08:41:53	2014-01-29 08:42:03
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		2014-01-29 07:09:50	35,498	2014-01-29 08:42:23	2014-01-29 08:42:33
103	128080305	2014-01-28 21:18:12	00 09:50:57	2014-01-29 08:42:33	2014-01-29 08:42:52
		2014-01-29 07:09:09	35,457	2014-01-29 08:42:52	2014-01-29 08:43:02
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		2014-01-29 07:06:17	35,285	2014-01-29 08:43:21	2014-01-29 08:43:32
105	128080307	2014-01-28 21:18:12	00 10:34:23	2014-01-29 08:43:32	2014-01-29 08:43:51
		2014-01-29 07:52:35	38,063	2014-01-29 08:43:51	2014-01-29 08:44:01
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		2014-01-29 06:59:42	34,890	2014-01-29 08:44:20	2014-01-29 08:44:30
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		2014-01-29 07:05:51	35,259	2014-01-29 08:44:49	2014-01-29 08:44:59
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		2014-01-29 07:04:13	35,161	2014-01-29 08:45:19	2014-01-29 08:45:29
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		2014-01-29 07:02:17	35,045	2014-01-29 08:45:48	2014-01-29 08:45:58
110	128080312	2014-01-28 21:18:12	00 09:45:42	2014-01-29 08:45:58	2014-01-29 08:46:18
		2014-01-29 07:03:54	35,142	2014-01-29 08:46:18	2014-01-29 08:46:28
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		2014-01-29 07:15:24	35,832	2014-01-29 08:46:47	2014-01-29 08:46:58
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		2014-01-29 07:28:15	36,603	2014-01-29 08:47:17	2014-01-29 08:47:27
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		2014-01-29 07:06:08	35,276	2014-01-29 08:47:46	2014-01-29 08:47:56
114	128080316	2014-01-28 21:18:12	00 09:46:44	2014-01-29 08:47:56	2014-01-29 08:48:15
		2014-01-29 07:04:56	35,204	2014-01-29 08:48:15	2014-01-29 08:48:25
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		2014-01-29 07:08:12	35,400	2014-01-29 08:48:44	2014-01-29 08:48:54
116	128080318	2014-01-28 21:18:12	00 09:53:04	2014-01-29 08:48:54	2014-01-29 08:49:14
		2014-01-29 07:11:16	35,584	2014-01-29 08:49:14	2014-01-29 08:49:24

Throughput Stream	Seed	Query Start Query End	Duration	RF1 Start RF1 End	RF2 Start RF2 End
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		2014-01-29 07:14:34	35,782	2014-01-29 08:50:42	2014-01-29 08:50:52
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		2014-01-29 07:15:31	35,839	2014-01-29 08:51:12	2014-01-29 08:51:22
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		2014-01-29 07:16:27	35,895	2014-01-29 08:51:41	2014-01-29 08:51:51
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		2014-01-29 07:11:12	35,580	2014-01-29 08:52:40	2014-01-29 08:52:50
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		2014-01-29 07:09:06	35,454	2014-01-29 08:53:39	2014-01-29 08:53:49
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		2014-01-29 07:05:51	35,258	2014-01-29 08:54:09	2014-01-29 08:54:19
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		2014-01-29 07:03:50	35,137	2014-01-29 08:54:38	2014-01-29 08:54:49
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		2014-01-29 07:08:12	35,399	2014-01-29 08:55:08	2014-01-29 08:55:18
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		2014-01-29 07:18:06	35,993	2014-01-29 08:55:37	2014-01-29 08:55:48
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		2014-01-29 07:23:15	36,302	2014-01-29 08:56:37	2014-01-29 08:56:47
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		2014-01-29 07:08:12	35,399	2014-01-29 08:57:36	2014-01-29 08:57:46
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		2014-01-29 07:05:51	35,258	2014-01-29 08:58:05	2014-01-29 08:58:15
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		2014-01-29 07:47:47	37,774	2014-01-29 08:58:34	2014-01-29 08:58:45
136	128080338	2014-01-28 21:18:13	00 09:57:12	2014-01-29 08:58:45	2014-01-29 08:59:04
		2014-01-29 07:15:25	35,832	2014-01-29 08:59:04	2014-01-29 08:59:15
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		2014-01-29 07:15:15	35,822	2014-01-29 08:59:34	2014-01-29 08:59:44
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		2014-01-29 07:14:26	35,773	2014-01-29 09:00:03	2014-01-29 09:00:13
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		2014-01-29 07:38:23	37,210	2014-01-29 09:00:33	2014-01-29 09:00:44
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		2014-01-29 07:06:48	35,315	2014-01-29 09:02:31	2014-01-29 09:02:41
144	128080346	2014-01-28 21:18:13	00 09:53:06	2014-01-29 09:02:41	2014-01-29 09:03:01
		2014-01-29 07:11:19	35,586	2014-01-29 09:03:01	2014-01-29 09:03:11
145	128080347	2014-01-28 21:18:13	00 09:59:35	2014-01-29 09:03:11	2014-01-29 09:03:30
		2014-01-29 07:17:48	35,975	2014-01-29 09:03:30	2014-01-29 09:03:40

Throughput Stream	Seed	Query Start Query End	Duration	RF1 Start RF1 End	RF2 Start RF2 End
146	128080348	2014-01-28 21:18:13	00 09:55:35	2014-01-29 09:03:40	2014-01-29 09:03:59
		2014-01-29 07:13:48	35,735	2014-01-29 09:03:59	2014-01-29 09:04:10
147	128080349	2014-01-28 21:18:13	00 09:55:42	2014-01-29 09:04:10	2014-01-29 09:04:29
		2014-01-29 07:13:55	35,742	2014-01-29 09:04:29	2014-01-29 09:04:39
148	128080350	2014-01-28 21:18:13	00 09:48:04	2014-01-29 09:04:39	2014-01-29 09:04:58
		2014-01-29 07:06:17	35,284	2014-01-29 09:04:58	2014-01-29 09:05:09
149	128080351	2014-01-28 21:18:13	00 09:53:03	2014-01-29 09:05:09	2014-01-29 09:05:28
		2014-01-29 07:11:16	35,583	2014-01-29 09:05:28	2014-01-29 09:05:38
150	128080352	2014-01-28 21:18:13	00 09:52:40	2014-01-29 09:05:38	2014-01-29 09:05:57
		2014-01-29 07:10:53	35,560	2014-01-29 09:05:57	2014-01-29 09:06:08
151	128080353	2014-01-28 21:18:13	00 10:00:15	2014-01-29 09:06:08	2014-01-29 09:06:27
		2014-01-29 07:18:28	36,015	2014-01-29 09:06:27	2014-01-29 09:06:37
152	128080354	2014-01-28 21:18:13	00 09:59:28	2014-01-29 09:06:37	2014-01-29 09:06:56
		2014-01-29 07:17:41	35,968	2014-01-29 09:06:56	2014-01-29 09:07:06
153	128080355	2014-01-28 21:18:13	00 10:06:32	2014-01-29 09:07:06	2014-01-29 09:07:25
		2014-01-29 07:24:45	36,392	2014-01-29 09:07:25	2014-01-29 09:07:36
154	128080356	2014-01-28 21:18:13	00 09:56:18	2014-01-29 09:07:36	2014-01-29 09:07:55
		2014-01-29 07:14:31	35,778	2014-01-29 09:07:55	2014-01-29 09:08:05
155	128080357	2014-01-28 21:18:13	00 09:51:43	2014-01-29 09:08:05	2014-01-29 09:08:25
		2014-01-29 07:09:56	35,503	2014-01-29 09:08:25	2014-01-29 09:08:35
156	128080358	2014-01-28 21:18:13	00 10:00:07	2014-01-29 09:08:35	2014-01-29 09:08:54
		2014-01-29 07:18:20	36,007	2014-01-29 09:08:54	2014-01-29 09:09:04
157	128080359	2014-01-28 21:18:13	00 10:12:25	2014-01-29 09:09:04	2014-01-29 09:09:23
		2014-01-29 07:30:38	36,745	2014-01-29 09:09:23	2014-01-29 09:09:33
158	128080360	2014-01-28 21:18:13	00 10:21:38	2014-01-29 09:09:33	2014-01-29 09:09:53
		2014-01-29 07:39:51	37,298	2014-01-29 09:09:53	2014-01-29 09:10:03
159	128080361	2014-01-28 21:18:13	00 10:03:50	2014-01-29 09:10:03	2014-01-29 09:10:23
		2014-01-29 07:22:03	36,230	2014-01-29 09:10:23	2014-01-29 09:10:33
160	128080362	2014-01-28 21:18:13	00 10:23:26	2014-01-29 09:10:33	2014-01-29 09:10:53
		2014-01-29 07:41:39	37,406	2014-01-29 09:10:53	2014-01-29 09:11:03
161	128080363	2014-01-28 21:18:13	00 10:01:34	2014-01-29 09:11:03	2014-01-29 09:11:23
		2014-01-29 07:19:47	36,094	2014-01-29 09:11:23	2014-01-29 09:11:33
162	128080364	2014-01-28 21:18:13	00 10:10:04	2014-01-29 09:11:33	2014-01-29 09:11:52
		2014-01-29 07:28:17	36,604	2014-01-29 09:11:52	2014-01-29 09:12:03
163	128080365	2014-01-28 21:18:13	00 10:01:58	2014-01-29 09:12:03	2014-01-29 09:12:24
		2014-01-29 07:20:11	36,118	2014-01-29 09:12:24	2014-01-29 09:12:35
164	128080366	2014-01-28 21:18:13	00 09:55:42	2014-01-29 09:12:35	2014-01-29 09:12:54
		2014-01-29 07:13:55	35,742	2014-01-29 09:12:54	2014-01-29 09:13:04
165	128080367	2014-01-28 21:18:13	00 09:59:47	2014-01-29 09:13:04	2014-01-29 09:13:24
		2014-01-29 07:18:00	35,987	2014-01-29 09:13:23	2014-01-29 09:13:34
166	128080368	2014-01-28 21:18:13	00 10:04:40	2014-01-29 09:13:34	2014-01-29 09:13:53
		2014-01-29 07:22:53	36,280	2014-01-29 09:13:53	2014-01-29 09:14:04
167	128080369	2014-01-28 21:18:13	00 10:05:39	2014-01-29 09:14:04	2014-01-29 09:14:23
		2014-01-29 07:23:52	36,339	2014-01-29 09:14:23	2014-01-29 09:14:34
168	128080370	2014-01-28 21:18:13	00 10:01:40	2014-01-29 09:14:34	2014-01-29 09:14:53
		2014-01-29 07:19:53	36,100	2014-01-29 09:14:53	2014-01-29 09:15:03
169	128080371	2014-01-28 21:18:13	00 09:59:16	2014-01-29 09:15:03	2014-01-29 09:15:22
		2014-01-29 07:17:29	35,956	2014-01-29 09:15:22	2014-01-29 09:15:32
170	128080372	2014-01-28 21:18:13	00 10:09:59	2014-01-29 09:15:32	2014-01-29 09:15:52
		2014-01-29 07:28:12	36,599	2014-01-29 09:15:52	2014-01-29 09:16:02
171	128080373	2014-01-28 21:18:13	00 10:01:34	2014-01-29 09:16:02	2014-01-29 09:16:22
		2014-01-29 07:19:47	36,094	2014-01-29 09:16:22	2014-01-29 09:16:32
172	128080374	2014-01-28 21:18:13	00 10:21:54	2014-01-29 09:16:32	2014-01-29 09:16:51
		2014-01-29 07:40:07	37,314	2014-01-29 09:16:51	2014-01-29 09:17:02
173	128080375	2014-01-28 21:18:13	00 10:14:19	2014-01-29 09:17:02	2014-01-29 09:17:21
		2014-01-29 07:32:32	36,859	2014-01-29 09:17:21	2014-01-29 09:17:31
174	128080376	2014-01-28 21:18:13	00 10:00:07	2014-01-29 09:17:31	2014-01-29 09:17:50
		2014-01-29 07:18:20	36,007	2014-01-29 09:17:50	2014-01-29 09:18:01

Throughput Stream	Seed	Query Start Query End	Duration	RF1 Start RF1 End	RF2 Start RF2 End
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		2014-01-29 07:13:48	35,735	2014-01-29 09:18:20	2014-01-29 09:18:30
176	128080378	2014-01-28 21:18:13	00 10:05:39	2014-01-29 09:18:30	2014-01-29 09:18:49
		2014-01-29 07:23:52	36,339	2014-01-29 09:18:49	2014-01-29 09:19:02
177	128080379	2014-01-28 21:18:13	00 10:01:17	2014-01-29 09:19:02	2014-01-29 09:19:21
		2014-01-29 07:19:30	36,077	2014-01-29 09:19:21	2014-01-29 09:19:32
178	128080380	2014-01-28 21:18:13	00 10:06:34	2014-01-29 09:19:32	2014-01-29 09:19:51
		2014-01-29 07:24:47	36,394	2014-01-29 09:19:51	2014-01-29 09:20:01
179	128080381	2014-01-28 21:18:13	00 10:26:56	2014-01-29 09:20:01	2014-01-29 09:20:21
		2014-01-29 07:45:09	37,616	2014-01-29 09:20:21	2014-01-29 09:20:31
180	128080382	2014-01-28 21:18:13	00 10:13:59	2014-01-29 09:20:31	2014-01-29 09:20:50
		2014-01-29 07:32:12	36,839	2014-01-29 09:20:50	2014-01-29 09:21:00
181	128080383	2014-01-28 21:18:13	00 10:03:18	2014-01-29 09:21:00	2014-01-29 09:21:19
		2014-01-29 07:21:31	36,198	2014-01-29 09:21:19	2014-01-29 09:21:30
182	128080384	2014-01-28 21:18:13	00 10:01:57	2014-01-29 09:21:30	2014-01-29 09:21:49
		2014-01-29 07:20:10	36,117	2014-01-29 09:21:49	2014-01-29 09:21:59
183	128080385	2014-01-28 21:18:13	00 09:56:21	2014-01-29 09:21:59	2014-01-29 09:22:19
		2014-01-29 07:14:34	35,781	2014-01-29 09:22:19	2014-01-29 09:22:29
184	128080386	2014-01-28 21:18:13	00 09:58:09	2014-01-29 09:22:29	2014-01-29 09:22:48
		2014-01-29 07:16:22	35,889	2014-01-29 09:22:48	2014-01-29 09:22:59
185	128080387	2014-01-28 21:18:13	00 09:57:18	2014-01-29 09:22:59	2014-01-29 09:23:18
		2014-01-29 07:15:31	35,838	2014-01-29 09:23:18	2014-01-29 09:23:28
186	128080388	2014-01-28 21:18:13	00 09:58:34	2014-01-29 09:23:28	2014-01-29 09:23:48
		2014-01-29 07:16:47	35,914	2014-01-29 09:23:48	2014-01-29 09:23:58
187	128080389	2014-01-28 21:18:13	00 10:06:37	2014-01-29 09:23:58	2014-01-29 09:24:17
		2014-01-29 07:24:50	36,397	2014-01-29 09:24:17	2014-01-29 09:24:28
188	128080390	2014-01-28 21:18:13	00 10:02:01	2014-01-29 09:24:28	2014-01-29 09:24:47
		2014-01-29 07:20:14	36,121	2014-01-29 09:24:47	2014-01-29 09:24:58
189	128080391	2014-01-28 21:18:13	00 10:01:34	2014-01-29 09:24:58	2014-01-29 09:25:17
		2014-01-29 07:19:47	36,094	2014-01-29 09:25:17	2014-01-29 09:25:27
190	128080392	2014-01-28 21:18:13	00 09:56:56	2014-01-29 09:25:27	2014-01-29 09:25:47
		2014-01-29 07:15:09	35,816	2014-01-29 09:25:47	2014-01-29 09:25:57
191	128080393	2014-01-28 21:18:13	00 09:55:57	2014-01-29 09:25:57	2014-01-29 09:26:17
		2014-01-29 07:14:10	35,757	2014-01-29 09:26:17	2014-01-29 09:26:27
192	128080394	2014-01-28 21:18:13	00 10:07:19	2014-01-29 09:26:27	2014-01-29 09:26:46
		2014-01-29 07:25:32	36,439	2014-01-29 09:26:46	2014-01-29 09:26:57
193	128080395	2014-01-28 21:18:13	00 10:01:58	2014-01-29 09:26:57	2014-01-29 09:27:16
		2014-01-29 07:20:11	36,118	2014-01-29 09:27:16	2014-01-29 09:27:27
194	128080396	2014-01-28 21:18:13	00 10:06:37	2014-01-29 09:27:27	2014-01-29 09:27:46
		2014-01-29 07:24:50	36,397	2014-01-29 09:27:46	2014-01-29 09:27:56
195	128080397	2014-01-28 21:18:13	00 10:22:18	2014-01-29 09:27:56	2014-01-29 09:28:15
		2014-01-29 07:40:31	37,338	2014-01-29 09:28:15	2014-01-29 09:28:26
196	128080398	2014-01-28 21:18:13	00 10:00:44	2014-01-29 09:28:26	2014-01-29 09:28:45
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197	128080399	2014-01-28 21:18:13	00 10:01:57	2014-01-29 09:28:55	2014-01-29 09:29:15
		2014-01-29 07:20:10	36,117	2014-01-29 09:29:15	2014-01-29 09:29:25
198	128080400	2014-01-28 21:18:13	00 10:15:43	2014-01-29 09:29:25	2014-01-29 09:29:45
		2014-01-29 07:33:56	36,943	2014-01-29 09:29:45	2014-01-29 09:29:55
199	128080401	2014-01-28 21:18:14	00 10:00:06	2014-01-29 09:29:55	2014-01-29 09:30:14
		2014-01-29 07:18:20	36,006	2014-01-29 09:30:14	2014-01-29 09:30:25
200	128080402	2014-01-28 21:18:14	00 10:21:45	2014-01-29 09:30:25	2014-01-29 09:30:44
		2014-01-29 07:39:59	37,305	2014-01-29 09:30:44	2014-01-29 09:30:55
201	128080403	2014-01-28 21:18:14	00 10:05:28	2014-01-29 09:30:55	2014-01-29 09:31:14
		2014-01-29 07:23:42	36,328	2014-01-29 09:31:14	2014-01-29 09:31:24
202	128080404	2014-01-28 21:18:14	00 10:16:53	2014-01-29 09:31:24	2014-01-29 09:31:43
		2014-01-29 07:35:07	37,013	2014-01-29 09:31:43	2014-01-29 09:31:54
203	128080405	2014-01-28 21:18:14	00 10:05:42	2014-01-29 09:31:54	2014-01-29 09:32:13
		2014-01-29 07:23:56	36,342	2014-01-29 09:32:13	2014-01-29 09:32:24

