

ZebOS-XP 1.4 Feature Matrix

Release Dates

- July 2013 - 1.0
- August 2013 - 1.0.1
- October 2013 - 1.0.2
- April 2014 - 1.1; Standards Supported merged into Feature Matrix
- December 2014 - 1.2
- July 2015 - 1.3
- September 2015 - 1.3.1
- November 2015 - 1.3.2
- December 2015 - 1.4

All technical manuals are available to licensed customers at:

http://www.ipinfusion.com/support/document_list

For SNMP MIB support, see the ZebOS-XP MIB compliance documents

For additional information, please contact:

support@ipinfusion.com

Legend	
Feature	Name of the feature
SKU	Stock keeping unit
Standard	Standards organization (such as IEEE or IETF) definition or format; if blank, then no standard applies
Sub-features not supported	Parts of the feature not supported
Version first supported	ZebOS-XP version where the feature was first supported
Previous version validated	ZebOS-XP version where the feature was last validated
ZebOS-XP 1.4	Whether feature is validated in this version
Forwarder Support	Whether feature is supported by software forwarder (L2 or MPLS only)
Data plane integration	ZebIC versions and platforms validated
Comments	Details about platform support
Yes	Validated
No	Not validated
Ecosystem	Support supplied by Linux, TCP/IP stack, and/or chipset

Feature	SKU	Standard	Sub-features not supported	Version first supported	ZebOS-XP		Forwarder Support	ZebOS																												Comments
					Previous version validated	ZebOS-XP 1.4		Data plane integration																												
								ZebOS 3.1 (ZebOS-XP version 1.1)								ZebOS 3.2 (ZebOS-XP version 1.2)								ZebOS 4.0 (ZebOS-XP version 1.3)								ZebOS 4.1 (ZebOS-XP version 1.4)				
										PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Marvell Prestera CX 8348/8324	Marvell Prestera 83C8310	Broadcom BCM56850	Broadcom BCM56643	Marvell Prestera 83C83095	Marvell Prestera 83C83103	Broadcom BCM56440	Broadcom BCM56850	Marvell Prestera 83C83095	Marvell Prestera 83C83103	Marvell Prestera 83C83095	Broadcom BCM56850	Broadcom BCM56440								
										Wineth-3	Trident+	Katana	Trident+	Katana	Triumph3	Lion	Hoozer	Trident2	Triumph3	Lion2	Hoozer	Katana	Trident2	Lion2	Hoozer	Marvell Prestera 83C83095	Marvell Prestera 83C83103	Marvell Prestera 83C83095	Trident2	Helix4						
VLANs																																				
Virtual LANs with Port-based VLANs	ZOS-XP-L2-VLAN	IEEE 802.1Q (2005)		XP 1.0	XP 1.3	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
IP Subnet-based VLAN classifiers	ZOS-XP-L2-VCLASS			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes			
Private VLANs	ZOS-XP-L2-VLAN			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes			
VLAN classifiers	ZOS-XP-L2-VCLASS	IEEE 802.1v		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes			
Spanning Tree (STP)																																				
Spanning Tree (STP)	ZOS-XP-L2+STP	IEEE 802.1D (2004)		XP 1.0	XP 1.3	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Multiple Spanning Tree Protocol (MSTP)	ZOS-XP-L2+STP	IEEE 802.1Q (2005) Clause 13		XP 1.0	XP 1.3	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Rapid Spanning Tree (RSTP)	ZOS-XP-L2+STP	IEEE 802.1D (2004) Clause 17		XP 1.0	XP 1.3	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Rapid Spanning Tree (RSTP) Extension for 802.1w	ZOS-XP-L2+STP			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Rapid Per-VLAN Spanning Tree Plus (RPVST+)	ZOS-XP-L2+STP	Cisco version of Spanning Tree/Rapid Spanning Tree		XP 1.0	XP 1.3	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No			
Disable Spanning Tree on Specific Interfaces	ZOS-XP-L2+STP			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Support for 64 MSTP Instances	ZOS-XP-L2+STP			XP 1.0	XP 1.3	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
MSTP Enhancement of Display for STP/RSMA Statistics	ZOS-XP-L2+STP			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
MSTP Enhancement for Port Time and Port Receive Pseudo-Information State Statistics	ZOS-XP-L2+STP	IEEE 802.1ah		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
MBL	ZOS-XP-L2+STP	RFC 1213		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Definitions of Managed Objects for Bridges	ZOS-XP-L2+STP	RFC 4168		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions	ZOS-XP-L2+STP	RFC 4363		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Definitions of Managed Objects for Bridges with Rapid Spanning Tree Protocol (RSTP)	ZOS-XP-L2+STP	RFC 4318		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
MSTP MIB	ZOS-XP-L2+STP	snmp-mibext-mib-mib-11.16		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Registration Frameworks																																				
Generic Attribute Registration Protocol (GARP)	ZOS-XP-L2-XRP	IEEE 802.1Q (2005)		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Dynamic L2 Multicast Registration Protocol (DMRP)	ZOS-XP-L2-XMRP	IEEE 802.1Q (2005)		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Generic VLAN Registration Protocol (GVRRP)	ZOS-XP-L2-XVRRP	IEEE 802.1Q (2005)		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Multiple Registration Protocol (MRP)	ZOS-XP-L2-XRP	IEEE 802.1ak draft 8, 2007		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Multiple Multicast Registration Protocol (MMRP)	ZOS-XP-L2-XMRP	IEEE 802.1ak draft 8, 2007		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			
Multiple VLAN Registration Protocol (MVRRP)	ZOS-XP-L2-XVRRP	IEEE 802.1ak draft 8, 2007		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No			

