

Hitachi Adaptable Modular Storage 2300 22,400 User Exchange 2007 Clustered Continuous Replication Storage Solution

Tested with: ESRP – Storage Version 2.1

Test Date: April 2009



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Overview

This document provides information on a Hitachi Adaptable Modular Storage 2300 Clustered Continuous Replication (CCR) storage solution for Microsoft® Exchange Server 2007, based on the Microsoft Exchange Solution Reviewed Program (ESRP) – Storage program. For more information about the contents of this document or Hitachi Data Systems' best practice recommendations for Microsoft Exchange Server 2007 storage design, see <http://www.hds.com/solutions/microsoft/exchange.html>.

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 software. For more details about the Microsoft ESRP – Storage program, see <http://www.microsoft.com/technet/prodtechnol/exchange/2007/esrp.mspx>.

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Features

The purpose of this testing was to measure the ESRP 2.1 results on a Microsoft Exchange 2007 environment with 22,400 users and eight servers in a CCR configuration. This testing used the Hitachi Adaptable Modular Storage 2300 midrange storage system. These results help answer questions about the kind of performance capabilities to expect with a large-scale Exchange deployment on the Hitachi Adaptable Modular Storage 2300.

This document details a tested configuration capable of supporting 22,400 users with a 0.384 IOPS per user profile and user mailbox size of 1024MB. A 2300 with 240 300GB 15K RPM SAS disks, 16GB of cache and eight 4Gb/s Fibre Channel paths was used for these tests. Testing used eight servers Sun Fire 4600 M2 servers with 32GB of RAM, four dual-core AMD Opteron CPUs, eight Emulex 4Gb/s Fibre Channel adapters and Windows Server 2003 R2 Enterprise x64 with Service Pack 2.

The Hitachi Adaptable Modular Storage 2300 is a medium-sized, high-performance, highly reliable midrange storage system that can scale to 240 disks while maintaining 99.999% availability. It is highly suitable for a variety of applications and host platforms and is modular in scale. With the option of in-system and cross-system replication functionality, the 2300 is fully capable of being used as the core

underlying storage platform for high-performance Exchange Server 2007 architectures.

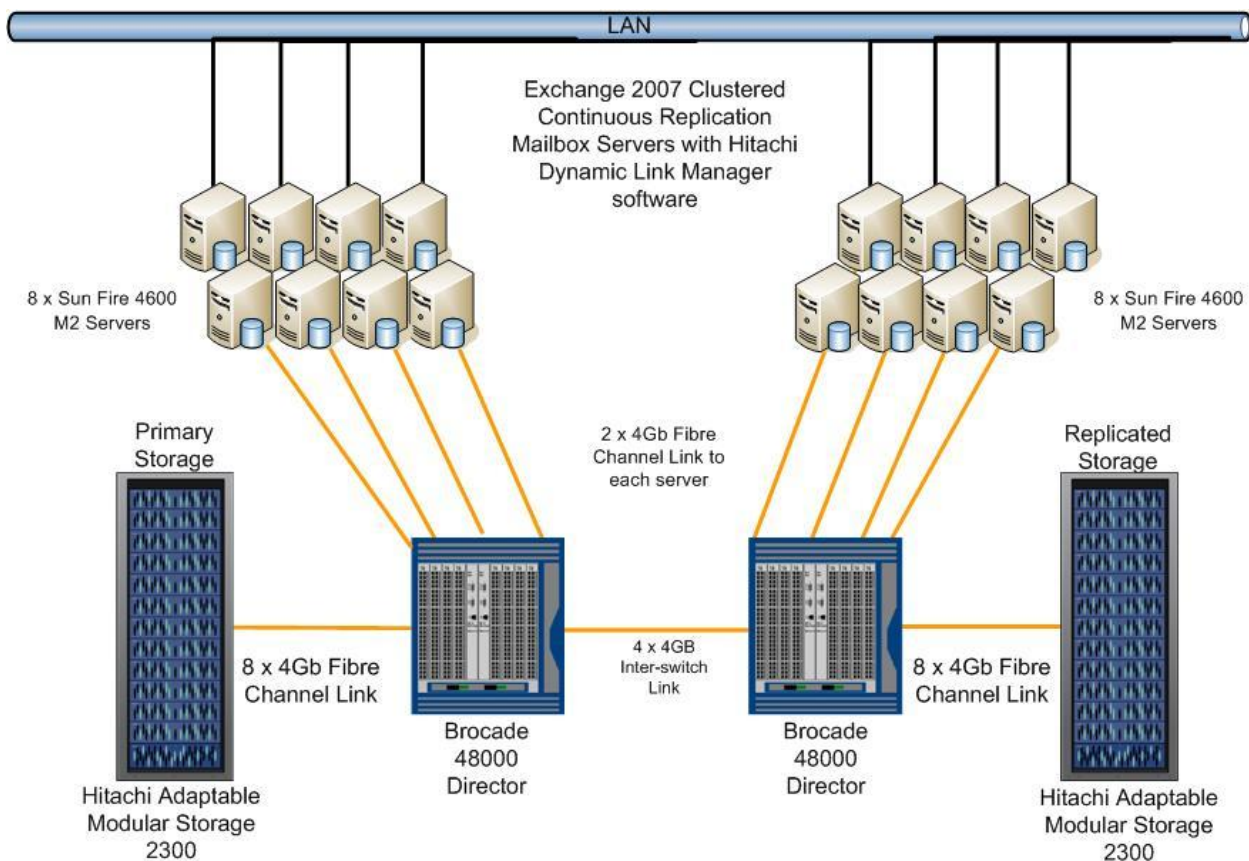
For more information about the Hitachi Adaptable Modular Storage 2000 family, see <http://www.hds.com/products/storage-systems/adaptable-modular-storage-2000-family/index.html?WT.ac=prodssams2000>.

Solution Description

Deploying Microsoft Exchange Server 2007 requires careful consideration of all aspects of the solution architecture. Host servers need to be configured so that they are robust enough to handle the required Exchange load. The storage solution must be designed to provide the necessary performance while also being reliable and easy to administer. Of course, an effective backup and recovery plan should be incorporated into the solution as well. The aim of this solution report is to provide a tested configuration that utilizes the Hitachi Adaptable Modular Storage 2300 to meet the needs of a large Exchange Server deployment.

For the targeted 22,400 user Exchange environment, a 2300 configured with 240 disks (the maximum) and eight servers was used for the primary storage. An identical set of servers using 240 disks on a separate 2300 was used for the replicated storage. Figure 1 illustrates the two systems that make up the multi-site CCR configuration.

Figure 1. Clustered Continuous Replication Configuration



This solution enables organizations to consolidate Exchange Server 2007 CCR deployments on two 2300 storage systems. Using identical hardware and software configurations ensures that primary and replicated copies do not share storage paths, disk spindles or storage controllers. This helps ensure that performance and service levels related to storage are maintained regardless of which CCR server is hosting the active storage groups.

Table 1 illustrates how the 2300's disks were organized into RAID groups for use by either databases or

logs in the primary storage. Each set of colored disks represents a RAID-1+0 (2D+2D) or RAID-1 (1D+1D) group. Each RKA is a disk enclosure with 15 dual-ported SAS disks. An identical configuration is deployed on the replicated storage for this solution.

Table 1. Adaptable Modular Storage 2300 RAID Groups Layout

<i>Drive Slot</i>	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
RKA 15	64	65	65	66	66	67	67	68	68	69	69	70	70	71	71
RKA 14	57	57	58	58	59	59	60	60	61	61	62	62	63	63	64
RKA 13	49	50	50	51	51	52	52	53	53	54	54	55	55	56	56
RKA 12	45	45	45	45	46	46	46	46	47	47	47	47	48	48	49
RKA 11	41	41	41	42	42	42	42	43	43	43	43	44	44	44	44
RKA 10	37	37	38	38	38	38	39	39	39	39	40	40	40	40	41
RKA 9	33	34	34	34	34	35	35	35	35	36	36	36	36	37	37
RKA 8	30	30	30	30	31	31	31	31	32	32	32	32	33	33	33
RKA 7	26	26	26	27	27	27	27	28	28	28	28	29	29	29	29
RKA 6	22	22	23	23	23	23	24	24	24	24	25	25	25	25	26
RKA 5	18	19	19	19	19	20	20	20	20	21	21	21	21	22	22
RKA 4	15	15	15	15	16	16	16	16	17	17	17	17	18	18	18
RKA 3	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14
RKA 2	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11
RKA 1	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7
RKA 0	0	0	0	0	1	1	1	1	2	2	2	2	3	3	3



	RAID-1+0 (2+2) for DBs
	RAID-1 (1+1) for Logs

Table 2 provides the detailed LU layout and RAID group allocation for the tested primary storage configuration for RAID groups 0 through 47. An identical configuration is deployed on the replicated storage for this solution.

Table 2. Hitachi Adaptable Modular Storage 2300 LU Layout for RAID Groups 0 – 47

<i>RAID Group</i>	<i>LU Number</i>					
0	0	1	2	3	4	5
1	6	7	8	9	10	11
2	12	13	14	15	16	17
3	18	19	20	21	22	23
4	24	25	26	27	28	29

RAID Group	LU Number					
5	30	31	32	33	34	35
6	36	37	38	39	40	41
7	42	43	44	45	46	47
8	48	49	50	51	52	53
9	54	55	56	57	58	59
10	60	61	62	63	64	65
11	66	67	68	69	70	71
12	72	73	74	75	76	77
13	78	79	80	81	82	83
14	84	85	86	87	88	89
15	90	91	92	93	94	95
16	96	97	98	99	100	101
17	102	103	104	105	106	107
18	108	109	110	111	112	113
19	114	115	116	117	118	119
20	120	121	122	123	124	125
21	126	127	128	129	130	131
22	132	133	134	135	136	137
23	138	139	140	141	142	143
24	144	145	146	147	148	149
25	150	151	152	153	154	155
26	156	157	158	159	160	161
27	162	163	164	165	166	167
28	168	169	170	171	172	173
29	174	175	176	177	178	179
30	180	181	182	183	184	185
31	186	187	188	189	190	191
32	192	193	194	195	196	197
33	198	199	200	201	202	203
34	204	205	206	207	208	209
35	210	211	212	213	214	215
36	216	217	218	219	220	221
37	222	223	224	225	226	227
38	228	229	230	231	232	233
39	234	235	236	237	238	239

RAID Group	LU Number					
40	240	241	242	243	244	245
41	246	247	248	249	250	251
42	252	253	254	255	256	257
43	258	259	260	261	262	263
44	264	265	266	267	268	269
45	270	271	272	273	274	275
46	276	277	278	279	280	281
47	282	283	284	285	286	287

Table 3 provides the detailed LU layout and RAID group allocation for the tested primary storage configuration for RAID groups 47 through 71. An identical configuration is deployed on the replicated storage for this solution.

Table 3. Hitachi Adaptable Modular Storage 2300 LU Layout for RAID Groups 47 – 71

RAID Group	LU Number											
48	288	289	290	291	292	293	294	295	296	297	298	299
49	300	301	302	303	304	305	306	307	308	309	310	311
50	312	313	314	315	316	317	318	319	320	321	322	323
51	324	325	326	327	328	329	330	331	332	333	334	335
52	336	337	338	339	340	341	342	343	344	345	346	347
53	348	349	350	351	352	353	354	355	356	357	358	359
54	360	361	362	363	364	365	366	367	368	369	370	371
55	372	373	374	375	376	377	378	379	380	381	382	383
56	384	385	386	387	388	389	390	391	392	393	394	395
57	396	397	398	399	400	401	402	403	404	405	406	407
58	408	409	410	411	412	413	414	415	416	417	418	419
59	420	421	422	423	424	425	426	427	428	429	430	431
60	432	433	434	435	436	437	438	439	440	441	442	443
61	444	445	446	447	448	449	450	451	452	453	454	455
62	456	457	458	459	460	461	462	463	464	465	466	467
63	468	469	470	471	472	473	474	475	476	477	478	479
64	480	481	482	483	484	485	486	487	488	489	490	491
65	492	493	494	495	496	497	498	499	500	501	502	503
66	504	505	506	507	508	509	510	511	512	513	514	515
67	516	517	518	519	520	521	522	523	524	525	526	527

RAID Group	LU Number											
68	528	529	530	531	532	533	534	535	536	537	538	539
69	540	541	542	543	544	545	546	547	548	549	550	551
70	552	553	554	555	556	557	558	559	560	561	562	563
71	564	565	566	567	568	569	570	571	572	573	574	575

Table 4 outlines the port layout with LU assignments for the primary storage configuration. An identical configuration is deployed on the replicated storage for this solution.

Table 4. Adaptable Modular Storage 2300 Port Layout

RAID Group	Port	Host Name	LUN	Size (GB)	RAID Level	RAID Type	Disk Spec	Description
0	0A	SUN21	0	85	RAID 1+0	2+2	300GB 15K	Storage Group 1
			1	85	RAID 1+0	2+2	300GB 15K	Storage Group 2
			2	85	RAID 1+0	2+2	300GB 15K	Storage Group 3
			3	85	RAID 1+0	2+2	300GB 15K	Storage Group 4
			4	85	RAID 1+0	2+2	300GB 15K	Storage Group 5
			5	85	RAID 1+0	2+2	300GB 15K	Storage Group 6
1	0A	SUN21	6	85	RAID 1+0	2+2	300GB 15K	Storage Group 7
			7	85	RAID 1+0	2+2	300GB 15K	Storage Group 8
			8	85	RAID 1+0	2+2	300GB 15K	Storage Group 9
			9	85	RAID 1+0	2+2	300GB 15K	Storage Group 10
			10	85	RAID 1+0	2+2	300GB 15K	Storage Group 11
			11	85	RAID 1+0	2+2	300GB 15K	Storage Group 12
2	0A	SUN21	12	85	RAID 1+0	2+2	300GB 15K	Storage Group 13
			13	85	RAID 1+0	2+2	300GB 15K	Storage Group 14
			14	85	RAID 1+0	2+2	300GB 15K	Storage Group 15
			15	85	RAID 1+0	2+2	300GB 15K	Storage Group 16
			16	85	RAID 1+0	2+2	300GB 15K	Storage Group 17
			17	85	RAID 1+0	2+2	300GB 15K	Storage Group 18
3	0A	SUN21	18	85	RAID 1+0	2+2	300GB 15K	Storage Group 19
			19	85	RAID 1+0	2+2	300GB 15K	Storage Group 20
			20	85	RAID 1+0	2+2	300GB 15K	Storage Group 21
			21	85	RAID 1+0	2+2	300GB 15K	Storage Group 22
			22	85	RAID 1+0	2+2	300GB 15K	Storage Group 23
			23	85	RAID 1+0	2+2	300GB 15K	Storage Group 24
4	0A	SUN21	24	85	RAID 1+0	2+2	300GB 15K	Storage Group 25
			25	85	RAID 1+0	2+2	300GB 15K	Storage Group 26

			26	85	RAID 1+0	2+2	300GB 15K	Storage Group 27
			27	85	RAID 1+0	2+2	300GB 15K	Storage Group 28
			28	85	RAID 1+0	2+2	300GB 15K	Storage Group 29
			29	85	RAID 1+0	2+2	300GB 15K	Storage Group 30
5	0A	SUN21	30	85	RAID 1+0	2+2	300GB 15K	Storage Group 31
			31	85	RAID 1+0	2+2	300GB 15K	Storage Group 32
			32	85	RAID 1+0	2+2	300GB 15K	Storage Group 33
			33	85	RAID 1+0	2+2	300GB 15K	Storage Group 34
			34	85	RAID 1+0	2+2	300GB 15K	Storage Group 35
			35	85	RAID 1+0	2+2	300GB 15K	Storage Group 36
6	0B	SUN22	36	85	RAID 1+0	2+2	300GB 15K	Storage Group 1
			37	85	RAID 1+0	2+2	300GB 15K	Storage Group 2
			38	85	RAID 1+0	2+2	300GB 15K	Storage Group 3
			39	85	RAID 1+0	2+2	300GB 15K	Storage Group 4
			40	85	RAID 1+0	2+2	300GB 15K	Storage Group 5
			41	85	RAID 1+0	2+2	300GB 15K	Storage Group 6
7	0B	SUN22	42	85	RAID 1+0	2+2	300GB 15K	Storage Group 7
			43	85	RAID 1+0	2+2	300GB 15K	Storage Group 8
			44	85	RAID 1+0	2+2	300GB 15K	Storage Group 9
			45	85	RAID 1+0	2+2	300GB 15K	Storage Group 10
			46	85	RAID 1+0	2+2	300GB 15K	Storage Group 11
			47	85	RAID 1+0	2+2	300GB 15K	Storage Group 12
8	0B	SUN22	48	85	RAID 1+0	2+2	300GB 15K	Storage Group 13
			49	85	RAID 1+0	2+2	300GB 15K	Storage Group 14
			50	85	RAID 1+0	2+2	300GB 15K	Storage Group 15
			51	85	RAID 1+0	2+2	300GB 15K	Storage Group 16
			52	85	RAID 1+0	2+2	300GB 15K	Storage Group 17
			53	85	RAID 1+0	2+2	300GB 15K	Storage Group 18
9	0B	SUN22	54	85	RAID 1+0	2+2	300GB 15K	Storage Group 19
			55	85	RAID 1+0	2+2	300GB 15K	Storage Group 20
			56	85	RAID 1+0	2+2	300GB 15K	Storage Group 21
			57	85	RAID 1+0	2+2	300GB 15K	Storage Group 22
			58	85	RAID 1+0	2+2	300GB 15K	Storage Group 23
			59	85	RAID 1+0	2+2	300GB 15K	Storage Group 24
10	0B	SUN22	60	85	RAID 1+0	2+2	300GB 15K	Storage Group 25
			61	85	RAID 1+0	2+2	300GB 15K	Storage Group 26
			62	85	RAID 1+0	2+2	300GB 15K	Storage Group 27
			63	85	RAID 1+0	2+2	300GB 15K	Storage Group 28

			64	85	RAID 1+0	2+2	300GB 15K	Storage Group 29
			65	85	RAID 1+0	2+2	300GB 15K	Storage Group 30
11	0B	SUN22	66	85	RAID 1+0	2+2	300GB 15K	Storage Group 31
			67	85	RAID 1+0	2+2	300GB 15K	Storage Group 32
			68	85	RAID 1+0	2+2	300GB 15K	Storage Group 33
			69	85	RAID 1+0	2+2	300GB 15K	Storage Group 34
			70	85	RAID 1+0	2+2	300GB 15K	Storage Group 35
			71	85	RAID 1+0	2+2	300GB 15K	Storage Group 36
12	0C	SUN23	72	85	RAID 1+0	2+2	300GB 15K	Storage Group 1
			73	85	RAID 1+0	2+2	300GB 15K	Storage Group 2
			74	85	RAID 1+0	2+2	300GB 15K	Storage Group 3
			75	85	RAID 1+0	2+2	300GB 15K	Storage Group 4
			76	85	RAID 1+0	2+2	300GB 15K	Storage Group 5
			77	85	RAID 1+0	2+2	300GB 15K	Storage Group 6
13	0C	SUN23	78	85	RAID 1+0	2+2	300GB 15K	Storage Group 7
			79	85	RAID 1+0	2+2	300GB 15K	Storage Group 8
			80	85	RAID 1+0	2+2	300GB 15K	Storage Group 9
			81	85	RAID 1+0	2+2	300GB 15K	Storage Group 10
			82	85	RAID 1+0	2+2	300GB 15K	Storage Group 11
			83	85	RAID 1+0	2+2	300GB 15K	Storage Group 12
14	0C	SUN23	84	85	RAID 1+0	2+2	300GB 15K	Storage Group 13
			85	85	RAID 1+0	2+2	300GB 15K	Storage Group 14
			86	85	RAID 1+0	2+2	300GB 15K	Storage Group 15
			87	85	RAID 1+0	2+2	300GB 15K	Storage Group 16
			88	85	RAID 1+0	2+2	300GB 15K	Storage Group 17
			89	85	RAID 1+0	2+2	300GB 15K	Storage Group 18
15	0C	SUN23	90	85	RAID 1+0	2+2	300GB 15K	Storage Group 19
			91	85	RAID 1+0	2+2	300GB 15K	Storage Group 20
			92	85	RAID 1+0	2+2	300GB 15K	Storage Group 21
			93	85	RAID 1+0	2+2	300GB 15K	Storage Group 22
			94	85	RAID 1+0	2+2	300GB 15K	Storage Group 23
			95	85	RAID 1+0	2+2	300GB 15K	Storage Group 24
16	0C	SUN23	96	85	RAID 1+0	2+2	300GB 15K	Storage Group 25
			97	85	RAID 1+0	2+2	300GB 15K	Storage Group 26
			98	85	RAID 1+0	2+2	300GB 15K	Storage Group 27
			99	85	RAID 1+0	2+2	300GB 15K	Storage Group 28
			100	85	RAID 1+0	2+2	300GB 15K	Storage Group 29
			101	85	RAID 1+0	2+2	300GB 15K	Storage Group 30

17	0C	SUN23	102	85	RAID 1+0	2+2	300GB 15K	Storage Group 31
			103	85	RAID 1+0	2+2	300GB 15K	Storage Group 32
			104	85	RAID 1+0	2+2	300GB 15K	Storage Group 33
			105	85	RAID 1+0	2+2	300GB 15K	Storage Group 34
			106	85	RAID 1+0	2+2	300GB 15K	Storage Group 35
			107	85	RAID 1+0	2+2	300GB 15K	Storage Group 36
18	0D	SUN24	108	85	RAID 1+0	2+2	300GB 15K	Storage Group 1
			109	85	RAID 1+0	2+2	300GB 15K	Storage Group 2
			110	85	RAID 1+0	2+2	300GB 15K	Storage Group 3
			111	85	RAID 1+0	2+2	300GB 15K	Storage Group 4
			112	85	RAID 1+0	2+2	300GB 15K	Storage Group 5
			113	85	RAID 1+0	2+2	300GB 15K	Storage Group 6
19	0D	SUN24	114	85	RAID 1+0	2+2	300GB 15K	Storage Group 7
			115	85	RAID 1+0	2+2	300GB 15K	Storage Group 8
			116	85	RAID 1+0	2+2	300GB 15K	Storage Group 9
			117	85	RAID 1+0	2+2	300GB 15K	Storage Group 10
			118	85	RAID 1+0	2+2	300GB 15K	Storage Group 11
			119	85	RAID 1+0	2+2	300GB 15K	Storage Group 12
20	0D	SUN24	120	85	RAID 1+0	2+2	300GB 15K	Storage Group 13
			121	85	RAID 1+0	2+2	300GB 15K	Storage Group 14
			122	85	RAID 1+0	2+2	300GB 15K	Storage Group 15
			123	85	RAID 1+0	2+2	300GB 15K	Storage Group 16
			124	85	RAID 1+0	2+2	300GB 15K	Storage Group 17
			125	85	RAID 1+0	2+2	300GB 15K	Storage Group 18
21	0D	SUN24	126	85	RAID 1+0	2+2	300GB 15K	Storage Group 19
			127	85	RAID 1+0	2+2	300GB 15K	Storage Group 20
			128	85	RAID 1+0	2+2	300GB 15K	Storage Group 21
			129	85	RAID 1+0	2+2	300GB 15K	Storage Group 22
			130	85	RAID 1+0	2+2	300GB 15K	Storage Group 23
			131	85	RAID 1+0	2+2	300GB 15K	Storage Group 24
22	0D	SUN24	132	85	RAID 1+0	2+2	300GB 15K	Storage Group 25
			133	85	RAID 1+0	2+2	300GB 15K	Storage Group 26
			134	85	RAID 1+0	2+2	300GB 15K	Storage Group 27
			135	85	RAID 1+0	2+2	300GB 15K	Storage Group 28
			136	85	RAID 1+0	2+2	300GB 15K	Storage Group 29
			137	85	RAID 1+0	2+2	300GB 15K	Storage Group 30
23	0D	SUN24	138	85	RAID 1+0	2+2	300GB 15K	Storage Group 31
			139	85	RAID 1+0	2+2	300GB 15K	Storage Group 32

