	<h1>SchoonerSQL</h1>		Percona tpcc-mysql rev 42
			Report Date Feb. 17, 2012
Scale	5000 W	Result	63,681.699 TpmC-mysql
Database size	468GB-500GB	Clients	64 (zero think-time)
Database	SchoonerSQL v5.1.3		
System hardware	Dell PowerEdge R710		
Operating system	Red Hat Enterprise Linux Server release 6.2 (Santiago)		
Other hardware	Fusion ioDrive Duo		
Availability Date	Mar. 16, 2012		

Benchmark: <http://bazaar.launchpad.net/~percona-dev/perconatools/tpcc-mysql/revision/42>
Database software: <http://www.schoonerinfotech.com/products/schoonersql>
System hardware: <http://www.dell.com/us/enterprise/p/poweredge-r710/pd>
Operating system: <http://www.redhat.com/products/enterprise-linux/server/>
Flash memory device: <http://www.fusionio.com/platforms/iodrive-duo/>

System Component	Each server node		Each client	
Processors/Cores/Threads	2/12/24	Intel Xeon X5670 2.93GHz	2/12/24	Intel Xeon X5670 2.93GHz
Memory	18x8GB	144GB	6x4GB	24GB
Disk Controllers	1	LSI Logic / Symbios Logic MegaRAID SAS 2108 [Liberator] (rev 05)		LSI Logic / Symbios Logic MegaRAID SAS 2108 [Liberator] (rev 05)
OS & Backup Disks (each system)		2x300GB 10k SAS, 2x500GB 10k SATA		2x300GB 10k SAS
Other Storage		2x 320GB PCI-e Flash memory (ioDriveDuo)		

Database Setup and Configuration

Database Node (s)

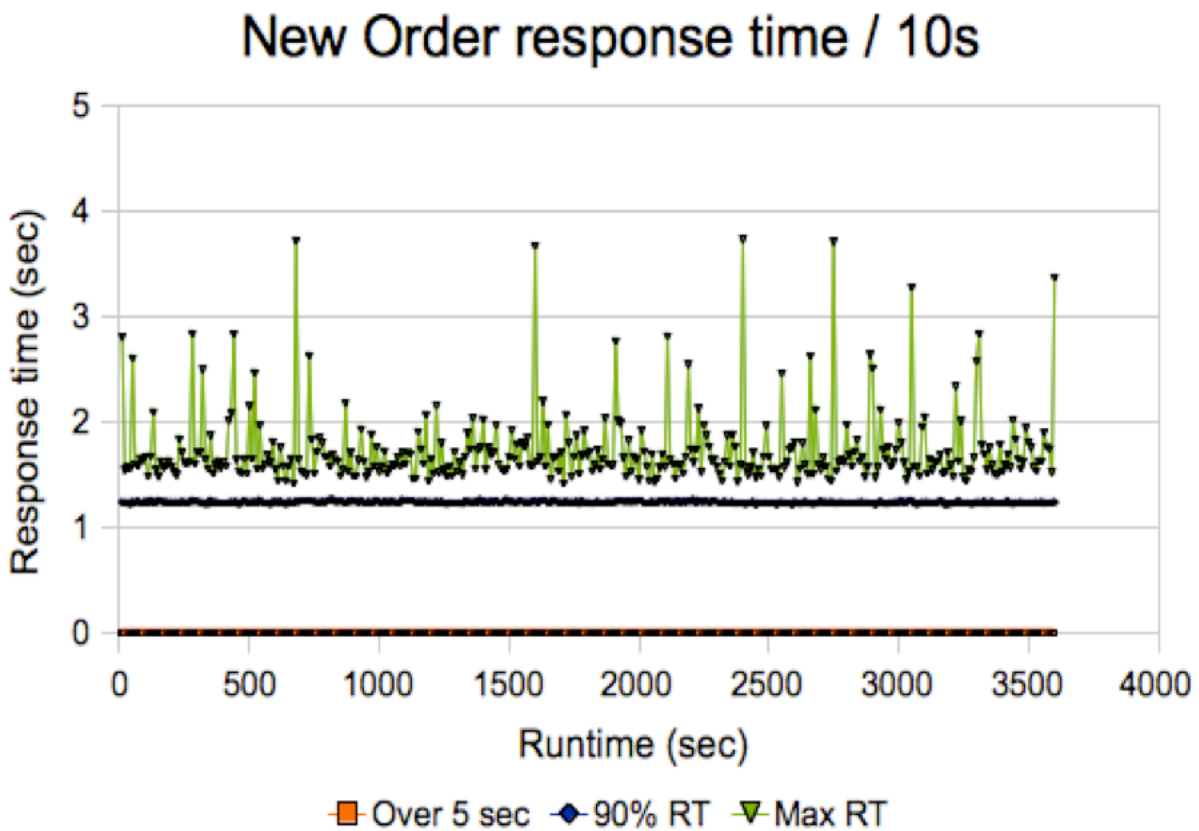
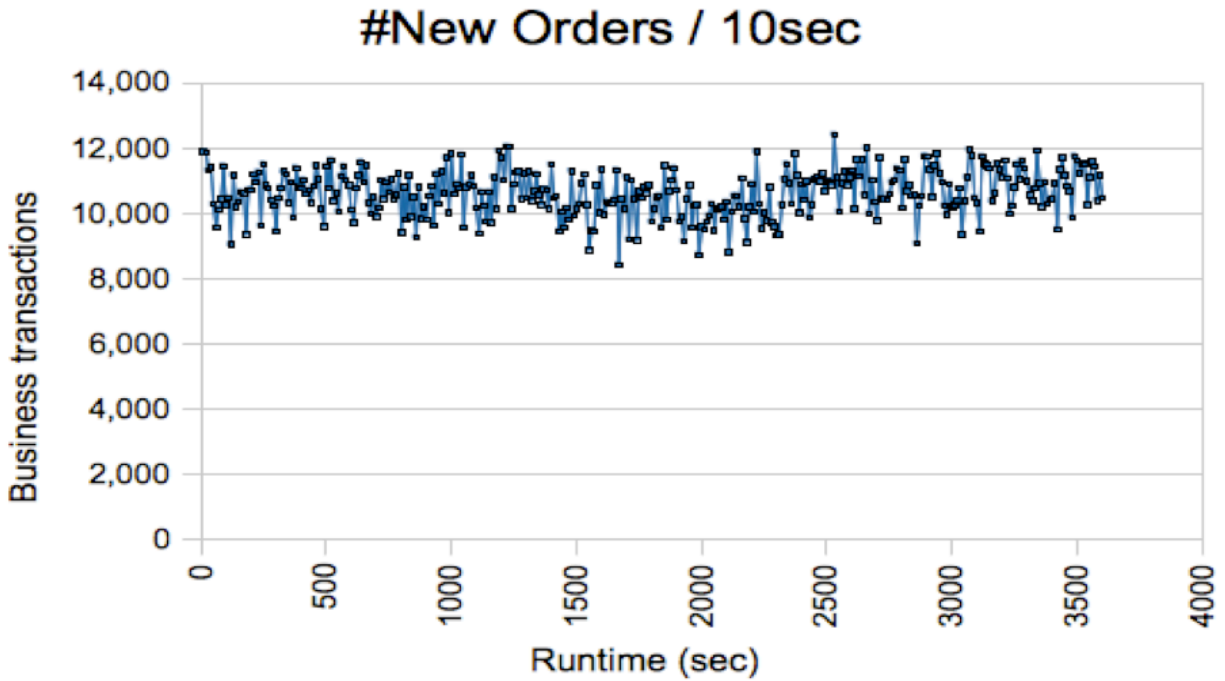
Client

2x Intel Xeon X5670 24GB DRAM 2x300GB 10k SAS disks 10GbE SFP+ 2RU High

Master

2x Intel Xeon X5670 144GB DRAM 2x300GB 10k SAS disks 2x320GB ioDrive Duo 10GbE SFP+ 2RU High

Workload Results



```

<Constraint Check> (all must be [OK])
[transaction percentage]
  Payment: 43.47% (>=43.0%) [OK]
  Order-Status: 4.35% (>= 4.0%) [OK]
  Delivery: 4.35% (>= 4.0%) [OK]
  Stock-Level: 4.35% (>= 4.0%) [OK]
[response time (at least 90% passed)]
  New-Order: 100.00% [OK]
  Payment: 100.00% [OK]
  Order-Status: 100.00% [OK]
  Delivery: 100.00% [OK]
  Stock-Level: 100.00% [OK]

