



Intel® 550 Mailbox Exchange Server 2007 Storage Solution

Intel® Server Chassis SC5400 and Server Board S5000PSL

Tested with: ESRP – Storage Version 2.1, Windows Server 2003 R2

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Hardware Components

Quantity	Item	Manufacturer	Model
One	Intel® Server Board	Intel	S5000PSL. Additional information is available at: http://www.intel.com/products/server/motherboards/s5000psl/s5000psl-overview.htm .
One	Intel® Server Chassis	Intel	SC5400. Additional information is available at: http://www.intel.com/products/server/chassis/sc5400/sc5400-overview.htm .
One (Select one)	Intel® RAID Controller	Intel	SRCSASJV. Additional information is available at: http://www.intel.com/products/server/raid-controllers/srcsasjv/srcsasjv-overview.htm .
	Intel® RAID Controller	Intel	SRCSASRB. Additional information is available at: http://www.intel.com/products/server/raid-controllers/srcsarb/srcsarb-overview.htm .
Two	Intel® Xeon® Processors	Intel	Please refer to the Supported Processor List at http://www.intel.com/support/motherboards/server/sb/CS-022346.htm . Processors must support Intel® EM64T.
4 GB minimum	Memory	Any supported	Please refer to the Tested Memory List at http://www.intel.com/support/motherboards/server/s5000psl/sb/CS-022924.htm .
One (60 GB minimum)	SAS or SATA 3.5-inch hard drives	Any supported	Please refer to the Server Hard Drive Validation Test Report at http://www.intel.com/support/motherboards/server/sb/CS-025416.htm .

Table 1 - Intel® Server Board S5000PSL Hardware Configuration

Software Components

Item	Version	Manufacturer	Comment
1	Windows Server 2003 R2	Microsoft	Any 64-bit edition
1	Exchange Server 2007	Microsoft	Available in 64-bit only

Table 2 - Installation Software BOM



Introduction

This document provides information on Intel's storage solution for Microsoft Exchange Server 2007, based on the Microsoft Exchange Solution Reviewed Program (ESRP) – Storage program*.

*The ESRP – Storage program was developed by Microsoft Corporation to provide a common storage testing framework for vendors to provide information on its storage solutions for Microsoft Exchange Server 2007 software. For more details on the Microsoft ESRP – Storage program, please view:

<http://www.microsoft.com/technet/prodtechnol/exchange/2007/esrp.mspix>.

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Features

This document describes an Exchange storage solution for 550 users on the Intel® Server Chassis SC5400 storage system. The tested user profile was 0.30 IOPS per user with a mailbox limit of 250 MB.

Solution Description

The tested solution consists of one Intel® server chassis and server board with an Intel® SRCSASJV RAID controller and 4 500GB SATA-interface desktop-class disk drives installed into the 4-drive and 6-drive cages in the Intel® SC5400 system chassis. This configuration includes 5TB of raw capacity. The Intel® SRCSASJV controller supports SAS and SATA interfaces to disk drives, and can support a mixture of SAS and SATA interface disk drives.

The ESRP-Storage program focuses on storage solution testing to address performance and reliability issues with storage design. However, storage is not the only factor to take into consideration when designing a scale up Exchange solution. Other factors which affect the server scalability are: server processor utilization, server physical and virtual memory limitations, resource requirements for other applications, directory and network service latencies, network infrastructure limitations, replication and recovery requirements, and client usage profiles. All these factors are beyond the scope for ESRP-Storage. Therefore, the number of mailboxes hosted per server as part of the tested configuration may not necessarily be viable for some customer deployment.



For more information on identifying and addressing performance bottlenecks in an Exchange system, please refer to Microsoft's Troubleshooting Microsoft Exchange Server Performance, available at <http://go.microsoft.com/fwlink/?LinkId=23454>.