			140	85	RAID 1+0	2+2	300GB 15K	Storage Group 33
			141	85	RAID 1+0	2+2	300GB 15K	Storage Group 34
			142	85	RAID 1+0	2+2	300GB 15K	Storage Group 35
			143	85	RAID 1+0	2+2	300GB 15K	Storage Group 36
24	1A	SUN25	144	85	RAID 1+0	2+2	300GB 15K	Storage Group 1
			145	85	RAID 1+0	2+2	300GB 15K	Storage Group 2
			146	85	RAID 1+0	2+2	300GB 15K	Storage Group 3
			147	85	RAID 1+0	2+2	300GB 15K	Storage Group 4
			148	85	RAID 1+0	2+2	300GB 15K	Storage Group 5
			149	85	RAID 1+0	2+2	300GB 15K	Storage Group 6
25	1A	SUN25	150	85	RAID 1+0	2+2	300GB 15K	Storage Group 7
			151	85	RAID 1+0	2+2	300GB 15K	Storage Group 8
			152	85	RAID 1+0	2+2	300GB 15K	Storage Group 9
			153	85	RAID 1+0	2+2	300GB 15K	Storage Group 10
			154	85	RAID 1+0	2+2	300GB 15K	Storage Group 11
			155	85	RAID 1+0	2+2	300GB 15K	Storage Group 12
26	1A	SUN25	156	85	RAID 1+0	2+2	300GB 15K	Storage Group 13
			157	85	RAID 1+0	2+2	300GB 15K	Storage Group 14
			158	85	RAID 1+0	2+2	300GB 15K	Storage Group 15
			159	85	RAID 1+0	2+2	300GB 15K	Storage Group 16
			160	85	RAID 1+0	2+2	300GB 15K	Storage Group 17
			161	85	RAID 1+0	2+2	300GB 15K	Storage Group 18
27	1A	SUN25	162	85	RAID 1+0	2+2	300GB 15K	Storage Group 19
			163	85	RAID 1+0	2+2	300GB 15K	Storage Group 20
			164	85	RAID 1+0	2+2	300GB 15K	Storage Group 21
			165	85	RAID 1+0	2+2	300GB 15K	Storage Group 22
			166	85	RAID 1+0	2+2	300GB 15K	Storage Group 23
			167	85	RAID 1+0	2+2	300GB 15K	Storage Group 24
28	1A	SUN25	168	85	RAID 1+0	2+2	300GB 15K	Storage Group 25
			169	85	RAID 1+0	2+2	300GB 15K	Storage Group 26
			170	85	RAID 1+0	2+2	300GB 15K	Storage Group 27
			171	85	RAID 1+0	2+2	300GB 15K	Storage Group 28
			172	85	RAID 1+0	2+2	300GB 15K	Storage Group 29
			173	85	RAID 1+0	2+2	300GB 15K	Storage Group 30
29	1A	SUN25	174	85	RAID 1+0	2+2	300GB 15K	Storage Group 31
			175	85	RAID 1+0	2+2	300GB 15K	Storage Group 32
			176	85	RAID 1+0	2+2	300GB 15K	Storage Group 33
			177	85	RAID 1+0	2+2	300GB 15K	Storage Group 34

			178	85	RAID 1+0	2+2	300GB 15K	Storage Group 35
			179	85	RAID 1+0	2+2	300GB 15K	Storage Group 36
30	1B	SUN26	180	85	RAID 1+0	2+2	300GB 15K	Storage Group 1
			181	85	RAID 1+0	2+2	300GB 15K	Storage Group 2
			182	85	RAID 1+0	2+2	300GB 15K	Storage Group 3
			183	85	RAID 1+0	2+2	300GB 15K	Storage Group 4
			184	85	RAID 1+0	2+2	300GB 15K	Storage Group 5
			185	85	RAID 1+0	2+2	300GB 15K	Storage Group 6
31	1B	SUN26	186	85	RAID 1+0	2+2	300GB 15K	Storage Group 7
			187	85	RAID 1+0	2+2	300GB 15K	Storage Group 8
			188	85	RAID 1+0	2+2	300GB 15K	Storage Group 9
			189	85	RAID 1+0	2+2	300GB 15K	Storage Group 10
			190	85	RAID 1+0	2+2	300GB 15K	Storage Group 11
			191	85	RAID 1+0	2+2	300GB 15K	Storage Group 12
32	1B	SUN26	192	85	RAID 1+0	2+2	300GB 15K	Storage Group 13
			193	85	RAID 1+0	2+2	300GB 15K	Storage Group 14
			194	85	RAID 1+0	2+2	300GB 15K	Storage Group 15
			195	85	RAID 1+0	2+2	300GB 15K	Storage Group 16
			196	85	RAID 1+0	2+2	300GB 15K	Storage Group 17
			197	85	RAID 1+0	2+2	300GB 15K	Storage Group 18
33	1B	SUN26	198	85	RAID 1+0	2+2	300GB 15K	Storage Group 19
			199	85	RAID 1+0	2+2	300GB 15K	Storage Group 20
			200	85	RAID 1+0	2+2	300GB 15K	Storage Group 21
			201	85	RAID 1+0	2+2	300GB 15K	Storage Group 22
			202	85	RAID 1+0	2+2	300GB 15K	Storage Group 23
			203	85	RAID 1+0	2+2	300GB 15K	Storage Group 24
34	1B	SUN26	204	85	RAID 1+0	2+2	300GB 15K	Storage Group 25
			205	85	RAID 1+0	2+2	300GB 15K	Storage Group 26
			206	85	RAID 1+0	2+2	300GB 15K	Storage Group 27
			207	85	RAID 1+0	2+2	300GB 15K	Storage Group 28
			208	85	RAID 1+0	2+2	300GB 15K	Storage Group 29
			209	85	RAID 1+0	2+2	300GB 15K	Storage Group 30
35	1B	SUN26	210	85	RAID 1+0	2+2	300GB 15K	Storage Group 31
			211	85	RAID 1+0	2+2	300GB 15K	Storage Group 32
			212	85	RAID 1+0	2+2	300GB 15K	Storage Group 33
			213	85	RAID 1+0	2+2	300GB 15K	Storage Group 34
			214	85	RAID 1+0	2+2	300GB 15K	Storage Group 35
			215	85	RAID 1+0	2+2	300GB 15K	Storage Group 36

36	1C	SUN27	216	85	RAID 1+0	2+2	300GB 15K	Storage Group 1
			217	85	RAID 1+0	2+2	300GB 15K	Storage Group 2
			218	85	RAID 1+0	2+2	300GB 15K	Storage Group 3
			219	85	RAID 1+0	2+2	300GB 15K	Storage Group 4
			220	85	RAID 1+0	2+2	300GB 15K	Storage Group 5
			221	85	RAID 1+0	2+2	300GB 15K	Storage Group 6
37	1C	SUN27	222	85	RAID 1+0	2+2	300GB 15K	Storage Group 7
			223	85	RAID 1+0	2+2	300GB 15K	Storage Group 8
			224	85	RAID 1+0	2+2	300GB 15K	Storage Group 9
			225	85	RAID 1+0	2+2	300GB 15K	Storage Group 10
			226	85	RAID 1+0	2+2	300GB 15K	Storage Group 11
			227	85	RAID 1+0	2+2	300GB 15K	Storage Group 12
38	1C	SUN27	228	85	RAID 1+0	2+2	300GB 15K	Storage Group 13
			229	85	RAID 1+0	2+2	300GB 15K	Storage Group 14
			230	85	RAID 1+0	2+2	300GB 15K	Storage Group 15
			231	85	RAID 1+0	2+2	300GB 15K	Storage Group 16
			232	85	RAID 1+0	2+2	300GB 15K	Storage Group 17
			233	85	RAID 1+0	2+2	300GB 15K	Storage Group 18
39	1C	SUN27	234	85	RAID 1+0	2+2	300GB 15K	Storage Group 19
			235	85	RAID 1+0	2+2	300GB 15K	Storage Group 20
			236	85	RAID 1+0	2+2	300GB 15K	Storage Group 21
			237	85	RAID 1+0	2+2	300GB 15K	Storage Group 22
			238	85	RAID 1+0	2+2	300GB 15K	Storage Group 23
			239	85	RAID 1+0	2+2	300GB 15K	Storage Group 24
40	1C	SUN27	240	85	RAID 1+0	2+2	300GB 15K	Storage Group 25
			241	85	RAID 1+0	2+2	300GB 15K	Storage Group 26
			242	85	RAID 1+0	2+2	300GB 15K	Storage Group 27
			243	85	RAID 1+0	2+2	300GB 15K	Storage Group 28
			244	85	RAID 1+0	2+2	300GB 15K	Storage Group 29
			245	85	RAID 1+0	2+2	300GB 15K	Storage Group 30
41	1C	SUN27	246	85	RAID 1+0	2+2	300GB 15K	Storage Group 31
			247	85	RAID 1+0	2+2	300GB 15K	Storage Group 32
			248	85	RAID 1+0	2+2	300GB 15K	Storage Group 33
			249	85	RAID 1+0	2+2	300GB 15K	Storage Group 34
			250	85	RAID 1+0	2+2	300GB 15K	Storage Group 35
			251	85	RAID 1+0	2+2	300GB 15K	Storage Group 36
42	1D	SUN28	252	85	RAID 1+0	2+2	300GB 15K	Storage Group 1
			253	85	RAID 1+0	2+2	300GB 15K	Storage Group 2

			254	85	RAID 1+0	2+2	300GB 15K	Storage Group 3
			255	85	RAID 1+0	2+2	300GB 15K	Storage Group 4
			256	85	RAID 1+0	2+2	300GB 15K	Storage Group 5
			257	85	RAID 1+0	2+2	300GB 15K	Storage Group 6
43	1D	SUN28	258	85	RAID 1+0	2+2	300GB 15K	Storage Group 7
			259	85	RAID 1+0	2+2	300GB 15K	Storage Group 8
			260	85	RAID 1+0	2+2	300GB 15K	Storage Group 9
			261	85	RAID 1+0	2+2	300GB 15K	Storage Group 10
			262	85	RAID 1+0	2+2	300GB 15K	Storage Group 11
			263	85	RAID 1+0	2+2	300GB 15K	Storage Group 12
44	1D	SUN28	264	85	RAID 1+0	2+2	300GB 15K	Storage Group 13
			265	85	RAID 1+0	2+2	300GB 15K	Storage Group 14
			266	85	RAID 1+0	2+2	300GB 15K	Storage Group 15
			267	85	RAID 1+0	2+2	300GB 15K	Storage Group 16
			268	85	RAID 1+0	2+2	300GB 15K	Storage Group 17
			269	85	RAID 1+0	2+2	300GB 15K	Storage Group 18
45	1D	SUN28	270	85	RAID 1+0	2+2	300GB 15K	Storage Group 19
			271	85	RAID 1+0	2+2	300GB 15K	Storage Group 20
			272	85	RAID 1+0	2+2	300GB 15K	Storage Group 21
			273	85	RAID 1+0	2+2	300GB 15K	Storage Group 22
			274	85	RAID 1+0	2+2	300GB 15K	Storage Group 23
			275	85	RAID 1+0	2+2	300GB 15K	Storage Group 24
46	1D	SUN28	276	85	RAID 1+0	2+2	300GB 15K	Storage Group 25
			277	85	RAID 1+0	2+2	300GB 15K	Storage Group 26
			278	85	RAID 1+0	2+2	300GB 15K	Storage Group 27
			279	85	RAID 1+0	2+2	300GB 15K	Storage Group 28
			280	85	RAID 1+0	2+2	300GB 15K	Storage Group 29
			281	85	RAID 1+0	2+2	300GB 15K	Storage Group 30
47	1D	SUN28	282	85	RAID 1+0	2+2	300GB 15K	Storage Group 31
			283	85	RAID 1+0	2+2	300GB 15K	Storage Group 32
			284	85	RAID 1+0	2+2	300GB 15K	Storage Group 33
			285	85	RAID 1+0	2+2	300GB 15K	Storage Group 34
			286	85	RAID 1+0	2+2	300GB 15K	Storage Group 35
			287	85	RAID 1+0	2+2	300GB 15K	Storage Group 36
48	0A	SUN21	288	10	RAID 1+0	1+1	300GB 15K	Log SG1
			289	10	RAID 1+0	1+1	300GB 15K	Log SG2
			290	10	RAID 1+0	1+1	300GB 15K	Log SG3
			291	10	RAID 1+0	1+1	300GB 15K	Log SG4

			292	10	RAID 1+0	1+1	300GB 15K	Log SG5
			293	10	RAID 1+0	1+1	300GB 15K	Log SG6
			294	10	RAID 1+0	1+1	300GB 15K	Log SG7
			295	10	RAID 1+0	1+1	300GB 15K	Log SG8
			296	10	RAID 1+0	1+1	300GB 15K	Log SG9
			297	10	RAID 1+0	1+1	300GB 15K	Log SG10
			298	10	RAID 1+0	1+1	300GB 15K	Log SG11
			299	10	RAID 1+0	1+1	300GB 15K	Log SG12
49	0A	SUN21	300	10	RAID 1+0	1+1	300GB 15K	Log SG13
			301	10	RAID 1+0	1+1	300GB 15K	Log SG14
			302	10	RAID 1+0	1+1	300GB 15K	Log SG15
			303	10	RAID 1+0	1+1	300GB 15K	Log SG16
			304	10	RAID 1+0	1+1	300GB 15K	Log SG17
			305	10	RAID 1+0	1+1	300GB 15K	Log SG18
			306	10	RAID 1+0	1+1	300GB 15K	Log SG19
			307	10	RAID 1+0	1+1	300GB 15K	Log SG20
			308	10	RAID 1+0	1+1	300GB 15K	Log SG21
			309	10	RAID 1+0	1+1	300GB 15K	Log SG22
			310	10	RAID 1+0	1+1	300GB 15K	Log SG23
			311	10	RAID 1+0	1+1	300GB 15K	Log SG24
50	0A	SUN21	312	10	RAID 1+0	1+1	300GB 15K	Log SG25
			313	10	RAID 1+0	1+1	300GB 15K	Log SG26
			314	10	RAID 1+0	1+1	300GB 15K	Log SG27
			315	10	RAID 1+0	1+1	300GB 15K	Log SG28
			316	10	RAID 1+0	1+1	300GB 15K	Log SG29
			317	10	RAID 1+0	1+1	300GB 15K	Log SG30
			318	10	RAID 1+0	1+1	300GB 15K	Log SG31
			319	10	RAID 1+0	1+1	300GB 15K	Log SG32
			320	10	RAID 1+0	1+1	300GB 15K	Log SG33
			321	10	RAID 1+0	1+1	300GB 15K	Log SG34
			322	10	RAID 1+0	1+1	300GB 15K	Log SG35
			323	10	RAID 1+0	1+1	300GB 15K	Log SG36
51	0B	SUN22	324	10	RAID 1+0	1+1	300GB 15K	Log SG1
			325	10	RAID 1+0	1+1	300GB 15K	Log SG2
			326	10	RAID 1+0	1+1	300GB 15K	Log SG3
			327	10	RAID 1+0	1+1	300GB 15K	Log SG4
			328	10	RAID 1+0	1+1	300GB 15K	Log SG5
			329	10	RAID 1+0	1+1	300GB 15K	Log SG6

			330	10	RAID 1+0	1+1	300GB 15K	Log SG7
			331	10	RAID 1+0	1+1	300GB 15K	Log SG8
			332	10	RAID 1+0	1+1	300GB 15K	Log SG9
			333	10	RAID 1+0	1+1	300GB 15K	Log SG10
			334	10	RAID 1+0	1+1	300GB 15K	Log SG11
			335	10	RAID 1+0	1+1	300GB 15K	Log SG12
52	0B	SUN22	336	10	RAID 1+0	1+1	300GB 15K	Log SG13
			337	10	RAID 1+0	1+1	300GB 15K	Log SG14
			338	10	RAID 1+0	1+1	300GB 15K	Log SG15
			339	10	RAID 1+0	1+1	300GB 15K	Log SG16
			340	10	RAID 1+0	1+1	300GB 15K	Log SG17
			341	10	RAID 1+0	1+1	300GB 15K	Log SG18
			342	10	RAID 1+0	1+1	300GB 15K	Log SG19
			343	10	RAID 1+0	1+1	300GB 15K	Log SG20
			344	10	RAID 1+0	1+1	300GB 15K	Log SG21
			345	10	RAID 1+0	1+1	300GB 15K	Log SG22
			346	10	RAID 1+0	1+1	300GB 15K	Log SG23
			347	10	RAID 1+0	1+1	300GB 15K	Log SG24
53	0B	SUN22	348	10	RAID 1+0	1+1	300GB 15K	Log SG25
			349	10	RAID 1+0	1+1	300GB 15K	Log SG26
			350	10	RAID 1+0	1+1	300GB 15K	Log SG27
			351	10	RAID 1+0	1+1	300GB 15K	Log SG28
			352	10	RAID 1+0	1+1	300GB 15K	Log SG29
			353	10	RAID 1+0	1+1	300GB 15K	Log SG30
			354	10	RAID 1+0	1+1	300GB 15K	Log SG31
			355	10	RAID 1+0	1+1	300GB 15K	Log SG32
			356	10	RAID 1+0	1+1	300GB 15K	Log SG33
			357	10	RAID 1+0	1+1	300GB 15K	Log SG34
			358	10	RAID 1+0	1+1	300GB 15K	Log SG35
			359	10	RAID 1+0	1+1	300GB 15K	Log SG36
54	0C	SUN23	360	10	RAID 1+0	1+1	300GB 15K	Log SG1
			361	10	RAID 1+0	1+1	300GB 15K	Log SG2
			362	10	RAID 1+0	1+1	300GB 15K	Log SG3
			363	10	RAID 1+0	1+1	300GB 15K	Log SG4
			364	10	RAID 1+0	1+1	300GB 15K	Log SG5
			365	10	RAID 1+0	1+1	300GB 15K	Log SG6
			366	10	RAID 1+0	1+1	300GB 15K	Log SG7
			367	10	RAID 1+0	1+1	300GB 15K	Log SG8

			368	10	RAID 1+0	1+1	300GB 15K	Log SG9
			369	10	RAID 1+0	1+1	300GB 15K	Log SG10
			370	10	RAID 1+0	1+1	300GB 15K	Log SG11
			371	10	RAID 1+0	1+1	300GB 15K	Log SG12
55	OC	SUN23	372	10	RAID 1+0	1+1	300GB 15K	Log SG13
			373	10	RAID 1+0	1+1	300GB 15K	Log SG14
			374	10	RAID 1+0	1+1	300GB 15K	Log SG15
			375	10	RAID 1+0	1+1	300GB 15K	Log SG16
			376	10	RAID 1+0	1+1	300GB 15K	Log SG17
			377	10	RAID 1+0	1+1	300GB 15K	Log SG18
			378	10	RAID 1+0	1+1	300GB 15K	Log SG19
			379	10	RAID 1+0	1+1	300GB 15K	Log SG20
			380	10	RAID 1+0	1+1	300GB 15K	Log SG21
			381	10	RAID 1+0	1+1	300GB 15K	Log SG22
			382	10	RAID 1+0	1+1	300GB 15K	Log SG23
			383	10	RAID 1+0	1+1	300GB 15K	Log SG24
56	OC	SUN23	384	10	RAID 1+0	1+1	300GB 15K	Log SG25
			385	10	RAID 1+0	1+1	300GB 15K	Log SG26
			386	10	RAID 1+0	1+1	300GB 15K	Log SG27
			387	10	RAID 1+0	1+1	300GB 15K	Log SG28
			388	10	RAID 1+0	1+1	300GB 15K	Log SG29
			389	10	RAID 1+0	1+1	300GB 15K	Log SG30
			390	10	RAID 1+0	1+1	300GB 15K	Log SG31
			391	10	RAID 1+0	1+1	300GB 15K	Log SG32
			392	10	RAID 1+0	1+1	300GB 15K	Log SG33
			393	10	RAID 1+0	1+1	300GB 15K	Log SG34
			394	10	RAID 1+0	1+1	300GB 15K	Log SG35
			395	10	RAID 1+0	1+1	300GB 15K	Log SG36
57	OD	SUN24	396	10	RAID 1+0	1+1	300GB 15K	Log SG1
			397	10	RAID 1+0	1+1	300GB 15K	Log SG2
			398	10	RAID 1+0	1+1	300GB 15K	Log SG3
			399	10	RAID 1+0	1+1	300GB 15K	Log SG4
			400	10	RAID 1+0	1+1	300GB 15K	Log SG5
			401	10	RAID 1+0	1+1	300GB 15K	Log SG6
			402	10	RAID 1+0	1+1	300GB 15K	Log SG7
			403	10	RAID 1+0	1+1	300GB 15K	Log SG8
			404	10	RAID 1+0	1+1	300GB 15K	Log SG9
			405	10	RAID 1+0	1+1	300GB 15K	Log SG10

			406	10	RAID 1+0	1+1	300GB 15K	Log SG11
			407	10	RAID 1+0	1+1	300GB 15K	Log SG12
58	0D	SUN24	408	10	RAID 1+0	1+1	300GB 15K	Log SG13
			409	10	RAID 1+0	1+1	300GB 15K	Log SG14
			410	10	RAID 1+0	1+1	300GB 15K	Log SG15
			411	10	RAID 1+0	1+1	300GB 15K	Log SG16
			412	10	RAID 1+0	1+1	300GB 15K	Log SG17
			413	10	RAID 1+0	1+1	300GB 15K	Log SG18
			414	10	RAID 1+0	1+1	300GB 15K	Log SG19
			415	10	RAID 1+0	1+1	300GB 15K	Log SG20
			416	10	RAID 1+0	1+1	300GB 15K	Log SG21
			417	10	RAID 1+0	1+1	300GB 15K	Log SG22
			418	10	RAID 1+0	1+1	300GB 15K	Log SG23
			419	10	RAID 1+0	1+1	300GB 15K	Log SG24
59	0D	SUN24	420	10	RAID 1+0	1+1	300GB 15K	Log SG25
			421	10	RAID 1+0	1+1	300GB 15K	Log SG26
			422	10	RAID 1+0	1+1	300GB 15K	Log SG27
			423	10	RAID 1+0	1+1	300GB 15K	Log SG28
			424	10	RAID 1+0	1+1	300GB 15K	Log SG29
			425	10	RAID 1+0	1+1	300GB 15K	Log SG30
			426	10	RAID 1+0	1+1	300GB 15K	Log SG31
			427	10	RAID 1+0	1+1	300GB 15K	Log SG32
			428	10	RAID 1+0	1+1	300GB 15K	Log SG33
			429	10	RAID 1+0	1+1	300GB 15K	Log SG34
			430	10	RAID 1+0	1+1	300GB 15K	Log SG35
			431	10	RAID 1+0	1+1	300GB 15K	Log SG36
60	1A	SUN25	432	10	RAID 1+0	1+1	300GB 15K	Log SG1
			433	10	RAID 1+0	1+1	300GB 15K	Log SG2
			434	10	RAID 1+0	1+1	300GB 15K	Log SG3
			435	10	RAID 1+0	1+1	300GB 15K	Log SG4
			436	10	RAID 1+0	1+1	300GB 15K	Log SG5
			437	10	RAID 1+0	1+1	300GB 15K	Log SG6
			438	10	RAID 1+0	1+1	300GB 15K	Log SG7
			439	10	RAID 1+0	1+1	300GB 15K	Log SG8
			440	10	RAID 1+0	1+1	300GB 15K	Log SG9
			441	10	RAID 1+0	1+1	300GB 15K	Log SG10
			442	10	RAID 1+0	1+1	300GB 15K	Log SG11
			443	10	RAID 1+0	1+1	300GB 15K	Log SG12