```

<TpmC>

63681.699 TpmC

Hardware profile

```

-----
Hardware Profile
-----
Date       : 2012-02-16 19:53:59 UTC (local TZ: PST -0800)
Hostname   : lab189.schoonerinfotech.net
Uptime     : 2 days, 21:54, 6 users, load average: 0.04, 0.14, 0.11
System     : Dell Inc.; PowerEdge R710; vNot Specified (<OUT OF SPEC>)
Service Tag : XXXXXXXX
Release    : Red Hat Enterprise Linux Server release 6.2 (Santiago)
Kernel     : 2.6.32-220.el6.x86_64
Architecture: CPU = 64-bit, OS = 64-bit
Threading  : NPTL 2.12
SELinux    : Disabled
-----
CPU
-----
Processors : physical = 2, cores = 12, virtual = 24, hyperthreading = yes
Speeds     : 24x2926.435
Models     : 24xIntel(R) Xeon(R) CPU X5670 @ 2.93GHz
Caches     : 24x12288 KB
-----
DRAM
-----
Total      : 141.81G
Free       : 8.69G
Used       : physical = 133.13G, swap = 0.00k, virtual = 133.13G
Buffers    : 8.05M
Caches     : 102.64M
Used       : 130.51G
Swappiness : vm.swappiness = 0
DirtyPolicy : vm.dirty_ratio = 20, vm.dirty_background_ratio = 10
DirtyStatus : vm.dirty_bytes = 0, vm.dirty_background_bytes = 0
Locator    Size      Speed      Form Factor  Type      Type Detail
=====
DIMM_A1    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_A2    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_A3    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_A4    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_A5    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_A6    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_A7    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_A8    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_A9    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_B1    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_B2    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_B3    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)
DIMM_B4    8192 MB    1333 MHz   DIMM         DDR3      Synchronous Registered (Buffered)

```

DIMM_B5	8192 MB	1333 MHz	DIMM	DDR3	Synchronous Registered (Buffered)
DIMM_B6	8192 MB	1333 MHz	DIMM	DDR3	Synchronous Registered (Buffered)
DIMM_B7	8192 MB	1333 MHz	DIMM	DDR3	Synchronous Registered (Buffered)
DIMM_B8	8192 MB	1333 MHz	DIMM	DDR3	Synchronous Registered (Buffered)
DIMM_B9	8192 MB	1333 MHz	DIMM	DDR3	Synchronous Registered (Buffered)

File Systems

Filesystem	Size	Used	Type	Opts	Mountpoint
/dev/mapper/vg_lab189-lv_home	177G	1%	ext4	(rw)	/home
/dev/mapper/vg_lab189-lv_root	50G	48%	ext4	(rw)	/
/dev/md0	600G	84%	xfs	(rw,noatime,nodiratime)	/schooner/data
/dev/sda1	485M	9%	ext4	(rw)	/boot
/dev/sdb1	916G	54%	ext4	(rw)	/schooner/backup
/dev/sr1	3.4G	100%	on	/media/RHEL_6.2	/media/RHEL_6.2
tmpfs	71G	1%	tmpfs	(rw)	/dev/shm

Disk Partions

Device	Type	Start	End	Size	
/dev/mapper/vg_lab189-lv_home	Part		177G	188M	0
/dev/mapper/vg_lab189-lv_root	Part		50G	23G	0
/dev/md0	Part	600G	498G		0
/dev/sda1	Part	485M	38M		0
/dev/sdb1	Part	916G	469G		0
/dev/sr1	Part	3.4G	3.4G		0
/dev/dm-0	Disk			53687091200	
/dev/dm-1	Disk			52881784832	
/dev/dm-2	Disk			192342392832	
/dev/fioa	Disk			160938000384	
/dev/fiob	Disk			160938000384	
/dev/fioc	Disk			160938000384	
/dev/fiod	Disk			160938000384	
/dev/md0	Disk			643745972224	
/dev/sda	Disk			299439751168	
/dev/sda1	Part	1	64	518192640	
/dev/sda2	Part	64	36405	298914900480	
/dev/sdb	Disk			999116767232	
/dev/sdb1	Part	1	121469	999108311040	
/dev/sr1	Disk			3589636096	

Kernel Inode State

dentry-state:	14060	5068	45	0	0	0
file-nr	: 5568	0	14690540			
inode-nr	: 13729	0				

LVM Volumes

LV	VG	Attr	LSize	Origin	Snap%	Move	Log	Copy%	Convert
lv_home	vg_lab189	-wi-ao	179.13g						
lv_root	vg_lab189	-wi-ao	50.00g						
lv_swap	vg_lab189	-wi-ao	49.25g						

Controller : LSI Logic / Symbios Logic MegaRAID SAS

Storage Controller 0

Model	: PERC H700 Integrated, PCIE interface, 8 ports
Cache	: 512MB Memory, BBU Present
BBU	: 97% Charged, Temperature 22C, isSOHGood=Yes

VirtualDev	Size	RAID Level	Disks	SpnDpth	Stripe	Status	CtrlCache	DiskCache
0(no name)	278.875 GB	1 (1-0-0)	2	1-1	64	Optimal WB,	RA	Default
1(no name)	930.5 GB	0 (0-0-0)	2	1-1	64	Optimal WB,	RA	Default

```

PhysiclDev Type State Errors Size Vendor Model
=====
Hard Disk SAS Online 0/0/0 279GB FUJITSU MBD2300RC
Hard Disk SAS Online 0/0/0 279GB FUJITSU MBD2300RC
Hard Disk SATA Online 0/0/0 465GB 9SP1PLNPST9500530NS DA03
Hard Disk SATA Online 0/0/0 465GB 9SP1Q7YDST9500530NS DA03
-----
Flash Devices
-----
SSD
Dev Wear Model
=====

Fusion-io PCIe
Dev Status Reserves Size Model
=====
fct0 Healthy 100.00% 320GB ioDriveDuo
fct1 Healthy 100.00% 320GB ioDriveDuo
fct2 Healthy 100.00% 320GB ioDriveDuo
fct3 Healthy 100.00% 320GB ioDriveDuo
-----
VM
-----
Technology : No virtualization detected
-----
Ethernet
-----
Controller : Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet (rev 20)
Controller : Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet (rev 20)
Controller : Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet (rev 20)
Controller : Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet (rev 20)
Controller : Chelsio Communications Inc T310 10GbE Single Port Adapter
FIN Timeout : net.ipv4.tcp_fin_timeout = 60
Port Range : net.ipv4.ip_local_port_range = 32768 61000
-----
End
-----

```

Notable InnoDB configuration

- Checksums (protect from corruption): ON
 - **InnoDB_checksums=ON**
 - **InnoDB_log_checksums=ON**
 - **Schooner_replication_checksums=ON**
 - **Schooner_pc_checksum=true**
- Durability (no data lost upon power-loss): ON
 - **InnoDB_flush_log_at_trx_commit = 1**
 - **InnoDB_flush_method=O_DIRECT**
- Double-write-buffer (protect from torn-pages): ON
 - **InnoDB_doublewrite = ON**
- Data file storage:
 - **InnoDB_file_per_table = ON**
- Transaction log:
 - **InnoDB_transaction_log = ON**
 - **InnoDB_log_file_size = 8G**
- Buffer pool:
 - **InnoDB_buffer_pool_size = 120G**

