Table 7: Query Time and Speedup for 1 GB TPCD Database with different Number of Oracle Instances@ (Scalability Test)

Query	1 (Time)	2 (Time)	2 (Speedup)	4 (Time)	4 (Speedup)	8 (Time)	8 (Speedup)	16 (Time)	16 (Speedup)	24 (Time)	24 (Speedup)
1		12123.8		7964.8		5986.1		5012.5		4291.8	
2		*		1137.8		521.7		299.5		167.2	
3		9580.8		4942.6		2593.8		1442.8		1000.4	
4		3926.6		2152.6		1236.2		749.0		595.3	
5				*		46439.7		*		*	
6				1501.2		867.5		476.0		324.5	
7				*		*		16849.5		13762.2	
8				*		*		*		4455.1	
9				*		*		*		*	
10				3235.0		1814.9		1094.5		801.3	
11		3286.4		1771.8		953.9		549.9		334.6	
12				4412.1		2399.2		1355.3		1012.9	
13		571.1		297.5		170.7		102.2		61.0	
14				6293.6		3471.5		2058.0		1585.2	
15				7131.6		*		1860.5		1305.3	
16		313.6		166.7		95.7		50.6		49.6	
Average				**3417.3+**		**5545.9+**		**2453.9+**		**1945.5+**	

@: The Parallel Server Configuration:
a 32-node subcube --- GFS Gigcache;
a 32-node Oracle subcube --- 24 Oracle Instances, 6 Lock Managers
*: Oracle internal error encountered
+: Queries with error are not included

Note: This table is incomplete at the timing of this writing. A completed timings are expected to be available before the end of September, 1994.

Table 6: Query Time for 100 MB TPCD Database with Different Number of Oracle Instances (Scalability Test)

Query	1 Instance (Exclusive Mode)	10 Instances (Time)	10 Instances (Speedup)	24 Instances@ (Time)	24 Instances@ (Speedup)
1	1943.2	384.8	5.1	471.6	4.1
2	216.4	31.1	7.0	20.3	10.7
3	1649.7	120.1	13.7#	96.2	17.2
4	293.6	*		23.9	12.3
5	2082.5	2666.9	0.8#	1154.5	1.8
6	387.0	33.7	11.5#	23.5	16.5
7	2631.1	1112.1	2.4	448.5	5.9
8	836.0	310.8	2.7	168.2	5.0
9	8911.4	3588.5	2.5	1885.2	4.7
10	905.8	81.6	11.1#	64.8	14.0
11	421.4	69.3	6.1	36.9	11.4
12	1595.8	104.2	15.3#	68.5	23.3
13	92.7	20.8	4.5	10.7	8.7
14	1679.6	143.0	11.8#	93.9	17.9
15	1644.5	140.6	11.7#	106.4	15.5
16	81.6	44.6	1.8	17.6	4.6
17	not done	not done		88967.1	
Average	**1585.8+**		**7.2+**	**293.2+**	**10.9+**

@: The Parallel Server Configuration:
a 32-node subcube --- GFS Gigcache;
a 32-node Oracle subcube --- 24 Oracle Instances, 6 Lock Managers

*: Oracle internal error encountered

+: Query 17 is not included

#: need to look into for further explanation

Table 5: Query Time for 1 GB TPCD Database with 24 Oracle Instances[@] (Scale-up Test)

Query	One Stream (Power Test)	Two Streams (first)	Two Streams (second)
1	4291.8	5327.1	5025.2
2	167.2	325.5	323.8
3	1000.4	1587.3	1577.0
4	595.3	698.9	703.4
5	*	*	*
6	324.5	408.4	407.5
7	13762.2	*	*
8	4455.1	*	*
9	*	*	*
10	801.3	1363.3	*
11	334.6	575.6	574.0
12	1012.9	1300.3	1294.0
13	61.0	85.8	84.1
14	1585.2	2116.3	2128.2
15	1305.3	1759.3	1733.6
16	49.6	131.3	140.5
17	not done	not done	not done
Average	**1945.5**[+]	**2264.7**[+]	**2239.8**[+]