61	1A	SUN25	444	10	RAID 1+0	1+1	300GB 15K	Log SG13
			445	10	RAID 1+0	1+1	300GB 15K	Log SG14
			446	10	RAID 1+0	1+1	300GB 15K	Log SG15
			447	10	RAID 1+0	1+1	300GB 15K	Log SG16
			448	10	RAID 1+0	1+1	300GB 15K	Log SG17
			449	10	RAID 1+0	1+1	300GB 15K	Log SG18
			450	10	RAID 1+0	1+1	300GB 15K	Log SG19
			451	10	RAID 1+0	1+1	300GB 15K	Log SG20
			452	10	RAID 1+0	1+1	300GB 15K	Log SG21
			453	10	RAID 1+0	1+1	300GB 15K	Log SG22
			454	10	RAID 1+0	1+1	300GB 15K	Log SG23
			455	10	RAID 1+0	1+1	300GB 15K	Log SG24
62	1A	SUN25	456	10	RAID 1+0	1+1	300GB 15K	Log SG25
			457	10	RAID 1+0	1+1	300GB 15K	Log SG26
			458	10	RAID 1+0	1+1	300GB 15K	Log SG27
			459	10	RAID 1+0	1+1	300GB 15K	Log SG28
			460	10	RAID 1+0	1+1	300GB 15K	Log SG29
			461	10	RAID 1+0	1+1	300GB 15K	Log SG30
			462	10	RAID 1+0	1+1	300GB 15K	Log SG31
			463	10	RAID 1+0	1+1	300GB 15K	Log SG32
			464	10	RAID 1+0	1+1	300GB 15K	Log SG33
			465	10	RAID 1+0	1+1	300GB 15K	Log SG34
			466	10	RAID 1+0	1+1	300GB 15K	Log SG35
			467	10	RAID 1+0	1+1	300GB 15K	Log SG36
63	1B	SUN26	468	10	RAID 1+0	1+1	300GB 15K	Log SG1
			469	10	RAID 1+0	1+1	300GB 15K	Log SG2
			470	10	RAID 1+0	1+1	300GB 15K	Log SG3
			471	10	RAID 1+0	1+1	300GB 15K	Log SG4
			472	10	RAID 1+0	1+1	300GB 15K	Log SG5
			473	10	RAID 1+0	1+1	300GB 15K	Log SG6
			474	10	RAID 1+0	1+1	300GB 15K	Log SG7
			475	10	RAID 1+0	1+1	300GB 15K	Log SG8
			476	10	RAID 1+0	1+1	300GB 15K	Log SG9
			477	10	RAID 1+0	1+1	300GB 15K	Log SG10
			478	10	RAID 1+0	1+1	300GB 15K	Log SG11
			479	10	RAID 1+0	1+1	300GB 15K	Log SG12
64	1B	SUN26	480	10	RAID 1+0	1+1	300GB 15K	Log SG13
			481	10	RAID 1+0	1+1	300GB 15K	Log SG14

			482	10	RAID 1+0	1+1	300GB 15K	Log SG15
			483	10	RAID 1+0	1+1	300GB 15K	Log SG16
			484	10	RAID 1+0	1+1	300GB 15K	Log SG17
			485	10	RAID 1+0	1+1	300GB 15K	Log SG18
			486	10	RAID 1+0	1+1	300GB 15K	Log SG19
			487	10	RAID 1+0	1+1	300GB 15K	Log SG20
			488	10	RAID 1+0	1+1	300GB 15K	Log SG21
			489	10	RAID 1+0	1+1	300GB 15K	Log SG22
			490	10	RAID 1+0	1+1	300GB 15K	Log SG23
			491	10	RAID 1+0	1+1	300GB 15K	Log SG24
65	1B	SUN26	492	10	RAID 1+0	1+1	300GB 15K	Log SG25
			493	10	RAID 1+0	1+1	300GB 15K	Log SG26
			494	10	RAID 1+0	1+1	300GB 15K	Log SG27
			495	10	RAID 1+0	1+1	300GB 15K	Log SG28
			496	10	RAID 1+0	1+1	300GB 15K	Log SG29
			497	10	RAID 1+0	1+1	300GB 15K	Log SG30
			498	10	RAID 1+0	1+1	300GB 15K	Log SG31
			499	10	RAID 1+0	1+1	300GB 15K	Log SG32
			500	10	RAID 1+0	1+1	300GB 15K	Log SG33
			501	10	RAID 1+0	1+1	300GB 15K	Log SG34
			502	10	RAID 1+0	1+1	300GB 15K	Log SG35
			503	10	RAID 1+0	1+1	300GB 15K	Log SG36
66	1C	SUN27	504	10	RAID 1+0	1+1	300GB 15K	Log SG1
			505	10	RAID 1+0	1+1	300GB 15K	Log SG2
			506	10	RAID 1+0	1+1	300GB 15K	Log SG3
			507	10	RAID 1+0	1+1	300GB 15K	Log SG4
			508	10	RAID 1+0	1+1	300GB 15K	Log SG5
			509	10	RAID 1+0	1+1	300GB 15K	Log SG6
			510	10	RAID 1+0	1+1	300GB 15K	Log SG7
			511	10	RAID 1+0	1+1	300GB 15K	Log SG8
			512	10	RAID 1+0	1+1	300GB 15K	Log SG9
			513	10	RAID 1+0	1+1	300GB 15K	Log SG10
			514	10	RAID 1+0	1+1	300GB 15K	Log SG11
			515	10	RAID 1+0	1+1	300GB 15K	Log SG12
67	1C	SUN27	516	10	RAID 1+0	1+1	300GB 15K	Log SG13
			517	10	RAID 1+0	1+1	300GB 15K	Log SG14
			518	10	RAID 1+0	1+1	300GB 15K	Log SG15
			519	10	RAID 1+0	1+1	300GB 15K	Log SG16

			520	10	RAID 1+0	1+1	300GB 15K	Log SG17
			521	10	RAID 1+0	1+1	300GB 15K	Log SG18
			522	10	RAID 1+0	1+1	300GB 15K	Log SG19
			523	10	RAID 1+0	1+1	300GB 15K	Log SG20
			524	10	RAID 1+0	1+1	300GB 15K	Log SG21
			525	10	RAID 1+0	1+1	300GB 15K	Log SG22
			526	10	RAID 1+0	1+1	300GB 15K	Log SG23
			527	10	RAID 1+0	1+1	300GB 15K	Log SG24
68	1C	SUN27	528	10	RAID 1+0	1+1	300GB 15K	Log SG25
			529	10	RAID 1+0	1+1	300GB 15K	Log SG26
			530	10	RAID 1+0	1+1	300GB 15K	Log SG27
			531	10	RAID 1+0	1+1	300GB 15K	Log SG28
			532	10	RAID 1+0	1+1	300GB 15K	Log SG29
			533	10	RAID 1+0	1+1	300GB 15K	Log SG30
			534	10	RAID 1+0	1+1	300GB 15K	Log SG31
			535	10	RAID 1+0	1+1	300GB 15K	Log SG32
			536	10	RAID 1+0	1+1	300GB 15K	Log SG33
			537	10	RAID 1+0	1+1	300GB 15K	Log SG34
			538	10	RAID 1+0	1+1	300GB 15K	Log SG35
			539	10	RAID 1+0	1+1	300GB 15K	Log SG36
69	1D	SUN28	540	10	RAID 1+0	1+1	300GB 15K	Log SG1
			541	10	RAID 1+0	1+1	300GB 15K	Log SG2
			542	10	RAID 1+0	1+1	300GB 15K	Log SG3
			543	10	RAID 1+0	1+1	300GB 15K	Log SG4
			544	10	RAID 1+0	1+1	300GB 15K	Log SG5
			545	10	RAID 1+0	1+1	300GB 15K	Log SG6
			546	10	RAID 1+0	1+1	300GB 15K	Log SG7
			547	10	RAID 1+0	1+1	300GB 15K	Log SG8
			548	10	RAID 1+0	1+1	300GB 15K	Log SG9
			549	10	RAID 1+0	1+1	300GB 15K	Log SG10
			550	10	RAID 1+0	1+1	300GB 15K	Log SG11
			551	10	RAID 1+0	1+1	300GB 15K	Log SG12
70	1D	SUN28	552	10	RAID 1+0	1+1	300GB 15K	Log SG13
			553	10	RAID 1+0	1+1	300GB 15K	Log SG14
			554	10	RAID 1+0	1+1	300GB 15K	Log SG15
			555	10	RAID 1+0	1+1	300GB 15K	Log SG16
			556	10	RAID 1+0	1+1	300GB 15K	Log SG17
			557	10	RAID 1+0	1+1	300GB 15K	Log SG18

			558	10	RAID 1+0	1+1	300GB 15K	Log SG19
			559	10	RAID 1+0	1+1	300GB 15K	Log SG20
			560	10	RAID 1+0	1+1	300GB 15K	Log SG21
			561	10	RAID 1+0	1+1	300GB 15K	Log SG22
			562	10	RAID 1+0	1+1	300GB 15K	Log SG23
			563	10	RAID 1+0	1+1	300GB 15K	Log SG24
71	1D	SUN28	564	10	RAID 1+0	1+1	300GB 15K	Log SG25
			565	10	RAID 1+0	1+1	300GB 15K	Log SG26
			566	10	RAID 1+0	1+1	300GB 15K	Log SG27
			567	10	RAID 1+0	1+1	300GB 15K	Log SG28
			568	10	RAID 1+0	1+1	300GB 15K	Log SG29
			569	10	RAID 1+0	1+1	300GB 15K	Log SG30
			570	10	RAID 1+0	1+1	300GB 15K	Log SG31
			571	10	RAID 1+0	1+1	300GB 15K	Log SG32
			572	10	RAID 1+0	1+1	300GB 15K	Log SG33
			573	10	RAID 1+0	1+1	300GB 15K	Log SG34
			574	10	RAID 1+0	1+1	300GB 15K	Log SG35
			575	10	RAID 1+0	1+1	300GB 15K	Log SG36

Table 5 provides the detailed specifications for the primary storage configuration.

Table 5. Adaptable Modular Storage 2300 Configuration Details

<i>Host</i>	<i>RAID Group</i>	<i>Port</i>	<i>LU</i>	<i>Size (GB)</i>	<i>RAID Level</i>	<i>RAID Type</i>	<i>Disk Spec</i>	<i>Description</i>
SUN21	0	0A	0 - 5	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
	1	0A	6 - 11	85	RAID-1+0	2+2	300GB 15K	Storage Groups 7 – 12
	2	0A	12 - 17	85	RAID-1+0	2+2	300GB 15K	Storage Groups 13 - 18
	3	0A	18 - 23	85	RAID-1+0	2+2	300GB 15K	Storage Groups 19 -24
	4	0A	24 - 29	85	RAID 1+0	2+2	300GB 15K	Storage Groups 25 - 30
	5	0A	30 - 35	85	RAID-1+0	2+2	300GB 15K	Storage Groups 31 -36
SUN22	6	0B	36 – 41	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
	7	0B	42 – 47	85	RAID-1+0	2+2	300GB 15K	Storage Groups 7 – 12
	8	0B	48 – 53	85	RAID-1+0	2+2	300GB 15K	Storage Groups 13 - 18
	9	0B	54 – 59	85	RAID-1+0	2+2	300GB 15K	Storage Groups 19 -24
	10	0B	60 - 65	85	RAID-1+0	2+2	300GB 15K	Storage Groups 25 - 30
	11	0B	66 - 71	85	RAID-1+0	2+2	300GB 15K	Storage Groups 31 -36
SUN23	12	0C	72 – 77	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
	13	0C	78 – 83	85	RAID-1+0	2+2	300GB 15K	Storage Groups 7 - 12

	14	0C	84 – 89	85	RAID-1+0	2+2	300GB 15K	Storage Groups 13 - 18
	15	0C	90 - 95	85	RAID-1+0	2+2	300GB 15K	Storage Groups 19 -24
	16	0C	96 – 101	85	RAID-1+0	2+2	300GB 15K	Storage Groups 25 - 30
	17	0C	102-107	85	RAID-1+0	2+2	300GB 15K	Storage Groups 31 -36
SUN24	18	0D	108-113	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
	19	0D	114-119	85	RAID-1+0	2+2	300GB 15K	Storage Groups 7 – 12
	20	0D	120-125	85	RAID-1+0	2+2	300GB 15K	Storage Groups 13 - 18
	21	0D	126-131	85	RAID-1+0	2+2	300GB 15K	Storage Groups 19 -24
	22	0D	132-137	85	RAID-1+0	2+2	300GB 15K	Storage Groups 25 - 30
	23	0D	138-143	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
SUN25	24	1A	144 -149	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
	25	1A	150 - 155	85	RAID-1+0	2+2	300GB 15K	Storage Groups 7 – 12
	26	1A	156 - 161	85	RAID-1+0	2+2	300GB 15K	Storage Groups 13 - 18
	27	1A	162 – 167	85	RAID-1+0	2+2	300GB 15K	Storage Groups 19 -24
	28	1A	168 - 173	85	RAID 1+0	2+2	300GB 15K	Storage Groups 25 - 30
	29	1A	174 – 179	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
SUN26	30	1B	180 – 185	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
	31	1B	186 – 191	85	RAID-1+0	2+2	300GB 15K	Storage Groups 7 – 12
	32	1B	192 – 197	85	RAID-1+0	2+2	300GB 15K	Storage Groups 13 - 18
	33	1B	198 – 203	85	RAID-1+0	2+2	300GB 15K	Storage Groups 19 -24
	34	1B	204 – 209	85	RAID-1+0	2+2	300GB 15K	Storage Groups 25 - 30
	35	1B	210 – 215	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
SUN27	36	1C	216 – 221	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
	37	1C	222 – 227	85	RAID-1+0	2+2	300GB 15K	Storage Groups 7 – 12
	38	1C	228 – 233	85	RAID-1+0	2+2	300GB 15K	Storage Groups 13 - 18
	39	1C	234 – 239	85	RAID-1+0	2+2	300GB 15K	Storage Groups 19 -24
	40	1C	240– 245	85	RAID-1+0	2+2	300GB 15K	Storage Groups 25 - 30
	41	1C	246- 251	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
SUN28	42	1D	252 - 257	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
	43	1D	258- 263	85	RAID-1+0	2+2	300GB 15K	Storage Groups 7 – 12
	44	1D	264- 269	85	RAID-1+0	2+2	300GB 15K	Storage Groups 13 - 18
	45	1D	270-275	85	RAID-1+0	2+2	300GB 15K	Storage Groups 19 -24
	46	1D	276-281	85	RAID-1+0	2+2	300GB 15K	Storage Groups 25 - 30
	47	1D	282-287	85	RAID-1+0	2+2	300GB 15K	Storage Groups 1 - 6
SUN21	48	0A	288-299	10	RAID-1	1+1	300GB 15K	Logs SG1 – SG12
	49	0A	300-311	10	RAID-1	1+1	300GB 15K	Logs SG13 – SG24
	50	0A	312-323	10	RAID-1	1+1	300GB 15K	Logs SG25 – SG36
SUN22	51	0B	324-335	10	RAID-1	1+1	300GB 15K	Logs SG1 – SG12

	52	0B	336-347	10	RAID-1	1+1	300GB 15K	Logs SG13 – SG24
	53	0B	348-359	10	RAID-1	1+1	300GB 15K	Logs SG25 – SG36
SUN23	54	0C	360-371	10	RAID-1	1+1	300GB 15K	Logs SG1 – SG12
	55	0C	372-383	10	RAID-1	1+1	300GB 15K	Logs SG13 – SG24
	56	0C	384-395	10	RAID-1	1+1	300GB 15K	Logs SG25 – SG36
SUN24	57	0D	396-407	10	RAID-1	1+1	300GB 15K	Logs SG1 – SG12
	58	0D	408-419	10	RAID-1	1+1	300GB 15K	Logs SG13 – SG24
	59	0D	420-431	10	RAID-1	1+1	300GB 15K	Logs SG25 – SG36
SUN25	60	1A	432-443	10	RAID-1	1+1	300GB 15K	Logs SG1 – SG12
	61	1A	444-455	10	RAID-1	1+1	300GB 15K	Logs SG13 – SG24
	62	1A	456-467	10	RAID-1	1+1	300GB 15K	Logs SG25 – SG36
SUN26	63	1B	468-479	10	RAID-1	1+1	300GB 15K	Logs SG1 – SG12
	64	1B	480-491	10	RAID-1	1+1	300GB 15K	Logs SG13 – SG24
	65	1B	492-503	10	RAID-1	1+1	300GB 15K	Logs SG25 – SG36
SUN27	66	1C	504-515	10	RAID-1	1+1	300GB 15K	Logs SG1 – SG12
	67	1C	516-527	10	RAID-1	1+1	300GB 15K	Logs SG13 – SG24
	68	1C	528-539	10	RAID-1	1+1	300GB 15K	Logs SG25 – SG36
SUN28	69	1D	540-551	10	RAID-1	1+1	300GB 15K	Logs SG1 – SG12
	70	1D	552-563	10	RAID-1	1+1	300GB 15K	Logs SG13 – SG24
	71	1D	564-575	10	RAID-1	1+1	300GB 15K	Logs SG25 – SG36

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. These factors also affect server scalability:

- 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
- Client usage profiles

These factors are all beyond the scope of the ESRP – Storage program. Therefore, the number of mailboxes hosted per server as part of the tested configuration might not necessarily be viable for some customer deployments.

For more information about identifying and addressing performance bottlenecks in an Exchange system, see Microsoft's [Troubleshooting Microsoft Exchange Server Performance](#).

Targeted Customer Profile

This solution is designed for medium to large organizations that plan to consolidate their Exchange Server 2007 storage on high-performance, high-reliability storage systems. This configuration supports 22,400 Exchange users with the following specifications:

- 8 Exchange Servers
- 2,800 users on a single Exchange Server
- 0.384 IOPS per user
- 1024 MB mailbox size
- 288 storage groups
- 1 database per storage group (288 total)
- Clustered continuous replication (CCR)

Tested Deployment

The following tables summarize the testing environment.

Table 6. Simulated Exchange Configuration

Number of Exchange mailboxes simulated	22,400
Number of hosts	8
Number of mailboxes/host	2,800
Number of storage groups/host	36
Number of mailbox stores/storage group	1
Number of mailboxes/mailbox store	77.7
Number of mailbox store LUs/storage group	1
Simulated profile: I/Os per second per mailbox (IOPS, include 20% headroom)	0.384
Database LU size	85GB
Log LU size	10GB
Total database size for performance testing	22937.6GB
% storage capacity used by Exchange database**	93.70%

**Storage performance characteristics change based on the percentage utilization of the individual disks. Tests that use a small percentage of the storage (~25%) might exhibit reduced throughput if the storage capacity utilization is significantly increased beyond what was tested for this paper.

Table 7. Primary Storage Hardware

Storage type (SAN, DAS, iSCSI, NAS, iSCSI)	SAN
Storage connectivity (Fibre Channel, SAS, SATA, iSCSI)	Fibre Channel
Storage model and OS/firmware revision	1 Hitachi Adaptable Modular Storage 2300 Firmware: 0860/A-M WHQL listing: Hitachi Adaptable Modular Storage 2300
Storage cache	16GB
Number of storage controllers	2
Number of storage ports	8 4Gb/s Fibre Channel
Maximum bandwidth of storage connectivity to host	32Gb/s (8x4Gb/s HBAs)
Switch type/model/firmware revision	Brocade 5320, Fabric OS v6.1.1c
HBA model and firmware	Emulex LPe11002-M4-H, FW 2.80A4
Number of HBAs/host	1 dual-ported HBA per host
Host server type	Sun Fire 4600M2 8 Quad-Core AMD Opteron 2.29GHz CPUs 64GB memory
Total number of disks tested in solution	240
Maximum number of spindles can be hosted in the storage	240

Table 8. Primary Storage Software

HBA driver	STOR Miniport 9.1.7.16
HBA QueueTarget setting	1
HBA QueueDepth setting	254
Multipathing	Hitachi Dynamic Link Manager software v6.1
Host OS	Microsoft Windows Server 2003 R2 Enterprise x64 Edition
ESE.dll file version	08.01.0240.005
Replication solution name/version	Exchange Server 2007 CCR Service Pack 1

Table 9. Primary Storage Disk Configuration (Mailbox Store Disks)

Disk type, speed and firmware revision	SAS Disk 300GB 15K D06A
Raw capacity per disk (GB)	300GB
Number of physical disks in test	192
Total raw storage capacity (GB)	57,600GB
Disk slice size (GB)	N/A
Number of slices per LU or number of disks per LUN	4 disks per LU
RAID level	RAID-1+0 at storage level
Total formatted capacity	24,480GB
Storage capacity utilization	43%
Database capacity utilization	38%

Table 10. Primary Storage Disk Configuration (Transaction Log Disks)

Disk type, speed and firmware revision	SAS 300GB 15K D06A
Raw capacity per disk (GB)	300GB
Number of spindles in test	48
Total raw storage capacity (GB)	14,400GB
Disk slice size (GB)	N/A
Number of slices per LU or number of disks per LUN	2 disks per LU
RAID level	RAID-1 at storage level
Total formatted capacity	2,880GB

Streaming Backup

N/A

Replication

The following tables summarize the replication environment.

Table 11. Replicated Configuration

Replication mechanism	Exchange Server 2007 CCR Service Pack 1
Number of links	2
Simulated link distance	N/A
Link type	IP
Link bandwidth	GigE (1 Gbps)

Table 12. Replicated Storage Hardware

Storage type (SAN, DAS, iSCSI, NAS, iSCSI)	SAN
Storage connectivity (Fibre Channel, SAS, SATA, iSCSI)	Fibre Channel
Storage model and OS/firmware revision	1 Hitachi Adaptable Modular Storage 2300 Firmware: 0860/A-M WHQL listing: Hitachi Adaptable Modular Storage 2300
Storage cache	16GB
Number of storage controllers	2
Number of storage ports	8 4Gb/s Fibre Channel
Maximum bandwidth of storage connectivity to host	32Gb/s (8x4Gb/s HBAs)
Switch type/model/firmware revision	Brocade 5320, Fabric OS v6.1.1c
HBA model and firmware	Emulex LPe11002-M4-H, FW 2.80A4
Number of HBAs/host	1 dual-ported HBA per host
Host server type	Sun Fire 4600M2 8 Quad-Core AMD Opteron 2.29GHz CPUs 64GB memory
Total number of disks tested in solution	240
Maximum number of spindles can be hosted in the storage	240

Table 13. Replicated Storage Software

HBA driver	STOR Miniport 9.1.7.16
HBA QueueTarget setting	1
HBA QueueDepth setting	254
Multipathing	Hitachi Dynamic Link Manager software v6.1
Host OS	Microsoft Windows Server 2003 R2 Enterprise x64 Edition
ESE.dll file version	08.01.0240.005
Replication solution name/version	Exchange Server 2007 CCR Service Pack 1

Table 14. Replicated Storage Disk Configuration (Mailbox Store Disks)

Disk type, speed and firmware revision	SAS Disk 300GB 15K D06A
Raw capacity per disk (GB)	300GB
Number of physical disks in test	192
Total raw storage capacity (GB)	57,600GB
Disk slice size (GB)	N/A
Number of slices per LU or number of disks per LUN	4 disks per LU
RAID level	RAID-1+0 at storage level
Total formatted capacity	24,480GB
Storage capacity utilization	43%
Database capacity utilization	38%

Table 15. Replicated Storage Disk Configuration (Transaction Log Disks)

Disk type, speed and firmware revision	SAS 300GB 15K D06A
Raw capacity per disk (GB)	300GB
Number of spindles in test	48
Total raw storage capacity (GB)	14,400GB
Disk slice size (GB)	N/A
Number of slices per LU or number of disks per LUN	2 disks per LU
RAID level	RAID-1 at storage level
Total formatted capacity	2,880GB

Best Practices

Microsoft Exchange Server 2007 is a very disk-intensive application. It presents two distinct workload patterns to the storage, with 8KB random read/write operations to the databases, and sequential write operations of varying size (between 512 bytes up to the log buffer size) to the transaction logs. For this reason, designing an optimal storage configuration can prove challenging in practice. Based on the testing run using the ESRP framework, Hitachi Data Systems recommends these best practices to improve the performance of the Hitachi Adaptable Modular Storage 2300 running Exchange.

For more information about Exchange 2007 best practices for storage design, see <http://technet.microsoft.com/en-us/library/bb124518.aspx>.

Core Storage

1. Use Microsoft's diskpar or diskpart to create track-aligned disk partitions. For the 2300, using an offset of 64KB is optimal.
2. Keep the Exchange workload isolated from other applications. Mixing another I/O intensive application whose workload differs from Exchange can cause the performance for both applications to degrade.
3. Due to the difference in I/O patterns, isolate the Exchange database storage groups from the log groups. Create dedicated RAID groups for the databases and separate RAID groups for the logs.
4. Hitachi Data Systems recommends RAID-1+0 for the database RAID groups and RAID for the log

RAID groups. Hitachi Data Systems does not recommend LU concatenation.

5. Size storage solutions for Exchange based primarily on performance criteria. The number of disks, RAID level and percent utilization of each disk directly affect the level of achievable performance. Factor in capacity requirements only after performance is addressed.
6. Spindle size is unrelated to performance with regards to IOPS or throughput rates. Spindle size is related to the usable capacity of all of the LUs from a RAID group, which is a choice users make.
7. The number of spindles, coupled with the RAID level, determines the physical IOPS capacity of the RAID group and all of its LUs. If the disk has too few spindles, the response times grow to large values very quickly.