Feature	SKU	Standard	Sub-features not supported	Version first supported	ZebOS XP		Forwarder Support	Comments	ZebOS																		Comments							
					Previous version validated	ZebOS-XP 1.4			Data plane integration																									
									ZebOS 3.1 (ZebOS version 7.16.1)			ZebOS 3.1 (ZebOS-XP version 1.1)			ZebOS 3.2 (ZebOS-XP version 1.2)			ZebOS 4.0 (ZebOS-XP version 1.3)			ZebOS 4.1 (ZebOS-XP version 1.4)													
									PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Marvell Prestera CX 83480204	Marvell Prestera 80C83129	Broadcom BCM56850	Broadcom BCM56643	Marvell Prestera 80C83096	Marvell Prestera 80C83129	Broadcom BCM56440	Broadcom BCM56850	Marvell Prestera 80C83096	Marvell Prestera 80C83129	Marvell Prestera 80C83096	Broadcom BCM56850	Broadcom BCM56440							
Carrier Ethernet																																		
Provider Bridging (Q-in-Q)	ZOS-XP-L2-PB	IEEE 802.1ad/D4.0		XP 1.0	XP 1.3	Yes			Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	Yes	No	No	No			
Quanta LANMAN Tagging	ZOS-XP-L2-PB			XP 1.0	XP 1.3	Yes			Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No			
Provider Backbone Bridging (PBB) (MAC-in-MAC)	ZOS-XP-L2-PBB	IEEE 802.1ad/D4.1 IEEE 802.1Qay/D4.8 IEEE 802.1ad/D3.2, clause 17.6.8		XP 1.0	XP 1.3	Yes			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
Connectivity Fault Management (CFM)	ZOS-XP-L2-CFM	IEEE 802.1ag 2007		XP 1.0	XP 1.3	Yes			PARTIAL	No	PARTIAL	No	PARTIAL	PARTIAL	No	No	No	PARTIAL	No	No	PARTIAL	No	No	No	No	No	Yes	No	No	No	No	CFM and other features like loopback, mirroring have CF support		
Connectivity Fault Management Enhancement for S-VLAN, I-SD and L-SD segments	ZOS-XP-L2-CFM	IEEE 802.1ah		XP 1.0	No	No			PARTIAL	No	PARTIAL	No	PARTIAL	PARTIAL	No	No	No	PARTIAL	No	No	PARTIAL	No	No	No	No	No	No	No	No	No	No	S-VLAN and I-SD is not supported		
Connectivity Fault Management Enhancement for Provider Backbone Bridging – Traffic Engineering	ZOS-XP-PBB-TE	IEEE 802.1Qay		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
QAM Functions and Mechanisms for Ethernet-based networks	ZOS-XP-L2-CFM	TU.Y.1731.06.06 IEEE 802.1ag 2007		XP 1.0	Partial	Partial			PARTIAL	No	PARTIAL	No	PARTIAL	PARTIAL	No	No	No	PARTIAL	No	No	PARTIAL	No	No	No	No	No	Yes	No	No	No	No	Loss measurement and delay measurement features have CF support		
Ethernet to the First Mile (EFM)	ZOS-XP-L2-EFM	IEEE 802.3ah		XP 1.0	Partial	Partial			PARTIAL	No	PARTIAL	No	PARTIAL	PARTIAL	No	No	No	PARTIAL	No	No	PARTIAL	No	No	No	No	No	No	No	No	No	No	No		
Ethernet Link OAM	ZOS-XP-L2-ETHOAM/BNCL	IEEE 802.3ah – 2004 clause 57		XP 1.0	Partial	Partial			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
Ethernet Link OAM	RFC 4878			XP 1.0	Partial	Partial			Yes	No	Yes	No	Yes	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No		
Ethernet Service OAM	ZOS-XP-L2-ETHOAM/BNCL	IEEE 802.3ah – 2004 clause 57 TU.Y.1731.06.06 IEEE 802.1ag – 2007 IEEE 802.1Qay/D4.5 – clause 20.1		XP 1.0	No	No			PARTIAL	No	Yes	No	Yes	Yes	No	No	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	WP3 - Loss measurement and delay measurement are not supported	
Service OAM		MEF 17, implementation based on TU.T.1731 and IEEE 802.1ag 2007		XP 1.0	No	No			PARTIAL	No	Yes	No	Yes	Yes	No	No	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	WP3 - Loss measurement and delay measurement are not supported	