Throughput Stream	Seed	Query Start Query End	Duration	RF1 Start RF1 End	RF2 Start RF2 End
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		2014-01-29 07:31:10	36,776	2014-01-29 09:32:43	2014-01-29 09:32:53
205	128080407	2014-01-28 21:18:14	00 10:15:32	2014-01-29 09:32:53	2014-01-29 09:33:13
		2014-01-29 07:33:46	36,932	2014-01-29 09:33:13	2014-01-29 09:33:23
206	128080408	2014-01-28 21:18:14	00 10:10:13	2014-01-29 09:33:23	2014-01-29 09:33:42
		2014-01-29 07:28:27	36,613	2014-01-29 09:33:42	2014-01-29 09:33:52
207	128080409	2014-01-28 21:18:14	00 10:07:03	2014-01-29 09:33:52	2014-01-29 09:34:12
		2014-01-29 07:25:17	36,423	2014-01-29 09:34:12	2014-01-29 09:34:22
208	128080410	2014-01-28 21:18:14	00 10:22:28	2014-01-29 09:34:22	2014-01-29 09:34:41
		2014-01-29 07:40:42	37,348	2014-01-29 09:34:41	2014-01-29 09:34:52
209	128080411	2014-01-28 21:18:14	00 10:14:37	2014-01-29 09:34:52	2014-01-29 09:35:11
		2014-01-29 07:32:51	36,877	2014-01-29 09:35:11	2014-01-29 09:35:21
210	128080412	2014-01-28 21:18:14	00 10:10:00	2014-01-29 09:35:21	2014-01-29 09:35:41
		2014-01-29 07:28:14	36,600	2014-01-29 09:35:41	2014-01-29 09:35:51
211	128080413	2014-01-28 21:18:14	00 10:10:54	2014-01-29 09:35:51	2014-01-29 09:36:11
		2014-01-29 07:29:08	36,654	2014-01-29 09:36:11	2014-01-29 09:36:21
212	128080414	2014-01-28 21:18:14	00 10:01:39	2014-01-29 09:36:21	2014-01-29 09:36:41
		2014-01-29 07:19:53	36,099	2014-01-29 09:36:41	2014-01-29 09:36:51
213	128080415	2014-01-28 21:18:14	00 10:21:24	2014-01-29 09:36:51	2014-01-29 09:37:10
		2014-01-29 07:39:38	37,284	2014-01-29 09:37:10	2014-01-29 09:37:21
214	128080416	2014-01-28 21:18:14	00 10:06:26	2014-01-29 09:37:21	2014-01-29 09:37:40
		2014-01-29 07:24:40	36,386	2014-01-29 09:37:40	2014-01-29 09:37:50
215	128080417	2014-01-28 21:18:14	00 10:17:03	2014-01-29 09:37:50	2014-01-29 09:38:09
		2014-01-29 07:35:17	37,023	2014-01-29 09:38:09	2014-01-29 09:38:20
216	128080418	2014-01-28 21:18:14	00 10:23:04	2014-01-29 09:38:20	2014-01-29 09:38:39
		2014-01-29 07:41:18	37,384	2014-01-29 09:38:39	2014-01-29 09:38:49
217	128080419	2014-01-28 21:18:14	00 10:12:19	2014-01-29 09:38:49	2014-01-29 09:39:09
		2014-01-29 07:30:33	36,739	2014-01-29 09:39:09	2014-01-29 09:39:19
218	128080420	2014-01-28 21:18:14	00 10:12:09	2014-01-29 09:39:19	2014-01-29 09:39:39
		2014-01-29 07:30:23	36,729	2014-01-29 09:39:39	2014-01-29 09:39:49
219	128080421	2014-01-28 21:18:14	00 10:23:11	2014-01-29 09:39:49	2014-01-29 09:40:09
		2014-01-29 07:41:25	37,391	2014-01-29 09:40:09	2014-01-29 09:40:19
220	128080422	2014-01-28 21:18:14	00 10:15:39	2014-01-29 09:40:19	2014-01-29 09:40:38
		2014-01-29 07:33:53	36,939	2014-01-29 09:40:38	2014-01-29 09:40:49
221	128080423	2014-01-28 21:18:14	00 10:20:15	2014-01-29 09:40:49	2014-01-29 09:41:08
		2014-01-29 07:38:29	37,215	2014-01-29 09:41:08	2014-01-29 09:41:19
222	128080424	2014-01-28 21:18:14	00 10:14:36	2014-01-29 09:41:19	2014-01-29 09:41:38
		2014-01-29 07:32:50	36,876	2014-01-29 09:41:38	2014-01-29 09:41:49
223	128080425	2014-01-28 21:18:14	00 10:06:55	2014-01-29 09:41:49	2014-01-29 09:42:08
		2014-01-29 07:25:09	36,415	2014-01-29 09:42:08	2014-01-29 09:42:21
224	128080426	2014-01-28 21:18:14	00 10:20:36	2014-01-29 09:42:21	2014-01-29 09:42:40
		2014-01-29 07:38:50	37,236	2014-01-29 09:42:40	2014-01-29 09:42:50
225	128080427	2014-01-28 21:18:14	00 10:32:19	2014-01-29 09:42:50	2014-01-29 09:43:10
		2014-01-29 07:50:33	37,939	2014-01-29 09:43:10	2014-01-29 09:43:20
226	128080428	2014-01-28 21:18:14	00 10:05:40	2014-01-29 09:43:20	2014-01-29 09:43:40
		2014-01-29 07:23:54	36,340	2014-01-29 09:43:39	2014-01-29 09:43:50
227	128080429	2014-01-28 21:18:14	00 10:08:09	2014-01-29 09:43:50	2014-01-29 09:44:09
		2014-01-29 07:26:23	36,489	2014-01-29 09:44:09	2014-01-29 09:44:20
228	128080430	2014-01-28 21:18:14	00 10:17:03	2014-01-29 09:44:20	2014-01-29 09:44:39
		2014-01-29 07:35:17	37,023	2014-01-29 09:44:39	2014-01-29 09:44:49
229	128080431	2014-01-28 21:18:14	00 10:12:49	2014-01-29 09:44:49	2014-01-29 09:45:09
		2014-01-29 07:31:03	36,769	2014-01-29 09:45:09	2014-01-29 09:45:19
230	128080432	2014-01-28 21:18:14	00 10:13:10	2014-01-29 09:45:19	2014-01-29 09:45:38
		2014-01-29 07:31:24	36,790	2014-01-29 09:45:38	2014-01-29 09:45:49
231	128080433	2014-01-28 21:18:14	00 10:21:44	2014-01-29 09:45:49	2014-01-29 09:46:08
		2014-01-29 07:39:58	37,304	2014-01-29 09:46:08	2014-01-29 09:46:19
232	128080434	2014-01-28 21:18:14	00 10:27:02	2014-01-29 09:46:19	2014-01-29 09:46:38
		2014-01-29 07:45:16	37,622	2014-01-29 09:46:38	2014-01-29 09:46:49

Throughput Stream	Seed	Query Start Query End	Duration	RF1 Start RF1 End	RF2 Start RF2 End
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		2014-01-29 07:34:17	36,963	2014-01-29 09:47:08	2014-01-29 09:47:19
234	128080436	2014-01-28 21:18:14	00 10:20:09	2014-01-29 09:47:19	2014-01-29 09:47:38
		2014-01-29 07:38:23	37,209	2014-01-29 09:47:38	2014-01-29 09:47:49
235	128080437	2014-01-28 21:18:14	00 10:26:06	2014-01-29 09:47:49	2014-01-29 09:48:08
		2014-01-29 07:44:20	37,566	2014-01-29 09:48:08	2014-01-29 09:48:19
236	128080438	2014-01-28 21:18:14	00 10:22:52	2014-01-29 09:48:19	2014-01-29 09:48:38
		2014-01-29 07:41:06	37,372	2014-01-29 09:48:38	2014-01-29 09:48:48
237	128080439	2014-01-28 21:18:14	00 10:20:14	2014-01-29 09:48:48	2014-01-29 09:49:08
		2014-01-29 07:38:28	37,214	2014-01-29 09:49:08	2014-01-29 09:49:18
238	128080440	2014-01-28 21:18:14	00 10:29:09	2014-01-29 09:49:18	2014-01-29 09:49:38
		2014-01-29 07:47:23	37,749	2014-01-29 09:49:38	2014-01-29 09:49:48
239	128080441	2014-01-28 21:18:14	00 10:25:10	2014-01-29 09:49:48	2014-01-29 09:50:07
		2014-01-29 07:43:24	37,510	2014-01-29 09:50:07	2014-01-29 09:50:18
240	128080442	2014-01-28 21:18:14	00 10:13:33	2014-01-29 09:50:18	2014-01-29 09:50:37
		2014-01-29 07:31:47	36,813	2014-01-29 09:50:37	2014-01-29 09:50:47
241	128080443	2014-01-28 21:18:14	00 10:28:58	2014-01-29 09:50:47	2014-01-29 09:51:06
		2014-01-29 07:47:12	37,738	2014-01-29 09:51:06	2014-01-29 09:51:16
242	128080444	2014-01-28 21:18:14	00 10:20:37	2014-01-29 09:51:16	2014-01-29 09:51:36
		2014-01-29 07:38:51	37,237	2014-01-29 09:51:36	2014-01-29 09:51:46
243	128080445	2014-01-28 21:18:14	00 10:29:55	2014-01-29 09:51:46	2014-01-29 09:52:05
		2014-01-29 07:48:09	37,795	2014-01-29 09:52:05	2014-01-29 09:52:16
244	128080446	2014-01-28 21:18:14	00 10:25:39	2014-01-29 09:52:16	2014-01-29 09:52:41
		2014-01-29 07:43:53	37,539	2014-01-29 09:52:41	2014-01-29 09:52:52
245	128080447	2014-01-28 21:18:14	00 10:25:20	2014-01-29 09:52:52	2014-01-29 09:53:11
		2014-01-29 07:43:34	37,520	2014-01-29 09:53:11	2014-01-29 09:53:21
246	128080448	2014-01-28 21:18:14	00 10:21:16	2014-01-29 09:53:21	2014-01-29 09:53:40
		2014-01-29 07:39:30	37,276	2014-01-29 09:53:40	2014-01-29 09:53:51
247	128080449	2014-01-28 21:18:14	00 10:25:50	2014-01-29 09:53:51	2014-01-29 09:54:10
		2014-01-29 07:44:04	37,550	2014-01-29 09:54:10	2014-01-29 09:54:20
248	128080450	2014-01-28 21:18:14	00 10:25:06	2014-01-29 09:54:20	2014-01-29 09:54:39
		2014-01-29 07:43:20	37,506	2014-01-29 09:54:39	2014-01-29 09:54:50
249	128080451	2014-01-28 21:18:14	00 10:26:03	2014-01-29 09:54:50	2014-01-29 09:55:09
		2014-01-29 07:44:17	37,563	2014-01-29 09:55:09	2014-01-29 09:55:19
250	128080452	2014-01-28 21:18:14	00 10:23:50	2014-01-29 09:55:19	2014-01-29 09:55:38
		2014-01-29 07:42:04	37,430	2014-01-29 09:55:38	2014-01-29 09:55:48
251	128080453	2014-01-28 21:18:14	00 10:23:04	2014-01-29 09:55:48	2014-01-29 09:56:07
		2014-01-29 07:41:18	37,384	2014-01-29 09:56:07	2014-01-29 09:56:18
252	128080454	2014-01-28 21:18:14	00 10:29:40	2014-01-29 09:56:18	2014-01-29 09:56:37
		2014-01-29 07:47:54	37,780	2014-01-29 09:56:37	2014-01-29 09:56:47
253	128080455	2014-01-28 21:18:14	00 10:26:06	2014-01-29 09:56:47	2014-01-29 09:57:06
		2014-01-29 07:44:20	37,566	2014-01-29 09:57:06	2014-01-29 09:57:17
254	128080456	2014-01-28 21:18:14	00 10:25:34	2014-01-29 09:57:17	2014-01-29 09:57:36
		2014-01-29 07:43:48	37,534	2014-01-29 09:57:36	2014-01-29 09:57:46
255	128080457	2014-01-28 21:18:14	00 10:16:21	2014-01-29 09:57:46	2014-01-29 09:58:05
		2014-01-29 07:34:35	36,981	2014-01-29 09:58:05	2014-01-29 09:58:16
256	128080458	2014-01-28 21:18:14	00 10:21:00	2014-01-29 09:58:16	2014-01-29 09:58:35
		2014-01-29 07:39:14	37,260	2014-01-29 09:58:35	2014-01-29 09:58:45

TPC-H Timing Intervals (in seconds)

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
0	96.3	1.1	5.8	4.2	18.7	7.5	20.6	13.0	70.0	13.6	7.7	11.7
1	1648.0	1106.7	4592.1	1417.6	1966.9	2095.0	1439.8	906.6	1524.8	1333.4	1539.7	1453.3
2	1215.2	2158.2	1132.2	1130.3	1317.7	7.4	1310.8	1476.0	2282.1	1402.9	1386.2	1364.6
3	2438.7	797.9	1282.1	2746.4	4627.4	1972.8	1481.2	268.1	1408.2	1154.7	1311.5	1517.8
4	1197.8	1361.0	1452.5	1077.3	54.1	2171.6	1598.2	1381.0	1443.7	1085.3	1299.9	2181.5
5	1455.5	1090.2	1258.2	2784.9	876.5	1900.1	1619.5	1000.2	1397.6	1339.3	1296.3	1479.5
6	1220.0	914.6	4700.6	1127.0	1172.3	1564.8	2243.1	1471.3	2102.6	93.9	1337.8	1298.1
7	1199.7	1601.8	1345.9	1572.2	1171.3	1492.6	849.6	4577.9	1358.4	1173.1	1310.9	1398.0
8	4928.9	1463.3	1155.0	1377.0	1662.9	1212.8	1416.1	1567.3	2081.5	1171.3	1406.8	2056.5
9	866.3	2774.3	1399.9	1217.3	1312.1	2132.1	954.9	318.5	1415.3	1161.4	1337.0	1375.4
10	1802.4	1918.5	1158.2	1064.9	1390.1	266.5	2114.4	1571.3	1280.0	1123.7	1524.9	1797.1
11	1077.3	1268.1	1217.1	1312.7	1247.0	1196.9	1460.1	1362.4	787.5	1539.7	2225.0	1311.2
12	651.1	1247.1	1140.7	1154.7	1311.2	2208.1	4460.8	1014.5	1403.2	1264.2	1408.2	2075.7
13	1784.0	1308.8	1837.0	1275.9	1156.1	1376.3	2766.8	1166.2	1314.0	1621.9	1104.5	2088.3
14	1474.2	274.9	1137.9	1984.4	2628.8	1299.1	1413.5	813.9	4769.5	1510.8	1179.6	1536.0
15	980.5	1199.1	1107.0	1336.5	1361.0	1000.9	1386.9	1976.8	4715.7	2156.2	1445.4	2224.0
16	745.0	1574.9	4416.2	1366.1	1851.1	2730.1	1585.9	827.7	1200.4	1245.4	1317.6	1325.7
17	1146.3	2146.4	369.9	1186.0	2684.6	1472.4	1207.1	1289.0	1573.5	974.5	1973.1	1329.0
18	1289.1	1266.3	1047.0	4591.2	2023.2	2132.1	1286.5	2197.8	883.8	1182.5	1474.2	976.6
19	1296.6	2183.5	1150.8	414.4	1528.7	883.8	1295.3	1109.5	1133.4	1442.3	1420.3	4607.6
20	1429.5	1237.1	840.4	1591.3	1309.0	1332.0	1046.9	1358.5	983.1	1310.8	1433.0	1380.2
21	1102.7	1329.0	1336.9	2174.5	1333.4	1193.9	879.2	1020.3	1494.0	1423.2	1360.8	2016.0
22	1049.2	1974.7	1136.0	2154.0	1287.3	1132.4	1252.8	811.2	1372.0	1509.7	2167.1	1107.7
23	1106.4	1448.8	1339.3	1139.9	1237.4	1287.8	1451.1	2176.0	2756.3	781.2	2204.5	1603.3
24	866.1	1268.5	4412.0	1415.7	951.8	2195.6	636.3	1194.3	1304.2	2645.7	1349.2	1196.4
25	4569.4	2206.9	1172.9	1499.3	1385.4	1482.3	2037.7	1240.2	1329.0	1472.7	1161.4	1147.9
26	1022.1	4480.4	795.7	1317.7	1852.8	1215.1	1019.6	1291.4	1133.7	1429.5	1585.9	1149.6
27	1220.9	1556.5	1263.8	2240.7	984.3	2034.9	1159.6	1890.6	1605.1	1549.8	1257.0	1133.6
28	2690.4	1181.6	1222.0	1171.9	1152.2	1463.5	1141.8	1134.7	1534.7	681.9	1555.9	2159.7
29	2106.5	851.1	1343.6	1558.2	1881.9	1681.7	1500.7	4463.9	2881.6	685.7	1322.9	1839.5
30	1509.7	1557.5	1604.1	1524.0	1814.8	1250.4	739.6	1152.1	1126.4	1586.2	1516.9	865.7
31	2029.4	670.2	1755.5	1575.4	1429.3	1064.9	1533.9	1318.3	4396.0	1163.0	2241.5	1233.5
32	1333.4	1326.1	1432.6	1848.6	1085.0	1315.4	1369.1	2751.9	1106.7	1286.9	864.6	4451.5
33	1344.0	2737.3	1163.0	1428.8	2081.0	1258.3	1506.1	830.9	1310.8	1242.4	1854.8	1199.3
34	1015.1	1360.4	1756.2	1620.8	1310.8	2025.5	1242.4	1172.4	1179.5	1151.6	2804.5	1018.3
35	1212.8	1369.6	1162.1	1171.3	2192.0	1467.8	1191.5	1620.2	1210.7	1750.4	1445.8	1396.2
36	1173.9	1175.7	1328.3	1841.0	1574.8	1277.9	2819.3	1601.2	885.7	1136.0	1171.0	1545.3
37	1264.2	1138.4	987.8	1333.4	2717.1	2232.1	1315.4	1387.4	2023.0	1076.1	1512.3	1605.7
38	1734.8	1297.4	1198.5	2684.9	4440.6	1986.0	1346.3	1192.6	1398.0	1542.5	1571.7	1308.6
39	1268.9	1317.0	848.8	1356.5	1460.4	1548.5	4376.5	1049.5	795.7	1423.2	1533.3	1173.7
40	1783.9	1202.3	2062.1	2233.6	1336.9	1249.5	980.6	1365.4	1315.4	1515.2	1507.5	1196.9
41	1139.1	4357.4	1346.3	1232.0	1091.2	1619.1	1535.9	1977.7	2879.0	1119.5	1208.7	1328.9
42	1473.6	1215.1	4083.1	1334.6	1754.9	1976.9	1522.9	825.2	1499.3	1271.9	1637.9	1310.7
43	1127.4	1917.7	1152.0	1199.4	1375.2	868.4	1266.2	1255.3	2133.0	1658.1	1501.5	1360.9
44	2214.7	796.3	1415.5	2779.6	4052.1	1754.4	1527.5	1207.8	1496.0	1125.9	1285.8	1571.6
45	1153.0	1269.7	1541.7	1210.9	868.4	1881.9	1515.4	1387.7	1361.1	1165.9	1326.7	2298.4
46	1266.4	1159.7	1308.6	2771.2	818.6	1764.2	1669.2	1175.8	1741.0	1498.3	1420.5	1849.7
47	1271.5	1144.2	4080.2	977.9	1156.1	1567.7	2234.8	1550.8	2020.2	1158.6	1445.0	1314.3
48	1218.3	1512.4	1327.3	1670.9	1163.8	1454.7	828.3	4100.6	1396.9	1169.9	1243.4	1752.3
49	4321.5	1466.3	1097.6	1371.0	1510.5	1143.1	1298.4	1702.0	2245.8	1127.6	1548.8	1838.3
50	805.4	2690.4	1658.6	1284.8	1517.8	2037.7	1142.0	1279.1	1467.3	1129.7	1316.9	1250.2
51	1600.5	1966.5	1200.4	1105.3	1405.3	1163.5	2112.3	1563.1	1249.1	1173.9	1503.0	1640.1
52	1186.0	1124.8	1165.3	1362.5	1286.8	1143.9	1340.7	1311.2	799.2	1593.4	2003.1	1301.8
53	1583.6	1336.0	995.5	1141.6	1219.6	1724.4	4075.4	1218.8	1301.7	1220.6	1362.9	2268.9
54	1538.5	1322.1	1813.2	1225.9	1166.0	1362.6	2692.9	1208.1	1150.8	1658.6	1120.6	2078.9
55	1662.7	1215.2	1073.5	1807.1	2692.7	1557.3	1422.0	860.5	4197.7	1552.7	1233.0	1566.9
56	1142.0	1061.0	1186.1	1538.4	1284.8	1154.0	1351.9	1838.7	4203.2	2050.5	1645.6	1995.7