Backup Strategy

N/A

Test Result Summary

This section provides a high-level summary of the test data from ESRP and the link to the detailed HTML reports that are generated by ESRP testing framework.

Reliability

A number of tests in the framework check reliability spanning a 24-hour window. The goal is to verify the storage can handle high I/O load for a long period of time. Following these stress tests, both log and database files are analyzed for integrity to ensure that no database or log corruption occurs.

- No errors were reported in the event log file for the storage reliability testing
- No errors were reported for the database and log checksum process
- Backup to disk test is N/A
- Database checksum on the remote storage database is N/A

Primary Storage Performance Results

Primary storage performance testing exercises the storage with maximum sustainable Exchange type of I/O for two hours. The test shows how long it takes for the storage to respond to I/O under load. The following data is the sum of all of the logical disk I/Os and average of all the logical disks I/O latency in the two-hour test duration.

Individual Server Metrics

Individual server metrics show the sum of I/Os across storage groups and the average latency across all storage groups.

Table 16. Individual Server Metrics for Exchange Server (SUN21)

Database I/O	
Database Disk Transfers/sec	1623 IOPS
Database Disk Reads/sec	880 IOPS
Database Disk Writes/sec	743 IOPS
Average Database Disk Read Latency (ms)	10
Average Database Disk Write Latency (ms)	2
Transaction Log I/O	
Log Disk Writes/sec	609 IOPS
Average Log Disk Write Latency (ms)	<1

Table 17. Individual Server Metrics for Exchange Server (SUN22)

Database I/O	
Database Disk Transfers/sec	1616 IOPS
Database Disk Reads/sec	866 IOPS
Database Disk Writes/sec	750 IOPS
Average Database Disk Read Latency (ms)	10
Average Database Disk Write Latency (ms)	2
Transaction Log I/O	
Log Disk Writes/sec	620 IOPS
Average Log Disk Write Latency (ms)	<1

Table 18. Individual Server Metrics for Exchange Server (SUN23)

Database I/O	
Database Disk Transfers/sec	1650 IOPS
Database Disk Reads/sec	859 IOPS
Database Disk Writes/sec	791 IOPS
Average Database Disk Read Latency (ms)	10
Average Database Disk Write Latency (ms)	2
Transaction Log I/O	
Log Disk Writes/sec	671 IOPS
Average Log Disk Write Latency (ms)	<1

Table 19. Individual Server Metrics for Exchange Server (SUN24)

Database I/O	
Database Disk Transfers/sec	1605 IOPS
Database Disk Reads/sec	863 IOPS
Database Disk Writes/sec	742 IOPS
Average Database Disk Read Latency (ms)	10
Average Database Disk Write Latency (ms)	2
Transaction Log I/O	
Log Disk Writes/sec	612 IOPS
Average Log Disk Write Latency (ms)	<1

Table 20. Individual Server Metrics for Exchange Server (SUN25)

Database I/O	
Database Disk Transfers/sec	1602 IOPS
Database Disk Reads/sec	871 IOPS
Database Disk Writes/sec	731 IOPS
Average Database Disk Read Latency (ms)	10
Average Database Disk Write Latency (ms)	2
Transaction Log I/O	
Log Disk Writes/sec	596 IOPS
Average Log Disk Write Latency (ms)	<1

Table 21. Individual Server Metrics for Exchange Server (SUN26)

Database I/O	
Database Disk Transfers/sec	1615 IOPS
Database Disk Reads/sec	877 IOPS
Database Disk Writes/sec	738 IOPS
Average Database Disk Read Latency (ms)	10
Average Database Disk Write Latency (ms)	2
Transaction Log I/O	
Log Disk Writes/sec	601 IOPS
Average Log Disk Write Latency (ms)	<1

Table 22. Individual Server Metrics for Exchange Server (SUN27)

Database I/O	
Database Disk Transfers/sec	1595 IOPS
Database Disk Reads/sec	865 IOPS
Database Disk Writes/sec	730 IOPS
Average Database Disk Read Latency (ms)	10
Average Database Disk Write Latency (ms)	2
Transaction Log I/O	
Log Disk Writes/sec	597 IOPS
Average Log Disk Write Latency (ms)	<1

Table 23. Individual Server Metrics for Exchange Server (SUN28)

Database I/O	
Database Disk Transfers/sec	1603 IOPS
Database Disk Reads/sec	869 IOPS
Database Disk Writes/sec	734 IOPS
Average Database Disk Read Latency (ms)	10
Average Database Disk Write Latency (ms)	2
Transaction Log I/O	
Log Disk Writes/sec	601 IOPS
Average Log Disk Write Latency (ms)	<1

Aggregate Performance Across All Servers Metrics

The aggregate performance across all server metrics shows the sum of I/Os across all servers in the solution and the average latency across all servers in the solution.

Table 24. Aggregate Server Performance

Database I/O	
Database Disk Transfers/sec	12,909 IOPS
Database Disk Reads/sec	6950 IOPS
Database Disk Writes/sec	5959 IOPS
Average Database Disk Read Latency (ms)	10
Average Database Disk Write Latency (ms)	2
Transaction Log I/O	
Average Log Disk Writes/sec	4907 IOPS
Average Log Disk Write Latency (ms)	<1

Streaming Backup Performance

For the ESRP Version 2.1 release, only the streaming backup type is supported for testing in the framework. This section has two tests: The first measures the read I/O performance metrics by running checksums on all of the database and log files and the second measures the end-to-end performance when the databases are backed up to disks.

Database Read-only Performance

This test measured the maximum rate at which databases can be recovered. The following tables show the average rate for a single database file.

Table 25. Database Read-only Performance for Exchange Server (SUN21)

<i>MB read/sec per storage group</i>	3.6
<i>MB read/sec total</i>	131.4

Table 26. Database Read-only Performance for Exchange Server (SUN22)

<i>MB read/sec per storage group</i>	3.5
<i>MB read/sec total</i>	126.9

Table 27. Database Read-only Performance for Exchange Server (SUN23)

<i>MB read/sec per storage group</i>	3.6
<i>MB read/sec total</i>	131.7

Table 28. Database Read-only Performance for Exchange Server (SUN24)

<i>MB read/sec per storage group</i>	3.7
<i>MB read/sec total</i>	133.0

Table 29. Database Read-only Performance for Exchange Server (SUN25)

<i>MB read/sec per storage group</i>	3.7
<i>MB read/sec total</i>	131.8

Table 30. Database Read-only Performance for Exchange Server (SUN26)

<i>MB read/sec per storage group</i>	3.6
<i>MB read/sec total</i>	130.6

Table 31. Database Read-only Performance for Exchange Server (SUN27)

<i>MB read/sec per storage group</i>	3.5
<i>MB read/sec total</i>	127.0

Table 32. Database Read-only Performance for Exchange Server (SUN28)

<i>MB read/sec per storage group</i>	3.6
<i>MB read/sec total</i>	131.0

Log Read-only Performance

This test measured the maximum rate at which the log files can be played against the databases. The following tables show the average rate for 500 log files played in a single storage group. Each log file is 1MB in size.

Table 33. Log Read-only Performance for Exchange Server (SUN21)

<i>Average time to play one log file (sec)</i>	3.72
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Table 34. Log Read-only Performance for Exchange Server (SUN22)

<i>Average time to play one log file (sec)</i>	4.72
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Table 35. Log Read-only Performance for Exchange Server (SUN23)

<i>Average time to play one log file (sec)</i>	4.77
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Table 36. Log Read-only Performance for Exchange Server (SUN24)

<i>Average time to play one log file (sec)</i>	4.01
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Table 37. Log Read-only Performance for Exchange Server (SUN25)

<i>Average time to play one log file (sec)</i>	3.89
--	------

Table 38. Log Read-only Performance for Exchange Server (SUN26)

<i>Average time to play one log file (sec)</i>	4.81
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Table 39. Log Read-only Performance for Exchange Server (SUN27)

<i>Average time to play one log file (sec)</i>	4.97
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Table 40. Log Read-only Performance for Exchange Server (SUN28)

<i>Average time to play one log file (sec)</i>	4.61
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Conclusion

This document details a tested configuration capable of supporting 22,400 users in a CCR configuration with a 0.384 IOPS per user profile and user mailbox size of 1024MB. A Hitachi Adaptable Modular Storage 2300 with 240 300GB 15K RPM SAS disks, 16GB of cache and eight 4Gb/s Fibre Channel paths was used for these tests. Testing confirmed that the 2300 is capable of delivering the IOPS and capacity requirements needed to support 22,400 Exchange mailboxes configured with the specified user profile, while maintaining additional headroom to support peak throughput.

The solution outlined in this document does not include data protection components such as local or remote replication. Adding these technologies might affect performance and capacity requirements and each need to be factored into the storage design accordingly.

For additional information to assist in planning Exchange Server 2007 storage architectures for the Hitachi Adaptable Modular Storage 2000 family, see <http://www.hds.com/assets/pdf/hitachi-ams-2000-family.pdf>.

This document is developed by Hitachi Data Systems and reviewed by Microsoft Exchange Product team. The test results and data presented in this document are based on the tests introduced in the ESRP test framework. Do not quote the data directly for pre-deployment verification. It is still necessary to validate the storage design for a specific customer environment.

The ESRP program is not a benchmarking program; tests do not generate the maximum throughput for a given solution. Rather, it is focused on producing recommendations from vendors for Exchange application. Thus, do not use the data presented in this document for direct comparisons among the solutions.

Appendix A: Test Reports

This appendix contains Jetstress test results for one of the servers used in testing this storage solution. These test results are representative of the results obtained for all of the servers tested.

Performance Test Result: SUN21

Test Summary

Overall Test Result	Pass
Machine Name	SUN21
Test Description	
Test Start Time	4/5/2009 8:38:46 PM
Test End Time	4/5/2009 11:24:07 PM
Jetstress Version	08.02.0060.000
Ese Version	08.01.0240.005
Operating System	Microsoft Windows Server 2003 R2 Service Pack 2 (5.2.3790.131072)
Performance Log	C:\Project2_1GB\Performance Test\2800users\Performance_2009_4_5_20_40_1.blg C:\Project2_1GB\Performance Test\2800users\DBCchecksum_2009_4_5_23_24_7.blg

Database Sizing and Throughput

Achieved I/O per Second	1623.439
Target I/O per Second	1075.2
Initial database size	3006786502656
Final database size	3015812644864
Database files (count)	36

Jetstress System Parameters

Thread count	2 (per-storage group)
Log buffers	9000
Minimum database cache	1152.0 MB
Maximum database cache	9216.0 MB
Insert operations	40%
Delete operations	30%
Replace operations	5%
Read operations	25%
Lazy commits	55%

Disk Subsystem Performance

Logical Disk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Write
Database (C:\asgluns\sg1)	0.010	0.002	24.091	20.408	(n/a)
Database (C:\asgluns\sg2)	0.010	0.002	24.374	20.623	(n/a)
Database (C:\asgluns\sg3)	0.010	0.001	24.895	20.965	(n/a)
Database (C:\asgluns\sg4)	0.010	0.002	24.421	20.590	(n/a)
Database (C:\asgluns\sg5)	0.010	0.001	24.492	20.340	(n/a)
Database (C:\asgluns\sg6)	0.011	0.002	24.155	20.628	(n/a)
Database (C:\asgluns\sg7)	0.011	0.001	24.671	21.027	(n/a)
Database (C:\asgluns\sg8)	0.010	0.002	24.232	20.167	(n/a)
Database (C:\asgluns\sg9)	0.009	0.001	24.092	20.634	(n/a)
Database (C:\asgluns\sg10)	0.010	0.002	24.577	20.567	(n/a)
Database (C:\asgluns\sg11)	0.010	0.001	24.356	20.427	(n/a)
Database (C:\asgluns\sg12)	0.011	0.002	24.499	20.653	(n/a)
Database (C:\asgluns\sg13)	0.010	0.001	24.750	21.045	(n/a)
Database (C:\asgluns\sg14)	0.010	0.002	24.335	20.769	(n/a)
Database (C:\asgluns\sg15)	0.009	0.001	24.186	20.590	(n/a)
Database (C:\asgluns\sg16)	0.010	0.002	24.561	20.240	(n/a)
Database (C:\asgluns\sg17)	0.010	0.001	24.300	20.598	(n/a)
Database (C:\asgluns\sg18)	0.011	0.002	23.917	20.133	(n/a)
Database (C:\asgluns\sg19)	0.010	0.001	24.672	21.097	(n/a)
Database (C:\asgluns\sg20)	0.010	0.002	24.859	21.005	(n/a)
Database (C:\asgluns\sg21)	0.009	0.001	24.906	20.798	(n/a)

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Database (C:\asgluns\sg22)	0.010	0.002	24.697	20.702	(n/a)
Database (C:\asgluns\sg23)	0.010	0.001	24.145	20.272	(n/a)
Database (C:\asgluns\sg24)	0.011	0.001	24.132	20.500	(n/a)
Database (C:\asgluns\sg25)	0.010	0.002	24.427	20.910	(n/a)
Database (C:\asgluns\sg26)	0.010	0.001	24.158	20.250	(n/a)
Database (C:\asgluns\sg27)	0.010	0.002	24.355	20.710	(n/a)
Database (C:\asgluns\sg28)	0.010	0.001	24.153	20.253	(n/a)
Database (C:\asgluns\sg29)	0.011	0.002	24.766	20.581	(n/a)
Database (C:\asgluns\sg30)	0.011	0.001	24.460	20.941	(n/a)
Database (C:\asgluns\sg31)	0.011	0.002	24.955	21.078	(n/a)
Database (C:\asgluns\sg32)	0.010	0.001	24.648	21.044	(n/a)
Database (C:\asgluns\sg33)	0.010	0.002	24.668	20.582	(n/a)
Database (C:\asgluns\sg34)	0.010	0.001	24.637	20.845	(n/a)
Database (C:\asgluns\sg35)	0.010	0.002	24.053	20.179	(n/a)
Database (C:\asgluns\sg36)	0.011	0.001	24.711	20.975	(n/a)
Log (C:\alogluns\lg1)	0.000	0.000	0.000	16.665	4211.863
Log (C:\alogluns\lg2)	0.000	0.000	0.000	16.932	4330.268
Log (C:\alogluns\lg3)	0.000	0.000	0.000	17.032	4283.777
Log (C:\alogluns\lg4)	0.000	0.000	0.000	16.739	4301.613
Log (C:\alogluns\lg5)	0.000	0.000	0.000	16.818	4312.927
Log (C:\alogluns\lg6)	0.000	0.000	0.000	17.214	4310.364
Log (C:\alogluns\lg7)	0.000	0.000	0.000	17.177	4381.968
Log (C:\alogluns\lg8)	0.000	0.000	0.000	16.595	4283.391
Log (C:\alogluns\lg9)	0.000	0.000	0.000	16.963	4324.369
Log (C:\alogluns\lg10)	0.000	0.000	0.000	16.855	4210.450
Log (C:\alogluns\lg11)	0.000	0.000	0.000	16.813	4252.613
Log (C:\alogluns\lg12)	0.000	0.000	0.000	16.890	4252.958

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Log (C:\alogluns\lg13)	0.000	0.000	0.000	17.191	4308.699
Log (C:\alogluns\lg14)	0.000	0.000	0.000	16.943	4217.109
Log (C:\alogluns\lg15)	0.000	0.000	0.000	16.652	4257.289
Log (C:\alogluns\lg16)	0.000	0.000	0.000	16.471	4148.918
Log (C:\alogluns\lg17)	0.000	0.000	0.000	16.934	4275.623
Log (C:\alogluns\lg18)	0.000	0.000	0.000	16.363	4293.199
Log (C:\alogluns\lg19)	0.000	0.000	0.000	17.338	4339.368
Log (C:\alogluns\lg20)	0.000	0.000	0.000	17.313	4259.994
Log (C:\alogluns\lg21)	0.000	0.000	0.000	16.817	4301.777
Log (C:\alogluns\lg22)	0.000	0.000	0.000	17.025	4314.237
Log (C:\alogluns\lg23)	0.000	0.000	0.000	16.494	4239.890
Log (C:\alogluns\lg24)	0.000	0.000	0.000	16.958	4304.412
Log (C:\alogluns\lg25)	0.000	0.000	0.000	17.195	4275.103
Log (C:\alogluns\lg26)	0.000	0.000	0.000	16.578	4322.877
Log (C:\alogluns\lg27)	0.000	0.000	0.000	16.979	4309.789
Log (C:\alogluns\lg28)	0.000	0.000	0.000	16.715	4281.941
Log (C:\alogluns\lg29)	0.000	0.000	0.000	16.890	4245.966
Log (C:\alogluns\lg30)	0.000	0.000	0.000	17.225	4324.853
Log (C:\alogluns\lg31)	0.000	0.000	0.000	17.109	4248.508
Log (C:\alogluns\lg32)	0.000	0.000	0.000	17.316	4225.624
Log (C:\alogluns\lg33)	0.000	0.000	0.000	16.957	4241.873
Log (C:\alogluns\lg34)	0.000	0.000	0.000	16.792	4258.790
Log (C:\alogluns\lg35)	0.000	0.000	0.000	16.594	4369.919
Log (C:\alogluns\lg36)	0.000	0.000	0.000	17.195	4279.386

Host System Performance

<i>Counter</i>	<i>Average</i>	<i>Minimum</i>	<i>Maximum</i>
% Processor Time	0.731	0.455	1.046
Available MBytes	53305.418	53281.000	54205.000
Free System Page Table Entries	16729026.000	16729026.000	16729026.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	217299418.589	216694784.000	217747456.000
Pool Paged Bytes	76999874.539	76984320.000	77017088.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

4/3/2009 2:02:36 AM -- Prepare testing begins ...
4/3/2009 2:02:36 AM -- Creating C:\asgluns\sg1\Jetstress1.edb.
4/3/2009 2:02:36 AM -- Database cache settings: (minimum: 32.0 MB, maximum: 256.0 MB)
4/3/2009 2:02:36 AM -- Database flush thresholds: (start: 2.6 MB, stop: 5.1 MB)
4/3/2009 2:22:50 AM -- 60.0% of 77.8 GB complete (9496447 records inserted).
4/3/2009 2:46:53 AM -- 100.0% of 77.8 GB complete (16466030 records inserted).
4/3/2009 2:46:56 AM -- Duplicating 35 databases:
4/3/2009 10:41:32 PM -- 100.0% of 2.7 TB complete (2.7 TB duplicated).
4/3/2009 10:42:09 PM -- Attaching databases ...
4/3/2009 10:42:09 PM -- Prepare testing ends.
4/5/2009 8:38:46 PM -- Jetstress testing begins ...
4/5/2009 8:38:46 PM -- Prepare testing begins ...
4/5/2009 8:39:23 PM -- Attaching databases ...
4/5/2009 8:39:23 PM -- Prepare testing ends.
4/5/2009 8:39:23 PM -- Dispatching transactions begins ...
4/5/2009 8:39:23 PM -- Database cache settings: (minimum: 1.1 GB, maximum: 9.0 GB)
4/5/2009 8:39:23 PM -- Database flush thresholds: (start: 92.2 MB, stop: 184.3 MB)
4/5/2009 8:40:01 PM -- Database read latency thresholds: (average: 0.02 seconds/read, maximum: 0.05 seconds/read).
4/5/2009 8:40:01 PM -- Log write latency thresholds: (average: 0.01 seconds/write, maximum: 0.05 seconds/write).
4/5/2009 8:40:03 PM -- Operation mix: Sessions 2, Inserts 40%, Deletes 30%, Replaces 5%, Reads 25%, Lazy Commits 55%.
4/5/2009 8:40:03 PM -- Performance logging begins (interval: 15000 ms).
4/5/2009 8:40:03 PM -- Attaining prerequisites:
4/5/2009 9:18:34 PM -- \MSExchange Database(Jetstresswin)\Database Cache Size, Last: 8698683000.0 (lower bound: 8697308000.0, upper bound: none)
4/5/2009 11:18:36 PM -- Performance logging ends.
4/5/2009 11:23:59 PM -- JetInterop batch transaction stats: 7699, 7756, 7914, 7627, 7840, 7806, 7886, 7629, 7773, 7725, 7738, 7687, 7792, 7746, 7663, 7695, 7639, 7593, 7805, 7886, 7795, 7824, 7626, 7776, 7853, 7620, 7718, 7642, 7837, 7786, 7805, 7803, 7827, 7806, 7663, and 7817.
4/5/2009 11:23:59 PM -- Dispatching transactions ends.
4/5/2009 11:23:59 PM -- Shutting down databases ...
4/5/2009 11:24:07 PM -- Instance4252.1 (complete), Instance4252.2 (complete), Instance4252.3 (complete), Instance4252.4 (complete), Instance4252.5 (complete), Instance4252.6 (complete), Instance4252.7 (complete), Instance4252.8 (complete), Instance4252.9 (complete), Instance4252.10 (complete), Instance4252.11 (complete), Instance4252.12 (complete), Instance4252.13 (complete), Instance4252.14 (complete), Instance4252.15 (complete), Instance4252.16 (complete), Instance4252.17 (complete), Instance4252.18 (complete), Instance4252.19 (complete), Instance4252.20 (complete), Instance4252.21 (complete), Instance4252.22 (complete), Instance4252.23 (complete), Instance4252.24 (complete), Instance4252.25 (complete), Instance4252.26 (complete), Instance4252.27 (complete), Instance4252.28 (complete), Instance4252.29 (complete), Instance4252.30 (complete), Instance4252.31 (complete), Instance4252.32 (complete), Instance4252.33 (complete), Instance4252.34 (complete), Instance4252.35 (complete), and Instance4252.36 (complete)
4/5/2009 11:24:08 PM -- Performance logging begins (interval: 30000 ms).
4/5/2009 11:24:08 PM -- verifying database checksums ...
4/6/2009 4:42:03 AM -- C:\asgluns\sg1 (100% processed), C:\asgluns\sg2 (100% processed), C:\asgluns\sg3 (100% processed), C:\asgluns\sg4 (100% processed), C:\asgluns\sg5 (100% processed), C:\asgluns\sg6 (100% processed), C:\asgluns\sg7 (100% processed), C:\asgluns\sg8 (100% processed), C:\asgluns\sg9 (100% processed), C:\asgluns\sg10 (100% processed), C:\asgluns\sg11 (100% processed), C:\asgluns\sg12 (100% processed), C:\asgluns\sg13 (100% processed), C:\asgluns\sg14 (100% processed), C:\asgluns\sg15 (100% processed), C:\asgluns\sg16 (100% processed), C:\asgluns\sg17 (100% processed), C:\asgluns\sg18 (100% processed),

C:\asgluns\sg19 (100% processed), C:\asgluns\sg20 (100% processed),
C:\asgluns\sg21 (100% processed), C:\asgluns\sg22 (100% processed),
C:\asgluns\sg23 (100% processed), C:\asgluns\sg24 (100% processed),
C:\asgluns\sg25 (100% processed), C:\asgluns\sg26 (100% processed),
C:\asgluns\sg27 (100% processed), C:\asgluns\sg28 (100% processed),
C:\asgluns\sg29 (100% processed), C:\asgluns\sg30 (100% processed),
C:\asgluns\sg31 (100% processed), C:\asgluns\sg32 (100% processed),
C:\asgluns\sg33 (100% processed), C:\asgluns\sg34 (100% processed),
C:\asgluns\sg35 (100% processed), and C:\asgluns\sg36 (100% processed)
4/6/2009 4:42:04 AM -- Performance logging ends.
4/6/2009 4:42:04 AM -- C:\Project2_1GB\Performance
Test\2800users\DBChecksum_2009_4_5_23_24_7.blg has 635 samples.
4/6/2009 4:49:36 AM -- C:\Project2_1GB\Performance
Test\2800users\DBChecksum_2009_4_5_23_24_7.html is saved.
4/6/2009 4:49:36 AM -- Verifying log checksums ...
4/6/2009 4:50:33 AM -- C:\alogluns\lg1 (2 logs passed), C:\alogluns\lg2 (2
logs passed), C:\alogluns\lg3 (2 logs passed), C:\alogluns\lg4 (2 logs
passed), C:\alogluns\lg5 (2 logs passed), C:\alogluns\lg6 (2 logs passed),
C:\alogluns\lg7 (2 logs passed), C:\alogluns\lg8 (2 logs passed),
C:\alogluns\lg9 (2 logs passed), C:\alogluns\lg10 (2 logs passed),
C:\alogluns\lg11 (2 logs passed), C:\alogluns\lg12 (2 logs passed),
C:\alogluns\lg13 (2 logs passed), C:\alogluns\lg14 (2 logs passed),
C:\alogluns\lg15 (2 logs passed), C:\alogluns\lg16 (2 logs passed),
C:\alogluns\lg17 (2 logs passed), C:\alogluns\lg18 (2 logs passed),
C:\alogluns\lg19 (2 logs passed), C:\alogluns\lg20 (2 logs passed),
C:\alogluns\lg21 (2 logs passed), C:\alogluns\lg22 (2 logs passed),
C:\alogluns\lg23 (2 logs passed), C:\alogluns\lg24 (2 logs passed),
C:\alogluns\lg25 (2 logs passed), C:\alogluns\lg26 (2 logs passed),
C:\alogluns\lg27 (2 logs passed), C:\alogluns\lg28 (2 logs passed),
C:\alogluns\lg29 (2 logs passed), C:\alogluns\lg30 (2 logs passed),
C:\alogluns\lg31 (2 logs passed), C:\alogluns\lg32 (2 logs passed),
C:\alogluns\lg33 (2 logs passed), C:\alogluns\lg34 (2 logs passed),
C:\alogluns\lg35 (2 logs passed), and C:\alogluns\lg36 (2 logs passed)
4/6/2009 4:50:33 AM -- C:\Project2_1GB\Performance
Test\2800users\Performance_2009_4_5_20_40_1.blg has 632 samples.
4/6/2009 4:50:33 AM -- Creating test report ...
4/6/2009 4:51:32 AM -- Volume C:\asgluns\sg1 has 0.0102 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg2 has 0.0101 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg3 has 0.0098 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg4 has 0.0097 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg5 has 0.0103 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg6 has 0.0108 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg7 has 0.0106 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg8 has 0.0101 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg9 has 0.0094 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg10 has 0.0099 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg11 has 0.0100 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg12 has 0.0110 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg13 has 0.0104 for Avg. Disk
sec/Read.
4/6/2009 4:51:32 AM -- volume C:\asgluns\sg14 has 0.0098 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg15 has 0.0094 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg16 has 0.0099 for Avg. Disk

```

sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg17 has 0.0100 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg18 has 0.0109 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg19 has 0.0101 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg20 has 0.0104 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg21 has 0.0094 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg22 has 0.0099 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg23 has 0.0100 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg24 has 0.0106 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg25 has 0.0105 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg26 has 0.0097 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg27 has 0.0098 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg28 has 0.0097 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg29 has 0.0106 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg30 has 0.0109 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg31 has 0.0109 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg32 has 0.0097 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg33 has 0.0101 for Avg. Disk
sec/Read.
4/6/2009 4:51:33 AM -- volume C:\asgluns\sg34 has 0.0098 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\asgluns\sg35 has 0.0102 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\asgluns\sg36 has 0.0110 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg1 has 0.0003 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg1 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg2 has 0.0005 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg2 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg3 has 0.0003 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg3 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg4 has 0.0005 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg4 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg5 has 0.0003 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg5 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg6 has 0.0005 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg6 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg7 has 0.0003 for Avg. Disk
sec/write.