Metro Ethernet Forum (MEF) LMI specifications (Type 1 and 2, only) CMB specifications		MEF 11 MEF 20 Section 8 MEF 20 Section 9 MEF 20 Section 10 MEF 12.3 MEF 6.1, 6.1.1, 33 MEF 10.2, 10.2.1, 30.1		XP 1.0	XP 1.3	Yes			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
User Network Interface (UNI) Type 1 Implementation Agreement (Type 1.1 and 1.2)		MEF 13		XP 1.0	Partial	Partial			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Provider Backbone Transport (PBT or PBB-TE)	ZOS-XP-PBB-TE	TU.T.5015/G12 IEEE 802.1Qay		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Provider Backbone Bridge – Traffic Engineering MB	ZOS-XP-PBB-TE	IEEE 802.1Qay		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Ethernet Protection Switching	ZOS-XP-EPS	IEEE 802.1Qay/D4.5 clause 26.12 TU.T.5.8031 - 06/2006 TU.T.5.8032 Amendment 1 - 10/2007 TU.T.5.8032 - 06/2008 MEF 2		XP 1.0	No	No			No	No	Yes	No	Yes	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	
Ethernet Ring Protection Switching	ZOS-XP-EPS	TU.T.5.8032 - 02/2012 MEF2		XP 1.0	XP 1.3	Yes			Yes	No	Yes	No	Yes	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	Control plane support	
Automated Protection Switching for Data Center Bridging (DCBs)	ZOS-XP-EPS	IEEE 802.1Qay		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Congestion Notification	ISIS-DCB	IEEE 802.1Qay draft 2.4		XP 1.0	XP 1.3	Yes			No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	No	No	
Priority Flow Control	ISIS-DCB	IEEE 802.1Qay		XP 1.0	XP 1.3	Yes			No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No	
Enhanced Transmission Selection	ISIS-DCB	IEEE 802.1Qay draft 2.5		XP 1.0	XP 1.3	Yes			No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No	No	No	No	No	
OSDB	ISIS-DCB	IEEE 802.1Qay		XP 1.0	XP 1.3	Yes			No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No	No	No	No	No	
Link Layer Discovery Protocol (LLDP)																																		
LLDP	ZOS-XP-L2-LLDP	IEEE 802.1ab 2005		XP 1.0	XP 1.3	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
LLDP v2	ZOS-XP-L2-LLDP	IEEE 802.1ab 2009	No MIB support; no support for global variable on per agent basis	XP 1.0	XP 1.3	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Link Aggregation																																		
Link Aggregation (LAG)	ZOS-XP-L2-LACP	IEEE 802.1AX-REV-D3.1		XP 1.0	XP 1.3	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Multi-Chassis Link Aggregation (M-LAG)	ZOS-XP-MLAG	IEEE 802.1AX-REV-D3.1		XP 1.1	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
LAG MIB	ZOS-XP-L2-LACP	IEEE 802.1AX-REV-D3.1		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Other Layer 2 Functionality																																		
IEEE 802.3x – Flow Control	ZOS-XP-NBM	IEEE 802.3x		XP 1.0	No	No			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Port-based Authentication	ZOS-XP-L2-802.1x	IEEE 802.1X (2004)		XP 1.0	XP 1.3	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Ethernet Local Management Interface (ELMI)	ZOS-XP-ELMI	MEF 16		XP 1.0	Partial	Partial			Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Broadcast/Multicast/Unknown Unicast Storm Recovery	ZOS-XP-NBM	No public domain standard exists		XP 1.0	No	No			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