Test Server Configuration

Component	Description
Server Chassis	Intel® SC5400
Server Board	Intel® S500PSL
CPU	2 Intel® Xeon® E5320, quad-core, 1.86 GHz (8 total cores)
Memory	4 GB DDR2 ECC
NIC	Dual Intel® Gigabit Ethernet (Intel® 82563EB)
RAID Controller	Intel® SRCSASJV
Internal Boot Disk	Qty. 1 - Seagate 320GB
Disk Array Disks	Qty. 4 - Seagate Barracuda 7200.11, ST3500320AS, 500GB, 7200 RPM

Targeted Customer Profile

This solution is intended for small and medium-sized organization hosting up to 550 mailboxes. The configuration used for testing is:

- Number of mailboxes: 550
- Number of hosts: 1
- User I/O profile: 0.30 I/O per second (IOPS)
- 1 Storage Groups, 1 Databases
- Mailbox size: 250 MB



Tested Deployment

The following tables summarize the testing environment:

Description	Data
Number of Exchange mailboxes simulated	550
Number of hosts	1
Number of storage groups / host	1
Number of mailbox stores / storage group	1
Number of mailboxes / mailbox store	550
Number of mailbox store LUNs / storage group	1
Simulated profile: I/O's per second per mailbox	0.30 IOPS
Database LUN size	465 GB
Log LUN size	465 GB
Backup LUN size / storage group	N/A
Total database size for performance testing	134.3 GB
% storage capacity used by Exchange database	28%

Primary Storage Hardware

Component	Description
Storage Connectivity (Fibre Channel, SAS, SATA, iSCSI)	SAS/SATA
Storage model and OS firmware	
Storage cache	512 MB
Number of storage controllers	1
Number of storage ports	2
Maximum bandwidth of storage	6 Gb/sec (2 x 3 Gb SAS ports)
Adapter model and firmware	Intel® SRCSASJV
Number of adapters / host	1
Host server type	Intel® S5000PSL, 2 Intel® Xeon® E5320 quad-core (1.86 GHz), 8 total cores
Total number of disks tested in solution	4
Maximum number of spindles can be hosted in the storage	10



Primary Storage Software

Component	Description
HBA driver	Intel SRCASJV
HBA Queue Target Setting	N/A
HBA Queue Depth Setting	N/A
Multi-Pathing	N/A
Host OS	MS Windows Server 2003 R2 Enterprise x64 Edition w/ Service Pack 1
ESE.dll file version	08.00.0685.024
Replication solution name / version	N/A

Primary Storage Disk Configuration (Mailbox Store Disks)

Component	Description
Disk type, speed and firmware revision	Seagate SATA, 7200 RPM, SD15 (ST3500329AS)
Raw capacity per disk (GB)	465.8
Number of physical disks in test	2
Total raw storage capacity (GB)	931.6
Number of slices per LUN or number of disks per LUN	2
RAID level	RAID 1
Total formatted capacity	465

Primary Storage Disk Configuration (Transactional Log Disks)

Component	Description
Disk type, speed and firmware revision	Seagate SATA, 7200 RPM, SD15 (ST3500329AS)
Raw capacity per disk (GB)	465.8
Number of physical disks in test	2
Total raw storage capacity (GB)	931.6
Number of slices per LUN or number of disks per LUN	2
RAID level	RAID 1
Total formatted capacity	464.7



Best Practices

Exchange Server is a disk-intensive application. Based on the testing runs using the ESRP framework, we recommend the following Microsoft best practices for storage system design for Exchange Server 2007, available at: <http://technet.microsoft.com/en-us/library/bb124518.aspx>.

Contact for Additional Information

Consult the *Certified Intel RAID Configurations for Microsoft Exchange Servers* document available at: <http://www.intelraid.com/tech.php>.

Test Result Summary

This section provides a high level summary of the test data from ESRP and the link to the detailed HTML reports which are generated by ESRP testing framework. Please click on the underlined headings below to view the HTML report for each test.

Reliability

A number of tests in the framework are to check Reliability tests runs for 24 hours. The goal is to verify the storage can handle high I/O load for a long period of time. Both log and database files will be analyzed for integrity after the stress test to ensure no database/log corruption.

The following list provides an overview: (click on the underlined word will show the HTML report after the reliability tests run)

- No errors reported in the saved eventlog file.
- No errors reported in during the database and log checksum process.

Primary Storage Performance Results

The Primary Storage performance testing is designed to exercise the storage with maximum sustainable Exchange type of I/O for 2 hours. The test is to show how long it takes for the storage to respond to an I/O under load. The data below is the sum of all of the logical disk I/O's and average of all the logical disks I/O latency in the 2 hours test duration. Each server is listed separately and the aggregate numbers across all servers is listed as well.

Individual Server Metrics:

The sum of I/O's across Storage Groups and the average latency across all Storage Groups on a per server basis.