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
57	1,671.5	1,509.7	3,947.1	1,356.5	1,814.4	2,611.3	1,525.0	867.4	1,228.2	1,255.1	1,248.3	1,149.7
58	1,114.1	2,106.2	1,302.5	1,228.9	2,652.2	1,539.5	1,108.9	1,391.2	1,717.1	1,258.4	1,827.7	1,561.9
59	1,280.9	1,399.0	1,136.6	4,094.6	1,822.7	2,009.2	1,137.9	2,095.3	792.8	1,170.0	1,589.0	1,171.1
60	1,339.6	1,966.7	1,158.2	1,313.4	1,580.4	796.5	1,280.0	1,215.2	1,123.7	1,277.4	1,565.4	4,148.3
61	1,224.5	1,151.1	788.6	1,613.6	1,352.2	1,535.9	1,228.8	1,376.0	1,146.7	1,215.7	1,475.0	1,432.6
62	1,098.1	1,329.0	1,483.2	2,049.8	1,284.5	1,163.7	792.8	1,180.1	1,470.9	1,243.4	1,406.7	1,844.3
63	1,127.6	1,799.9	1,180.0	1,998.8	1,271.5	1,136.3	1,150.7	827.6	1,488.1	1,600.5	2,055.7	1,216.2
64	1,260.8	1,701.8	1,494.0	1,398.8	1,030.5	1,178.3	1,801.0	2,265.5	2,786.3	884.8	1,634.7	1,813.0
65	807.0	1,219.6	3,962.2	1,281.8	1,148.9	1,966.2	1,480.3	1,216.4	1,365.4	2,665.1	1,541.7	1,119.5
66	4,050.3	1,965.6	1,165.2	1,509.0	1,242.5	1,535.9	1,856.9	1,187.6	1,328.9	1,639.6	1,106.8	1,091.2
67	1,148.9	3,963.7	807.0	1,377.0	1,819.9	1,195.8	1,127.6	1,169.6	1,155.0	1,309.0	1,580.4	1,142.2
68	1,164.1	1,563.6	1,289.7	1,891.1	1,209.7	2,090.4	1,097.6	1,825.7	1,773.9	1,467.8	1,204.6	1,151.1
69	2,584.4	1,185.4	1,210.7	1,171.3	1,163.0	1,549.7	1,115.1	1,083.5	1,559.3	1,517.4	1,522.6	1,874.3
70	2,435.5	811.2	1,238.5	1,526.6	1,659.2	1,645.1	1,518.8	4,012.3	2,771.7	1,522.2	1,245.6	1,619.5
71	1,390.0	1,535.0	1,527.9	1,550.0	1,830.7	1,428.0	1,578.0	1,122.1	1,289.6	1,721.6	1,310.4	867.8
72	2,083.3	1,521.4	1,821.2	1,541.1	1,238.4	995.5	1,666.5	1,267.8	4,082.2	1,175.8	1,923.0	1,232.8
73	1,275.9	1,411.6	1,288.4	1,825.4	1,114.3	1,293.2	1,364.5	2,638.1	1,156.1	1,199.4	818.3	4,064.0
74	1,535.6	2,629.6	1,125.9	1,253.0	2,097.9	1,228.9	1,644.7	850.8	1,397.9	1,296.4	1,800.2	1,231.6
75	1,919.3	1,544.5	1,783.9	1,581.0	1,275.9	2,182.4	1,293.2	1,091.5	1,114.3	1,156.1	2,632.7	1,185.1
76	1,234.5	1,380.7	1,153.0	1,148.7	2,281.1	1,482.1	1,220.6	1,549.0	1,266.2	1,580.5	1,526.6	1,306.8
77	1,122.5	1,053.0	1,298.8	1,767.8	1,590.1	1,348.5	2,589.7	1,497.9	1,773.0	1,218.4	1,212.9	1,571.0
78	1,220.6	1,054.3	1,153.0	1,262.5	2,626.1	1,769.3	1,320.5	1,407.7	2,266.5	1,088.7	1,652.1	1,482.1
79	1,921.1	1,278.2	1,147.8	2,619.3	3,913.9	2,198.3	1,372.4	1,257.6	1,540.0	1,349.8	1,536.8	1,267.8
80	1,223.3	1,532.7	1,719.2	1,419.8	1,652.2	1,548.9	3,959.0	1,191.7	823.2	1,238.4	1,529.0	1,115.3
81	1,754.1	1,147.7	2,105.0	1,887.0	1,501.5	1,182.8	1,213.8	1,309.3	1,308.6	1,498.1	1,684.4	1,152.0
82	1,153.0	3,933.6	1,350.0	1,266.2	1,073.5	1,505.8	1,562.4	1,755.0	2,699.0	1,220.6	1,148.7	1,518.1
83	1,543.8	1,052.8	3,670.4	1,539.5	1,831.9	2,238.2	1,643.5	895.2	1,269.5	1,317.5	1,576.7	1,503.0
84	1,118.7	1,584.8	1,228.9	1,470.4	1,353.7	1,768.6	1,241.5	1,232.5	2,328.8	1,709.5	1,477.4	1,616.1
85	2,487.9	858.9	1,856.6	2,597.1	3,671.6	1,745.2	1,684.5	2,050.0	1,391.3	1,159.7	1,258.1	1,802.3
86	1,153.0	1,270.7	1,521.9	1,145.3	1,829.1	1,701.2	1,515.4	1,381.4	1,321.2	1,161.6	1,313.5	2,264.7
87	1,222.0	1,171.9	1,361.0	2,619.0	823.2	1,745.2	1,605.8	1,188.7	1,445.8	1,450.2	1,361.7	1,568.5
88	1,232.2	1,150.8	3,825.1	1,182.7	1,171.9	1,562.8	1,780.6	1,680.4	2,252.5	1,866.0	1,298.6	1,398.4
89	1,248.0	1,487.9	1,181.6	1,698.4	1,049.6	1,440.8	859.0	3,612.8	1,232.7	1,127.6	1,290.9	1,603.9
90	3,981.5	1,349.8	1,327.5	1,244.0	1,485.2	1,070.5	1,295.0	1,740.0	2,409.6	1,086.2	1,556.8	1,597.0
91	836.0	2,595.8	1,741.8	1,264.4	1,541.5	2,189.6	1,114.1	2,097.4	1,477.6	1,124.3	1,321.2	1,318.2
92	1,648.4	1,727.3	1,171.3	997.9	1,422.7	2,049.0	2,238.2	1,562.5	1,210.7	1,134.0	1,549.7	1,579.1
93	1,173.1	1,253.5	1,182.5	1,375.6	1,320.6	1,068.2	1,559.1	1,359.4	852.5	1,572.0	1,713.7	1,304.7
94	2,446.6	1,281.7	1,127.3	1,140.9	1,264.4	1,585.9	3,567.0	1,273.2	1,226.9	1,232.8	1,360.6	2,298.8
95	1,532.4	1,297.1	1,814.1	1,266.5	1,165.9	1,373.6	2,489.7	1,191.6	1,231.3	1,729.8	1,125.9	2,194.9
96	1,675.2	2,053.6	1,068.2	1,849.3	2,462.4	1,422.8	1,375.6	861.9	3,829.6	1,520.1	1,245.3	1,479.9
97	1,149.1	1,296.7	1,138.9	1,403.8	1,261.9	1,257.5	1,380.9	1,855.5	3,777.0	2,196.8	1,734.6	1,746.7
98	2,532.3	1,489.1	3,491.7	1,231.1	1,852.9	2,485.5	1,481.9	886.9	1,352.0	1,172.8	1,308.8	1,119.8
99	1,127.6	2,259.4	2,193.9	1,295.5	2,521.3	1,516.9	1,197.1	1,252.3	1,805.5	1,252.5	1,842.1	1,611.3
100	1,297.2	1,376.9	1,204.7	3,614.5	1,823.3	1,700.4	1,141.5	2,270.6	850.3	1,121.9	1,647.8	1,168.0
101	1,540.0	1,472.1	1,044.9	2,229.3	1,493.3	860.8	1,299.4	1,314.2	1,279.1	1,285.9	1,392.3	3,871.9
102	1,249.0	1,232.8	842.7	1,544.7	1,247.7	1,453.0	1,223.0	1,714.8	1,140.6	1,223.5	1,344.5	1,625.2
103	1,245.2	1,674.0	1,490.4	2,267.3	1,313.1	1,228.9	867.8	1,133.0	1,317.2	1,236.8	1,320.5	2,118.5
104	1,150.8	1,818.4	1,384.1	1,742.4	1,337.4	1,117.1	1,058.1	884.6	1,525.0	1,757.7	2,155.4	1,120.6
105	1,117.4	1,719.4	4.2	3.8	1,151.4	1,306.8	20.9	2,222.3	2,530.1	852.5	1,674.9	1,570.2
106	834.6	1,161.8	3,557.2	1,316.3	1,171.3	1,700.4	2,346.8	1,136.4	1,340.7	2,499.1	1,444.1	1,220.6
107	3,630.1	1,719.8	1,388.0	1,374.7	1,241.4	1,550.0	1,816.6	1,208.2	1,535.0	1,728.9	1,124.4	1,193.0
108	1,116.6	3,551.1	851.1	1,394.2	1,748.2	1,045.3	1,240.2	1,318.7	1,146.6	1,217.3	1,502.6	1,131.7
109	1,168.8	1,513.8	1,277.9	1,612.4	1,238.5	2,200.0	1,193.2	1,849.9	1,867.6	1,512.1	1,252.1	1,068.2
110	2,530.8	1,240.2	1,261.9	1,186.0	1,112.4	1,461.2	1,146.6	1,134.4	1,535.0	2,384.4	1,523.4	1,751.9
111	2,592.9	853.9	1,262.2	1,883.1	1,425.7	1,753.3	1,510.0	3,564.3	2,624.5	2,394.7	1,272.1	1,574.1
112	1,502.1	2,506.5	1,485.6	1,380.7	1,761.1	1,443.3	2,453.2	1,162.0	1,395.7	1,771.2	1,333.6	993.9
113	2,283.6	2,389.2	1,753.8	1,501.0	1,219.6	1,176.4	1,717.6	1,330.3	3,551.9	1,128.0	1,590.9	1,431.9
114	1,287.0	1,559.8	1,329.6	1,809.0	1,199.9	1,239.7	1,255.1	2,505.3	1,118.6	1,250.4	857.7	3,577.0
115	1,636.7	2,503.4	1,159.7	1,301.8	2,201.2	1,473.8	1,782.4	908.3	1,428.8	1,255.1	1,829.0	1,079.2

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
116	2,804.7	1,741.0	1,745.1	1,500.8	1,330.0	2,295.6	1,172.2	1,254.7	1,327.9	1,049.6	2,471.7	1,122.6
117	1,247.1	1,231.1	1,127.6	1,052.6	2,241.0	1,461.2	1,295.5	1,515.1	1,304.5	1,511.3	1,573.2	1,270.5
118	1,216.4	1,102.8	1,326.5	1,750.5	1,495.3	1,236.2	2,518.5	1,513.5	2,638.8	1,278.9	1,252.0	1,566.6
119	1,392.6	1,187.2	1,158.4	1,253.7	2,479.3	1,367.0	1,224.2	1,329.0	2,411.6	1,240.7	1,860.7	1,445.9
120	2,043.3	1,225.2	1,258.3	2,534.4	3,518.1	2,266.2	1,289.7	1,300.1	1,889.4	1,312.0	1,492.6	1,253.7
121	1,329.3	1,942.6	2,552.6	1,380.9	1,729.2	1,486.8	3,511.1	1,159.6	859.0	1,219.6	1,283.7	1,419.8
122	1,770.9	1,134.5	2,288.3	1,620.9	1,508.6	1,263.6	1,246.4	1,314.4	1,255.1	1,485.2	1,721.8	1,310.9
123	1,129.7	3,505.8	1,237.8	1,330.0	1,265.6	1,475.4	1,468.0	1,650.0	2,590.9	1,290.4	1,049.6	1,839.3
124	1,475.9	1,063.2	3,337.9	1,681.6	1,736.9	2,200.0	1,799.6	892.7	1,259.6	1,308.8	1,456.7	1,368.7
125	1,115.3	1,428.9	1,237.9	1,473.8	1,290.6	2,561.4	1,201.4	1,293.4	2,414.3	1,844.6	1,471.3	1,276.5
126	2,242.4	858.5	1,533.8	2,518.5	3,340.5	1,742.5	1,824.5	2,812.3	1,249.5	1,216.4	1,308.0	1,560.5
127	1,111.2	1,287.4	1,526.4	1,240.2	2,561.4	1,594.7	1,513.8	1,314.0	1,316.0	1,118.2	1,239.7	2,213.5
128	1,309.1	1,081.0	1,172.8	2,522.9	874.5	1,742.5	1,503.2	1,116.9	1,659.5	1,534.6	1,315.9	1,283.5
129	1,295.1	1,118.7	3,449.2	1,247.1	1,072.6	1,490.3	1,534.0	1,820.2	2,363.9	2,638.6	1,295.0	1,217.5
130	1,240.2	1,453.9	1,239.3	1,802.4	1,118.2	1,485.2	857.7	3,496.7	1,391.3	1,111.2	1,220.3	1,559.1
131	3,686.5	1,338.7	1,252.6	1,296.0	1,471.5	976.8	1,253.7	1,900.1	2,442.2	1,152.1	2,259.8	1,331.4
132	872.2	2,474.0	1,848.7	1,309.1	1,551.2	2,240.4	1,089.0	2,857.6	1,303.9	1,251.4	1,303.5	1,461.1
133	1,799.6	1,550.5	1,118.6	1,181.7	1,649.2	2,808.1	2,272.6	1,576.7	1,287.0	1,199.9	1,327.9	1,444.7
134	1,265.9	1,268.7	1,058.1	1,249.5	1,236.3	1,110.4	1,596.3	1,338.7	847.7	1,470.7	1,488.7	1,351.2
135	3,214.0	828.3	2,782.3	1,163.8	1,169.9	1,340.7	3,252.0	1,165.9	1,333.8	1,530.1	1,227.9	1,337.6
136	1,441.4	1,306.9	1,673.3	1,197.4	993.9	1,311.4	2,451.1	1,170.0	1,333.3	1,853.9	1,244.5	2,312.2
137	1,814.7	2,814.9	1,201.8	1,701.6	2,427.2	1,873.7	1,296.5	907.1	3,528.8	1,345.3	1,467.8	1,527.5
138	1,122.3	1,219.0	1,252.1	1,490.7	1,308.8	1,266.1	1,313.6	1,704.6	3,516.8	2,265.1	1,827.3	1,561.2
139	3,238.7	1,445.7	3,227.2	1,307.8	1,669.9	2,397.6	1,398.4	960.2	1,389.8	1,256.5	1,147.5	1,355.0
140	1,140.6	2,241.5	2,878.3	1,444.2	2,489.9	1,494.0	1,295.3	1,259.7	1,908.6	1,243.0	1,728.2	1,893.0
141	1,220.9	1,303.9	1,285.8	3,346.5	1,767.8	1,490.4	1,352.4	2,300.7	842.7	999.1	1,829.4	1,346.8
142	1,535.0	1,515.4	1,077.6	2,888.2	1,448.0	869.9	1,308.8	1,276.6	1,262.8	1,269.8	1,390.8	3,418.7
143	1,240.6	1,258.6	869.9	1,476.5	1,224.6	1,465.9	1,290.8	1,576.1	1,115.3	1,254.4	1,270.9	1,337.6
144	1,239.7	1,744.3	1,494.0	2,292.0	1,277.1	1,220.2	873.3	1,148.4	1,361.2	1,237.1	1,330.0	1,788.2
145	1,262.2	1,730.4	1,479.5	1,486.0	1,142.6	1,125.6	996.7	936.7	1,453.0	1,774.9	2,299.4	1,504.8
146	1,243.1	1,806.3	1,492.7	1,393.1	1,033.1	1,175.0	1,869.9	2,307.2	2,494.1	867.0	1,471.1	1,518.4
147	856.1	1,052.6	3,315.2	1,313.6	1,127.6	1,472.1	3,035.3	1,336.9	1,237.8	2,479.2	1,490.7	1,388.8
148	3,372.4	1,479.8	1,453.0	1,283.7	1,272.3	1,468.0	1,734.7	1,070.0	1,544.6	1,805.3	1,324.1	1,267.8
149	1,116.6	3,376.7	873.3	1,287.7	1,620.7	1,072.6	1,273.6	1,490.2	1,279.1	1,269.8	1,476.1	1,228.9
150	1,048.9	1,497.1	1,201.4	1,372.5	1,247.4	2,292.0	1,252.6	1,717.7	1,987.4	1,310.9	1,457.9	1,266.4
151	2,353.0	1,240.1	1,223.5	1,008.6	1,163.5	1,293.4	1,239.9	1,361.4	1,364.0	3,063.2	2,063.2	1,603.5
152	2,356.0	872.6	1,191.7	2,016.0	1,371.9	1,891.7	1,452.7	3,365.7	2,565.3	3,030.3	1,264.3	1,526.7
153	1,451.1	2,336.4	1,493.0	1,380.3	1,608.0	1,459.1	3,116.7	1,177.1	1,398.9	1,956.4	1,321.4	954.3
154	2,255.1	3,041.6	1,540.8	1,486.3	1,237.1	1,181.1	1,862.5	1,241.7	3,484.1	1,149.1	1,490.8	1,473.5
155	1,291.7	1,689.5	1,253.9	1,625.6	1,255.0	1,175.0	1,299.0	2,453.1	1,081.0	1,410.7	880.8	3,414.1
156	2,020.3	2,416.1	1,252.1	1,236.7	2,267.0	1,479.5	1,846.3	928.1	1,493.7	1,172.8	1,674.7	1,010.3
157	3,449.3	2,561.5	1,578.1	1,468.7	1,233.5	2,356.0	1,239.1	1,326.6	1,239.7	1,072.6	2,397.3	1,321.9
158	1,329.5	1,317.0	1,181.4	849.6	2,331.3	1,311.2	1,478.9	1,535.8	1,266.4	1,264.0	3,037.3	1,655.2
159	1,255.0	1,229.4	1,240.9	1,550.0	1,486.3	1,175.0	2,468.4	1,357.9	3,297.1	1,473.8	1,262.6	1,705.5
160	1,437.1	1,315.2	1,153.9	1,171.9	2,392.7	1,273.1	1,234.1	1,388.4	2,423.2	1,268.9	1,929.4	1,696.1
161	2,148.4	1,308.4	1,253.7	2,414.8	3,199.4	2,265.7	1,297.6	1,284.2	2,142.7	1,293.5	1,452.6	1,216.3
162	1,221.9	2,472.1	3,311.1	1,306.8	1,857.5	1,491.2	3,256.8	1,164.9	873.3	1,240.6	1,405.4	1,272.3
163	1,536.3	997.7	2,276.9	1,496.7	1,385.1	1,466.6	1,297.2	1,246.5	1,369.6	1,310.7	1,843.9	1,375.7
164	1,140.6	3,220.4	1,289.3	1,223.5	1,202.0	1,474.2	1,464.8	1,387.5	2,474.4	1,444.2	1,019.8	1,876.7
165	1,423.3	1,011.5	3,130.2	2,034.9	1,562.7	2,315.3	1,859.4	905.7	1,310.1	1,223.5	1,471.5	1,260.4
166	1,151.8	1,312.3	1,352.4	1,448.2	1,180.5	3,315.8	1,097.6	1,400.5	2,442.7	1,967.5	1,399.5	1,283.1
167	2,281.6	896.5	2,296.6	2,393.5	3,131.0	1,563.3	1,928.6	3,501.5	1,450.8	1,170.7	1,197.4	1,399.9
168	1,147.1	1,107.7	1,386.2	1,275.7	3,402.5	1,310.7	1,312.5	1,223.2	1,364.4	1,003.5	1,241.0	2,372.2
169	1,201.4	1,048.9	1,258.0	2,349.3	867.0	1,598.7	1,445.6	1,172.3	2,058.3	1,477.2	1,290.0	1,359.7
170	1,254.4	1,191.9	3,143.4	1,226.2	1,030.5	1,493.9	1,371.9	1,865.7	2,411.9	3,402.5	1,243.4	1,242.1
171	1,332.7	1,471.7	1,243.0	1,866.7	1,003.5	1,300.1	937.8	3,181.3	1,381.1	1,147.1	1,169.9	2,092.9
172	3,372.3	1,241.5	1,293.9	1,193.6	1,488.1	901.4	1,324.8	1,993.4	2,560.6	1,264.4	3,052.5	1,269.9
173	914.0	2,246.6	1,963.8	1,106.2	1,404.8	2,322.3	1,165.1	3,597.0	1,354.2	1,302.4	1,169.5	1,509.4
174	1,968.1	1,282.8	982.1	1,354.2	2,034.8	3,455.9	2,346.7	1,384.9	1,284.4	1,243.3	1,319.2	1,523.5
175	1,227.6	1,447.9	982.1	1,302.0	1,252.8	1,227.2	1,869.9	1,283.8	842.7	1,516.9	1,334.2	1,286.3

