IBM® GDPS® and Server Time Protocol (STP) Application Qualification support for the Huawei OptiX OSN 8800 Release 5.51.07.36 and the Huawei OptiX OSN 1800 Release 5.67.03.22 Dense Wavelength Division Multiplexing (DWDM) Platforms

International Business Machines Corporation and Huawei Technolgies Co., Ltd. have successfully completed application qualification testing of the Huawei OptiX OSN 8800 Release 5.51.07.36 and the Huawei OptiX OSN 1800 Release 5.67.03.22 Dense Wavelength Division Multiplexing (DWDM) Platforms for the following IBM Parallel Sysplex, Geographically Dispersed Parallel Sysplex™ (GDPS), IBM zEnterprise 196 (z196), IBM zEnterprise 114 (z114), IBM zEnterprise BladeCenter Extension (zBX), IBM System z10 (z10 EC, z10 BC), and IBM System z9 (z9 EC, z9 BC) environments:

• GDPS / Peer-to-Peer Remote Copy (PPRC) (Metro Mirror) using the following protocols are supported.
   - FICON for Storage Access
   - FCP for mirroring
   - ISC-3 peer mode or 1x IFB for coupling facility (CF) and Server Time Protocol (STP) messaging to provide synchronization of servers.
• GDPS / Extended Remote Copy (XRC) (z/OS Global Mirror) using FICON for asynchronous remote copy.
• zBX intra ensemble data network (IEDN) over 10 Gigabit Ethernet (10GbE)

Distances for the protocols supported for the GDPS applications are defined in the Qualification Results Summary below, with the actual distance tested noted with *. Although some protocols have been successfully tested to a distance of 200km, IBM requires an RPQ (8P2263 or 8P2340) to assure applications at distances greater than 100km adhere to the bounds of our qualification.

Qualification Results Summary:
The Huawei OptiX OSN 8800 and OptiX OSN 1800 Dense Wavelength Division Multiplexing (DWDM) Platforms met IBM Qualification criteria for the protocols listed in the table below.

Optix OSN 8800 Platform					
Transport Interface	**Description**	**Part Number**	**Protocols Supported**	**Supported Distance**	
Optix OSN 8800 Platform Release level 5.51.07.36	Optix OSN 8800 platform, LOM and LOA muxponder client cards, and the OLP protection switching module				
LOM Firmware: 3.33	8 Client Ports, 1 (10G) Line Port Maximum Ports Supported Per Protocol: 8:1 GbE 8:1 1G FC/FICON/ISL 4:1 2G FC/FICON/ISL 2:1 4G FC/FICON/ISL 8:1 ISC-3 1G Peer/Compatibility Mode 4:1 ISC-3 2G Peer Mode	TN12LOM Ver. B	1,2,4 Gbps FCP/FICON 1,2,4 Gbps ISL 1,2 Gbps ISC-3 Peer Mode GbE	100km *200km	
			ISC-3 Compatibility Mode	40km	
LOA Firmware: 3.39	8 Client Ports, 1 (10G) Line Port Maximum Ports Supported Per Protocol: 8:1 GbE 8:1 1G FC/FICON/ISL 4:1 2G FC/FICON/ISL 2:1 4G FC/FICON/ISL 1:1 8G FC/FICON/ISL 1:1 10G ISL 1:1 10GbE/ zBX IEDN Extension 2:1 1x IFB 2.5G (SDR) 1:1 1x IFB 5G (DDR)	TN11LOA Ver. A	1,2,4,8 Gbps FCP/FICON 1,2,4,8,10 Gbps ISL GbE 10GbE zBX IEDN 10 GbE	100km *200km	
			1x IFB 2.5Gbps (SDR) 1x IFB 5Gbps (DDR)	100km	

OLP Firmware: 1.12	Bi-Directional optical line protection switching module	TN12DCP Ver. B	All protocols including 1x IFB/ ISC-3	100km
DCM	Dispersion compensation module (based on fiber bragg grating)	FBG-DCM	N/A	N/A

Optix OSN 1800 Platform				
Transport Interface	**Description**	**Part Number**	**Protocols Supported**	**Supported Distance**
Optix OSN 1800 Platform Release level 5.67.03.22	Optix OSN 1800 platform, LQM2 and ELOM muxponder client cards			

LQM2
Firmware: 1.10
	8 Client Ports, 2 (2.7G) Line Ports
	  Maximum Ports Supported Per Protocol:
	
	  2 Modes:
	  2 x AP4 ODU1 Mode –
	    4:2 1G FC/FICON/ISL
	    2:2 2G FC/FICON/ISL
	    4:2 GbE
	  1 x AP8 ODU1 Mode –
	    2:1 1G FC/FICON/ISL
	    1:1 2G FC/FICON/ISL
	    2:1 GbE
		TNF2LQM2
		Ver. A
			1,2 Gbps FCP/FICON
			1,2 Gbps ISL
			GbE
				100km
				*200km

ELOM
Firmware: 1.10
	8 Client Ports, 2 (10G) Line Ports
	  Maximum Ports Supported Per Protocol:
	    8:1 GbE
	    8:1 1G FC/FICON/ISL
	    4:1 2G FC/FICON/ISL
	    2:1 4G FC/FICON/ISL
	    1:1 8G FC/FICON/ISL
	    1:1 10G ISL
	    1:1 10GbE / zBX IEDN Extension
		TNF2ELOMA
		Ver. B
			1,2,4,8 Gbps FCP/FICON
			1,2,4,8,10 Gbps ISL
			GbE
			10GbE
			zBX IEDN 10 GbE
				100km
				*200km

DCM	Dispersion compensation module (based on fiber bragg grating)	FBG-DCM	N/A	N/A

GDPS Application Limitations:

• IBM GDPS support is limited to DWDM product applications which utilize point-to-point fixed dark fiber network interconnect between sites.

• DWDM end-to-end networks, including DWDM components, transport elements and dark fiber links, must not exceed the equivalent of 900 meters differential delay between transmit and receive paths used for GDPS ISC links transporting STP message passing.

• Redundant Huawei Optix OSN platforms, utilizing two site-to-site fiber pairs, are recommended for fiber trunk protection of ISC-3 peer mode or 1x IFB Server Time Protocol (STP) message passing protocol links.

• Fiber trunk protection schemes should be designed with two trunk switching modules and four site-to-site fiber pairs carried over at least two diverse routes. STP links should connect using different trunk switching modules to ensure that a fiber trunk protection event does not interrupt all timing links simultaneously.

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