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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 at code level R8.3 Microcode level 7.8.30.470 - Bundle 88.30.136 in the following IBM zEnterprise® EC12 and IBM z13™ environment:

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

CPU	IBM zEnterprise EC12 2827-H43 Driver 15 + MCL Bundle 74a and z13 2964-N30 Driver 27 + MCL Bundle Level s39+ in LPAR mode
OS&GDPS®	z/OS® V2.3
	GDPS 3.14.0
Functions	GDPS/PPRC HyperSwap® Manager <ul style="list-style-type: none"> • Freeze/run • Planned HyperSwap • Unplanned HyperSwap • HyperSwap Failover/Failback
	GDPS/PPRC <ul style="list-style-type: none"> • Freeze/run • Planned HyperSwap • Unplanned HyperSwap • HyperSwap Failover/Failback • FlashCopy® V2, FlashCopy Space Efficient and Remote Pair FlashCopy
Storage Devices	IBM DS8886 <ul style="list-style-type: none"> • PPRC volumes • FlashCopy V2

More detailed testing results are available from IBM on request.

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

Attachment A -- Test Matrix

GDPS/PPRC HyperSwap Manager		
Test Case Suite	Successfully Completed	Test Case Suite Description
• Initial Tests	✓	Basic remote copy operations using panels Basic Freeze tests (GO/STOP/COND)
• Planned Actions	✓	Remote copy operations using HYPERSW command Simulate Site maintenance (Site 1) and (Site 2)
• 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
• 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
• HyperSwap Stress test	✓	Run a planned HyperSwap, with the application systems and the controlling system having CPU contention
• Miscellaneous	✓	HyperSwap extension (checking of secondary PPRC status – failure, XRC session, Concurrent Copy, etc.)

GDPS/PPRC		
Test Case Suite	Successfully Completed	Test Case Suite Description
• Initial Tests	✓	Basic remote copy operations using panels Basic Freeze tests (GO/STOP/COND)
• Planned Actions	✓	Remote copy operations using scripts (START/STOP SECONDARY, Flashcopy, HyperSwap (Resync & Suspend), etc.) Simulate Site maintenance (Site 1) and Site 2)
• 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
• 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
• HyperSwap Stress test	✓	Run a planned HyperSwap, with the application systems and the controlling system having CPU contention
• Miscellaneous	✓	HyperSwap extension (checking of secondary PPRC status – failure, XRC session, Concurrent Copy, etc.)
• 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.