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
176	3,919.4	1,238.0	1,268.9	1,297.6	1,106.2	1,319.8	3,062.4	1,328.4	1,381.8	1,448.2	1,186.2	2,275.6
177	1,514.2	1,277.7	1,594.0	1,138.7	996.7	1,366.6	2,354.7	1,161.9	1,320.3	1,955.5	1,270.0	2,285.9
178	1,968.1	3,538.0	1,290.6	1,574.4	2,273.0	2,338.7	1,372.8	994.2	3,267.0	1,321.2	1,444.1	1,380.3
179	1,253.5	1,340.8	1,242.4	1,397.6	1,197.2	1,301.2	1,251.3	1,580.0	3,296.4	2,355.3	1,964.2	1,489.3
180	3,956.1	1,480.8	3,058.2	1,154.8	1,490.8	2,204.1	1,359.9	1,007.9	1,283.7	1,228.4	1,111.5	1,152.2
181	1,159.1	2,366.0	3,576.7	1,437.1	2,312.5	1,403.8	1,187.2	1,335.6	2,066.7	1,330.8	1,603.3	2,161.6
182	1,255.4	1,300.1	1,268.7	3,134.3	1,598.7	1,340.7	1,349.1	2,365.4	937.8	1,004.1	1,917.7	1,195.4
183	1,868.7	1,263.8	990.3	3,594.1	1,474.7	855.1	1,191.7	1,334.5	1,196.4	1,172.7	1,366.0	3,194.5
184	1,172.6	1,219.6	900.5	1,514.2	1,257.3	1,502.4	1,338.8	1,940.4	1,131.6	1,187.2	1,352.6	1,360.4
185	1,264.5	1,889.4	1,502.4	2,364.0	1,170.4	1,219.6	900.4	1,150.3	1,310.7	1,169.5	1,387.2	1,566.8
186	1,240.1	1,571.9	1,484.3	1,326.1	1,187.2	1,131.6	1,003.2	914.1	1,505.5	1,968.1	2,275.2	1,239.9
187	1,290.8	1,974.7	1,405.1	1,447.4	909.3	1,228.4	2,342.2	2,305.1	2,526.5	937.8	1,256.6	1,530.4
188	850.3	985.7	3,198.8	1,252.1	1,184.7	1,320.4	3,687.4	1,255.3	1,302.0	2,266.8	1,398.4	1,431.1
189	3,188.1	1,325.4	1,437.1	1,274.1	1,187.4	1,386.2	1,566.8	1,030.3	2,092.9	1,956.4	1,249.4	1,349.1
190	1,163.5	3,193.7	877.8	1,297.6	1,563.4	993.9	1,296.8	1,474.9	1,243.3	1,210.5	1,530.2	1,201.8
191	985.7	1,491.5	1,211.5	1,333.5	1,272.7	2,293.5	1,233.8	1,598.9	1,951.4	1,358.9	1,399.7	1,219.0
192	2,204.1	1,289.0	1,138.7	996.7	1,123.1	1,326.5	1,247.2	1,309.4	1,394.0	3,677.8	2,361.9	1,540.4
193	2,287.2	962.3	1,099.5	2,080.7	1,310.5	1,967.7	1,409.9	3,208.4	2,336.8	3,677.7	1,155.7	1,540.0
194	1,454.9	2,341.3	1,474.7	1,378.6	1,515.6	1,452.3	3,747.3	1,148.0	1,397.9	1,951.4	1,326.1	982.9
195	2,311.5	3,681.9	1,497.2	1,474.7	1,163.8	1,328.8	2,012.9	1,207.9	3,299.6	1,153.9	1,276.2	1,910.7
196	1,142.4	2,044.1	1,362.2	1,488.2	1,264.4	1,261.5	1,187.8	2,132.3	988.0	1,479.5	905.1	3,479.3
197	2,081.2	2,237.5	1,264.4	1,362.2	2,270.3	1,479.5	2,010.0	950.2	1,147.4	1,256.5	1,553.9	988.0
198	4,058.9	2,719.0	1,507.2	1,502.8	1,138.9	2,287.2	1,293.0	1,324.5	1,268.9	989.0	2,185.8	1,221.6
199	1,294.7	1,366.2	1,139.1	1,010.3	2,298.4	1,352.0	1,461.1	1,528.2	1,171.9	1,319.8	2,055.7	1,234.1
200	1,495.5	1,264.0	1,186.0	1,500.2	1,494.2	1,241.9	2,204.1	1,438.1	3,917.2	1,438.2	1,338.8	1,455.3
201	1,455.0	1,275.3	1,142.1	1,142.4	2,203.0	1,310.7	1,261.5	1,355.0	2,255.4	1,233.6	1,976.1	1,338.7
202	2,271.0	1,234.7	1,260.2	2,239.5	3,038.7	2,192.1	1,292.0	1,372.7	2,817.1	1,311.2	1,501.9	1,266.8
203	1,126.5	2,288.1	3,955.4	1,381.5	1,987.3	1,494.2	3,059.8	1,141.9	951.1	1,169.5	1,339.6	1,289.9
204	1,803.7	959.4	2,193.6	1,171.0	1,359.9	1,425.4	1,358.7	1,201.1	1,220.0	1,412.7	2,132.3	1,271.9
205	1,127.3	3,063.2	1,154.8	1,221.0	1,265.8	1,464.6	1,425.2	1,279.8	2,353.8	1,473.0	906.2	2,736.4
206	1,359.9	1,003.5	3,001.4	2,482.3	1,499.5	2,261.2	2,050.6	975.5	1,430.9	1,100.4	1,489.3	1,377.0
207	1,152.2	1,313.7	1,275.3	1,455.0	1,135.0	3,994.1	1,228.8	1,433.0	2,250.8	1,982.2	1,408.9	1,257.2
208	2,522.2	1,002.1	3,024.3	2,160.0	2,999.6	1,491.5	1,991.4	4,107.1	1,125.1	1,304.1	1,271.8	1,337.3
209	1,165.0	1,226.0	1,406.8	1,337.0	4,052.4	1,053.3	1,410.7	1,237.6	1,326.1	904.5	1,220.2	2,579.2
210	1,203.5	903.5	1,249.6	2,107.1	953.2	1,500.6	1,526.8	1,177.4	2,524.1	1,369.4	1,159.0	1,333.1
211	1,113.2	1,147.1	3,029.3	1,294.7	989.0	1,488.1	1,343.2	1,999.3	2,287.2	3,994.1	1,175.9	1,290.7
212	1,277.9	1,498.8	1,232.9	1,983.7	992.5	1,312.2	981.8	3,005.7	1,320.1	1,151.4	1,228.1	2,090.4
213	3,253.1	1,233.9	1,288.9	1,154.8	1,437.6	938.3	1,353.1	2,142.7	2,136.3	1,290.1	3,026.6	1,263.6
214	966.3	2,102.8	1,994.8	1,197.2	1,400.7	2,248.6	1,127.3	4,225.1	1,321.4	1,245.1	1,388.5	1,473.0
215	2,141.7	1,177.3	983.1	1,259.7	2,789.6	4,066.3	2,187.8	1,444.4	1,154.0	1,247.8	1,331.5	1,676.9
216	1,349.0	1,437.3	827.1	1,238.7	1,236.7	1,282.2	3,020.7	1,392.8	980.5	1,523.9	1,237.3	1,461.1
217	4,520.5	1,239.4	1,262.4	1,235.6	1,202.8	1,238.6	2,994.2	1,329.9	1,311.9	1,444.1	1,245.5	2,175.8
218	1,514.4	1,270.4	1,501.0	1,154.0	983.1	1,222.4	2,145.3	1,176.4	1,439.6	1,984.5	1,247.7	2,258.8
219	2,275.7	4,183.4	1,336.9	1,493.7	1,985.8	2,998.1	1,192.3	1,003.0	3,191.1	1,193.9	1,522.2	1,391.6
220	1,159.4	1,258.9	1,239.6	1,419.5	1,197.2	1,287.5	1,254.1	1,530.9	3,165.9	2,203.3	2,093.7	1,316.9
221	4,598.8	1,415.5	2,948.7	1,208.1	1,516.2	1,935.6	1,372.8	944.5	1,247.8	1,270.4	1,172.3	1,211.6
222	1,165.1	2,318.9	4,242.3	1,452.6	2,130.5	1,407.4	1,312.1	1,285.4	1,984.6	1,350.2	1,494.1	2,682.8
223	1,228.9	1,170.0	1,284.6	2,980.9	1,483.3	1,296.6	1,292.4	2,324.6	947.8	941.5	2,001.6	1,157.7
224	3,016.3	1,292.4	946.7	4,242.5	1,523.9	958.2	1,197.2	1,330.2	1,273.8	1,367.7	1,327.1	3,077.3
225	1,158.4	1.2	2,002.9	1,514.4	1,183.1	1.6	871.9	12.1	77.1	1,464.8	8.2	1,392.6
226	1,280.2	2,298.7	1,399.9	2,257.2	1,210.8	1,268.9	954.3	1,163.2	1,315.1	1,341.7	1,171.8	1,529.7
227	1,279.4	1,483.9	1,444.1	1,286.4	1,203.2	1,147.2	900.8	1,004.2	1,378.8	1,974.7	2,273.0	1,297.6
228	1,274.1	2,157.4	1,398.4	1,558.4	907.9	1,229.8	2,800.8	2,221.6	2,003.7	914.1	1,156.9	1,659.1
229	988.3	902.7	3,089.5	1,353.1	1,127.3	1,232.9	4,331.7	1,318.4	1,154.8	1,980.1	1,421.4	1,473.0
230	3,072.7	1,311.9	1,433.8	1,329.6	1,353.6	1,338.9	1,493.0	953.2	2,696.4	1,981.4	1,288.9	1,359.4
231	1,196.4	3,076.8	930.8	1,107.7	1,587.9	883.8	1,474.5	1,592.5	1,305.0	1,339.2	1,424.5	1,357.0
232	938.3	1,471.6	1,205.6	1,266.6	1,301.2	2,151.4	1,273.1	1,540.4	2,198.3	1,329.6	1,436.3	1,676.9
233	1,963.5	1,336.5	1,216.8	906.2	1,154.5	1,327.5	1,284.6	1,299.7	1,398.4	4,320.2	2,740.2	1,526.1
234	2,195.6	908.3	1,235.5	2,974.9	1,055.4	2,146.8	1,354.6	3,126.4	2,092.9	4,282.2	1,257.1	1,640.7
235	1,634.9	2,977.8	1,444.4	1,328.0	1,489.7	1,498.2	4,387.1	1,191.2	1,323.3	2,093.7	1,157.8	1,219.2

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
236	2,134.1	4,325.1	1,512.0	1,417.5	1,329.3	1,336.5	2,162.7	1,266.9	3,286.1	1,264.4	1,282.1	1,530.7
237	1,197.2	2,980.6	1,341.7	1,505.4	1,239.4	1,261.5	1,229.5	1,955.1	991.5	1,433.8	917.1	3,151.2
238	3,423.2	1,961.7	1,288.2	1,341.7	2,172.9	1,437.3	2,142.4	1,030.5	1,329.9	1,249.6	1,522.5	962.2
239	4,700.7	3,018.0	1,576.9	1,436.7	1,266.4	2,180.4	1,189.5	1,355.5	1,384.7	868.2	1,914.2	1,351.6
240	1,323.3	1,163.7	1,147.2	953.2	2,179.5	1,333.6	1,444.1	1,442.4	1,178.3	1,263.6	2,620.0	1,305.8
241	1,618.6	1,541.2	1,334.7	1,585.4	1,467.4	1,271.2	1,961.3	1,210.3	4,563.8	1,471.8	1,362.1	1,459.6
242	1,452.6	1,305.0	1,165.0	1,156.3	1,931.7	1,228.2	1,285.9	1,263.8	2,155.3	1,230.0	2,170.9	1,462.6
243	2,458.6	1,336.1	1,315.1	1,919.3	2,987.0	2,195.3	1,057.3	1,463.6	2,665.6	1,125.5	1,427.8	1,411.7
244	1,438.5	2,998.9	4,599.4	1,171.8	2,162.7	1,417.5	3,005.8	1,292.0	976.3	1,340.2	1,173.1	1,383.1
245	1,793.9	789.1	2,205.2	1,025.3	1,401.9	1,473.4	1,423.8	1,223.3	1,389.5	1,217.0	2,148.4	1,370.9
246	1,165.0	2,932.2	1,195.3	1,232.4	1,297.6	1,422.3	1,375.8	1,306.0	1,948.2	1,452.6	906.4	3,018.9
247	1,691.1	907.4	2,788.2	2,979.6	1,569.1	2,188.1	2,147.9	973.2	1,232.2	1,226.0	1,479.2	1,306.3
248	1,366.2	1,051.2	1,293.5	1,427.2	1,122.5	4,602.8	1,247.5	1,357.2	2,132.1	2,192.1	1,381.9	1,196.5
249	2,487.1	1,022.1	2,973.9	1,888.4	2,864.5	1,517.7	2,195.8	4,748.5	1,154.8	1,247.0	1,221.5	1,471.6
250	1,424.8	1,149.0	1,383.6	1,337.0	4,602.3	1,085.9	1,217.0	1,131.2	1,478.7	881.8	1,293.5	2,239.5
251	1,247.5	868.9	1,217.3	1,914.2	965.9	1,569.0	1,477.4	1,201.0	3,126.9	1,375.8	1,154.2	1,245.0
252	1,200.4	1,136.0	2,988.7	1,435.9	797.6	1,425.9	1,179.1	2,188.9	2,291.6	4,602.8	1,345.3	1,457.1
253	1,241.1	1,428.3	1,252.5	2,171.9	805.5	1,122.3	1,200.3	3,031.0	1,123.1	1,173.6	1,406.0	2,922.3
254	3,101.2	1,146.4	1,258.0	1,173.8	1,432.4	798.5	1,398.3	2,215.9	2,205.0	1,119.5	3,020.8	1,260.6
255	947.3	1,892.0	2,115.4	1,266.4	1,398.4	2,214.0	1,181.3	4,775.1	1,327.1	1,287.8	1,326.4	1,478.9
256	2,125.7	1,214.8	988.8	1,256.7	3,002.9	4,708.5	2,147.8	1,433.3	1,154.0	1,247.7	1,263.8	1,449.0
Min	96.3	1.1	4.2	3.8	18.7	1.6	20.6	12.1	70.0	13.5	7.7	11.7
Avg	1,662.0	1,612.6	1,619.3	1,577.6	1,604.0	1,576.1	1,609.8	1,558.2	1,729.9	1,465.7	1,492.8	1,595.4
Max	4,928.9	4,480.4	4,700.6	4,591.2	4,627.4	4,708.5	4,460.8	4,775.1	4,769.5	4,602.8	3,052.5	4,607.6

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
0	28.7	2.5	4.9	7.8	106.3	128.6	32.8	14.0	78.1	8.1	18.3	10.3
1	1,315.4	988.4	1,085.0	1,371.0	1,196.1	2,776.2	1,357.1	2,246.3	262.1	1,167.4	18.3	10.2
2	1,140.9	2,785.2	1,049.2	1,918.8	4,834.1	845.4	1,646.3	1,570.6	1,436.6	1,146.1	18.5	10.3
3	1,517.0	1,383.5	1,247.1	1,181.7	1,639.0	1,996.8	1,389.1	1,226.9	1,001.8	1,029.5	18.4	10.3
4	1,174.1	2,837.7	1,543.9	1,133.7	1,475.9	876.5	1,986.6	1,386.3	4,724.6	1,165.4	18.5	10.4
5	1,218.5	1,051.3	4,585.7	1,444.6	1,307.1	2,198.9	2,210.4	1,304.4	259.9	1,383.8	18.4	10.3
6	1,906.3	1,152.3	2,821.8	988.6	1,315.4	1,197.7	1,570.4	1,327.1	1,372.8	1,337.4	18.4	10.2
7	1,215.7	1,060.7	1,538.4	1,188.3	2,037.1	355.6	1,290.3	2,724.7	2,216.9	2,084.2	18.7	10.3
8	1,220.6	1,029.5	2,731.9	1,300.5	1,916.6	1,541.2	224.6	1,270.5	1,066.1	995.8	18.8	10.5
9	4,541.0	1,232.2	1,289.1	1,380.6	1,581.9	1,135.0	1,420.0	1,979.1	2,191.5	1,247.5	18.8	10.3
10	1,224.5	1,296.3	4,585.3	814.8	1,979.7	2,778.6	1,304.4	1,153.9	1,405.4	1,241.6	18.7	10.2
11	1,515.2	4,590.4	269.1	2,147.4	1,979.9	2,770.9	1,430.3	1,453.4	977.1	1,417.9	18.8	10.5
12	977.1	1,336.5	1,397.6	2,730.7	1,927.3	1,583.2	1,637.3	1,217.1	787.5	1,528.7	18.9	10.4
13	1,471.4	812.5	1,517.8	1,274.0	4,640.0	1,154.5	1,435.4	1,205.2	475.0	1,986.8	19.0	10.6
14	1,242.4	1,310.8	2,164.7	1,075.8	1,485.5	1,546.4	1,225.5	2,165.2	1,163.0	1,208.3	19.0	10.3
15	1,286.9	1,577.7	1,287.8	338.8	2,670.4	1,323.2	1,540.8	883.1	1,423.9	1,103.6	19.0	10.3
16	1,073.5	2,127.0	1,220.8	1,478.4	1,004.8	1,550.3	1,278.7	1,444.4	1,538.3	2,209.4	19.3	10.3
17	792.8	1,163.3	2,238.3	4,586.8	1,423.4	1,432.6	1,342.0	1,157.8	1,589.6	1,518.1	19.2	10.3
18	2,672.1	378.0	1,431.6	1,323.7	1,417.4	1,311.4	1,307.1	1,232.7	1,539.5	1,325.4	18.9	10.3
19	936.4	1,852.5	1,474.2	2,146.4	1,317.7	1,351.6	1,416.5	1,243.8	1,293.1	2,800.9	19.0	10.2
20	1,971.4	2,661.9	4,576.4	403.0	1,139.3	2,129.6	2,332.9	1,151.6	1,264.4	1,417.0	18.9	10.3
21	1,025.2	4,592.7	1,546.4	1,315.4	1,498.0	1,159.6	2,235.0	439.2	2,609.7	1,247.1	18.8	10.5
22	2,609.4	4,568.2	1,550.4	463.9	1,511.4	1,345.7	1,440.9	1,160.6	1,587.7	1,439.1	19.3	10.4
23	1,145.0	1,853.3	4,409.9	1,357.1	1,408.8	656.4	1,152.4	1,549.2	1,423.2	1,028.2	21.7	10.3
24	1,546.4	1,963.6	1,174.3	1,399.2	1,282.9	2,146.8	1,646.0	1,081.2	1,453.3	1,309.0	19.0	10.2
25	2,597.3	2,143.9	1,271.9	1,608.2	862.4	474.8	1,097.4	1,143.8	1,397.6	1,294.2	18.9	10.5
26	567.8	2,189.5	1,561.0	1,385.5	1,457.3	1,266.7	1,440.7	2,164.2	1,469.8	2,800.5	18.9	10.2
27	1,428.8	575.4	1,294.2	1,019.4	4,545.0	797.9	1,498.3	1,341.8	2,721.9	1,410.0	19.1	10.2
28	1,507.2	1,303.0	1,333.6	1,362.7	884.4	1,675.2	1,362.5	1,723.6	2,243.2	4,688.9	18.8	10.3
29	1,045.3	1,477.6	1,116.6	1,239.5	1,412.9	1,753.8	1,193.8	1,224.7	1,274.5	1,320.7	18.9	10.3
30	2,074.4	1,368.7	1,109.3	1,172.2	4,487.3	2,037.1	1,389.5	1,127.9	1,293.2	2,826.4	19.0	10.3
31	808.8	1,530.1	1,479.0	988.4	1,232.8	1,286.0	1,262.0	1,403.7	2,963.3	1,423.7	18.8	10.5