```



```

sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg24 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg25 has 0.0005 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg25 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg26 has 0.0003 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg26 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg27 has 0.0005 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg27 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg28 has 0.0003 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg28 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg29 has 0.0005 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg29 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg30 has 0.0003 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg30 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg31 has 0.0005 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg31 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg32 has 0.0003 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg32 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg33 has 0.0005 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg33 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg34 has 0.0003 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg34 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg35 has 0.0005 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg35 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg36 has 0.0003 for Avg. Disk
sec/write.
4/6/2009 4:51:34 AM -- volume C:\alogluns\lg36 has 0.0000 for Avg. Disk
sec/Read.
4/6/2009 4:51:34 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
4/6/2009 4:51:34 AM -- Test has 0 Database Page Fault Stalls/sec samples
higher than 0.
4/6/2009 4:51:34 AM -- C:\Project2_1GB\Performance
Test\2800users\Performance_2009_4_5_20_40_1.xml has 478 samples queried.

```

Performance Test Database Checksums Result: SUN21

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page no pages	File length / seconds taken
----------	------------	-----------	-------------------	---------------------	-----------------------------

<i>Database</i>	<i>Seen pages</i>	<i>Bad pages</i>	<i>Correctable pages</i>	<i>Wrong page no pages</i>	<i>File length / seconds taken</i>
C:\asgluns\sg1\Jetstress1.edb	10225746	0	0	0	79888 MBytes / 18482 seconds
C:\asgluns\sg2\Jetstress1.edb	10227026	0	0	0	79898 MBytes / 18063 seconds
C:\asgluns\sg3\Jetstress1.edb	10226514	0	0	0	79894 MBytes / 19074 seconds
C:\asgluns\sg4\Jetstress1.edb	10226002	0	0	0	79890 MBytes / 17753 seconds
C:\asgluns\sg5\Jetstress1.edb	10226770	0	0	0	79896 MBytes / 18695 seconds
C:\asgluns\sg6\Jetstress1.edb	10227794	0	0	0	79904 MBytes / 17634 seconds
C:\asgluns\sg7\Jetstress1.edb	10227026	0	0	0	79898 MBytes / 17830 seconds
C:\asgluns\sg8\Jetstress1.edb	10225234	0	0	0	79884 MBytes / 17845 seconds
C:\asgluns\sg9\Jetstress1.edb	10226514	0	0	0	79894 MBytes / 17525 seconds
C:\asgluns\sg10\Jetstress1.edb	10225746	0	0	0	79888 MBytes / 16781 seconds
C:\asgluns\sg11\Jetstress1.edb	10225746	0	0	0	79888 MBytes / 16472 seconds
C:\asgluns\sg12\Jetstress1.edb	10225746	0	0	0	79888 MBytes / 15999 seconds
C:\asgluns\sg13\Jetstress1.edb	10225746	0	0	0	79888 MBytes / 15865 seconds
C:\asgluns\sg14\Jetstress1.edb	10226258	0	0	0	79892 MBytes / 14723 seconds
C:\asgluns\sg15\Jetstress1.edb	10225746	0	0	0	79888 MBytes / 14934 seconds
C:\asgluns\sg16\Jetstress1.edb	10224466	0	0	0	79878 MBytes / 14568 seconds
C:\asgluns\sg17\Jetstress1.edb	10225490	0	0	0	79886 MBytes / 15018 seconds
C:\asgluns\sg18\Jetstress1.edb	10225234	0	0	0	79884 MBytes / 13910 seconds
C:\asgluns\sg19\Jetstress1.edb	10226770	0	0	0	79896 MBytes / 13108 seconds
C:\asgluns\sg20\Jetstress1.edb	10226002	0	0	0	79890 MBytes / 14103 seconds
C:\asgluns\sg21\Jetstress1.edb	10226002	0	0	0	79890 MBytes / 12806 seconds
C:\asgluns\sg22\Jetstress1.edb	10226770	0	0	0	79896 MBytes / 13997 seconds

<i>Database</i>	<i>Seen pages</i>	<i>Bad pages</i>	<i>Correctable pages</i>	<i>Wrong page no pages</i>	<i>File length / seconds taken</i>
C:\asgluns\sg23\Jetstress1.edb	10225490	0	0	0	79886 MBytes / 12545 seconds
C:\asgluns\sg24\Jetstress1.edb	10226002	0	0	0	79890 MBytes / 12549 seconds
C:\asgluns\sg25\Jetstress1.edb	10226514	0	0	0	79894 MBytes / 11544 seconds
C:\asgluns\sg26\Jetstress1.edb	10225746	0	0	0	79888 MBytes / 11819 seconds
C:\asgluns\sg27\Jetstress1.edb	10226514	0	0	0	79894 MBytes / 11497 seconds
C:\asgluns\sg28\Jetstress1.edb	10225490	0	0	0	79886 MBytes / 11793 seconds
C:\asgluns\sg29\Jetstress1.edb	10226514	0	0	0	79894 MBytes / 11509 seconds
C:\asgluns\sg30\Jetstress1.edb	10226770	0	0	0	79896 MBytes / 11801 seconds
C:\asgluns\sg31\Jetstress1.edb	10226514	0	0	0	79894 MBytes / 11511 seconds
C:\asgluns\sg32\Jetstress1.edb	10226514	0	0	0	79894 MBytes / 11788 seconds
C:\asgluns\sg33\Jetstress1.edb	10226002	0	0	0	79890 MBytes / 11473 seconds
C:\asgluns\sg34\Jetstress1.edb	10225490	0	0	0	79886 MBytes / 11776 seconds
C:\asgluns\sg35\Jetstress1.edb	10226002	0	0	0	79890 MBytes / 11523 seconds
C:\asgluns\sg36\Jetstress1.edb	10227282	0	0	0	79900 MBytes / 11862 seconds
(Sum)	368141192	0	0	0	2876103 MBytes / 19075 seconds

Disk Subsystem Performance of Checksum

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>
C:\asgluns\sg1	0.344	0.001	69.137	0.000
C:\asgluns\sg2	0.346	0.001	70.643	0.000
C:\asgluns\sg3	0.371	0.001	66.944	0.000
C:\asgluns\sg4	0.313	0.000	71.882	0.000
C:\asgluns\sg5	0.337	0.001	68.210	0.000
C:\asgluns\sg6	0.284	0.000	72.438	0.000
C:\asgluns\sg7	0.292	0.000	71.684	0.000
C:\asgluns\sg8	0.267	0.001	71.531	0.000
C:\asgluns\sg9	0.277	0.000	72.750	0.000

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>
C:\asgluns\sg10	0.239	0.001	76.192	0.000
C:\asgluns\sg11	0.231	0.000	77.394	0.000
C:\asgluns\sg12	0.215	0.000	79.823	0.000
C:\asgluns\sg13	0.210	0.000	80.507	0.000
C:\asgluns\sg14	0.185	0.001	86.823	0.000
C:\asgluns\sg15	0.190	0.000	85.515	0.000
C:\asgluns\sg16	0.183	0.000	87.571	0.000
C:\asgluns\sg17	0.191	0.000	85.016	0.000
C:\asgluns\sg18	0.172	0.000	91.732	0.000
C:\asgluns\sg19	0.165	0.001	97.519	0.000
C:\asgluns\sg20	0.174	0.001	90.683	0.000
C:\asgluns\sg21	0.162	0.000	99.832	0.000
C:\asgluns\sg22	0.172	0.000	91.261	0.000
C:\asgluns\sg23	0.158	0.000	101.734	0.000
C:\asgluns\sg24	0.158	0.000	101.855	0.000
C:\asgluns\sg25	0.142	0.000	110.410	0.000
C:\asgluns\sg26	0.146	0.000	107.683	0.000
C:\asgluns\sg27	0.141	0.000	111.299	0.000
C:\asgluns\sg28	0.144	0.000	108.523	0.000
C:\asgluns\sg29	0.142	0.000	110.934	0.000
C:\asgluns\sg30	0.145	0.000	108.403	0.000
C:\asgluns\sg31	0.141	0.000	111.210	0.000
C:\asgluns\sg32	0.145	0.000	108.558	0.000
C:\asgluns\sg33	0.141	0.000	111.320	0.000
C:\asgluns\sg34	0.145	0.000	108.360	0.000
C:\asgluns\sg35	0.143	0.000	110.618	0.000
C:\asgluns\sg36	0.147	0.000	107.428	0.000

Memory System Performance of Checksum

Counter	Average	Minimum	Maximum
% Processor Time	1.543	0.091	2.147
Available MBytes	63066.477	62880.000	63097.000
Free System Page Table Entries	16727200.929	16727066.000	16728256.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	216606736.126	216596480.000	216670208.000
Pool Paged Bytes	75534116.687	75309056.000	75563008.000

Test Log

4/3/2009 2:02:36 AM -- Prepare testing begins ...
4/3/2009 2:02:36 AM -- Creating C:\asgluns\sg1\Jetstress1.edb.
4/3/2009 2:02:36 AM -- Database cache settings: (minimum: 32.0 MB, maximum: 256.0 MB)
4/3/2009 2:02:36 AM -- Database flush thresholds: (start: 2.6 MB, stop: 5.1 MB)
4/3/2009 2:22:50 AM -- 60.0% of 77.8 GB complete (9496447 records inserted).
4/3/2009 2:46:53 AM -- 100.0% of 77.8 GB complete (16466030 records inserted).
4/3/2009 2:46:56 AM -- Duplicating 35 databases:
4/3/2009 10:41:32 PM -- 100.0% of 2.7 TB complete (2.7 TB duplicated).
4/3/2009 10:42:09 PM -- Attaching databases ...
4/3/2009 10:42:09 PM -- Prepare testing ends.
4/5/2009 8:38:46 PM -- Jetstress testing begins ...
4/5/2009 8:38:46 PM -- Prepare testing begins ...
4/5/2009 8:39:23 PM -- Attaching databases ...
4/5/2009 8:39:23 PM -- Prepare testing ends.
4/5/2009 8:39:23 PM -- Dispatching transactions begins ...
4/5/2009 8:39:23 PM -- Database cache settings: (minimum: 1.1 GB, maximum: 9.0 GB)
4/5/2009 8:39:23 PM -- Database flush thresholds: (start: 92.2 MB, stop: 184.3 MB)
4/5/2009 8:40:01 PM -- Database read latency thresholds: (average: 0.02 seconds/read, maximum: 0.05 seconds/read).
4/5/2009 8:40:01 PM -- Log write latency thresholds: (average: 0.01 seconds/write, maximum: 0.05 seconds/write).
4/5/2009 8:40:03 PM -- Operation mix: Sessions 2, Inserts 40%, Deletes 30%, Replaces 5%, Reads 25%, Lazy Commits 55%.
4/5/2009 8:40:03 PM -- Performance logging begins (interval: 15000 ms).
4/5/2009 8:40:03 PM -- Attaining prerequisites:
4/5/2009 9:18:34 PM -- \MSExchange Database(Jetstresswin)\Database Cache Size, Last: 8698683000.0 (lower bound: 8697308000.0, upper bound: none)
4/5/2009 11:18:36 PM -- Performance logging ends.
4/5/2009 11:23:59 PM -- JetInterop batch transaction stats: 7699, 7756, 7914, 7627, 7840, 7806, 7886, 7629, 7773, 7725, 7738, 7687, 7792, 7746, 7663, 7695, 7639, 7593, 7805, 7886, 7795, 7824, 7626, 7776, 7853, 7620, 7718, 7642, 7837, 7786, 7805, 7803, 7827, 7806, 7663, and 7817.
4/5/2009 11:23:59 PM -- Dispatching transactions ends.
4/5/2009 11:23:59 PM -- Shutting down databases ...
4/5/2009 11:24:07 PM -- Instance4252.1 (complete), Instance4252.2 (complete), Instance4252.3 (complete), Instance4252.4 (complete), Instance4252.5 (complete), Instance4252.6 (complete), Instance4252.7 (complete), Instance4252.8 (complete), Instance4252.9 (complete), Instance4252.10 (complete), Instance4252.11 (complete), Instance4252.12 (complete), Instance4252.13 (complete), Instance4252.14 (complete), Instance4252.15 (complete), Instance4252.16 (complete), Instance4252.17 (complete), Instance4252.18 (complete), Instance4252.19 (complete), Instance4252.20 (complete), Instance4252.21 (complete), Instance4252.22 (complete), Instance4252.23 (complete), Instance4252.24 (complete), Instance4252.25

(complete), Instance4252.26 (complete), Instance4252.27 (complete), Instance4252.28 (complete), Instance4252.29 (complete), Instance4252.30 (complete), Instance4252.31 (complete), Instance4252.32 (complete), Instance4252.33 (complete), Instance4252.34 (complete), Instance4252.35 (complete), and Instance4252.36 (complete)
 4/5/2009 11:24:08 PM -- Performance logging begins (interval: 30000 ms).
 4/5/2009 11:24:08 PM -- Verifying database checksums ...
 4/6/2009 4:42:03 AM -- C:\asgluns\sg1 (100% processed), C:\asgluns\sg2 (100% processed), C:\asgluns\sg3 (100% processed), C:\asgluns\sg4 (100% processed), C:\asgluns\sg5 (100% processed), C:\asgluns\sg6 (100% processed), C:\asgluns\sg7 (100% processed), C:\asgluns\sg8 (100% processed), C:\asgluns\sg9 (100% processed), C:\asgluns\sg10 (100% processed), C:\asgluns\sg11 (100% processed), C:\asgluns\sg12 (100% processed), C:\asgluns\sg13 (100% processed), C:\asgluns\sg14 (100% processed), C:\asgluns\sg15 (100% processed), C:\asgluns\sg16 (100% processed), C:\asgluns\sg17 (100% processed), C:\asgluns\sg18 (100% processed), C:\asgluns\sg19 (100% processed), C:\asgluns\sg20 (100% processed), C:\asgluns\sg21 (100% processed), C:\asgluns\sg22 (100% processed), C:\asgluns\sg23 (100% processed), C:\asgluns\sg24 (100% processed), C:\asgluns\sg25 (100% processed), C:\asgluns\sg26 (100% processed), C:\asgluns\sg27 (100% processed), C:\asgluns\sg28 (100% processed), C:\asgluns\sg29 (100% processed), C:\asgluns\sg30 (100% processed), C:\asgluns\sg31 (100% processed), C:\asgluns\sg32 (100% processed), C:\asgluns\sg33 (100% processed), C:\asgluns\sg34 (100% processed), C:\asgluns\sg35 (100% processed), and C:\asgluns\sg36 (100% processed)
 4/6/2009 4:42:04 AM -- Performance logging ends.
 4/6/2009 4:42:04 AM -- C:\Project2_1GB\Performance Test\2800users\DBChecksum_2009_4_5_23_24_7.blg has 635 samples.

Stress Test Database Performance Result: SUN21

Test Summary

Overall Test Result Pass

Machine Name SUN21

Test Description

Test Start Time 4/6/2009 9:25:12 PM

Test End Time 4/7/2009 10:05:59 PM

Jetstress Version 08.02.0060.000

Ese Version 08.01.0240.005

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

Performance Log C:\Project2_1GB\Stress Test\2800users\Stress_2009_4_6_21_26_27.blg
 C:\Project2_1GB\Stress Test\2800users\DBChecksum_2009_4_7_22_5_59.blg

Database Sizing and Throughput

Achieved I/O per Second	1586.152
Target I/O per Second	1075.2
Initial database size	3015812644864
Final database size	3088327966720
Database files (count)	36

Jetstress System Parameters

Thread count	2 (per-storage group)
Log buffers	9000
Minimum database cache	1152.0 MB
Maximum database cache	9216.0 MB
Insert operations	40%
Delete operations	30%
Replace operations	5%
Read operations	25%
Lazy commits	55%

Disk Subsystem Performance

Logical Disk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Write
Database (C:\asgluns\sg1)	0.010	0.002	24.321	19.456	(n/a)
Database (C:\asgluns\sg2)	0.010	0.002	24.430	19.641	(n/a)
Database (C:\asgluns\sg3)	0.010	0.001	24.288	19.469	(n/a)
Database (C:\asgluns\sg4)	0.010	0.002	24.480	19.695	(n/a)
Database (C:\asgluns\sg5)	0.010	0.001	24.331	19.549	(n/a)
Database (C:\asgluns\sg6)	0.011	0.002	24.569	19.691	(n/a)

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Database (C:\asgluns\sg7)	0.010	0.001	24.567	19.675	(n/a)
Database (C:\asgluns\sg8)	0.010	0.002	24.350	19.586	(n/a)
Database (C:\asgluns\sg9)	0.009	0.001	24.513	19.773	(n/a)
Database (C:\asgluns\sg10)	0.010	0.002	24.282	19.537	(n/a)
Database (C:\asgluns\sg11)	0.010	0.001	24.520	19.714	(n/a)
Database (C:\asgluns\sg12)	0.011	0.002	24.556	19.739	(n/a)
Database (C:\asgluns\sg13)	0.010	0.001	24.331	19.429	(n/a)
Database (C:\asgluns\sg14)	0.010	0.002	24.456	19.677	(n/a)
Database (C:\asgluns\sg15)	0.009	0.001	24.449	19.673	(n/a)
Database (C:\asgluns\sg16)	0.010	0.002	24.573	19.821	(n/a)
Database (C:\asgluns\sg17)	0.010	0.001	24.305	19.577	(n/a)
Database (C:\asgluns\sg18)	0.011	0.002	24.356	19.501	(n/a)
Database (C:\asgluns\sg19)	0.010	0.001	24.434	19.669	(n/a)
Database (C:\asgluns\sg20)	0.010	0.002	24.432	19.615	(n/a)
Database (C:\asgluns\sg21)	0.009	0.001	24.470	19.668	(n/a)
Database (C:\asgluns\sg22)	0.010	0.002	24.393	19.635	(n/a)
Database (C:\asgluns\sg23)	0.010	0.001	24.482	19.664	(n/a)
Database (C:\asgluns\sg24)	0.010	0.001	24.459	19.695	(n/a)

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Database (C:\asgluns\sg25)	0.010	0.002	24.517	19.713	(n/a)
Database (C:\asgluns\sg26)	0.010	0.001	24.357	19.659	(n/a)
Database (C:\asgluns\sg27)	0.010	0.002	24.385	19.541	(n/a)
Database (C:\asgluns\sg28)	0.009	0.001	24.349	19.608	(n/a)
Database (C:\asgluns\sg29)	0.010	0.002	24.451	19.704	(n/a)
Database (C:\asgluns\sg30)	0.011	0.001	24.468	19.662	(n/a)
Database (C:\asgluns\sg31)	0.010	0.002	24.627	19.861	(n/a)
Database (C:\asgluns\sg32)	0.010	0.001	24.367	19.592	(n/a)
Database (C:\asgluns\sg33)	0.010	0.002	24.253	19.518	(n/a)
Database (C:\asgluns\sg34)	0.009	0.001	24.370	19.628	(n/a)
Database (C:\asgluns\sg35)	0.010	0.002	24.280	19.679	(n/a)
Database (C:\asgluns\sg36)	0.011	0.001	24.512	19.554	(n/a)
Log (C:\alogluns\lg1)	0.000	0.000	0.000	16.062	4159.663
Log (C:\alogluns\lg2)	0.000	0.000	0.000	16.039	4214.564
Log (C:\alogluns\lg3)	0.000	0.000	0.000	15.952	4180.549
Log (C:\alogluns\lg4)	0.000	0.000	0.000	16.078	4191.404
Log (C:\alogluns\lg5)	0.000	0.000	0.000	16.060	4167.928
Log (C:\alogluns\lg6)	0.000	0.000	0.000	16.131	4179.023
Log (C:\alogluns\lg7)	0.000	0.000	0.000	16.173	4159.078
Log (C:\alogluns\lg8)	0.000	0.000	0.000	16.041	4195.882
Log (C:\alogluns\lg9)	0.000	0.000	0.000	16.270	4213.226

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Log (C:\alogluns\lg10)	0.000	0.000	0.000	16.043	4183.771
Log (C:\alogluns\lg11)	0.000	0.000	0.000	16.182	4165.270
Log (C:\alogluns\lg12)	0.000	0.000	0.000	16.187	4179.986
Log (C:\alogluns\lg13)	0.000	0.000	0.000	16.032	4188.593
Log (C:\alogluns\lg14)	0.000	0.000	0.000	16.122	4163.954
Log (C:\alogluns\lg15)	0.000	0.000	0.000	16.142	4188.061
Log (C:\alogluns\lg16)	0.000	0.000	0.000	16.167	4163.145
Log (C:\alogluns\lg17)	0.000	0.000	0.000	16.051	4192.767
Log (C:\alogluns\lg18)	0.000	0.000	0.000	16.063	4187.446
Log (C:\alogluns\lg19)	0.000	0.000	0.000	16.164	4164.221
Log (C:\alogluns\lg20)	0.000	0.000	0.000	16.136	4194.950
Log (C:\alogluns\lg21)	0.000	0.000	0.000	16.089	4184.230
Log (C:\alogluns\lg22)	0.000	0.000	0.000	16.114	4191.433
Log (C:\alogluns\lg23)	0.000	0.000	0.000	16.096	4188.724
Log (C:\alogluns\lg24)	0.000	0.000	0.000	16.167	4161.390
Log (C:\alogluns\lg25)	0.000	0.001	0.000	16.189	4208.438
Log (C:\alogluns\lg26)	0.000	0.001	0.000	16.148	4194.873
Log (C:\alogluns\lg27)	0.000	0.001	0.000	16.015	4178.643
Log (C:\alogluns\lg28)	0.000	0.000	0.000	16.114	4198.387
Log (C:\alogluns\lg29)	0.000	0.001	0.000	16.164	4201.480
Log (C:\alogluns\lg30)	0.000	0.000	0.000	16.169	4199.452
Log (C:\alogluns\lg31)	0.000	0.001	0.000	16.320	4188.792
Log (C:\alogluns\lg32)	0.000	0.000	0.000	16.142	4162.254
Log (C:\alogluns\lg33)	0.000	0.001	0.000	16.024	4204.734
Log (C:\alogluns\lg34)	0.000	0.000	0.000	16.023	4177.600
Log (C:\alogluns\lg35)	0.000	0.001	0.000	16.202	4197.414
Log (C:\alogluns\lg36)	0.000	0.001	0.000	16.085	4171.475

