

This document has been archived and will no longer be maintained or updated. For more information go to the [Storage Solutions Technical Documents page on Dell TechCenter](#) or contact support.

# Dell EqualLogic PS Series

## 75,000-User Mailbox Resiliency Storage Solution for Microsoft Exchange Server 2010

ESRP – Storage Version 3.0

PS Series Firmware Version 5.0.2



Tested with: ESRP – Storage Version 3.0

Test Date: May, 2011

Document Version: v1.0

Copyright © 2011 Dell Inc. All Rights Reserved.

EqualLogic is a registered trademark of Dell Inc.

Dell is a trademark of Dell Inc.

All trademarks and registered trademarks mentioned herein are the property of their respective owners.

Information in this document is subject to change without notice.

Reproduction in any manner whatsoever without the written permission of Dell is strictly forbidden.

July 2011

## Table of Contents

Overview.....	5
Disclaimer.....	5
Dell EqualLogic PS Series storage array features.....	6
Windows and Exchange integration.....	9
Solution description.....	9
Hardware and software.....	10
Exchange DAG architecture.....	12
Targeted customer profile.....	18
Tested deployment.....	18
Simulated Exchange configuration.....	19
Primary storage hardware.....	19
Primary storage software.....	20
Primary drive configuration (Mailbox and Log Store Drives).....	20
Best practices.....	20
Additional information.....	21
Test result summary.....	21
Reliability results.....	21
Storage performance results.....	21
Database Backup/Recovery performance.....	24
Conclusion.....	24
Appendix A.....	25
IMEGA1 Performance Test Result Report.....	25
IMEGA1 Database Checksum Report.....	29
IMEGA1 Stress Test Result Report.....	31
IMEGA1 Database Backup Test Result Report.....	35
IMEGA1 SoftRecovery Test Result Report.....	37
IMEGA2 Performance Test Result Report.....	40
IMEGA2 Database Checksum Report.....	44
IMEGA2 Stress Test Result Report.....	46
IMEGA2 Database Backup Test Result Report.....	50
IMEGA2 SoftRecovery Test Result Report.....	52
IMEGA3 Performance Test Result Report.....	55
IMEGA3 Database Checksum Report.....	59
IMEGA3 Stress Test Result Report.....	61
IMEGA3 Database Backup Test Result Report.....	65
IMEGA3 SoftRecovery Test Result Report.....	67
IMEGA4 Performance Test Result Report.....	70
IMEGA4 Database Checksum Report.....	74
IMEGA4 Stress Test Result Report.....	76
IMEGA4 Database Backup Test Result Report.....	80
IMEGA4 SoftRecovery Test Result Report.....	82
IMEGA5 Performance Test Result Report.....	85
IMEGA5 Database Checksum Report.....	89
IMEGA5 Stress Test Result Report.....	91
IMEGA5 Database Backup Test Result Report.....	95
IMEGA5 SoftRecovery Test Result Report.....	97
IMEGA6 Performance Test Result Report.....	100
IMEGA6 Database Checksum Report.....	104
IMEGA6 Stress Test Result Report.....	106
IMEGA6 Database Backup Test Result Report.....	110
IMEGA6 SoftRecovery Test Result Report.....	112
IMEGA7 Performance Test Result Report.....	115
IMEGA7 Database Checksum Report.....	119
IMEGA7 Stress Test Result Report.....	121
IMEGA7 Database Backup Test Result Report.....	125

IMEGA7 SoftRecovery Test Result Report .....	127
IMEGA8 Performance Test Result Report.....	130
IMEGA8 Database Checksum Report .....	134
IMEGA8 Stress Test Result Report.....	136
IMEGA8 Database Backup Test Result Report.....	140
IMEGA8 SoftRecovery Test Result Report.....	142

# Overview

This document provides information on the Dell storage solution for Microsoft Exchange Server, based on the *Microsoft Exchange Solution Reviewed Program (ESRP) – Storage* program<sup>1</sup>. For any questions or comments regarding the contents of this document, contact Dell.

## Disclaimer

This document has been produced independently of Microsoft Corporation. Microsoft Corporation expressly disclaims responsibility for, and makes no warranty, express or implied, with respect to the accuracy of the contents of this document.

The information contained in this document represents the current view of Dell Inc. on the issues discussed as of the date of publication. Due to changing market conditions, it should not be interpreted to be a commitment on the part of Dell, and Dell cannot guarantee the accuracy of any information presented after the date of publication.

---

<sup>1</sup> The *ESRP – Storage* program was developed by Microsoft Corporation to provide a common storage testing framework for vendors to provide information on their storage solutions for Microsoft Exchange Server software. For more details on the *Microsoft ESRP – Storage* program, see the following URL:

<http://technet.microsoft.com/en-us/exchange/ff182054.aspx>

# Dell EqualLogic PS Series storage array features

With Dell™ EqualLogic™ PS Series storage arrays, your business can leverage its existing Ethernet infrastructure and deploy a comprehensive, easy-to-manage iSCSI SAN with all-inclusive enterprise-level features. The PS Series architecture was specifically designed to decrease the storage management burden on IT administrators and alleviate CIO planning and budgetary concerns. Dell chose the iSCSI protocol—with its networking and connectivity advantages—as the basis of the storage solution, and then built intelligence, automation, and redundancy into each PS Series storage array.

PS Series storage arrays use storage virtualization technology to mask the underlying complexity of the storage configuration. This virtualization occurs within and across multiple arrays that are logically grouped together, making management simple and efficient. Reliable hardware, intuitive graphical and command line user interfaces, and automated operations offer excellent productivity and service levels, while RAID configuration, storage expansion, drive sparing, and performance optimization occur automatically.

An IP network is used to connect hosts and applications to storage volumes, and also to connect arrays to each other, providing a communication mechanism that the arrays use to share configuration data and collaborate during data provisioning and load balancing. With the automated management capabilities of PS Series storage arrays, your storage administrators can provision data on-demand and make configuration changes quickly and easily—without disrupting running applications.

The PS Series storage array is a truly modular storage system. Each array contains redundant hot-swappable components for high availability and is designed for 99.999% reliability. An array does not act individually, but as part of a group of one or more arrays, accessed through a single IP address. Each array is configured with the RAID level of your choice. Performance load balancing enables volume data to be stored where the RAID configuration is optimal. When more capacity is needed, you simply add another member to the group. Capacity and performance scale automatically and linearly. Whether you have one array or many, the group provides a single management view, and the administrative effort remains the same.

Using a PS Series group for drive storage, diverse operating systems and a wide range of applications enables sharing of a reliable and high-performance storage system that can scale from hundreds of gigabytes to more than 100 terabytes. Administrators can access the group through a web browser, network connection, or serial connection. The graphical and command line user interfaces present a unified view of the storage that makes provisioning quick and easy. You can instantly create, expand, and delete volumes. Group storage space can be organized into a single pool or multiple pools for increased control and optimal flexibility. In addition, volume snapshots and replicas can be created on demand or through a schedule, providing online backup and restore capabilities with unmatched performance.

The PS Series of arrays provides for an efficient, self-regulating, tiered architecture. Without administrator intervention, data placement within a storage volume is optimized based upon latency. For applications where data becomes “hot” or most accessed, the PS Series arrays will move those pages of data to the pool member with the lowest latency, and move “cold” pages to arrays with higher latency. The result is a well-balanced, high-performing pool of storage.

Event notification mechanisms—including e-mail, syslog, and SNMP—ensure that any problems in the SAN can be quickly identified and resolved. Automatic controller failover and drive sparing mean that failures can generally be handled without user intervention. Servicing of the system (including replacing drives, controllers, fans, and power supplies) can be performed through the management interface.

For a comprehensive storage solution, Dell also provides host-based utilities that are all-inclusive in the purchase of your EqualLogic array. The Host Integration Tools enable easy point-and-click array initialization and host configuration. In addition, multipath I/O support enables you to create a reliable and high-performance I/O path between servers and PS Series group data, while Auto-Snapshot Manager (VSS provider) enables you to create snapshots that are coordinated with Windows applications.

To provide you with a truly comprehensive system, Dell includes numerous advanced features as standard functionality (no hardware add-ons or software licenses) in every PS Series storage array.

- **Modular hardware:** A PS Series group can easily grow or shrink to accommodate workload changes. Therefore, administrators can purchase only the storage they need when they need it. Future products will fully interoperate with first-generation arrays, protecting your initial investment.

- **Fully-redundant, fault-tolerant storage array.** Each array includes redundant, hot-swappable components—drives, control modules, fans, and power supplies—for a no-single-point-of-failure configuration. Components fail over automatically, without user intervention or disrupting data availability. In addition, data in each array is protected with RAID technology.
- **Support for RAID 10, RAID 5, RAID 6, RAID 6 Accelerated, and RAID 50.** You can choose to configure arrays with the appropriate RAID policy, depending on your capacity and application needs.
- **Support for a variety of drives.** Serial ATA (SATA) and Serial-Attached SCSI (SAS) provide flexibility in capacity and performance to meet your needs.
- **Automatic spare configuration and utilization.** Drive spares are automatically configured and used to replace failed drives. No user intervention is required.
- **Auto-Stat Drive Monitoring System (ADMS).** By continually monitoring drive health within a PS Series storage array or across a PS Series group, ADMS ensures optimal data availability. ADMS automatically scans drives in the background to proactively detect and correct media anomalies.
- **High-performance control modules.** Dual control modules provide support for network interface and control module failover. Nonvolatile write-back caches are mirrored across the control modules to protect data. Each control module has two, three, or four 1-Gigabit Ethernet interfaces or two 10-Gigabit Ethernet interfaces. Some control modules also have a dedicated management port.
- **Simple hardware installation.** Only a single network connection on an array is required for operation. Additional network connections can be added at any time for increased bandwidth and reliability.
- **Support for standard Ethernet networks.** Because PS Series storage arrays use standard Ethernet connections to provide access to storage, there is no need to train administrators in unfamiliar and complex technologies like Fibre Channel. Also, costs are reduced due to the high volumes and intense vendor competition among Ethernet hardware vendors.
- **Easy setup and management.** A simple setup utility lets you quickly configure an array on the network and create a PS Series group. In minutes, you have a functioning iSCSI SAN. By automating complex operations like RAID configuration, drive sparing, data provisioning, and load balancing, your storage administrators can effectively manage the SAN.
  - **Graphical- and command-line user interfaces.** Password-protected management interfaces provide a single-system view of the storage. Administrators do not need multiple consoles to perform storage management tasks. Using the Group Manager graphical user interface (GUI), creating and managing volumes and configuring security, networking, and event notification are point-and-click operations. In addition, an equivalent command-line interface (CLI) can be accessed through telnet, SSH, or a serial connection, or can be used in scripts.
  - **Automatic data provisioning.** There is no need for administrators to manually create RAID sets or map data onto drives or individual controllers. Arrays in a group contribute space to a shared pool of storage, from which you create volumes. Each volume has a specific size and access controls. To increase a volume, just specify a new size. The group handles storage allocation and capacity balancing across the drives and arrays.
  - **Dynamic load balancing.** As the workload changes, data and network I/O are automatically load-balanced within and across arrays in the group—with no impact on applications and no user intervention. Thus, “hot spots” can be quickly detected and eliminated.
- **Online and seamless scalability.** Increasing array capacity is as easy as installing additional drives or adding more network connections. You can seamlessly expand overall group capacity adding another array to a PS Series group. In all cases, performance scales automatically as drive data and network I/O are load-balanced across the added resources. Processing power also increases due to the additional controllers and caches. Meanwhile, volumes remain available with no impact on hosts and applications. There is no need to open a server cabinet or reconfigure an operating system. The additional storage space and network bandwidth are immediately available for use.

More than 1000 TB of storage can be configured in a single group. As the group expands, the management effort remains constant. A group with one array (member) is as easy to manage as a multi-member group.

Different sizes and generations of EqualLogic arrays can join into the same management group or even the same resource pool. Therefore, one does not need to throw away previous investments to fully benefit from new technology and new features.

- **Robust security for both data and management access.** Security between an iSCSI initiator (host) and iSCSI target (volume) can be based on IP address, iSCSI initiator name, or CHAP user name. This eliminates the need to understand complicated security technologies (such as Fibre Channel Switch Zoning or LUN Masking). CHAP authentication can be provided through the PS Series group itself or an external RADIUS server.

In addition, access to the group for management purposes requires an administrative account and password. Accounts can have either read-write or read-only privileges.

- **Advanced features are standard in all arrays.** A key PS Series design principle is to include advanced functionality in all arrays. The result is a comprehensive solution with built-in intelligence and advanced features. All the features described below are standard on each array with our all-inclusive software package and require no additional software, licenses, or cost.
  - **Cloning.** A clone is an image copy of a volume. Cloning is commonly used in multiple server deployments. For example, a master image of a system can be created and then cloned for each server. Cloning can dramatically reduce overhead when deploying replicated servers, such as blade servers and web servers.
  - **Snapshots.** A snapshot quickly captures a volume's contents at a specific point in time and can be used for backups, testing, and upgrades. Both instant and scheduled snapshots are supported. Snapshots greatly simplify and improve the performance of backup and recovery operations. Consistency groups can be created for simultaneous snapshots, maintaining application synchronization across multiple data volumes.
  - **Volume Shadow Copy Service (VSS).** EqualLogic arrays are integrated with the Microsoft VSS framework, which is included with Windows Server. This feature enables turnkey snapshot backups that can offload the backup process from application servers.
  - **Virtual Drive Service (VDS).** The EqualLogic VDS provider enables you to use Microsoft Storage Manager for SANs to create and manage volumes in a PS Series group.
  - **Replication.** Using two PS Series groups, you can replicate volumes across unlimited distances to protect your data. Replication enables you to set up a simple, yet robust disaster recovery plan that guards against catastrophic events.

A replica represents the contents of a volume at a specific point in time and is similar to a snapshot, except that it must be stored separately from the original volume. If the original volume is destroyed, you can recover data by cloning a replica. This creates a new volume containing the volume data that existed at the time the replica was created.

- **Multipath I/O.** A redundant network path eliminates failure points between hosts and storage and improves availability. For high performance, you can load balance I/O across multiple ports (HBAs or NICs).
  - **SAN Boot.** Booting servers directly from the SAN is operationally identical to a traditional boot process, but can be accomplished easily and efficiently across hundreds of servers.
  - **Storage Pools.** With PS Series storage, you can divide SAN space into multiple storage pools in a single PS Series group to build an efficient, flexible, easy-to-manage networked storage environment. Pools can be used for segregation or tiering of data online.
  - **Tiered Storage Pools.** Automatically, without administrator intervention, each pool of storage will balance and spread data across a pool of storage or arrays, providing for linear scaling of capacity and performance. The system automatically swaps hot data with cold data between the arrays. This ensures that IO bottlenecks are avoided and both the IO performance and the capacity capabilities of different tiers or different generations of hardware can be automatically applied to maximize the ability of the solution to support application needs.
- **Wide-spread interoperability.** PS Series storage arrays are ideal for heterogeneous environments, with support for most major operating systems and cluster software.



# Windows and Exchange integration

Windows integration for Dell EqualLogic PS Series SANs is provided at several levels. VDS and VSS providers are included as part of the Host Integration Tools (HIT) and provide integration with Windows® file systems and compatible backup tools. Also provided is an MPIO Device Specific Module (DSM). This provides connection awareness of the PS Series SAN to Windows hosts, simplifying configuration, enabling reliable network connections, and enhancing performance.

Auto Snapshot Manager / Microsoft Edition (ASM/ME) is an all-inclusive software package that ships with all Dell EqualLogic PS Series arrays to facilitate the deployment, ongoing management, and protection of Dell EqualLogic iSCSI SANs in your Microsoft® Windows environments. ASM/ME has specific integration with Microsoft Exchange including Exchange Server 2010.

ASM/ME leverages VSS to enable the creation of application-consistent “Smart Copies”. These allow clean capture and recovery of email database information from Exchange 2010 using space-efficient EqualLogic snapshots. These point-in-time copies essentially preserve the state of the database at a specific moment. Incremental storage is then used to store changes to the database. This is more space efficient than having to keep a complete database copy online, as is required with lagged logs. ASM also allows the creation of flexible schedules for the capture of Smart Copies. Database integrity checks can be configured to run on a designated server, offloading the verification process. With these capabilities, the administrator can keep a set of point-in-time copies of the email databases, increasing the number of recovery points available. These additional Recovery Points (RPO) enhance recoverability in the event of a database corruption. Point-in-time copies of the email databases can be used for granular mailbox recovery, e-discovery, and Database reseeding. ASM/ME Smart Copy restore functions reduces the Recovery Time (RTO) associated with e-mail and database recoveries as well as database reseeds.

## Solution description

The following sections outline the hardware and software environment for a Microsoft Exchange Server 2010 solution intended for medium and large organizations that support up to 75,000 users in a mailbox resiliency configuration utilizing the Database Availability Group (DAG) feature. The solution consists of a single DAG (2 copy) solution hosted across 16 individual Dell R610 servers with storage provided by 32 Dell EqualLogic PS6000XV storage arrays. Connectivity between servers and storage is via iSCSI protocol and a single Force10 C300 chassis switch.

The design features a configuration with no single point of failure among storage or servers and additional redundancy within each component. Each Exchange database is replicated to a different server on a separate array, where it is protected by RAID-50 redundancy. Two of the 16 SAS drives in each array are reserved as hot spares for automatic resynchronization in the case of drive failure. In addition, arrays provide redundant controllers and network interfaces with automatic failover. This is backed by dual quad port Ethernet adaptors on each server providing MPIO for performance and reliability.

Further, resiliency within the virtual subdivisions of the storage is achieved by replicating each Exchange database to different pools and volumes within pools. In the event that any pool or volume is lost or destroyed (for example, by administrator error) the Exchange servers will continue serving all users.

As a whole the solution design provides high availability and resiliency at multiple layers of hardware and software.

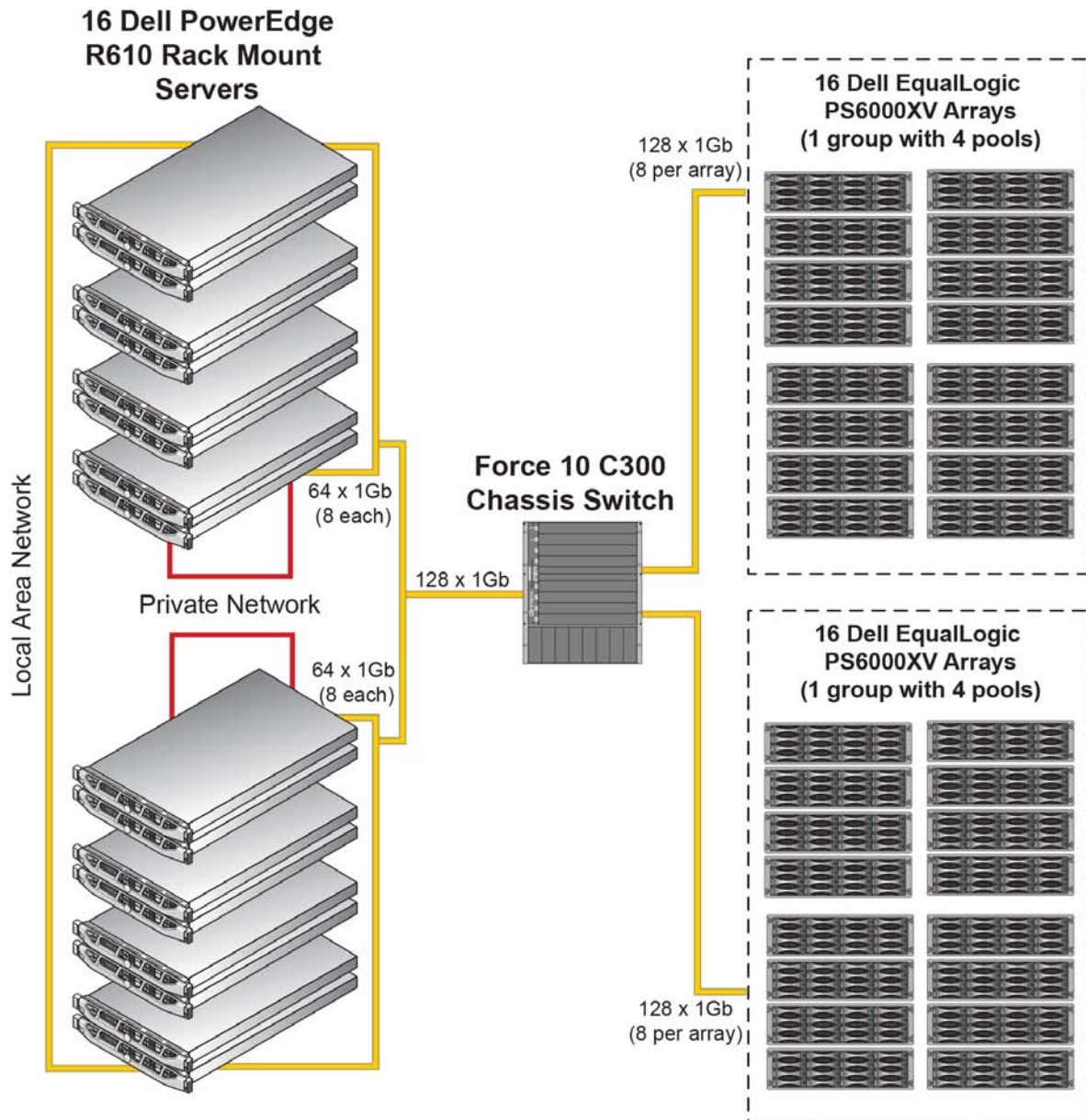
## Hardware and software

The solution hardware environment is described in the following table.

Storage	Drives	Servers	Ethernet connections
32 PS6000XV storage arrays  Configured into 2 PS Series groups, each group containing four data storage pools with four members per pool (for db and log data).	512 15K-RPM 600GB Serial Attached SCSI drives	16 Dell PowerEdge™ R610 Servers, each with Intel Xeon 2.66 GHz quad Core CPU and 12GB memory running MS Windows Server 2008 R2 Enterprise x64 Edition	8 gigabit Ethernet connections per Server: 2 quad port Intel Gigabit Ethernet Adapters (model: PRO/1000 ET, driver V11.7.32.0 )

Dell EqualLogic PS Series storage arrays provide active load balancing of storage and connection allocation. With four arrays per pool instantiating two volumes, PS Series array controllers will over time select an ideal location for each page of data, optimizing performance characteristics. This feature provides balanced demand of array resources providing highest throughput and lowest latencies with no administrative intervention. Additionally, network traffic is balanced across all 8 server network interfaces through Host Integration Tools multipathing, applying intelligent automatic load-balancing to server resources as well.

## PS Series topology for Exchange storage solution



## Exchange DAG architecture

This mailbox resiliency solution utilizes two PS Series array groups. Each array group consists of 16 Dell EqualLogic PS6000XV storage arrays. There are four data storage pools in each array group, each consisting of 4 arrays. All arrays are configured as RAID-50. Within each storage pool two volumes are created for a total of 16 volumes per array group. Each volume may span up to the four arrays in its pool, and each volume provides database and log storage for a single Microsoft Exchange server.

There are 16 simulated Microsoft Exchange servers in the solution. Each Exchange server uses 5 databases and 5 log folders configured in the single volume. Within the overall solution, 8 servers provision active database copies and 8 servers provision passive database copies. There are a total of 40 active database copies spread across all PS Series arrays. This design ensures that a fully functioning implementation shares load across all storage, Yet it is capable of providing access to all mail databases and meeting service level agreements in the case that up to half of all servers and/or storage has failed.

The following table and diagram provides details of the solutions data layout on PS Group volumes and maps the volumes to the servers in the DAG.

**Table 1: Solution data layout**

Server	PS Array Group	Pool	Volume	DB and Log Group	Active/Passive
Server 1	PS Array Group 1 consisting of 16 PS6000XV arrays	Data Pool 1 consisting of four PS6000XV arrays, 1 – 4	Volume 1	DB/Log 1	Active (copy 1)
				DB/Log 2	Active (copy 1)
				DB/Log 3	Active (copy 1)
				DB/Log 4	Active (copy 1)
				DB/Log 5	Active (copy 1)
Server 2		Volume 2	DB/Log 6	Passive (copy 2)	
			DB/Log 7	Passive (copy 2)	
			DB/Log 8	Passive (copy 2)	
			DB/Log 9	Passive (copy 2)	
			DB/Log 10	Passive (copy 2)	
Server 3	Data Pool 2 consisting of four PS6000XV arrays, 5-8	Volume 3	DB/Log 11	Active (copy 1)	
			DB/Log 12	Active (copy 1)	
			DB/Log 13	Active (copy 1)	

Server	PS Array Group	Pool	Volume	DB and Log Group	Active/Passive
				DB/Log 14	Active (copy 1)
				DB/Log 15	Active (copy 1)
Server 4			Volume 4	DB/Log 16	Passive (copy 2)
				DB/Log 17	Passive (copy 2)
				DB/Log 18	Passive (copy 2)
				DB/Log 19	Passive (copy 2)
DB/Log 20		Passive (copy 2)			
Server 5		Data Pool 3 consisting of four PS6000XV arrays, 9 - 12	Volume 5	DB/Log 1	Passive (copy 2)
				DB/Log 2	Passive (copy 2)
				DB/Log 3	Passive (copy 2)
				DB/Log 4	Passive (copy 2)
				DB/Log 5	Passive (copy 2)
Server 6			Volume 6	DB/Log 6	Active (copy 1)
				DB/Log 7	Active (copy 1)
				DB/Log 8	Active (copy 1)
				DB/Log 9	Active (copy 1)
				DB/Log 10	Active (copy 1)
Server 7		Data Pool 4 consisting of four PS6000XV arrays, 13 - 16	Volume 7	DB/Log 11	Passive (copy 2)
				DB/Log 12	Passive (copy 2)
				DB/Log 13	Passive (copy 2)
				DB/Log 14	Passive (copy 2)

Server	PS Array Group	Pool	Volume	DB and Log Group	Active/Passive
				DB/Log 15	Passive (copy 2)
Server 8			Volume 8	DB/Log 16	Active (copy 1)
				DB/Log 17	Active (copy 1)
				DB/Log 18	Active (copy 1)
				DB/Log 19	Active (copy 1)
				DB/Log 20	Active (copy 1)
Server 9	PS Array Group 2 consisting of 16 PS6000XV arrays	Data Pool 5 consisting of four PS6000XV arrays, 17 - 20	Volume 9	DB/Log 21	Active (copy 1)
				DB/Log 22	Active (copy 1)
				DB/Log 23	Active (copy 1)
				DB/Log 24	Active (copy 1)
				DB/Log 25	Active (copy 1)
Server 10			Volume 10	DB/Log 26	Passive (copy 2)
				DB/Log 27	Passive (copy 2)
				DB/Log 28	Passive (copy 2)
				DB/Log 29	Passive (copy 2)
				DB/Log 30	Passive (copy 2)
Server 11		Data Pool 6 consisting of four PS6000XV arrays, 21 – 24	Volume 11	DB/Log 31	Active (copy 1)
				DB/Log 32	Active (copy 1)
				DB/Log 33	Active (copy 1)
				DB/Log 34	Active (copy 1)
				DB/Log 35	Active (copy 1)

Server	PS Array Group	Pool	Volume	DB and Log Group	Active/Passive
Server 12			Volume 12	DB/Log 36	Passive (copy 2)
				DB/Log 37	Passive (copy 2)
				DB/Log 38	Passive (copy 2)
				DB/Log 39	Passive (copy 2)
				DB/Log 40	Passive (copy 2)
Server 13		Data Pool 7 consisting of four PS6000XV arrays, 25 - 28	Volume 13	DB/Log 21	Passive (copy 2)
				DB/Log 22	Passive (copy 2)
				DB/Log 23	Passive (copy 2)
				DB/Log 24	Passive (copy 2)
				DB/Log 25	Passive (copy 2)
Server 14			Volume 14	DB/Log 26	Active (copy 1)
				DB/Log 27	Active (copy 1)
				DB/Log 28	Active (copy 1)
				DB/Log 29	Active (copy 1)
				DB/Log 30	Active (copy 1)
Server 15		Data Pool 8 consisting of four PS6000XV arrays, 29 - 32	Volume 15	DB/Log 31	Passive (copy 2)
				DB/Log 32	Passive (copy 2)
				DB/Log 33	Passive (copy 2)
				DB/Log 34	Passive (copy 2)
				DB/Log 35	Passive (copy 2)
Server 16			Volume 16	DB/Log 36	Active (copy 1)

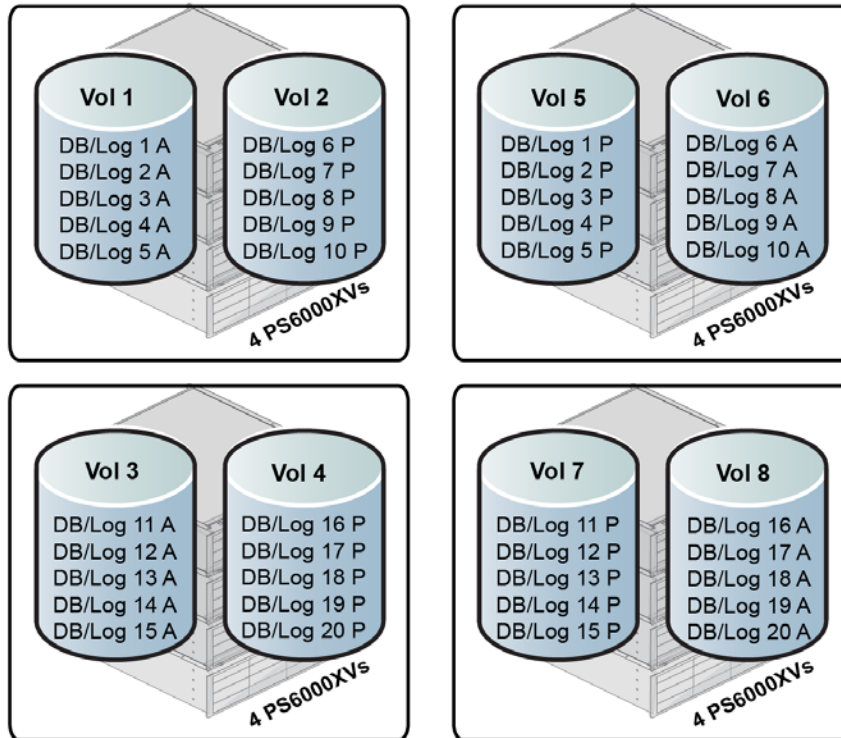
Server	PS Array Group	Pool	Volume	DB and Log Group	Active/Passive
				DB/Log 37	Active (copy 1)
				DB/Log 38	Active (copy 1)
				DB/Log 39	Active (copy 1)
				DB/Log 40	Active (copy 1)

By design the data layout of the solution provides redundancy at the pool and volume layer. Therefore, as many as half of all servers, pools or volumes may be lost or destroyed (e.g. by disaster or administrator error) while the solution maintains a copy of all databases, and the remaining mailbox servers continue servicing all Exchange users.