@: The Parallel Server Configuration:
a 32-node subcube --- GFS Gigcache;
a 32-node Oracle subcube --- 24 Oracle Instances, 6 Lock Managers

*: Oracle internal error encountered

+: Queries with error are excluded. In the case the timing of power test or one stream of the two-stream test is available, that timing data is used to substitute the error item in the average calculation

Table 4: Query Time for 100 MB, 1 GB and 10 GB TPCD Databases with 24 Oracle Instances[@] (Power Test)

Query	100 MB (All Index on)	100 MB (No Index on Table 'Lineitem')	1 GB	10 GB
1	471.6	450.6	4291.8	*
2	20.3	20.3	167.2	6244.9[#]
3	96.2	102.4	1000.4	*
4	23.9	23.9	595.3	*
5	1154.5	1173.6	*	*
6	23.5	22.2	324.5	7893.5[#]
7	448.5	398.4	13762.2	*
8	168.2	337.3	4455.1	*
9	1885.2	2010.0	*	*
10	64.8	68.0	801.3	*
11	36.9	36.9	334.6	3506.9
12	68.5	70.7	1012.9	*
13	10.7	51.9	61.0	*
14	93.9	98.2	1585.2	*
15	106.4	90.4	1305.3	*
16	17.6	17.6	49.6	564.4
17	88967.1	not done	not done	not done
Average	**293.2**[+]	**310.8**[+]	**1945.5**[+]	

@: The Parallel Server Configuration:
a 32-node subcube --- GFS Gigcache;
a 32-node Oracle subcube --- 24 Oracle Instances, 6 Lock Managers
*: Oracle internal error encountered
#: only 10 instances used, internal error encountered with 24 instances
+: Query 17 and queries with error are excluded.

Table 1: Load/Index Time for 100 MB TPCD Database (in second)

Table	Number of Rows	Number of Loading Instances	Load Time	Number of Indexing Instances	Index Time	Constraint Time	Total Time
Suppliers	1000	1	42	10	29.7	4.4	76.1
Customers	15000	1	100	10	23.1	8.1	131.2
Parts	20000	1	203	10	26.2	8.6	237.8
Partsupp	80000	1	457	10	99.9	93.6	650.5
Orders	150000	2	470	10	104.5	55.0	629.5
Lineitem	600000	10	527	10	301.7	505.5	1334.2
TOTAL	860000		1799		585.1	675.2	3059.3

Table 2: Load/Index Time for 1 GB TPCD Database (in second)

Table	Number of Rows	Number of Loading Instances	Load Time	Number of Indexing Instances	Index Time	Constraint Time	Total Time
Suppliers	10000	10	35	10	32.8	5.6	73.4
Customers	150000	10	91	10	77.3	78.1	246.4
Parts	200000	10	147	10	93.9	82.2	323.1
Partsupp	800000	10	426	10	301.2	771.0	1498.2
Orders	1500000	10	764	10	552.5	595.1	1911.6
Lineitem	6000000	10	4365	10	3504.9	8365.9	16235.8
TOTAL	8600000		5828		4562.6	9897.9	20288.5

Table 3: Load/Index Time for 10 GB TPCD Database (in second)

Table	Number of Rows	Number of Loading Instances	Load Time	Number of Indexing Instances	Index Time	Constraint Time	Total Time
Suppliers	100000	25	44	10	623.7	67.8	735.5
Customers	1500000	25	360	10	1756.0	949.1	3065.1
Parts	2000000	25	436	10	2397.5	1375.1	4208.6
Partsupp	8000000	25	1744	10	10653.1	*	
Orders	15000000	25	3132	10	14819.3	*	
Lineitem	60000000	25	17720	10	*	*	
TOTAL	86000000		23436				

*: Oracle internal error encountered