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	0.730	0.325	1.553
Available MBytes	53337.840	53305.000	54247.000
Free System Page Table Entries	16728998.000	16728998.000	16728998.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	220243780.264	217481216.000	221540352.000
Pool Paged Bytes	78259434.938	78237696.000	79519744.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

4/6/2009 9:25:12 PM -- Jetstress testing begins ...
4/6/2009 9:25:12 PM -- Prepare testing begins ...
4/6/2009 9:25:48 PM -- Attaching databases ...
4/6/2009 9:25:48 PM -- Prepare testing ends.
4/6/2009 9:25:48 PM -- Dispatching transactions begins ...
4/6/2009 9:25:48 PM -- Database cache settings: (minimum: 1.1 GB, maximum: 9.0 GB)
4/6/2009 9:25:48 PM -- Database flush thresholds: (start: 92.2 MB, stop: 184.3 MB)
4/6/2009 9:26:27 PM -- Database read latency thresholds: (average: 0.02 seconds/read, maximum: 0.1 seconds/read).
4/6/2009 9:26:27 PM -- Log write latency thresholds: (average: 0.01 seconds/write, maximum: 0.1 seconds/write).
4/6/2009 9:26:29 PM -- Operation mix: Sessions 2, Inserts 40%, Deletes 30%, Replaces 5%, Reads 25%, Lazy Commits 55%.
4/6/2009 9:26:29 PM -- Performance logging begins (interval: 15000 ms).
4/6/2009 9:26:29 PM -- Attaining prerequisites:
4/6/2009 10:04:56 PM -- \MSEExchange Database(Jetstresswin)\Database Cache Size, Last: 8699453000.0 (lower bound: 8697308000.0, upper bound: none)
4/7/2009 10:04:58 PM -- Performance logging ends.
4/7/2009 10:05:51 PM -- JetInterop batch transaction stats: 67215, 67290, 67087, 67658, 67206, 67905, 67555, 67357, 67951, 67143, 67466, 67721, 67176, 67271, 67483, 67684, 67085, 67384, 67324, 67576, 67498, 67566, 67431, 67556, 67707, 67369, 67297, 67229, 67699, 67294, 68120, 67601, 67141, 67291, 67246, and 67641.
4/7/2009 10:05:51 PM -- Dispatching transactions ends.
4/7/2009 10:05:51 PM -- Shutting down databases ...
4/7/2009 10:05:59 PM -- Instance4264.1 (complete), Instance4264.2 (complete), Instance4264.3 (complete), Instance4264.4 (complete), Instance4264.5 (complete), Instance4264.6 (complete), Instance4264.7 (complete), Instance4264.8 (complete), Instance4264.9 (complete), Instance4264.10 (complete), Instance4264.11 (complete), Instance4264.12 (complete), Instance4264.13 (complete), Instance4264.14 (complete), Instance4264.15 (complete), Instance4264.16 (complete), Instance4264.17 (complete), Instance4264.18 (complete), Instance4264.19 (complete), Instance4264.20 (complete), Instance4264.21 (complete), Instance4264.22 (complete), Instance4264.23 (complete), Instance4264.24 (complete), Instance4264.25 (complete), Instance4264.26 (complete), Instance4264.27 (complete), Instance4264.28 (complete), Instance4264.29 (complete), Instance4264.30 (complete), Instance4264.31 (complete), Instance4264.32 (complete), Instance4264.33 (complete), Instance4264.34 (complete), Instance4264.35 (complete), and Instance4264.36 (complete)
4/7/2009 10:06:00 PM -- Performance logging begins (interval: 30000 ms).

4/7/2009 10:06:00 PM -- Verifying database checksums ...
 4/8/2009 3:31:19 AM -- C:\asgluns\sg1 (100% processed), C:\asgluns\sg2 (100% processed), C:\asgluns\sg3 (100% processed), C:\asgluns\sg4 (100% processed), C:\asgluns\sg5 (100% processed), C:\asgluns\sg6 (100% processed), C:\asgluns\sg7 (100% processed), C:\asgluns\sg8 (100% processed), C:\asgluns\sg9 (100% processed), C:\asgluns\sg10 (100% processed), C:\asgluns\sg11 (100% processed), C:\asgluns\sg12 (100% processed), C:\asgluns\sg13 (100% processed), C:\asgluns\sg14 (100% processed), C:\asgluns\sg15 (100% processed), C:\asgluns\sg16 (100% processed), C:\asgluns\sg17 (100% processed), C:\asgluns\sg18 (100% processed), C:\asgluns\sg19 (100% processed), C:\asgluns\sg20 (100% processed), C:\asgluns\sg21 (100% processed), C:\asgluns\sg22 (100% processed), C:\asgluns\sg23 (100% processed), C:\asgluns\sg24 (100% processed), C:\asgluns\sg25 (100% processed), C:\asgluns\sg26 (100% processed), C:\asgluns\sg27 (100% processed), C:\asgluns\sg28 (100% processed), C:\asgluns\sg29 (100% processed), C:\asgluns\sg30 (100% processed), C:\asgluns\sg31 (100% processed), C:\asgluns\sg32 (100% processed), C:\asgluns\sg33 (100% processed), C:\asgluns\sg34 (100% processed), C:\asgluns\sg35 (100% processed), and C:\asgluns\sg36 (100% processed)
 4/8/2009 3:31:20 AM -- Performance logging ends.
 4/8/2009 3:31:20 AM -- C:\Project2_1GB\Stress Test\2800users\DBChecksum_2009_4_7_22_5_59.blg has 650 samples.
 4/8/2009 3:39:20 AM -- C:\Project2_1GB\Stress Test\2800users\DBChecksum_2009_4_7_22_5_59.html is saved.
 4/8/2009 3:39:20 AM -- Verifying log checksums ...
 4/8/2009 3:40:23 AM -- C:\alogluns\lg1 (2 logs passed), C:\alogluns\lg2 (2 logs passed), C:\alogluns\lg3 (2 logs passed), C:\alogluns\lg4 (2 logs passed), C:\alogluns\lg5 (2 logs passed), C:\alogluns\lg6 (2 logs passed), C:\alogluns\lg7 (2 logs passed), C:\alogluns\lg8 (2 logs passed), C:\alogluns\lg9 (2 logs passed), C:\alogluns\lg10 (2 logs passed), C:\alogluns\lg11 (2 logs passed), C:\alogluns\lg12 (2 logs passed), C:\alogluns\lg13 (2 logs passed), C:\alogluns\lg14 (2 logs passed), C:\alogluns\lg15 (2 logs passed), C:\alogluns\lg16 (2 logs passed), C:\alogluns\lg17 (2 logs passed), C:\alogluns\lg18 (2 logs passed), C:\alogluns\lg19 (2 logs passed), C:\alogluns\lg20 (2 logs passed), C:\alogluns\lg21 (2 logs passed), C:\alogluns\lg22 (2 logs passed), C:\alogluns\lg23 (2 logs passed), C:\alogluns\lg24 (2 logs passed), C:\alogluns\lg25 (2 logs passed), C:\alogluns\lg26 (2 logs passed), C:\alogluns\lg27 (2 logs passed), C:\alogluns\lg28 (2 logs passed), C:\alogluns\lg29 (2 logs passed), C:\alogluns\lg30 (3 logs passed), C:\alogluns\lg31 (2 logs passed), C:\alogluns\lg32 (2 logs passed), C:\alogluns\lg33 (2 logs passed), C:\alogluns\lg34 (2 logs passed), C:\alogluns\lg35 (2 logs passed), and C:\alogluns\lg36 (2 logs passed)
 4/8/2009 3:40:23 AM -- C:\Project2_1GB\Stress Test\2800users\Stress_2009_4_6_21_26_27.blg has 5902 samples.
 4/8/2009 3:40:23 AM -- Creating test report ...
 4/8/2009 3:49:51 AM -- volume C:\asgluns\sg1 has 0.0101 for Avg. Disk sec/Read.
 4/8/2009 3:49:51 AM -- volume C:\asgluns\sg2 has 0.0097 for Avg. Disk sec/Read.
 4/8/2009 3:49:51 AM -- volume C:\asgluns\sg3 has 0.0096 for Avg. Disk sec/Read.
 4/8/2009 3:49:51 AM -- volume C:\asgluns\sg4 has 0.0095 for Avg. Disk sec/Read.
 4/8/2009 3:49:51 AM -- volume C:\asgluns\sg5 has 0.0101 for Avg. Disk sec/Read.
 4/8/2009 3:49:51 AM -- volume C:\asgluns\sg6 has 0.0108 for Avg. Disk sec/Read.
 4/8/2009 3:49:51 AM -- volume C:\asgluns\sg7 has 0.0103 for Avg. Disk sec/Read.
 4/8/2009 3:49:51 AM -- volume C:\asgluns\sg8 has 0.0098 for Avg. Disk sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg9 has 0.0094 for Avg. Disk sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg10 has 0.0097 for Avg. Disk sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg11 has 0.0099 for Avg. Disk

sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg12 has 0.0109 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg13 has 0.0104 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg14 has 0.0098 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg15 has 0.0095 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg16 has 0.0097 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg17 has 0.0099 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg18 has 0.0109 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg19 has 0.0099 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg20 has 0.0101 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg21 has 0.0091 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg22 has 0.0099 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg23 has 0.0097 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg24 has 0.0104 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg25 has 0.0105 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg26 has 0.0095 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg27 has 0.0096 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:52 AM -- volume C:\asgluns\sg28 has 0.0095 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\asgluns\sg29 has 0.0100 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\asgluns\sg30 has 0.0107 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\asgluns\sg31 has 0.0104 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\asgluns\sg32 has 0.0096 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\asgluns\sg33 has 0.0097 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\asgluns\sg34 has 0.0094 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\asgluns\sg35 has 0.0099 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\asgluns\sg36 has 0.0107 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\alogluns\lg1 has 0.0003 for Avg. Disk
 sec/write.
 4/8/2009 3:49:53 AM -- volume C:\alogluns\lg1 has 0.0000 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\alogluns\lg2 has 0.0005 for Avg. Disk
 sec/write.
 4/8/2009 3:49:53 AM -- volume C:\alogluns\lg2 has 0.0000 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\alogluns\lg3 has 0.0003 for Avg. Disk
 sec/write.
 4/8/2009 3:49:53 AM -- volume C:\alogluns\lg3 has 0.0000 for Avg. Disk
 sec/Read.
 4/8/2009 3:49:53 AM -- volume C:\alogluns\lg4 has 0.0005 for Avg. Disk
 sec/write.
 4/8/2009 3:49:53 AM -- volume C:\alogluns\lg4 has 0.0000 for Avg. Disk
 sec/Read.

sec/Read.
4/8/2009 3:49:53 AM -- volume C:\alogluns\lg22 has 0.0005 for Avg. Disk
sec/write.
4/8/2009 3:49:53 AM -- volume C:\alogluns\lg22 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:53 AM -- volume C:\alogluns\lg23 has 0.0003 for Avg. Disk
sec/write.
4/8/2009 3:49:53 AM -- volume C:\alogluns\lg23 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:53 AM -- volume C:\alogluns\lg24 has 0.0005 for Avg. Disk
sec/write.
4/8/2009 3:49:53 AM -- volume C:\alogluns\lg24 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:53 AM -- volume C:\alogluns\lg25 has 0.0007 for Avg. Disk
sec/write.
4/8/2009 3:49:53 AM -- volume C:\alogluns\lg25 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:53 AM -- volume C:\alogluns\lg26 has 0.0006 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg26 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg27 has 0.0005 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg27 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg28 has 0.0005 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg28 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg29 has 0.0005 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg29 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg30 has 0.0004 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg30 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg31 has 0.0005 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg31 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg32 has 0.0004 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg32 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg33 has 0.0006 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg33 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg34 has 0.0004 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg34 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg35 has 0.0009 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg35 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg36 has 0.0006 for Avg. Disk
sec/write.
4/8/2009 3:49:54 AM -- volume C:\alogluns\lg36 has 0.0000 for Avg. Disk
sec/Read.
4/8/2009 3:49:54 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
4/8/2009 3:49:54 AM -- Test has 0 Database Page Fault Stalls/sec samples
higher than 0.
4/8/2009 3:49:54 AM -- C:\Project2_1GB\Stress
Test\2800users\Stress_2009_4_6_21_26_27.xml has 5748 samples queried.

Stress Test Database Checksums Result: SUN21

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page no pages	File length / seconds taken
C:\asgluns\sg1\Jetstress1.edb	10470226	0	0	0	81798 MBytes / 19424 seconds
C:\asgluns\sg2\Jetstress1.edb	10473298	0	0	0	81822 MBytes / 18519 seconds
C:\asgluns\sg3\Jetstress1.edb	10469970	0	0	0	81796 MBytes / 19518 seconds
C:\asgluns\sg4\Jetstress1.edb	10472274	0	0	0	81814 MBytes / 18122 seconds
C:\asgluns\sg5\Jetstress1.edb	10469714	0	0	0	81794 MBytes / 19204 seconds
C:\asgluns\sg6\Jetstress1.edb	10475090	0	0	0	81836 MBytes / 17843 seconds
C:\asgluns\sg7\Jetstress1.edb	10473042	0	0	0	81820 MBytes / 18029 seconds
C:\asgluns\sg8\Jetstress1.edb	10472018	0	0	0	81812 MBytes / 17960 seconds
C:\asgluns\sg9\Jetstress1.edb	10476882	0	0	0	81850 MBytes / 17913 seconds
C:\asgluns\sg10\Jetstress1.edb	10471506	0	0	0	81808 MBytes / 17420 seconds
C:\asgluns\sg11\Jetstress1.edb	10471506	0	0	0	81808 MBytes / 16824 seconds
C:\asgluns\sg12\Jetstress1.edb	10470994	0	0	0	81804 MBytes / 16605 seconds
C:\asgluns\sg13\Jetstress1.edb	10470738	0	0	0	81802 MBytes / 16471 seconds
C:\asgluns\sg14\Jetstress1.edb	10472530	0	0	0	81816 MBytes / 15008 seconds
C:\asgluns\sg15\Jetstress1.edb	10472530	0	0	0	81816 MBytes / 15037 seconds
C:\asgluns\sg16\Jetstress1.edb	10469202	0	0	0	81790 MBytes / 14640 seconds
C:\asgluns\sg17\Jetstress1.edb	10470226	0	0	0	81798 MBytes / 14951 seconds
C:\asgluns\sg18\Jetstress1.edb	10470226	0	0	0	81798 MBytes / 14270 seconds
C:\asgluns\sg19\Jetstress1.edb	10472274	0	0	0	81814 MBytes / 13275 seconds
C:\asgluns\sg20\Jetstress1.edb	10472786	0	0	0	81818 MBytes / 14031 seconds
C:\asgluns\sg21\Jetstress1.edb	10471250	0	0	0	81806 MBytes / 13209 seconds

<i>Database</i>	<i>Seen pages</i>	<i>Bad pages</i>	<i>Correctable pages</i>	<i>Wrong page no pages</i>	<i>File length / seconds taken</i>
C:\asgluns\sg22\Jetstress1.edb	10472786	0	0	0	81818 MBytes / 13928 seconds
C:\asgluns\sg23\Jetstress1.edb	10470482	0	0	0	81800 MBytes / 13017 seconds
C:\asgluns\sg24\Jetstress1.edb	10471762	0	0	0	81810 MBytes / 13070 seconds
C:\asgluns\sg25\Jetstress1.edb	10473810	0	0	0	81826 MBytes / 12162 seconds
C:\asgluns\sg26\Jetstress1.edb	10472018	0	0	0	81812 MBytes / 12486 seconds
C:\asgluns\sg27\Jetstress1.edb	10470738	0	0	0	81802 MBytes / 12111 seconds
C:\asgluns\sg28\Jetstress1.edb	10470482	0	0	0	81800 MBytes / 12443 seconds
C:\asgluns\sg29\Jetstress1.edb	10473298	0	0	0	81822 MBytes / 12109 seconds
C:\asgluns\sg30\Jetstress1.edb	10473554	0	0	0	81824 MBytes / 12461 seconds
C:\asgluns\sg31\Jetstress1.edb	10476114	0	0	0	81844 MBytes / 12109 seconds
C:\asgluns\sg32\Jetstress1.edb	10473554	0	0	0	81824 MBytes / 12435 seconds
C:\asgluns\sg33\Jetstress1.edb	10472530	0	0	0	81816 MBytes / 12097 seconds
C:\asgluns\sg34\Jetstress1.edb	10469202	0	0	0	81790 MBytes / 12388 seconds
C:\asgluns\sg35\Jetstress1.edb	10475090	0	0	0	81836 MBytes / 12127 seconds
C:\asgluns\sg36\Jetstress1.edb	10469458	0	0	0	81792 MBytes / 12515 seconds
(Sum)	376993160	0	0	0	2945259 MBytes / 19518 seconds

Disk Subsystem Performance of Checksum

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>
C:\asgluns\sg1	0.352	0.001	67.419	0.000
C:\asgluns\sg2	0.341	0.001	70.750	0.000
C:\asgluns\sg3	0.341	0.001	67.054	0.000
C:\asgluns\sg4	0.321	0.001	72.130	0.000
C:\asgluns\sg5	0.328	0.001	68.069	0.000
C:\asgluns\sg6	0.287	0.001	73.267	0.000
C:\asgluns\sg7	0.288	0.000	72.518	0.000

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>
C:\asgluns\sg8	0.265	0.001	72.865	0.000
C:\asgluns\sg9	0.284	0.000	72.980	0.000
C:\asgluns\sg10	0.251	0.001	75.127	0.000
C:\asgluns\sg11	0.238	0.000	77.770	0.000
C:\asgluns\sg12	0.228	0.000	78.819	0.000
C:\asgluns\sg13	0.221	0.000	79.385	0.000
C:\asgluns\sg14	0.186	0.000	87.167	0.000
C:\asgluns\sg15	0.190	0.000	87.029	0.000
C:\asgluns\sg16	0.179	0.000	89.402	0.000
C:\asgluns\sg17	0.187	0.000	87.531	0.000
C:\asgluns\sg18	0.173	0.000	91.602	0.000
C:\asgluns\sg19	0.163	0.000	98.470	0.000
C:\asgluns\sg20	0.169	0.000	93.362	0.000
C:\asgluns\sg21	0.162	0.000	99.006	0.000
C:\asgluns\sg22	0.168	0.000	93.908	0.000
C:\asgluns\sg23	0.159	0.000	100.474	0.000
C:\asgluns\sg24	0.158	0.000	100.126	0.000
C:\asgluns\sg25	0.148	0.000	107.572	0.000
C:\asgluns\sg26	0.150	0.000	104.734	0.000
C:\asgluns\sg27	0.146	0.000	107.899	0.000
C:\asgluns\sg28	0.149	0.000	105.009	0.000
C:\asgluns\sg29	0.146	0.000	108.221	0.000
C:\asgluns\sg30	0.149	0.000	105.115	0.000
C:\asgluns\sg31	0.146	0.000	108.052	0.000
C:\asgluns\sg32	0.149	0.000	105.421	0.000
C:\asgluns\sg33	0.146	0.000	108.129	0.000
C:\asgluns\sg34	0.149	0.000	105.590	0.000
C:\asgluns\sg35	0.146	0.000	108.156	0.000
C:\asgluns\sg36	0.151	0.000	104.076	0.000

Memory System Performance of Checksum

Counter	Average	Minimum	Maximum
% Processor Time	1.522	0.059	2.167
Available MBytes	62927.762	62909.000	62962.000
Free System Page Table Entries	16727525.415	16727108.000	16728298.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	219152440.714	219045888.000	219246592.000
Pool Paged Bytes	84009054.523	82604032.000	84652032.000

Test Log

```
4/6/2009 9:25:12 PM -- Jetstress testing begins ...
4/6/2009 9:25:12 PM -- Prepare testing begins ...
4/6/2009 9:25:48 PM -- Attaching databases ...
4/6/2009 9:25:48 PM -- Prepare testing ends.
4/6/2009 9:25:48 PM -- Dispatching transactions begins ...
4/6/2009 9:25:48 PM -- Database cache settings: (minimum: 1.1 GB, maximum:
9.0 GB)
4/6/2009 9:25:48 PM -- Database flush thresholds: (start: 92.2 MB, stop:
184.3 MB)
4/6/2009 9:26:27 PM -- Database read latency thresholds: (average: 0.02
seconds/read, maximum: 0.1 seconds/read).
4/6/2009 9:26:27 PM -- Log write latency thresholds: (average: 0.01
seconds/write, maximum: 0.1 seconds/write).
4/6/2009 9:26:29 PM -- Operation mix: Sessions 2, Inserts 40%, Deletes 30%,
Replaces 5%, Reads 25%, Lazy Commits 55%.
4/6/2009 9:26:29 PM -- Performance logging begins (interval: 15000 ms).
4/6/2009 9:26:29 PM -- Attaining prerequisites:
4/6/2009 10:04:56 PM -- \MSEExchange Database(Jetstresswin)\Database Cache
Size, Last: 8699453000.0 (lower bound: 8697308000.0, upper bound: none)
4/7/2009 10:04:58 PM -- Performance logging ends.
4/7/2009 10:05:51 PM -- JetInterop batch transaction stats: 67215, 67290,
67087, 67658, 67206, 67905, 67555, 67357, 67951, 67143, 67466, 67721, 67176,
67271, 67483, 67684, 67085, 67384, 67324, 67576, 67498, 67566, 67431, 67556,
67707, 67369, 67297, 67229, 67699, 67294, 68120, 67601, 67141, 67291, 67246,
and 67641.
4/7/2009 10:05:51 PM -- Dispatching transactions ends.
4/7/2009 10:05:51 PM -- Shutting down databases ...
4/7/2009 10:05:59 PM -- Instance4264.1 (complete), Instance4264.2 (complete),
Instance4264.3 (complete), Instance4264.4 (complete), Instance4264.5
(complete), Instance4264.6 (complete), Instance4264.7 (complete),
Instance4264.8 (complete), Instance4264.9 (complete), Instance4264.10
(complete), Instance4264.11 (complete), Instance4264.12 (complete),
Instance4264.13 (complete), Instance4264.14 (complete), Instance4264.15
(complete), Instance4264.16 (complete), Instance4264.17 (complete),
Instance4264.18 (complete), Instance4264.19 (complete), Instance4264.20
(complete), Instance4264.21 (complete), Instance4264.22 (complete),
Instance4264.23 (complete), Instance4264.24 (complete), Instance4264.25
(complete), Instance4264.26 (complete), Instance4264.27 (complete),
Instance4264.28 (complete), Instance4264.29 (complete), Instance4264.30
(complete), Instance4264.31 (complete), Instance4264.32 (complete),
Instance4264.33 (complete), Instance4264.34 (complete), Instance4264.35
(complete), and Instance4264.36 (complete)
4/7/2009 10:06:00 PM -- Performance logging begins (interval: 30000 ms).
4/7/2009 10:06:00 PM -- Verifying database checksums ...
4/8/2009 3:31:19 AM -- C:\asgluns\sg1 (100% processed), C:\asgluns\sg2 (100%
processed), C:\asgluns\sg3 (100% processed), C:\asgluns\sg4 (100% processed),
C:\asgluns\sg5 (100% processed), C:\asgluns\sg6 (100% processed),
C:\asgluns\sg7 (100% processed), C:\asgluns\sg8 (100% processed),
C:\asgluns\sg9 (100% processed), C:\asgluns\sg10 (100% processed),
```

C:\asgluns\sg11 (100% processed), C:\asgluns\sg12 (100% processed),
 C:\asgluns\sg13 (100% processed), C:\asgluns\sg14 (100% processed),
 C:\asgluns\sg15 (100% processed), C:\asgluns\sg16 (100% processed),
 C:\asgluns\sg17 (100% processed), C:\asgluns\sg18 (100% processed),
 C:\asgluns\sg19 (100% processed), C:\asgluns\sg20 (100% processed),
 C:\asgluns\sg21 (100% processed), C:\asgluns\sg22 (100% processed),
 C:\asgluns\sg23 (100% processed), C:\asgluns\sg24 (100% processed),
 C:\asgluns\sg25 (100% processed), C:\asgluns\sg26 (100% processed),
 C:\asgluns\sg27 (100% processed), C:\asgluns\sg28 (100% processed),
 C:\asgluns\sg29 (100% processed), C:\asgluns\sg30 (100% processed),
 C:\asgluns\sg31 (100% processed), C:\asgluns\sg32 (100% processed),
 C:\asgluns\sg33 (100% processed), C:\asgluns\sg34 (100% processed),
 C:\asgluns\sg35 (100% processed), and C:\asgluns\sg36 (100% processed)
 4/8/2009 3:31:20 AM -- Performance logging ends.
 4/8/2009 3:31:20 AM -- C:\Project2_1GB\Stress
 Test\2800users\DBChecksum_2009_4_7_22_5_59.blg has 650 samples.