			ZebOS XP				ZebOS																						
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									ZebOS 3.1 (ZebOS-XP version 1.1)						ZebOS 3.2 (ZebOS-XP version 1.2)				ZebOS 3.9 (ZebOS-XP version 1.3)				ZebOS 4.1 (ZebOS-XP version 1.4)						
								Comments	PMC-Sierra	Broadcom BCM56946	Broadcom BCM56940	Broadcom BCM56946	Broadcom BCM56940	Broadcom BCM56943	Marvell Prestera CX 8248B2234	Marvell Prestera 96C-X8129	Broadcom BCM56950	Broadcom BCM56943	Marvell Prestera 96C-X8296	Marvell Prestera 96C-X8129	Broadcom BCM56940	Broadcom BCM56950	Marvell Prestera 96C-X8296	Marvell Prestera 96C-X8129	Marvell Prestera 96C-X8296	Broadcom BCM56950	Broadcom BCM56940		
Jumbo Ethernet Frames	ZOS-XP-NSM			XP 1.0	No	No		CUI support is available; implementation n is data plane hardware specific	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Static MAC Filtering	ZOS-XP-NSM			XP 1.0	XP 1.2	No			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
MAC based VLANs	ZOS-XP-NSM			XP 1.0	XP 1.3	Yes			No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	Yes	Yes	
Rate Limiting, Suppression	ZOS-XP-NSM			XP 1.0	No	No		CUI support is available; implementation n is data plane hardware specific	Partial	Partial	Partial	Partial	Partial	Partial	No	No	Partial	Partial	No	No	Partial	Partial	No	No	No	No	Partial	No	Suppression not supported