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
32	1,451.7	1,427.2	681.6	2,162.4	2,236.8	977.4	1,401.4	1,248.1	996.0	1,574.7	18.9	10.5
33	1,001.8	2,189.0	688.4	4,461.7	1,593.2	1,482.8	1,300.7	1,042.8	1,399.9	1,473.6	19.0	10.4
34	4,210.2	2,233.0	974.5	1,267.7	1,556.7	1,383.4	1,471.8	862.1	1,496.6	1,446.4	19.0	10.4
35	1,288.4	696.1	1,477.1	1,666.7	4,533.4	788.6	1,275.9	1,803.5	1,109.3	3,041.6	19.0	10.3
36	1,662.7	796.5	1,132.4	1,253.7	4,403.1	1,966.5	1,435.9	1,206.3	2,050.1	1,357.7	18.9	10.3
37	833.4	4,336.7	1,423.2	858.0	1,167.9	980.7	1,620.1	1,423.0	1,344.9	1,881.1	19.0	10.6
38	1,140.1	1,846.0	1,061.0	2,144.2	1,217.3	1,538.4	871.6	770.4	1,150.7	1,321.1	19.1	10.1
39	1,215.1	2,681.1	1,862.0	1,107.0	1,299.1	986.0	1,426.4	2,228.2	2,145.0	1,499.0	19.0	10.4
40	862.5	1,369.6	4,352.6	995.7	2,769.3	802.3	1,454.4	1,441.0	1,076.1	1,584.3	19.1	10.4
41	1,318.4	857.7	803.9	1,299.7	1,662.7	2,041.0	1,695.1	1,810.7	1,168.9	1,195.2	19.2	10.5
42	1,247.1	1,072.7	1,160.8	1,382.0	1,172.5	2,780.3	1,306.2	2,250.0	1,167.7	1,173.4	19.1	10.3
43	1,147.7	2,778.1	1,223.8	1,825.6	4,412.0	805.5	1,667.1	1,498.1	1,295.3	1,144.9	18.9	10.1
44	1,479.7	1,288.3	1,296.4	1,170.5	1,666.8	1,975.9	1,256.7	1,166.4	1,145.6	1,148.3	20.9	10.2
45	1,220.6	2,681.1	1,601.8	1,122.2	1,637.9	806.6	1,968.3	1,420.5	4,356.8	1,043.8	19.0	10.3
46	1,099.6	988.4	4,063.4	1,541.0	1,281.2	2,130.6	2,029.1	1,215.9	1,196.5	1,594.6	18.6	10.1
47	1,753.8	1,199.4	2,792.2	823.2	1,618.6	1,093.8	1,599.5	1,085.0	1,595.5	1,582.1	19.3	10.2
48	1,227.9	1,061.2	1,530.1	1,234.2	1,941.8	1,179.3	1,226.9	2,778.7	1,985.8	2,112.4	19.0	10.3
49	1,290.4	1,173.8	2,618.3	1,286.4	1,847.5	1,535.0	1,259.0	1,320.5	1,131.7	1,033.5	19.0	10.3
50	4,091.4	1,154.5	1,288.5	1,309.4	1,661.5	1,183.1	1,408.3	1,828.1	1,961.2	1,179.9	19.2	10.3
51	1,315.4	1,277.9	4,074.9	816.8	1,852.6	2,792.6	1,281.8	1,154.9	1,351.9	1,189.6	21.7	10.3
52	1,561.7	4,061.6	1,189.1	2,108.3	1,851.8	2,780.3	1,502.0	1,591.3	1,139.1	1,186.3	18.7	10.1
53	1,171.3	1,521.9	1,429.0	2,593.8	1,883.9	1,547.2	1,583.6	1,192.8	819.8	1,656.4	18.9	10.3
54	1,543.9	826.0	1,521.9	1,338.9	4,093.6	998.4	1,531.4	1,232.8	1,412.3	2,113.9	18.7	10.3
55	1,312.6	1,271.5	1,962.2	1,186.1	1,350.5	1,610.9	1,243.3	2,056.5	1,095.3	1,180.9	19.2	10.2
56	1,179.6	1,549.1	1,288.5	1,239.5	2,716.3	1,398.0	1,639.2	810.8	1,315.4	1,174.4	19.2	10.4
57	1,156.8	2,096.2	1,190.9	1,673.1	1,232.1	1,388.3	1,397.5	1,259.2	1,541.1	2,084.0	18.8	10.3
58	836.1	1,181.3	1,916.3	4,106.2	1,436.0	1,238.6	1,321.6	1,089.4	1,613.6	1,563.7	18.8	10.4
59	2,678.3	1,287.8	1,499.3	1,342.8	1,287.1	1,180.0	1,377.2	1,173.2	1,592.6	1,492.3	19.0	10.8
60	1,148.9	1,796.7	1,657.2	2,062.2	1,405.4	1,119.5	1,497.2	1,151.3	1,296.3	2,690.4	19.0	10.2
61	1,794.7	2,671.4	4,084.8	1,337.5	1,182.1	2,078.8	2,081.9	1,171.3	1,199.6	1,591.8	18.8	10.3
62	1,213.0	4,065.3	1,585.5	1,310.1	1,669.4	1,150.7	2,044.4	1,365.0	2,663.4	1,199.4	19.0	10.2
63	2,671.4	4,031.8	1,499.3	1,390.5	1,404.0	1,365.4	1,362.7	1,158.8	1,629.9	1,321.0	18.9	10.3
64	1,220.2	1,781.0	4,050.4	1,306.0	1,372.7	1,390.5	1,206.6	1,367.9	1,269.5	1,429.1	19.0	10.3
65	1,585.5	1,830.3	1,229.9	1,398.0	1,114.4	2,026.1	1,671.9	1,166.8	1,662.7	1,302.7	18.8	10.6
66	2,664.6	2,055.9	1,266.4	1,584.1	846.6	1,390.5	1,293.3	1,180.3	1,406.7	1,319.4	19.0	10.4
67	1,483.3	1,951.3	1,524.4	1,374.7	1,455.0	1,234.3	1,383.8	2,041.0	1,657.2	2,681.7	18.9	10.3
68	1,274.0	1,420.7	1,293.2	1,160.3	4,085.9	808.5	1,438.4	1,534.5	2,652.2	1,398.8	18.9	10.2
69	1,526.6	1,310.4	1,348.5	1,362.1	832.5	1,675.2	1,299.5	1,726.1	2,229.4	4,224.7	19.0	10.2
70	1,186.0	1,546.8	1,148.5	1,268.2	1,420.0	1,751.2	1,128.2	1,234.1	1,232.8	1,153.7	18.8	10.4
71	2,196.8	1,255.1	1,199.9	1,092.6	4,097.3	1,701.7	1,395.7	1,191.6	1,239.7	2,753.2	18.9	10.2
72	783.9	1,521.9	1,546.8	1,240.2	1,197.3	1,320.7	1,207.9	1,425.7	2,626.1	1,444.9	18.9	10.2
73	1,652.2	1,470.9	1,529.8	2,095.9	1,949.0	1,212.8	1,563.6	1,179.2	1,139.5	1,548.9	19.0	10.2
74	1,114.1	1,916.3	1,538.9	4,061.2	1,552.8	1,549.7	1,127.1	1,213.1	1,403.3	1,542.0	18.9	10.3
75	3,766.7	1,799.0	1,209.7	1,187.2	1,553.9	1,364.5	1,654.7	841.6	1,638.1	1,291.6	19.2	10.2
76	1,240.4	1,584.5	1,553.5	1,733.7	4,101.5	830.8	1,195.0	1,838.2	1,113.4	2,754.9	19.0	10.3
77	1,645.1	826.0	1,169.9	1,234.4	3,956.2	1,799.0	1,537.5	1,174.3	2,182.4	1,393.6	19.0	10.4
78	1,671.0	3,932.4	1,274.0	835.4	1,243.1	1,209.6	1,566.1	1,406.2	1,550.7	1,819.5	18.9	10.4
79	1,413.4	1,811.6	1,165.4	1,718.1	1,183.1	1,546.0	899.4	1,704.4	1,161.6	1,229.3	19.1	10.2
80	1,171.9	2,600.9	1,778.1	1,120.2	1,288.7	1,210.9	1,407.3	1,939.8	2,095.9	1,705.9	19.2	10.1
81	1,762.7	1,398.7	3,899.6	1,144.0	2,640.7	805.5	1,447.0	1,256.0	1,100.1	1,565.6	19.3	10.7
82	1,313.7	1,728.7	830.8	1,340.8	1,755.6	2,168.7	1,594.8	1,860.2	1,145.6	1,142.4	19.5	10.1
83	1,156.2	1,099.0	1,327.5	1,253.1	1,254.8	2,605.5	1,529.0	1,737.2	2,042.8	1,192.0	19.2	10.2
84	1,008.6	2,593.9	1,263.7	1,835.0	3,961.9	867.0	1,650.3	1,318.7	1,793.0	1,139.2	18.9	10.3
85	1,386.2	1,213.6	1,255.1	1,159.0	1,622.3	1,580.3	1,418.1	1,196.1	1,120.0	1,279.5	19.0	10.2
86	1,220.6	2,600.8	1,570.4	1,137.6	1,714.1	806.6	1,877.5	1,434.9	3,849.1	1,063.7	19.2	10.5
87	1,134.0	1,173.8	3,657.0	1,654.2	1,075.2	1,732.8	2,285.8	1,232.8	2,042.6	1,319.0	19.0	10.3
88	1,738.5	1,162.5	2,627.5	823.2	1,589.5	1,093.5	1,611.4	1,070.2	1,674.8	1,375.2	19.2	10.3
89	1,330.0	1,131.7	1,535.0	1,315.9	1,597.7	2,171.3	1,305.0	2,556.1	1,996.0	2,449.5	18.9	10.3
90	1,416.6	1,247.1	2,480.2	1,321.8	1,890.5	1,546.0	1,986.8	1,169.3	1,165.4	885.0	19.2	10.1

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
91	3,633.0	1,110.4	1,281.7	1,555.1	1,610.2	1,145.2	1,432.8	1,837.3	1,701.7	1,200.7	19.1	10.3
92	1,314.9	1,348.5	3,672.5	818.8	1,824.5	2,597.1	1,299.4	1,176.6	1,343.2	1,202.7	18.8	10.2
93	1,528.5	3,671.1	2,050.4	2,254.2	1,830.8	2,597.1	1,565.1	1,656.2	1,099.2	1,123.3	19.0	10.3
94	1,175.8	1,516.9	1,548.8	2,491.8	1,840.2	1,478.6	1,618.4	1,185.7	784.3	1,719.8	19.3	10.3
95	1,526.9	806.6	1,479.9	1,258.6	3,670.5	1,073.5	1,531.0	1,249.9	2,267.0	1,720.7	19.1	10.1
96	1,327.3	1,227.9	1,725.1	1,197.3	1,304.1	1,532.1	1,253.1	2,249.1	1,113.4	1,115.7	19.0	10.4
97	1,407.2	1,514.8	1,265.8	2,120.0	2,506.2	2,328.4	1,537.1	892.2	1,219.6	1,374.4	19.1	10.2
98	1,229.4	2,263.8	1,060.5	1,743.2	1,284.5	1,342.3	1,517.2	1,347.1	1,903.7	1,620.3	19.0	10.3
99	856.1	1,044.9	1,636.3	3,624.9	1,428.1	1,217.3	1,390.2	1,130.5	1,544.7	1,480.4	19.2	10.2
100	2,545.9	2,179.7	1,392.3	1,558.3	1,355.0	1,378.0	1,362.6	1,122.6	1,563.6	1,523.9	21.8	10.7
101	1,124.8	1,734.8	1,814.7	2,259.4	1,305.3	1,386.9	1,577.2	1,142.3	1,178.3	2,628.0	19.0	10.3
102	1,836.7	2,526.8	3,599.9	2,218.8	1,301.5	2,229.4	1,777.8	1,044.9	1,444.2	1,675.2	19.2	10.2
103	1,261.5	3,636.8	1,470.4	1,190.3	1,849.3	1,072.6	1,578.4	2,254.9	2,453.8	1,475.3	19.1	10.3
104	2,499.1	3,626.3	1,386.2	2,277.8	1,622.3	1,372.0	1,433.8	1,161.4	1,524.1	1,329.4	18.9	10.4
105	28.2	1,802.2	3,630.1	1,376.6	1,334.3	2,266.8	10,960.4	7.1	1,240.4	1,241.5	19.1	10.1
106	1,524.5	1,817.9	1,232.6	1,458.6	1,083.7	2,204.6	1,584.6	1,191.4	1,695.2	1,366.6	19.2	10.3
107	2,506.2	2,176.8	1,261.9	1,525.8	892.5	2,266.8	1,285.5	1,140.1	1,356.5	1,335.6	18.9	10.2
108	2,356.8	1,611.6	1,461.2	1,542.5	1,535.0	1,330.0	1,358.4	2,295.6	1,716.0	2,689.3	19.1	10.3
109	1,219.6	2,286.0	1,216.7	1,117.0	3,655.1	852.5	1,553.1	1,504.5	2,485.8	1,399.2	19.1	10.3
110	1,445.9	1,217.3	1,244.9	1,394.2	852.4	1,802.4	1,359.7	1,612.9	2,200.0	3,742.9	19.2	10.4
111	982.1	1,366.6	1,184.7	1,264.1	1,356.2	1,761.8	1,312.1	1,252.9	1,396.7	1,243.3	19.4	10.2
112	2,299.4	1,301.8	1,270.0	919.6	3,582.3	1,486.0	1,306.0	1,317.6	1,277.7	2,652.1	19.1	10.2
113	843.7	1,534.9	1,346.6	1,270.5	1,165.2	1,216.7	1,211.5	1,380.9	2,650.4	1,579.8	18.9	10.3
114	1,717.1	1,513.8	2,398.1	2,268.3	1,678.9	1,265.7	1,612.3	1,110.7	1,111.3	1,537.2	19.0	10.3
115	1,116.0	1,611.6	2,402.1	3,579.6	1,561.7	1,261.8	1,281.2	1,254.4	1,295.6	1,475.2	18.9	10.2
116	3,408.2	1,507.3	1,246.4	1,400.2	1,431.7	1,277.7	1,550.0	874.8	1,745.6	1,324.5	19.1	10.3
117	1,292.5	2,453.7	1,534.9	1,844.7	3,583.9	856.1	1,209.0	1,771.3	1,241.6	2,649.5	19.0	10.2
118	1,755.5	841.1	1,111.2	1,297.1	3,514.1	1,507.3	1,617.4	1,112.2	2,299.2	1,283.6	19.1	10.6
119	2,539.6	3,490.3	1,253.2	872.2	1,110.9	1,246.6	1,543.8	1,883.2	1,491.8	1,998.9	19.1	10.4
120	1,488.5	1,737.5	1,219.6	1,490.3	1,163.6	1,502.4	983.7	2,555.3	1,039.5	1,274.0	19.2	10.3
121	1,049.6	2,532.4	1,749.2	1,138.9	1,493.6	1,262.3	1,380.0	1,604.3	2,281.1	1,528.3	18.9	10.4
122	2,539.6	1,287.5	3,490.3	1,134.0	2,544.4	850.3	1,615.0	1,313.0	1,156.5	1,502.8	19.1	10.3
123	1,285.9	2,561.2	856.9	1,244.9	1,791.5	2,218.6	1,521.2	1,714.7	1,309.4	1,241.6	19.3	10.2
124	1,172.8	1,086.2	1,252.1	1,315.9	1,295.1	2,524.5	1,526.8	1,603.2	2,802.5	1,302.6	19.3	10.4
125	1,048.9	2,523.3	1,255.9	1,748.4	3,582.8	867.0	1,557.6	1,291.6	1,708.3	1,259.3	19.4	10.2
126	1,349.8	1,319.6	1,236.3	1,180.1	1,524.0	1,486.0	1,439.5	1,106.0	1,127.6	1,281.2	19.3	10.3
127	1,250.4	2,528.3	1,449.3	1,199.9	1,811.6	857.7	1,800.2	1,561.8	3,511.9	1,128.8	19.2	10.5
128	1,249.9	1,243.0	3,342.8	1,759.0	1,207.1	1,500.3	2,398.1	1,466.4	2,805.6	1,309.9	19.0	10.3
129	1,754.3	1,470.4	2,519.9	885.5	1,497.9	1,320.4	1,442.4	1,213.6	2,095.2	1,251.2	19.2	10.3
130	1,274.4	1,110.7	1,520.9	1,278.9	1,594.7	2,638.6	1,231.8	2,529.5	1,736.9	2,218.1	19.2	10.3
131	1,455.0	1,240.1	2,401.3	1,293.3	1,732.7	1,408.9	2,770.9	1,278.2	1,275.3	1,084.0	19.6	10.3
132	3,355.0	1,181.7	1,172.8	1,552.4	1,547.2	1,243.0	1,320.8	1,757.5	1,493.9	1,089.6	19.3	10.1
133	1,304.6	1,239.7	3,349.8	877.8	1,742.5	2,513.3	1,467.2	1,131.6	1,283.6	1,271.6	19.1	10.2
134	1,483.3	3,336.8	2,811.5	2,311.5	1,780.9	2,519.1	1,628.2	1,767.5	1,120.0	1,216.4	19.3	10.2
135	1,064.9	134.0	13.4	2,415.9	6,480.7	1,930.7	1,479.8	1,218.4	1,466.8	1,222.3	19.2	10.2
136	1,398.8	871.3	1,464.8	1,194.3	3,389.8	1,202.0	1,967.2	1,407.2	3,030.5	1,616.3	19.5	10.3
137	1,220.9	1,233.4	1,526.8	1,292.8	1,320.4	1,484.4	1,158.3	2,279.0	1,254.8	1,143.6	19.2	10.3
138	1,473.8	1,451.6	1,172.8	2,833.9	2,459.7	1,931.7	1,388.0	893.8	1,240.9	1,079.0	19.2	10.1
139	1,256.7	2,240.4	988.0	1,860.8	1,310.0	1,263.4	1,616.0	1,248.6	2,986.1	1,644.6	19.9	10.3
140	842.7	1,000.9	1,493.9	3,357.3	1,307.8	1,303.5	1,339.3	1,221.5	1,476.5	1,374.4	19.2	10.1
141	2,528.5	2,866.0	1,287.6	2,041.6	1,320.0	1,448.1	1,361.7	1,254.8	1,448.0	1,396.9	19.3	10.3
142	1,082.5	1,653.8	1,821.8	2,280.3	1,309.4	1,384.1	1,574.1	1,168.9	1,172.8	2,548.1	19.4	10.3
143	1,728.2	2,409.5	3,402.6	2,913.4	1,281.0	2,293.0	1,611.5	1,046.0	1,473.8	1,774.9	18.9	10.2
144	1,242.6	3,389.3	1,452.8	1,195.4	1,888.5	1,072.6	1,527.4	2,937.5	2,398.7	1,475.1	19.1	10.3
145	2,399.1	3,363.1	1,310.7	2,963.3	2,023.4	1,271.6	1,388.3	1,272.4	1,474.4	1,316.6	19.2	10.1
146	1,217.9	1,685.4	3,372.4	1,310.9	1,371.1	2,963.3	1,218.1	1,387.9	1,250.7	1,285.3	19.1	10.6
147	1,449.0	1,678.0	1,317.5	1,884.8	1,278.7	2,259.4	1,504.3	1,286.5	1,814.7	1,162.2	19.3	10.2
148	2,393.0	2,254.3	1,299.4	1,493.4	907.1	2,963.3	1,352.2	1,124.1	1,242.6	1,178.3	18.9	10.4
149	2,963.3	1,470.2	1,313.2	1,761.9	1,529.5	1,236.0	1,272.9	2,267.2	1,819.2	2,583.8	19.2	10.1