Streaming Backup Test Result: SUN21

Streaming Backup Statistics - All

<i>Database Instance</i>	<i>Database Size (MBytes)</i>	<i>Elapsed Backup Time</i>	<i>MBytes Transferred/sec</i>
Instance3840.1	81796.65	06:24:44	3.54
Instance3840.2	81820.65	06:20:54	3.58
Instance3840.3	81794.65	06:29:04	3.50
Instance3840.4	81812.65	06:19:57	3.59
Instance3840.5	81792.65	06:29:06	3.50
Instance3840.6	81834.65	06:25:07	3.54
Instance3840.7	81818.65	06:18:06	3.61
Instance3840.8	81810.65	06:54:17	3.29
Instance3840.9	81848.65	06:18:24	3.60
Instance3840.10	81806.65	06:53:54	3.29
Instance3840.11	81806.65	06:18:49	3.60
Instance3840.12	81802.65	06:54:22	3.29
Instance3840.13	81800.65	06:17:35	3.61
Instance3840.14	81814.65	06:53:37	3.30
Instance3840.15	81814.65	06:17:04	3.62
Instance3840.16	81788.65	06:53:16	3.30
Instance3840.17	81796.65	06:17:29	3.61
Instance3840.18	81796.65	06:54:51	3.29
Instance3840.19	81812.65	05:29:57	4.13
Instance3840.20	81816.65	07:03:36	3.22
Instance3840.21	81804.65	05:28:49	4.15
Instance3840.22	81816.65	07:03:35	3.22
Instance3840.23	81798.65	05:27:48	4.16
Instance3840.24	81808.65	05:30:24	4.13
Instance3840.25	81824.65	06:09:18	3.69

<i>Database Instance</i>	<i>Database Size (MBytes)</i>	<i>Elapsed Backup Time</i>	<i>MBytes Transferred/sec</i>
Instance3840.26	81810.65	05:47:49	3.92
Instance3840.27	81800.65	06:08:50	3.70
Instance3840.28	81798.65	05:45:49	3.94
Instance3840.29	81820.65	06:08:23	3.70
Instance3840.30	81822.65	05:47:00	3.93
Instance3840.31	81842.65	06:08:51	3.70
Instance3840.32	81822.65	05:48:33	3.91
Instance3840.33	81814.65	06:07:23	3.71
Instance3840.34	81788.65	05:47:19	3.92
Instance3840.35	81834.65	06:07:12	3.71
Instance3840.36	81790.65	05:48:44	3.91

Jetstress System Parameters

<i>Thread count</i>	2 (per-storage group)
<i>Log buffers</i>	9000
<i>Minimum database cache</i>	1152.0 MB
<i>Maximum database cache</i>	9216.0 MB
<i>Insert operations</i>	40%
<i>Delete operations</i>	30%
<i>Replace operations</i>	5%
<i>Read operations</i>	25%
<i>Lazy commits</i>	55%

Disk Subsystem Performance

Logical Disk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Write
Database (C:\asgluns\sg1)	0.034	0.000	25.737	0.002	(n/a)
Database (C:\asgluns\sg2)	0.032	0.000	25.742	0.002	(n/a)
Database (C:\asgluns\sg3)	0.037	0.000	25.748	0.002	(n/a)
Database (C:\asgluns\sg4)	0.032	0.000	25.737	0.002	(n/a)
Database (C:\asgluns\sg5)	0.036	0.000	25.751	0.002	(n/a)
Database (C:\asgluns\sg6)	0.034	0.000	25.749	0.002	(n/a)
Database (C:\asgluns\sg7)	0.031	0.000	25.753	0.002	(n/a)
Database (C:\asgluns\sg8)	0.039	0.000	25.747	0.002	(n/a)
Database (C:\asgluns\sg9)	0.032	0.000	25.760	0.002	(n/a)
Database (C:\asgluns\sg10)	0.038	0.000	25.745	0.002	(n/a)
Database (C:\asgluns\sg11)	0.032	0.000	25.746	0.002	(n/a)
Database (C:\asgluns\sg12)	0.038	0.000	25.746	0.002	(n/a)
Database (C:\asgluns\sg13)	0.031	0.000	25.743	0.002	(n/a)
Database (C:\asgluns\sg14)	0.038	0.000	25.743	0.002	(n/a)
Database (C:\asgluns\sg15)	0.031	0.000	25.747	0.001	(n/a)
Database (C:\asgluns\sg16)	0.038	0.000	25.730	0.002	(n/a)
Database (C:\asgluns\sg17)	0.031	0.000	25.744	0.001	(n/a)
Database (C:\asgluns\sg18)	0.038	0.000	25.738	0.002	(n/a)
Database (C:\asgluns\sg19)	0.024	0.000	25.736	0.001	(n/a)
Database (C:\asgluns\sg20)	0.044	0.000	25.560	0.000	(n/a)
Database (C:\asgluns\sg21)	0.024	0.000	25.732	0.001	(n/a)

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Database (C:\asgluns\sg22)	0.044	0.000	25.615	0.000	(n/a)
Database (C:\asgluns\sg23)	0.024	0.000	25.732	0.001	(n/a)
Database (C:\asgluns\sg24)	0.025	0.000	25.729	0.001	(n/a)
Database (C:\asgluns\sg25)	0.030	0.000	25.753	0.001	(n/a)
Database (C:\asgluns\sg26)	0.027	0.000	25.736	0.001	(n/a)
Database (C:\asgluns\sg27)	0.030	0.000	25.751	0.001	(n/a)
Database (C:\asgluns\sg28)	0.026	0.000	25.735	0.001	(n/a)
Database (C:\asgluns\sg29)	0.030	0.000	25.755	0.001	(n/a)
Database (C:\asgluns\sg30)	0.026	0.000	25.738	0.001	(n/a)
Database (C:\asgluns\sg31)	0.030	0.000	25.748	0.001	(n/a)
Database (C:\asgluns\sg32)	0.027	0.000	25.748	0.002	(n/a)
Database (C:\asgluns\sg33)	0.030	0.000	25.741	0.002	(n/a)
Database (C:\asgluns\sg34)	0.026	0.000	25.736	0.002	(n/a)
Database (C:\asgluns\sg35)	0.030	0.000	25.744	0.002	(n/a)
Database (C:\asgluns\sg36)	0.027	0.000	25.739	0.002	(n/a)
Log (C:\alogluns\lg1)	0.000	0.000	0.000	0.001	12.033
Log (C:\alogluns\lg2)	0.000	0.000	0.000	0.001	8.281
Log (C:\alogluns\lg3)	0.000	0.000	0.000	0.001	13.000
Log (C:\alogluns\lg4)	0.000	0.000	0.000	0.001	8.281
Log (C:\alogluns\lg5)	0.000	0.000	0.000	0.001	13.000
Log (C:\alogluns\lg6)	0.000	0.000	0.000	0.001	7.909
Log (C:\alogluns\lg7)	0.000	0.000	0.000	0.001	12.756
Log (C:\alogluns\lg8)	0.000	0.000	0.000	0.001	12.482
Log (C:\alogluns\lg9)	0.000	0.000	0.000	0.001	11.714
Log (C:\alogluns\lg10)	0.000	0.000	0.000	0.001	11.714
Log (C:\alogluns\lg11)	0.000	0.000	0.000	0.001	11.997
Log (C:\alogluns\lg12)	0.000	0.000	0.000	0.001	11.785

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Log (C:\alogluns\lg13)	0.000	0.000	0.000	0.001	12.756
Log (C:\alogluns\lg14)	0.000	0.000	0.000	0.001	12.926
Log (C:\alogluns\lg15)	0.000	0.000	0.000	0.001	13.000
Log (C:\alogluns\lg16)	0.000	0.000	0.000	0.001	11.950
Log (C:\alogluns\lg17)	0.000	0.000	0.000	0.001	8.281
Log (C:\alogluns\lg18)	0.000	0.000	0.000	0.001	12.091
Log (C:\alogluns\lg19)	0.000	0.000	0.000	0.001	8.281
Log (C:\alogluns\lg20)	0.000	0.000	0.000	0.000	0.000
Log (C:\alogluns\lg21)	0.000	0.000	0.000	0.001	11.714
Log (C:\alogluns\lg22)	0.000	0.000	0.000	0.000	0.000
Log (C:\alogluns\lg23)	0.000	0.000	0.000	0.001	11.517
Log (C:\alogluns\lg24)	0.000	0.000	0.000	0.001	8.483
Log (C:\alogluns\lg25)	0.000	0.000	0.000	0.001	11.997
Log (C:\alogluns\lg26)	0.000	0.000	0.000	0.001	11.517
Log (C:\alogluns\lg27)	0.000	0.000	0.000	0.001	6.938
Log (C:\alogluns\lg28)	0.000	0.000	0.000	0.001	11.714
Log (C:\alogluns\lg29)	0.000	0.000	0.000	0.001	11.714
Log (C:\alogluns\lg30)	0.000	0.000	0.000	0.001	8.281
Log (C:\alogluns\lg31)	0.000	0.000	0.000	0.001	6.955
Log (C:\alogluns\lg32)	0.000	0.000	0.000	0.001	12.756
Log (C:\alogluns\lg33)	0.000	0.000	0.000	0.001	11.540
Log (C:\alogluns\lg34)	0.000	0.000	0.000	0.001	11.517
Log (C:\alogluns\lg35)	0.000	0.000	0.000	0.001	12.091
Log (C:\alogluns\lg36)	0.000	0.000	0.000	0.001	12.095

Host System Performance

<i>Counter</i>	<i>Average</i>	<i>Minimum</i>	<i>Maximum</i>
% Processor Time	0.940	0.091	1.358
Available MBytes	62842.299	62832.000	62849.000
Free System Page Table Entries	16729012.000	16729012.000	16729012.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	218373020.747	218353664.000	218390528.000
Pool Paged Bytes	85502402.270	83144704.000	85528576.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

4/8/2009 8:59:19 PM -- Jetstress testing begins ...
4/8/2009 8:59:19 PM -- Prepare testing begins ...
4/8/2009 8:59:56 PM -- Attaching databases ...
4/8/2009 8:59:56 PM -- Prepare testing ends.
4/8/2009 9:00:34 PM -- Performance logging begins (interval: 30000 ms).
4/8/2009 9:00:34 PM -- Streaming backup logging begins ...
4/9/2009 4:04:12 AM -- Performance logging ends.
4/9/2009 4:04:12 AM -- Instance3840.1 (100% processed), Instance3840.2 (100% processed), Instance3840.3 (100% processed), Instance3840.4 (100% processed), Instance3840.5 (100% processed), Instance3840.6 (100% processed), Instance3840.7 (100% processed), Instance3840.8 (100% processed), Instance3840.9 (100% processed), Instance3840.10 (100% processed), Instance3840.11 (100% processed), Instance3840.12 (100% processed), Instance3840.13 (100% processed), Instance3840.14 (100% processed), Instance3840.15 (100% processed), Instance3840.16 (100% processed), Instance3840.17 (100% processed), Instance3840.18 (100% processed), Instance3840.19 (100% processed), Instance3840.20 (100% processed), Instance3840.21 (100% processed), Instance3840.22 (100% processed), Instance3840.23 (100% processed), Instance3840.24 (100% processed), Instance3840.25 (100% processed), Instance3840.26 (100% processed), Instance3840.27 (100% processed), Instance3840.28 (100% processed), Instance3840.29 (100% processed), Instance3840.30 (100% processed), Instance3840.31 (100% processed), Instance3840.32 (100% processed), Instance3840.33 (100% processed), Instance3840.34 (100% processed), Instance3840.35 (100% processed), and Instance3840.36 (100% processed)
4/9/2009 4:04:12 AM -- C:\Project2_1GB\Streaming Backup Test\2800users\StreamingBackup_2009_4_8_20_59_56.blg has 846 samples.
4/9/2009 4:04:12 AM -- Creating test report ...

Soft Recovery Test Result: SUN21

Soft Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance3616.1	505	1982.515625
Instance3616.2	511	1921.765625
Instance3616.3	512	1831.015625
Instance3616.4	515	1937.765625
Instance3616.5	526	1937.765625
Instance3616.6	519	1940.765625
Instance3616.7	523	1923.015625
Instance3616.8	525	1934.515625
Instance3616.9	500	1772.265625
Instance3616.10	517	1930.265625
Instance3616.11	518	1937.765625
Instance3616.12	514	1940.765625
Instance3616.13	509	1903.265625
Instance3616.14	516	1898.265625
Instance3616.15	508	1903.265625
Instance3616.16	526	1928.015625
Instance3616.17	514	1874.515625

<i>Database Instance</i>	<i>Log files replayed</i>	<i>Elapsed seconds</i>
Instance3616.18	515	1944.265625
Instance3616.19	514	1940.265625
Instance3616.20	521	1950.765625
Instance3616.21	515	1808.265625
Instance3616.22	513	1819.015625
Instance3616.23	513	1938.515625
Instance3616.24	513	1952.515625
Instance3616.25	509	1917.515625
Instance3616.26	512	1854.015625
Instance3616.27	508	1911.015625
Instance3616.28	514	1936.515625
Instance3616.29	511	1946.015625
Instance3616.30	519	1947.015625
Instance3616.31	516	1959.515625
Instance3616.32	515	1943.515625
Instance3616.33	503	1919.015625
Instance3616.34	509	1871.765625
Instance3616.35	510	1948.765625
Instance3616.36	519	1943.015625

Disk Subsystem Performance

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Database (C:\asgluns\sg1)	0.237	0.030	136.114	2.777	(n/a)
Database (C:\asgluns\sg2)	0.162	0.015	138.499	2.825	(n/a)
Database (C:\asgluns\sg3)	0.119	0.014	138.820	2.814	(n/a)
Database (C:\asgluns\sg4)	0.140	0.015	139.691	2.848	(n/a)
Database (C:\asgluns\sg5)	0.130	0.012	141.058	2.893	(n/a)
Database (C:\asgluns\sg6)	0.185	0.018	139.148	2.868	(n/a)
Database (C:\asgluns\sg7)	0.173	0.017	139.365	2.881	(n/a)
Database (C:\asgluns\sg8)	0.152	0.015	141.280	2.897	(n/a)

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Database (C:\asgluns\sg9)	0.125	0.011	136.773	2.736	(n/a)
Database (C:\asgluns\sg10)	0.141	0.014	139.951	2.859	(n/a)
Database (C:\asgluns\sg11)	0.153	0.019	138.920	2.857	(n/a)
Database (C:\asgluns\sg12)	0.228	0.020	137.557	2.844	(n/a)
Database (C:\asgluns\sg13)	0.170	0.016	139.002	2.810	(n/a)
Database (C:\asgluns\sg14)	0.149	0.013	138.681	2.844	(n/a)
Database (C:\asgluns\sg15)	0.132	0.013	136.556	2.811	(n/a)
Database (C:\asgluns\sg16)	0.159	0.013	139.009	2.893	(n/a)
Database (C:\asgluns\sg17)	0.153	0.015	138.062	2.825	(n/a)
Database (C:\asgluns\sg18)	0.233	0.022	137.186	2.841	(n/a)
Database (C:\asgluns\sg19)	0.163	0.015	139.737	2.825	(n/a)
Database (C:\asgluns\sg20)	0.153	0.015	139.131	2.874	(n/a)
Database (C:\asgluns\sg21)	0.124	0.013	138.127	2.825	(n/a)
Database (C:\asgluns\sg22)	0.126	0.011	137.937	2.807	(n/a)
Database (C:\asgluns\sg23)	0.150	0.015	136.812	2.834	(n/a)
Database (C:\asgluns\sg24)	0.187	0.018	137.405	2.832	(n/a)
Database (C:\asgluns\sg25)	0.173	0.019	137.488	2.822	(n/a)
Database (C:\asgluns\sg26)	0.140	0.017	138.143	2.818	(n/a)
Database (C:\asgluns\sg27)	0.143	0.015	136.367	2.805	(n/a)
Database (C:\asgluns\sg28)	0.164	0.018	137.810	2.838	(n/a)
Database (C:\asgluns\sg29)	0.175	0.016	138.831	2.824	(n/a)
Database (C:\asgluns\sg30)	0.210	0.019	140.091	2.865	(n/a)

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Database (C:\asgluns\sg31)	0.202	0.018	138.792	2.854	(n/a)
Database (C:\asgluns\sg32)	0.167	0.017	139.810	2.842	(n/a)
Database (C:\asgluns\sg33)	0.145	0.015	136.122	2.791	(n/a)
Database (C:\asgluns\sg34)	0.141	0.013	138.119	2.802	(n/a)
Database (C:\asgluns\sg35)	0.183	0.018	138.362	2.824	(n/a)
Database (C:\asgluns\sg36)	0.191	0.017	140.704	2.867	(n/a)
Log (C:\alogluns\lg1)	0.045	0.013	8.390	0.965	4121.017
Log (C:\alogluns\lg2)	0.028	0.010	8.540	0.972	4055.481
Log (C:\alogluns\lg3)	0.024	0.010	8.559	0.950	3882.618
Log (C:\alogluns\lg4)	0.030	0.011	8.603	0.969	4143.631
Log (C:\alogluns\lg5)	0.031	0.010	8.787	0.993	4092.123
Log (C:\alogluns\lg6)	0.030	0.011	8.665	0.972	4122.302
Log (C:\alogluns\lg7)	0.025	0.010	8.735	0.987	4049.624
Log (C:\alogluns\lg8)	0.026	0.014	8.769	1.018	4087.572
Log (C:\alogluns\lg9)	0.024	0.009	8.340	0.900	3796.850
Log (C:\alogluns\lg10)	0.029	0.012	8.637	0.980	4097.044
Log (C:\alogluns\lg11)	0.029	0.011	8.653	1.004	4101.592
Log (C:\alogluns\lg12)	0.029	0.011	8.587	0.987	4115.398
Log (C:\alogluns\lg13)	0.031	0.010	8.506	0.968	4002.682
Log (C:\alogluns\lg14)	0.025	0.011	8.623	0.986	4025.428
Log (C:\alogluns\lg15)	0.029	0.011	8.491	0.979	4012.539
Log (C:\alogluns\lg16)	0.028	0.011	8.784	0.997	4055.631
Log (C:\alogluns\lg17)	0.024	0.010	8.591	0.954	3969.833
Log (C:\alogluns\lg18)	0.030	0.012	8.601	0.982	4171.130
Log (C:\alogluns\lg19)	0.034	0.011	8.544	0.989	4085.588
Log (C:\alogluns\lg20)	0.030	0.013	8.685	0.979	4123.475
Log (C:\alogluns\lg21)	0.022	0.009	8.612	0.931	3877.515
Log (C:\alogluns\lg22)	0.022	0.010	8.578	0.934	3933.009
Log (C:\alogluns\lg23)	0.033	0.011	8.570	0.986	4078.439
Log (C:\alogluns\lg24)	0.034	0.015	8.548	0.986	4105.478
Log (C:\alogluns\lg25)	0.028	0.012	8.509	0.947	4077.949
Log (C:\alogluns\lg26)	0.024	0.011	8.563	0.932	3947.459
Log (C:\alogluns\lg27)	0.028	0.011	8.485	0.977	4011.986

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Log (C:\alogluns\lg28)	0.029	0.011	8.587	0.990	4123.009
Log (C:\alogluns\lg29)	0.029	0.011	8.524	0.991	4050.724
Log (C:\alogluns\lg30)	0.034	0.012	8.651	0.980	4120.261
Log (C:\alogluns\lg31)	0.032	0.012	8.589	0.970	4121.592
Log (C:\alogluns\lg32)	0.033	0.011	8.592	0.995	4058.883
Log (C:\alogluns\lg33)	0.027	0.012	8.405	0.959	4094.976
Log (C:\alogluns\lg34)	0.027	0.009	8.509	0.959	3983.449
Log (C:\alogluns\lg35)	0.030	0.012	8.509	0.990	4134.634
Log (C:\alogluns\lg36)	0.030	0.010	8.670	0.982	4116.772

Host System Performance

<i>Counter</i>	<i>Average</i>	<i>Minimum</i>	<i>Maximum</i>
% Processor Time	3.194	0.000	24.187
Available MBytes	54305.678	53268.000	62615.000
Free System Page Table Entries	16728985.224	16728972.000	16729012.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	221844400.588	217612288.000	234143744.000
Pool Paged Bytes	88253093.094	85983232.000	88338432.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

4/9/2009 4:28:53 AM -- Jetstress testing begins ...
 4/9/2009 4:28:53 AM -- Prepare testing begins ...
 4/9/2009 4:29:29 AM -- Attaching databases ...
 4/9/2009 4:29:29 AM -- Prepare testing ends.
 4/9/2009 4:29:29 AM -- Dispatching transactions begins ...
 4/9/2009 4:29:29 AM -- Database cache settings: (minimum: 1.1 GB, maximum: 9.0 GB)
 4/9/2009 4:29:29 AM -- Database flush thresholds: (start: 92.2 MB, stop: 184.3 MB)
 4/9/2009 4:30:08 AM -- Database read latency thresholds: (average: 0.02 seconds/read, maximum: 0.05 seconds/read).
 4/9/2009 4:30:08 AM -- Log write latency thresholds: (average: 0.01 seconds/write, maximum: 0.05 seconds/write).
 4/9/2009 4:30:10 AM -- Operation mix: Sessions 2, Inserts 40%, Deletes 30%, Replaces 5%, Reads 25%, Lazy Commits 55%.
 4/9/2009 4:30:10 AM -- Performance logging begins (interval: 15000 ms).
 4/9/2009 4:30:10 AM -- Generating log files ...
 4/9/2009 9:25:47 AM -- C:\alogluns\lg1 (101.2% generated), C:\alogluns\lg2 (102.4% generated), C:\alogluns\lg3 (102.6% generated), C:\alogluns\lg4 (103.2% generated), C:\alogluns\lg5 (105.4% generated), C:\alogluns\lg6 (104.0% generated), C:\alogluns\lg7 (104.8% generated), C:\alogluns\lg8 (105.2% generated), C:\alogluns\lg9 (100.2% generated), C:\alogluns\lg10 (103.6% generated), C:\alogluns\lg11 (103.8% generated), C:\alogluns\lg12 (103.0% generated), C:\alogluns\lg13 (102.0% generated), C:\alogluns\lg14 (103.2% generated), C:\alogluns\lg15 (101.8% generated), C:\alogluns\lg16 (105.4% generated), C:\alogluns\lg17 (103.0% generated), C:\alogluns\lg18 (103.2% generated), C:\alogluns\lg19 (103.0% generated), C:\alogluns\lg20