I/O Component	Metric
Database I/O	
Average Database Disk Transfers/sec	84.212
Average Database Disk Reads/sec	89.134
Average Database Disk Writes/sec	79.289
Average Database Disk Read Latency (ms)	0.016
Average Database Disk Write Latency (ms)	0.086
Transaction Log I/O	
Average Log Disk Writes/sec	51.306
Average Log Disk Write Latency (ms)	0.001

Conclusion

This document is developed by storage solution providers, and reviewed by the Microsoft Exchange Product team. The test results/data presented in this document is based on the tests introduced in the ESRP test framework. Customer should not quote the data directly for his/her pre-deployment verification. It is still necessary to go through the exercises to validate the storage design for a specific customer environment.

ESRP program is not designed to be a benchmarking program; tests are not designed to getting the maximum throughput for a given solution. Rather, it is focused on producing recommendations from vendors for Exchange application. So the data presented in this document should not be used for direct comparisons among the solutions.



Appendix A - Test Results

Microsoft Exchange Server Jetstress 24 Hour Reliability

Microsoft Exchange Server **Jetstress**

Stress Test Result Report

Test Summary

Overall Test Result **Pass**

Machine Name DMRTK-SRVR-I2

Test Description Intel® SRCSASJV 4-SATA drives, mailboxes=0550, size=250, IOPS=0.3, threads=3, DB=RAID1, Log=RAID1, SG=1, DBLUN=1

Test Start Time 1/5/2009 6:28:28 PM

Test End Time 1/6/2009 6:37:49 PM

Jetstress Version 08.02.0060.000

Ese Version 08.00.0685.024

Operating System Microsoft Windows Server 2003 R2 Service Pack 2 (5.2.3790.131072)

Performance Log C:\Data\Jetstress\Stress_2009_1_5_18_28_31.blg
C:\Data\Jetstress\DBChecksum_2009_1_6_18_37_49.blg

Database Sizing and Throughput

Achieved I/O per Second 168.423

Target I/O per Second 165

Initial database size 145956552704

Final database size 162402549760

Database files (count) 1

Jetstress System Parameters

Thread count 3 (per-storage group)

Log buffers 9000

Minimum database cache 32.0 MB

Maximum database cache 256.0 MB

Insert operations 25%



Delete operations 10%
Replace operations 50%
Read operations 15%
Lazy commits 80%

Disk Subsystem Performance

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Write
Database (M:)	0.016	0.086	89.134	79.289	(n/a)
Log (L:)	0.000	0.001	0.000	51.306	10399.639

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	0.276	0.038	1.914
Available MBytes	3136.118	3119.000	3163.000
Free System Page Table Entries	4170961.000	4170961.000	4170961.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	33533107.200	33521664.000	33570816.000
Pool Paged Bytes	46081854.578	45359104.000	47357952.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

1/5/2009 6:28:28 PM -- Jetstress testing begins ...
 1/5/2009 6:28:28 PM -- Prepare testing begins ...
 1/5/2009 6:28:30 PM -- Attaching databases ...
 1/5/2009 6:28:30 PM -- Prepare testing ends.
 1/5/2009 6:28:30 PM -- Dispatching transactions begins ...
 1/5/2009 6:28:30 PM -- Database cache settings: (minimum: 32.0 MB, maximum: 256.0 MB)
 1/5/2009 6:28:30 PM -- Database flush thresholds: (start: 2.6 MB, stop: 5.1 MB)
 1/5/2009 6:28:31 PM -- Database read latency thresholds: (average: 0.02 seconds/read, maximum: 0.1 seconds/read).
 1/5/2009 6:28:31 PM -- Log write latency thresholds: (average: 0.01 seconds/write, maximum: 0.1 seconds/write).
 1/5/2009 6:28:32 PM -- Operation mix: Sessions 3, Inserts 25%, Deletes 10%, Replaces 50%, Reads 15%, Lazy Commits 80%.
 1/5/2009 6:28:32 PM -- Performance logging begins (interval: 15000 ms).
 1/5/2009 6:28:32 PM -- Attaining prerequisites:
 1/5/2009 6:37:15 PM -- \Database(JetstressWin)\Database Cache Size, Last: 241680400.0 (lower bound: 241591900.0, upper bound: none)
 1/6/2009 6:37:17 PM -- Performance logging ends.
 1/6/2009 6:37:17 PM -- JetInterop batch transaction stats: 399494.
 1/6/2009 6:37:17 PM -- Dispatching transactions ends.
 1/6/2009 6:37:17 PM -- Shutting down databases ...
 1/6/2009 6:37:49 PM -- Instance2844.1 (complete)
 1/6/2009 6:37:49 PM -- Performance logging begins (interval: 15000 ms).