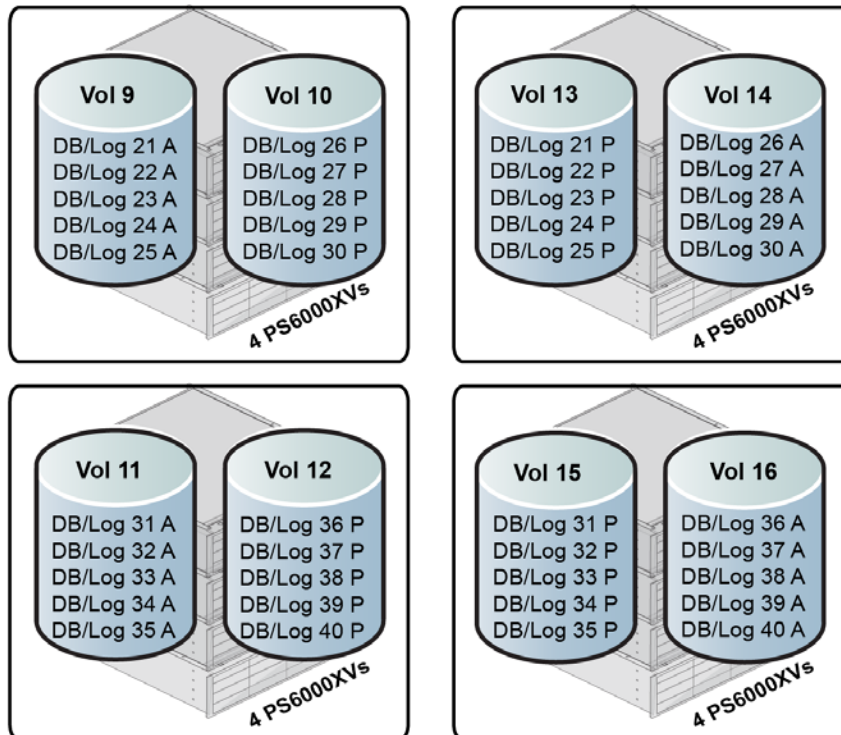


## PS Series solution for Exchange Server data configuration

### Array Group 1 - 16 arrays, 4 pools, 4 arrays per pool, 2 volumes per pool



### Array Group 2 - 16 arrays, 4 pools, 4 arrays per pool, 2 volumes per pool



The ESRP-Storage program focuses on storage solution testing to address performance and reliability issues with storage design. However, storage is not the only factor to take into consideration when designing a scale-up Exchange solution. Other factors which affect the server scalability are:

- Server processor utilization
- Server physical and virtual memory limitations
- Resource requirements for other applications
- Directory and network service latencies
- Network infrastructure limitations
- Replication and recovery requirements
- Client usage profiles

All these factors are beyond the scope for ESRP-Storage. Therefore, the number of mailboxes hosted per server as part of the tested configuration may not necessarily be viable for some customer deployment.

For more information on identifying and addressing performance bottlenecks in an Exchange system, please see Troubleshooting Microsoft Exchange Server Performance, available at:

<http://go.microsoft.com/fwlink/?LinkId=23454>

## Targeted customer profile

The PS Series storage solution is intended for medium and large Microsoft Exchange Server 2010 organizations that want reliable, high-performance, and easy-to-manage drive storage. The tested configuration can support the following:

- 16 (8 tested) Exchange 2010 servers
- 75,000 user mailboxes
- 0.25 I/O per second per user (0.3 tested for 20% headroom)
- 1024 MB mailbox quota per user
- 5 databases per server
- 1.83TB database size
- Mailbox Resiliency (2 copies) provides high availability and is the primary data protection mechanism.

## Tested deployment

Since primary (active) and secondary (passive) storage in the solution is identical, the tested deployment configured primary storage only, as allowed in the ESRP Storage v3.0 program. The following tables summarize the testing environment.

## Simulated Exchange configuration

Number of Exchange mailboxes simulated	75,000
Number of Database Availability Groups (DAGs)	1
Number of servers/DAG	16 (8 tested)
Number of active mailboxes/server	Average 4687.5 (9375 tested)
Number of databases/host	5
Number of copies/database	2
Number of mailboxes/database	1875
Simulated profile: I/O's per second per mailbox (IOPS, include 20% headroom)	.3
Database and Log LUN size	11.9 TB (5 DBs and 5 log sets per LUN)
Total database size for performance testing	73.24 TB
% storage capacity used by Exchange database <sup>2</sup>	76.9 % (73.24TB/95.2TB)

## Primary storage hardware

Storage Connectivity	iSCSI
Storage model and OS/firmware revision	Dell EqualLogic PS6000XV Firmware Rev: V5.0.2 <a href="http://www.dell.com/products/view.aspx?id=2509">http://www.dell.com/products/view.aspx?id=2509</a>
Storage cache	64GB (16-PS6000s * 4GB = 64GB)
Number of storage controllers	32 (2 per array in active/passive configuration)
Number of storage ports	128 (4 per controller/8 per array)
Maximum bandwidth of storage connectivity to host	4 x 1 GB Ethernet per array
Switch type/model/firmware revision	Force10 C300 Chassis Switch (GB Ethernet) Firmware Rev: V12.2(46)SE
HBA model and firmware	Intel PRO/1000 ET Quad Port Gigabit Ethernet Adapters with Jumbo frames enabled.
Number of HBAs/host	2
Host server type	Dell PowerEdge R610 Intel Xeon Dual Core 2.66 GHz with 12GB RAM
Total number of drives tested	256
Maximum number of spindles	256

---

<sup>2</sup> 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 is tested in this paper.

## Primary storage software

HBA driver	Intel Driver Version: 11.7.32.0
HBA QueueTarget Setting	N/A
HBA QueueDepth Setting	N/A
Multipath I/O DSM	Dell EqualLogic HIT (Host Integration Toolkit) 3.4.2
Host OS	Windows Server 2008 R2, Enterprise x64 Edition, SP1
ESE.dll file version	14.0.639.19
Replication solution name/version	N/A

## Primary drive configuration (Mailbox and Log Store Drives)

Drive type, speed and firmware revision	Seagate Cheetah 15K.6 600G 15,000 rpm SAS drives Model: ST3600057SS Firmware Revision: EN00
Raw capacity per drive (GB)	558.91GB
Number of physical drives in test	256 (224 + 32 hot spares)
Total raw storage capacity (GB)	139.73TB (143,080.96 GB) including spares
Drive slice size (GB)	N/A
Number of disks per LUN	Up to 64 (automatically allocated based on load)
Raid level	All storage pools configured as RAID 50
Total formatted capacity (GB)	95.2TB
Storage capacity utilization	68.1% (100.45TB/139.73TB)
Database capacity utilization	52.4% (73.24TB/139.73TB)

## Best practices

Microsoft Exchange Server is a drive-intensive application. Based on the tests using the ESRP framework, Dell recommends the following best practices to help improve storage performance.

- Allow the PS Series group to automatically balance the load across arrays, caches, and network links. Automatic load balancing reduces administrator effort as Exchange workloads change over time.
- In large Exchange deployments, isolate the Exchange workload from other application workloads by creating separate storage pools for Exchange-related volumes in a PS Series group and setting up separate servers for Exchange and other applications.
- Windows NTFS allocation unit size for partitions containing Exchange 2010 databases should be set to 64k for best performance.
- Depending on the desired level of availability, you can configure Exchange using multiple storage pools in a PS Series group to provide complete resource and hardware isolation between logs and databases. You can also deploy Exchange using a single pool, which provides a high level of availability and makes provisioning simple. Performance and reliability are similar in either a single pool group or multiple pool group.

- Size and configure first for I/O performance, then for storage capacity.
- Enable Dell EqualLogic Host Integration Tools V3.4.2 on Exchange servers to ensure highly-available SAN connections with Microsoft's MPIO.
- Use Microsoft iSCSI software initiators in Exchange configurations. In these tests, the Microsoft iSCSI software initiator was used.
- Use separate volumes for Exchange databases and transaction logs to improve backup and recovery operations. This solution chose shared volumes for databases and logs in the interest of ease of maintenance.
- Place SAN infrastructure on VLANs or subnets that differ from other production network traffic.
- Use non-blocking Gigabit Ethernet switches.
- Enable use of Jumbo Frames on the Intel Quadport ET devices
- Set the nic transmit/receive buffers to their maximum setting

For additional best practices on storage design in Exchange 2010, see the URL:

<http://technet.microsoft.com/en-us/library/bb124518.aspx>

## Additional information

For more information, see the Dell website ([www.dell.com](http://www.dell.com)). In addition, Dell EqualLogic technical documents may be useful:

<http://support.dell.com/equallogic>

## Test result summary

This section provides a high-level summary of the test data from ESRP and the link to the detailed html reports which are generated by the ESRP testing framework. See [Appendix A](#) for detailed information about test results.

### Reliability results

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

The following list provides an overview:

- No relevant errors were reported in the event log for the storage reliability test.
- No errors were reported by the database and log checksum process.

### Storage performance results

The Primary Storage performance testing is designed to exercise the storage with maximum sustainable Exchange I/O for over two hours. The test shows how long it takes for the storage to respond to an I/O under load. The data below is the sum of all of the logical drive I/Os and the average of all the logical drives' I/O latency during the test (which was run for six hours). Each server is listed separately and the aggregate numbers across all servers are also presented.

## Individual server metrics

The server metrics include the sum of I/Os across storage groups and the average latency across all storage groups on a per server basis.

**Table 1 IMEGA1 Performance Results**

Database I/O	
Database Drive Transfers/sec	3270.354
Database Drive Reads/sec	2084.2
Database Drive Writes/sec	1186.154
Average Database Drive Read Latency (ms)	17.2058
Average Database Drive Write Latency (ms)	3.8368
Transaction Log I/O	
Log Drive Writes/sec	554.732
Average Log Drive Write Latency (ms)	1.6624

**Table 2 IMEGA2 Performance Results**

Database I/O	
Average Database Drive Transfers/sec	3205.186
Average Database Drive Reads/sec	2045.158
Average Database Drive Writes/sec	1160.028
Average Database Drive Read Latency (ms)	17.7402
Average Database Drive Write Latency (ms)	5.7072
Transaction Log I/O	
Average Log Drive Writes/sec	531.562
Average Log Drive Write Latency (ms)	1.9852

**Table 3 IMEGA3 Performance Results**

Database I/O	
Average Database Drive Transfers/sec	3246.799
Average Database Drive Reads/sec	2070.19
Average Database Drive Writes/sec	1176.609
Average Database Drive Read Latency (ms)	17.0824
Average Database Drive Write Latency (ms)	5.8248
Transaction Log I/O	
Average Log Drive Writes/sec	545.537
Average Log Drive Write Latency (ms)	1.7514

**Table 4 IMEGA4 Performance Results**

Database I/O	
Average Database Drive Transfers/sec	3137.332
Average Database Drive Reads/sec	2003.273
Average Database Drive Writes/sec	1134.059
Average Database Drive Read Latency (ms)	17.873
Average Database Drive Write Latency (ms)	6.9354
Transaction Log I/O	
Average Log Drive Writes/sec	504.785
Average Log Drive Write Latency (ms)	2.2802

**Table 5 IMEGA5 Performance Results**

Database I/O	
Average Database Drive Transfers/sec	3288.063
Average Database Drive Reads/sec	2096.428
Average Database Drive Writes/sec	1191.635
Average Database Drive Read Latency (ms)	17.1368
Average Database Drive Write Latency (ms)	3.8772
Transaction Log I/O	
Average Log Drive Writes/sec	557.689
Average Log Drive Write Latency (ms)	1.6374

**Table 6 IMEGA6 Performance Results**

Database I/O	
Average Database Drive Transfers/sec	3197.778
Average Database Drive Reads/sec	2041.016
Average Database Drive Writes/sec	1156.762
Average Database Drive Read Latency (ms)	17.886
Average Database Drive Write Latency (ms)	5.5522
Transaction Log I/O	
Average Log Drive Writes/sec	534.043
Average Log Drive Write Latency (ms)	1.9628

**Table 7 IMEGA7 Performance Results**

Database I/O	
Average Database Drive Transfers/sec	3194.74
Average Database Drive Reads/sec	2037.144
Average Database Drive Writes/sec	1157.596
Average Database Drive Read Latency (ms)	16.9638
Average Database Drive Write Latency (ms)	8.1958
Transaction Log I/O	
Average Log Drive Writes/sec	531.441
Average Log Drive Write Latency (ms)	1.9144

**Table 8 IMEGA8 Performance Results**

Database I/O	
Average Database Drive Transfers/sec	3106.923
Average Database Drive Reads/sec	1982.859
Average Database Drive Writes/sec	1124.064
Average Database Drive Read Latency (ms)	17.6774
Average Database Drive Write Latency (ms)	8.5472
Transaction Log I/O	
Average Log Drive Writes/sec	504.7
Average Log Drive Write Latency (ms)	2.246

## Aggregate performance across all servers metrics:

Aggregate performance is the sum of I/Os across all servers and the average latency across all servers. This solution yields an exceptional performance of 100.2 IOPS/spindle (including hot spare spindles).

Database I/O	
Database Drive Transfers/sec	25647.175
Database Drive Reads/sec	16360.268
Database Drive Writes/sec	9286.907
Average Database Drive Read Latency (ms)	17.445675
Average Database Drive Write Latency (ms)	6.059575
Transaction Log I/O	
Log Drive Writes/sec	4264.489
Average Log Drive Write Latency (ms)	1.929975

## Database Backup/Recovery performance

This section includes two tests. The first test measures sequential read rates of the database files. The second test measures the recovery/replay performance.

### Database Read-Only performance

The test measures the maximum rate to back up databases using VSS. The following table shows the average rate for a single database file and the total and average rates per server, with an overall aggregate rate of greater than 1.85 GB/s for the tested solution.

MB read/sec per database	46.253
MB read/sec total per server	231.264

### Transaction Log Recovery/Replay performance

The following table shows the average rate for ~500 log files played in a single storage group. Each log file is 1 MB in size.

Average time to play one log file (sec)	1.546
---	-------

## Conclusion

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

The ESRP Storage program is not designed to be a benchmarking program. Its tests are not designed for achieving the maximum throughput for a given solution. Rather, they are focused on producing recommendations from vendors for the Exchange application. Therefore, the data presented in this document should not be used for direct comparisons among the solutions.



# Appendix A

## IMEGA1 Performance Test Result Report

### Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA1

### Test Description

**Test Start Time** 5/23/2011 9:34:08 AM

**Test End Time** 5/23/2011 11:35:49 AM

**Collection Start Time** 5/23/2011 9:35:14 AM

**Collection End Time** 5/23/2011 11:35:14 AM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.blg)

### Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3270.354

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10150804783104

**Final Database Size (bytes)** 10157205291008

**Database Files (Count)** 5

### Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

Number of Copies per Database 2

#### Database Configuration

**Instance3536.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance3536.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance3536.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance3536.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance3536.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3536.1</b>	19.157	3.852	420.081	237.326	32924.210	34203.207	0.000	1.660	0.000	110.975	0.000	5588.998
<b>Instance3536.2</b>	16.737	3.845	415.648	236.962	32954.831	34186.851	0.000	1.657	0.000	110.851	0.000	5585.095
<b>Instance3536.3</b>	16.688	3.832	418.886	238.785	32948.055	34179.555	0.000	1.660	0.000	111.327	0.000	5563.412
<b>Instance3536.4</b>	16.726	3.865	413.835	235.998	32969.213	34207.030	0.000	1.664	0.000	110.481	0.000	5617.446
<b>Instance3536.5</b>	16.721	3.790	415.750	237.083	32967.099	34194.736	0.000	1.671	0.000	111.098	0.000	5601.766

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance3536.1</b>	19.939	261922.044
<b>Instance3536.2</b>	21.752	261972.465
<b>Instance3536.3</b>	21.756	261934.656
<b>Instance3536.4</b>	21.767	261933.951
<b>Instance3536.5</b>	21.736	261974.213

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance3536.1</b>	2.567	232563.869

<b>Instance3536.2</b>	2.564	232561.306
<b>Instance3536.3</b>	2.564	232563.277
<b>Instance3536.4</b>	2.571	232563.390
<b>Instance3536.5</b>	2.576	232555.326

#### Total I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3536.1</b>	19.157	3.852	440.021	237.326	43301.113	34203.207	4.123	1.660	2.567	110.975	232563.869	5588.998
<b>Instance3536.2</b>	16.737	3.845	437.400	236.962	44344.156	34186.851	4.169	1.657	2.564	110.851	232561.306	5585.095
<b>Instance3536.3</b>	16.688	3.832	440.642	238.785	44253.871	34179.555	4.257	1.660	2.564	111.327	232563.277	5563.412
<b>Instance3536.4</b>	16.726	3.865	435.602	235.998	44410.746	34207.030	4.327	1.664	2.571	110.481	232563.390	5617.446
<b>Instance3536.5</b>	16.721	3.790	437.486	237.083	44345.310	34194.736	4.188	1.671	2.576	111.098	232555.326	5601.766

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	1.621	0.987	3.190
<b>Available MBytes</b>	9164.819	9109.000	9191.000
<b>Free System Page Table Entries</b>	33555650.631	33555533.000	33556621.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	87704012.800	86499328.000	89796608.000
<b>Pool Paged Bytes</b>	105620445.867	101601280.000	148869120.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/23/2011 9:34:08 AM -- Jetstress testing begins ...

5/23/2011 9:34:08 AM -- Prepare testing begins ...

5/23/2011 9:34:13 AM -- Attaching databases ...

5/23/2011 9:34:13 AM -- Prepare testing ends.

5/23/2011 9:34:13 AM -- Dispatching transactions begins ...

5/23/2011 9:34:13 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:13 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:20 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:20 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:24 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:24 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:25 AM -- Attaining prerequisites:

5/23/2011 9:35:14 AM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1219158000.0 (lower bound: 1207960000.0, upper bound: none)

5/23/2011 11:35:15 AM -- Performance logging ends.

5/23/2011 11:35:38 AM -- JetInterop batch transaction stats: 86310, 86554, 86711, 86471 and 86701.

5/23/2011 11:35:39 AM -- Dispatching transactions ends.

5/23/2011 11:35:39 AM -- Shutting down databases ...

5/23/2011 11:35:49 AM -- Instance3536.1 (complete), Instance3536.2 (complete), Instance3536.3 (complete), Instance3536.4 (complete) and Instance3536.5 (complete)

5/23/2011 11:35:49 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.blg) has 483 samples.

5/23/2011 11:35:49 AM -- Creating test report ...

5/23/2011 11:35:52 AM -- Instance3536.1 has 19.2 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.1 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.1 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.2 has 16.7 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.2 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.2 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.3 has 16.7 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.3 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.3 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.4 has 16.7 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.4 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.4 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.5 has 16.7 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.5 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.5 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.

5/23/2011 11:35:52 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.

5/23/2011 11:35:52 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.xml) has 479 samples queried.

# IMEGA1 Database Checksum Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
F:\db1\Jetstress001001.edb	61994354	0	0	0	1937323 MBytes / 3763 sec
F:\db2\Jetstress002001.edb	61995890	0	0	0	1937371 MBytes / 3097 sec
F:\db3\Jetstress003001.edb	61993842	0	0	0	1937307 MBytes / 3107 sec
F:\db4\Jetstress004001.edb	61993842	0	0	0	1937307 MBytes / 3151 sec
F:\db5\Jetstress005001.edb	61995378	0	0	0	1937355 MBytes / 3165 sec
(Sum)	309973306	0	0	0	9686665 MBytes / 16286 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read
F:	0.031	0.000	9519.385	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	2.834	1.942	4.505
Available MBytes	10537.729	10484.000	10545.000
Free System Page Table Entries	33556186.236	33555501.000	33557597.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	90664514.125	88064000.000	93073408.000
Pool Paged Bytes	105668335.941	101797888.000	149061632.000

Test Log 5/23/2011 9:34:08 AM -- Jetstress testing begins ...

5/23/2011 9:34:08 AM -- Prepare testing begins ...

5/23/2011 9:34:13 AM -- Attaching databases ...

5/23/2011 9:34:13 AM -- Prepare testing ends.

5/23/2011 9:34:13 AM -- Dispatching transactions begins ...

5/23/2011 9:34:13 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:13 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:20 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:20 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:24 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:24 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:25 AM -- Attaining prerequisites:

5/23/2011 9:35:14 AM -- VMSExchange Database(JetstressWin)\Database Cache Size, Last: 1219158000.0 (lower bound:

1207960000.0, upper bound: none)

5/23/2011 11:35:15 AM -- Performance logging ends.

5/23/2011 11:35:38 AM -- JetInterop batch transaction stats: 86310, 86554, 86711, 86471 and 86701.

5/23/2011 11:35:39 AM -- Dispatching transactions ends.

5/23/2011 11:35:39 AM -- Shutting down databases ...

5/23/2011 11:35:49 AM -- Instance3536.1 (complete), Instance3536.2 (complete), Instance3536.3 (complete), Instance3536.4 (complete) and Instance3536.5 (complete)

5/23/2011 11:35:49 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.blg) has 483 samples.

5/23/2011 11:35:49 AM -- Creating test report ...

5/23/2011 11:35:52 AM -- Instance3536.1 has 19.2 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.1 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.1 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.2 has 16.7 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.2 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.2 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.3 has 16.7 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.3 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.3 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.4 has 16.7 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.4 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.4 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.5 has 16.7 for I/O Database Reads Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.5 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:52 AM -- Instance3536.5 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:52 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.

5/23/2011 11:35:52 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.

5/23/2011 11:35:52 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.xml) has 479 samples queried.

5/23/2011 11:35:52 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.html) is saved.

5/23/2011 11:35:53 AM -- Performance logging begins (interval: 30000 ms).

5/23/2011 11:35:53 AM -- Verifying database checksums ...

5/23/2011 4:07:19 PM -- F: (100% processed)

5/23/2011 4:07:19 PM -- Performance logging ends.

5/23/2011 4:07:19 PM -- [C:\Program Files\Exchange Jetstress\DBChecksum\\_2011\\_5\\_23\\_11\\_35\\_52.blg](C:\Program Files\Exchange Jetstress\DBChecksum_2011_5_23_11_35_52.blg) has 542 samples.

# IMEGA1 Stress Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA1

## Test Description

**Test Start Time** 5/20/2011 6:41:54 PM

**Test End Time** 5/21/2011 7:25:06 PM

**Collection Start Time** 5/20/2011 6:43:02 PM

**Collection End Time** 5/21/2011 6:42:56 PM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_42\\_6.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_42_6.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3247.487

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10066390220800

**Final Database Size (bytes)** 10144068730880

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance3376.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance3376.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance3376.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance3376.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance3376.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3376.1</b>	19.539	3.982	415.370	233.886	32912.883	34442.161	0.000	1.756	0.000	109.617	0.000	5658.201
<b>Instance3376.2</b>	16.978	3.886	414.377	235.464	32959.041	34430.494	0.000	1.755	0.000	110.065	0.000	5649.357
<b>Instance3376.3</b>	16.962	3.884	413.845	235.176	32957.518	34428.536	0.000	1.756	0.000	109.863	0.000	5646.914
<b>Instance3376.4</b>	16.956	3.874	414.019	235.301	32957.281	34427.498	0.000	1.759	0.000	109.969	0.000	5638.674
<b>Instance3376.5</b>	16.963	3.885	414.462	235.587	32955.916	34430.088	0.000	1.755	0.000	110.066	0.000	5648.206

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance3376.1</b>	19.415	261935.913
<b>Instance3376.2</b>	21.233	261943.871
<b>Instance3376.3</b>	21.195	261940.227
<b>Instance3376.4</b>	21.226	261942.722
<b>Instance3376.5</b>	21.231	261939.504

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance3376.1</b>	2.570	232557.853
<b>Instance3376.2</b>	2.577	232560.377
<b>Instance3376.3</b>	2.571	232558.516



<b>Instance3376.4</b>	2.570	232555.501
<b>Instance3376.5</b>	2.577	232558.296

#### Total I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3376.1</b>	19.539	3.982	434.786	233.886	43139.824	34442.161	4.087	1.756	2.570	109.617	232557.853	5658.201
<b>Instance3376.2</b>	16.978	3.886	435.610	235.464	44120.669	34430.494	4.299	1.755	2.577	110.065	232560.377	5649.357
<b>Instance3376.3</b>	16.962	3.884	435.040	235.176	44113.408	34428.536	4.076	1.756	2.571	109.863	232558.516	5646.914
<b>Instance3376.4</b>	16.956	3.874	435.245	235.301	44124.386	34427.498	4.275	1.759	2.570	109.969	232555.501	5638.674
<b>Instance3376.5</b>	16.963	3.885	435.693	235.587	44114.054	34430.088	4.298	1.755	2.577	110.066	232558.296	5648.206

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.580	1.214	4.840
<b>Available MBytes</b>	9193.366	9091.000	9241.000
<b>Free System Page Table Entries</b>	33555668.068	33555525.000	33557133.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	85105139.816	83070976.000	88145920.000
<b>Pool Paged Bytes</b>	105226116.914	100433920.000	151351296.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/20/2011 6:41:54 PM -- Jetstress testing begins ...