Feature	SKU	Standard	ZebOS-XP					ZebOS																				Comments		
			Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Forwarder Support	Data plane integration																						
								ZebOS 2.1 (ZebOS version 7.16.1)				ZebOS 3.1 (ZebOS-XP version 1.1)				ZebOS 3.2 (ZebOS-XP version 1.2)				ZebOS 4.0 (ZebOS-XP version 1.3)				ZebOS 4.1 (ZebOS-XP version 1.4)						
									PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Marvell Prestera CX 8248/8234	Marvell Prestera 98CX8129	Broadcom BCM56850	Broadcom BCM56643	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Broadcom BCM56440	Broadcom BCM56850	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56440			
Other Layer2 MBs																														
Ethernet like MB	ZOS-XP-NBM	RFC 1643		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Interface Group MB using SM v2	ZOS-XP-NBM	RFC 2233		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
RADIUS Authentication Client MB	All relevant protocol modules	RFC 2818		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Entry MB version 2	ZOS-XP-NBM	RFC 2737		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
RMON Groups 1, 2, 3 and 9	ZOS-RMON	RFC 2810		XP 1.0	No	No			Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Definitions for Port Access Control																														
	ZOS-XP-L2-802.1x	draft self-bridge-8021x-03.txt		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
TRILL																														
Routing Bridges (RBridges): Basic Protocol Specification	ZOS-TRILL	RFC 6325		XP 1.0	XP 1.3	Yes			No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No
Routing Bridges (RBridges): Adjacency	ZOS-TRILL	RFC 6327		XP 1.0	XP 1.3	Yes			No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No
Transparent Interconnection of Lots of Links (TRILL): Use of IS-IS	ZOS-TRILL	RFC 6328		XP 1.0	XP 1.3	Yes			No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No
RBridges: Appointed Forwarders	ZOS-TRILL	RFC 6439	Only a framework is provided, specific options are implemented	XP 1.0	XP 1.3	Yes			No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	Yes	No	No	No	No
Options Support	ZOS-TRILL	draft self-801-bridge-options-05		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
GM support	ZOS-TRILL	draft self-801-bridge-com-02	draft-ychoy-801-multi-destination-ping-02	XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
MB support	ZOS-TRILL	draft self-801-bridge-mb-03		XP 1.0	XP 1.3	Yes			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
ESAC support	ZOS-TRILL	draft self-801-esac-00		XP 1.0	XP 1.3	Yes			No	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No
Bridge Channel Support Multi-destination Ping	ZOS-TRILL	draft self-801-bridge-channel-07.txt		XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
VLAN																														
Unicast IPv4 host-to-host communication	ZOS-XP-VLAN	RFC 7348			No	No			No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Broadcast IPv4 communication and response to multicast	ZOS-XP-VLAN	RFC 7348			No	No			No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Synchronization																														
Precision Time Protocol	ZOS-DYN-PTP	IEEE 1588 2008 ver 2		XP 1.0	XP 1.3	Yes			Yes	Partial	No	Partial	No	No	No	No	Partial	No	No	No	No	Partial	No	No	No	Partial	No	No	No	No
Synchronization layer functions	ZOS-DYN-SyncE	TU-T G.781	Synchronization layer functions not pertaining to packet networks, sections 5.1 to 5.11, only the general concepts of synchronization supported	XP 1.0	XP 1.3	Yes			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Timing and synchronization aspects of packet networks	ZOS-DYN-SyncE	TU-T G.8261	Network limits, sections 5.1, 5.2, not supported; hardware FEC-related performance measurement parameters CES-VDF functionality, Annex B, Annex C, not supported; (RFF not part of ZebOS-XP 1.4, the hardware capability of measuring is locked with TDM to Ethernet) Measurements of sender and jitter, section A.2, not supported; hardware-dependent performance parameters	XP 1.0	XP 1.3	Yes			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Timing characteristics of synchronous Ethernet equipment slave clock	ZOS-DYN-SyncE	TU-T G.8262	Measurements of frequency accuracy, pull-in/pull-out ranges, noise generation/disturbances (clar, transient response, hold-over performance) not supported; performance measurement parameters for the synchronization network which are dependent on hardware capability	XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Distribution of timing through packet networks	ZOS-DYN-SyncE	TU-T G.8264	ESMC PDU extensions, section 11.4, for further study as per standard Multiple instances of selection algorithms not supported; only single instance of clock selection algorithm at one time	XP 1.0	No	No			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Feature	SKU	Standard	Sub-features not supported	Version first supported	ZebOS XP		Forwarder Support	ZebOS																				Comments					
					Previous version validated	ZebOS-XP 1.4		Data plane integration																									
								ZebOS 3.1 (ZebOS version 7.15.1)					ZebOS 3.1 (ZebOS-XP version 1.1)					ZebOS 3.2 (ZebOS-XP version 1.2)					ZebOS 4.0 (ZebOS-XP version 1.3)						ZebOS 4.1 (ZebOS-XP version 1.4)				
								PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Marvell Prestera CX 8348/8324	Marvell Prestera 88C83129	Broadcom BCM56850	Broadcom BCM56643	Marvell Prestera 88C83296	Marvell Prestera 88C83129	Broadcom BCM56440	Broadcom BCM56850	Marvell Prestera 88C83296	Marvell Prestera 88C83129	Marvell Prestera 88C83296	Broadcom BCM56850	Broadcom BCM56440							
Shortest Path Bridging (SPB)																																	
Amendment 20: Shortest Path Bridging	ZOS-SPB	IEEE 802.1aq draft 4.6	ECT algorithms, 28.6-28.9, only 2 ECT algorithms supported Closed systems, 28.12.6, 28.12.8, not supported	XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
IS-IS Extensions Supporting IEEE 802.1aa Shortest Path Bridging	ZOS-SPB	draft-ietf-isis-ieee-aq-05.txt		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
IS-IS services with IEEE 802.1aa SPB networks	ZOS-SPB	draft-ietf-isis-ieee-aq-05.txt	Import/export of routes associated with offernet (ISD, 4.1, not supported)	XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
M-HSB: Multi Topology (MT) Routing in Intermediate System to Intermediate Systems (IS-IS)	ZOS-SPB	RFC 5120	Multi-Topology Reachable IPv4 Prefixes TLV, section 7.3, not applicable to SPB Multi-Topology Reachable IPv4 Prefixes TLV, section 7.4, not applicable to SPB MT IP Forwarding Considerations, section 9, not applicable to SPB MT Network Management Considerations, section 9, not supported	XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Edge Virtual Bridging (EVB)																																	
Edge Virtual Bridging	ZOS-EVB	IEEE 802.1dgh-02.2	Section 17: MB modules not supported VSI discovery and configuration protocol, sections 41.2.10.1 and 41.2.10.2: Pre-associates and pre-associates with resource reservation TLV not supported Section 41.2.3: Migration and suspend fails not supported in this release Section 41.2.3.3 and 41.2.3.4: Groupinfo format not supported Section 41.3: No support for organizationally defined TLV Section 41.5.3: Station implementation not supported	XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
UniDirectional Link Detection (UDLD)																																	
UniDirectional Link Detection (UDLD)	ZOS-XP-L2-UDLD	RFC 5171		No	No	No		No	No	No	No	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	No			
Trigger Fail Over (TFO)																																	
Trigger Fail Over (TFO) monitors specific upstream link and propagates failure to downstream	ZOS-XP-TFO			No	No	No		No	No	No	No	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	No			
aFlow																																	
aFlow module polls interface counters and samples data packets	ZOS-XP-L2-SFLOW	RFC 3176		No	No	No		No	No	No	No	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	No			