1/6/2009 6:37:49 PM -- Verifying database checksums ...
1/6/2009 7:07:48 PM -- M: (100% processed)
1/6/2009 7:07:49 PM -- Performance logging ends.
1/6/2009 7:07:49 PM -- C:\Data\Jetstress\DBChecksum_2009_1_6_18_37_49.blg has 119 samples.
1/6/2009 7:07:52 PM -- C:\Data\Jetstress\DBChecksum_2009_1_6_18_37_49.html is saved.
1/6/2009 7:07:52 PM -- Verifying log checksums ...
1/6/2009 7:07:53 PM -- L:\ (22 logs passed)
1/6/2009 7:07:53 PM -- C:\Data\Jetstress\Stress_2009_1_5_18_28_31.blg has 5794 samples.
1/6/2009 7:07:53 PM -- Creating test report ...
1/6/2009 7:08:53 PM -- Volume M: has 0.0162 for Avg. Disk sec/Read.
1/6/2009 7:08:53 PM -- Volume L: has 0.0008 for Avg. Disk sec/Write.
1/6/2009 7:08:53 PM -- Volume L: has 0.0000 for Avg. Disk sec/Read.
1/6/2009 7:08:53 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/6/2009 7:08:53 PM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/6/2009 7:08:53 PM -- C:\Data\Jetstress\Stress_2009_1_5_18_28_31.xml has 5759 samples queried.



Microsoft Exchange Server Jetstress

Test Result Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page no pages	File length / seconds taken
M:\Jetstress1.edb	19824530	0	0	0	154879 MBytes / 1798 seconds
(Sum)	19824530	0	0	0	154879 MBytes / 1798 seconds

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec
M:	0.029	0.000	1377.790	0.005

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	1.403	1.016	1.705
Available MBytes	3386.849	3379.000	3389.000
Free System Page Table Entries	4170961.000	4170961.000	4170961.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	33757992.874	33734656.000	33796096.000
Pool Paged Bytes	47275687.798	47050752.000	48111616.000

Test Log

1/5/2009 6:28:28 PM -- Jetstress testing begins ...

1/5/2009 6:28:28 PM -- Prepare testing begins ...

1/5/2009 6:28:30 PM -- Attaching databases ...

1/5/2009 6:28:30 PM -- Prepare testing ends.

1/5/2009 6:28:30 PM -- Dispatching transactions begins ...

1/5/2009 6:28:30 PM -- Database cache settings: (minimum: 32.0 MB, maximum: 256.0 MB)

1/5/2009 6:28:30 PM -- Database flush thresholds: (start: 2.6 MB, stop: 5.1 MB)

1/5/2009 6:28:31 PM -- Database read latency thresholds: (average: 0.02 seconds/read, maximum: 0.1 seconds/read).

1/5/2009 6:28:31 PM -- Log write latency thresholds: (average: 0.01 seconds/write, maximum: 0.1 seconds/write).

1/5/2009 6:28:32 PM -- Operation mix: Sessions 3, Inserts 25%, Deletes 10%, Replaces 50%,



Reads 15%, Lazy Commits 80%.

1/5/2009 6:28:32 PM -- Performance logging begins (interval: 15000 ms).

1/5/2009 6:28:32 PM -- Attaining prerequisites:

1/5/2009 6:37:15 PM -- \Database(JetstressWin)\Database Cache Size, Last: 241680400.0
(lower bound: 241591900.0, upper bound: none)

1/6/2009 6:37:17 PM -- Performance logging ends.

1/6/2009 6:37:17 PM -- JetInterop batch transaction stats: 399494.

1/6/2009 6:37:17 PM -- Dispatching transactions ends.

1/6/2009 6:37:17 PM -- Shutting down databases ...

1/6/2009 6:37:49 PM -- Instance2844.1 (complete)

1/6/2009 6:37:49 PM -- Performance logging begins (interval: 15000 ms).

1/6/2009 6:37:49 PM -- Verifying database checksums ...

1/6/2009 7:07:48 PM -- M: (100% processed)

1/6/2009 7:07:49 PM -- Performance logging ends.

1/6/2009 7:07:49 PM -- C:\Data\Jetstress\DBChecksum_2009_1_6_18_37_49.blg has 119 samples.