5/20/2011 6:41:54 PM -- Prepare testing begins ...

5/20/2011 6:42:00 PM -- Attaching databases ...

5/20/2011 6:42:00 PM -- Prepare testing ends.

5/20/2011 6:42:00 PM -- Dispatching transactions begins ...

5/20/2011 6:42:00 PM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/20/2011 6:42:00 PM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/20/2011 6:42:06 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

5/20/2011 6:42:06 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

5/20/2011 6:42:11 PM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/20/2011 6:42:11 PM -- Performance logging begins (interval: 15000 ms).

5/20/2011 6:42:11 PM -- Attaining prerequisites:

5/20/2011 6:43:02 PM -- VMSExchange Database(JetstressWin)\Database Cache Size, Last: 1213358000.0 (lower bound: 1207960000.0, upper bound: none)

5/21/2011 6:43:02 PM -- Performance logging ends.

5/21/2011 7:24:59 PM -- JetInterop batch transaction stats: 1063301, 1065661, 1064397, 1064864 and 1066058.

5/21/2011 7:25:00 PM -- Dispatching transactions ends.

5/21/2011 7:25:00 PM -- Shutting down databases ...

5/21/2011 7:25:06 PM -- Instance3376.1 (complete), Instance3376.2 (complete), Instance3376.3 (complete), Instance3376.4 (complete) and Instance3376.5 (complete)

5/21/2011 7:25:06 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_42\\_6.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_42_6.blg) has 5760 samples.

5/21/2011 7:25:06 PM -- Creating test report ...

5/21/2011 7:25:32 PM -- Instance3376.1 has 19.5 for I/O Database Reads Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.1 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.1 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.2 has 17.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.2 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.2 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.3 has 17.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.3 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.3 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.4 has 17.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.4 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.4 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.5 has 17.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.5 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:25:32 PM -- Instance3376.5 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:25:32 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/21/2011 7:25:32 PM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/21/2011 7:25:32 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_42\\_6.xml](#) has 5756 samples queried.

# IMEGA1 Database Backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
<b>Instance4372.1</b>	1937315.59	10:39:06	50.52
<b>Instance4372.2</b>	1937363.59	10:22:31	51.87
<b>Instance4372.3</b>	1937299.59	10:09:51	52.94
<b>Instance4372.4</b>	1937299.59	10:20:27	52.04
<b>Instance4372.5</b>	1937347.59	10:25:39	51.61

Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

Database Configuration

**Instance4372.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4372.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4372.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4372.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4372.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

## Transactional I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4372.1</b>	8.321	0.000	202.059	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4372.2</b>	8.185	0.000	207.479	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4372.3</b>	8.035	0.000	211.791	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4372.4</b>	8.145	0.000	208.172	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4372.5</b>	8.192	0.000	206.436	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

## Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	0.855	0.172	2.329
<b>Available MBytes</b>	10510.231	10449.000	10521.000
<b>Free System Page Table Entries</b>	33556074.431	33555501.000	33557117.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	87631350.778	87482368.000	89387008.000
<b>Pool Paged Bytes</b>	122897355.878	117288960.000	168861696.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/24/2011 9:27:26 AM -- Jetstress testing begins ...

5/24/2011 9:27:26 AM -- Prepare testing begins ...

5/24/2011 9:27:31 AM -- Attaching databases ...

5/24/2011 9:27:31 AM -- Prepare testing ends.

5/24/2011 9:27:40 AM -- Performance logging begins (interval: 30000 ms).

5/24/2011 9:27:40 AM -- Backing up databases ...

5/24/2011 8:06:47 PM -- Performance logging ends.

5/24/2011 8:06:47 PM -- Instance4372.1 (100% processed), Instance4372.2 (100% processed), Instance4372.3 (100% processed), Instance4372.4 (100% processed) and Instance4372.5 (100% processed)

5/24/2011 8:06:47 PM -- [C:\Program Files\Exchange Jetstress\DatabaseBackup\\_2011\\_5\\_24\\_9\\_27\\_31.blg](C:\Program Files\Exchange Jetstress\DatabaseBackup_2011_5_24_9_27_31.blg) has 1277 samples.

5/24/2011 8:06:47 PM -- Creating test report ...

# IMEGA1 SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
<b>Instance4528.1</b>	511	708.8808451
<b>Instance4528.2</b>	500	770.1421527
<b>Instance4528.3</b>	510	680.2391948
<b>Instance4528.4</b>	508	699.0684279
<b>Instance4528.5</b>	506	745.7437099

Database Configuration

**Instance4528.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4528.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4528.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4528.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4528.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4528.1</b>	12.627	1.726	788.267	4.330	36370.033	32393.509	9.536	0.000	6.495	0.000	229880.038	0.000
<b>Instance4528.2</b>	13.104	1.897	714.171	3.902	36595.155	32081.759	10.032	0.000	5.853	0.000	227423.540	0.000
<b>Instance4528.3</b>	13.251	1.803	814.529	4.516	36149.774	32182.857	9.786	0.000	6.774	0.000	228470.965	0.000
<b>Instance4528.4</b>	13.014	1.812	822.723	4.377	36098.259	32578.590	9.703	0.000	6.566	0.000	231146.054	0.000
<b>Instance4528.5</b>	13.308	1.870	735.315	4.089	36803.459	32413.751	9.849	0.002	6.140	0.016	229990.573	2.768

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4528.1</b>	28.992	262022.502
<b>Instance4528.2</b>	29.367	262001.154
<b>Instance4528.3</b>	29.539	261849.444

<b>Instance4528.4</b>	29.536	261963.939
<b>Instance4528.5</b>	29.486	261841.796

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4528.1</b>	12.627	1.726	817.259	4.330	44374.942	32393.509	9.536	0.000	6.495	0.000	229880.038	0.000
<b>Instance4528.2</b>	13.104	1.897	743.538	3.902	45497.856	32081.759	10.032	0.000	5.853	0.000	227423.540	0.000
<b>Instance4528.3</b>	13.251	1.803	844.068	4.516	44048.387	32182.857	9.786	0.000	6.774	0.000	228470.965	0.000
<b>Instance4528.4</b>	13.014	1.812	852.259	4.377	43925.904	32578.590	9.703	0.000	6.566	0.000	231146.054	0.000
<b>Instance4528.5</b>	13.308	1.870	764.802	4.089	45479.595	32413.751	9.849	0.002	6.140	0.016	229990.573	2.768

#### Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	1.242	0.413	3.112
<b>Available MBytes</b>	9117.776	9092.000	10299.000
<b>Free System Page Table Entries</b>	33555673.625	33555525.000	33556589.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	92502890.667	88694784.000	93736960.000
<b>Pool Paged Bytes</b>	118018197.333	118009856.000	118140928.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/25/2011 9:21:57 AM -- Jetstress testing begins ...

5/25/2011 9:21:57 AM -- Prepare testing begins ...

5/25/2011 9:22:03 AM -- Attaching databases ...

5/25/2011 9:22:03 AM -- Prepare testing ends.

5/25/2011 9:22:03 AM -- Dispatching transactions begins ...

5/25/2011 9:22:03 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/25/2011 9:22:03 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/25/2011 9:22:09 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/25/2011 9:22:09 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/25/2011 9:22:12 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/25/2011 9:22:12 AM -- Performance logging begins (interval: 15000 ms).

5/25/2011 9:22:12 AM -- Generating log files ...

5/25/2011 9:51:35 AM -- F:\log1 (102.4% generated), F:\log2 (100.2% generated), F:\log3 (102.2% generated), F:\log4 (101.8% generated) and F:\log5 (101.4% generated)

5/25/2011 9:51:35 AM -- Performance logging ends.

5/25/2011 9:51:35 AM -- JetInterop batch transaction stats: 21205, 20978, 21026, 21323 and 21248.

5/25/2011 9:51:35 AM -- Dispatching transactions ends.

5/25/2011 9:51:35 AM -- Shutting down databases ...

5/25/2011 9:51:39 AM -- Instance4528.1 (complete), Instance4528.2 (complete), Instance4528.3 (complete), Instance4528.4 (complete) and Instance4528.5 (complete)

5/25/2011 9:51:39 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_9.blg](#) has 117 samples.

5/25/2011 9:51:39 AM -- Creating test report ...

5/25/2011 9:51:40 AM -- Instance4528.1 has 18.5 for I/O Database Reads Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.1 has 1.6 for I/O Log Writes Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.1 has 1.6 for I/O Log Reads Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.2 has 16.0 for I/O Database Reads Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.2 has 1.7 for I/O Log Writes Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.2 has 1.7 for I/O Log Reads Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.3 has 16.0 for I/O Database Reads Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.3 has 1.6 for I/O Log Writes Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.3 has 1.6 for I/O Log Reads Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.4 has 16.0 for I/O Database Reads Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.4 has 1.6 for I/O Log Writes Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.4 has 1.6 for I/O Log Reads Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.5 has 16.0 for I/O Database Reads Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.5 has 1.6 for I/O Log Writes Average Latency.  
5/25/2011 9:51:40 AM -- Instance4528.5 has 1.6 for I/O Log Reads Average Latency.  
5/25/2011 9:51:40 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/25/2011 9:51:40 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/25/2011 9:51:40 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_9.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_9.xml) has 116 samples queried.  
5/25/2011 9:51:40 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_9.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_9.html) is saved.  
5/25/2011 9:59:29 AM -- Performance logging begins (interval: 4000 ms).  
5/25/2011 9:59:29 AM -- Recovering databases ...  
5/25/2011 10:12:19 AM -- Performance logging ends.  
5/25/2011 10:12:19 AM -- Instance4528.1 (708.8808451), Instance4528.2 (770.1421527), Instance4528.3 (680.2391948),  
Instance4528.4 (699.0684279) and Instance4528.5 (745.7437099)  
5/25/2011 10:12:19 AM -- [C:\Program Files\Exchange Jetstress\SoftRecovery\\_2011\\_5\\_25\\_9\\_59\\_26.blg](C:\Program Files\Exchange Jetstress\SoftRecovery_2011_5_25_9_59_26.blg) has 192 samples.  
5/25/2011 10:12:19 AM -- Creating test report ...

# IMEGA2 Performance Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA2

## Test Description

**Test Start Time** 5/23/2011 9:34:08 AM

**Test End Time** 5/23/2011 11:35:54 AM

**Collection Start Time** 5/23/2011 9:35:08 AM

**Collection End Time** 5/23/2011 11:35:03 AM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3205.185

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10149018009600

**Final Database Size (bytes)** 10155267522560

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration



**Instance2816.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance2816.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance2816.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance2816.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance2816.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance2816.1</b>	19.318	5.698	410.989	231.596	32928.292	34237.412	0.000	1.975	0.000	106.669	0.000	5719.965
<b>Instance2816.2</b>	17.345	5.704	407.186	231.353	32943.980	34215.996	0.000	1.982	0.000	106.070	0.000	5686.025
<b>Instance2816.3</b>	17.268	5.741	408.661	232.140	32962.090	34205.860	0.000	1.985	0.000	105.947	0.000	5634.885
<b>Instance2816.4</b>	17.431	5.676	409.509	232.752	32950.830	34210.266	0.000	1.990	0.000	106.889	0.000	5671.098
<b>Instance2816.5</b>	17.339	5.717	408.813	232.187	32961.074	34215.840	0.000	1.994	0.000	105.987	0.000	5700.850

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance2816.1</b>	21.466	262021.212
<b>Instance2816.2</b>	22.267	261921.898
<b>Instance2816.3</b>	22.370	261964.326
<b>Instance2816.4</b>	21.998	261966.745
<b>Instance2816.5</b>	22.271	261940.578

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance2816.1</b>	2.529	232556.152
<b>Instance2816.2</b>	2.500	232564.592
<b>Instance2816.3</b>	2.475	232560.866

<b>Instance2816.4</b>	2.511	232562.319
<b>Instance2816.5</b>	2.504	232557.767

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance2816.1</b>	19.318	5.698	432.456	231.596	44299.950	34237.412	4.781	1.975	2.529	106.669	232556.152	5719.965
<b>Instance2816.2</b>	17.345	5.704	429.453	231.353	44816.328	34215.996	4.790	1.982	2.500	106.070	232564.592	5686.025
<b>Instance2816.3</b>	17.268	5.741	431.031	232.140	44846.878	34205.860	4.898	1.985	2.475	105.947	232560.866	5634.885
<b>Instance2816.4</b>	17.431	5.676	431.507	232.752	44625.827	34210.266	4.904	1.990	2.511	106.889	232562.319	5671.098
<b>Instance2816.5</b>	17.339	5.717	431.084	232.187	44790.712	34215.840	4.858	1.994	2.504	105.987	232557.767	5700.850

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	1.568	1.175	2.170
<b>Available MBytes</b>	9114.783	9110.000	9224.000
<b>Free System Page Table Entries</b>	33556083.117	33556019.000	33556603.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	95622732.800	95051776.000	97124352.000
<b>Pool Paged Bytes</b>	130373563.733	130310144.000	130445312.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/23/2011 9:34:08 AM -- Jetstress testing begins ...

5/23/2011 9:34:08 AM -- Prepare testing begins ...

5/23/2011 9:34:13 AM -- Attaching databases ...

5/23/2011 9:34:13 AM -- Prepare testing ends.

5/23/2011 9:34:13 AM -- Dispatching transactions begins ...

5/23/2011 9:34:13 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:13 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:20 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:20 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:25 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:25 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:25 AM -- Attaining prerequisites:

5/23/2011 9:35:08 AM -- VMSEExchange Database(JetstressWin)\Database Cache Size, Last: 1217880000.0 (lower bound: 1207960000.0, upper bound: none)

5/23/2011 11:35:09 AM -- Performance logging ends.

5/23/2011 11:35:44 AM -- JetInterop batch transaction stats: 85519, 85054, 84809, 85091 and 85001.

5/23/2011 11:35:44 AM -- Dispatching transactions ends.

5/23/2011 11:35:44 AM -- Shutting down databases ...

5/23/2011 11:35:54 AM -- Instance2816.1 (complete), Instance2816.2 (complete), Instance2816.3 (complete), Instance2816.4 (complete) and Instance2816.5 (complete)

5/23/2011 11:35:54 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.blg) has 482 samples.

5/23/2011 11:35:54 AM -- Creating test report ...

5/23/2011 11:35:57 AM -- Instance2816.1 has 19.3 for I/O Database Reads Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.1 has 2.0 for I/O Log Writes Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.1 has 2.0 for I/O Log Reads Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.2 has 17.3 for I/O Database Reads Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.2 has 2.0 for I/O Log Writes Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.2 has 2.0 for I/O Log Reads Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.3 has 17.3 for I/O Database Reads Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.3 has 2.0 for I/O Log Writes Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.3 has 2.0 for I/O Log Reads Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.4 has 17.4 for I/O Database Reads Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.4 has 2.0 for I/O Log Writes Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.4 has 2.0 for I/O Log Reads Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.5 has 17.3 for I/O Database Reads Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.5 has 2.0 for I/O Log Writes Average Latency.  
5/23/2011 11:35:57 AM -- Instance2816.5 has 2.0 for I/O Log Reads Average Latency.  
5/23/2011 11:35:57 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/23/2011 11:35:57 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/23/2011 11:35:57 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.xml) has 479 samples queried.

# IMEGA2 Database Checksum Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
F:\db1\Jetstress001001.edb	61981554	0	0	0	1936923 MBytes / 9376 sec
F:\db2\Jetstress002001.edb	61982322	0	0	0	1936947 MBytes / 7840 sec
F:\db3\Jetstress003001.edb	61983602	0	0	0	1936987 MBytes / 7745 sec
F:\db4\Jetstress004001.edb	61984114	0	0	0	1937003 MBytes / 7747 sec
F:\db5\Jetstress005001.edb	61982578	0	0	0	1936955 MBytes / 7746 sec
(Sum)	309914170	0	0	0	9684817 MBytes / 40456 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read
F:	0.077	0.000	3830.662	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	0.994	0.630	1.533
Available MBytes	10486.840	10425.000	10491.000
Free System Page Table Entries	33556151.085	33555979.000	33557083.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	95958752.641	95186944.000	101203968.000
Pool Paged Bytes	132619938.304	130240512.000	178155520.000

Test Log 5/23/2011 9:34:08 AM -- Jetstress testing begins ...

5/23/2011 9:34:08 AM -- Prepare testing begins ...

5/23/2011 9:34:13 AM -- Attaching databases ...

5/23/2011 9:34:13 AM -- Prepare testing ends.

5/23/2011 9:34:13 AM -- Dispatching transactions begins ...

5/23/2011 9:34:13 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:13 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:20 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:20 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:25 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:25 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:25 AM -- Attaining prerequisites:

5/23/2011 9:35:08 AM -- VMSEExchange Database(JetstressWin)\Database Cache Size, Last: 1217880000.0 (lower bound:

1207960000.0, upper bound: none)

5/23/2011 11:35:09 AM -- Performance logging ends.

5/23/2011 11:35:44 AM -- JetInterop batch transaction stats: 85519, 85054, 84809, 85091 and 85001.

5/23/2011 11:35:44 AM -- Dispatching transactions ends.

5/23/2011 11:35:44 AM -- Shutting down databases ...

5/23/2011 11:35:54 AM -- Instance2816.1 (complete), Instance2816.2 (complete), Instance2816.3 (complete), Instance2816.4 (complete) and Instance2816.5 (complete)

5/23/2011 11:35:54 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.blg) has 482 samples.

5/23/2011 11:35:54 AM -- Creating test report ...

5/23/2011 11:35:57 AM -- Instance2816.1 has 19.3 for I/O Database Reads Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.1 has 2.0 for I/O Log Writes Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.1 has 2.0 for I/O Log Reads Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.2 has 17.3 for I/O Database Reads Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.2 has 2.0 for I/O Log Writes Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.2 has 2.0 for I/O Log Reads Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.3 has 17.3 for I/O Database Reads Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.3 has 2.0 for I/O Log Writes Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.3 has 2.0 for I/O Log Reads Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.4 has 17.4 for I/O Database Reads Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.4 has 2.0 for I/O Log Writes Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.4 has 2.0 for I/O Log Reads Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.5 has 17.3 for I/O Database Reads Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.5 has 2.0 for I/O Log Writes Average Latency.

5/23/2011 11:35:57 AM -- Instance2816.5 has 2.0 for I/O Log Reads Average Latency.

5/23/2011 11:35:57 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.

5/23/2011 11:35:57 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.

5/23/2011 11:35:57 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.xml) has 479 samples queried.

5/23/2011 11:35:57 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_20.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_20.html) is saved.

5/23/2011 11:35:57 AM -- Performance logging begins (interval: 30000 ms).

5/23/2011 11:35:57 AM -- Verifying database checksums ...

5/23/2011 10:50:14 PM -- F: (100% processed)

5/23/2011 10:50:14 PM -- Performance logging ends.

5/23/2011 10:50:14 PM -- [C:\Program Files\Exchange Jetstress\DBCchecksum\\_2011\\_5\\_23\\_11\\_35\\_57.blg](C:\Program Files\Exchange Jetstress\DBCchecksum_2011_5_23_11_35_57.blg) has 1347 samples.

# IMEGA2 Stress Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA2

## Test Description

**Test Start Time** 5/20/2011 6:41:53 PM

**Test End Time** 5/21/2011 7:25:05 PM

**Collection Start Time** 5/20/2011 6:42:57 PM

**Collection End Time** 5/21/2011 6:42:51 PM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_42\\_6.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_42_6.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3172.425

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10066348277760

**Final Database Size (bytes)** 10142466506752

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance3304.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance3304.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance3304.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance3304.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance3304.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3304.1</b>	19.659	5.869	405.685	228.517	32915.117	34461.675	0.000	2.102	0.000	104.903	0.000	5778.645
<b>Instance3304.2</b>	17.678	5.813	405.533	230.152	32957.544	34456.081	0.000	2.090	0.000	105.445	0.000	5763.345
<b>Instance3304.3</b>	17.665	5.815	404.414	229.636	32951.220	34456.370	0.000	2.099	0.000	105.312	0.000	5785.893
<b>Instance3304.4</b>	17.690	5.776	404.886	229.856	32956.082	34455.318	0.000	2.097	0.000	105.467	0.000	5771.259
<b>Instance3304.5</b>	17.677	5.832	404.302	229.444	32957.835	34455.173	0.000	2.097	0.000	105.350	0.000	5762.458

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance3304.1</b>	20.917	261951.500
<b>Instance3304.2</b>	21.766	261937.491
<b>Instance3304.3</b>	21.927	261950.023
<b>Instance3304.4</b>	21.544	261927.950
<b>Instance3304.5</b>	21.723	261937.505

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance3304.1</b>	2.514	232560.000
<b>Instance3304.2</b>	2.521	232560.678
<b>Instance3304.3</b>	2.528	232559.045

<b>Instance3304.4</b>	2.525	232560.092
<b>Instance3304.5</b>	2.518	232558.827

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3304.1</b>	19.659	5.869	426.602	228.517	44145.281	34461.675	4.756	2.102	2.514	104.903	232560.000	5778.645
<b>Instance3304.2</b>	17.678	5.813	427.299	230.152	44621.464	34456.081	4.724	2.090	2.521	105.445	232560.678	5763.345
<b>Instance3304.3</b>	17.665	5.815	426.342	229.636	44728.807	34456.370	4.744	2.099	2.528	105.312	232559.045	5785.893
<b>Instance3304.4</b>	17.690	5.776	426.430	229.856	44523.936	34455.318	4.851	2.097	2.525	105.467	232560.092	5771.259
<b>Instance3304.5</b>	17.677	5.832	426.024	229.444	44633.313	34455.173	4.809	2.097	2.518	105.350	232558.827	5762.458

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	1.547	1.020	2.297
<b>Available MBytes</b>	9126.374	9066.000	9188.000
<b>Free System Page Table Entries</b>	33556085.211	33556019.000	33557115.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	95575735.893	94760960.000	99061760.000
<b>Pool Paged Bytes</b>	131229564.686	129544192.000	177156096.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/20/2011 6:41:53 PM -- Jetstress testing begins ...

5/20/2011 6:41:53 PM -- Prepare testing begins ...

5/20/2011 6:42:00 PM -- Attaching databases ...

5/20/2011 6:42:00 PM -- Prepare testing ends.

5/20/2011 6:42:00 PM -- Dispatching transactions begins ...

5/20/2011 6:42:00 PM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/20/2011 6:42:00 PM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/20/2011 6:42:06 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

5/20/2011 6:42:06 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

5/20/2011 6:42:11 PM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/20/2011 6:42:11 PM -- Performance logging begins (interval: 15000 ms).

5/20/2011 6:42:11 PM -- Attaining prerequisites:

5/20/2011 6:42:57 PM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1223930000.0 (lower bound: 1207960000.0, upper bound: none)

5/21/2011 6:42:57 PM -- Performance logging ends.

5/21/2011 7:25:01 PM -- JetInterop batch transaction stats: 1039955, 1040285, 1040971, 1040402 and 1038765.

5/21/2011 7:25:02 PM -- Dispatching transactions ends.

5/21/2011 7:25:02 PM -- Shutting down databases ...

5/21/2011 7:25:05 PM -- Instance3304.1 (complete), Instance3304.2 (complete), Instance3304.3 (complete), Instance3304.4 (complete) and Instance3304.5 (complete)

5/21/2011 7:25:05 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_42\\_6.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_42_6.blg) has 5758 samples.

5/21/2011 7:25:05 PM -- Creating test report ...



5/21/2011 7:25:30 PM -- Instance3304.1 has 19.7 for I/O Database Reads Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.1 has 2.1 for I/O Log Writes Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.1 has 2.1 for I/O Log Reads Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.2 has 17.7 for I/O Database Reads Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.2 has 2.1 for I/O Log Writes Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.2 has 2.1 for I/O Log Reads Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.3 has 17.7 for I/O Database Reads Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.3 has 2.1 for I/O Log Writes Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.3 has 2.1 for I/O Log Reads Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.4 has 17.7 for I/O Database Reads Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.4 has 2.1 for I/O Log Writes Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.4 has 2.1 for I/O Log Reads Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.5 has 17.7 for I/O Database Reads Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.5 has 2.1 for I/O Log Writes Average Latency.  
5/21/2011 7:25:30 PM -- Instance3304.5 has 2.1 for I/O Log Reads Average Latency.  
5/21/2011 7:25:30 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/21/2011 7:25:30 PM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/21/2011 7:25:31 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_42\\_6.xml](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_42_6.xml) has 5754 samples queried.

# IMEGA2 Database Backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance2004.1	1936915.59	14:52:30	36.17
Instance2004.2	1936939.59	14:41:11	36.64
Instance2004.3	1936979.59	14:34:47	36.90
Instance2004.4	1936995.59	14:27:51	37.20
Instance2004.5	1936947.59	14:37:08	36.80

Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

Database Configuration

**Instance2004.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance2004.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance2004.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance2004.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance2004.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

## Transactional I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance2004.1</b>	12.221	0.000	144.677	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance2004.2</b>	12.104	0.000	146.524	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance2004.3</b>	11.969	0.000	147.604	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance2004.4</b>	11.902	0.000	148.790	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance2004.5</b>	12.018	0.000	147.203	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

## Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	0.837	0.168	2.312
<b>Available MBytes</b>	10483.928	10401.000	10535.000
<b>Free System Page Table Entries</b>	33556149.873	33555979.000	33557115.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	94689119.283	94605312.000	96587776.000
<b>Pool Paged Bytes</b>	131463601.937	129548288.000	187629568.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/24/2011 9:27:27 AM -- Jetstress testing begins ...

5/24/2011 9:27:27 AM -- Prepare testing begins ...

5/24/2011 9:27:33 AM -- Attaching databases ...

5/24/2011 9:27:33 AM -- Prepare testing ends.

5/24/2011 9:27:41 AM -- Performance logging begins (interval: 30000 ms).

5/24/2011 9:27:41 AM -- Backing up databases ...

5/25/2011 12:20:12 AM -- Performance logging ends.

5/25/2011 12:20:12 AM -- Instance2004.1 (100% processed), Instance2004.2 (100% processed), Instance2004.3 (100% processed), Instance2004.4 (100% processed) and Instance2004.5 (100% processed)

5/25/2011 12:20:12 AM -- [C:\Program Files\Exchange Jetstress\DatabaseBackup\\_2011\\_5\\_24\\_9\\_27\\_33.blg](C:\Program Files\Exchange Jetstress\DatabaseBackup_2011_5_24_9_27_33.blg) has 1784 samples.

5/25/2011 12:20:12 AM -- Creating test report ...