Show variables output

innodb_adaptive_checkpoint	none	innodb_log_file_size	8589934592
innodb_adaptive_flushing	OFF	innodb_log_files_in_group	2
innodb_adaptive_hash_index	ON	innodb_log_group_home_dir	/schooner/txlog/db1
innodb_additional_mem_pool_size	20971520	innodb_max_dirty_pages_pct	75
innodb_autoextend_increment	8	innodb_max_purge_lag	0
innodb_autoinc_lock_mode	2	innodb_md_rescan_interval	1000
innodb_background_pra_flush	ON	innodb_mirrored_log_groups	1
innodb_buffer_pool_clean_pct	10	innodb_old_blocks_pct	37
innodb_buffer_pool_search_delay	0	innodb_old_blocks_time	0
innodb_buffer_pool_search_delay_inc	50	innodb_open_files	300
innodb_buffer_pool_search_distance_factor	100	innodb_overwrite_relay_log_info	OFF
innodb_buffer_pool_size	128849018880	innodb_page_replacement_algorithm	clock
innodb_buffer_pool_warmup_in_background	ON	innodb_page_search_lowerbound	1
innodb_buffer_pool_warmup_persist_period_sec	60	innodb_page_search_upperbound	2
innodb_change_buffering	inserts	innodb_page_size	16384
innodb_checkpoint_age_target	0	innodb_pass_corrupt_table	0
innodb_checksum_type	fast	innodb_print_checkpoints	0
innodb_checksums	ON	innodb_read_ahead	none
innodb_commit_concurrency	0	innodb_read_ahead_threshold	56
innodb_concurrency_tickets	500	innodb_read_io_threads	16
innodb_data_file_path	ibdata1:100M:autoextend	innodb_recovery_stats	OFF
innodb_data_home_dir	/schooner/txlog/db1	innodb_replication_delay	0
innodb_deadlock_check	ON	innodb_rollback_on_timeout	OFF
innodb_dict_size_limit	0	innodb_rollback_segment_file	
innodb_direct_logs	OFF	innodb_schooner_file	
innodb_disable_writes	0	innodb_show_locks_held	10
innodb_doublewrite	ON	innodb_show_verbose_locks	0
innodb_doublewrite_file		innodb_simpleflush_clean_cache_lowerbound	5
innodb_doublewrite_size	128	innodb_simpleflush_clean_cache_upperbound	10
innodb_enable_unsafe_group_commit	0	innodb_simpleflush_lru_pct_iocapacity	5
innodb_expand_import	0	innodb_simpleflush_lsn_age_lowerbound	89
innodb_extra_rsegments	16	innodb_simpleflush_lsn_age_upperbound	90
innodb_extra_undoslots	OFF	innodb_simpleflush_lsn_pct_iocapacity	10
innodb_fast_shutdown	1	innodb_spin_wait_delay	6
innodb_file_format	Antelope	innodb_stats_auto_update	1
innodb_file_format_check	Barracuda	innodb_stats_method	nulls_equal
innodb_file_per_table	ON	innodb_stats_on_metadata	ON
innodb_flush_controller	simple	innodb_stats_sample_pages	8
innodb_flush_devices		innodb_stats_update_need_lock	1
innodb_flush_devices_parts	1	innodb_strict_mode	OFF
innodb_flush_log_at_trx_commit	1	innodb_support_xa	ON
innodb_flush_method	O_DIRECT	innodb_sync_spin_loops	100
innodb_flush_neighbor_pages	0	innodb_table_locks	ON
innodb_force_recovery	0	innodb_thread_concurrency	0
innodb_ibuf_accel_rate	100	innodb_thread_concurrency_timer_based	OFF
innodb_ibuf_active_contract	1	innodb_thread_sleep_delay	10000
innodb_ibuf_max_size	64424493056	innodb_transaction_log	ON
innodb_insert_buffer_file		innodb_upgrade_format	ON
innodb_io_capacity	10000	innodb_use_dml_delay	OFF
innodb_lock_wait_timeout	50	innodb_use_native_aio	ON
innodb_locks_unsafe_for_binlog	OFF	innodb_use_purge_thread	1
innodb_log_block_size	4096	innodb_use_sys_malloc	ON
innodb_log_buffer_size	16777216	innodb_version	1.0.9-30.3
innodb_log_checksums	ON	innodb_write_io_threads	16

Layout for database files

<p>Hard disks Mounted on /</p> <p>innodb_data_home_dir innodb_log_group_home_dir</p>	<p>Hard disks Mounted on /schooner/backup</p> <p>(For database backup, unused in benchmark)</p>	<p>Flash memory Mounted on /schooner/data</p> <p>datadir general_log_file pid_file slave_load_tmpdir slow_query_log_file tmpdir</p>
---	--	--

MySQL configuration (my.cnf for SchoonerSQL)

```
[client]
#password      = your_password
port           = 3306
socket         = /tmp/mysql_1.sock

[mysqld_multi]
mysqld = /opt/schooner/ac_5.1/mysql/bin/mysqld_safe
mysqladmin = /opt/schooner/ac_5.1/mysql/bin/mysqladmin

[mysqld_safe]
core-file-size=unlimited

[mysqldump]
quick
max_allowed_packet = 16M

[mysql]
no-auto-rehash

[isamchk]
key_buffer = 20M
sort_buffer_size = 20M
read_buffer = 2M
write_buffer = 2M

[myisamchk]
key_buffer = 20M
sort_buffer_size = 20M
read_buffer = 2M
write_buffer = 2M

[mysqlhotcopy]
interactive-timeout

[mysqld1]
port = 3306
basedir = /opt/schooner/ac_5.1/mysql
core-file
datadir = /schooner/data/db1
default-storage-engine = innodb
expire_logs_minutes = 60
key_buffer = 64M
```

```

log-error = schooner-mysql.err
long_query_time = 200000
max_allowed_packet = 1M
max_connections = 1000
mysam_sort_buffer_size = 64M
read_buffer_size = 1M
read_rnd_buffer_size = 4M
schooner-force-config = 0
server-id = 1
slow_query_log
socket = /tmp/mysql_1.sock
table_cache = 2000
thread_cache_size = 64
tmpdir = /schooner/data/tmp/db1

innodb_adaptive_checkpoint = 0
innodb_additional_mem_pool_size = 20M
innodb_buffer_pool_size = 120G
innodb_buffer_pool_warmup_in_background = 1
innodb_buffer_pool_warmup_persist_period_sec = 60
innodb_checksum_type = fast
innodb_data_file_path = ibdata1:100M:autoextend
innodb_data_home_dir = /schooner/txlog/db1
innodb_doublewrite = 1
innodb_extra_rsegment = 16
innodb_file_per_table
innodb_flush_log_at_trx_commit = 1
innodb_flush_method = O_DIRECT
innodb_log_block_size = 4096
innodb_log_buffer_size = 16M
innodb_log_file_size = 8G
innodb_log_group_home_dir = /schooner/txlog/db1
innodb_page_replacement_algorithm = clock
innodb_read_ahead = 0
innodb_simpleflush_clean_cache_lowerbound=5
innodb_simpleflush_clean_cache_upperbound=10

```

SchoonerSQL Configuration

For single instance, disable the default Schooner multi-node replication module. In the file “/etc/init.d/mysql1-5.1”, search for text “**COMMENT NEXT LINE FOR SINGLE INSTANCE**” and comment out the next line by setting the first letter as ‘#’.

Workload output

```

*****
*** ###easy### TPC-C Load Generator ***
*****
option h with value '10.10.189.1'
option P with value '3306'
option d with value 'tpcc5k'
option u with value 'admin'
option p with value 'admin'
option w with value '5000'
option c with value '64'
option r with value '120'
option l with value '3600'
option i with value '10'

```

option f with value 'tpcc.log'

<Parameters>

[server]: 10.10.189.1
[port]: 3306
[DBname]: tpcc5k
[user]: admin
[pass]: admin
[warehouse]: 5000
[connection]: 64
[rampup]: 120 (sec.)
[measure]: 3600 (sec.)

RAMP-UP TIME.(120 sec.)

MEASURING START.