			ZebOS XP				ZebOS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Comment	Data plane integration																				Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
								ZebOS 2.1(ZebOS version 7.10.1)				ZebOS 3.1 (ZebOS-XP version 1.1)				ZebOS 3.2 (ZebOS-XP version 1.2)				ZebOS 4.0 (ZebOS-XP version 1.3)				ZebOS 4.1(ZebOS-XP version 1.4)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
								PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56843	Marvell Prestera CX 8248B234	Marvell Prestera 98CX8129	Broadcom BCM56850	Broadcom BCM56843	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Broadcom BCM56850	Broadcom BCM56440	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56340																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
								Winpath-3	Trident+	Katana	Trident+	katana	Triumph3	Lion	Hooper	Trident2	Triumph3	Lion2	Hooper	Trident2	Katana	Lion2	Hooper	Lion2	Trident2	Helix4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Routing								Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosystem	Ecosy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			ZebOS XP				ZebIC																					
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Comment	Data plane integration																		Comments		
								ZebIC 2.1(ZebOS version 7.10.1)				ZebIC 3.1 (ZebOS-XP version 1.1)				ZebIC 3.2 (ZebOS-XP version 1.2)				ZebIC 4.0 (ZebOS-XP version 1.3)				ZebIC 4.1(ZebOS-XP version 1.4)				
								PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56843	Marvell Prestera CX 8248B234	Marvell Prestera 98CX8129	Broadcom BCM56850	Broadcom BCM56843	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Broadcom BCM56850	Broadcom BCM56440	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56440		
Outbound Route Flapping Capability for BGP-4	ZOS-XP-BGP	RFC 5291		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Address-Path-Based Outbound Route Filter for BGP-4	ZOS-XP-BGP	RFC 5292		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Graceful BGP Session Shutdown	ZOS-XP-BGP	ash-net-grow-top-github-03	Section 4.2.2: BGP g-adm not supported	XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
BGP Support for Next-Hop Address Tracking	ZOS-XP-BGP			XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
BGP Next-Hop Trigger Delay Timer	ZOS-XP-BGP			XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
BGP Internal and External Distance Configuration (Per AF)	ZOS-XP-BGP			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Support for BGP Administrative Weights (Per AF)	ZOS-XP-BGP			XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
BGP Graceful Restart Graceful Restart Enhancement	ZOS-XP-BGP			XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Managed Objects for Border Gateway Protocol Version 4 (BGP-4) using BGPd	ZOS-XP-BGP	RFC 4273		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Bi-directional Forwarding Detection Trigger for BGP	ZOS-XP-BGP			XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Bi-directional Forwarding Detection Trigger for BGP+	ZOS-XP-BGP			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Routing Information Protocol (RIP)																												
Routing Information Protocol Version 1	ZOS-XP-RIP	RFC 1058		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Routing Information Protocol and Routing Information Protocol Version 2	ZOS-XP-RIP	RFC 2463		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Incremental Metrics When Sending Routes, Not When Receiving	ZOS-XP-RIP			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
PE-CE Extensions for RIP	ZOS-XP-RIP			XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
RIP-2 MDS Authentication	ZOS-XP-RIP	RFC 2382		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	Yes	Yes	Yes	
RIP v2 MIB Extension	ZOS-XP-RIP	RFC 1724		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Routing Information Protocol next generation (RIPng) for IPv6	ZOS-XP-RIP	RFC 2080		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
BGP Selective FIB Install	ZOS-XP-BGP			XP 1.4	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Open Shortest Path First (OSPF)																												
Open Shortest Path First Version 2	ZOS-XP-OSPF	RFC 2328		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Open Shortest Path First Version 3 (OSPFv3) for IPv6 Support	ZOS-XP-OSPF	RFC 5340	Section 4.9: no support for multiple interfaces on the same BGP	XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Open Shortest Path First Version 2 (OSPFv2) MIB	ZOS-XP-OSPF	RFC 4760 (discontinued RFC1850)	Section 3: OSPFv2SUPPORT, OSPFv2MULTICASTEXTENSION, OSPFv2DEMANDEXTENSIONS, OSPFv2BMTFUNCTION, OSPFv2DEMAND objects not supported	XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Applicability statement for OSPF	ZOS-XP-OSPF	RFC 1370		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPF opaque LSA option	ZOS-XP-OSPF	RFC 5250		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPFv2 Traffic Engineering (TE) Extensions to OSPF Version 2	ZOS-XP-OSPF	RFC 3630		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Alternate implementations of OSPF Area Border Routers	ZOS-XP-OSPF	RFC 3609		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Graceful OSPF Restart	ZOS-XP-OSPF	RFC 3623		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	Yes	No	No	
OSPF Database Overflow	ZOS-XP-OSPF	RFC 1765		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPF Enhancement to List Candidates List to a Binary Heap	ZOS-XP-OSPF			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPFv2 Multiple Instance Support	ZOS-XP-OSPF			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
OSPF ON DEMAND support for OSPFv2 and OSPFv3	ZOS-XP-OSPF	RFC 1793		XP 1.2	XP 1.3	Yes																				No		
OSPF Optimization of Manage/Refresh Worker	ZOS-XP-OSPF			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPF Enhancement for NESAAS-External and Reducing CPU Loads	ZOS-XP-OSPF			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPF Exponential Back-off	ZOS-XP-OSPF			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Prioritized Treatment of Specific OSPFv2 Packets and Congestion Avoidance	ZOS-XP-OSPF	RFC 4222	Section 2 (1): Recommendation 1. Classification of OSPF packets not supported	XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPF Scalability to 1000 Neighbors, 100,000 Routes, and 500 Nodes	ZOS-XP-OSPF			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPF as the Provider/Customer Edge Protocol for BGP/MPLS IP Virtual Private Networks	ZOS-XP-OSPF	RFC 4077	Section 4.2.2: BGP links not supported (optional according to the RFC)	XP 1.0	Partial	Partial		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Passive Interface Support for OSPFv2	ZOS-XP-OSPF	RFC 5185		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
OSPF Multi-Area Adjacency	ZOS-XP-OSPF	RFC 5185		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPF Multi-Instance Extensions	ZOS-XP-OSPF	ash-net-grow-top-github-21-04		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPF Database Exchange Summary List Distribution to OSPFv2 and v3	ZOS-XP-OSPF	RFC 5243		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPF Not-So-Stubby-Area (NSSA) Option	ZOS-XP-OSPF	RFC 3101		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Bi-directional Forwarding Detection Trigger for OSPFv2	ZOS-XP-OSPF			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
OSPF LSA Flooding	ZOS-XP-OSPF			XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	