# IMEGA2 SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
<b>Instance3016.1</b>	512	873.0555334
<b>Instance3016.2</b>	500	885.7851558
<b>Instance3016.3</b>	505	876.237939
<b>Instance3016.4</b>	517	873.5859343
<b>Instance3016.5</b>	500	865.8951208

Database Configuration

**Instance3016.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance3016.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance3016.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance3016.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance3016.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

Transactional I/O Performance

MSEExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3016.1</b>	16.815	6.198	597.528	3.527	37301.387	31402.667	9.625	0.000	5.290	0.000	220475.581	0.000
<b>Instance3016.2</b>	16.915	5.620	572.761	3.341	37496.670	30673.242	10.039	0.000	5.012	0.000	217571.952	0.000
<b>Instance3016.3</b>	16.752	5.709	586.913	3.457	37496.328	30955.945	9.651	0.000	5.186	0.000	218964.040	0.000
<b>Instance3016.4</b>	16.911	1.365	610.545	3.547	37276.631	31402.667	10.154	0.000	5.321	0.000	223013.491	0.000
<b>Instance3016.5</b>	16.834	1.774	587.270	3.476	37180.868	30930.542	10.271	0.000	5.213	0.000	217999.972	0.000

Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance3016.1</b>	27.772	261945.808
<b>Instance3016.2</b>	27.854	262002.609
<b>Instance3016.3</b>	27.942	262032.541

<b>Instance3016.4</b>	27.823	261864.571
<b>Instance3016.5</b>	27.720	262021.659

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3016.1</b>	16.815	6.198	625.300	3.527	47278.745	31402.667	9.625	0.000	5.290	0.000	220475.581	0.000
<b>Instance3016.2</b>	16.915	5.620	600.615	3.341	47908.296	30673.242	10.039	0.000	5.012	0.000	217571.952	0.000
<b>Instance3016.3</b>	16.752	5.709	614.854	3.457	47700.236	30955.945	9.651	0.000	5.186	0.000	218964.040	0.000
<b>Instance3016.4</b>	16.911	1.365	638.368	3.547	47065.156	31402.667	10.154	0.000	5.321	0.000	223013.491	0.000
<b>Instance3016.5</b>	16.834	1.774	614.990	3.476	47315.460	30930.542	10.271	0.000	5.213	0.000	217999.972	0.000

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.237	0.875	3.818
<b>Available MBytes</b>	9074.105	9057.000	10254.000
<b>Free System Page Table Entries</b>	33556083.909	33556011.000	33556597.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	98081847.855	95133696.000	99000320.000
<b>Pool Paged Bytes</b>	130477260.800	130473984.000	130519040.000
<b>Database Page Fault Stalls/sec</b>	0.001	0.000	0.249

Test Log 5/25/2011 9:22:02 AM -- Jetstress testing begins ...

5/25/2011 9:22:02 AM -- Prepare testing begins ...

5/25/2011 9:22:08 AM -- Attaching databases ...

5/25/2011 9:22:08 AM -- Prepare testing ends.

5/25/2011 9:22:08 AM -- Dispatching transactions begins ...

5/25/2011 9:22:08 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/25/2011 9:22:08 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/25/2011 9:22:14 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/25/2011 9:22:14 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/25/2011 9:22:17 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/25/2011 9:22:17 AM -- Performance logging begins (interval: 15000 ms).

5/25/2011 9:22:17 AM -- Generating log files ...

5/25/2011 9:51:55 AM -- F:\log1 (102.6% generated), F:\log2 (100.2% generated), F:\log3 (101.2% generated), F:\log4 (103.6% generated) and F:\log5 (100.2% generated)

5/25/2011 9:51:55 AM -- Performance logging ends.

5/25/2011 9:51:55 AM -- JetInterop batch transaction stats: 21516, 21176, 21275, 21489 and 21113.

5/25/2011 9:51:56 AM -- Dispatching transactions ends.

5/25/2011 9:51:56 AM -- Shutting down databases ...

5/25/2011 9:51:59 AM -- Instance3016.1 (complete), Instance3016.2 (complete), Instance3016.3 (complete), Instance3016.4 (complete) and Instance3016.5 (complete)

5/25/2011 9:51:59 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_14.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_14.blg) has 118 samples.

5/25/2011 9:51:59 AM -- Creating test report ...

5/25/2011 9:52:00 AM -- Instance3016.1 has 18.8 for I/O Database Reads Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.1 has 2.0 for I/O Log Writes Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.1 has 2.0 for I/O Log Reads Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.2 has 16.6 for I/O Database Reads Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.2 has 2.0 for I/O Log Writes Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.2 has 2.0 for I/O Log Reads Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.3 has 16.7 for I/O Database Reads Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.3 has 2.0 for I/O Log Writes Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.3 has 2.0 for I/O Log Reads Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.4 has 16.7 for I/O Database Reads Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.4 has 2.0 for I/O Log Writes Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.4 has 2.0 for I/O Log Reads Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.5 has 16.7 for I/O Database Reads Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.5 has 2.0 for I/O Log Writes Average Latency.  
5/25/2011 9:52:00 AM -- Instance3016.5 has 2.0 for I/O Log Reads Average Latency.  
5/25/2011 9:52:00 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/25/2011 9:52:00 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/25/2011 9:52:00 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_14.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_14.xml) has 117 samples queried.  
5/25/2011 9:52:00 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_14.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_14.html) is saved.  
5/25/2011 9:59:33 AM -- Performance logging begins (interval: 4000 ms).  
5/25/2011 9:59:33 AM -- Recovering databases ...  
5/25/2011 10:14:19 AM -- Performance logging ends.  
5/25/2011 10:14:19 AM -- Instance3016.1 (873.0555334), Instance3016.2 (885.7851558), Instance3016.3 (876.237939), Instance3016.4 (873.5859343) and Instance3016.5 (865.8951208)  
5/25/2011 10:14:19 AM -- [C:\Program Files\Exchange Jetstress\SoftRecovery\\_2011\\_5\\_25\\_9\\_59\\_31.blg](C:\Program Files\Exchange Jetstress\SoftRecovery_2011_5_25_9_59_31.blg) has 220 samples.  
5/25/2011 10:14:19 AM -- Creating test report ...

# IMEGA3 Performance Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA3

## Test Description

**Test Start Time** 5/23/2011 9:34:03 AM

**Test End Time** 5/23/2011 11:35:47 AM

**Collection Start Time** 5/23/2011 9:35:08 AM

**Collection End Time** 5/23/2011 11:34:54 AM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_15.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_15.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3246.799

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10149026398208

**Final Database Size (bytes)** 10155233968128

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance2576.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance2576.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance2576.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance2576.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance2576.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance2576.1</b>	18.983	6.232	416.395	234.755	32930.394	34176.197	0.000	1.744	0.000	108.719	0.000	5504.953
<b>Instance2576.2</b>	16.618	5.583	413.252	235.100	33002.141	34186.612	0.000	1.763	0.000	109.045	0.000	5527.588
<b>Instance2576.3</b>	16.551	5.570	415.073	236.444	33006.701	34173.971	0.000	1.761	0.000	109.420	0.000	5517.853
<b>Instance2576.4</b>	16.627	5.560	411.829	234.479	32995.734	34180.358	0.000	1.748	0.000	108.831	0.000	5509.101
<b>Instance2576.5</b>	16.633	6.179	413.641	235.831	32981.346	34181.857	0.000	1.741	0.000	109.522	0.000	5549.535

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance2576.1</b>	20.113	261922.114
<b>Instance2576.2</b>	21.996	261963.793
<b>Instance2576.3</b>	21.961	261937.520
<b>Instance2576.4</b>	21.734	261989.740
<b>Instance2576.5</b>	21.983	261940.870

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance2576.1</b>	2.478	232558.688
<b>Instance2576.2</b>	2.494	232563.874
<b>Instance2576.3</b>	2.499	232548.876



<b>Instance2576.4</b>	2.481	232559.989
<b>Instance2576.5</b>	2.516	232557.231

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance2576.1</b>	18.983	6.232	436.508	234.755	43481.665	34176.197	4.341	1.744	2.478	108.719	232558.688	5504.953
<b>Instance2576.2</b>	16.618	5.583	435.248	235.100	44573.143	34186.612	4.294	1.763	2.494	109.045	232563.874	5527.588
<b>Instance2576.3</b>	16.551	5.570	437.033	236.444	44510.264	34173.971	4.207	1.761	2.499	109.420	232548.876	5517.853
<b>Instance2576.4</b>	16.627	5.560	433.563	234.479	44475.135	34180.358	4.278	1.748	2.481	108.831	232559.989	5509.101
<b>Instance2576.5</b>	16.633	6.179	435.624	235.831	44535.350	34181.857	4.185	1.741	2.516	109.522	232557.231	5549.535

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.527	1.669	3.605
<b>Available MBytes</b>	9127.566	9124.000	9151.000
<b>Free System Page Table Entries</b>	33556597.593	33556549.000	33557117.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	97662817.804	96759808.000	98234368.000
<b>Pool Paged Bytes</b>	124808283.925	124788736.000	124936192.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/23/2011 9:34:03 AM -- Jetstress testing begins ...

5/23/2011 9:34:03 AM -- Prepare testing begins ...

5/23/2011 9:34:09 AM -- Attaching databases ...

5/23/2011 9:34:09 AM -- Prepare testing ends.

5/23/2011 9:34:09 AM -- Dispatching transactions begins ...

5/23/2011 9:34:09 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:09 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:15 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:15 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:20 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:20 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:20 AM -- Attaining prerequisites:

5/23/2011 9:35:08 AM -- VMSEExchange Database(JetstressWin)\Database Cache Size, Last: 1221030000.0 (lower bound: 1207960000.0, upper bound: none)

5/23/2011 11:35:09 AM -- Performance logging ends.

5/23/2011 11:35:44 AM -- JetInterop batch transaction stats: 86001, 86310, 86559, 85986 and 86769.

5/23/2011 11:35:44 AM -- Dispatching transactions ends.

5/23/2011 11:35:44 AM -- Shutting down databases ...

5/23/2011 11:35:47 AM -- Instance2576.1 (complete), Instance2576.2 (complete), Instance2576.3 (complete), Instance2576.4 (complete) and Instance2576.5 (complete)

5/23/2011 11:35:47 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_15.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_15.blg) has 482 samples.

5/23/2011 11:35:47 AM -- Creating test report ...

5/23/2011 11:35:50 AM -- Instance2576.1 has 19.0 for I/O Database Reads Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.1 has 1.7 for I/O Log Writes Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.1 has 1.7 for I/O Log Reads Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.2 has 16.6 for I/O Database Reads Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.2 has 1.8 for I/O Log Writes Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.2 has 1.8 for I/O Log Reads Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.3 has 16.6 for I/O Database Reads Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.3 has 1.8 for I/O Log Writes Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.3 has 1.8 for I/O Log Reads Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.4 has 16.6 for I/O Database Reads Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.4 has 1.7 for I/O Log Writes Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.4 has 1.7 for I/O Log Reads Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.5 has 16.6 for I/O Database Reads Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.5 has 1.7 for I/O Log Writes Average Latency.  
5/23/2011 11:35:50 AM -- Instance2576.5 has 1.7 for I/O Log Reads Average Latency.  
5/23/2011 11:35:50 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/23/2011 11:35:50 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/23/2011 11:35:50 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_15.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_15.xml) has 478 samples queried.

# IMEGA3 Database Checksum Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
F:\db1\Jetstress001001.edb	61982066	0	0	0	1936939 MBytes / 3882 sec
F:\db2\Jetstress002001.edb	61982322	0	0	0	1936947 MBytes / 3306 sec
F:\db3\Jetstress003001.edb	61983858	0	0	0	1936995 MBytes / 3316 sec
F:\db4\Jetstress004001.edb	61982322	0	0	0	1936947 MBytes / 3483 sec
F:\db5\Jetstress005001.edb	61982578	0	0	0	1936955 MBytes / 3489 sec
(Sum)	309913146	0	0	0	9684785 MBytes / 17480 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read
F:	0.034	0.000	8868.900	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	5.485	3.976	6.253
Available MBytes	10499.271	10436.000	10504.000
Free System Page Table Entries	33556745.082	33556477.000	33557597.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	100297147.381	97787904.000	108974080.000
Pool Paged Bytes	126867568.605	124907520.000	171495424.000

Test Log 5/23/2011 9:34:03 AM -- Jetstress testing begins ...

5/23/2011 9:34:03 AM -- Prepare testing begins ...

5/23/2011 9:34:09 AM -- Attaching databases ...

5/23/2011 9:34:09 AM -- Prepare testing ends.

5/23/2011 9:34:09 AM -- Dispatching transactions begins ...

5/23/2011 9:34:09 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:09 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:15 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:15 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:20 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:20 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:20 AM -- Attaining prerequisites:

5/23/2011 9:35:08 AM -- VMSEExchange Database(JetstressWin)\Database Cache Size, Last: 1221030000.0 (lower bound:

1207960000.0, upper bound: none)

5/23/2011 11:35:09 AM -- Performance logging ends.

5/23/2011 11:35:44 AM -- JetInterop batch transaction stats: 86001, 86310, 86559, 85986 and 86769.

5/23/2011 11:35:44 AM -- Dispatching transactions ends.

5/23/2011 11:35:44 AM -- Shutting down databases ...

5/23/2011 11:35:47 AM -- Instance2576.1 (complete), Instance2576.2 (complete), Instance2576.3 (complete), Instance2576.4 (complete) and Instance2576.5 (complete)

5/23/2011 11:35:47 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_15.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_15.blg) has 482 samples.

5/23/2011 11:35:47 AM -- Creating test report ...

5/23/2011 11:35:50 AM -- Instance2576.1 has 19.0 for I/O Database Reads Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.1 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.1 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.2 has 16.6 for I/O Database Reads Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.2 has 1.8 for I/O Log Writes Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.2 has 1.8 for I/O Log Reads Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.3 has 16.6 for I/O Database Reads Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.3 has 1.8 for I/O Log Writes Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.3 has 1.8 for I/O Log Reads Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.4 has 16.6 for I/O Database Reads Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.4 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.4 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.5 has 16.6 for I/O Database Reads Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.5 has 1.7 for I/O Log Writes Average Latency.

5/23/2011 11:35:50 AM -- Instance2576.5 has 1.7 for I/O Log Reads Average Latency.

5/23/2011 11:35:50 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.

5/23/2011 11:35:50 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.

5/23/2011 11:35:50 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_15.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_15.xml) has 478 samples queried.

5/23/2011 11:35:50 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_15.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_15.html) is saved.

5/23/2011 11:35:51 AM -- Performance logging begins (interval: 30000 ms).

5/23/2011 11:35:51 AM -- Verifying database checksums ...

5/23/2011 4:27:11 PM -- F: (100% processed)

5/23/2011 4:27:11 PM -- Performance logging ends.

5/23/2011 4:27:11 PM -- [C:\Program Files\Exchange Jetstress\DBChecksum\\_2011\\_5\\_23\\_11\\_35\\_50.blg](C:\Program Files\Exchange Jetstress\DBChecksum_2011_5_23_11_35_50.blg) has 582 samples.

# IMEGA3 Stress Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA3

## Test Description

**Test Start Time** 5/20/2011 6:41:13 PM

**Test End Time** 5/21/2011 7:24:27 PM

**Collection Start Time** 5/20/2011 6:42:18 PM

**Collection End Time** 5/21/2011 6:42:11 PM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_25.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_25.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3241.052

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10066348277760

**Final Database Size (bytes)** 10142391009280

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance3352.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance3352.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance3352.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance3352.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance3352.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3352.1</b>	19.288	5.394	413.880	233.209	32925.952	34421.945	0.000	1.763	0.000	109.423	0.000	5552.233
<b>Instance3352.2</b>	16.760	5.372	413.336	235.022	32977.458	34409.110	0.000	1.765	0.000	109.930	0.000	5537.511
<b>Instance3352.3</b>	16.783	5.395	412.175	234.411	32981.308	34412.035	0.000	1.763	0.000	109.756	0.000	5548.167
<b>Instance3352.4</b>	16.759	5.245	414.406	235.655	32968.928	34409.333	0.000	1.758	0.000	109.959	0.000	5540.552
<b>Instance3352.5</b>	16.761	5.325	413.692	235.265	32977.216	34408.932	0.000	1.762	0.000	109.941	0.000	5530.885

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance3352.1</b>	19.635	261939.798
<b>Instance3352.2</b>	21.476	261924.462
<b>Instance3352.3</b>	21.537	261933.030
<b>Instance3352.4</b>	21.342	261938.219
<b>Instance3352.5</b>	21.474	261935.681

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance3352.1</b>	2.516	232558.500
<b>Instance3352.2</b>	2.520	232559.119
<b>Instance3352.3</b>	2.521	232561.188

<b>Instance3352.4</b>	2.522	232559.750
<b>Instance3352.5</b>	2.518	232560.439

#### Total I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3352.1</b>	19.288	5.394	433.515	233.209	43298.377	34421.945	4.158	1.763	2.516	109.423	232558.500	5552.233
<b>Instance3352.2</b>	16.760	5.372	434.813	235.022	44285.699	34409.110	4.211	1.765	2.520	109.930	232559.119	5537.511
<b>Instance3352.3</b>	16.783	5.395	433.712	234.411	44350.505	34412.035	4.289	1.763	2.521	109.756	232561.188	5548.167
<b>Instance3352.4</b>	16.759	5.245	435.749	235.655	44183.585	34409.333	4.202	1.758	2.522	109.959	232559.750	5540.552
<b>Instance3352.5</b>	16.761	5.325	435.166	235.265	44275.582	34408.932	4.292	1.762	2.518	109.941	232560.439	5530.885

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.511	1.533	3.586
<b>Available MBytes</b>	9131.935	9072.000	9175.000
<b>Free System Page Table Entries</b>	33556599.084	33556517.000	33557621.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	97815386.908	96530432.000	98381824.000
<b>Pool Paged Bytes</b>	125717414.338	124735488.000	172097536.000
<b>Database Page Fault Stalls/sec</b>	0.016	0.000	59.507

Test Log 5/20/2011 6:41:13 PM -- Jetstress testing begins ...

5/20/2011 6:41:13 PM -- Prepare testing begins ...

5/20/2011 6:41:19 PM -- Attaching databases ...

5/20/2011 6:41:19 PM -- Prepare testing ends.

5/20/2011 6:41:19 PM -- Dispatching transactions begins ...

5/20/2011 6:41:20 PM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/20/2011 6:41:20 PM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/20/2011 6:41:25 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

5/20/2011 6:41:25 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

5/20/2011 6:41:30 PM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/20/2011 6:41:30 PM -- Performance logging begins (interval: 15000 ms).

5/20/2011 6:41:30 PM -- Attaining prerequisites:

5/20/2011 6:42:18 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1224094000.0 (lower bound: 1207960000.0, upper bound: none)

5/21/2011 6:42:19 PM -- Performance logging ends.

5/21/2011 7:24:21 PM -- JetInterop batch transaction stats: 1063617, 1064030, 1063196, 1064107 and 1063800.

5/21/2011 7:24:22 PM -- Dispatching transactions ends.

5/21/2011 7:24:22 PM -- Shutting down databases ...

5/21/2011 7:24:27 PM -- Instance3352.1 (complete), Instance3352.2 (complete), Instance3352.3 (complete), Instance3352.4 (complete) and Instance3352.5 (complete)

5/21/2011 7:24:27 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_25.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_25.blg) has 5759 samples.

5/21/2011 7:24:27 PM -- Creating test report ...

5/21/2011 7:24:52 PM -- Instance3352.1 has 19.3 for I/O Database Reads Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.1 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.1 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.2 has 16.8 for I/O Database Reads Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.2 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.2 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.3 has 16.8 for I/O Database Reads Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.3 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.3 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.4 has 16.8 for I/O Database Reads Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.4 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.4 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.5 has 16.8 for I/O Database Reads Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.5 has 1.8 for I/O Log Writes Average Latency.  
5/21/2011 7:24:52 PM -- Instance3352.5 has 1.8 for I/O Log Reads Average Latency.  
5/21/2011 7:24:52 PM -- Test has 59.5074234664999 Maximum Database Page Fault Stalls/sec.  
5/21/2011 7:24:52 PM -- Test has 2 Database Page Fault Stalls/sec samples higher than 0.  
5/21/2011 7:24:52 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_25.xml](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_25.xml) has 5755 samples queried.



# IMEGA3 Database Backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance4992.1	1936931.59	10:07:18	53.16
Instance4992.2	1936939.59	09:50:10	54.70
Instance4992.3	1936987.59	09:53:35	54.39
Instance4992.4	1936939.59	09:41:27	55.52
Instance4992.5	1936947.59	09:50:10	54.70

Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

Database Configuration

**Instance4992.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4992.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4992.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4992.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4992.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

## Transactional I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4992.1</b>	7.980	0.000	212.634	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4992.2</b>	7.805	0.000	218.805	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4992.3</b>	7.871	0.000	217.538	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4992.4</b>	7.729	0.000	222.091	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4992.5</b>	7.818	0.000	218.807	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

## Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.166	0.471	2.738
<b>Available MBytes</b>	10488.515	10427.000	10492.000
<b>Free System Page Table Entries</b>	33556664.326	33556493.000	33558061.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	96513545.278	96428032.000	98013184.000
<b>Pool Paged Bytes</b>	125077757.048	123310080.000	169930752.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/24/2011 9:27:20 AM -- Jetstress testing begins ...

5/24/2011 9:27:20 AM -- Prepare testing begins ...

5/24/2011 9:27:26 AM -- Attaching databases ...

5/24/2011 9:27:26 AM -- Prepare testing ends.

5/24/2011 9:27:34 AM -- Performance logging begins (interval: 30000 ms).

5/24/2011 9:27:34 AM -- Backing up databases ...

5/24/2011 7:34:52 PM -- Performance logging ends.

5/24/2011 7:34:52 PM -- Instance4992.1 (100% processed), Instance4992.2 (100% processed), Instance4992.3 (100% processed), Instance4992.4 (100% processed) and Instance4992.5 (100% processed)

5/24/2011 7:34:53 PM -- [C:\Program Files\Exchange Jetstress\DatabaseBackup\\_2011\\_5\\_24\\_9\\_27\\_26.blg](C:\Program Files\Exchange Jetstress\DatabaseBackup_2011_5_24_9_27_26.blg) has 1214 samples.

5/24/2011 7:34:53 PM -- Creating test report ...

# IMEGA3 SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
<b>Instance4924.1</b>	505	696.4164232
<b>Instance4924.2</b>	500	720.0192647
<b>Instance4924.3</b>	507	663.5315655
<b>Instance4924.4</b>	505	688.4604092
<b>Instance4924.5</b>	503	709.6764465

Database Configuration

**Instance4924.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4924.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4924.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4924.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4924.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4924.1</b>	12.635	1.698	819.012	4.324	36104.890	32577.488	9.535	0.000	6.487	0.000	231171.628	0.000
<b>Instance4924.2</b>	13.047	1.706	794.887	4.170	36267.741	32583.910	9.470	0.000	6.255	0.000	231256.315	0.000
<b>Instance4924.3</b>	13.219	1.778	822.825	4.617	36175.605	32568.195	9.872	0.063	6.926	0.005	231058.208	3.122
<b>Instance4924.4</b>	12.984	1.666	816.347	4.419	36094.556	32575.247	9.727	0.000	6.629	0.000	231119.080	0.000
<b>Instance4924.5</b>	12.786	1.685	818.812	4.247	36371.024	32209.455	9.382	0.003	6.377	0.017	228589.926	2.909

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4924.1</b>	29.341	261923.869
<b>Instance4924.2</b>	30.084	262032.051
<b>Instance4924.3</b>	30.166	261875.049

<b>Instance4924.4</b>	30.150	261847.361
<b>Instance4924.5</b>	30.130	261949.000

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4924.1</b>	12.635	1.698	848.354	4.324	43915.063	32577.488	9.535	0.000	6.487	0.000	231171.628	0.000
<b>Instance4924.2</b>	13.047	1.706	824.971	4.170	44500.644	32583.910	9.470	0.000	6.255	0.000	231256.315	0.000
<b>Instance4924.3</b>	13.219	1.778	852.991	4.617	44157.334	32568.195	9.872	0.063	6.926	0.005	231058.208	3.122
<b>Instance4924.4</b>	12.984	1.666	846.497	4.419	44135.264	32575.247	9.727	0.000	6.629	0.000	231119.080	0.000
<b>Instance4924.5</b>	12.786	1.685	848.942	4.247	44376.989	32209.455	9.382	0.003	6.377	0.017	228589.926	2.909

#### Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	2.927	0.559	5.058
<b>Available MBytes</b>	9091.916	9065.000	10275.000
<b>Free System Page Table Entries</b>	33556597.391	33556525.000	33557117.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	98486374.972	96776192.000	99622912.000
<b>Pool Paged Bytes</b>	125089986.503	125083648.000	125128704.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/25/2011 9:21:53 AM -- Jetstress testing begins ...

5/25/2011 9:21:53 AM -- Prepare testing begins ...

5/25/2011 9:21:59 AM -- Attaching databases ...

5/25/2011 9:21:59 AM -- Prepare testing ends.

5/25/2011 9:21:59 AM -- Dispatching transactions begins ...

5/25/2011 9:21:59 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/25/2011 9:21:59 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/25/2011 9:22:05 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/25/2011 9:22:05 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/25/2011 9:22:08 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/25/2011 9:22:08 AM -- Performance logging begins (interval: 15000 ms).

5/25/2011 9:22:08 AM -- Generating log files ...

5/25/2011 9:52:30 AM -- F:\log1 (101.2% generated), F:\log2 (100.2% generated), F:\log3 (101.6% generated), F:\log4 (101.2% generated) and F:\log5 (100.8% generated)

5/25/2011 9:52:30 AM -- Performance logging ends.

5/25/2011 9:52:30 AM -- JetInterop batch transaction stats: 21524, 21484, 21530, 21604 and 21505.

5/25/2011 9:52:31 AM -- Dispatching transactions ends.

5/25/2011 9:52:31 AM -- Shutting down databases ...

5/25/2011 9:52:34 AM -- Instance4924.1 (complete), Instance4924.2 (complete), Instance4924.3 (complete), Instance4924.4 (complete) and Instance4924.5 (complete)

5/25/2011 9:52:34 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_5.blg](#) has 121 samples.

5/25/2011 9:52:34 AM -- Creating test report ...

5/25/2011 9:52:35 AM -- Instance4924.1 has 17.9 for I/O Database Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.1 has 1.8 for I/O Log Writes Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.1 has 1.8 for I/O Log Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.2 has 15.7 for I/O Database Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.2 has 1.8 for I/O Log Writes Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.2 has 1.8 for I/O Log Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.3 has 15.8 for I/O Database Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.3 has 1.8 for I/O Log Writes Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.3 has 1.8 for I/O Log Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.4 has 15.6 for I/O Database Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.4 has 1.9 for I/O Log Writes Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.4 has 1.9 for I/O Log Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.5 has 15.7 for I/O Database Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.5 has 1.8 for I/O Log Writes Average Latency.  
 5/25/2011 9:52:35 AM -- Instance4924.5 has 1.8 for I/O Log Reads Average Latency.  
 5/25/2011 9:52:35 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
 5/25/2011 9:52:35 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
 5/25/2011 9:52:35 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_5.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_5.xml) has 120 samples queried.  
 5/25/2011 9:52:35 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_5.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_5.html) is saved.  
 5/25/2011 9:59:26 AM -- Performance logging begins (interval: 4000 ms).  
 5/25/2011 9:59:26 AM -- Recovering databases ...  
 5/25/2011 10:11:26 AM -- Performance logging ends.  
 5/25/2011 10:11:26 AM -- Instance4924.1 (696.4164232), Instance4924.2 (720.0192647), Instance4924.3 (663.5315655),  
 Instance4924.4 (688.4604092) and Instance4924.5 (709.6764465)  
 5/25/2011 10:11:26 AM -- [C:\Program Files\Exchange Jetstress\SoftRecovery\\_2011\\_5\\_25\\_9\\_59\\_23.blg](C:\Program Files\Exchange Jetstress\SoftRecovery_2011_5_25_9_59_23.blg) has 179 samples.  
 5/25/2011 10:11:26 AM -- Creating test report ...