10	11879(0):1.240	2.802	11866(0):0.255	0.697	1185(0):0.157	0.288	1175(0):1.407	2.229	1178(0):3.963	4.835
20	11857(0):1.228	1.542	11854(0):0.243	0.431	1185(0):0.141	0.414	1183(0):1.363	1.708	1185(0):3.905	4.137
30	11300(0):1.238	1.565	11295(0):0.250	0.601	1132(0):0.143	0.209	1132(0):1.412	1.683	1134(0):4.007	5.184
40	11407(0):1.219	1.553	11412(0):0.243	0.726	1140(0):0.148	0.201	1143(0):1.402	1.933	1137(0):3.910	4.086
50	10268(0):1.242	2.602	10270(0):0.257	0.536	1027(0):0.166	0.260	1024(0):1.405	1.953	1032(0):3.944	4.391
60	9550(0):1.236	1.599	9534(0):0.248	0.472	955(0):0.143	0.275	956(0):1.425	1.592	948(0):4.012	4.233
70	10105(0):1.252	1.580	10101(0):0.255	0.456	1009(0):0.142	0.192	1011(0):1.394	1.706	1013(0):3.864	4.192
80	10437(0):1.237	1.654	10426(0):0.249	0.400	1045(0):0.156	0.209	1045(0):1.386	1.557	1040(0):3.946	4.172
90	11439(0):1.231	1.638	11439(0):0.251	0.613	1143(0):0.144	0.465	1141(0):1.370	1.480	1143(0):3.958	4.504
100	10242(0):1.246	1.669	10245(0):0.256	0.524	1025(0):0.151	0.459	1027(0):1.381	1.806	1028(0):3.854	4.198
110	10462(0):1.229	1.481	10457(0):0.254	0.502	1046(0):0.150	0.192	1046(0):1.418	1.619	1044(0):3.937	5.036
120	9032(0):1.257	1.675	9029(0):0.261	0.669	903(0):0.152	0.196	904(0):1.437	2.351	906(0):3.971	4.125
130	11157(0):1.236	2.093	11145(0):0.247	0.397	1116(0):0.142	0.243	1113(0):1.368	1.603	1113(0):3.977	4.251
140	10190(0):1.239	1.545	10191(0):0.250	0.466	1019(0):0.149	0.253	1021(0):1.420	1.523	1019(0):3.933	4.217
150	10338(0):1.257	1.479	10334(0):0.259	0.585	1034(0):0.156	0.251	1035(0):1.433	1.776	1036(0):3.963	4.284
160	10651(0):1.246	1.626	10641(0):0.252	0.490	1065(0):0.143	0.276	1065(0):1.431	1.698	1067(0):4.055	4.488
170	10629(0):1.241	1.566	10620(0):0.259	0.463	1063(0):0.163	0.201	1061(0):1.437	1.952	1059(0):3.940	4.315
180	9356(0):1.243	1.582	9371(0):0.268	0.570	935(0):0.162	0.219	937(0):1.407	1.563	941(0):3.955	4.188
190	10701(0):1.228	1.631	10683(0):0.253	0.421	1070(0):0.156	0.255	1065(0):1.382	1.670	1069(0):3.947	4.306
200	10715(0):1.239	1.576	10717(0):0.251	0.638	1072(0):0.145	0.316	1076(0):1.380	1.806	1068(0):4.068	6.272
210	11175(0):1.236	1.522	11172(0):0.257	0.570	1117(0):0.148	0.399	1118(0):1.378	2.553	1122(0):3.956	4.358
220	10957(0):1.238	1.494	10958(0):0.257	0.585	1097(0):0.153	0.403	1094(0):1.391	1.610	1093(0):3.994	4.340
230	11260(0):1.231	1.839	11249(0):0.246	0.444	1125(0):0.143	0.276	1126(0):1.372	1.665	1126(0):3.898	4.250
240	9607(0):1.243	1.706	9609(0):0.258	0.463	961(0):0.147	0.210	958(0):1.436	2.135	961(0):3.965	4.201
250	11499(0):1.240	1.611	11488(0):0.250	0.715	1150(0):0.140	0.214	1154(0):1.392	1.527	1147(0):4.002	4.285
260	10871(0):1.233	1.606	10869(0):0.249	0.507	1087(0):0.142	0.267	1086(0):1.394	1.761	1092(0):3.928	4.185
270	10764(0):1.241	1.619	10754(0):0.255	0.456	1076(0):0.145	0.232	1076(0):1.380	1.655	1074(0):3.962	4.334
280	10405(0):1.259	2.833	10393(0):0.256	0.588	1040(0):0.163	0.260	1040(0):1.403	1.581	1037(0):3.992	4.583
290	10231(0):1.246	1.605	10229(0):0.260	0.423	1024(0):0.161	0.311	1024(0):1.461	1.863	1028(0):3.942	6.214
300	9447(0):1.249	1.711	9451(0):0.260	0.442	944(0):0.148	0.390	944(0):1.426	2.107	943(0):3.907	4.482
310	10454(0):1.237	1.708	10442(0):0.256	0.455	1045(0):0.159	0.206	1046(0):1.413	1.842	1045(0):3.822	3.973
320	10778(0):1.238	2.494	10781(0):0.257	0.546	1078(0):0.149	0.198	1080(0):1.406	2.172	1076(0):3.918	4.545
330	11264(0):1.222	1.643	11258(0):0.244	0.429	1127(0):0.143	0.197	1123(0):1.367	1.523	1127(0):3.889	4.106
340	11197(0):1.223	1.560	11206(0):0.244	0.409	1121(0):0.135	0.229	1131(0):1.341	1.537	1120(0):3.938	4.178
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360	10945(0):1.234	1.508	10942(0):0.252	0.730	1095(0):0.148	0.211	1091(0):1.363	1.930	1099(0):3.852	4.709
370	9864(0):1.241	1.585	9858(0):0.257	0.462	987(0):0.152	0.245	987(0):1.436	1.650	991(0):3.909	4.481
380	11382(0):1.234	1.630	11383(0):0.249	0.441	1136(0):0.140	0.237	1143(0):1.369	1.628	1129(0):3.882	4.163
390	10794(0):1.232	1.563	10788(0):0.249	0.808	1079(0):0.144	0.202	1076(0):1.365	1.654	1078(0):3.950	4.404
400	10779(0):1.228	1.613	10783(0):0.253	0.705	1078(0):0.151	0.211	1078(0):1.362	1.894	1084(0):3.896	4.167
410	11015(0):1.227	1.580	11014(0):0.245	0.463	1103(0):0.154	0.198	1100(0):1.382	1.628	1095(0):3.848	4.574
420	10590(0):1.234	2.011	10594(0):0.254	0.580	1060(0):0.151	0.270	1068(0):1.391	1.836	1067(0):3.924	4.273
430	10698(0):1.241	2.086	10697(0):0.254	0.612	1068(0):0.153	0.187	1068(0):1.390	1.544	1067(0):3.935	4.223
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450	10814(0):1.246	1.639	10809(0):0.252	0.461	1081(0):0.147	0.190	1083(0):1.396	1.659	1078(0):3.945	4.302
460	11461(0):1.221	1.533	11455(0):0.242	0.556	1146(0):0.138	0.214	1145(0):1.358	1.459	1147(0):3.913	4.895
470	11043(0):1.236	1.512	11037(0):0.248	0.454	1105(0):0.153	0.210	1105(0):1.365	1.512	1107(0):3.864	4.155
480	10139(0):1.255	1.649	10119(0):0.261	0.437	1013(0):0.166	0.265	1013(0):1.435	2.386	1016(0):3.917	4.353
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510	10768(0):1.240	1.653	10769(0):0.246	0.483	1075(0):0.148	0.230	1074(0):1.398	1.863	1082(0):3.871	4.195
520	11617(0):1.242	2.467	11595(0):0.250	0.585	1162(0):0.148	0.297	1159(0):1.398	2.434	1159(0):3.912	5.136
530	10378(0):1.234	1.552	10378(0):0.252	0.572	1040(0):0.152	0.191	1041(0):1.386	1.609	1039(0):3.873	4.197
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550	10042(0):1.237	1.562	10043(0):0.250	0.616	1003(0):0.151	0.210	1005(0):1.359	1.590	1007(0):3.879	4.273
560	11134(0):1.232	1.600	11117(0):0.249	0.522	1114(0):0.152	0.262	1113(0):1.365	1.618	1109(0):3.925	4.374
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640	11563(0):1.221	1.443	11550(0):0.239	0.401	1155(0):0.139	0.220	1147(0):1.323	1.567	1147(0):3.932	4.338
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1450, 9545(0):1.254|1.966, 9548(0):0.262|0.440, 954(0):0.159|0.248, 959(0):1.388|1.536, 960(0):3.912|4.419
1460, 10156(0):1.236|1.598, 10139(0):0.257|0.460, 1016(0):0.147|0.242, 1011(0):1.366|1.694, 1013(0):3.843|4.303
1470, 9802(0):1.234|1.559, 9807(0):0.254|0.489, 981(0):0.154|0.236, 987(0):1.401|1.745, 983(0):3.845|4.171
1480, 11290(0):1.245|1.536, 11281(0):0.251|0.385, 1127(0):0.139|0.237, 1122(0):1.387|1.856, 1126(0):3.961|4.163
1490, 9926(0):1.263|1.548, 9924(0):0.262|0.605, 993(0):0.153|0.222, 992(0):1.478|1.598, 989(0):4.119|4.530
1500, 10134(0):1.244|1.670, 10125(0):0.249|0.509, 1014(0):0.150|0.212, 1012(0):1.353|1.689, 1011(0):3.843|4.227

