

IBM Corporation
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Report of Successful Completion of Qualification Testing

International Business Machines Corporation has successfully completed compatibility and interoperability testing of the IBM DS8886 and DS8886F at code level R8.5 Microcode level 7.8.50.497 - Bundle 88.50.184.0 in the following IBM z13 and z14 environment (the DS8886F is qualified based on our test results with the DS8886 family of products):

IBM hereby confirms that testing for the support of FICON® and FCP connectivity of the following has been successfully completed:

CPU	IBM z13 2964-N30 Driver 27 + MCL Bundle Level s73 IBM z14 3906-M02 Driver 32 Bundle S47
OS&GDPS®	z/OS V2.3
	GDPS 4.1
Functions	GDPS Metro HyperSwap Manager <ul style="list-style-type: none"> • Freeze/run • Planned HyperSwap • Unplanned HyperSwap • HyperSwap Failover/Failback
	GDPS Metro <ul style="list-style-type: none"> • Freeze/run • Planned HyperSwap • Unplanned HyperSwap • HyperSwap Failover/Failback • FlashCopy V2, FlashCopy Space Efficient and Remote Pair FlashCopy
	GDPS Global – XRC <ul style="list-style-type: none"> • FlashCopy Zero suspend for FlashCopy V2 and FlashCopy Space Efficient • SDM clustering
Storage Devices	IBM DS8886 <ul style="list-style-type: none"> • PPRC and XRC volumes • FlashCopy V2

More detailed testing results are available from IBM on request.

David B Petersen
 IBM Distinguished Engineer
 IBM Z
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 International Business Machines Corporation

Attachment A -- Test Matrix

<u>GDPS Metro HyperSwap Manager</u>		
Test Case Suite	Successfully Completed	Test Case Suite Description
<ul style="list-style-type: none"> • Initial Tests 	✓	Basic remote copy operations using panels Basic Freeze tests (GO/STOP/COND)
<ul style="list-style-type: none"> • Planned Actions 	✓	Remote copy operations using HYPERSW command Simulate Site maintenance (Site 1) and (Site 2)
<ul style="list-style-type: none"> • Unplanned Actions 	✓	GDPS reacts to a failure, depending on the FREEZE option (GO / STOP / COND / SWAP&GO / SWAP & STOP)) Test failures were generated by PPRC links unplug, Chpid unplug, DASD control Unit power off and elongated I/O response times
<ul style="list-style-type: none"> • Disruptive Testing (aka Config Testing) 	✓	GDPS reacts to a failure, depending on the FREEZE policy. Failures were generated by Control Unit Emergency power off and control unit internal failures
<ul style="list-style-type: none"> • HyperSwap Stress test 	✓	Run a planned HyperSwap, with the application systems and the controlling system having CPU contention
<ul style="list-style-type: none"> • Miscellaneous 	✓	HyperSwap extension (checking of secondary PPRC status – failure, XRC session, Concurrent Copy, etc.)

<u>GDPS Metro</u>		
Test Case Suite	Successfully Completed	Test Case Suite Description
<ul style="list-style-type: none"> • Initial Tests 	✓	Basic remote copy operations using panels Basic Freeze tests (GO/STOP/COND)
<ul style="list-style-type: none"> • Planned Actions 	✓	Remote copy operations using scripts (START/STOP SECONDARY, Flashcopy, HyperSwap (Resync & Suspend), etc.) Simulate Site maintenance (Site 1) and Site 2)
<ul style="list-style-type: none"> • Unplanned Actions 	✓	GDPS reacts to a failure, depending on the FREEZE option (GO / STOP / COND / SWAP&GO / SWAP & STOP) Failures were generated by PPRC links unplug, Chpid unplug, DASD control Unit power off and elongated I/O response times
<ul style="list-style-type: none"> • Disruptive Testing (aka Config Testing) 	✓	GDPS reacts to a failure, depending on the FREEZE policy. Failures were generated by Control Unit Emergency power off and control unit internal failures
<ul style="list-style-type: none"> • HyperSwap Stress test 	✓	Run a planned HyperSwap, with the application systems and the controlling system having CPU contention
<ul style="list-style-type: none"> • Miscellaneous 	✓	HyperSwap extension (checking of secondary PPRC status – failure, XRC session, Concurrent Copy, etc.)
<ul style="list-style-type: none"> • FlashCopy 	✓	Prior FlashCopy limitations (Space Efficient, Remote Pair) are removed. Note that the traditional FlashCopy testcases are executed as part of Planned Actions and Unplanned Actions.

<u>GDPS Global - XRC</u>		
Test Case Suite	Successfully Completed	Test Case Suite Description
<ul style="list-style-type: none"> • Initial Tests 	✓	Basic remote copy operations using panels. Tests using single SDM and coupled SDMs
<ul style="list-style-type: none"> • Planned Actions 	✓	Remote copy operations using scripts (START/STOP, SUSPEND session, etc.) Simulate Site maintenance (Site 1) and Site 2) Simulate Site 1 failure and restart Production in recovery site.
<ul style="list-style-type: none"> • FlashCopy 	✓	Prior FlashCopy limitation (Space Efficient) is removed. Note that the traditional FlashCopy testcases are executed as part of Planned Actions.