Microsoft Exchange Server **Jetstress 2 Hour Performance**

Microsoft Exchange Server **Jetstress**

Performance Test Result Report

Test Summary

Overall Test Result **Pass**

Machine Name DMRTK-SRVR-12

Test Description Intel SRCSASJV 4-SATA drives, mailboxes=0550, size=250, IOPS=0.3, threads=3, DB=RAID1, Log=RAID1, SG=1, DBLUN=1

Test Start Time 1/5/2009 10:52:31 AM

Test End Time 1/5/2009 3:42:30 PM

Jetstress Version 08.02.0060.000

Ese Version 08.00.0685.024

Operating System Microsoft Windows Server 2003 R2 Service Pack 2 (5.2.3790.131072)

Performance Log C:\Data\Jetstress\Performance_2009_1_5_13_33_11.blg
C:\Data\Jetstress\DBChecksum_2009_1_5_15_42_30.blg

Database Sizing and Throughput

Achieved I/O per Second 177.069

Target I/O per Second 165

Initial database size 144182362112

Final database size 145956552704

Database files (count) 1

Jetstress System Parameters

Thread count 3 (per-storage group)

Log buffers 9000

Minimum database cache 32.0 MB

Maximum database cache 256.0 MB

Insert operations 25%

Delete operations 10%

Replace operations 50%

Read operations 15%



Lazy commits 80%

Disk Subsystem Performance

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Write
Database (M:)	0.016	0.088	89.427	87.642	(n/a)
Log (L:)	0.000	0.001	0.000	59.254	10470.434

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	0.239	0.078	0.547
Available MBytes	3138.310	3135.000	3162.000
Free System Page Table Entries	4170961.000	4170961.000	4170961.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	33557174.021	33550336.000	33599488.000
Pool Paged Bytes	45524740.790	45137920.000	45944832.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

1/5/2009 10:52:31 AM -- Jetstress testing begins ...
 1/5/2009 10:52:31 AM -- Prepare testing begins ...
 1/5/2009 10:52:31 AM -- Creating M:\Jetstress1.edb.
 1/5/2009 10:52:31 AM -- Database cache settings: (minimum: 32.0 MB, maximum: 256.0 MB)
 1/5/2009 10:52:31 AM -- Database flush thresholds: (start: 2.6 MB, stop: 5.1 MB)
 1/5/2009 12:18:55 PM -- 60.0% of 134.3 GB complete (4909459 records inserted).
 1/5/2009 1:32:56 PM -- 100.0% of 134.3 GB complete (7857815 records inserted).
 1/5/2009 1:33:09 PM -- Attaching databases ...
 1/5/2009 1:33:09 PM -- Prepare testing ends.
 1/5/2009 1:33:09 PM -- Dispatching transactions begins ...
 1/5/2009 1:33:09 PM -- Database cache settings: (minimum: 32.0 MB, maximum: 256.0 MB)
 1/5/2009 1:33:09 PM -- Database flush thresholds: (start: 2.6 MB, stop: 5.1 MB)
 1/5/2009 1:33:11 PM -- Database read latency thresholds: (average: 0.02 seconds/read, maximum: 0.05 seconds/read).
 1/5/2009 1:33:11 PM -- Log write latency thresholds: (average: 0.01 seconds/write, maximum: 0.05 seconds/write).
 1/5/2009 1:33:12 PM -- Operation mix: Sessions 3, Inserts 25%, Deletes 10%, Replaces 50%, Reads 15%, Lazy Commits 80%.
 1/5/2009 1:33:12 PM -- Performance logging begins (interval: 15000 ms).
 1/5/2009 1:33:12 PM -- Attaining prerequisites:
 1/5/2009 1:41:56 PM -- \Database(JetstressWin)\Database Cache Size, Last: 242057200.0 (lower bound: 241591900.0, upper bound: none)
 1/5/2009 3:41:58 PM -- Performance logging ends.
 1/5/2009 3:41:58 PM -- JetInterop batch transaction stats: 41588.
 1/5/2009 3:41:58 PM -- Dispatching transactions ends.
 1/5/2009 3:41:58 PM -- Shutting down databases ...
 1/5/2009 3:42:30 PM -- Instance2892.1 (complete)