# IMEGA4 Performance Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA4

## Test Description

**Test Start Time** 5/23/2011 9:34:01 AM

**Test End Time** 5/23/2011 11:35:56 AM

**Collection Start Time** 5/23/2011 9:35:05 AM

**Collection End Time** 5/23/2011 11:34:52 AM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_12.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_12.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3137.332

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10144605601792

**Final Database Size (bytes)** 10150687342592

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance4740.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4740.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4740.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4740.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4740.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4740.1</b>	19.389	6.916	404.234	227.644	32942.694	34243.413	0.000	2.264	0.000	101.303	0.000	5768.090
<b>Instance4740.2</b>	17.456	6.863	403.115	228.802	32981.439	34230.467	0.000	2.275	0.000	101.158	0.000	5782.799
<b>Instance4740.3</b>	17.424	7.154	401.282	227.259	33002.618	34224.662	0.000	2.283	0.000	100.864	0.000	5737.353
<b>Instance4740.4</b>	17.509	6.865	397.430	225.053	33002.931	34239.762	0.000	2.288	0.000	100.571	0.000	5738.655
<b>Instance4740.5</b>	17.587	6.879	397.212	225.301	32984.821	34252.970	0.000	2.291	0.000	100.889	0.000	5801.764

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4740.1</b>	21.445	261965.252
<b>Instance4740.2</b>	22.131	261962.096
<b>Instance4740.3</b>	22.328	261944.578
<b>Instance4740.4</b>	22.113	261935.500
<b>Instance4740.5</b>	22.372	261987.596

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance4740.1</b>	2.426	232551.973
<b>Instance4740.2</b>	2.428	232561.848
<b>Instance4740.3</b>	2.401	232562.467

<b>Instance4740.4</b>	2.393	232553.981
<b>Instance4740.5</b>	2.430	232555.197

#### Total I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4740.1</b>	19.389	6.916	425.679	227.644	44480.577	34243.413	5.218	2.264	2.426	101.303	232551.973	5768.090
<b>Instance4740.2</b>	17.456	6.863	425.246	228.802	44898.043	34230.467	5.190	2.275	2.428	101.158	232561.848	5782.799
<b>Instance4740.3</b>	17.424	7.154	423.610	227.259	45069.739	34224.662	5.122	2.283	2.401	100.864	232562.467	5737.353
<b>Instance4740.4</b>	17.509	6.865	419.544	225.053	45069.526	34239.762	5.143	2.288	2.393	100.571	232553.981	5738.655
<b>Instance4740.5</b>	17.587	6.879	419.584	225.301	45195.025	34252.970	5.053	2.291	2.430	100.889	232555.197	5801.764

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.576	1.780	3.657
<b>Available MBytes</b>	9169.637	9164.000	9196.000
<b>Free System Page Table Entries</b>	33556086.100	33556027.000	33556603.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	94391995.056	93855744.000	95715328.000
<b>Pool Paged Bytes</b>	123234564.810	121847808.000	124211200.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/23/2011 9:34:01 AM -- Jetstress testing begins ...

5/23/2011 9:34:01 AM -- Prepare testing begins ...

5/23/2011 9:34:06 AM -- Attaching databases ...

5/23/2011 9:34:06 AM -- Prepare testing ends.

5/23/2011 9:34:06 AM -- Dispatching transactions begins ...

5/23/2011 9:34:06 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:06 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:12 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:12 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:17 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:17 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:17 AM -- Attaining prerequisites:

5/23/2011 9:35:05 AM -- VMSExchange Database(JetstressWin)\Database Cache Size, Last: 1220698000.0 (lower bound: 1207960000.0, upper bound: none)

5/23/2011 11:35:05 AM -- Performance logging ends.

5/23/2011 11:35:47 AM -- JetInterop batch transaction stats: 83509, 83681, 83147, 82923 and 83096.

5/23/2011 11:35:48 AM -- Dispatching transactions ends.

5/23/2011 11:35:48 AM -- Shutting down databases ...

5/23/2011 11:35:56 AM -- Instance4740.1 (complete), Instance4740.2 (complete), Instance4740.3 (complete), Instance4740.4 (complete) and Instance4740.5 (complete)

5/23/2011 11:35:56 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_12.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_12.blg) has 482 samples.

5/23/2011 11:35:56 AM -- Creating test report ...



5/23/2011 11:35:59 AM -- Instance4740.1 has 19.4 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.1 has 2.3 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.1 has 2.3 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.2 has 17.5 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.2 has 2.3 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.2 has 2.3 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.3 has 17.4 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.3 has 2.3 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.3 has 2.3 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.4 has 17.5 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.4 has 2.3 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.4 has 2.3 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.5 has 17.6 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.5 has 2.3 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4740.5 has 2.3 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/23/2011 11:35:59 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/23/2011 11:35:59 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_12.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_12.xml) has 478 samples queried.

# IMEGA4 Database Checksum Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
F:\db1\Jetstress001001.edb	61956978	0	0	0	1936155 MBytes / 10392 sec
F:\db2\Jetstress002001.edb	61953906	0	0	0	1936059 MBytes / 7895 sec
F:\db3\Jetstress003001.edb	61954674	0	0	0	1936083 MBytes / 7739 sec
F:\db4\Jetstress004001.edb	61953138	0	0	0	1936035 MBytes / 7739 sec
F:\db5\Jetstress005001.edb	61955698	0	0	0	1936115 MBytes / 7742 sec
(Sum)	309774394	0	0	0	9680449 MBytes / 41510 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read
F:	0.075	0.000	3731.534	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	2.345	1.309	2.949
Available MBytes	10543.632	10513.000	10547.000
Free System Page Table Entries	33556135.293	33555963.000	33557083.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	95864697.244	94326784.000	98717696.000
Pool Paged Bytes	122467174.733	121929728.000	124252160.000

Test Log 5/23/2011 9:34:01 AM -- Jetstress testing begins ...

5/23/2011 9:34:01 AM -- Prepare testing begins ...

5/23/2011 9:34:06 AM -- Attaching databases ...

5/23/2011 9:34:06 AM -- Prepare testing ends.

5/23/2011 9:34:06 AM -- Dispatching transactions begins ...

5/23/2011 9:34:06 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:06 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:12 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:12 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:17 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:17 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:17 AM -- Attaining prerequisites:

5/23/2011 9:35:05 AM -- VMSEExchange Database(JetstressWin)\Database Cache Size, Last: 1220698000.0 (lower bound:

1207960000.0, upper bound: none)

5/23/2011 11:35:05 AM -- Performance logging ends.

5/23/2011 11:35:47 AM -- JetInterop batch transaction stats: 83509, 83681, 83147, 82923 and 83096.

5/23/2011 11:35:48 AM -- Dispatching transactions ends.

5/23/2011 11:35:48 AM -- Shutting down databases ...

5/23/2011 11:35:56 AM -- Instance4740.1 (complete), Instance4740.2 (complete), Instance4740.3 (complete), Instance4740.4 (complete) and Instance4740.5 (complete)

5/23/2011 11:35:56 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_12.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_12.blg) has 482 samples.

5/23/2011 11:35:56 AM -- Creating test report ...

5/23/2011 11:35:59 AM -- Instance4740.1 has 19.4 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.1 has 2.3 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.1 has 2.3 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.2 has 17.5 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.2 has 2.3 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.2 has 2.3 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.3 has 17.4 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.3 has 2.3 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.3 has 2.3 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.4 has 17.5 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.4 has 2.3 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.4 has 2.3 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.5 has 17.6 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.5 has 2.3 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4740.5 has 2.3 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.

5/23/2011 11:35:59 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.

5/23/2011 11:35:59 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_12.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_12.xml) has 478 samples queried.

5/23/2011 11:35:59 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_12.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_12.html) is saved.

5/23/2011 11:35:59 AM -- Performance logging begins (interval: 30000 ms).

5/23/2011 11:35:59 AM -- Verifying database checksums ...

5/23/2011 11:07:50 PM -- F: (100% processed)

5/23/2011 11:07:50 PM -- Performance logging ends.

5/23/2011 11:07:50 PM -- [C:\Program Files\Exchange Jetstress\DBCchecksum\\_2011\\_5\\_23\\_11\\_35\\_59.blg](C:\Program Files\Exchange Jetstress\DBCchecksum_2011_5_23_11_35_59.blg) has 1383 samples.

# IMEGA4 Stress Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA4

## Test Description

**Test Start Time** 5/20/2011 6:41:40 PM

**Test End Time** 5/21/2011 7:24:56 PM

**Collection Start Time** 5/20/2011 6:42:45 PM

**Collection End Time** 5/21/2011 6:42:35 PM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_51.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_51.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3090.78

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10066348277760

**Final Database Size (bytes)** 10138389643264

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance4156.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4156.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4156.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4156.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4156.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4156.1</b>	19.933	6.711	398.008	223.875	32927.893	34455.486	0.000	2.216	0.000	101.791	0.000	5677.801
<b>Instance4156.2</b>	17.973	6.583	394.064	223.130	32967.631	34447.046	0.000	2.212	0.000	101.472	0.000	5656.268
<b>Instance4156.3</b>	17.955	6.551	394.693	223.494	32964.418	34441.683	0.000	2.207	0.000	101.709	0.000	5660.768
<b>Instance4156.4</b>	17.963	6.687	393.169	222.635	32970.027	34444.678	0.000	2.214	0.000	101.578	0.000	5653.571
<b>Instance4156.5</b>	17.963	6.621	394.375	223.339	32970.685	34449.017	0.000	2.212	0.000	101.732	0.000	5664.711

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4156.1</b>	20.343	261917.236
<b>Instance4156.2</b>	21.084	261940.352
<b>Instance4156.3</b>	21.161	261926.789
<b>Instance4156.4</b>	21.104	261932.200
<b>Instance4156.5</b>	21.145	261933.139

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance4156.1</b>	2.396	232561.389
<b>Instance4156.2</b>	2.379	232560.179
<b>Instance4156.3</b>	2.387	232561.641

<b>Instance4156.4</b>	2.381	232558.802
<b>Instance4156.5</b>	2.389	232559.362

#### Total I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4156.1</b>	19.933	6.711	418.351	223.875	44062.916	34455.486	4.902	2.216	2.396	101.791	232561.389	5677.801
<b>Instance4156.2</b>	17.973	6.583	415.148	223.130	44596.546	34447.046	4.882	2.212	2.379	101.472	232560.179	5656.268
<b>Instance4156.3</b>	17.955	6.551	415.854	223.494	44615.550	34441.683	5.081	2.207	2.387	101.709	232561.641	5660.768
<b>Instance4156.4</b>	17.963	6.687	414.273	222.635	44633.924	34444.678	4.872	2.214	2.381	101.578	232558.802	5653.571
<b>Instance4156.5</b>	17.963	6.621	415.520	223.339	44622.062	34449.017	4.870	2.212	2.389	101.732	232559.362	5664.711

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.293	1.149	3.335
<b>Available MBytes</b>	9184.270	9103.000	9253.000
<b>Free System Page Table Entries</b>	33555773.097	33555507.000	33556603.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	94637633.112	92745728.000	97845248.000
<b>Pool Paged Bytes</b>	123018072.773	121106432.000	168706048.000
<b>Database Page Fault Stalls/sec</b>	0.037	0.000	172.718

Test Log 5/20/2011 6:41:40 PM -- Jetstress testing begins ...

5/20/2011 6:41:40 PM -- Prepare testing begins ...

5/20/2011 6:41:46 PM -- Attaching databases ...

5/20/2011 6:41:46 PM -- Prepare testing ends.

5/20/2011 6:41:46 PM -- Dispatching transactions begins ...

5/20/2011 6:41:46 PM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/20/2011 6:41:46 PM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/20/2011 6:41:51 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

5/20/2011 6:41:51 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

5/20/2011 6:41:56 PM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/20/2011 6:41:56 PM -- Performance logging begins (interval: 15000 ms).

5/20/2011 6:41:56 PM -- Attaining prerequisites:

5/20/2011 6:42:45 PM -- VMSExchange Database(JetstressWin)\Database Cache Size, Last: 1220035000.0 (lower bound: 1207960000.0, upper bound: none)

5/21/2011 6:42:46 PM -- Performance logging ends.

5/21/2011 7:24:47 PM -- JetInterop batch transaction stats: 1017030, 1012305, 1014266, 1012197 and 1014198.

5/21/2011 7:24:48 PM -- Dispatching transactions ends.

5/21/2011 7:24:48 PM -- Shutting down databases ...

5/21/2011 7:24:56 PM -- Instance4156.1 (complete), Instance4156.2 (complete), Instance4156.3 (complete), Instance4156.4 (complete) and Instance4156.5 (complete)

5/21/2011 7:24:56 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_51.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_51.blg) has 5759 samples.

5/21/2011 7:24:56 PM -- Creating test report ...

5/21/2011 7:25:20 PM -- Instance4156.1 has 19.9 for I/O Database Reads Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.1 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.1 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.2 has 18.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.2 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.2 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.3 has 18.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.3 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.3 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.4 has 18.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.4 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.4 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.5 has 18.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.5 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:25:20 PM -- Instance4156.5 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:25:20 PM -- Test has 172.718251865693 Maximum Database Page Fault Stalls/sec.  
5/21/2011 7:25:20 PM -- Test has 3 Database Page Fault Stalls/sec samples higher than 0.  
5/21/2011 7:25:20 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_51.xml](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_51.xml) has 5755 samples queried.

# IMEGA4 Database Backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
<b>Instance5028.1</b>	1936147.59	13:48:23	38.95
<b>Instance5028.2</b>	1936051.59	13:37:13	39.48
<b>Instance5028.3</b>	1936075.59	13:37:31	39.47
<b>Instance5028.4</b>	1936027.59	13:23:12	40.17
<b>Instance5028.5</b>	1936107.59	13:35:11	39.58

Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

Database Configuration

**Instance5028.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance5028.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance5028.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance5028.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance5028.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb



## Transactional I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance5028.1</b>	11.446	0.000	155.759	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance5028.2</b>	11.302	0.000	157.912	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance5028.3</b>	11.334	0.000	157.871	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance5028.4</b>	11.106	0.000	160.685	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance5028.5</b>	11.278	0.000	158.319	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

## Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	1.116	0.220	1.877
<b>Available MBytes</b>	10536.282	10527.000	10538.000
<b>Free System Page Table Entries</b>	33556011.227	33555483.000	33557083.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	93757979.534	93687808.000	95002624.000
<b>Pool Paged Bytes</b>	122528424.604	121995264.000	124719104.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/24/2011 9:27:16 AM -- Jetstress testing begins ...

5/24/2011 9:27:16 AM -- Prepare testing begins ...

5/24/2011 9:27:22 AM -- Attaching databases ...

5/24/2011 9:27:22 AM -- Prepare testing ends.

5/24/2011 9:27:30 AM -- Performance logging begins (interval: 30000 ms).

5/24/2011 9:27:30 AM -- Backing up databases ...

5/24/2011 11:15:54 PM -- Performance logging ends.

5/24/2011 11:15:54 PM -- Instance5028.1 (100% processed), Instance5028.2 (100% processed), Instance5028.3 (100% processed), Instance5028.4 (100% processed) and Instance5028.5 (100% processed)

5/24/2011 11:15:54 PM -- [C:\Program Files\Exchange Jetstress\DatabaseBackup\\_2011\\_5\\_24\\_9\\_27\\_22.blg](#) has 1655 samples.

5/24/2011 11:15:54 PM -- Creating test report ...

# IMEGA4 SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
<b>Instance4644.1</b>	505	940.4008517
<b>Instance4644.2</b>	506	970.8989053
<b>Instance4644.3</b>	505	950.2132689
<b>Instance4644.4</b>	500	937.748847
<b>Instance4644.5</b>	509	934.0360405

Database Configuration

**Instance4644.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4644.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4644.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4644.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4644.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4644.1</b>	16.653	6.978	569.386	3.224	37129.583	30799.107	10.044	0.000	4.836	0.000	218475.144	0.000
<b>Instance4644.2</b>	15.956	6.009	561.560	3.130	37791.686	30864.465	9.447	0.000	4.694	0.000	217079.819	0.000
<b>Instance4644.3</b>	16.301	6.451	566.175	3.184	37271.526	30962.983	9.920	0.004	4.783	0.014	219628.575	2.169
<b>Instance4644.4</b>	16.484	1.350	562.607	3.212	37327.203	30649.379	9.670	0.000	4.818	0.000	216297.737	0.000
<b>Instance4644.5</b>	17.026	1.819	571.041	3.280	37179.209	31073.103	9.784	0.005	4.925	0.014	220595.275	2.207

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4644.1</b>	28.153	262013.738
<b>Instance4644.2</b>	28.427	261979.821
<b>Instance4644.3</b>	28.410	261952.176

<b>Instance4644.4</b>	28.356	261978.272
<b>Instance4644.5</b>	28.340	261975.080

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4644.1</b>	16.653	6.978	597.539	3.224	47725.050	30799.107	10.044	0.000	4.836	0.000	218475.144	0.000
<b>Instance4644.2</b>	15.956	6.009	589.988	3.130	48593.717	30864.465	9.447	0.000	4.694	0.000	217079.819	0.000
<b>Instance4644.3</b>	16.301	6.451	594.585	3.184	48007.147	30962.983	9.920	0.004	4.783	0.014	219628.575	2.169
<b>Instance4644.4</b>	16.484	1.350	590.963	3.212	48106.669	30649.379	9.670	0.000	4.818	0.000	216297.737	0.000
<b>Instance4644.5</b>	17.026	1.819	599.382	3.280	47808.066	31073.103	9.784	0.005	4.925	0.014	220595.275	2.207

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.087	0.899	4.328
<b>Available MBytes</b>	9136.029	9118.000	10319.000
<b>Free System Page Table Entries</b>	33555688.992	33555523.000	33556579.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	95088453.818	94056448.000	95457280.000
<b>Pool Paged Bytes</b>	122930353.719	122925056.000	122970112.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/25/2011 9:21:51 AM -- Jetstress testing begins ...

5/25/2011 9:21:51 AM -- Prepare testing begins ...

5/25/2011 9:21:56 AM -- Attaching databases ...

5/25/2011 9:21:56 AM -- Prepare testing ends.

5/25/2011 9:21:56 AM -- Dispatching transactions begins ...

5/25/2011 9:21:56 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/25/2011 9:21:56 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/25/2011 9:22:02 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/25/2011 9:22:02 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/25/2011 9:22:05 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/25/2011 9:22:05 AM -- Performance logging begins (interval: 15000 ms).

5/25/2011 9:22:05 AM -- Generating log files ...

5/25/2011 9:52:45 AM -- F:\log1 (101.2% generated), F:\log2 (101.4% generated), F:\log3 (101.2% generated), F:\log4 (100.2% generated) and F:\log5 (102.0% generated)

5/25/2011 9:52:45 AM -- Performance logging ends.

5/25/2011 9:52:45 AM -- JetInterop batch transaction stats: 21674, 21624, 21548, 21407 and 21527.

5/25/2011 9:52:45 AM -- Dispatching transactions ends.

5/25/2011 9:52:45 AM -- Shutting down databases ...

5/25/2011 9:52:49 AM -- Instance4644.1 (complete), Instance4644.2 (complete), Instance4644.3 (complete), Instance4644.4 (complete) and Instance4644.5 (complete)

5/25/2011 9:52:49 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_2.blg](#) has 122 samples.

5/25/2011 9:52:49 AM -- Creating test report ...

5/25/2011 9:52:50 AM -- Instance4644.1 has 18.5 for I/O Database Reads Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.1 has 2.2 for I/O Log Writes Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.1 has 2.2 for I/O Log Reads Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.2 has 16.5 for I/O Database Reads Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.2 has 2.2 for I/O Log Writes Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.2 has 2.2 for I/O Log Reads Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.3 has 16.5 for I/O Database Reads Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.3 has 2.1 for I/O Log Writes Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.3 has 2.1 for I/O Log Reads Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.4 has 16.5 for I/O Database Reads Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.4 has 2.2 for I/O Log Writes Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.4 has 2.2 for I/O Log Reads Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.5 has 16.5 for I/O Database Reads Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.5 has 2.2 for I/O Log Writes Average Latency.  
5/25/2011 9:52:50 AM -- Instance4644.5 has 2.2 for I/O Log Reads Average Latency.  
5/25/2011 9:52:50 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/25/2011 9:52:50 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/25/2011 9:52:50 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_2.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_2.xml) has 121 samples queried.  
5/25/2011 9:52:50 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_2.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_2.html) is saved.  
5/25/2011 9:59:24 AM -- Performance logging begins (interval: 4000 ms).  
5/25/2011 9:59:24 AM -- Recovering databases ...  
5/25/2011 10:15:35 AM -- Performance logging ends.  
5/25/2011 10:15:35 AM -- Instance4644.1 (940.4008517), Instance4644.2 (970.8989053), Instance4644.3 (950.2132689),  
Instance4644.4 (937.748847) and Instance4644.5 (934.0360405)  
5/25/2011 10:15:36 AM -- [C:\Program Files\Exchange Jetstress\SoftRecovery\\_2011\\_5\\_25\\_9\\_59\\_21.blg](C:\Program Files\Exchange Jetstress\SoftRecovery_2011_5_25_9_59_21.blg) has 242 samples.  
5/25/2011 10:15:36 AM -- Creating test report ...

# IMEGA5 Performance Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA5

## Test Description

**Test Start Time** 5/23/2011 9:33:59 AM

**Test End Time** 5/23/2011 11:35:56 AM

**Collection Start Time** 5/23/2011 9:35:03 AM

**Collection End Time** 5/23/2011 11:35:03 AM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_10.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_10.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3288.062

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10150863503360

**Final Database Size (bytes)** 10157415006208

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance4956.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4956.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4956.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4956.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4956.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4956.1</b>	19.209	4.026	421.733	237.964	32942.149	34229.245	0.000	1.638	0.000	111.297	0.000	5649.548
<b>Instance4956.2</b>	16.631	3.824	418.284	238.226	32960.213	34231.218	0.000	1.640	0.000	111.880	0.000	5629.977
<b>Instance4956.3</b>	16.607	3.850	418.134	238.287	32976.241	34229.414	0.000	1.630	0.000	111.763	0.000	5655.938
<b>Instance4956.4</b>	16.610	3.857	418.970	238.690	32978.034	34220.811	0.000	1.635	0.000	111.608	0.000	5645.511
<b>Instance4956.5</b>	16.627	3.829	419.307	238.468	32959.287	34215.536	0.000	1.644	0.000	111.141	0.000	5633.461

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4956.1</b>	19.892	261907.812
<b>Instance4956.2</b>	21.743	261943.553
<b>Instance4956.3</b>	21.841	261945.301
<b>Instance4956.4</b>	21.728	261988.231
<b>Instance4956.5</b>	21.795	261921.775

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance4956.1</b>	2.605	232548.293
<b>Instance4956.2</b>	2.608	232564.811
<b>Instance4956.3</b>	2.619	232553.260

<b>Instance4956.4</b>	2.610	232562.799
<b>Instance4956.5</b>	2.594	232562.778

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4956.1</b>	19.209	4.026	441.625	237.964	43255.277	34229.245	4.052	1.638	2.605	111.297	232548.293	5649.548
<b>Instance4956.2</b>	16.631	3.824	440.027	238.226	44275.136	34231.218	4.028	1.640	2.608	111.880	232564.811	5629.977
<b>Instance4956.3</b>	16.607	3.850	439.975	238.287	44342.767	34229.414	4.302	1.630	2.619	111.763	232553.260	5655.938
<b>Instance4956.4</b>	16.610	3.857	440.697	238.690	44268.898	34220.811	4.275	1.635	2.610	111.608	232562.799	5645.511
<b>Instance4956.5</b>	16.627	3.829	441.102	238.468	44272.533	34215.536	4.182	1.644	2.594	111.141	232562.778	5633.461

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	1.537	1.136	2.040
<b>Available MBytes</b>	9082.502	9077.000	9102.000
<b>Free System Page Table Entries</b>	33555601.392	33555531.000	33556107.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	95432311.467	94875648.000	95596544.000
<b>Pool Paged Bytes</b>	114301294.933	112971776.000	115326976.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/23/2011 9:33:59 AM -- Jetstress testing begins ...

5/23/2011 9:33:59 AM -- Prepare testing begins ...

5/23/2011 9:34:04 AM -- Attaching databases ...

5/23/2011 9:34:04 AM -- Prepare testing ends.

5/23/2011 9:34:04 AM -- Dispatching transactions begins ...

5/23/2011 9:34:04 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:04 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:10 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:10 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:14 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:14 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:14 AM -- Attaining prerequisites:

5/23/2011 9:35:03 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1217905000.0 (lower bound: 1207960000.0, upper bound: none)

5/23/2011 11:35:04 AM -- Performance logging ends.

5/23/2011 11:35:51 AM -- JetInterop batch transaction stats: 87363, 87470, 87618, 87570 and 87008.

5/23/2011 11:35:51 AM -- Dispatching transactions ends.

5/23/2011 11:35:51 AM -- Shutting down databases ...

5/23/2011 11:35:56 AM -- Instance4956.1 (complete), Instance4956.2 (complete), Instance4956.3 (complete), Instance4956.4 (complete) and Instance4956.5 (complete)

5/23/2011 11:35:56 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_10.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_10.blg) has 483 samples.

5/23/2011 11:35:56 AM -- Creating test report ...

5/23/2011 11:35:59 AM -- Instance4956.1 has 19.2 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.1 has 1.6 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.1 has 1.6 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.2 has 16.6 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.2 has 1.6 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.2 has 1.6 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.3 has 16.6 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.3 has 1.6 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.3 has 1.6 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.4 has 16.6 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.4 has 1.6 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.4 has 1.6 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.5 has 16.6 for I/O Database Reads Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.5 has 1.6 for I/O Log Writes Average Latency.  
5/23/2011 11:35:59 AM -- Instance4956.5 has 1.6 for I/O Log Reads Average Latency.  
5/23/2011 11:35:59 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/23/2011 11:35:59 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/23/2011 11:35:59 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_10.xml](#) has 479 samples queried.



# IMEGA5 Database Checksum Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
F:\db1\Jetstress001001.edb	61995634	0	0	0	1937363 MBytes / 3669 sec
F:\db2\Jetstress002001.edb	61996914	0	0	0	1937403 MBytes / 3157 sec
F:\db3\Jetstress003001.edb	61995378	0	0	0	1937355 MBytes / 3182 sec
F:\db4\Jetstress004001.edb	61997938	0	0	0	1937435 MBytes / 3220 sec
F:\db5\Jetstress005001.edb	61993842	0	0	0	1937307 MBytes / 3244 sec
(Sum)	309979706	0	0	0	9686865 MBytes / 16475 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read
F:	0.032	0.000	9411.991	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	3.871	2.501	4.755
Available MBytes	10454.710	10390.000	10459.000
Free System Page Table Entries	33556199.692	33555499.000	33557579.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	97708106.745	95821824.000	102096896.000
Pool Paged Bytes	115793785.460	113741824.000	160436224.000

Test Log 5/23/2011 9:33:59 AM -- Jetstress testing begins ...

5/23/2011 9:33:59 AM -- Prepare testing begins ...

5/23/2011 9:34:04 AM -- Attaching databases ...

5/23/2011 9:34:04 AM -- Prepare testing ends.

5/23/2011 9:34:04 AM -- Dispatching transactions begins ...

5/23/2011 9:34:04 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:04 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:10 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:10 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:14 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:14 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:14 AM -- Attaining prerequisites:

5/23/2011 9:35:03 AM -- VMSEExchange Database(JetstressWin)\Database Cache Size, Last: 1217905000.0 (lower bound:

1207960000.0, upper bound: none)

5/23/2011 11:35:04 AM -- Performance logging ends.

5/23/2011 11:35:51 AM -- JetInterop batch transaction stats: 87363, 87470, 87618, 87570 and 87008.

5/23/2011 11:35:51 AM -- Dispatching transactions ends.

5/23/2011 11:35:51 AM -- Shutting down databases ...

5/23/2011 11:35:56 AM -- Instance4956.1 (complete), Instance4956.2 (complete), Instance4956.3 (complete), Instance4956.4 (complete) and Instance4956.5 (complete)

5/23/2011 11:35:56 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_10.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_10.blg) has 483 samples.

5/23/2011 11:35:56 AM -- Creating test report ...