			ZebOS XP				ZebOS																					
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Comment	Data plane integration																Comments				
								ZebOS 2.1(ZebOS version 7.16.1)				ZebOS 3.1 (ZebOS-XP version 1.1)				ZebOS 3.2 (ZebOS-XP version 1.2)				ZebOS 4.0 (ZebOS-XP version 1.3)				ZebOS 4.1(ZebOS-XP version 1.4)				
								PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56843	Marvell Prestera CX 8248B234	Marvell Prestera 98CX8129	Broadcom BCM56850	Broadcom BCM56843	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Broadcom BCM56850	Broadcom BCM56440	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56340		
OSPF: Restart Signaling	ZOS-XP-OSPF	draft-nguyen-cgfr-restart-05.txt		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
IP FRR: OSPF-LFA support for OSPFv2 and OSPFv3	ZOS-XP-OSPF	RFC 5286		XP 1.0.2	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPFv3 Exponential Back-off	ZOS-XP-OSPFv3			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Passive Interface Support in OSPFv3	ZOS-XP-OSPFv3			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Graceful Restart Mechanism for OSPFv3	ZOS-XP-OSPFv3	RFC 5187		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	Yes	No	
Traffic Engineering Extensions to OSPF Version 3	ZOS-XP-OSPFv3	RFC 5329		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
PE-CE Extensions for OSPFv3	ZOS-XP-OSPFv3			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
OSPFv3 MB	ZOS-XP-OSPFv3	RFC 5643		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Bidirectional Forwarding Detection Trigger for OSPFv3	ZOS-XP-OSPFv3			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Support for Multiple Address Families	ZOS-XP-OSPFv3	RFC 5838		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Bidirectional Forwarding Detection (BFD)																												
Bidirectional Forwarding Detection	ZOS-XP-BFD	RFC 5880		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Bidirectional Forwarding Detection - Multi-Top	ZOS-XP-BFD	RFC 5883		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Bidirectional Forwarding Detection for IPv6	ZOS-XP-BFD	RFC 5881		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Generic Application for BFD	ZOS-XP-BFD	RFC 5882		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
BFD Management Information Base	ZOS-XP-BFD	draft-left-td-mib-07.txt		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Bidirectional Forwarding Detection	ZOS-XP-BFD	draft-left-td-base-08.txt		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Bidirectional Forwarding Detection - Multi-Top	ZOS-XP-BFD	draft-left-td-multip-06.txt		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Bidirectional Forwarding Detection for IPv6	ZOS-XP-BFD	draft-left-td-ipv6-1-top-08.txt		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Intermediate System-to-Intermediate System (IS-IS)																												
Original ISO specification of IS-IS	ZOS-XP-ISIS	ISO 10589		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	Yes	Yes	
Use of OSI IS-IS for Routing in TCP/IP and Dual Environments	ZOS-XP-ISIS	RFC 1195		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Dynamic Hostname Exchange Mechanism for IS-IS	ZOS-XP-ISIS	RFC 3763		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	Yes	Yes	Yes	
IS-IS Extensions to Support of Generalized MPLS	ZOS-XP-ISIS	RFC 4205		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Restart Signaling for IS-IS	ZOS-XP-ISIS	draft-left-isis-restart-02.txt		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Routing (IPv6) with IS-IS	ZOS-XP-ISIS	draft-left-isis-ipv6-06.txt		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	Yes	No	No	
IS-IS Exponential Back-off of SPF	ZOS-XP-ISIS			XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Intermediate System to Intermediate System for IPv6	ZOS-XP-ISIS			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	Yes	No	No	
Passive Interface Support for IS-IS	ZOS-XP-ISIS			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	Yes	No	No	
Routing (IPv6) with IS-IS	ZOS-XP-ISIS	draft-left-isis-ipv6-06.txt		XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	Yes	No	No	
Bidirectional Forwarding Detection Trigger for IS-IS	ZOS-XP-ISIS			XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
IS-IS Mesh Groups	ZOS-XP-ISIS	RFC 2073		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Domain-wide Prefix Distribution with Two-Level IS-IS	ZOS-XP-ISIS	RFC 2966		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Three-Way Handshake for Intermediate System to Intermediate System (IS-IS) Peer-to-Peer Adjacencies	ZOS-XP-ISIS	RFC 3373		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
IS-IS extensions for Traffic Engineering	ZOS-XP-ISIS	RFC 3784		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Point-to-Point Operation over LAN or Link State Routing Protocols	ZOS-XP-ISIS	RFC 5309		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Restart Signaling for IS-IS	ZOS-XP-ISIS	RFC 6306		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
M-ISIS: Multi Topology (MT) Routing in IS-IS	ZOS-XP-ISIS	draft-left-isis-mt-multi-topology-13.txt		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
IS-IS Cryptographic Authentication	ZOS-XP-ISIS	RFC 3567		XP 1.0	XP 1.3	Yes		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
IS-IS Expanded Use of Overload Bit for BGP Convergence	ZOS-XP-ISIS	ZOS-XP-BGP		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Passive Interface Support for IS-IS	ZOS-XP-ISIS			XP 1.0	XP 1.3	Yes		No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	Yes	No	No	
Intermediate System to Intermediate System (IS-IS) Transient Blackhole Assistance	ZOS-XP-ISIS	RFC 3277		XP 1.0	No	No		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	