1/5/2009 3:42:31 PM -- Performance logging begins (interval: 15000 ms).
1/5/2009 3:42:31 PM -- Verifying database checksums ...
1/5/2009 4:09:09 PM -- M: (100% processed)
1/5/2009 4:09:10 PM -- Performance logging ends.
1/5/2009 4:09:10 PM -- [C:\Data\Jetstress\DBChecksum_2009_1_5_15_42_30.blg](#) has 106 samples.
1/5/2009 4:09:13 PM -- [C:\Data\Jetstress\DBChecksum_2009_1_5_15_42_30.html](#) is saved.
1/5/2009 4:09:13 PM -- Verifying log checksums ...
1/5/2009 4:09:14 PM -- L:\ (22 logs passed)
1/5/2009 4:09:14 PM -- [C:\Data\Jetstress\Performance_2009_1_5_13_33_11.blg](#) has 515 samples.
1/5/2009 4:09:14 PM -- Creating test report ...
1/5/2009 4:09:18 PM -- Volume M: has 0.0160 for Avg. Disk sec/Read.
1/5/2009 4:09:18 PM -- Volume L: has 0.0008 for Avg. Disk sec/Write.
1/5/2009 4:09:18 PM -- Volume L: has 0.0000 for Avg. Disk sec/Read.
1/5/2009 4:09:18 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/5/2009 4:09:18 PM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/5/2009 4:09:18 PM -- [C:\Data\Jetstress\Performance_2009_1_5_13_33_11.xml](#) has 480 samples queried.



Microsoft Exchange Server Jetstress

Test Result Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page no pages	File length / seconds taken
M:\Jetstress1.edb	17816962	0	0	0	139195 MBytes / 1597 seconds
(Sum)	17816962	0	0	0	139195 MBytes / 1597 seconds

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec
M:	0.028	0.001	1393.629	0.010

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	1.437	1.094	1.745
Available MBytes	3392.877	3385.000	3395.000
Free System Page Table Entries	4170961.000	4170961.000	4170961.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	33733960.453	33714176.000	33763328.000
Pool Paged Bytes	45374135.547	45105152.000	46202880.000

Test Log

1/5/2009 10:52:31 AM -- Jetstress testing begins ...
 1/5/2009 10:52:31 AM -- Prepare testing begins ...
 1/5/2009 10:52:31 AM -- Creating M:\Jetstress1.edb.
 1/5/2009 10:52:31 AM -- Database cache settings: (minimum: 32.0 MB, maximum: 256.0 MB)
 1/5/2009 10:52:31 AM -- Database flush thresholds: (start: 2.6 MB, stop: 5.1 MB)
 1/5/2009 12:18:55 PM -- 60.0% of 134.3 GB complete (4909459 records inserted).
 1/5/2009 1:32:56 PM -- 100.0% of 134.3 GB complete (7857815 records inserted).
 1/5/2009 1:33:09 PM -- Attaching databases ...
 1/5/2009 1:33:09 PM -- Prepare testing ends.
 1/5/2009 1:33:09 PM -- Dispatching transactions begins ...
 1/5/2009 1:33:09 PM -- Database cache settings: (minimum: 32.0 MB, maximum: 256.0 MB)
 1/5/2009 1:33:09 PM -- Database flush thresholds: (start: 2.6 MB, stop: 5.1 MB)



1/5/2009 1:33:11 PM -- Database read latency thresholds: (average: 0.02 seconds/read, maximum: 0.05 seconds/read).

1/5/2009 1:33:11 PM -- Log write latency thresholds: (average: 0.01 seconds/write, maximum: 0.05 seconds/write).

1/5/2009 1:33:12 PM -- Operation mix: Sessions 3, Inserts 25%, Deletes 10%, Replaces 50%, Reads 15%, Lazy Commits 80%.

1/5/2009 1:33:12 PM -- Performance logging begins (interval: 15000 ms).

1/5/2009 1:33:12 PM -- Attaining prerequisites:

1/5/2009 1:41:56 PM -- \Database(JetstressWin)\Database Cache Size, Last: 242057200.0 (lower bound: 241591900.0, upper bound: none)

1/5/2009 3:41:58 PM -- Performance logging ends.

1/5/2009 3:41:58 PM -- JetInterop batch transaction stats: 41588.

1/5/2009 3:41:58 PM -- Dispatching transactions ends.

1/5/2009 3:41:58 PM -- Shutting down databases ...

1/5/2009 3:42:30 PM -- Instance2892.1 (complete)

1/5/2009 3:42:31 PM -- Performance logging begins (interval: 15000 ms).

1/5/2009 3:42:31 PM -- Verifying database checksums ...

1/5/2009 4:09:09 PM -- M: (100% processed)

1/5/2009 4:09:10 PM -- Performance logging ends.

1/5/2009 4:09:10 PM -- C:\Data\Jetstress\DBChecksum_2009_1_5_15_42_30.blg has 106 samples.