5/23/2011 11:35:59 AM -- Instance4956.1 has 19.2 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.1 has 1.6 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.1 has 1.6 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.2 has 16.6 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.2 has 1.6 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.2 has 1.6 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.3 has 16.6 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.3 has 1.6 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.3 has 1.6 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.4 has 16.6 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.4 has 1.6 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.4 has 1.6 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.5 has 16.6 for I/O Database Reads Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.5 has 1.6 for I/O Log Writes Average Latency.

5/23/2011 11:35:59 AM -- Instance4956.5 has 1.6 for I/O Log Reads Average Latency.

5/23/2011 11:35:59 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.

5/23/2011 11:35:59 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.

5/23/2011 11:35:59 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_10.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_10.xml) has 479 samples queried.

5/23/2011 11:35:59 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_10.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_10.html) is saved.

5/23/2011 11:35:59 AM -- Performance logging begins (interval: 30000 ms).

5/23/2011 11:35:59 AM -- Verifying database checksums ...

5/23/2011 4:10:35 PM -- F: (100% processed)

5/23/2011 4:10:35 PM -- Performance logging ends.

5/23/2011 4:10:35 PM -- [C:\Program Files\Exchange Jetstress\DBCchecksum\\_2011\\_5\\_23\\_11\\_35\\_59.blg](C:\Program Files\Exchange Jetstress\DBCchecksum_2011_5_23_11_35_59.blg) has 548 samples.

# IMEGA5 Stress Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA5

## Test Description

**Test Start Time** 5/20/2011 6:41:41 PM

**Test End Time** 5/21/2011 7:24:59 PM

**Collection Start Time** 5/20/2011 6:42:50 PM

**Collection End Time** 5/21/2011 6:42:40 PM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_54.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_54.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3240.572

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10066348277760

**Final Database Size (bytes)** 10144110673920

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance2568.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance2568.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance2568.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance2568.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance2568.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance2568.1</b>	19.787	3.900	415.044	233.730	32903.713	34446.734	0.000	1.666	0.000	111.314	0.000	5586.106
<b>Instance2568.2</b>	17.052	3.773	413.399	235.091	32950.491	34427.997	0.000	1.668	0.000	111.575	0.000	5586.910
<b>Instance2568.3</b>	17.047	3.771	412.749	234.706	32949.962	34431.933	0.000	1.666	0.000	111.311	0.000	5577.631
<b>Instance2568.4</b>	17.050	3.809	413.529	235.184	32945.748	34433.139	0.000	1.663	0.000	111.473	0.000	5597.078
<b>Instance2568.5</b>	17.037	3.776	412.604	234.536	32956.009	34432.402	0.000	1.667	0.000	111.218	0.000	5570.615

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance2568.1</b>	18.808	261925.973
<b>Instance2568.2</b>	20.502	261935.686
<b>Instance2568.3</b>	20.586	261935.802
<b>Instance2568.4</b>	20.587	261933.482
<b>Instance2568.5</b>	20.539	261930.252

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance2568.1</b>	2.575	232560.975
<b>Instance2568.2</b>	2.581	232560.108
<b>Instance2568.3</b>	2.570	232561.159

<b>Instance2568.4</b>	2.584	232559.035
<b>Instance2568.5</b>	2.565	232560.136

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance2568.1</b>	19.787	3.900	433.852	233.730	42831.895	34446.734	4.053	1.666	2.575	111.314	232560.975	5586.106
<b>Instance2568.2</b>	17.052	3.773	433.901	235.091	43770.109	34427.997	4.353	1.668	2.581	111.575	232560.108	5586.910
<b>Instance2568.3</b>	17.047	3.771	433.335	234.706	43827.925	34431.933	4.008	1.666	2.570	111.311	232561.159	5577.631
<b>Instance2568.4</b>	17.050	3.809	434.116	235.184	43805.088	34433.139	4.164	1.663	2.584	111.473	232559.035	5597.078
<b>Instance2568.5</b>	17.037	3.776	433.143	234.536	43813.708	34432.402	4.241	1.667	2.565	111.218	232560.136	5570.615

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.167	1.364	3.001
<b>Available MBytes</b>	9088.414	9022.000	9128.000
<b>Free System Page Table Entries</b>	33555633.937	33555515.000	33556619.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	95178588.359	94699520.000	95494144.000
<b>Pool Paged Bytes</b>	114280764.254	112906240.000	160587776.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/20/2011 6:41:41 PM -- Jetstress testing begins ...

5/20/2011 6:41:41 PM -- Prepare testing begins ...

5/20/2011 6:41:47 PM -- Attaching databases ...

5/20/2011 6:41:47 PM -- Prepare testing ends.

5/20/2011 6:41:47 PM -- Dispatching transactions begins ...

5/20/2011 6:41:47 PM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/20/2011 6:41:47 PM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/20/2011 6:41:54 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

5/20/2011 6:41:54 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

5/20/2011 6:41:58 PM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/20/2011 6:41:58 PM -- Performance logging begins (interval: 15000 ms).

5/20/2011 6:41:58 PM -- Attaining prerequisites:

5/20/2011 6:42:50 PM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1225884000.0 (lower bound: 1207960000.0, upper bound: none)

5/21/2011 6:42:50 PM -- Performance logging ends.

5/21/2011 7:24:50 PM -- JetInterop batch transaction stats: 1064829, 1064672, 1063460, 1064801 and 1061394.

5/21/2011 7:24:51 PM -- Dispatching transactions ends.

5/21/2011 7:24:51 PM -- Shutting down databases ...

5/21/2011 7:24:59 PM -- Instance2568.1 (complete), Instance2568.2 (complete), Instance2568.3 (complete), Instance2568.4 (complete) and Instance2568.5 (complete)

5/21/2011 7:24:59 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_54.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_54.blg) has 5760 samples.

5/21/2011 7:24:59 PM -- Creating test report ...

5/21/2011 7:25:22 PM -- Instance2568.1 has 19.8 for I/O Database Reads Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.1 has 1.7 for I/O Log Writes Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.1 has 1.7 for I/O Log Reads Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.2 has 17.1 for I/O Database Reads Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.2 has 1.7 for I/O Log Writes Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.2 has 1.7 for I/O Log Reads Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.3 has 17.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.3 has 1.7 for I/O Log Writes Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.3 has 1.7 for I/O Log Reads Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.4 has 17.1 for I/O Database Reads Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.4 has 1.7 for I/O Log Writes Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.4 has 1.7 for I/O Log Reads Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.5 has 17.0 for I/O Database Reads Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.5 has 1.7 for I/O Log Writes Average Latency.  
5/21/2011 7:25:22 PM -- Instance2568.5 has 1.7 for I/O Log Reads Average Latency.  
5/21/2011 7:25:22 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/21/2011 7:25:22 PM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/21/2011 7:25:22 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_54.xml](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_54.xml) has 5756 samples queried.

# IMEGA5 Database Backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
<b>Instance2272.1</b>	1937355.59	10:31:30	51.13
<b>Instance2272.2</b>	1937395.59	10:18:30	52.21
<b>Instance2272.3</b>	1937347.59	10:27:20	51.47
<b>Instance2272.4</b>	1937427.59	10:07:23	53.16
<b>Instance2272.5</b>	1937299.59	10:20:10	52.06

Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

Database Configuration

**Instance2272.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance2272.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance2272.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance2272.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance2272.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

## Transactional I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance2272.1</b>	8.304	0.000	204.509	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance2272.2</b>	8.148	0.000	208.822	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance2272.3</b>	8.336	0.000	205.877	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance2272.4</b>	8.066	0.000	212.659	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance2272.5</b>	8.226	0.000	208.247	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

## Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	1.468	0.386	2.361
<b>Available MBytes</b>	10483.796	10403.000	10501.000
<b>Free System Page Table Entries</b>	33556114.360	33555515.000	33557131.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	94625564.805	94609408.000	95731712.000
<b>Pool Paged Bytes</b>	114470324.539	111910912.000	172007424.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/24/2011 9:27:14 AM -- Jetstress testing begins ...

5/24/2011 9:27:14 AM -- Prepare testing begins ...

5/24/2011 9:27:19 AM -- Attaching databases ...

5/24/2011 9:27:19 AM -- Prepare testing ends.

5/24/2011 9:27:28 AM -- Performance logging begins (interval: 30000 ms).

5/24/2011 9:27:28 AM -- Backing up databases ...

5/24/2011 7:58:58 PM -- Performance logging ends.

5/24/2011 7:58:58 PM -- Instance2272.1 (100% processed), Instance2272.2 (100% processed), Instance2272.3 (100% processed), Instance2272.4 (100% processed) and Instance2272.5 (100% processed)

5/24/2011 7:58:58 PM -- [C:\Program Files\Exchange Jetstress\DatabaseBackup\\_2011\\_5\\_24\\_9\\_27\\_19.blg](C:\Program Files\Exchange Jetstress\DatabaseBackup_2011_5_24_9_27_19.blg) has 1262 samples.

5/24/2011 7:58:58 PM -- Creating test report ...



# IMEGA5 SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
<b>Instance4668.1</b>	510	608.9002695
<b>Instance4668.2</b>	511	637.2767193
<b>Instance4668.3</b>	503	704.6376376
<b>Instance4668.4</b>	500	633.5639128
<b>Instance4668.5</b>	506	648.1499384

Database Configuration

**Instance4668.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4668.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4668.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4668.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4668.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4668.1</b>	13.164	1.753	871.622	5.015	36248.026	32549.547	9.555	0.000	7.523	0.000	230978.301	0.000
<b>Instance4668.2</b>	13.057	1.649	878.180	4.823	36119.176	32768.000	9.652	0.000	7.235	0.000	231011.375	0.000
<b>Instance4668.3</b>	13.601	1.874	752.871	4.235	37348.548	31826.391	9.524	0.000	6.349	0.000	225861.212	0.000
<b>Instance4668.4</b>	13.216	1.640	862.755	4.761	36226.226	32350.573	9.863	0.006	7.149	0.019	229667.032	3.261
<b>Instance4668.5</b>	13.265	1.645	850.664	4.667	36501.831	32358.400	9.596	0.000	7.001	0.000	229548.675	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4668.1</b>	28.595	262021.073
<b>Instance4668.2</b>	29.356	261840.485
<b>Instance4668.3</b>	29.170	261803.764

<b>Instance4668.4</b>	29.364	261918.073
<b>Instance4668.5</b>	29.314	261928.987

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4668.1</b>	13.164	1.753	900.217	5.015	43419.523	32549.547	9.555	0.000	7.523	0.000	230978.301	0.000
<b>Instance4668.2</b>	13.057	1.649	907.537	4.823	43420.683	32768.000	9.652	0.000	7.235	0.000	231011.375	0.000
<b>Instance4668.3</b>	13.601	1.874	782.042	4.235	45720.795	31826.391	9.524	0.000	6.349	0.000	225861.212	0.000
<b>Instance4668.4</b>	13.216	1.640	892.120	4.761	43654.949	32350.573	9.863	0.006	7.149	0.019	229667.032	3.261
<b>Instance4668.5</b>	13.265	1.645	879.979	4.667	44011.368	32358.400	9.596	0.000	7.001	0.000	229548.675	0.000

#### Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	1.647	0.340	3.550
<b>Available MBytes</b>	9084.566	9052.000	10265.000
<b>Free System Page Table Entries</b>	33556100.189	33556027.000	33556619.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	96527904.183	95596544.000	97050624.000
<b>Pool Paged Bytes</b>	115424390.583	115412992.000	115462144.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/25/2011 9:21:51 AM -- Jetstress testing begins ...

5/25/2011 9:21:51 AM -- Prepare testing begins ...

5/25/2011 9:21:57 AM -- Attaching databases ...

5/25/2011 9:21:57 AM -- Prepare testing ends.

5/25/2011 9:21:57 AM -- Dispatching transactions begins ...

5/25/2011 9:21:57 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/25/2011 9:21:57 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/25/2011 9:22:03 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/25/2011 9:22:03 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/25/2011 9:22:05 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/25/2011 9:22:05 AM -- Performance logging begins (interval: 15000 ms).

5/25/2011 9:22:05 AM -- Generating log files ...

5/25/2011 9:50:58 AM -- F:\log1 (102.2% generated), F:\log2 (102.4% generated), F:\log3 (100.8% generated), F:\log4 (100.2% generated) and F:\log5 (101.4% generated)

5/25/2011 9:50:58 AM -- Performance logging ends.

5/25/2011 9:50:58 AM -- JetInterop batch transaction stats: 20871, 21207, 21032, 20759 and 20970.

5/25/2011 9:50:58 AM -- Dispatching transactions ends.

5/25/2011 9:50:58 AM -- Shutting down databases ...

5/25/2011 9:51:01 AM -- Instance4668.1 (complete), Instance4668.2 (complete), Instance4668.3 (complete), Instance4668.4 (complete) and Instance4668.5 (complete)

5/25/2011 9:51:01 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_3.blg](#) has 115 samples.

5/25/2011 9:51:01 AM -- Creating test report ...

5/25/2011 9:51:02 AM -- Instance4668.1 has 18.4 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.1 has 1.6 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.1 has 1.6 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.2 has 15.9 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.2 has 1.6 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.2 has 1.6 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.3 has 15.7 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.3 has 1.6 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.3 has 1.6 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.4 has 15.9 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.4 has 1.6 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.4 has 1.6 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.5 has 16.0 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.5 has 1.6 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:02 AM -- Instance4668.5 has 1.6 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:02 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
 5/25/2011 9:51:02 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
 5/25/2011 9:51:02 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_3.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_3.xml) has 114 samples queried.  
 5/25/2011 9:51:02 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_22\\_3.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_22_3.html) is saved.  
 5/25/2011 9:59:24 AM -- Performance logging begins (interval: 4000 ms).  
 5/25/2011 9:59:24 AM -- Recovering databases ...  
 5/25/2011 10:11:09 AM -- Performance logging ends.  
 5/25/2011 10:11:09 AM -- Instance4668.1 (608.9002695), Instance4668.2 (637.2767193), Instance4668.3 (704.6376376),  
 Instance4668.4 (633.5639128) and Instance4668.5 (648.1499384)  
 5/25/2011 10:11:09 AM -- [C:\Program Files\Exchange Jetstress\SoftRecovery\\_2011\\_5\\_25\\_9\\_59\\_22.blg](C:\Program Files\Exchange Jetstress\SoftRecovery_2011_5_25_9_59_22.blg) has 175 samples.  
 5/25/2011 10:11:09 AM -- Creating test report ...

# IMEGA6 Performance Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA6

## Test Description

**Test Start Time** 5/23/2011 9:33:54 AM

**Test End Time** 5/23/2011 11:35:58 AM

**Collection Start Time** 5/23/2011 9:34:57 AM

**Collection End Time** 5/23/2011 11:34:44 AM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_6.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_6.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3197.78

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10148397252608

**Final Database Size (bytes)** 10154638376960

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance5032.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance5032.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance5032.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance5032.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance5032.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance5032.1</b>	19.382	5.671	411.031	231.918	32942.682	34225.025	0.000	1.975	0.000	107.041	0.000	5660.746
<b>Instance5032.2</b>	17.514	5.459	409.779	232.353	32957.035	34210.288	0.000	1.957	0.000	107.128	0.000	5650.565
<b>Instance5032.3</b>	17.482	5.489	407.900	231.467	32937.837	34202.373	0.000	1.974	0.000	106.643	0.000	5620.851
<b>Instance5032.4</b>	17.538	5.549	407.496	231.178	32929.975	34208.672	0.000	1.973	0.000	106.627	0.000	5641.495
<b>Instance5032.5</b>	17.514	5.593	404.810	229.846	32953.031	34202.900	0.000	1.935	0.000	106.604	0.000	5608.033

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance5032.1</b>	21.582	261971.028
<b>Instance5032.2</b>	22.098	261962.502
<b>Instance5032.3</b>	22.186	262022.241
<b>Instance5032.4</b>	22.083	261977.384
<b>Instance5032.5</b>	22.243	262016.585

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance5032.1</b>	2.509	232570.440
<b>Instance5032.2</b>	2.508	232558.784
<b>Instance5032.3</b>	2.484	232559.233

<b>Instance5032.4</b>	2.492	232559.248
<b>Instance5032.5</b>	2.474	232553.848

#### Total I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance5032.1</b>	19.382	5.671	432.613	231.918	44368.472	34225.025	4.836	1.975	2.509	107.041	232570.440	5660.746
<b>Instance5032.2</b>	17.514	5.459	431.878	232.353	44674.779	34210.288	4.731	1.957	2.508	107.128	232558.784	5650.565
<b>Instance5032.3</b>	17.482	5.489	430.086	231.467	44755.162	34202.373	4.758	1.974	2.484	106.643	232559.233	5620.851
<b>Instance5032.4</b>	17.538	5.549	429.579	231.178	44704.395	34208.672	5.020	1.973	2.492	106.627	232559.248	5641.495
<b>Instance5032.5</b>	17.514	5.593	427.053	229.846	44883.633	34202.900	4.807	1.935	2.474	106.604	232553.848	5608.033

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	1.411	1.072	2.014
<b>Available MBytes</b>	9136.637	9132.000	9158.000
<b>Free System Page Table Entries</b>	33555703.864	33555548.000	33556621.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	93113025.470	92684288.000	95481856.000
<b>Pool Paged Bytes</b>	104293754.388	104075264.000	105562112.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/23/2011 9:33:54 AM -- Jetstress testing begins ...

5/23/2011 9:33:54 AM -- Prepare testing begins ...

5/23/2011 9:34:00 AM -- Attaching databases ...

5/23/2011 9:34:00 AM -- Prepare testing ends.

5/23/2011 9:34:00 AM -- Dispatching transactions begins ...

5/23/2011 9:34:00 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:00 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:06 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:06 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:11 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:11 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:11 AM -- Attaining prerequisites:

5/23/2011 9:34:57 AM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1221915000.0 (lower bound: 1207960000.0, upper bound: none)

5/23/2011 11:34:58 AM -- Performance logging ends.

5/23/2011 11:35:51 AM -- JetInterop batch transaction stats: 85135, 84909, 84903, 84624 and 84467.

5/23/2011 11:35:52 AM -- Dispatching transactions ends.

5/23/2011 11:35:52 AM -- Shutting down databases ...

5/23/2011 11:35:58 AM -- Instance5032.1 (complete), Instance5032.2 (complete), Instance5032.3 (complete), Instance5032.4 (complete) and Instance5032.5 (complete)

5/23/2011 11:35:58 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_6.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_6.blg) has 482 samples.

5/23/2011 11:35:58 AM -- Creating test report ...

5/23/2011 11:36:02 AM -- Instance5032.1 has 19.4 for I/O Database Reads Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.1 has 2.0 for I/O Log Writes Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.1 has 2.0 for I/O Log Reads Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.2 has 17.5 for I/O Database Reads Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.2 has 2.0 for I/O Log Writes Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.2 has 2.0 for I/O Log Reads Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.3 has 17.5 for I/O Database Reads Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.3 has 2.0 for I/O Log Writes Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.3 has 2.0 for I/O Log Reads Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.4 has 17.5 for I/O Database Reads Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.4 has 2.0 for I/O Log Writes Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.4 has 2.0 for I/O Log Reads Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.5 has 17.5 for I/O Database Reads Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.5 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:36:02 AM -- Instance5032.5 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:36:02 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/23/2011 11:36:02 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/23/2011 11:36:02 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_6.xml](#) has 478 samples queried.

# IMEGA6 Database Checksum Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
F:\db1\Jetstress001001.edb	61977970	0	0	0	1936811 MBytes / 8874 sec
F:\db2\Jetstress002001.edb	61980274	0	0	0	1936883 MBytes / 7830 sec
F:\db3\Jetstress003001.edb	61978994	0	0	0	1936843 MBytes / 7745 sec
F:\db4\Jetstress004001.edb	61977714	0	0	0	1936803 MBytes / 7744 sec
F:\db5\Jetstress005001.edb	61980018	0	0	0	1936875 MBytes / 7743 sec
(Sum)	309894970	0	0	0	9684217 MBytes / 39939 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read
F:	0.077	0.000	3879.709	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	1.011	0.711	1.637
Available MBytes	10508.597	10479.000	10512.000
Free System Page Table Entries	33555971.533	33555519.000	33557103.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	95211051.886	93233152.000	98455552.000
Pool Paged Bytes	104404382.220	104185856.000	106598400.000

Test Log 5/23/2011 9:33:54 AM -- Jetstress testing begins ...

5/23/2011 9:33:54 AM -- Prepare testing begins ...

5/23/2011 9:34:00 AM -- Attaching databases ...

5/23/2011 9:34:00 AM -- Prepare testing ends.

5/23/2011 9:34:00 AM -- Dispatching transactions begins ...

5/23/2011 9:34:00 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:34:00 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:34:06 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:34:06 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:34:11 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:34:11 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:34:11 AM -- Attaining prerequisites:

5/23/2011 9:34:57 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1221915000.0 (lower bound:



1207960000.0, upper bound: none)

5/23/2011 11:34:58 AM -- Performance logging ends.

5/23/2011 11:35:51 AM -- JetInterop batch transaction stats: 85135, 84909, 84903, 84624 and 84467.

5/23/2011 11:35:52 AM -- Dispatching transactions ends.

5/23/2011 11:35:52 AM -- Shutting down databases ...

5/23/2011 11:35:58 AM -- Instance5032.1 (complete), Instance5032.2 (complete), Instance5032.3 (complete), Instance5032.4 (complete) and Instance5032.5 (complete)

5/23/2011 11:35:58 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_6.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_6.blg) has 482 samples.

5/23/2011 11:35:58 AM -- Creating test report ...

5/23/2011 11:36:02 AM -- Instance5032.1 has 19.4 for I/O Database Reads Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.1 has 2.0 for I/O Log Writes Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.1 has 2.0 for I/O Log Reads Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.2 has 17.5 for I/O Database Reads Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.2 has 2.0 for I/O Log Writes Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.2 has 2.0 for I/O Log Reads Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.3 has 17.5 for I/O Database Reads Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.3 has 2.0 for I/O Log Writes Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.3 has 2.0 for I/O Log Reads Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.4 has 17.5 for I/O Database Reads Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.4 has 2.0 for I/O Log Writes Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.4 has 2.0 for I/O Log Reads Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.5 has 17.5 for I/O Database Reads Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.5 has 1.9 for I/O Log Writes Average Latency.

5/23/2011 11:36:02 AM -- Instance5032.5 has 1.9 for I/O Log Reads Average Latency.

5/23/2011 11:36:02 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.

5/23/2011 11:36:02 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.

5/23/2011 11:36:02 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_6.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_6.xml) has 478 samples queried.

5/23/2011 11:36:02 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_34\\_6.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_34_6.html) is saved.

5/23/2011 11:36:02 AM -- Performance logging begins (interval: 30000 ms).

5/23/2011 11:36:02 AM -- Verifying database checksums ...

5/23/2011 10:41:42 PM -- F: (100% processed)

5/23/2011 10:41:42 PM -- Performance logging ends.

5/23/2011 10:41:42 PM -- [C:\Program Files\Exchange Jetstress\DBCchecksum\\_2011\\_5\\_23\\_11\\_36\\_2.blg](C:\Program Files\Exchange Jetstress\DBCchecksum_2011_5_23_11_36_2.blg) has 1330 samples.

# IMEGA6 Stress Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA6

## Test Description

**Test Start Time** 5/20/2011 6:41:31 PM

**Test End Time** 5/21/2011 7:24:49 PM

**Collection Start Time** 5/20/2011 6:42:34 PM

**Collection End Time** 5/21/2011 6:42:30 PM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_44.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_44.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3154.738

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10066348277760

**Final Database Size (bytes)** 10141862526976

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance1664.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance1664.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance1664.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance1664.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance1664.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance1664.1</b>	19.853	5.393	403.187	226.771	32908.473	34469.803	0.000	1.979	0.000	106.267	0.000	5667.929
<b>Instance1664.2</b>	17.933	5.312	402.881	228.149	32946.560	34461.502	0.000	1.990	0.000	106.946	0.000	5657.175
<b>Instance1664.3</b>	17.906	5.381	403.026	228.219	32941.888	34460.814	0.000	1.993	0.000	106.674	0.000	5659.008
<b>Instance1664.4</b>	17.949	5.342	401.851	227.547	32942.864	34465.502	0.000	1.981	0.000	106.614	0.000	5655.819
<b>Instance1664.5</b>	17.906	5.311	404.195	228.911	32946.905	34459.823	0.000	1.984	0.000	106.860	0.000	5660.991

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance1664.1</b>	20.072	261924.104
<b>Instance1664.2</b>	21.027	261936.745
<b>Instance1664.3</b>	21.050	261935.830
<b>Instance1664.4</b>	20.908	261950.703
<b>Instance1664.5</b>	21.069	261931.606

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance1664.1</b>	2.495	232558.236
<b>Instance1664.2</b>	2.506	232559.260
<b>Instance1664.3</b>	2.500	232557.678

<b>Instance1664.4</b>	2.498	232559.988
<b>Instance1664.5</b>	2.506	232560.965

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance1664.1</b>	19.853	5.393	423.259	226.771	43768.899	34469.803	4.626	1.979	2.495	106.267	232558.236	5667.929
<b>Instance1664.2</b>	17.933	5.312	423.908	228.149	44305.155	34461.502	5.015	1.990	2.506	106.946	232559.260	5657.175
<b>Instance1664.3</b>	17.906	5.381	424.076	228.219	44308.465	34460.814	4.599	1.993	2.500	106.674	232557.678	5659.008
<b>Instance1664.4</b>	17.949	5.342	422.759	227.547	44268.518	34465.502	4.582	1.981	2.498	106.614	232559.988	5655.819
<b>Instance1664.5</b>	17.906	5.311	425.264	228.911	44291.600	34459.823	4.759	1.984	2.506	106.860	232560.965	5660.991

#### Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	2.198	1.539	2.949
<b>Available MBytes</b>	9142.495	9073.000	9183.000
<b>Free System Page Table Entries</b>	33555632.860	33555532.000	33556621.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	94711043.869	92708864.000	97017856.000
<b>Pool Paged Bytes</b>	105002663.999	103993344.000	152076288.000
<b>Database Page Fault Stalls/sec</b>	0.007	0.000	38.316

Test Log 5/20/2011 6:41:31 PM -- Jetstress testing begins ...

5/20/2011 6:41:31 PM -- Prepare testing begins ...

5/20/2011 6:41:38 PM -- Attaching databases ...

5/20/2011 6:41:38 PM -- Prepare testing ends.

5/20/2011 6:41:38 PM -- Dispatching transactions begins ...

5/20/2011 6:41:38 PM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/20/2011 6:41:38 PM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/20/2011 6:41:44 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

5/20/2011 6:41:44 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

5/20/2011 6:41:49 PM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/20/2011 6:41:49 PM -- Performance logging begins (interval: 15000 ms).

5/20/2011 6:41:49 PM -- Attaining prerequisites:

5/20/2011 6:42:34 PM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1220080000.0 (lower bound: 1207960000.0, upper bound: none)

5/21/2011 6:42:34 PM -- Performance logging ends.

5/21/2011 7:24:39 PM -- JetInterop batch transaction stats: 1031538, 1034443, 1033816, 1032436 and 1035707.

5/21/2011 7:24:40 PM -- Dispatching transactions ends.

5/21/2011 7:24:40 PM -- Shutting down databases ...

5/21/2011 7:24:49 PM -- Instance1664.1 (complete), Instance1664.2 (complete), Instance1664.3 (complete), Instance1664.4 (complete) and Instance1664.5 (complete)

5/21/2011 7:24:49 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_44.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_44.blg) has 5760 samples.

5/21/2011 7:24:49 PM -- Creating test report ...