1510	10282(0):1.246	1.920	10283(0):0.258	0.478	1028(0):0.161	0.261	1032(0):1.384	1.564	1031(0):3.931	4.423
1520	10916(0):1.238	1.653	10907(0):0.247	0.486	1091(0):0.149	0.192	1090(0):1.384	1.616	1092(0):3.860	4.340
1530	11175(0):1.237	1.792	11172(0):0.244	0.478	1118(0):0.138	0.258	1118(0):1.366	1.688	1124(0):3.854	4.144
1540	10248(0):1.250	1.583	10232(0):0.262	0.568	1022(0):0.161	0.215	1026(0):1.472	1.869	1022(0):3.923	4.580
1550	8871(0):1.246	1.800	8877(0):0.272	0.539	890(0):0.171	0.230	885(0):1.465	1.749	883(0):3.971	4.649
1560	9452(0):1.238	1.759	9452(0):0.260	0.425	945(0):0.152	0.209	947(0):1.364	1.837	951(0):3.882	4.498
1570	9439(0):1.240	1.843	9424(0):0.258	0.400	943(0):0.166	0.230	940(0):1.352	1.658	940(0):3.759	3.928
1580	10864(0):1.239	1.586	10870(0):0.252	0.517	1088(0):0.139	0.191	1088(0):1.378	2.234	1090(0):3.940	4.292
1590	10002(0):1.245	1.580	9997(0):0.264	0.429	998(0):0.162	0.314	1002(0):1.407	1.871	998(0):3.946	4.313
1600	11329(0):1.251	3.664	11331(0):0.252	0.887	1136(0):0.155	0.449	1133(0):1.356	2.521	1132(0):3.862	4.264
1610	9952(0):1.230	1.626	9934(0):0.253	0.547	993(0):0.140	0.227	991(0):1.379	1.803	995(0):3.824	4.112
1620	10354(0):1.252	1.665	10356(0):0.267	0.509	1037(0):0.151	0.270	1041(0):1.360	1.601	1038(0):3.901	4.422
1630	10286(0):1.253	2.190	10278(0):0.259	0.503	1028(0):0.150	0.246	1024(0):1.373	1.659	1030(0):3.847	4.074
1640	10309(0):1.259	1.578	10294(0):0.257	0.477	1031(0):0.145	0.224	1033(0):1.410	1.687	1024(0):3.893	4.266
1650	10409(0):1.236	1.973	10413(0):0.259	0.517	1041(0):0.155	0.202	1040(0):1.397	1.703	1042(0):3.838	4.089
1660	11314(0):1.235	1.455	11311(0):0.247	0.592	1131(0):0.137	0.223	1137(0):1.360	1.516	1137(0):3.940	4.166
1670	8417(0):1.260	1.659	8416(0):0.278	0.612	840(0):0.166	0.296	838(0):1.398	1.495	840(0):3.929	4.432
1680	10422(0):1.247	1.672	10418(0):0.258	0.611	1045(0):0.159	0.303	1051(0):1.396	1.603	1049(0):3.914	4.200
1690	10118(0):1.236	1.533	10106(0):0.259	0.449	1010(0):0.149	0.174	1001(0):1.342	1.449	1001(0):3.887	5.421
1700	11111(0):1.240	1.707	11113(0):0.250	0.418	1109(0):0.143	0.279	1113(0):1.366	1.637	1114(0):3.884	4.220
1710	9189(0):1.232	1.414	9188(0):0.259	0.380	919(0):0.151	0.196	920(0):1.382	1.644	919(0):3.851	4.124
1720	10993(0):1.247	2.068	10974(0):0.254	0.531	1102(0):0.139	0.228	1107(0):1.378	1.546	1107(0):3.888	4.060
1730	10445(0):1.231	1.797	10449(0):0.257	0.430	1043(0):0.147	0.253	1034(0):1.385	2.331	1038(0):3.854	4.613
1740	9169(0):1.241	1.479	9161(0):0.256	0.437	918(0):0.145	0.186	920(0):1.393	1.522	920(0):3.804	4.521
1750	10688(0):1.233	1.668	10676(0):0.249	0.672	1069(0):0.149	0.351	1065(0):1.355	1.627	1069(0):3.801	4.447
1760	10460(0):1.245	1.868	10454(0):0.259	0.583	1046(0):0.144	0.369	1052(0):1.383	1.653	1044(0):3.893	4.169
1770	10810(0):1.224	1.507	10812(0):0.247	0.403	1080(0):0.145	0.256	1075(0):1.354	1.663	1076(0):3.831	4.408
1780	10629(0):1.254	1.679	10630(0):0.258	0.614	1062(0):0.149	0.228	1063(0):1.383	1.593	1067(0):3.931	4.220
1790	10869(0):1.236	1.915	10851(0):0.250	0.488	1085(0):0.152	0.255	1086(0):1.372	1.536	1084(0):3.916	4.196
1800	9727(0):1.237	1.683	9732(0):0.255	0.472	976(0):0.149	0.187	974(0):1.445	2.018	974(0):3.968	4.957
1810	10119(0):1.239	1.721	10110(0):0.257	0.718	1012(0):0.141	0.245	1014(0):1.360	1.853	1007(0):3.879	4.352
1820	10492(0):1.226	1.534	10485(0):0.249	0.518	1049(0):0.143	0.262	1047(0):1.340	1.729	1051(0):3.964	4.243
1830	10529(0):1.233	1.589	10525(0):0.254	0.519	1052(0):0.151	0.295	1056(0):1.377	1.594	1055(0):3.971	4.185
1840	9569(0):1.245	1.730	9574(0):0.263	0.447	958(0):0.149	0.375	958(0):1.428	1.681	964(0):3.890	4.337
1850	11470(0):1.228	1.550	11464(0):0.247	0.462	1147(0):0.141	0.250	1146(0):1.365	1.660	1146(0):3.897	4.097
1860	9806(0):1.232	1.649	9795(0):0.250	0.482	980(0):0.136	0.223	977(0):1.381	1.915	979(0):3.978	4.965
1870	10685(0):1.233	2.033	10683(0):0.260	0.535	1070(0):0.147	0.180	1069(0):1.406	1.526	1065(0):3.835	4.067
1880	11002(0):1.242	1.600	11005(0):0.253	0.576	1100(0):0.144	0.306	1100(0):1.370	1.652	1101(0):3.883	4.440
1890	11377(0):1.238	1.590	11377(0):0.246	0.375	1137(0):0.141	0.212	1143(0):1.395	1.711	1140(0):3.977	4.644
1900	10702(0):1.239	1.586	10691(0):0.250	0.660	1070(0):0.149	0.206	1067(0):1.369	1.718	1067(0):3.870	4.203
1910	9734(0):1.243	2.764	9727(0):0.261	0.708	974(0):0.154	0.285	978(0):1.393	1.705	978(0):4.018	6.749
1920	9900(0):1.248	2.005	9895(0):0.252	0.575	990(0):0.138	0.161	982(0):1.363	1.532	986(0):3.828	4.039
1930	9134(0):1.252	1.986	9120(0):0.274	0.490	913(0):0.152	0.207	914(0):1.410	1.645	912(0):3.871	4.124
1940	10448(0):1.245	1.657	10448(0):0.253	0.488	1044(0):0.152	0.175	1044(0):1.404	1.742	1044(0):3.976	4.432
1950	10865(0):1.246	1.480	10856(0):0.249	0.415	1087(0):0.141	0.305	1087(0):1.430	1.614	1088(0):3.952	4.436
1960	9549(0):1.247	1.822	9542(0):0.260	0.805	954(0):0.153	0.292	958(0):1.351	1.517	954(0):3.789	4.139
1970	10213(0):1.244	1.526	10217(0):0.260	0.465	1023(0):0.177	0.474	1018(0):1.393	1.563	1021(0):3.967	4.435
1980	10267(0):1.247	1.675	10265(0):0.258	0.680	1026(0):0.155	0.187	1029(0):1.396	1.540	1031(0):3.862	4.305
1990	8721(0):1.246	1.640	8717(0):0.264	0.644	873(0):0.168	0.307	872(0):1.423	1.925	869(0):3.914	4.024
2000	9579(0):1.253	1.450	9571(0):0.265	0.475	957(0):0.162	0.259	964(0):1.409	1.638	965(0):3.972	4.365
2010	9491(0):1.251	1.915	9476(0):0.259	0.460	950(0):0.147	0.334	941(0):1.413	1.747	944(0):3.879	4.273
2020	9724(0):1.231	1.719	9725(0):0.261	0.494	972(0):0.149	0.246	976(0):1.394	1.740	973(0):3.936	4.515
2030	9922(0):1.234	1.576	9913(0):0.262	0.557	993(0):0.160	0.226	1000(0):1.381	1.921	998(0):3.893	5.230
2040	10274(0):1.228	1.436	10277(0):0.250	0.534	1026(0):0.141	0.195	1020(0):1.398	1.699	1017(0):3.841	4.528
2050	9460(0):1.246	1.693	9459(0):0.268	0.531	947(0):0.145	0.208	951(0):1.439	1.566	954(0):3.952	4.455
2060	10145(0):1.236	1.430	10139(0):0.255	0.430	1013(0):0.155	0.236	1008(0):1.385	1.518	1014(0):3.908	4.396
2070	10164(0):1.238	1.465	10151(0):0.252	0.502	1018(0):0.147	0.204	1015(0):1.352	2.146	1008(0):3.841	4.397
2080	10197(0):1.247	1.565	10194(0):0.256	0.606	1019(0):0.141	0.220	1021(0):1.371	1.612	1025(0):3.909	5.247
2090	9800(0):1.248	1.694	9787(0):0.262	0.502	981(0):0.152	0.377	988(0):1.398	1.657	986(0):3.876	4.138
2100	10338(0):1.240	1.570	10343(0):0.254	0.415	1033(0):0.152	0.347	1026(0):1.347	1.540	1024(0):3.868	4.070
2110	8788(0):1.254	2.810	8782(0):0.259	0.549	878(0):0.156	0.225	874(0):1.400	1.617	878(0):3.862	4.222
2120	10048(0):1.241	1.640	10049(0):0.265	0.444	1006(0):0.158	0.349	1009(0):1.427	1.969	1005(0):3.906	4.160
2130	10526(0):1.241	1.599	10526(0):0.255	0.488	1053(0):0.156	0.223	1054(0):1.373	1.556	1055(0):3.818	4.274
2140	10529(0):1.242	1.467	10518(0):0.251	0.730	1052(0):0.155	0.229	1048(0):1.354	1.834	1053(0):3.854	4.373
2150	10184(0):1.255	1.606	10175(0):0.259	0.492	1017(0):0.148	0.267	1020(0):1.418	1.605	1017(0):3.863	4.230
2160	11060(0):1.235	1.586	11055(0):0.244	0.572	1107(0):0.143	0.443	1106(0):1.353	1.560	1106(0):3.912	4.417
2170	9830(0):1.247	1.512	9826(0):0.260	0.496	984(0):0.163	0.297	985(0):1.413	1.982	983(0):3.919	4.096
2180	9108(0):1.239	1.669	9097(0):0.265	0.426	911(0):0.146	0.225	911(0):1.417	1.902	912(0):4.054	5.350
2190	10200(0):1.253	2.542	10196(0):0.263	0.712	1019(0):0.151	0.202	1018(0):1.389	1.709	1017(0):4.035	4.512
2200	10898(0):1.245	1.745	10888(0):0.252	0.583	1091(0):0.150	0.213	1096(0):1.397	1.748	1094(0):3.919	4.183
2210	10028(0):1.264	1.613	10025(0):0.261	0.829	1002(0):0.155	0.312	998(0):1.429	1.798	1001(0):3.866	4.147
2220	11877(0):1.234	1.740	11878(0):0.247	0.434	1187(0):0.139	0.217	1187(0):1.378	1.506	1190(0):3.858	4.160
2230	10268(0):1.259	2.123	10254(0):0.257	0.489	1027(0):0.137	0.202	1025(0):1.451	1.825	1023(0):3.870	4.237
2240	9521(0):1.243	1.522	9508(0):0.266	0.685	952(0):0.158	0.237	953(0):1.412	1.634	952(0):4.028	4.988
2250	10016(0):1.244	1.969	10015(0):0.255	0.463	1003(0):0.145	0.233	1001(0):1.430	1.795	1005(0):3.897	4.244
2260	9763(0):1.249	1.871	9769(0):0.266	0.497	976(0):0.152	0.246	977(0):1.373	1.538	980(0):3.958	4.131
2270	10807(0):1.234	1.766	10793(0):0.247	0.443	1079(0):0.144	0.189	1077(0):1.338	1.487	1074(0):3.864	4.078
2280	9693(0):1.244	1.633	9694(0):0.262	0.454	971(0):0.157	0.199	974(0):1.401	1.511	975(0):4.003	4.119
2290	9599(0):1.251	1.653	9598(0):0.267	0.639	961(0):0.154	0.280	963(0):1.390	2.065	960(0):3.959	4.477
2300	9306(0):1.245	1.581	9299(0):0.255	0.573	929(0):0.156	0.212	928(0):1.440	1.618	926(0):3.894	4.426
2310	9352(0):1.235	1.515	9340(0):0.259	0.545	934(0):0.148	0.317	937(0):1.437	1.625	938(0):3.870	4.577
2320	10255(0):1.229	1.441	10264(0):0.245	0.592	1026(0):0.140	0.264	1023(0):1.337	1.429	1023(0):3.862	3.988
2330	11042(0):1.246	1.621	11029(0):0.252	0.673	1105(0):0.153	0.478	1104(0):1.363	1.65		