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
150	1,267.7	2,972.9	1,258.0	1,139.0	3,446.1	867.0	1,755.6	1,475.3	2,410.6	1,315.0	19.3	10.3
151	1,536.9	1,253.7	1,276.1	1,308.8	940.6	1,947.5	1,540.8	1,336.5	2,285.9	3,609.9	19.2	10.1
152	976.8	1,366.0	1,179.9	1,309.4	1,376.8	1,583.2	1,359.8	1,275.5	1,392.6	1,242.0	19.2	10.3
153	2,293.5	1,149.3	1,297.6	912.7	3,414.4	1,325.4	1,265.2	1,295.4	1,238.0	2,546.5	18.9	10.4
154	882.8	1,464.8	1,353.4	1,264.1	1,080.8	1,258.0	1,299.2	1,325.7	2,491.5	1,913.5	19.3	10.1
155	1,826.7	1,346.6	3,051.6	2,263.1	1,535.0	1,262.3	1,634.8	1,194.9	1,089.0	1,468.6	19.4	10.1
156	1,137.8	1,471.1	3,061.2	3,381.0	1,500.4	1,310.7	1,364.2	1,272.2	1,313.6	1,396.5	19.2	10.3
157	3,181.8	1,371.9	1,226.2	1,473.1	1,366.0	1,302.0	1,528.5	897.6	1,887.5	1,265.0	19.1	10.1
158	1,172.7	3,116.7	1,378.2	1,971.0	3,414.2	965.9	1,352.3	1,585.2	1,230.1	2,554.0	19.6	10.3
159	1,862.5	875.7	1,116.0	1,313.1	3,242.5	1,475.2	2,193.4	1,081.7	2,255.1	1,312.3	19.3	10.4
160	3,303.2	3,162.5	1,163.8	955.2	1,085.9	1,347.8	1,614.0	3,041.9	1,361.1	1,686.2	19.6	10.1
161	1,464.5	1,652.7	1,272.6	1,314.3	1,183.4	1,452.7	957.1	3,266.2	976.8	1,275.8	19.9	10.3
162	1,072.6	2,445.2	1,544.9	1,260.5	1,511.9	1,251.1	1,266.2	1,487.0	2,255.1	1,634.5	19.4	10.3
163	3,351.2	1,288.3	3,182.4	1,125.1	2,474.4	949.2	2,130.5	1,269.6	1,246.5	1,496.8	21.7	10.2
164	1,264.1	3,313.2	867.9	1,276.1	1,937.0	2,337.4	1,446.2	1,562.2	1,259.9	1,259.4	19.2	10.3
165	1,268.6	1,176.9	1,224.1	1,313.7	1,316.7	2,334.5	1,542.8	1,434.1	3,563.7	1,302.1	19.4	10.4
166	989.0	2,420.8	1,276.6	1,566.4	3,280.5	962.3	1,584.0	1,312.5	2,278.8	1,256.7	19.4	10.8
167	1,329.6	1,258.9	1,306.9	1,305.9	1,558.8	1,340.7	1,600.8	1,013.4	1,139.1	1,272.2	19.2	10.3
168	1,448.2	2,474.4	1,516.9	1,298.9	2,038.9	937.8	1,642.0	2,098.8	3,131.0	1,365.7	19.0	10.2
169	1,258.6	1,256.8	3,120.7	1,910.5	1,288.8	1,299.2	2,414.2	1,445.1	3,560.8	1,274.3	19.1	10.2
170	1,539.2	1,396.6	2,461.9	901.6	1,444.3	1,240.7	1,506.7	1,359.8	2,528.2	1,340.7	19.6	10.2
171	1,100.4	1,349.1	1,386.2	1,477.3	1,318.4	3,402.6	1,373.2	2,442.0	1,557.5	2,558.8	19.9	10.2
172	1,425.1	1,337.0	2,248.1	1,239.9	1,585.7	1,327.0	3,532.8	1,240.2	1,329.9	1,090.4	19.4	10.2
173	3,191.8	1,264.0	1,232.7	2,665.0	1,581.7	1,347.8	1,452.3	1,609.9	1,271.0	1,186.8	19.5	10.1
174	1,210.5	1,241.9	3,135.0	867.6	1,626.2	2,426.2	1,533.8	1,188.6	1,297.6	1,299.3	18.9	10.3
175	1,346.4	3,077.3	3,513.6	2,279.6	1,632.7	2,426.2	1,535.7	1,968.1	1,140.6	1,240.0	19.2	10.4
176	1,147.1	1,399.9	2,296.6	2,231.3	1,565.8	1,479.7	1,436.1	1,008.0	937.8	2,002.7	19.2	12.6
177	1,289.2	900.4	1,452.7	1,171.5	3,162.6	1,272.6	2,125.8	1,501.0	3,532.7	1,431.4	19.1	10.5
178	1,234.1	1,171.9	1,320.4	1,247.2	1,315.4	1,514.2	1,107.2	2,293.5	1,268.9	1,157.7	19.1	10.3
179	1,433.0	1,477.4	1,236.7	3,563.6	2,269.3	3,155.0	1,352.2	1,010.1	1,341.7	1,107.1	19.6	10.3
180	1,262.4	2,347.2	992.5	1,976.1	1,351.6	1,395.0	1,550.4	1,375.9	2,707.1	1,391.1	19.0	10.4
181	950.0	934.0	1,272.0	3,141.3	1,381.0	1,172.6	1,323.9	1,328.8	1,441.1	1,312.2	19.0	10.3
182	2,312.5	3,583.7	1,304.3	2,107.4	1,262.4	1,424.8	1,344.0	1,269.4	1,445.6	1,394.5	19.3	10.2
183	1,183.9	1,497.2	1,958.1	2,361.5	1,378.5	1,392.6	1,540.4	1,233.0	1,309.4	2,422.8	19.5	10.1
184	1,591.5	2,254.1	3,181.0	3,617.4	1,267.7	2,285.9	1,372.1	1,016.8	1,467.8	1,955.5	19.5	10.3
185	1,316.4	3,188.1	1,514.2	1,252.8	1,983.8	996.7	1,309.2	3,618.5	2,270.6	1,491.1	19.5	10.2
186	2,263.8	3,180.8	1,334.9	3,639.8	1,965.3	1,290.5	1,389.9	1,217.8	1,510.2	1,272.0	19.4	10.5
187	1,276.1	1,499.9	3,196.0	1,161.8	1,194.7	3,618.5	1,229.8	1,355.0	1,360.0	1,350.2	19.1	10.3
188	1,497.6	1,516.6	1,234.1	2,107.6	1,309.0	2,293.5	1,512.2	1,259.3	1,967.5	1,289.8	19.5	10.3
189	2,270.6	2,293.5	1,219.1	1,534.3	1,014.4	3,618.5	1,332.9	1,159.1	1,297.6	1,309.9	19.4	10.1
190	3,618.5	1,260.7	1,352.0	1,874.5	1,520.9	1,188.2	1,352.7	2,364.4	1,955.1	2,280.7	19.6	10.3
191	1,225.5	3,626.5	1,308.5	1,195.2	3,243.5	850.3	1,902.7	1,502.9	2,222.8	1,327.2	19.3	10.4
192	1,495.4	1,163.1	1,277.7	1,385.1	952.1	1,972.0	1,597.7	1,338.3	2,310.6	3,336.4	19.4	10.2
193	989.0	1,289.2	1,151.8	1,257.4	1,440.9	1,495.5	1,400.6	1,327.4	1,448.2	1,279.9	19.5	10.6
194	2,293.6	1,138.5	1,302.9	908.0	3,223.7	1,333.4	1,277.1	1,292.4	1,232.7	2,221.9	19.5	10.3
195	949.8	1,300.5	1,193.2	1,347.8	1,055.3	1,234.1	1,293.9	1,363.4	2,229.7	3,050.1	18.9	10.4
196	1,975.8	1,310.7	3,690.9	2,291.2	1,338.5	1,269.4	1,527.9	1,246.1	1,157.2	1,500.5	19.3	10.3
197	1,112.1	1,319.8	3,695.0	3,222.1	1,547.8	1,310.7	1,399.7	1,309.6	1,187.8	1,410.0	19.4	10.3
198	2,999.4	1,310.5	1,307.8	1,455.0	1,367.0	1,361.9	1,513.0	967.6	1,971.9	1,190.3	19.4	10.2
199	1,170.7	3,747.2	1,408.7	1,999.4	3,223.6	896.5	1,324.0	1,537.7	1,264.6	2,202.1	19.5	10.4
200	1,963.7	913.7	1,155.2	1,167.9	3,096.9	1,264.0	3,061.0	991.0	2,331.3	1,386.2	19.5	10.3
201	3,989.9	3,030.0	1,228.1	967.5	1,068.6	1,275.7	1,602.5	2,286.6	1,408.9	1,520.6	19.1	10.4
202	1,478.9	1,489.6	1,259.7	1,249.5	1,181.4	1,406.8	968.5	3,942.8	878.2	1,359.6	19.4	10.3
203	989.0	2,209.0	1,514.2	1,255.0	1,528.8	1,307.8	1,320.5	1,310.5	2,293.1	1,429.2	19.5	10.5
204	3,989.8	1,193.6	3,025.4	1,168.0	2,261.2	912.1	2,645.5	1,330.3	1,293.9	1,446.1	19.5	10.3
205	1,353.1	3,955.8	984.8	1,254.6	2,101.5	2,195.4	1,447.9	1,541.3	1,323.3	1,303.4	19.5	10.1
206	1,228.4	1,157.6	1,283.7	1,161.0	1,360.4	2,091.6	1,531.9	1,311.0	4,183.5	1,271.9	19.3	10.1
207	906.2	2,195.0	1,279.4	1,509.2	3,077.7	947.9	1,582.5	1,338.7	2,381.6	1,317.5	19.2	10.4
208	1,193.4	1,337.0	1,174.3	1,328.8	1,567.1	1,176.4	1,540.1	887.3	1,286.9	1,520.0	19.1	10.3

Stream ID	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	RF1	RF2
209	1,452.6	2,098.0	1,493.7	1,284.3	2,041.7	909.2	1,580.2	2,681.1	3,151.9	1,265.1	19.4	10.4
210	1,293.0	1,349.0	2,985.2	1,984.5	1,334.0	1,233.1	2,342.8	1,461.5	4,228.4	1,380.2	19.7	10.3
211	1,515.7	1,448.2	2,199.3	967.0	1,444.9	1,264.4	1,426.1	1,286.9	2,560.2	1,389.1	19.3	10.4
212	1,108.9	1,311.0	1,394.5	1,454.9	1,349.4	4,052.4	1,356.3	2,208.6	1,476.6	2,310.6	19.5	10.3
213	1,427.2	1,323.2	1,969.0	1,234.4	1,573.4	1,375.5	4,179.4	1,264.1	1,296.4	1,121.7	19.5	10.3
214	2,979.2	1,275.0	1,261.5	2,332.0	1,532.7	1,280.5	1,288.6	1,508.2	1,312.7	924.7	19.4	10.3
215	1,317.2	1,270.4	2,997.5	931.4	1,565.0	2,202.9	1,552.5	1,156.8	1,222.4	1,346.7	19.1	10.3
216	1,238.0	2,945.8	4,118.0	2,315.7	1,568.7	2,202.9	1,481.6	1,996.3	1,286.9	1,242.4	19.3	10.2
217	1,147.2	1,359.9	2,607.8	1,921.2	1,569.5	1,421.6	1,446.4	953.2	943.3	2,167.1	19.6	10.2
218	1,412.7	914.2	1,359.9	1,338.0	3,007.9	1,271.9	2,597.9	1,438.2	4,179.4	1,310.2	19.3	10.3
219	1,229.8	1,191.3	1,212.4	1,331.8	1,371.4	1,517.0	1,047.4	2,151.3	1,293.9	1,276.3	19.8	10.3
220	1,433.8	1,444.4	1,236.7	4,209.6	2,043.8	2,745.9	1,448.5	967.3	1,341.7	939.7	19.5	10.2
221	1,293.5	2,153.9	973.4	2,159.6	1,355.1	1,243.5	1,601.9	1,333.1	2,981.5	1,277.0	19.7	10.5
222	914.6	907.7	1,232.9	2,993.8	1,214.4	1,360.0	1,243.4	1,261.6	1,510.2	1,410.7	19.4	10.5
223	2,093.6	4,232.5	1,321.2	2,339.7	1,413.7	1,444.1	1,269.5	1,316.0	1,474.7	1,399.8	19.6	12.5
224	1,147.2	1,475.0	1,981.4	2,272.4	1,229.6	1,444.1	1,517.0	1,313.8	1,261.5	2,040.4	19.4	10.1
225	1,493.0	2,012.8	3,063.6	4,264.0	1,443.8	2,250.8	9,757.1	1,896.3	75.6	1,992.5	19.3	10.4
226	1,302.8	3,066.9	1,505.9	1,264.7	2,041.1	900.8	1,318.8	4,260.8	2,012.8	1,473.0	19.3	10.3
227	2,009.8	3,068.0	1,321.2	4,282.3	2,413.1	1,158.5	1,312.0	1,313.5	1,526.8	1,409.5	19.3	10.4
228	1,263.6	1,493.0	3,072.7	1,221.7	1,243.8	4,264.0	1,249.3	1,256.9	1,319.9	1,355.3	19.3	10.5
229	1,474.3	1,500.4	1,197.2	2,576.1	1,272.8	2,257.2	1,441.8	1,371.1	2,041.1	1,263.4	19.2	10.3
230	2,003.7	2,250.8	1,173.9	1,525.5	1,024.7	4,264.0	1,374.8	1,160.7	1,154.8	1,244.0	19.3	10.4
231	4,264.0	1,051.3	1,224.5	3,044.0	1,327.0	1,182.2	1,286.6	2,199.7	2,175.6	2,272.4	19.7	10.5
232	1,341.7	4,271.9	1,261.5	1,159.0	3,134.6	958.2	3,105.5	1,444.2	1,959.9	1,195.7	19.4	10.5
233	1,483.5	1,364.6	1,249.6	1,179.8	1,014.9	2,041.1	1,564.5	1,249.6	2,257.2	3,082.7	19.5	10.3
234	878.2	1,410.7	1,162.9	1,217.3	1,208.2	1,512.0	1,354.9	1,433.3	1,452.6	1,306.8	19.5	10.6
235	2,203.3	1,095.3	1,298.4	866.5	3,140.2	1,263.6	1,175.0	1,487.4	1,357.6	1,933.0	19.3	10.4
236	983.1	1,323.2	1,196.9	1,310.7	946.4	1,217.2	1,352.3	1,255.4	1,890.4	3,047.9	19.4	10.3
237	2,088.6	1,329.6	4,325.1	2,208.3	1,289.8	1,314.7	1,512.9	1,325.1	1,157.9	1,457.6	19.7	10.2
238	1,261.9	1,227.0	4,333.0	3,109.2	1,486.1	1,238.0	1,401.1	1,340.8	1,163.7	1,325.5	19.6	10.3
239	2,904.5	1,173.9	1,325.8	1,438.0	1,299.9	1,230.0	1,479.1	957.5	2,125.2	1,333.0	19.4	10.2
240	1,359.3	4,387.0	1,411.8	2,099.5	3,142.4	943.3	1,385.6	1,491.0	1,288.2	1,949.5	19.4	10.3
241	2,095.0	1,127.4	1,199.4	1,165.8	2,995.6	1,127.0	2,890.4	830.4	2,232.6	1,225.5	18.8	10.2
242	4,602.4	2,944.7	1,341.7	929.9	991.6	1,287.5	1,454.9	2,980.1	1,376.3	1,520.1	19.2	10.4
243	1,440.7	1,504.2	1,526.4	1,022.1	1,330.4	1,555.1	1,258.3	4,588.4	808.1	1,397.1	19.3	10.6
244	805.1	1,896.2	1,512.1	1,297.1	1,579.9	1,287.4	1,356.0	1,281.9	2,134.1	1,428.7	25.4	10.8
245	4,588.3	1,112.1	2,935.4	1,267.7	1,962.6	1,019.7	3,060.1	1,339.4	1,298.4	1,473.9	18.8	10.3
246	1,326.4	4,598.5	909.2	1,241.0	2,148.7	2,167.0	1,470.5	1,511.1	1,349.7	1,300.6	19.1	10.2
247	1,197.6	1,182.4	1,289.4	1,170.4	1,439.4	1,900.1	1,590.1	1,140.5	4,838.9	1,312.1	19.2	10.4
248	868.9	1,971.4	1,437.4	1,591.3	3,035.3	965.9	1,479.9	1,236.8	3,242.6	1,305.0	19.0	10.3
249	1,139.6	1,397.6	1,311.2	1,385.3	1,453.7	978.0	1,595.2	803.8	1,247.3	1,457.0	19.0	10.3
250	1,482.7	1,919.4	1,439.5	1,309.8	2,198.7	930.8	1,607.4	3,022.3	2,957.0	1,337.2	19.0	10.4
251	1,284.2	1,412.8	2,779.3	2,108.0	1,314.1	1,053.3	2,345.9	1,563.3	4,833.6	1,325.5	19.1	10.4
252	1,510.4	1,543.2	1,903.1	1,141.8	1,370.9	1,293.1	1,238.4	1,518.2	3,074.6	1,136.1	19.0	10.4
253	1,147.7	1,513.4	1,309.3	1,487.5	1,237.4	4,602.8	1,396.4	1,979.4	1,587.6	2,425.9	19.1	10.6
254	1,550.4	1,262.4	1,849.4	1,228.1	1,575.6	1,419.2	4,722.0	1,284.2	1,362.8	1,148.9	19.0	10.4
255	2,837.7	1,278.6	1,197.0	2,759.0	1,485.9	1,355.3	1,280.5	1,591.3	1,116.8	868.2	19.2	10.2
256	1,315.4	1,270.4	2,904.4	929.8	1,573.6	1,888.5	1,642.5	1,168.2	1,230.0	1,343.4	19.0	10.5
Min	28.2	2.5	4.9	7.8	106.3	128.6	32.8	7.1	75.6	8.1	18.3	10.1
Ave	1,602.2	1,812.6	1,755.7	1,629.2	1,830.5	1,560.4	1,604.1	1,480.5	1,706.9	1,562.9	19.2	10.3
Max	4,602.4	4,598.5	4,585.7	4,586.8	6,480.7	4,602.8	10,960.4	4,588.4	4,838.9	4,688.9	25.4	12.6

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February 4, 2014

I verified the TPC Benchmark H (TPC-H™ v2.16.0) performance of the following configuration:

Platform: SPARC M10-4S
Operating System: Oracle Solaris 11 version 11.1.8.4.0
Database Manager: Oracle Database 11g Release 2 Enterprise Edition with Partitioning
Other Software: C++ Compiler

The results were:

Performance Metric 326,454.1 QphH@1000GB

TPC-H Power 239,865.4

TPC-H Throughput 444,300.3

Database Load Time 01:33:47

Server

SPARC M10-4S Server

CPUs 4 x SPARC64 X (3.0GHz, 16 cores, 32 threads)

Memory 2 TB

Storage

Qty	Size	Type
70	200 GB	SAS SSD
72	400 GB	SAS SSD
72	600 GB	SAS 15Krpm HDD

In my opinion, these performance results were produced in compliance with the TPC requirements for the benchmark.