5/21/2011 7:25:13 PM -- Instance1664.1 has 19.9 for I/O Database Reads Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.1 has 2.0 for I/O Log Writes Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.1 has 2.0 for I/O Log Reads Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.2 has 17.9 for I/O Database Reads Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.2 has 2.0 for I/O Log Writes Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.2 has 2.0 for I/O Log Reads Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.3 has 17.9 for I/O Database Reads Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.3 has 2.0 for I/O Log Writes Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.3 has 2.0 for I/O Log Reads Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.4 has 17.9 for I/O Database Reads Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.4 has 2.0 for I/O Log Writes Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.4 has 2.0 for I/O Log Reads Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.5 has 17.9 for I/O Database Reads Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.5 has 2.0 for I/O Log Writes Average Latency.  
5/21/2011 7:25:13 PM -- Instance1664.5 has 2.0 for I/O Log Reads Average Latency.  
5/21/2011 7:25:13 PM -- Test has 38.3161761804931 Maximum Database Page Fault Stalls/sec.  
5/21/2011 7:25:13 PM -- Test has 1 Database Page Fault Stalls/sec samples higher than 0.  
5/21/2011 7:25:13 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_44.xml](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_44.xml) has 5756 samples queried.

# IMEGA6 Database Backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
<b>Instance4800.1</b>	1936803.59	13:39:42	39.38
<b>Instance4800.2</b>	1936875.59	13:29:28	39.88
<b>Instance4800.3</b>	1936835.59	13:33:42	39.67
<b>Instance4800.4</b>	1936795.59	13:15:57	40.55
<b>Instance4800.5</b>	1936867.59	13:33:42	39.67

Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

Database Configuration

**Instance4800.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4800.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4800.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4800.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4800.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

## Transactional I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	<b>I/O Database Reads Average Latency (msec)</b>	<b>I/O Database Writes Average Latency (msec)</b>	<b>I/O Database Reads/sec</b>	<b>I/O Database Writes/sec</b>	<b>I/O Database Reads Average Bytes</b>	<b>I/O Database Writes Average Bytes</b>	<b>I/O Log Reads Average Latency (msec)</b>	<b>I/O Log Writes Average Latency (msec)</b>	<b>I/O Log Reads/sec</b>	<b>I/O Log Writes/sec</b>	<b>I/O Log Reads Average Bytes</b>	<b>I/O Log Writes Average Bytes</b>
<b>Instance4800.1</b>	11.169	0.000	157.482	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4800.2</b>	11.057	0.000	159.515	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4800.3</b>	11.114	0.000	158.660	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4800.4</b>	10.870	0.000	162.218	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4800.5</b>	11.106	0.000	158.656	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

## Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	1.177	0.380	1.627
<b>Available MBytes</b>	10556.630	10493.000	10559.000
<b>Free System Page Table Entries</b>	33555966.332	33555485.000	33556623.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	92360128.860	92327936.000	93798400.000
<b>Pool Paged Bytes</b>	105262041.241	103694336.000	150237184.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/24/2011 9:27:06 AM -- Jetstress testing begins ...

5/24/2011 9:27:06 AM -- Prepare testing begins ...

5/24/2011 9:27:12 AM -- Attaching databases ...

5/24/2011 9:27:12 AM -- Prepare testing ends.

5/24/2011 9:27:20 AM -- Performance logging begins (interval: 30000 ms).

5/24/2011 9:27:20 AM -- Backing up databases ...

5/24/2011 11:07:03 PM -- Performance logging ends.

5/24/2011 11:07:03 PM -- Instance4800.1 (100% processed), Instance4800.2 (100% processed), Instance4800.3 (100% processed), Instance4800.4 (100% processed) and Instance4800.5 (100% processed)

5/24/2011 11:07:03 PM -- [C:\Program Files\Exchange Jetstress\DatabaseBackup\\_2011\\_5\\_24\\_9\\_27\\_12.blg](#) has 1638 samples.

5/24/2011 11:07:03 PM -- Creating test report ...

# IMEGA6 SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
<b>Instance4604.1</b>	510	782.0761736
<b>Instance4604.2</b>	500	811.5134253
<b>Instance4604.3</b>	514	857.6583064
<b>Instance4604.4</b>	514	743.3569056
<b>Instance4604.5</b>	504	775.9765629

Database Configuration

**Instance4604.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4604.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4604.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4604.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4604.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4604.1</b>	17.392	7.217	669.577	3.927	37271.940	31416.742	9.669	0.009	5.895	0.004	221751.336	2.639
<b>Instance4604.2</b>	16.690	1.198	651.368	3.693	37699.844	31463.801	9.588	0.000	5.540	0.000	222237.157	0.000
<b>Instance4604.3</b>	17.512	1.194	579.646	3.544	38670.670	30758.642	9.821	0.000	5.316	0.000	218331.256	0.000
<b>Instance4604.4</b>	17.244	6.970	674.816	4.132	37016.505	31699.478	9.687	0.000	6.198	0.000	223578.529	0.000
<b>Instance4604.5</b>	17.153	6.685	667.437	3.895	36752.245	32426.667	10.186	0.000	5.846	0.000	230071.186	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4604.1</b>	27.969	261984.085
<b>Instance4604.2</b>	28.069	261934.713
<b>Instance4604.3</b>	28.075	261949.379



<b>Instance4604.4</b>	28.014	261986.849
<b>Instance4604.5</b>	28.039	261910.159

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4604.1</b>	17.392	7.217	697.546	3.927	46281.920	31416.742	9.669	0.009	5.895	0.004	221751.336	2.639
<b>Instance4604.2</b>	16.690	1.198	679.437	3.693	46963.492	31463.801	9.588	0.000	5.540	0.000	222237.157	0.000
<b>Instance4604.3</b>	17.512	1.194	607.721	3.544	48985.600	30758.642	9.821	0.000	5.316	0.000	218331.256	0.000
<b>Instance4604.4</b>	17.244	6.970	702.830	4.132	45983.473	31699.478	9.687	0.000	6.198	0.000	223578.529	0.000
<b>Instance4604.5</b>	17.153	6.685	695.476	3.895	45829.797	32426.667	10.186	0.000	5.846	0.000	230071.186	0.000

#### Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	1.666	0.462	3.185
<b>Available MBytes</b>	9161.413	9137.000	10332.000
<b>Free System Page Table Entries</b>	33555648.305	33555533.000	33556109.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	96006893.972	94330880.000	96882688.000
<b>Pool Paged Bytes</b>	104413789.746	104402944.000	104546304.000
<b>Database Page Fault Stalls/sec</b>	0.001	0.000	0.250

Test Log 5/25/2011 9:21:45 AM -- Jetstress testing begins ...

5/25/2011 9:21:45 AM -- Prepare testing begins ...

5/25/2011 9:21:50 AM -- Attaching databases ...

5/25/2011 9:21:50 AM -- Prepare testing ends.

5/25/2011 9:21:50 AM -- Dispatching transactions begins ...

5/25/2011 9:21:50 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/25/2011 9:21:50 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/25/2011 9:21:57 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/25/2011 9:21:57 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/25/2011 9:22:00 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/25/2011 9:22:00 AM -- Performance logging begins (interval: 15000 ms).

5/25/2011 9:22:00 AM -- Generating log files ...

5/25/2011 9:51:33 AM -- F:\log1 (102.2% generated), F:\log2 (100.2% generated), F:\log3 (102.8% generated), F:\log4 (103.0% generated) and F:\log5 (101.0% generated)

5/25/2011 9:51:33 AM -- Performance logging ends.

5/25/2011 9:51:33 AM -- JetInterop batch transaction stats: 21382, 21199, 21511, 21237 and 21130.

5/25/2011 9:51:33 AM -- Dispatching transactions ends.

5/25/2011 9:51:33 AM -- Shutting down databases ...

5/25/2011 9:51:37 AM -- Instance4604.1 (complete), Instance4604.2 (complete), Instance4604.3 (complete), Instance4604.4 (complete) and Instance4604.5 (complete)

5/25/2011 9:51:37 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_21\\_57.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_21_57.blg) has 118 samples.

5/25/2011 9:51:37 AM -- Creating test report ...

5/25/2011 9:51:38 AM -- Instance4604.1 has 18.3 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.1 has 1.8 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.1 has 1.8 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.2 has 16.4 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.2 has 1.8 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.2 has 1.8 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.3 has 16.3 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.3 has 1.8 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.3 has 1.8 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.4 has 16.4 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.4 has 1.8 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.4 has 1.8 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.5 has 16.4 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.5 has 1.8 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:38 AM -- Instance4604.5 has 1.8 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:38 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
 5/25/2011 9:51:38 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
 5/25/2011 9:51:38 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_21\\_57.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_21_57.xml) has 117 samples queried.  
 5/25/2011 9:51:38 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_21\\_57.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_21_57.html) is saved.  
 5/25/2011 9:59:18 AM -- Performance logging begins (interval: 4000 ms).  
 5/25/2011 9:59:18 AM -- Recovering databases ...  
 5/25/2011 10:13:36 AM -- Performance logging ends.  
 5/25/2011 10:13:36 AM -- Instance4604.1 (782.0761736), Instance4604.2 (811.5134253), Instance4604.3 (857.6583064),  
 Instance4604.4 (743.3569056) and Instance4604.5 (775.9765629)  
 5/25/2011 10:13:36 AM -- [C:\Program Files\Exchange Jetstress\SoftRecovery\\_2011\\_5\\_25\\_9\\_59\\_15.blg](C:\Program Files\Exchange Jetstress\SoftRecovery_2011_5_25_9_59_15.blg) has 213 samples.  
 5/25/2011 10:13:36 AM -- Creating test report ...

# IMEGA7 Performance Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA7

## Test Description

**Test Start Time** 5/23/2011 9:33:37 AM

**Test End Time** 5/23/2011 11:35:44 AM

**Collection Start Time** 5/23/2011 9:34:42 AM

**Collection End Time** 5/23/2011 11:34:35 AM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_33\\_49.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_33_49.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3194.739

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10145746452480

**Final Database Size (bytes)** 10151878524928

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance4624.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4624.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4624.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4624.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4624.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4624.1</b>	19.078	8.290	407.122	229.645	32973.382	34211.164	0.000	1.925	0.000	105.783	0.000	5609.066
<b>Instance4624.2</b>	16.467	8.173	407.068	231.739	33000.344	34199.716	0.000	1.926	0.000	106.388	0.000	5544.357
<b>Instance4624.3</b>	16.455	8.285	407.938	232.409	33017.802	34180.745	0.000	1.913	0.000	106.587	0.000	5551.661
<b>Instance4624.4</b>	16.411	7.951	407.896	232.170	33061.791	34182.560	0.000	1.904	0.000	106.235	0.000	5579.985
<b>Instance4624.5</b>	16.408	8.280	407.120	231.633	33019.552	34176.976	0.000	1.904	0.000	106.448	0.000	5545.229

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4624.1</b>	20.057	261972.766
<b>Instance4624.2</b>	21.810	261923.397
<b>Instance4624.3</b>	21.963	262045.428
<b>Instance4624.4</b>	21.925	261927.571
<b>Instance4624.5</b>	21.919	261897.945

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance4624.1</b>	2.458	232551.873
<b>Instance4624.2</b>	2.442	232567.477
<b>Instance4624.3</b>	2.449	232547.775

<b>Instance4624.4</b>	2.454	232563.800
<b>Instance4624.5</b>	2.444	232554.741

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4624.1</b>	19.078	8.290	427.178	229.645	43725.246	34211.164	4.510	1.925	2.458	105.783	232551.873	5609.066
<b>Instance4624.2</b>	16.467	8.173	428.878	231.739	44641.882	34199.716	4.312	1.926	2.442	106.388	232567.477	5544.357
<b>Instance4624.3</b>	16.455	8.285	429.901	232.409	44718.333	34180.745	4.348	1.913	2.449	106.587	232547.775	5551.661
<b>Instance4624.4</b>	16.411	7.951	429.821	232.170	44736.288	34182.560	4.254	1.904	2.454	106.235	232563.800	5579.985
<b>Instance4624.5</b>	16.408	8.280	429.038	231.633	44712.495	34176.976	4.440	1.904	2.444	106.448	232554.741	5545.229

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	3.258	2.226	4.315
<b>Available MBytes</b>	8988.526	8983.000	9012.000
<b>Free System Page Table Entries</b>	33555641.384	33555509.000	33556597.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	113958099.641	113385472.000	114135040.000
<b>Pool Paged Bytes</b>	122742335.065	122728448.000	122789888.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/23/2011 9:33:37 AM -- Jetstress testing begins ...

5/23/2011 9:33:37 AM -- Prepare testing begins ...

5/23/2011 9:33:43 AM -- Attaching databases ...

5/23/2011 9:33:43 AM -- Prepare testing ends.

5/23/2011 9:33:43 AM -- Dispatching transactions begins ...

5/23/2011 9:33:43 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:33:43 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:33:49 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:33:49 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:33:54 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:33:54 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:33:54 AM -- Attaining prerequisites:

5/23/2011 9:34:42 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1217872000.0 (lower bound: 1207960000.0, upper bound: none)

5/23/2011 11:34:43 AM -- Performance logging ends.

5/23/2011 11:35:40 AM -- JetInterop batch transaction stats: 85233, 85056, 85160, 85039 and 85222.

5/23/2011 11:35:41 AM -- Dispatching transactions ends.

5/23/2011 11:35:41 AM -- Shutting down databases ...

5/23/2011 11:35:44 AM -- Instance4624.1 (complete), Instance4624.2 (complete), Instance4624.3 (complete), Instance4624.4 (complete) and Instance4624.5 (complete)

5/23/2011 11:35:44 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_33\\_49.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_33_49.blg) has 482 samples.

5/23/2011 11:35:44 AM -- Creating test report ...

5/23/2011 11:35:47 AM -- Instance4624.1 has 19.1 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.1 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.1 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.2 has 16.5 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.2 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.2 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.3 has 16.5 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.3 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.3 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.4 has 16.4 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.4 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.4 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.5 has 16.4 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.5 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.5 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/23/2011 11:35:47 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/23/2011 11:35:47 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_33\\_49.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_33_49.xml) has 478 samples queried.

# IMEGA7 Database Checksum Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
F:\db1\Jetstress001001.edb	61963122	0	0	0	1936347 MBytes / 3503 sec
F:\db2\Jetstress002001.edb	61961842	0	0	0	1936307 MBytes / 3122 sec
F:\db3\Jetstress003001.edb	61962098	0	0	0	1936315 MBytes / 3139 sec
F:\db4\Jetstress004001.edb	61962098	0	0	0	1936315 MBytes / 3158 sec
F:\db5\Jetstress005001.edb	61961586	0	0	0	1936299 MBytes / 3180 sec
(Sum)	309810746	0	0	0	9681585 MBytes / 16105 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read
F:	0.031	0.000	9621.907	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	6.750	5.249	8.059
Available MBytes	10363.000	10326.000	10365.000
Free System Page Table Entries	33556150.526	33555469.000	33557069.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	114870340.776	113745920.000	115294208.000
Pool Paged Bytes	122817115.701	122671104.000	122982400.000

Test Log 5/23/2011 9:33:37 AM -- Jetstress testing begins ...

5/23/2011 9:33:37 AM -- Prepare testing begins ...

5/23/2011 9:33:43 AM -- Attaching databases ...

5/23/2011 9:33:43 AM -- Prepare testing ends.

5/23/2011 9:33:43 AM -- Dispatching transactions begins ...

5/23/2011 9:33:43 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:33:43 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:33:49 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:33:49 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:33:54 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:33:54 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:33:54 AM -- Attaining prerequisites:

5/23/2011 9:34:42 AM -- VMSEExchange Database(JetstressWin)\Database Cache Size, Last: 1217872000.0 (lower bound:

1207960000.0, upper bound: none)  
5/23/2011 11:34:43 AM -- Performance logging ends.  
5/23/2011 11:35:40 AM -- JetInterop batch transaction stats: 85233, 85056, 85160, 85039 and 85222.  
5/23/2011 11:35:41 AM -- Dispatching transactions ends.  
5/23/2011 11:35:41 AM -- Shutting down databases ...  
5/23/2011 11:35:44 AM -- Instance4624.1 (complete), Instance4624.2 (complete), Instance4624.3 (complete), Instance4624.4 (complete) and Instance4624.5 (complete)  
5/23/2011 11:35:44 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_33\\_49.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_33_49.blg) has 482 samples.  
5/23/2011 11:35:44 AM -- Creating test report ...  
5/23/2011 11:35:47 AM -- Instance4624.1 has 19.1 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.1 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.1 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.2 has 16.5 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.2 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.2 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.3 has 16.5 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.3 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.3 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.4 has 16.4 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.4 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.4 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.5 has 16.4 for I/O Database Reads Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.5 has 1.9 for I/O Log Writes Average Latency.  
5/23/2011 11:35:47 AM -- Instance4624.5 has 1.9 for I/O Log Reads Average Latency.  
5/23/2011 11:35:47 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/23/2011 11:35:47 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/23/2011 11:35:47 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_33\\_49.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_33_49.xml) has 478 samples queried.  
5/23/2011 11:35:48 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_33\\_49.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_33_49.html) is saved.  
5/23/2011 11:35:48 AM -- Performance logging begins (interval: 30000 ms).  
5/23/2011 11:35:48 AM -- Verifying database checksums ...  
5/23/2011 4:04:14 PM -- F: (100% processed)  
5/23/2011 4:04:14 PM -- Performance logging ends.  
5/23/2011 4:04:14 PM -- [C:\Program Files\Exchange Jetstress\DBCchecksum\\_2011\\_5\\_23\\_11\\_35\\_48.blg](C:\Program Files\Exchange Jetstress\DBCchecksum_2011_5_23_11_35_48.blg) has 536 samples.



# IMEGA7 Stress Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA7

## Test Description

**Test Start Time** 5/20/2011 6:41:40 PM

**Test End Time** 5/21/2011 7:24:58 PM

**Collection Start Time** 5/20/2011 6:42:47 PM

**Collection End Time** 5/21/2011 6:42:38 PM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_52.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_41_52.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3112.496

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10066348277760

**Final Database Size (bytes)** 10139354333184

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance4176.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4176.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4176.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4176.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4176.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4176.1</b>	19.760	8.222	399.583	224.721	32958.937	34449.880	0.000	1.955	0.000	105.125	0.000	5578.259
<b>Instance4176.2</b>	17.061	7.919	396.537	225.127	33017.261	34434.719	0.000	1.924	0.000	104.977	0.000	5575.117
<b>Instance4176.3</b>	17.017	8.241	397.710	225.825	33013.201	34431.208	0.000	1.940	0.000	105.065	0.000	5575.311
<b>Instance4176.4</b>	17.043	7.873	396.719	225.234	33000.045	34432.413	0.000	1.939	0.000	104.948	0.000	5569.713
<b>Instance4176.5</b>	17.034	8.001	396.101	224.939	33011.399	34436.772	0.000	1.944	0.000	104.943	0.000	5572.017

#### Background Database Maintenance I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4176.1</b>	18.778	261938.129
<b>Instance4176.2</b>	20.447	261935.925
<b>Instance4176.3</b>	20.606	261943.218
<b>Instance4176.4</b>	20.516	261948.899
<b>Instance4176.5</b>	20.562	261938.696

## Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance4176.1	2.428	232559.054
Instance4176.2	2.423	232560.728
Instance4176.3	2.426	232560.064
Instance4176.4	2.421	232561.039
Instance4176.5	2.421	232560.199

## Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance4176.1	19.760	8.222	418.361	224.721	43236.490	34449.880	4.410	1.955	2.428	105.125	232559.054	5578.259
Instance4176.2	17.061	7.919	416.984	225.127	44242.386	34434.719	4.324	1.924	2.423	104.977	232560.728	5575.117
Instance4176.3	17.017	8.241	418.316	225.825	44289.992	34431.208	4.414	1.940	2.426	105.065	232560.064	5575.311
Instance4176.4	17.043	7.873	417.234	225.234	44257.517	34432.413	4.335	1.939	2.421	104.948	232561.039	5569.713
Instance4176.5	17.034	8.001	416.663	224.939	44308.756	34436.772	4.314	1.944	2.421	104.943	232560.199	5572.017

## Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	3.134	1.882	5.016
Available MBytes	8994.068	8937.000	9035.000
Free System Page Table Entries	33555668.961	33555493.000	33557109.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	114040911.057	113262592.000	115150848.000
Pool Paged Bytes	123853595.910	122167296.000	168738816.000
Database Page Fault Stalls/sec	0.123	0.000	267.777

Test Log 5/20/2011 6:41:40 PM -- Jetstress testing begins ...

5/20/2011 6:41:40 PM -- Prepare testing begins ...

5/20/2011 6:41:46 PM -- Attaching databases ...

5/20/2011 6:41:46 PM -- Prepare testing ends.

5/20/2011 6:41:46 PM -- Dispatching transactions begins ...

5/20/2011 6:41:46 PM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/20/2011 6:41:46 PM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/20/2011 6:41:52 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

5/20/2011 6:41:52 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

5/20/2011 6:41:57 PM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/20/2011 6:41:57 PM -- Performance logging begins (interval: 15000 ms).

5/20/2011 6:41:57 PM -- Attaining prerequisites:  
 5/20/2011 6:42:47 PM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1228452000.0 (lower bound: 1207960000.0, upper bound: none)  
 5/21/2011 6:42:48 PM -- Performance logging ends.  
 5/21/2011 7:24:50 PM -- JetInterop batch transaction stats: 1021509, 1020293, 1021186, 1019388 and 1019978.  
 5/21/2011 7:24:51 PM -- Dispatching transactions ends.  
 5/21/2011 7:24:51 PM -- Shutting down databases ...  
 5/21/2011 7:24:58 PM -- Instance4176.1 (complete), Instance4176.2 (complete), Instance4176.3 (complete), Instance4176.4 (complete) and Instance4176.5 (complete)  
 5/21/2011 7:24:58 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_52.blg](#) has 5754 samples.  
 5/21/2011 7:24:58 PM -- Creating test report ...  
 5/21/2011 7:25:27 PM -- Instance4176.1 has 19.8 for I/O Database Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.1 has 2.0 for I/O Log Writes Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.1 has 2.0 for I/O Log Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.2 has 17.1 for I/O Database Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.2 has 1.9 for I/O Log Writes Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.2 has 1.9 for I/O Log Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.3 has 17.0 for I/O Database Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.3 has 1.9 for I/O Log Writes Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.3 has 1.9 for I/O Log Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.4 has 17.0 for I/O Database Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.4 has 1.9 for I/O Log Writes Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.4 has 1.9 for I/O Log Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.5 has 17.0 for I/O Database Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.5 has 1.9 for I/O Log Writes Average Latency.  
 5/21/2011 7:25:27 PM -- Instance4176.5 has 1.9 for I/O Log Reads Average Latency.  
 5/21/2011 7:25:27 PM -- Test has 267.777237509994 Maximum Database Page Fault Stalls/sec.  
 5/21/2011 7:25:27 PM -- Test has 12 Database Page Fault Stalls/sec samples higher than 0.  
 5/21/2011 7:25:27 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_41\\_52.xml](#) has 5750 samples queried.

# IMEGA7 Database Backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
<b>Instance1180.1</b>	1936339.59	09:49:13	54.77
<b>Instance1180.2</b>	1936299.59	09:36:23	55.99
<b>Instance1180.3</b>	1936307.59	09:41:51	55.46
<b>Instance1180.4</b>	1936307.59	09:29:23	56.68
<b>Instance1180.5</b>	1936291.59	09:36:57	55.93

Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

Database Configuration

**Instance1180.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance1180.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance1180.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance1180.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance1180.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

## Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance1180.1	7.711	0.000	219.071	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance1180.2	7.592	0.000	223.962	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance1180.3	7.692	0.000	221.841	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance1180.4	7.535	0.000	226.729	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance1180.5	7.608	0.000	223.736	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

## Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	2.122	0.565	2.722
Available MBytes	10404.228	10397.000	10407.000
Free System Page Table Entries	33556092.167	33555469.000	33557117.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	113118769.155	113102848.000	113631232.000
Pool Paged Bytes	123953938.488	123064320.000	124325888.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 5/24/2011 9:26:50 AM -- Jetstress testing begins ...

5/24/2011 9:26:50 AM -- Prepare testing begins ...

5/24/2011 9:26:55 AM -- Attaching databases ...

5/24/2011 9:26:55 AM -- Prepare testing ends.

5/24/2011 9:27:04 AM -- Performance logging begins (interval: 30000 ms).

5/24/2011 9:27:04 AM -- Backing up databases ...

5/24/2011 7:16:17 PM -- Performance logging ends.

5/24/2011 7:16:17 PM -- Instance1180.1 (100% processed), Instance1180.2 (100% processed), Instance1180.3 (100% processed), Instance1180.4 (100% processed) and Instance1180.5 (100% processed)

5/24/2011 7:16:17 PM -- [C:\Program Files\Exchange Jetstress\DatabaseBackup\\_2011\\_5\\_24\\_9\\_26\\_55.blg](#) has 1177 samples.

5/24/2011 7:16:17 PM -- Creating test report ...

# IMEGA7 SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
<b>Instance4540.1</b>	510	692.9688172
<b>Instance4540.2</b>	508	692.7036167
<b>Instance4540.3</b>	500	677.8523906
<b>Instance4540.4</b>	504	679.9739943
<b>Instance4540.5</b>	502	726.1188754

Database Configuration

**Instance4540.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4540.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4540.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4540.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4540.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4540.1</b>	12.099	1.712	823.724	4.429	36299.054	32576.374	9.667	0.000	6.644	0.000	231181.100	0.000
<b>Instance4540.2</b>	12.508	1.584	819.554	4.421	36435.643	32193.123	9.495	0.000	6.632	0.000	228475.884	0.000
<b>Instance4540.3</b>	12.587	1.615	841.314	4.446	36058.118	32375.569	9.667	0.000	6.669	0.000	229754.668	0.000
<b>Instance4540.4</b>	12.525	1.514	838.182	4.473	36075.969	32768.000	9.463	0.004	6.710	0.004	232449.101	3.048
<b>Instance4540.5</b>	12.519	1.579	786.875	4.122	36767.481	32218.816	9.268	0.000	6.186	0.000	228578.635	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4540.1</b>	29.283	262053.526
<b>Instance4540.2</b>	30.069	262032.853
<b>Instance4540.3</b>	30.108	261933.853

<b>Instance4540.4</b>	30.107	262079.767
<b>Instance4540.5</b>	30.053	261974.296

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4540.1</b>	12.099	1.712	853.007	4.429	44049.057	32576.374	9.667	0.000	6.644	0.000	231181.100	0.000
<b>Instance4540.2</b>	12.508	1.584	849.624	4.421	44419.792	32193.123	9.495	0.000	6.632	0.000	228475.884	0.000
<b>Instance4540.3</b>	12.587	1.615	871.423	4.446	43862.315	32375.569	9.667	0.000	6.669	0.000	229754.668	0.000
<b>Instance4540.4</b>	12.525	1.514	868.289	4.473	43912.536	32768.000	9.463	0.004	6.710	0.004	232449.101	3.048
<b>Instance4540.5</b>	12.519	1.579	816.929	4.122	45052.459	32218.816	9.268	0.000	6.186	0.000	228578.635	0.000

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	2.872	0.389	4.820
<b>Available MBytes</b>	9011.728	8984.000	10194.000
<b>Free System Page Table Entries</b>	33555656.044	33555533.000	33556597.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	114917876.622	113385472.000	115482624.000
<b>Pool Paged Bytes</b>	122179561.244	122155008.000	122232832.000
<b>Database Page Fault Stalls/sec</b>	0.003	0.000	0.497

Test Log 5/25/2011 9:21:31 AM -- Jetstress testing begins ...

5/25/2011 9:21:31 AM -- Prepare testing begins ...

5/25/2011 9:21:37 AM -- Attaching databases ...

5/25/2011 9:21:37 AM -- Prepare testing ends.

5/25/2011 9:21:37 AM -- Dispatching transactions begins ...