2360	10287(0):1.243	1.879	10284(0):0.253	0.464	1028(0):0.152	0.217	1030(0):1.378	1.552	1029(0):3.966	4.176
2370	11840(0):1.225	1.769	11825(0):0.243	0.830	1183(0):0.149	0.390	1185(0):1.373	1.646	1178(0):3.929	4.382
2380	11144(0):1.230	1.431	11139(0):0.252	0.547	1114(0):0.151	0.321	1115(0):1.379	1.866	1114(0):3.924	4.253
2390	10016(0):1.231	1.595	10014(0):0.261	0.503	1001(0):0.155	0.224	999(0):1.374	1.598	1005(0):3.865	4.951
2400	10885(0):1.230	3.725	10875(0):0.242	0.565	1087(0):0.149	0.215	1089(0):1.383	1.569	1084(0):3.899	7.511
2410	10407(0):1.221	1.567	10403(0):0.251	0.569	1043(0):0.147	0.203	1043(0):1.383	1.455	1044(0):3.916	4.114
2420	10963(0):1.227	1.493	10961(0):0.241	0.407	1096(0):0.143	0.183	1094(0):1.396	1.611	1097(0):3.918	4.379
2430	9868(0):1.231	1.563	9856(0):0.255	0.472	986(0):0.155	0.314	988(0):1.357	2.214	988(0):3.942	4.571
2440	10251(0):1.244	1.705	10255(0):0.262	0.553	1027(0):0.157	0.314	1026(0):1.396	1.522	1022(0):3.891	4.349
2450	11054(0):1.216	1.469	11036(0):0.239	0.481	1104(0):0.143	0.223	1106(0):1.355	1.477	1104(0):3.848	4.029
2460	11093(0):1.235	1.555	11098(0):0.248	0.516	1110(0):0.165	0.411	1118(0):1.377	1.633	1122(0):4.009	4.300
2470	10969(0):1.234	1.489	10954(0):0.252	0.461	1097(0):0.165	0.278	1085(0):1.383	1.451	1085(0):3.933	4.162
2480	11207(0):1.229	1.671	11214(0):0.244	0.416	1121(0):0.148	0.281	1121(0):1.356	1.630	1123(0):4.002	4.323
2490	10663(0):1.236	1.960	10656(0):0.249	0.575	1067(0):0.142	0.314	1069(0):1.378	1.692	1066(0):3.897	4.119
2500	10976(0):1.227	1.669	10970(0):0.251	0.661	1097(0):0.148	0.182	1095(0):1.383	1.626	1095(0):3.952	4.270
2510	10952(0):1.231	1.549	10951(0):0.247	0.438	1095(0):0.153	0.306	1096(0):1.392	2.070	1098(0):4.008	4.269
2520	10868(0):1.230	1.562	10867(0):0.254	0.787	1086(0):0.155	0.232	1089(0):1.376	1.808	1088(0):4.009	4.355
2530	12400(0):1.217	1.553	12401(0):0.239	0.891	1241(0):0.137	0.181	1240(0):1.349	1.687	1240(0):3.914	4.140
2540	11115(0):1.234	1.475	11108(0):0.247	0.501	1111(0):0.144	0.217	1111(0):1.423	1.728	1112(0):3.923	4.365
2550	10039(0):1.240	2.456	10032(0):0.256	0.589	1004(0):0.146	0.242	1002(0):1.389	2.236	1003(0):3.927	4.187
2560	10903(0):1.232	1.567	10899(0):0.243	0.477	1090(0):0.145	0.173	1092(0):1.359	1.452	1087(0):3.923	6.806
2570	11278(0):1.229	1.615	11270(0):0.252	0.604	1127(0):0.154	0.202	1126(0):1.413	1.735	1129(0):3.954	4.117
2580	10859(0):1.226	1.743	10846(0):0.251	0.588	1086(0):0.154	0.274	1097(0):1.370	1.691	1097(0):3.936	4.714
2590	11089(0):1.216	1.754	11102(0):0.248	0.492	1109(0):0.149	0.187	1097(0):1.396	1.966	1101(0):3.913	4.315
2600	11302(0):1.240	1.807	11306(0):0.260	0.503	1133(0):0.155	0.223	1136(0):1.412	1.662	1135(0):3.983	4.364
2610	10115(0):1.237	1.424	10100(0):0.249	0.425	1011(0):0.139	0.256	1007(0):1.410	1.680	1003(0):3.963	4.317
2620	11642(0):1.224	1.561	11636(0):0.246	0.662	1164(0):0.147	0.283	1165(0):1.392	1.937	1167(0):3.984	4.310
2630	11130(0):1.230	1.796	11128(0):0.246	0.595	1112(0):0.134	0.229	1113(0):1.345	1.659	1112(0):3.890	4.643
2640	11643(0):1.243	1.596	11651(0):0.250	0.665	1164(0):0.150	0.310	1163(0):1.396	1.937	1166(0):3.949	4.353
2650	10561(0):1.237	1.501	10544(0):0.256	0.455	1057(0):0.158	0.368	1058(0):1.377	1.683	1054(0):4.024	4.397
2660	11997(0):1.225	2.620	11998(0):0.244	0.513	1200(0):0.141	0.302	1199(0):1.350	1.559	1201(0):3.956	4.187
2670	9992(0):1.222	1.503	9985(0):0.249	0.516	1000(0):0.142	0.295	1002(0):1.398	1.968	996(0):3.954	4.282
2680	11009(0):1.225	2.118	11017(0):0.252	0.680	1099(0):0.157	0.392	1099(0):1.387	1.598	1108(0):3.988	4.754
2690	10354(0):1.228	1.602	10340(0):0.259	0.445	1037(0):0.155	0.228	1035(0):1.376	1.755	1033(0):3.880	4.160
2700	9774(0):1.249	1.545	9779(0):0.251	0.582	977(0):0.153	0.193	977(0):1.391	1.599	979(0):3.918	4.378
2710	11718(0):1.234	1.658	11692(0):0.250	0.480	1172(0):0.152	0.252	1174(0):1.368	1.667	1167(0):4.008	4.336
2720	10461(0):1.240	1.578	10480(0):0.253	0.589	1046(0):0.164	0.203	1046(0):1.383	1.541	1053(0):4.008	4.401
2730	10422(0):1.235	1.462	10406(0):0.257	0.586	1043(0):0.153	0.321	1041(0):1.410	1.532	1038(0):3.962	4.265
2740	10396(0):1.240	1.445	10400(0):0.261	0.490	1038(0):0.149	0.200	1039(0):1.435	1.615	1042(0):3.941	4.441
2750	10584(0):1.238	3.705	10569(0):0.261	0.615	1059(0):0.160	0.323	1059(0):1.416	1.506	1052(0):3.964	4.182
2760	10945(0):1.225	1.538	10940(0):0.247	0.497	1094(0):0.145	0.202	1095(0):1.382	1.708	1095(0):3.930	4.819
2770	11000(0):1.232	1.616	10999(0):0.247	0.617	1100(0):0.145	0.323	1098(0):1.386	1.561	1100(0):3.929	4.498
2780	11368(0):1.240	1.635	11363(0):0.254	0.550	1137(0):0.157	0.260	1138(0):1.377	1.630	1137(0):3.943	4.113
2790	11313(0):1.235	1.618	11320(0):0.250	0.494	1130(0):0.170	0.247	1131(0):1.415	1.669	1136(0):3.949	4.205
2800	10148(0):1.230	1.970	10138(0):0.249	0.572	1017(0):0.144	0.196	1013(0):1.364	1.775	1012(0):3.856	4.620
2810	11634(0):1.233	1.682	11635(0):0.252	0.446	1164(0):0.158	0.439	1167(0):1.376	1.664	1164(0):3.925	4.650
2820	10666(0):1.231	1.582	10652(0):0.255	0.609	1066(0):0.138	0.225	1063(0):1.394	1.709	1066(0):3.944	4.281
2830	10847(0):1.230	1.720	10849(0):0.252	0.446	1085(0):0.151	0.378	1085(0):1.364	1.747	1083(0):3.876	4.132
2840	10531(0):1.233	1.827	10520(0):0.255	0.538	1052(0):0.144	0.204	1054(0):1.385	1.558	1055(0):3.967	4.204
2850	10557(0):1.238	1.624	10558(0):0.253	0.564	1056(0):0.147	0.194	1054(0):1.392	1.587	1057(0):3.954	4.250
2860	9060(0):1.241	1.674	9065(0):0.262	0.483	907(0):0.152	0.347	908(0):1.391	1.575	905(0):3.895	4.204
2870	10230(0):1.232	1.477	10222(0):0.256	0.452	1023(0):0.162	0.482	1023(0):1.359	1.491	1023(0):3.871	4.205
2880	10513(0):1.236	1.569	10506(0):0.255	0.422	1051(0):0.151	0.240	1053(0):1.386	1.742	1048(0):3.897	4.276
2890	11746(0):1.231	2.632	11739(0):0.247	0.618	1174(0):0.139	0.260	1172(0):1.368	1.578	1177(0):3.972	4.222
2900	11739(0):1.228	2.509	11741(0):0.248	0.522	1174(0):0.141	0.373	1175(0):1.405	1.693	1176(0):3.917	4.147
2910	11344(0):1.216	1.471	11336(0):0.246	0.514	1134(0):0.136	0.206	1135(0):1.371	1.644	1131(0):3.875	4.253
2920	10487(0):1.234	1.564	10485(0):0.249	0.489	1050(0):0.140	0.214	1047(0):1.392	1.650	1050(0):3.971	4.514
2930	11451(0):1.246	2.117	11449(0):0.256	0.800	1145(0):0.151	0.238	1146(0):1.410	1.802	1145(0):3.900	4.366
2940	11829(0):1.233	1.731	11832(0):0.247	0.447	1183(0):0.139	0.420	1184(0):1.379	1.650	1187(0):3.933	4.236
2950	11226(0):1.224	1.648	11223(0):0.243	0.445	1123(0):0.142	0.257	1123(0):1.386	2.064	1129(0):3.830	4.152
2960	10955(0):1.226	1.763	10943(0):0.246	0.775	1094(0):0.146	0.201	1092(0):1.424	1.566	1088(0):3.899	4.288
2970	10231(0):1.236	1.577	10229(0):0.252	0.520	1023(0):0.145	0.351	1025(0):1.393	1.710	1022(0):3.951	4.271
2980	9950(0):1.236	1.610	9943(0):0.252	0.576	996(0):0.155	0.264	995(0):1.395	1.535	996(0):3.974	4.339
2990	10878(0):1.241	1.735	10877(0):0.253	0.666	1087(0):0.153	0.183	1087(0):1.427	1.770	1086(0):3.947	4.250
3000	10191(0):1.233	1.990	10194(0):0.253	0.837	1020(0):0.153	0.253	1020(0):1.392	2.009	1018(0):3.846	5.423
3010	10238(0):1.256	1.799	10240(0):0.262	0.578	1023(0):0.163	0.219	1026(0):1.399	1.655	1022(0):4.010	4.384
3020	10384(0):1.237	1.610	10376(0):0.255	0.461	1039(0):0.165	0.224	1036(0):1.388	1.864	1046(0):3.953	4.199
3030	10755(0):1.240	1.451	10743(0):0.253	0.454	1075(0):0.146	0.230	1075(0):1.359	1.802	1070(0):3.907	4.349
3040	9327(0):1.249	1.522	9325(0):0.256	0.462	932(0):0.150	0.183	935(0):1.433	1.873	936(0):3.845	6.312
3050	10375(0):1.258	3.272	10379(0):0.258	0.564	1039(0):0.143	0.196	1037(0):1.395	1.620	1034(0):4.014	4.319
3060	11093(0):1.229	1.574	11082(0):0.245	0.698	1109(0):0.159	0.228	1110(0):1.402	2.246	1109(0):3.895	4.190
3070	11942(0):1.220	1.567	11944(0):0.238	0.622	1196(0):0.146	0.207	1203(0):1.338	1.703	1206(0):3.953	4.210
3080	11761(0):1.226	1.488	11773(0):0.241	0.426	1174(0):0.136	0.334	1164(0):1.351	1.670	1169(0):3.911	4.177
3090	10471(0):1.239	1.954	10461(0):0.256	0.362	1047(0):0.154	0.254	1047(0):1.381	1.691	1045(0):3.914	4.308
3100	10312(0):1.235	2.047	10317(0):0.249	0.601	1031(0):0.153	0.225	1035(0):1.401	1.759	1035(0):3.878	4.232
3110	9433(0):1.240	1.515	9423(0):0.253	0.386	943(0):0.157	0.198	942(0):1.379	1.576	935(0):3.908	4.252
3120	11735(0):1.227	1.649	11734(0):0.251	0.710	1174(0):0.157	0.292	1171(0):1.392	1.511	1179(0):3.962	5.279
3130	11521(0):1.233	1.541	11514(0):0.244	0.533	1153(0):0.143	0.187	1153(0):1.430	1.949	1149(0):3.904	4.151
3140	11451(0):1.236	1.616	11448(0):0.245	0.566	1144(0):0.135	0.253	1143(0):1.366	1.676	1147(0):3.973	4.696
3150	11383(0):1.235	1.627	11393(0):0.249	0.543	1138(0):0.149	0.282	1141(0):1.402	1.543	1142(0):3.861	4.341
3160	10361(0):1.253	1.688	10339(0):0.258	0.520	1037(0):0.152	0.309	1036(0):1.412	2.431	1031(0):3.930	4.328
3170	10617(0):1.247	1.508	10628(0):0.250	0.553	1062(0):0.144	0.394	1068(0):1.412	1.670	1070(0):3.955	5.291