The following verification items were given special attention:

- The database records were defined with the proper layout and size
- The database population was generated using DBGen
- The database was properly scaled to 1,000GB and populated accordingly
- The compliance of the database auxiliary data structures was verified

- The database load time was correctly measured and reported
- The required ACID properties were verified and met
- The query input variables were generated by QGen
- The query text was produced using minor modifications and no query variant
- The execution of the queries against the SF1 database produced compliant answers
- A compliant implementation specific layer was used to drive the tests
- The throughput tests involved 256 query streams
- The ratio between the longest and the shortest query was such that no query timings were adjusted
- The execution times for queries and refresh functions were correctly measured and reported
- The repeatability of the measured results was verified
- The system pricing was verified for major components and maintenance
- The major pages from the FDR were verified for accuracy

Additional Audit Notes:

The tested configuration included (70) 100GB SAS SSDs in the file units and (72) 100GB SAS SSD in the ETERNUS. The 100GB SAS SSDs are no longer orderable. They were substituted in the priced configuration by (70) 200GB SAS SSDs in the file units and (72) 300GB SAS SSD in the ETERNUS. Based on the specification and performance data of these SSDs, it is my opinion that this substitution had no significant effect on performance.

Respectfully Yours,



François Raab, President

1 General Items

1.1 Test Sponsor

A statement identifying the benchmark sponsor(s) and other participating companies must be provided.

This TPC-H benchmark is sponsored by Fujitsu Ltd.

1.2 Parameter Settings

Settings must be provided for all customer-tunable parameters and options which have been changed from the defaults found in actual products, including but not limited to:

*Database Tuning Options
Optimizer/Query execution options
Query processing tool/language configuration parameters
Recovery/commit options
Consistency/locking options
Operating system and configuration parameters
Configuration parameters and options for any other software component incorporated into the pricing structure
Compiler optimization options*

This requirement can be satisfied by providing a full list of all parameters and options, as long as all those which have been modified from their default values have been clearly identified and these parameters and options are only set once.

Details of system and database configuration and parameters are provided in Supporting Files Archive.

1.3 Configuration Items

Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences.

Measured configuration (depicted in Figure 1.1):

- 4 SPARC64™ X, 3.00GHz processors
- 2 T B memory
- 1 600GB SAS 10,000 rpm HDD
- 74 100GB SAS SSDs
- 7 SAS File Units
- 7 SAS PCI cards
- 2 ETERNUS DX410 S2 (with 24 drive enclosures)
- 72 300GB SAS 15,000 rpm HDD
- 72 100GB SAS SSD
- 2 Fiber Channel PCI cards

Priced configuration (depicted in Figure 1.2):

- 4 SPARC64™ X, 3.00GHz processors
- 2 T B memory
- 1 600GB SAS 10,000 rpm HDD
- 74 200GB SAS SSDs
- 7 SAS File Units
- 7 SAS PCI cards
- 2 ETERNUS DX410 S2 (with 24 drive enclosures)
- 72 300GB SAS 15,000 rpm HDD
- 72 400GB SAS SSD
- 2 Fiber Channel PCI cards
- PRIMERGY TX100 S3 (management console)

Difference in configurations:

Priced Configuration includes PRIMERGY TX100 S3 as console. 70 100GB SAS SSDs in the measured configuration are substituted by 70 200GB SAS SSDs in the measured configuration and 72 100GB SAS SSD in the measured configuration are substituted by 72 400GB SAS SSD in the priced configuration . The 100GB SAS SSDs are no longer orderable.

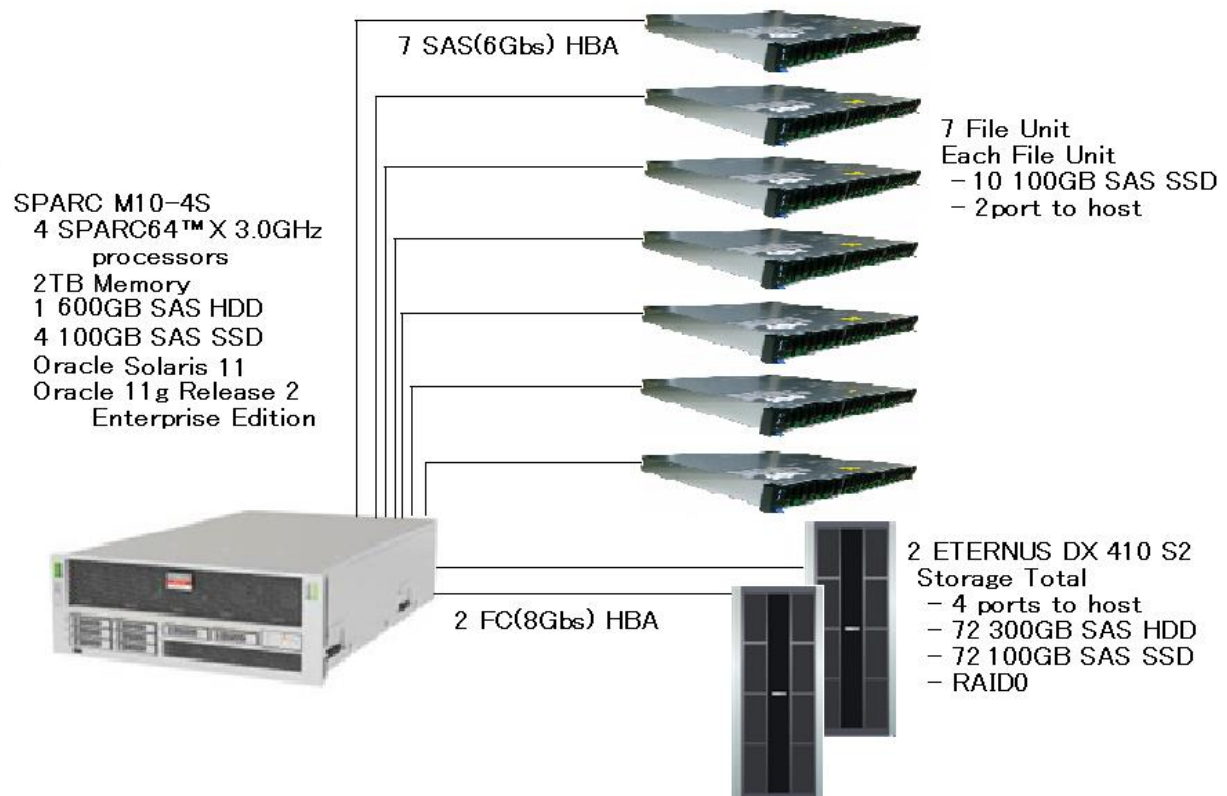


Figure 1.1: Benchmarked system configuration

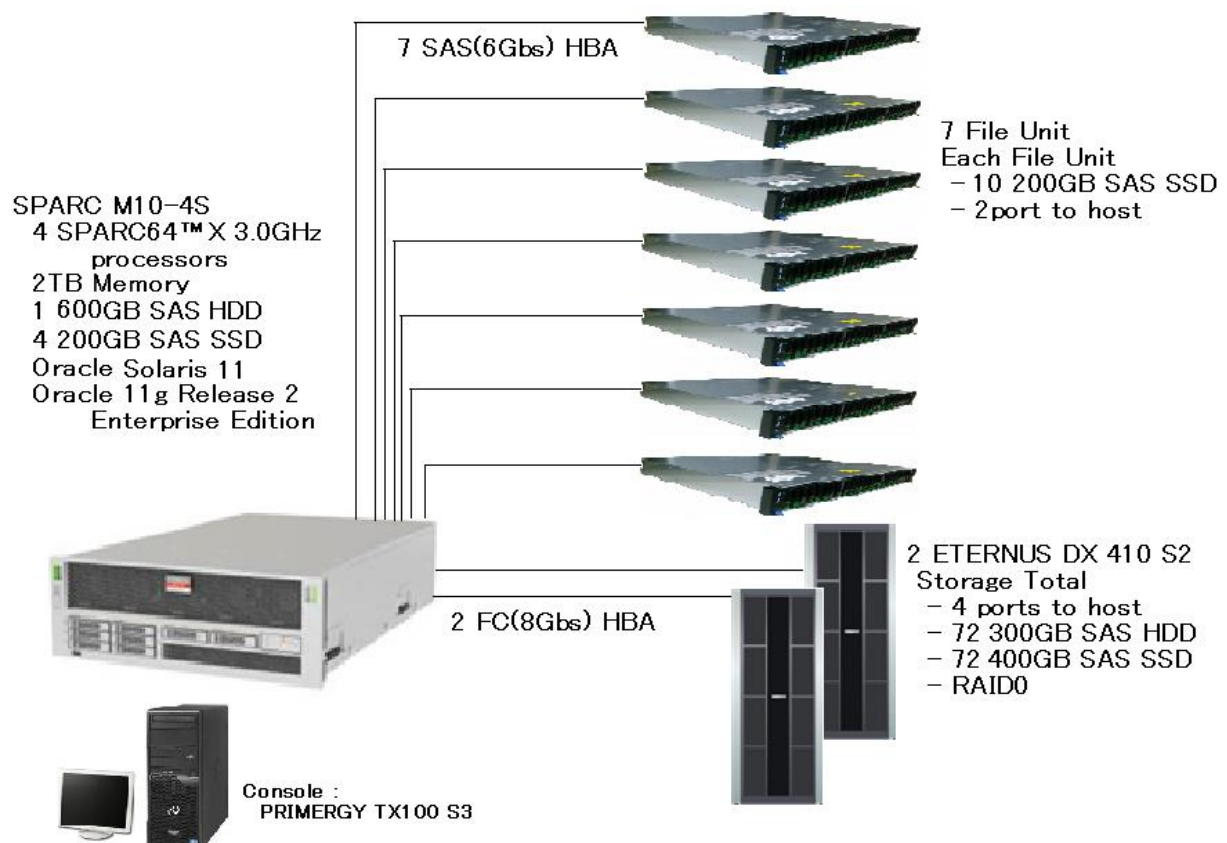


Figure 1.2: Priced system configuration

2 Clause 1: Logical Database Design Related Items

2.1 Database Definition Statements

Listings must be provided for all table definition statements and all other statements used to set up the test and qualification databases (8.1.2.1).

The Supporting Files Archive contains the programs and script that create and analyze the tables and indexes for the TPC-H database.

2.2 Physical Organization

The physical organization of tables and indices, within the test and qualification databases, must be disclosed. If the column ordering of any table is different from that specified in Clause 1.4, it must be noted.

No record clustering or index clustering was used. Column ordering was changed for some tables. Refer to the table create statements in the Supporting Files Archive for more details.

2.3 Horizontal Partitioning

Horizontal partitioning of tables and rows in the test and qualification databases (see Clause 1.5.4) must be disclosed.

Horizontal partitioning was used for all tables except NATION and REGION. Refer to the table/index create statements in the Supporting Files Archive for more details.

2.4 Replication

Any replication of physical objects must be disclosed and must conform to the requirements of Clause 1.5.6.

No replication was used.

2.5 Tunable Parameters

Scripts or text for all hardware and software tunable parameters must be reported in the supporting files archive.

All hardware and software parameters changed from defaults are reported in the Supporting Files Archive.

3 Clause 2: Queries and Refresh Functions

3.1 Query Language

The query language used to implement the queries must be identified.

SQL was the query language used to implement all queries throughout this benchmark.

3.2 Verifying Method for Random Number Generation

The method of verification for the random number generation must be described unless the supplied DBGEN and QGEN were used.

QGen from TPC-H Rev 2.16.1 was used for this publication.

3.3 Query Text and Output Data from Qualification Database

The executable query text used for query validation must be disclosed along with the corresponding output data generated during the execution of the query text against the qualification database. If minor modifications (see Clause 2.2.3) have been applied to any functional query definition or approved variants in order to obtain executable query text, these modifications must be disclosed and justified. The justification for a particular minor query modification can apply collectively to all queries for which it has been used. The output data for the power and throughput tests must be made available electronically upon request.

Clause 8 of the Supporting Files Archive contains the executable query text. The zip files containing the run1 and run2 results had to be split into multiple files no larger than 3GB using the -s option for zip. This generates filenames like run[1|2]result.z01, run[1|2]result.zip.

3.4 Query Substitution Parameters and Seeds Used

The query substitution parameters used for all performance tests must be disclosed in tabular format, along with the seeds used to generate these parameters.

Supporting Files Archive contains the seed and query substitution parameters.

3.5 Isolation Level

The isolation level used to run the queries must be disclosed. If the isolation level does not map closely to the levels defined in Clause 3.4, additional descriptive detail must be provided.

The queries and transactions were run with isolation level 3 (repeatable read).

3.6 Source Code of Refresh Functions

The details of how the refresh functions were implemented must be disclosed (including source code of any non-commercial program used).

The refresh functions are in Clause8/RF_source in the Supporting Files Archive.

4 Clause 3: Database System Properties

4.1 ACID Properties

The ACID (Atomicity, Consistency, Isolation, and Durability) properties of transaction processing systems must be supported by the system under test during the timed portion of this benchmark. Since TPC-H is not a transaction processing benchmark, the ACID properties must be evaluated outside the timed portion of the test.

Tests conducted to demonstrate compliance for each of the ACID requirements is detailed in the following section. Source code for the ACID test is included in the Supporting Files Archive.

4.2 Atomicity

The system under test must guarantee that transactions are atomic; the system will either perform all individual operations on the data, or will assure that no partially completed operations leave any effects on the data.

4.2.1 Atomicity of Completed Transactions

Perform the ACID Transaction for a randomly selected set of input data and verify that the appropriate rows have been changed in the ORDERS, LINEITEM, and HISTORY tables.

The following steps were performed to verify the atomicity of the completed ACID transactions:

1. The total price from the ORDERS table and the extended price from the LINEITEM table were retrieved for a randomly selected order key.
2. The ACID Transaction was performed using the order key from step 1.
3. The ACID Transaction was committed.
4. The total price from the ORDERS table and the extended price from the LINEITEM table were retrieved for the same order key. It was verified that the appropriate rows had been changed.

4.2.2 Atomicity of Aborted Transactions

Perform the ACID Transaction for a randomly selected set of input data, substituting a ROLLBACK of the transaction for the COMMIT of the transaction. Verify that the appropriate rows have not been changed in the ORDERS, LINEITEM, and HISTORY tables.

The following steps were performed to verify the atomicity of the completed ACID transactions:

1. The total price from the ORDERS table and the extended price from the LINEITEM table were retrieved for a randomly selected order key.
2. The ACID Transaction was performed using the order key from step 1. The transaction was stopped prior to the commit.
3. The ACID Transaction was ROLLED BACK.
4. The total price from the ORDERS table and the extended price from the LINEITEM table were retrieved for the same order key. It was verified that the appropriate rows had not been changed.

4.3 Consistency

Consistency is the property of the application that requires any execution of transactions to take the database from one consistent state to another.

4.3.1 Consistency Test

Verify that ORDERS and LINEITEM tables are initially consistent, submit the prescribed number of ACID Transactions with randomly selected input parameters, and re-verify the consistency of the ORDERS and LINEITEM.

The following steps were performed to verify the consistency of ACID transactions:

1. The consistency of the ORDERS and LINEITEM tables was verified based on sample of order keys.
2. 100 ACID transactions were submitted by each of 257 execution streams.
3. The consistency of the ORDERS and LINEITEM tables was re-verified.

4.4 Isolation

Operations of concurrent transactions must yield results, which are indistinguishable from the results, which would be obtained by forcing each transaction to be serially executed to completion in some order.

4.4.1 Isolation Test 1 – Read-Write Conflict with Commit

Demonstrate isolation for the read-write conflict of a read-write transaction and a read-only transaction when the read-write transaction is committed

The following steps were performed to satisfy the test of isolation for a read-only and a read-write committed transaction:

1. An ACID Transaction was started for a randomly selected O_KEY, L_KEY, and DELTA. The ACID Transaction was suspended prior to COMMIT.
2. An ACID Query was started for the same O_KEY used in step 1. The ACID Query did not see the uncommitted changes made by the ACID Transaction.
3. The ACID Query completed.
4. The ACID Transaction was resumed and COMMITTED.

4.4.2 Isolation Test 2 – Read-Write Conflict with Rollback

Demonstrate isolation for the read-write conflict of a read-write transaction and a read-only transaction when the read-write transaction is rolled back.

The following steps were performed to satisfy the test of isolation for a read-only and a rolled back read-write transaction:

1. An ACID Transaction was started for a randomly selected O_KEY, L_KEY, and DELTA. The ACID Transaction was suspended prior to ROLLBACK.
2. An ACID Query was started for the same O_KEY used in step 1. The ACID Query did not see the uncommitted changes made by the ACID Transaction.
3. The ACID Query completed.
4. The ACID Transaction was resumed and ROLLED BACK.

4.4.3 Isolation Test 3 – Write-Write Conflict with Commit

Demonstrate isolation for the write-write conflict of two update transactions when the first transaction is committed.

The following steps were performed to verify isolation of two update transactions:

1. An ACID Transaction, T1, was started for a randomly selected O_KEY, L_KEY, and DELTA. T1 was suspended prior to COMMIT.
2. Another ACID Transaction, T2, was started using the same O_KEY and L_KEY and a randomly selected DELTA.
3. T2 waited.
4. T1 was allowed to COMMIT and T2 completed.
5. It was verified that $T2.L_EXTENDEDPRICE = T1.L_EXTENDEDPRICE + (DELTA1 * (T1.L_EXTENDEDPRICE / T1.L_QUANTITY))$

4.4.4 Isolation Test 4 – Write-Write Conflict with Rollback

Demonstrate isolation for the write-write conflict of two update transactions when the first transaction is rolled back.

The following steps were performed to verify isolation of two update transactions after the first one is rolled back:

1. An ACID Transaction, T1, was started for a randomly selected O_KEY, L_KEY, and DELTA. T1 was suspended prior to ROLLBACK.
2. Another ACID Transaction, T2, was started using the same O_KEY and L_KEY and a randomly selected DELTA.Y
3. T2 waited
4. T1 was allowed to ROLLBACK and T2 completed.
5. It was verified that $T2.L_EXTENDEDPRICE = T1.L_EXTENDEDPRICE$.