(104.4% generated), C:\alogluns\lg21 (103.2% generated), C:\alogluns\lg22
 (102.8% generated), C:\alogluns\lg23 (102.8% generated), C:\alogluns\lg24
 (102.8% generated), C:\alogluns\lg25 (102.0% generated), C:\alogluns\lg26
 (102.6% generated), C:\alogluns\lg27 (101.8% generated), C:\alogluns\lg28
 (103.0% generated), C:\alogluns\lg29 (102.4% generated), C:\alogluns\lg30
 (104.0% generated), C:\alogluns\lg31 (103.4% generated), C:\alogluns\lg32
 (103.2% generated), C:\alogluns\lg33 (100.8% generated), C:\alogluns\lg34
 (102.0% generated), C:\alogluns\lg35 (102.2% generated), and C:\alogluns\lg36
 (104.0% generated)
 4/9/2009 9:25:48 AM -- Performance logging ends.
 4/9/2009 9:25:48 AM -- JetInterop batch transaction stats: 13378, 13307,
 13336, 13502, 13599, 13459, 13514, 13623, 13201, 13330, 13486, 13281, 13367,
 13414, 13257, 13446, 13346, 13382, 13476, 13489, 13325, 13337, 13332, 13378,
 13353, 13520, 13278, 13399, 13445, 13499, 13474, 13546, 13114, 13384, 13408,
 and 13623.
 4/9/2009 9:25:49 AM -- Dispatching transactions ends.
 4/9/2009 9:25:49 AM -- Shutting down databases ...
 4/9/2009 9:25:57 AM -- Instance3616.1 (complete), Instance3616.2 (complete),
 Instance3616.3 (complete), Instance3616.4 (complete), Instance3616.5
 (complete), Instance3616.6 (complete), Instance3616.7 (complete),
 Instance3616.8 (complete), Instance3616.9 (complete), Instance3616.10
 (complete), Instance3616.11 (complete), Instance3616.12 (complete),
 Instance3616.13 (complete), Instance3616.14 (complete), Instance3616.15
 (complete), Instance3616.16 (complete), Instance3616.17 (complete),
 Instance3616.18 (complete), Instance3616.19 (complete), Instance3616.20
 (complete), Instance3616.21 (complete), Instance3616.22 (complete),
 Instance3616.23 (complete), Instance3616.24 (complete), Instance3616.25
 (complete), Instance3616.26 (complete), Instance3616.27 (complete),
 Instance3616.28 (complete), Instance3616.29 (complete), Instance3616.30
 (complete), Instance3616.31 (complete), Instance3616.32 (complete),
 Instance3616.33 (complete), Instance3616.34 (complete), Instance3616.35
 (complete), and Instance3616.36 (complete)
 4/9/2009 9:25:57 AM -- C:\Project2_1GB\Soft Recovery
 Test\2800users\Performance_2009_4_9_4_30_8.blg has 1179 samples.
 4/9/2009 9:25:57 AM -- Creating test report ...
 4/9/2009 9:27:09 AM -- volume C:\asgluns\sg1 has 0.0104 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:09 AM -- volume C:\asgluns\sg2 has 0.0097 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:09 AM -- volume C:\asgluns\sg3 has 0.0096 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:09 AM -- volume C:\asgluns\sg4 has 0.0095 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:09 AM -- volume C:\asgluns\sg5 has 0.0103 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:09 AM -- volume C:\asgluns\sg6 has 0.0107 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:09 AM -- volume C:\asgluns\sg7 has 0.0103 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:09 AM -- volume C:\asgluns\sg8 has 0.0098 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:10 AM -- volume C:\asgluns\sg9 has 0.0095 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:10 AM -- volume C:\asgluns\sg10 has 0.0097 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:10 AM -- volume C:\asgluns\sg11 has 0.0099 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:10 AM -- volume C:\asgluns\sg12 has 0.0108 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:10 AM -- volume C:\asgluns\sg13 has 0.0104 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:10 AM -- volume C:\asgluns\sg14 has 0.0098 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:10 AM -- volume C:\asgluns\sg15 has 0.0095 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:10 AM -- volume C:\asgluns\sg16 has 0.0097 for Avg. Disk
 sec/Read.

4/9/2009 9:27:10 AM -- volume C:\asgluns\sg17 has 0.0098 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg18 has 0.0108 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg19 has 0.0099 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg20 has 0.0100 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg21 has 0.0091 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg22 has 0.0099 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg23 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg24 has 0.0103 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg25 has 0.0105 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg26 has 0.0098 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg27 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg28 has 0.0094 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg29 has 0.0101 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg30 has 0.0107 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg31 has 0.0106 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg32 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg33 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg34 has 0.0095 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg35 has 0.0101 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg36 has 0.0108 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg1 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg1 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg2 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg2 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg3 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg3 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg4 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg4 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg5 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg5 has 0.0001 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg6 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg6 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg7 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg7 has 0.0000 for Avg. Disk

4/9/2009 9:27:11 AM -- Volume C:\alogluns\lg24 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:11 AM -- Volume C:\alogluns\lg25 has 0.0005 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:11 AM -- Volume C:\alogluns\lg25 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg26 has 0.0003 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg26 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg27 has 0.0005 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg27 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg28 has 0.0003 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg28 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg29 has 0.0005 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg29 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg30 has 0.0003 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg30 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg31 has 0.0005 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg31 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg32 has 0.0003 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg32 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg33 has 0.0005 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg33 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg34 has 0.0003 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg34 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg35 has 0.0005 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg35 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg36 has 0.0003 for Avg. Disk
 sec/Write.
 4/9/2009 9:27:12 AM -- Volume C:\alogluns\lg36 has 0.0000 for Avg. Disk
 sec/Read.
 4/9/2009 9:27:12 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 4/9/2009 9:27:12 AM -- Test has 0 Database Page Fault Stalls/sec samples
 higher than 0.
 4/9/2009 9:27:12 AM -- C:\Project2_1GB\Soft Recovery
 Test\2800users\Performance_2009_4_9_4_30_8.xml has 1178 samples queried.
 4/9/2009 9:27:12 AM -- C:\Project2_1GB\Soft Recovery
 Test\2800users\Performance_2009_4_9_4_30_8.html is saved.
 4/9/2009 8:30:58 PM -- Performance logging begins (interval: 4000 ms).
 4/9/2009 8:30:58 PM -- Recovering databases ...
 4/9/2009 9:04:01 PM -- Performance logging ends.
 4/9/2009 9:04:01 PM -- Instance3616.1 (1982.515625), Instance3616.2
 (1921.765625), Instance3616.3 (1831.015625), Instance3616.4 (1937.765625),
 Instance3616.5 (1937.765625), Instance3616.6 (1940.765625), Instance3616.7
 (1923.015625), Instance3616.8 (1934.515625), Instance3616.9 (1772.265625),
 Instance3616.10 (1930.265625), Instance3616.11 (1937.765625), Instance3616.12
 (1940.765625), Instance3616.13 (1903.265625), Instance3616.14 (1898.265625),
 Instance3616.15 (1903.265625), Instance3616.16 (1928.015625), Instance3616.17

(1874.515625), Instance3616.18 (1944.265625), Instance3616.19 (1940.265625), Instance3616.20 (1950.765625), Instance3616.21 (1808.265625), Instance3616.22 (1819.015625), Instance3616.23 (1938.515625), Instance3616.24 (1952.515625), Instance3616.25 (1917.515625), Instance3616.26 (1854.015625), Instance3616.27 (1911.015625), Instance3616.28 (1936.515625), Instance3616.29 (1946.015625), Instance3616.30 (1947.015625), Instance3616.31 (1959.515625), Instance3616.32 (1943.515625), Instance3616.33 (1919.015625), Instance3616.34 (1871.765625), Instance3616.35 (1948.765625), and Instance3616.36 (1943.015625)
 4/9/2009 9:04:02 PM -- C:\Project2_1GB\Soft Recovery
 Test\2800users\SoftRecovery_2009_4_9_20_30_43.blg has 490 samples.

Soft Recovery Test Performance Result: SUN21

Test Summary

Overall Test Result	Pass
Machine Name	SUN21
Test Description	
Test Start Time	4/9/2009 4:28:53 AM
Test End Time	4/9/2009 9:25:57 AM
Jetstress Version	08.02.0060.000
Ese Version	08.01.0240.005
Operating System	Microsoft Windows Server 2003 R2 Service Pack 2 (5.2.3790.131072)
Performance Log	C:\Project2_1GB\Soft Recovery Test\2800users\Performance_2009_4_9_4_30_8.blg

Database Sizing and Throughput

Achieved I/O per Second	1599.997
Capacity Percentage	100%
Throughput Percentage	100%
Initial database size	3088327966720
Final database size	3101860888576
Database files (count)	36

Jetstress System Parameters

Thread count	2 (per-storage group)
Log buffers	9000
Minimum database cache	1152.0 MB
Maximum database cache	9216.0 MB
Insert operations	40%
Delete operations	30%
Replace operations	5%
Read operations	25%
Lazy commits	55%

Disk Subsystem Performance

Logical Disk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Write
Database (C:\asgluns\sg1)	0.010	0.002	24.995	19.358	(n/a)
Database (C:\asgluns\sg2)	0.010	0.002	25.005	19.591	(n/a)
Database (C:\asgluns\sg3)	0.010	0.001	24.943	19.552	(n/a)
Database (C:\asgluns\sg4)	0.009	0.002	25.144	19.528	(n/a)
Database (C:\asgluns\sg5)	0.010	0.001	25.229	19.846	(n/a)
Database (C:\asgluns\sg6)	0.011	0.002	24.845	19.564	(n/a)
Database (C:\asgluns\sg7)	0.010	0.001	25.003	19.576	(n/a)
Database (C:\asgluns\sg8)	0.010	0.002	25.320	19.982	(n/a)
Database (C:\asgluns\sg9)	0.010	0.001	24.905	19.197	(n/a)
Database (C:\asgluns\sg10)	0.010	0.002	25.054	19.646	(n/a)
Database (C:\asgluns\sg11)	0.010	0.001	25.015	19.560	(n/a)
Database (C:\asgluns\sg12)	0.011	0.002	24.652	19.245	(n/a)
Database (C:\asgluns\sg13)	0.010	0.001	25.151	19.509	(n/a)
Database (C:\asgluns\sg14)	0.010	0.002	25.027	19.571	(n/a)
Database (C:\asgluns\sg15)	0.010	0.001	24.709	19.248	(n/a)
Database (C:\asgluns\sg16)	0.010	0.002	24.819	19.527	(n/a)
Database (C:\asgluns\sg17)	0.010	0.001	24.768	19.388	(n/a)
Database (C:\asgluns\sg18)	0.011	0.002	24.704	19.199	(n/a)
Database (C:\asgluns\sg19)	0.010	0.001	25.187	19.600	(n/a)
Database (C:\asgluns\sg20)	0.010	0.002	24.867	19.399	(n/a)
Database (C:\asgluns\sg21)	0.009	0.001	24.617	19.382	(n/a)
Database (C:\asgluns\sg22)	0.010	0.002	24.684	19.246	(n/a)

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Database (C:\asgluns\sg23)	0.010	0.001	24.782	19.262	(n/a)
Database (C:\asgluns\sg24)	0.010	0.001	24.774	19.591	(n/a)
Database (C:\asgluns\sg25)	0.010	0.002	24.777	19.403	(n/a)
Database (C:\asgluns\sg26)	0.010	0.001	25.091	19.323	(n/a)
Database (C:\asgluns\sg27)	0.010	0.002	24.636	19.188	(n/a)
Database (C:\asgluns\sg28)	0.009	0.001	24.758	19.318	(n/a)
Database (C:\asgluns\sg29)	0.010	0.002	25.179	19.524	(n/a)
Database (C:\asgluns\sg30)	0.011	0.001	25.249	19.778	(n/a)
Database (C:\asgluns\sg31)	0.011	0.002	25.198	19.737	(n/a)
Database (C:\asgluns\sg32)	0.010	0.001	25.382	19.779	(n/a)
Database (C:\asgluns\sg33)	0.010	0.002	24.538	19.068	(n/a)
Database (C:\asgluns\sg34)	0.010	0.001	24.920	19.402	(n/a)
Database (C:\asgluns\sg35)	0.010	0.002	24.993	19.502	(n/a)
Database (C:\asgluns\sg36)	0.011	0.001	25.538	19.955	(n/a)
Log (C:\alogluns\lg1)	0.000	0.000	0.000	16.056	4096.577
Log (C:\alogluns\lg2)	0.000	0.000	0.000	16.102	4175.266
Log (C:\alogluns\lg3)	0.000	0.000	0.000	16.171	4152.776
Log (C:\alogluns\lg4)	0.000	0.000	0.000	16.223	4105.989
Log (C:\alogluns\lg5)	0.000	0.000	0.000	16.543	4192.561
Log (C:\alogluns\lg6)	0.000	0.000	0.000	16.342	4144.982
Log (C:\alogluns\lg7)	0.000	0.000	0.000	16.339	4208.043
Log (C:\alogluns\lg8)	0.000	0.000	0.000	16.435	4202.538
Log (C:\alogluns\lg9)	0.000	0.000	0.000	15.836	4111.671
Log (C:\alogluns\lg10)	0.000	0.000	0.000	16.267	4143.487
Log (C:\alogluns\lg11)	0.000	0.000	0.000	16.297	4144.532
Log (C:\alogluns\lg12)	0.000	0.000	0.000	16.082	4177.861
Log (C:\alogluns\lg13)	0.000	0.000	0.000	16.110	4099.152
Log (C:\alogluns\lg14)	0.000	0.000	0.000	16.198	4156.146

<i>Logical Disk</i>	<i>Avg. Disk sec/Read</i>	<i>Avg. Disk sec/Write</i>	<i>Disk Reads/sec</i>	<i>Disk Writes/sec</i>	<i>Avg. Disk Bytes/Write</i>
Log (C:\alogluns\lg15)	0.000	0.000	0.000	15.972	4134.082
Log (C:\alogluns\lg16)	0.000	0.000	0.000	16.264	4143.792
Log (C:\alogluns\lg17)	0.000	0.000	0.000	16.122	4141.554
Log (C:\alogluns\lg18)	0.000	0.000	0.000	16.164	4173.014
Log (C:\alogluns\lg19)	0.000	0.000	0.000	16.287	4109.284
Log (C:\alogluns\lg20)	0.000	0.000	0.000	16.195	4166.671
Log (C:\alogluns\lg21)	0.000	0.000	0.000	16.101	4161.078
Log (C:\alogluns\lg22)	0.000	0.000	0.000	16.098	4173.408
Log (C:\alogluns\lg23)	0.000	0.000	0.000	16.057	4086.586
Log (C:\alogluns\lg24)	0.000	0.000	0.000	16.147	4131.912
Log (C:\alogluns\lg25)	0.000	0.000	0.000	16.068	4120.223
Log (C:\alogluns\lg26)	0.000	0.000	0.000	16.131	4143.387
Log (C:\alogluns\lg27)	0.000	0.000	0.000	15.969	4186.097
Log (C:\alogluns\lg28)	0.000	0.000	0.000	16.155	4131.141
Log (C:\alogluns\lg29)	0.000	0.000	0.000	16.196	4125.454
Log (C:\alogluns\lg30)	0.000	0.000	0.000	16.359	4107.131
Log (C:\alogluns\lg31)	0.000	0.000	0.000	16.321	4109.835
Log (C:\alogluns\lg32)	0.000	0.000	0.000	16.282	4089.790
Log (C:\alogluns\lg33)	0.000	0.000	0.000	15.838	4173.965
Log (C:\alogluns\lg34)	0.000	0.000	0.000	16.027	4167.566
Log (C:\alogluns\lg35)	0.000	0.000	0.000	16.170	4122.279
Log (C:\alogluns\lg36)	0.000	0.000	0.000	16.473	4089.088

Host System Performance

<i>Counter</i>	<i>Average</i>	<i>Minimum</i>	<i>Maximum</i>
% Processor Time	1.273	0.468	2.885
Available MBytes	53914.170	53258.000	62627.000
Free System Page Table Entries	16729012.000	16729012.000	16729012.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	216877342.616	216080384.000	218279936.000
Pool Paged Bytes	86701421.652	84258816.000	87920640.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

4/9/2009 4:28:53 AM -- Jetstress testing begins ...
4/9/2009 4:28:53 AM -- Prepare testing begins ...
4/9/2009 4:29:29 AM -- Attaching databases ...
4/9/2009 4:29:29 AM -- Prepare testing ends.
4/9/2009 4:29:29 AM -- Dispatching transactions begins ...
4/9/2009 4:29:29 AM -- Database cache settings: (minimum: 1.1 GB, maximum: 9.0 GB)
4/9/2009 4:29:29 AM -- Database flush thresholds: (start: 92.2 MB, stop: 184.3 MB)
4/9/2009 4:30:08 AM -- Database read latency thresholds: (average: 0.02 seconds/read, maximum: 0.05 seconds/read).
4/9/2009 4:30:08 AM -- Log write latency thresholds: (average: 0.01 seconds/write, maximum: 0.05 seconds/write).
4/9/2009 4:30:10 AM -- Operation mix: Sessions 2, Inserts 40%, Deletes 30%, Replaces 5%, Reads 25%, Lazy Commits 55%.
4/9/2009 4:30:10 AM -- Performance logging begins (interval: 15000 ms).
4/9/2009 4:30:10 AM -- Generating log files ...
4/9/2009 9:25:47 AM -- C:\alogluns\lg1 (101.2% generated), C:\alogluns\lg2 (102.4% generated), C:\alogluns\lg3 (102.6% generated), C:\alogluns\lg4 (103.2% generated), C:\alogluns\lg5 (105.4% generated), C:\alogluns\lg6 (104.0% generated), C:\alogluns\lg7 (104.8% generated), C:\alogluns\lg8 (105.2% generated), C:\alogluns\lg9 (100.2% generated), C:\alogluns\lg10 (103.6% generated), C:\alogluns\lg11 (103.8% generated), C:\alogluns\lg12 (103.0% generated), C:\alogluns\lg13 (102.0% generated), C:\alogluns\lg14 (103.2% generated), C:\alogluns\lg15 (101.8% generated), C:\alogluns\lg16 (105.4% generated), C:\alogluns\lg17 (103.0% generated), C:\alogluns\lg18 (103.2% generated), C:\alogluns\lg19 (103.0% generated), C:\alogluns\lg20 (104.4% generated), C:\alogluns\lg21 (103.2% generated), C:\alogluns\lg22 (102.8% generated), C:\alogluns\lg23 (102.8% generated), C:\alogluns\lg24 (102.8% generated), C:\alogluns\lg25 (102.0% generated), C:\alogluns\lg26 (102.6% generated), C:\alogluns\lg27 (101.8% generated), C:\alogluns\lg28 (103.0% generated), C:\alogluns\lg29 (102.4% generated), C:\alogluns\lg30 (104.0% generated), C:\alogluns\lg31 (103.4% generated), C:\alogluns\lg32 (103.2% generated), C:\alogluns\lg33 (100.8% generated), C:\alogluns\lg34 (102.0% generated), C:\alogluns\lg35 (102.2% generated), and C:\alogluns\lg36 (104.0% generated)
4/9/2009 9:25:48 AM -- Performance logging ends.
4/9/2009 9:25:48 AM -- JetInterop batch transaction stats: 13378, 13307, 13336, 13502, 13599, 13459, 13514, 13623, 13201, 13330, 13486, 13281, 13367, 13414, 13257, 13446, 13346, 13382, 13476, 13489, 13325, 13337, 13332, 13378, 13353, 13520, 13278, 13399, 13445, 13499, 13474, 13546, 13114, 13384, 13408, and 13623.
4/9/2009 9:25:49 AM -- Dispatching transactions ends.
4/9/2009 9:25:49 AM -- Shutting down databases ...
4/9/2009 9:25:57 AM -- Instance3616.1 (complete), Instance3616.2 (complete), Instance3616.3 (complete), Instance3616.4 (complete), Instance3616.5 (complete), Instance3616.6 (complete), Instance3616.7 (complete), Instance3616.8 (complete), Instance3616.9 (complete), Instance3616.10 (complete), Instance3616.11 (complete), Instance3616.12 (complete), Instance3616.13 (complete), Instance3616.14 (complete), Instance3616.15 (complete), Instance3616.16 (complete), Instance3616.17 (complete), Instance3616.18 (complete), Instance3616.19 (complete), Instance3616.20 (complete), Instance3616.21 (complete), Instance3616.22 (complete), Instance3616.23 (complete), Instance3616.24 (complete), Instance3616.25 (complete), Instance3616.26 (complete), Instance3616.27 (complete), Instance3616.28 (complete), Instance3616.29 (complete), Instance3616.30 (complete), Instance3616.31 (complete), Instance3616.32 (complete), Instance3616.33 (complete), Instance3616.34 (complete), Instance3616.35 (complete), and Instance3616.36 (complete)
4/9/2009 9:25:57 AM -- C:\Project2_1GB\Soft Recovery Test\2800users\Performance_2009_4_9_4_30_8.blg has 1179 samples.
4/9/2009 9:25:57 AM -- Creating test report ...
4/9/2009 9:27:09 AM -- volume C:\asgluns\sg1 has 0.0104 for Avg. Disk sec/Read.
4/9/2009 9:27:09 AM -- volume C:\asgluns\sg2 has 0.0097 for Avg. Disk

sec/Read.
4/9/2009 9:27:09 AM -- volume C:\asgluns\sg3 has 0.0096 for Avg. Disk
sec/Read.
4/9/2009 9:27:09 AM -- volume C:\asgluns\sg4 has 0.0095 for Avg. Disk
sec/Read.
4/9/2009 9:27:09 AM -- volume C:\asgluns\sg5 has 0.0103 for Avg. Disk
sec/Read.
4/9/2009 9:27:09 AM -- volume C:\asgluns\sg6 has 0.0107 for Avg. Disk
sec/Read.
4/9/2009 9:27:09 AM -- volume C:\asgluns\sg7 has 0.0103 for Avg. Disk
sec/Read.
4/9/2009 9:27:09 AM -- volume C:\asgluns\sg8 has 0.0098 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg9 has 0.0095 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg10 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg11 has 0.0099 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg12 has 0.0108 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg13 has 0.0104 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg14 has 0.0098 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg15 has 0.0095 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg16 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg17 has 0.0098 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg18 has 0.0108 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg19 has 0.0099 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg20 has 0.0100 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg21 has 0.0091 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg22 has 0.0099 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg23 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg24 has 0.0103 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg25 has 0.0105 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg26 has 0.0098 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg27 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:10 AM -- volume C:\asgluns\sg28 has 0.0094 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg29 has 0.0101 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg30 has 0.0107 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg31 has 0.0106 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg32 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg33 has 0.0097 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg34 has 0.0095 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\asgluns\sg35 has 0.0101 for Avg. Disk
sec/Read.

4/9/2009 9:27:11 AM -- volume C:\asgluns\sg36 has 0.0108 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg1 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg1 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg2 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg2 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg3 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg3 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg4 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg4 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg5 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg5 has 0.0001 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg6 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg6 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg7 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg7 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg8 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg8 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg9 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg9 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg10 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg10 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg11 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg11 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg12 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg12 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg13 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg13 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg14 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg14 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg15 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg15 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg16 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg16 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:11 AM -- volume C:\alogluns\lg17 has 0.0003 for Avg. Disk

4/9/2009 9:27:12 AM -- volume C:\alogluns\lg34 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:12 AM -- volume C:\alogluns\lg34 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:12 AM -- volume C:\alogluns\lg35 has 0.0005 for Avg. Disk
sec/write.
4/9/2009 9:27:12 AM -- volume C:\alogluns\lg35 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:12 AM -- volume C:\alogluns\lg36 has 0.0003 for Avg. Disk
sec/write.
4/9/2009 9:27:12 AM -- volume C:\alogluns\lg36 has 0.0000 for Avg. Disk
sec/Read.
4/9/2009 9:27:12 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
4/9/2009 9:27:12 AM -- Test has 0 Database Page Fault Stalls/sec samples
higher than 0.
4/9/2009 9:27:12 AM -- C:\Project2_1GB\Soft Recovery
Test\2800users\Performance_2009_4_9_4_30_8.xml has 1178 samples queried.



Corporate Headquarters 750 Central Expressway, Santa Clara, California 95050-2627 USA
Contact Information: + 1 408 970 1000 www.hds.com / info@hds.com

Asia Pacific and Americas 750 Central Expressway, Santa Clara, California 95050-2627 USA
Contact Information: + 1 408 970 1000 www.hds.com / info@hds.com

Europe Headquarters Sefton Park, Stoke Poges, Buckinghamshire SL2 4HD United Kingdom
Contact Information: + 44 (0) 1753 618000 www.hds.com / info.uk@hds.com

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