3210	11601(0):1.227	1.479	11608(0):0.253	0.574	1160(0):0.143	0.279	1159(0):1.405	1.726	1158(0):3.974	4.352
3220	11077(0):1.228	2.334	11067(0):0.246	0.490	1109(0):0.154	0.208	1108(0):1.403	1.645	1103(0):3.968	4.272
3230	9972(0):1.253	1.631	9966(0):0.256	0.407	998(0):0.155	0.313	997(0):1.452	1.693	997(0):4.019	4.390
3240	10234(0):1.234	2.004	10233(0):0.260	0.462	1022(0):0.150	0.229	1024(0):1.429	1.893	1023(0):4.037	4.221
3250	10792(0):1.232	1.471	10797(0):0.256	2.686	1079(0):0.152	0.190	1080(0):1.380	1.525	1082(0):3.952	4.244
3260	11503(0):1.229	1.443	11499(0):0.245	0.501	1151(0):0.137	0.239	1147(0):1.377	1.555	1151(0):3.919	4.475
3270	11054(0):1.234	1.545	11045(0):0.256	0.514	1105(0):0.139	0.189	1108(0):1.384	1.563	1103(0):3.882	4.258
3280	11607(0):1.222	1.530	11607(0):0.246	0.550	1160(0):0.148	0.238	1160(0):1.423	2.291	1162(0):3.931	4.188
3290	11363(0):1.226	1.656	11356(0):0.243	0.520	1137(0):0.145	0.222	1135(0):1.376	1.524	1140(0):3.966	4.153
3300	10985(0):1.238	2.572	10985(0):0.248	0.507	1098(0):0.154	0.206	1099(0):1.412	1.631	1091(0):3.940	4.201
3310	10564(0):1.238	2.830	10564(0):0.254	0.484	1056(0):0.153	0.252	1057(0):1.386	1.655	1061(0):3.982	4.281
3320	10362(0):1.233	1.778	10363(0):0.251	0.423	1038(0):0.158	0.258	1040(0):1.374	1.582	1040(0):3.916	4.200
3330	10762(0):1.249	1.693	10748(0):0.254	0.489	1075(0):0.153	0.256	1072(0):1.428	2.075	1070(0):3.930	4.337
3340	11903(0):1.226	1.543	11907(0):0.248	0.549	1190(0):0.141	0.280	1193(0):1.364	1.977	1191(0):3.904	5.849
3350	10905(0):1.235	1.750	10897(0):0.254	0.465	1090(0):0.147	0.197	1088(0):1.382	1.690	1091(0):3.971	4.227
3360	10203(0):1.243	1.588	10200(0):0.259	0.710	1021(0):0.157	0.212	1022(0):1.396	1.534	1017(0):3.939	4.289
3370	10955(0):1.228	1.503	10956(0):0.246	0.368	1094(0):0.134	0.182	1093(0):1.346	1.653	1104(0):3.910	4.317
3380	10285(0):1.228	1.499	10277(0):0.250	0.527	1031(0):0.143	0.210	1031(0):1.417	1.613	1028(0):3.866	4.245
3390	10409(0):1.227	1.784	10397(0):0.251	0.400	1040(0):0.144	0.326	1039(0):1.391	1.641	1037(0):3.866	4.461
3400	10420(0):1.229	1.528	10423(0):0.250	0.594	1042(0):0.145	0.216	1042(0):1.387	1.622	1040(0):3.951	4.357
3410	10912(0):1.236	1.598	10924(0):0.254	0.389	1092(0):0.139	0.301	1092(0):1.389	1.998	1097(0):3.889	4.337
3420	9495(0):1.251	1.692	9490(0):0.255	0.529	949(0):0.150	0.212	951(0):1.408	2.191	949(0):3.940	4.721
3430	11339(0):1.227	1.564	11320(0):0.244	0.481	1133(0):0.153	0.222	1129(0):1.347	1.607	1127(0):3.925	4.218
3440	11699(0):1.223	2.015	11694(0):0.249	0.609	1172(0):0.141	0.247	1184(0):1.373	1.504	1182(0):3.914	4.343
3450	11155(0):1.237	1.837	11156(0):0.251	0.574	1114(0):0.142	0.348	1106(0):1.395	2.794	1108(0):3.945	4.202
3460	10828(0):1.230	1.653	10823(0):0.249	0.621	1084(0):0.155	0.194	1083(0):1.435	1.884	1080(0):3.932	4.283
3470	10672(0):1.240	1.560	10674(0):0.255	0.509	1066(0):0.149	0.365	1065(0):1.405	1.562	1071(0):3.901	4.637
3480	9855(0):1.227	1.630	9836(0):0.252	0.511	986(0):0.151	0.267	987(0):1.392	1.627	980(0):3.910	4.307
3490	11746(0):1.232	1.940	11749(0):0.244	0.602	1175(0):0.145	0.302	1172(0):1.378	1.544	1182(0):3.919	4.437
3500	11624(0):1.230	1.808	11621(0):0.247	0.393	1162(0):0.137	0.419	1166(0):1.355	1.589	1158(0):3.963	4.158
3510	11205(0):1.235	1.753	11198(0):0.250	0.407	1120(0):0.162	0.209	1119(0):1.372	1.648	1119(0):3.904	4.275
3520	11508(0):1.231	1.568	11508(0):0.251	0.501	1151(0):0.145	0.185	1151(0):1.378	1.600	1153(0):3.933	4.209
3530	11487(0):1.238	1.537	11478(0):0.245	0.486	1150(0):0.144	0.220	1147(0):1.353	1.489	1148(0):3.909	4.457
3540	10243(0):1.229	1.628	10239(0):0.250	0.546	1022(0):0.152	0.283	1025(0):1.350	1.459	1028(0):3.895	7.434
3550	11113(0):1.241	1.629	11118(0):0.255	0.537	1113(0):0.138	0.266	1111(0):1.394	1.733	1111(0):3.945	4.245
3560	11583(0):1.226	1.895	11569(0):0.255	0.507	1159(0):0.139	0.425	1170(0):1.385	1.812	1165(0):3.922	4.099
3570	11419(0):1.236	1.767	11421(0):0.248	0.695	1141(0):0.143	0.279	1131(0):1.362	1.507	1134(0):3.927	4.292
3580	10385(0):1.231	1.744	10387(0):0.252	0.526	1038(0):0.152	0.274	1040(0):1.366	1.531	1042(0):3.991	4.340
3590	11163(0):1.235	1.519	11148(0):0.246	0.469	1117(0):0.139	0.166	1116(0):1.392	1.512	1108(0):3.849	4.303
3600	10468(0):1.241	3.364	10457(0):0.256	0.840	1046(0):0.149	0.240	1045(0):1.406	1.836	1049(0):3.948	4.948