5/25/2011 9:21:37 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/25/2011 9:21:37 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/25/2011 9:21:43 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/25/2011 9:21:43 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/25/2011 9:21:47 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/25/2011 9:21:47 AM -- Performance logging begins (interval: 15000 ms).

5/25/2011 9:21:47 AM -- Generating log files ...

5/25/2011 9:52:11 AM -- F:\log1 (102.2% generated), F:\log2 (101.8% generated), F:\log3 (100.2% generated), F:\log4 (101.0% generated) and F:\log5 (100.6% generated)

5/25/2011 9:52:12 AM -- Performance logging ends.

5/25/2011 9:52:12 AM -- JetInterop batch transaction stats: 21473, 21318, 21336, 21300 and 21439.

5/25/2011 9:52:12 AM -- Dispatching transactions ends.

5/25/2011 9:52:12 AM -- Shutting down databases ...

5/25/2011 9:52:16 AM -- Instance4540.1 (complete), Instance4540.2 (complete), Instance4540.3 (complete), Instance4540.4 (complete) and Instance4540.5 (complete)

5/25/2011 9:52:16 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_21\\_43.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_21_43.blg) has 121 samples.

5/25/2011 9:52:16 AM -- Creating test report ...



5/25/2011 9:52:17 AM -- Instance4540.1 has 18.2 for I/O Database Reads Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.1 has 1.8 for I/O Log Writes Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.1 has 1.8 for I/O Log Reads Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.2 has 15.7 for I/O Database Reads Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.2 has 1.8 for I/O Log Writes Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.2 has 1.8 for I/O Log Reads Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.3 has 15.7 for I/O Database Reads Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.3 has 1.8 for I/O Log Writes Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.3 has 1.8 for I/O Log Reads Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.4 has 15.8 for I/O Database Reads Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.4 has 1.8 for I/O Log Writes Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.4 has 1.8 for I/O Log Reads Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.5 has 15.7 for I/O Database Reads Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.5 has 1.8 for I/O Log Writes Average Latency.  
5/25/2011 9:52:17 AM -- Instance4540.5 has 1.8 for I/O Log Reads Average Latency.  
5/25/2011 9:52:17 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/25/2011 9:52:17 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/25/2011 9:52:17 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_21\\_43.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_21_43.xml) has 120 samples queried.  
5/25/2011 9:52:17 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_21\\_43.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_21_43.html) is saved.  
5/25/2011 9:59:06 AM -- Performance logging begins (interval: 4000 ms).  
5/25/2011 9:59:06 AM -- Recovering databases ...  
5/25/2011 10:11:12 AM -- Performance logging ends.  
5/25/2011 10:11:12 AM -- Instance4540.1 (692.9688172), Instance4540.2 (692.7036167), Instance4540.3 (677.8523906), Instance4540.4 (679.9739943) and Instance4540.5 (726.1188754)  
5/25/2011 10:11:13 AM -- [C:\Program Files\Exchange Jetstress\SoftRecovery\\_2011\\_5\\_25\\_9\\_59\\_3.blg](C:\Program Files\Exchange Jetstress\SoftRecovery_2011_5_25_9_59_3.blg) has 180 samples.  
5/25/2011 10:11:13 AM -- Creating test report ...

# IMEGA8 Performance Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA8

## Test Description

**Test Start Time** 5/23/2011 9:32:06 AM

**Test End Time** 5/23/2011 11:34:24 AM

**Collection Start Time** 5/23/2011 9:33:10 AM

**Collection End Time** 5/23/2011 11:33:04 AM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_32\\_18.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_32_18.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3106.923

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10144295223296

**Final Database Size (bytes)** 10150259523584

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration

**Instance4188.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4188.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4188.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4188.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4188.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4188.1</b>	19.086	8.428	397.058	223.931	32983.659	34215.453	0.000	2.238	0.000	100.524	0.000	5709.189
<b>Instance4188.2</b>	17.284	8.536	393.521	223.111	33027.321	34235.834	0.000	2.269	0.000	100.636	0.000	5702.114
<b>Instance4188.3</b>	17.274	8.845	399.646	226.818	32994.771	34209.002	0.000	2.233	0.000	101.439	0.000	5674.146
<b>Instance4188.4</b>	17.400	8.693	393.278	223.297	33001.557	34219.473	0.000	2.250	0.000	100.776	0.000	5698.165
<b>Instance4188.5</b>	17.343	8.234	399.356	226.907	33020.538	34211.740	0.000	2.240	0.000	101.325	0.000	5710.471

#### Background Database Maintenance I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance4188.1</b>	21.713	261959.655
<b>Instance4188.2</b>	22.704	261918.037
<b>Instance4188.3</b>	22.680	261888.748
<b>Instance4188.4</b>	22.226	261958.896
<b>Instance4188.5</b>	22.534	261937.991

#### Log Replication I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance4188.1</b>	2.378	232559.105
<b>Instance4188.2</b>	2.378	232567.866
<b>Instance4188.3</b>	2.383	232557.518

<b>Instance4188.4</b>	2.380	232547.393
<b>Instance4188.5</b>	2.400	232558.188

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4188.1</b>	19.086	8.428	418.771	223.931	44855.908	34215.453	5.063	2.238	2.378	100.524	232559.105	5709.189
<b>Instance4188.2</b>	17.284	8.536	416.225	223.111	45512.914	34235.834	4.954	2.269	2.378	100.636	232567.866	5702.114
<b>Instance4188.3</b>	17.274	8.845	422.326	226.818	45286.973	34209.002	5.016	2.233	2.383	101.439	232557.518	5674.146
<b>Instance4188.4</b>	17.400	8.693	415.504	223.297	45248.891	34219.473	4.992	2.250	2.380	100.776	232547.393	5698.165
<b>Instance4188.5</b>	17.343	8.234	421.890	226.907	45247.584	34211.740	4.874	2.240	2.400	101.325	232558.188	5710.471

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	3.331	1.908	4.484
<b>Available MBytes</b>	9123.353	9118.000	9145.000
<b>Free System Page Table Entries</b>	33556100.898	33556037.000	33556621.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	95374462.129	94633984.000	95911936.000
<b>Pool Paged Bytes</b>	110941092.075	110907392.000	111005696.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/23/2011 9:32:06 AM -- Jetstress testing begins ...

5/23/2011 9:32:06 AM -- Prepare testing begins ...

5/23/2011 9:32:12 AM -- Attaching databases ...

5/23/2011 9:32:12 AM -- Prepare testing ends.

5/23/2011 9:32:12 AM -- Dispatching transactions begins ...

5/23/2011 9:32:12 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:32:12 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:32:18 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:32:18 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:32:23 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:32:23 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:32:23 AM -- Attaining prerequisites:

5/23/2011 9:33:10 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1208762000.0 (lower bound: 1207960000.0, upper bound: none)

5/23/2011 11:33:10 AM -- Performance logging ends.

5/23/2011 11:34:14 AM -- JetInterop batch transaction stats: 82808, 82424, 82946, 82570 and 83295.

5/23/2011 11:34:15 AM -- Dispatching transactions ends.

5/23/2011 11:34:15 AM -- Shutting down databases ...

5/23/2011 11:34:24 AM -- Instance4188.1 (complete), Instance4188.2 (complete), Instance4188.3 (complete), Instance4188.4 (complete) and Instance4188.5 (complete)

5/23/2011 11:34:24 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_32\\_18.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_32_18.blg) has 482 samples.

5/23/2011 11:34:24 AM -- Creating test report ...

5/23/2011 11:34:27 AM -- Instance4188.1 has 19.1 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.1 has 2.2 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.1 has 2.2 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.2 has 17.3 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.2 has 2.3 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.2 has 2.3 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.3 has 17.3 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.3 has 2.2 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.3 has 2.2 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.4 has 17.4 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.4 has 2.3 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.4 has 2.3 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.5 has 17.3 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.5 has 2.2 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.5 has 2.2 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/23/2011 11:34:27 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/23/2011 11:34:27 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_32\\_18.xml](#) has 478 samples queried.

# IMEGA8 Database Checksum Report

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
F:\db1\Jetstress001001.edb	61953138	0	0	0	1936035 MBytes / 8792 sec
F:\db2\Jetstress002001.edb	61951090	0	0	0	1935971 MBytes / 7744 sec
F:\db3\Jetstress003001.edb	61952370	0	0	0	1936011 MBytes / 7741 sec
F:\db4\Jetstress004001.edb	61951602	0	0	0	1935987 MBytes / 7739 sec
F:\db5\Jetstress005001.edb	61953138	0	0	0	1936035 MBytes / 7740 sec
(Sum)	309761338	0	0	0	9680041 MBytes / 39759 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read
F:	0.077	0.000	3895.711	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	2.555	1.776	3.521
Available MBytes	10499.036	10467.000	10502.000
Free System Page Table Entries	33556126.404	33555997.000	33557085.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	97082423.686	95260672.000	98226176.000
Pool Paged Bytes	111286237.970	110534656.000	112054272.000

Test Log 5/23/2011 9:32:06 AM -- Jetstress testing begins ...

5/23/2011 9:32:06 AM -- Prepare testing begins ...

5/23/2011 9:32:12 AM -- Attaching databases ...

5/23/2011 9:32:12 AM -- Prepare testing ends.

5/23/2011 9:32:12 AM -- Dispatching transactions begins ...

5/23/2011 9:32:12 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/23/2011 9:32:12 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/23/2011 9:32:18 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/23/2011 9:32:18 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/23/2011 9:32:23 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/23/2011 9:32:23 AM -- Performance logging begins (interval: 15000 ms).

5/23/2011 9:32:23 AM -- Attaining prerequisites:

5/23/2011 9:33:10 AM -- VMSEExchange Database(JetstressWin)\Database Cache Size, Last: 1208762000.0 (lower bound:

1207960000.0, upper bound: none)  
5/23/2011 11:33:10 AM -- Performance logging ends.  
5/23/2011 11:34:14 AM -- JetInterop batch transaction stats: 82808, 82424, 82946, 82570 and 83295.  
5/23/2011 11:34:15 AM -- Dispatching transactions ends.  
5/23/2011 11:34:15 AM -- Shutting down databases ...  
5/23/2011 11:34:24 AM -- Instance4188.1 (complete), Instance4188.2 (complete), Instance4188.3 (complete), Instance4188.4 (complete) and Instance4188.5 (complete)  
5/23/2011 11:34:24 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_32\\_18.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_32_18.blg) has 482 samples.  
5/23/2011 11:34:24 AM -- Creating test report ...  
5/23/2011 11:34:27 AM -- Instance4188.1 has 19.1 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.1 has 2.2 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.1 has 2.2 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.2 has 17.3 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.2 has 2.3 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.2 has 2.3 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.3 has 17.3 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.3 has 2.2 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.3 has 2.2 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.4 has 17.4 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.4 has 2.3 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.4 has 2.3 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.5 has 17.3 for I/O Database Reads Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.5 has 2.2 for I/O Log Writes Average Latency.  
5/23/2011 11:34:27 AM -- Instance4188.5 has 2.2 for I/O Log Reads Average Latency.  
5/23/2011 11:34:27 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
5/23/2011 11:34:27 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
5/23/2011 11:34:27 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_32\\_18.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_32_18.xml) has 478 samples queried.  
5/23/2011 11:34:28 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_23\\_9\\_32\\_18.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_23_9_32_18.html) is saved.  
5/23/2011 11:34:28 AM -- Performance logging begins (interval: 30000 ms).  
5/23/2011 11:34:28 AM -- Verifying database checksums ...  
5/23/2011 10:37:08 PM -- F: (100% processed)  
5/23/2011 10:37:08 PM -- Performance logging ends.  
5/23/2011 10:37:08 PM -- [C:\Program Files\Exchange Jetstress\DBCchecksum\\_2011\\_5\\_23\\_11\\_34\\_28.blg](C:\Program Files\Exchange Jetstress\DBCchecksum_2011_5_23_11_34_28.blg) has 1324 samples.

# IMEGA8 Stress Test Result Report

## Test Summary

**Overall Test Result** Pass

**Machine Name** IMEGA8

## Test Description

**Test Start Time** 5/20/2011 6:40:14 PM

**Test End Time** 5/21/2011 7:23:31 PM

**Collection Start Time** 5/20/2011 6:41:17 PM

**Collection End Time** 5/21/2011 6:41:13 PM

**Jetstress Version** 14.01.0180.003

**Ese Version** 14.00.0639.019

**Operating System** Windows Server 2008 R2 Enterprise Service Pack 1 (6.1.7601.65536)

**Performance Log** [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_40\\_27.blg](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_40_27.blg)

## Database Sizing and Throughput

**Achieved Transactional I/O per Second** 3057.494

**Target Transactional I/O per Second** 2812.5

**Initial Database Size (bytes)** 10066348277760

**Final Database Size (bytes)** 10138062487552

**Database Files (Count)** 5

## Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

**Run Background Database Maintenance** True

**Number of Copies per Database** 2

## Database Configuration



**Instance3472.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance3472.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance3472.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance3472.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance3472.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

#### Transactional I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3472.1</b>	19.645	8.726	391.826	220.414	32960.173	34474.639	0.000	2.219	0.000	101.093	0.000	5696.424
<b>Instance3472.2</b>	17.827	8.580	390.064	220.736	33004.200	34460.738	0.000	2.214	0.000	101.109	0.000	5669.248
<b>Instance3472.3</b>	17.829	8.534	390.424	220.987	33005.056	34463.747	0.000	2.214	0.000	101.185	0.000	5671.181
<b>Instance3472.4</b>	17.815	8.415	390.354	220.930	32990.595	34461.380	0.000	2.208	0.000	101.054	0.000	5671.003
<b>Instance3472.5</b>	17.825	8.479	390.650	221.109	32998.485	34463.684	0.000	2.199	0.000	101.331	0.000	5675.966

#### Background Database Maintenance I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance3472.1</b>	20.191	261945.715
<b>Instance3472.2</b>	21.058	261940.588
<b>Instance3472.3</b>	21.166	261932.228
<b>Instance3472.4</b>	21.117	261934.313
<b>Instance3472.5</b>	21.253	261939.191

#### Log Replication I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Log Reads/sec	I/O Log Reads Average Bytes
<b>Instance3472.1</b>	2.386	232561.664
<b>Instance3472.2</b>	2.375	232558.401
<b>Instance3472.3</b>	2.378	232556.563

<b>Instance3472.4</b>	2.375	232563.375
<b>Instance3472.5</b>	2.383	232560.183

#### Total I/O Performance

<b>MSEExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance3472.1</b>	19.645	8.726	412.017	220.414	44181.436	34474.639	4.773	2.219	2.386	101.093	232561.664	5696.424
<b>Instance3472.2</b>	17.827	8.580	411.121	220.736	44730.339	34460.738	4.844	2.214	2.375	101.109	232558.401	5669.248
<b>Instance3472.3</b>	17.829	8.534	411.590	220.987	44777.355	34463.747	4.938	2.214	2.378	101.185	232556.563	5671.181
<b>Instance3472.4</b>	17.815	8.415	411.471	220.930	44740.377	34461.380	4.752	2.208	2.375	101.054	232563.375	5671.003
<b>Instance3472.5</b>	17.825	8.479	411.903	221.109	44811.154	34463.684	4.826	2.199	2.383	101.331	232560.183	5675.966

#### Host System Performance

<b>Counter</b>	Average	Minimum	Maximum
<b>% Processor Time</b>	3.259	1.453	4.588
<b>Available MBytes</b>	9132.301	9112.000	9175.000
<b>Free System Page Table Entries</b>	33556101.713	33556037.000	33557133.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	95513268.638	94445568.000	97984512.000
<b>Pool Paged Bytes</b>	110731813.125	109780992.000	111853568.000
<b>Database Page Fault Stalls/sec</b>	0.081	0.000	110.899

Test Log 5/20/2011 6:40:14 PM -- Jetstress testing begins ...

5/20/2011 6:40:14 PM -- Prepare testing begins ...

5/20/2011 6:40:21 PM -- Attaching databases ...

5/20/2011 6:40:21 PM -- Prepare testing ends.

5/20/2011 6:40:21 PM -- Dispatching transactions begins ...

5/20/2011 6:40:21 PM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/20/2011 6:40:21 PM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/20/2011 6:40:27 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

5/20/2011 6:40:27 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

5/20/2011 6:40:32 PM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/20/2011 6:40:32 PM -- Performance logging begins (interval: 15000 ms).

5/20/2011 6:40:32 PM -- Attaining prerequisites:

5/20/2011 6:41:17 PM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1209160000.0 (lower bound: 1207960000.0, upper bound: none)

5/21/2011 6:41:18 PM -- Performance logging ends.

5/21/2011 7:23:22 PM -- JetInterop batch transaction stats: 1002813, 1001416, 1002441, 1002760 and 1003335.

5/21/2011 7:23:23 PM -- Dispatching transactions ends.

5/21/2011 7:23:23 PM -- Shutting down databases ...

5/21/2011 7:23:31 PM -- Instance3472.1 (complete), Instance3472.2 (complete), Instance3472.3 (complete), Instance3472.4 (complete) and Instance3472.5 (complete)

5/21/2011 7:23:31 PM -- [C:\Program Files\Jetstress\Stress\\_2011\\_5\\_20\\_18\\_40\\_27.blg](C:\Program Files\Jetstress\Stress_2011_5_20_18_40_27.blg) has 5754 samples.

5/21/2011 7:23:31 PM -- Creating test report ...

5/21/2011 7:24:02 PM -- Instance3472.1 has 19.6 for I/O Database Reads Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.1 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.1 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.2 has 17.8 for I/O Database Reads Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.2 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.2 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.3 has 17.8 for I/O Database Reads Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.3 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.3 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.4 has 17.8 for I/O Database Reads Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.4 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.4 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.5 has 17.8 for I/O Database Reads Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.5 has 2.2 for I/O Log Writes Average Latency.  
5/21/2011 7:24:02 PM -- Instance3472.5 has 2.2 for I/O Log Reads Average Latency.  
5/21/2011 7:24:02 PM -- Test has 110.899313416235 Maximum Database Page Fault Stalls/sec.  
5/21/2011 7:24:02 PM -- Test has 6 Database Page Fault Stalls/sec samples higher than 0.  
5/21/2011 7:24:02 PM -- [C:\Program Files\Exchange Jetstress\Stress\\_2011\\_5\\_20\\_18\\_40\\_27.xml](C:\Program Files\Exchange Jetstress\Stress_2011_5_20_18_40_27.xml) has 5750 samples queried.

# IMEGA8 Database Backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
<b>Instance4300.1</b>	1936027.59	13:40:06	39.35
<b>Instance4300.2</b>	1935963.59	13:31:39	39.75
<b>Instance4300.3</b>	1936003.59	13:32:44	39.70
<b>Instance4300.4</b>	1935979.59	13:15:27	40.56
<b>Instance4300.5</b>	1936027.59	13:28:10	39.93

Jetstress System Parameters

**Thread Count** 16 (per database)

**Minimum Database Cache** 160.0 MB

**Maximum Database Cache** 1280.0 MB

**Insert Operations** 40%

**Delete Operations** 20%

**Replace Operations** 5%

**Read Operations** 35%

**Lazy Commits** 70%

Database Configuration

**Instance4300.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance4300.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance4300.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance4300.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance4300.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

## Transactional I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance4300.1</b>	11.216	0.000	157.512	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4300.2</b>	11.085	0.000	159.184	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4300.3</b>	11.128	0.000	158.990	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4300.4</b>	10.854	0.000	162.462	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Instance4300.5</b>	11.045	0.000	159.894	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

## Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	1.642	0.409	67.520
<b>Available MBytes</b>	10539.696	10532.000	10542.000
<b>Free System Page Table Entries</b>	33556145.178	33555997.000	33557101.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	94435696.039	94420992.000	96829440.000
<b>Pool Paged Bytes</b>	110963787.110	110104576.000	111788032.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/24/2011 9:25:10 AM -- Jetstress testing begins ...

5/24/2011 9:25:10 AM -- Prepare testing begins ...

5/24/2011 9:25:16 AM -- Attaching databases ...

5/24/2011 9:25:16 AM -- Prepare testing ends.

5/24/2011 9:25:24 AM -- Performance logging begins (interval: 30000 ms).

5/24/2011 9:25:24 AM -- Backing up databases ...

5/24/2011 11:05:30 PM -- Performance logging ends.

5/24/2011 11:05:30 PM -- Instance4300.1 (100% processed), Instance4300.2 (100% processed), Instance4300.3 (100% processed), Instance4300.4 (100% processed) and Instance4300.5 (100% processed)

5/24/2011 11:05:30 PM -- [C:\Program Files\Exchange Jetstress\DatabaseBackup\\_2011\\_5\\_24\\_9\\_25\\_16.blg](C:\Program Files\Exchange Jetstress\DatabaseBackup_2011_5_24_9_25_16.blg) has 1636 samples.

5/24/2011 11:05:30 PM -- Creating test report ...

# IMEGA8 SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
<b>Instance1572.1</b>	503	890.0283633
<b>Instance1572.2</b>	505	858.9999088
<b>Instance1572.3</b>	500	897.9843773
<b>Instance1572.4</b>	502	874.9119367
<b>Instance1572.5</b>	506	887.1111582

Database Configuration

**Instance1572.1** Log Path: F:\log1  
Database: F:\db1\Jetstress001001.edb

**Instance1572.2** Log Path: F:\log2  
Database: F:\db2\Jetstress002001.edb

**Instance1572.3** Log Path: F:\log3  
Database: F:\db3\Jetstress003001.edb

**Instance1572.4** Log Path: F:\log4  
Database: F:\db4\Jetstress004001.edb

**Instance1572.5** Log Path: F:\log5  
Database: F:\db5\Jetstress005001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance1572.1</b>	16.255	7.768	614.134	3.394	37564.611	30980.655	9.572	0.000	5.091	0.000	216827.457	0.000
<b>Instance1572.2</b>	16.289	7.439	624.552	3.522	36934.197	30913.208	9.802	0.000	5.283	0.000	218356.253	0.000
<b>Instance1572.3</b>	16.121	7.022	602.617	3.317	37047.531	31439.568	9.668	0.000	4.975	0.000	223205.218	0.000
<b>Instance1572.4</b>	16.327	1.184	608.117	3.441	37248.717	30644.148	9.705	0.000	5.164	0.000	217534.329	0.000
<b>Instance1572.5</b>	15.993	1.715	617.215	3.437	36881.058	31570.995	9.576	0.000	5.155	0.000	224067.267	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
<b>Instance1572.1</b>	28.354	261909.282

<b>Instance1572.2</b>	28.597	261944.916
<b>Instance1572.3</b>	28.521	261939.180
<b>Instance1572.4</b>	28.436	261874.876
<b>Instance1572.5</b>	28.612	261978.642

#### Total I/O Performance

<b>MSExchange Database ==&gt; Instances</b>	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
<b>Instance1572.1</b>	16.255	7.768	642.488	3.394	47465.436	30980.655	9.572	0.000	5.091	0.000	216827.457	0.000
<b>Instance1572.2</b>	16.289	7.439	653.149	3.522	46785.872	30913.208	9.802	0.000	5.283	0.000	218356.253	0.000
<b>Instance1572.3</b>	16.121	7.022	631.138	3.317	47210.376	31439.568	9.668	0.000	4.975	0.000	223205.218	0.000
<b>Instance1572.4</b>	16.327	1.184	636.553	3.441	47283.261	30644.148	9.705	0.000	5.164	0.000	217534.329	0.000
<b>Instance1572.5</b>	15.993	1.715	645.828	3.437	46853.551	31570.995	9.576	0.000	5.155	0.000	224067.267	0.000

#### Host System Performance

<b>Counter</b>	<b>Average</b>	<b>Minimum</b>	<b>Maximum</b>
<b>% Processor Time</b>	2.323	1.070	4.547
<b>Available MBytes</b>	9140.552	9122.000	10329.000
<b>Free System Page Table Entries</b>	33556091.807	33556037.000	33556111.000
<b>Transition Pages RePurposed/sec</b>	0.000	0.000	0.000
<b>Pool Nonpaged Bytes</b>	95809793.148	94670848.000	96399360.000
<b>Pool Paged Bytes</b>	110182161.220	110178304.000	110223360.000
<b>Database Page Fault Stalls/sec</b>	0.000	0.000	0.000

Test Log 5/25/2011 9:20:57 AM -- Jetstress testing begins ...

5/25/2011 9:20:57 AM -- Prepare testing begins ...

5/25/2011 9:21:02 AM -- Attaching databases ...

5/25/2011 9:21:02 AM -- Prepare testing ends.

5/25/2011 9:21:02 AM -- Dispatching transactions begins ...

5/25/2011 9:21:02 AM -- Database cache settings: (minimum: 160.0 MB, maximum: 1.2 GB)

5/25/2011 9:21:02 AM -- Database flush thresholds: (start: 12.8 MB, stop: 25.6 MB)

5/25/2011 9:21:08 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

5/25/2011 9:21:08 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

5/25/2011 9:21:12 AM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

5/25/2011 9:21:12 AM -- Performance logging begins (interval: 15000 ms).

5/25/2011 9:21:12 AM -- Generating log files ...

5/25/2011 9:51:40 AM -- F:\log1 (100.8% generated), F:\log2 (101.2% generated), F:\log3 (100.2% generated), F:\log4 (100.6% generated) and F:\log5 (101.4% generated)

5/25/2011 9:51:40 AM -- Performance logging ends.

5/25/2011 9:51:40 AM -- JetInterop batch transaction stats: 21667, 21727, 21555, 21682 and 21681.

5/25/2011 9:51:40 AM -- Dispatching transactions ends.

5/25/2011 9:51:40 AM -- Shutting down databases ...

5/25/2011 9:51:44 AM -- Instance1572.1 (complete), Instance1572.2 (complete), Instance1572.3 (complete), Instance1572.4 (complete) and Instance1572.5 (complete)  
 5/25/2011 9:51:44 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_21\\_8.blg](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_21_8.blg) has 121 samples.  
 5/25/2011 9:51:44 AM -- Creating test report ...  
 5/25/2011 9:51:45 AM -- Instance1572.1 has 18.1 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.1 has 2.0 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.1 has 2.0 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.2 has 16.3 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.2 has 2.0 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.2 has 2.0 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.3 has 16.2 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.3 has 2.0 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.3 has 2.0 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.4 has 16.2 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.4 has 2.0 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.4 has 2.0 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.5 has 16.3 for I/O Database Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.5 has 2.0 for I/O Log Writes Average Latency.  
 5/25/2011 9:51:45 AM -- Instance1572.5 has 2.0 for I/O Log Reads Average Latency.  
 5/25/2011 9:51:45 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.  
 5/25/2011 9:51:45 AM -- Test has 0 Database Page Fault Stalls/sec samples higher than 0.  
 5/25/2011 9:51:45 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_21\\_8.xml](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_21_8.xml) has 120 samples queried.  
 5/25/2011 9:51:45 AM -- [C:\Program Files\Exchange Jetstress\Performance\\_2011\\_5\\_25\\_9\\_21\\_8.html](C:\Program Files\Exchange Jetstress\Performance_2011_5_25_9_21_8.html) is saved.  
 5/25/2011 9:58:32 AM -- Performance logging begins (interval: 4000 ms).  
 5/25/2011 9:58:32 AM -- Recovering databases ...  
 5/25/2011 10:13:30 AM -- Performance logging ends.  
 5/25/2011 10:13:30 AM -- Instance1572.1 (890.0283633), Instance1572.2 (858.9999088), Instance1572.3 (897.9843773), Instance1572.4 (874.9119367) and Instance1572.5 (887.1111582)  
 5/25/2011 10:13:30 AM -- [C:\Program Files\Exchange Jetstress\SoftRecovery\\_2011\\_5\\_25\\_9\\_58\\_29.blg](C:\Program Files\Exchange Jetstress\SoftRecovery_2011_5_25_9_58_29.blg) has 223 samples.  
 5/25/2011 10:13:30 AM -- Creating test report ...