4.4.5 Isolation Test 5 – Concurrent Read and Write Transactions on Different Tables

Demonstrate the ability of read and write transactions affecting different database tables to make progress concurrently.

The following steps were performed to demonstrate the ability of read and write transactions affecting different tables to make progress concurrently:

1. An ACID Transaction, T1, was started for a randomly selected O_KEY, L_KEY, and DELTA. T1 was suspended prior to ROLLBACK.
2. Another Transaction, T2, was started which did the following:
For random values of PS_PARTKEY and PS_SUPPKEY, all columns of the PARTSUPP table for which PS_PARTKEY and PS_SUPPKEY are equal, are returned.
3. T2 completed.
4. T1 was allowed to COMMIT.
5. It was verified that appropriate rows in ORDERS, LINEITEM and HISTORY tables were changed.

4.4.6 Isolation Test 6 – Update Transactions during Continuous Read-Only Query Stream

Demonstrate the continuous submission of arbitrary (read-only) queries against one or more tables of the database does not indefinitely delay update transactions affecting those tables from making progress.

1. A Transaction, T1, executing Q1 against the qualification database, was started using a randomly selected DELTA.
2. An ACID Transaction, T2, was started for a randomly selected O_KEY, L_KEY and DELTA.
3. T2 completed and appropriate rows in the ORDERS, LINEITEM and HISTORY tables had been changed.
4. Transaction T1 completed executing Q1.

4.5 Durability

The tested system must guarantee durability: the ability to preserve the effects of committed transactions and insure database consistency after recovery from any one of the failures listed in Clause 3.5.2.

4.5.1 Permanent Unrecoverable Failure of Any Durable Medium

Guarantee the database and committed updates are preserved across a permanent irrecoverable failure of any single durable medium containing TPC-H database tables or recovery log tables.

The disks containing the TPC-H tables, indexes are mirrored across an Oracle Automatic Storage Manager (ASM) disk group consisting of internal SSDs in the M10-4S and external SSDs of in the File Units. Log files are mirrored across the HDDs of ETERNUS DX410 S2 using ASM.

The follow tests were performed.

Test 1: An ETERNUS disk failure test containing the log files combined with a loss of power

The following steps were performed to simulate a disk failure.

1. The ORDERS and LINEITEM tables were verified to be consistent.
2. 257 streams of the ACID transactions were started.
3. After more than 100 transactions from each stream completed, a disk containing log files was removed from ETERNUS DX410 S2, thus causing its failure.
4. Because ASM mirroring was used across the array the transactions continued without any interruption.
5. All power supply cords were removed from the M10-4S.
6. Power was restored and the system was restarted.
7. A sample from the durability success file was matched against the contents for the HISTORY table and it was verified that no committed transactions had been lost.
8. The ORDERS and LINEITEM tables were verified to be consistent.

Test 2: A File Unit disk failure test containing the tables and indexes files

The following steps were performed to simulate a disk failure.

1. The ORDERS and LINEITEM tables were verified to be consistent.
2. 257 streams of the ACID transactions were started.
3. After more than 100 transactions from each stream completed, a disk containing tables and indexes files was removed from a File Unit, thus causing its failure.
4. Because ASM mirroring was used across the array the transactions continued without any interruption.
5. A sample from the durability success file was matched against the contents for the HISTORY table and it was verified that no committed transactions had been lost.
6. The ORDERS and LINEITEM tables were verified to be consistent.

Test 3: A M10-4S internal disk failure test containing the tables and indexes files

The following steps were performed to simulate a disk failure.

1. The ORDERS and LINEITEM tables were verified to be consistent.
2. 257 streams of the ACID transactions were started.
3. After more than 100 transactions from each stream completed, a disk containing tables and indexes files was removed from the M10-4S, thus causing its failure.
4. Because ASM mirroring was used across the arrays the transactions continued without any interruption.
5. A sample from the durability success file was matched against the contents for the HISTORY table and it was verified that no committed transactions had been lost.
6. The ORDERS and LINEITEM tables were verified to be consistent.

4.5.2 System Crash / Memory Failure / Loss of External Power

System Crash: Guarantee the database and committed updates are preserved across an instantaneous interruption (system crash/system hang) in processing which requires the system to reboot to recover.

Memory Failure: Guarantee the database and committed updates are preserved across failure of all or part of memory (loss of contents).

Loss of External Power: Guarantee the database and committed updates are preserved during the loss of all external power for an indefinite time period

Test 1: A loss of external power test combined with an ETERNUS disk failure

See description in section above.

Test 4: Array controller failure test

The following steps were performed to simulate an array controller failure.

1. The ORDERS and LINEITEM tables were verified to be consistent.
2. 257 streams of the ACID transactions were started.
3. After more than 100 transactions from each stream completed, a controller module was removed from an ETERNUS to simulate a controller failure.
4. Because ASM mirroring was used across the arrays the transactions continued without any interruption.
5. A sample from the durability success file was matched against the contents for the HISTORY table and it was verified that no committed transactions had been lost.
6. The ORDERS and LINEITEM tables were verified to be consistent.

5 Clause 4: Scaling and Database Population

5.1 Ending Cardinality of Tables

The cardinality (e.g., the number of rows) of each table of the test database, as it existed at the completion of the database load (see clause 4.2.5) must be disclosed.

Table 5.1 lists the TPC Benchmark H defined tables and the row count for each table as they existed upon completion of the build.

Table Name	Cardinality
LINEITEM	5,999,989,709
ORDERS	1,500,000,000
PARTSUPP	800,000,000
PART	200,000,000
CUSTOMER	150,000,000
SUPPLIER	10,000,000
NATION	25
REGION	5

Table 5.1: Initial Number of Rows

5.2 Distribution of Tables and Logs Across Media

The distribution of tables and logs across all media must be explicitly described for the tested and priced systems.

The TPC-H tables and indexes are distributed across the internal SSDs on M10-4S and SSDs on File Unit. Temporary tables are distributed across the SSD of ETERNUS DX410 S2. Logs, swap, and flat files are distributed across the HDD of ETERNUS DX410 S2. For details, refer to table 5.2. Please see the scripts to generate the disk groups in the Supporting Files Archive in Clause2/DB_creation_scripts.

Partition	Location	Disk Type	# of Disks	Mirror
Table and Index	Internal SAS FU	SSD SSD	74	mirror by Oracle ASM
Temp table	ETERNUS	SSD	72	non mirror
Redo Log	ETERNUS	HDD	32	mirror by Oracle ASM
OS Swap	ETERNUS	HDD	12	mirror by ETERNUS
flat file	ETERNUS	HDD	16	non mirror

Table 5.2: Distribution of tables and logs

5.3 Mapping of Database Partitions/Replication

The mapping of database partitions/replications must be explicitly described.

The database was not replicated.

Horizontal partitioning was used for base tables LINEITEM, ORDERS, PARTSUPP, PART, SUPPLIER and CUSTOMER. The details for this partitioning can be understood by examining the syntax of the table and index definition statements in Supporting Files Archive.

5.4 Implementation of RAID

Implementations may use some form of RAID to ensure high availability. If used for data, auxiliary storage (e.g. indexes) or temporary space, the level of RAID must be disclosed for each device.

Base Tables: Level Three

Auxiliary Data Structures: Level Three

DBMS Temporary space: Level Zero

OS and DBMS software: Level One

Oracle Redo-Logs: Level Three

5.5 DBGEN Modifications

The version number, release number, modification number, and patch level of DBGEN must be disclosed. Any modifications to the DBGEN (see Clause 4.2.1) source code must be disclosed. In the event that a program other than DBGEN was used to populate the database, it must be disclosed in its entirety.

DBGen tool kit-revision 2.16.1 was used in this benchmark.

5.6 Data Base Load Time

The database load time for the test database (see Clause 4.3) must be disclosed.

The database load time was 01:33:47.

5.7 Data Storage Ratio

The data storage ratio must be disclosed. It is computed by dividing the total data storage of the priced configuration (expressed in GB) by the size chosen for the test database as defined in 4.1.3.1. The ratio must be reported to the nearest 1/100th, rounded up.

Disk Type	GB per disk*	# of disks	Total (GB)**
Internal HDD	600	1	600
Internal SSD	200	4	800
SSD in File Unit	200	70	14,000
HDD in ETERNUS	300	72	21,600
SSD in ETERNUS	400	72	28,800
Total Space			65,800
Scale Factor			1000
Data Storage Ratio			65.8

* Disk manufacturer definition of 1 GB is 10^9 bytes

** In this calculation 1 GB is defined as 2^{30} bytes

5.8 Database Load Mechanism Details and Illustration

The details of the database load must be disclosed, including a block diagram illustrating the overall process. Disclosure of the load procedure includes all steps, scripts, input and configuration files required to completely reproduce the test and qualification databases.

The database was loaded using data stored on the flat files that are all on the tested and priced configurations. Fujitsu created external tables using the files that were created by the DBGen program.

The block diagram in figure 5.8.1 describes the process used to load the database.

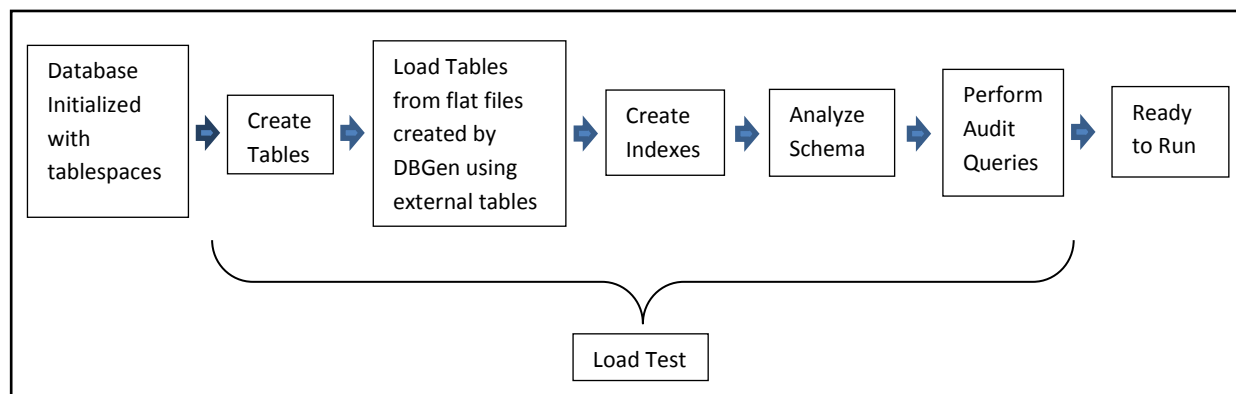


Figure 5.8.1: Database Load Process

5.9 Qualification Database Configuration

Any differences between the configuration of the qualification database and the test database must be disclosed.

The qualification database used same scripts to create and load the data with adjustments for the size difference between the test database and the qualification database.

5.10 Memory Ratio

The memory to database size ration must be disclosed.

The memory to database size ratio is 300%.

6 Clause 5: Performance Metrics and Execution Rules Related Items

6.1 System Activity between Load and Performance Tests

Any system activity on the SUT that takes place between the conclusion of the load test and the beginning of the performance test must be fully disclosed.

There is no system activity on the SUT between the conclusion of the load test and the beginning of the performance test.

6.2 Steps in the Power Test

The details of the steps followed to implement the power test (e.g., system boot, database restart, etc.) must be disclosed.

The following steps were used to implement the power test:

1. RF1 Refresh Transaction
2. Stream 0 Execution
3. RF2 Refresh Transaction

6.3 Timing Interval for Each Query and Refresh Functions

The timing intervals (see Clause 5.3.6) for each query of the measured set for both refresh functions must be reported for the power test.

The timing intervals for each query and both refresh functions are given in the Numerical Quantities section of the Executive Summary, located at the beginning of this document.

6.4 Number of Streams for the Throughput Test

The number of execution streams used for the throughput test must be disclosed.

256 query streams were used for the throughput test.

6.5 Start and End Date/Time of Each Query Stream

The start time and finish time for each query stream must be reported for the throughput test.

The throughput test start time and finish time for each stream are given in the Numerical Quantities section of Executive Summary, located at the beginning of this document.

6.6 Total Elapsed Time of the Measurement Interval

The total elapsed time of the measurement interval (see Clause 5.3.5) must be reported for the throughput test.

The total elapsed time of the throughput test is contained in the Numerical Quantities section of Executive Summary, located at the beginning of this document.

6.7 Refresh Function Start Date/Time and Finish Date/Time

Start and finish time for each update function in the update stream must be reported for the throughput test.

The start and finish date/time for each refresh functions are contained in the Numerical Quantities section of the Executive Summary, located at the beginning of this document.

6.8 Performance Metrics

The computed performance metric, related numerical quantities and price performance metric must be reported.

The performance metrics, and the numbers on which they are based, are contained in the Numerical Quantities section of the Executive Summary, located at the beginning of this document.

6.9 The Performance Metric and Numerical Quantities from Both Runs

The performance metric and numerical quantities from both runs must be disclosed.

Performance results from the first two executions of the TPC-H benchmark:

Run ID	QppH@1000GB	QthH@1000GB	QphH@1000GB
Run 1	306,257.9	442,168.6	367,991.3
Run 2	239,865.4	444,300.3	326,454.1

6.10 System Activity between Performance Tests

Any activity on the SUT that takes place between the conclusion of Run 1 and the beginning of Run 2 must be disclosed including system activity, listings of scripts or command logs along with any system reboots or database restarts.

There was no activity on the SUT between Run 1 and Run 2.

6.11 Query Output Validation

The output of the Query Output Validation Test must be reported in the supporting files archive.

The Supporting Files Archive contains the documentation.

7 Clause 6: SUT and Driver Implementation Related Items

7.1 Driver

A detailed description of how the driver performs its functions, how its various components interact and any product functionalities or environmental settings on which it relies and all related source code, scripts and configuration files must be reported in the supporting files archive. The information provided should be sufficient for an independent reconstruction of the driver.

The Power Test and Throughput Test are performed by executing a shell script called runTPCHpt. QGEN is first called with a stream id of 0 to generate the queries for the Power Test. Then script runTPCHpus is executed asynchronously to control the refresh functions RF1 and RF2. The script then continues to the query portion of the Power Test (qexecpl.c ISL), which waits until RF1 is completed. After the query portion of the power run has finished the refresh function RF2 is executed by the same refresh stream that previously executed refresh function RF1.

Following the Power Test, QGEN is again executed with the subsequent stream ids and seeds to generate new queries for each stream. Then qexecpl.c is called asynchronously to execute each streams concurrently. Then runTPCHus is executed to control the throughput test refresh function's pairs of RF1 and RF2.

Both wall-clock and high-resolution times are collected for all measurement intervals.

7.2 Implementation Specific Layer (ISL)

If an implementation specific layer is used, then a detailed description of how it performs its functions, how its various components interact and any product functionalities or environmental setting on which it relies must be disclosed. All related source code, scripts and configuration files must be reported in the supporting files archive. The information provided should be sufficient for an independent reconstruction of the implementation specific layer.

Query execution text generated by QGen is picked up by the ISL program which submits the query to the SUT.

The ISL program (qexecpl.c) utilizes the Oracle Call Interface (OCI) to communicate with the Oracle database on the SUT. EQTs directly generated by QGen are read and submitted to the SUT via the ISL program (qexecpl.c) as dynamic SQL statements. The ISL program then fetches the query execution output and reports it to the user. Timings are taken at intervals specified in Section 5.3.7 of the TPC-H benchmark specification.

7.3 Profile-Directed Optimization

If profile-directed optimization as described in Clause 5.2.9 is used, such use must be disclosed. In particular, the procedure and any scripts used to perform the optimization must be reported in the supporting files archive.

Profile-directed optimization was not used.

8 Clause 7: Pricing

8.1 Hardware and Software Used in the Priced System

A detailed list of hardware and software used in the Priced Configuration must be reported. The listing for each separately Orderable item must have vendor Part Number, description, and applicable release/revision level, price source, unit price, quantity, extended price, applicable Discounted price and 3-year maintenance price. If package-pricing is used, the vendor Part Number of the package and a description uniquely identifying each of the Components of the package must be disclosed to a sufficient level of detail to meet the requirements of 1.4.1.1.

The Executive Summary contains a list of the priced hardware and software, including maintenance for 3-years, and any applicable discounts.

8.2 Total Three Year Price

The total 3-year price of the Priced Configuration must be reported, including: hardware, software, and maintenance charges. The justification of any Discounts applied must be disclosed in the price sheet. Sufficient detail of what items are being discounted and by how much they are being discounted must be provided so that the Discount amount used in the computation of the total system cost can be independently reproduced.

A detailed pricing sheet of all the hardware and software used in this configuration and the 3-year maintenance costs, demonstrating the computation of the total 3-year price of the configuration, is included in the executive summary at the beginning of this document. Discount was applied to total price of hardware, software and maintenance.

8.3 Availability Date

The committed Availability Date of Components used in the price calculations must be reported. The Availability Date must be reported on the first page of the Executive Summary and with a precision of one day. When the priced system includes products with different availability dates, the reported Availability Date for the priced system must be a date at which all Components are committed to be Generally Available. Each Component used in the Priced Configuration is considered to be Available on the Availability Date unless an earlier date is specified.

All components of the Priced Configuration are available now.

8.4 Benchmark Performance Metric

A statement of the benchmark performance metric, as well as the respective calculations for 3-year pricing, price/performance, and the availability date must be included.

Performance Metric	Price/Performance Metric	Total 3-year Cost	Availability Date
326, 454. 1QphH@1000GB	1, 524. 25JPY/QphH@1000GB	497, 594, 500JPY	February 5, 2014

9 Supporting Files Index Table

An index for all files included in the supporting files archive as required by Clause 8.3.2 through 8.3.8 must be provided in the report.

Clause	Description	Archive File	Pathname
Clause 1	OS and DB parameter settings	benchmark_scripts.zip	SupportingFiles/Clause1/OS_DB_parameters
Clause 2	DB creation scripts	benchmark_scripts.zip	SupportingFiles/Clause2/DB_creation_scripts
Clause 3	ACID scripts	benchmark_scripts.zip	SupportingFiles/Clause3/ACID_scripts
	ACID output	benchmark_scripts.zip	SupportingFiles/Clause3/ACID_output
Clause 4	DB Load scripts	benchmark_scripts.zip	SupportingFiles/Clause4/DB_load_scripts
	Qualification output	benchmark_scripts.zip	SupportingFiles/Clause4/QUAL_output
Clause 5	Query output results	run1results.zip run2results.zip	
Clause 6	Implementation Specific Layer source	benchmark_scripts.zip	SupportingFiles/Clause6/Implementation_code
Clause 7	Query substitution parameters	benchmark_scripts.zip	SupportingFiles/Claues8/QueryParms
Clause 8	RF function source	benchmark_scripts.zip	SupportingFiles/Clause8/RF_source

10 Clause 8: Auditor's Information and Attestation Letter

10.1 Auditor's Report

The auditor's agency name, address, phone number, and Attestation letter with a brief audit summary report indicating compliance must be included in the full disclosure report. A statement should be included specifying who to contact in order to obtain further information regarding the audit process.

This implementation of the TPC Benchmark H was audited by Francois Raab for InfoSizing.

Further information regarding the audit process may be obtained from:

Francois Raab

InfoSizing, Inc.
531 Crystal Hills Blvd.
Manitou Springs CO 80829
(719) 473-7555
Email: francois@sizing.com

The auditor's attestation letter is included after the table of contents.

TPC Benchmark H Full Disclosure Report and other information can be downloaded from the Transaction Processing Performance Council website at www.tpc.org.