STOPPING THREADS.....

<Raw Results>

```
[0] sc:3820902 lt:0 rt:0 fl:0
[1] sc:3819327 lt:0 rt:0 fl:0
[2] sc:382084 lt:0 rt:0 fl:0
[3] sc:382073 lt:0 rt:0 fl:0
[4] sc:382084 lt:0 rt:0 fl:0
in 3600 sec.
```

<Raw Results2(sum ver.)>

```
[0] sc:3820960 lt:0 rt:0 fl:0
[1] sc:3820939 lt:0 rt:0 fl:0
[2] sc:382093 lt:0 rt:0 fl:0
[3] sc:382083 lt:0 rt:0 fl:0
[4] sc:382084 lt:0 rt:0 fl:0
```

<Constraint Check> (all must be [OK])

```
[transaction percentage]
  Payment: 43.47% (>=43.0%) [OK]
  Order-Status: 4.35% (>= 4.0%) [OK]
  Delivery: 4.35% (>= 4.0%) [OK]
  Stock-Level: 4.35% (>= 4.0%) [OK]
[response time (at least 90% passed)]
  New-Order: 100.00% [OK]
  Payment: 100.00% [OK]
  Order-Status: 100.00% [OK]
  Delivery: 100.00% [OK]
  Stock-Level: 100.00% [OK]
```

<TpmC>

63681.699 TpmC