			ZebOS XP					ZebIC												
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Forwarder Support	Data plane integration												Comments
								ZebIC 2.1 (ZebOS version 7.10.1)			ZebIC 3.1 (ZebOS-XP version 1.1)			ZebIC 3.2 (ZebOS-XP version 1.2)	ZebIC 4.0 (ZebOS-XP version 1.3)	ZebIC 4.1(ZebOS-XP version 1.4)				
							Comments	PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Broadcom BCM56643	Broadcom BCM56440	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56340		
								Winpath-3	Trident+	Katana	Trident+	Katana	Triumph3	Triumph3	Katana	Lion2	Trident2	Helix4		
MPLS																				
MPLS Architecture	ZOS-XP-NSM, ZOS-XP-LDP [OR] ZOS-XP-RSVP-TE,	RFC 3031		XP 1.0	XP 1.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Ingress-LER (FTN), LSR (ILM) and Egress-LER functionality	
MPLS Label Stack Encoding	ZOS-XP-NSM, ZOS-XP-LDP [OR] ZOS-XP-RSVP-TE,	RFC 3032		XP 1.0	XP 1.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Ingress-LER (FTN), LSR (ILM) and Egress-LER functionality	
Multiprotocol Label Switching (MPLS) Label Switching Router (LSR) Management Information Base (MIB)	ZOS-XP-NSM, ZOS-XP-LDP [OR] ZOS-XP-RSVP-TE,	RFC 3813		XP 1.0	XP 1.3	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	Yes	No		
Multiprotocol Label Switching (MPLS) Forwarding Equivalence Class to Next Hop Label Forwarding Entry (FEC-To-NHLE) Management Information Base (MIB)	ZOS-XP-NSM, ZOS-XP-LDP [OR] ZOS-XP-RSVP-TE,	RFC 3814		XP 1.0	XP 1.3	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	Yes	No		
Time to Live (TTL) Processing in Multi-Protocol Label Switching (MPLS) Networks	ZOS-XP-NSM, ZOS-XP-LDP [OR] ZOS-XP-RSVP-TE,	RFC 3443		XP 1.0	No	No	Yes	No	No	No	No	No	No	No	No	No	Yes	No		
Label Distribution																				
Label Distribution Protocol	ZOS-XP-LDP	RFC 5036	ATM Label TLV [Section 3.4.2.2] Frame Relay TLV [Section 3.4.2.3] LDP Vendor Private Extension [Section 3.6.1]	XP 1.0	XP 1.3	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	LDP ECMP is not supported on the platform.	
LDP Applicability	ZOS-XP-LDP	RFC 3037		XP 1.0	XP 1.3	Yes	Yes	Yes	No	Yes	No	Yes	No	No	Yes	No	No	No		
Definitions of Managed Objects for Multiprotocol Label Switching (MPLS), Label Distribution Protocol (LDP)	ZOS-XP-LDP	RFC 3815	1) LDP Entity Statistics Table [Section 3.5.3] 2) The LDP Peer Table [Section 3.5.4] 3) The LDP Session Table 4) The LDP Session Statistics Table 5) The LDP Hello Adjacency Table	XP 1.0.1	XP 1.3	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	Yes	No		
Support for LDP TCP-MDS	ZOS-XP-LDP			XP 1.0	XP 1.3	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	Yes	No		
LDP Scalability: 300,000 LSPs (LERs and LSR) 500 Targeted peers	ZOS-XP-LDP			XP 1.1	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No		
Graceful Restart Mechanism for LDP	ZOS-XP-LDP	RFC 3478		XP 1.3	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	Yes	No	LDP-GR is an x86 feature.	
RSVP-TE and Diffserv																				
RSVP (support limited to RSVP-TE requirements)	ZOS-XP-RSVP-TE	RFC 2205	Security - Encryption -Section 2.8, Non-RSVP clouds -Section 2.9, Biocade State -Section 3.5, Traffic Policing and Non-Integrated Service hops - Section 3.8 & Multihomed Hosts - Section 3.9	XP 1.0	XP 1.3	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No		
Use of RSVP with IETF Integrated Services	ZOS-XP-RSVP-TE	RFC 2210		XP 1.0	XP 1.3	Yes	Yes	No	No	No	No	No	No	No	No	No	Partial	No	Policer per LSP supported	
Requirements for Traffic Engineering Over MPLS	ZOS-XP-RSVP-TE	RFC 2702	Induced MPLS Graph -Section 3.1, Bidirectional Traffic Trunks - Section 5.1, Accounting and Performance Monitoring - Section 5.3, Maximum Allocation Multiplier -Section 6.1	XP 1.0	XP 1.3	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No		
RSVP Refresh Overhead Reduction Extensions	ZOS-XP-RSVP-TE	RFC 2961	Message Bundling - Section 3.3, 3.4	XP 1.0	XP 1.3	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No		
RSVP-TE: Extensions to RSVP for LSP Tunnels	ZOS-XP-RSVP-TE	RFC 3209	Label request for ATM and Frame Relay - Section 4.2.2 and 4.2.3, Multi-Link considerations: Section 5.4	XP 1.0	XP 1.3	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No		
Applicability Statement for Extensions to RSVP for LSP-Tunnels	ZOS-XP-RSVP-TE	RFC 3210		XP 1.0	XP 1.3	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No		
Multi-Protocol Label Switching (MPLS) Support of Differentiated Services	ZOS-XP-RSVP-TE-DS	RFC 3270	MPLS Support of Diff-Serv over PPP, LAN, Non-LC-ATM and Non-LC-FR, LC-ATM interfaces, LC-FR - Section 7, 8, 9.	XP 1.0	XP 1.3	Yes	No	No	No	No	No	No	No	No	No	No	Yes	No		
Protocol Extensions for Support of Diff-Serv-aware MPLS Traffic Engineering	ZOS-XP-RSVP-TE-DS	RFC 4124		XP 1.0	XP 1.3	Yes	No	No	No	No	No	No	No	No	No	No	No	No		
Fast Reroute Extensions to RSVP-TE for LSP Tunnels	ZOS-XP-RSVP-FRR	RFC 4090		XP 1.0	XP 1.2	No	No	No	No	No	No	No	No	No	No	No	Yes	No		
RSVPv1 - Message Processing Rules	ZOS-XP-RSVP-TE	RFC 2209	Support only for RSVP-TE requirements. Non support for Biocade state block, Traffic Control State Block	XP 1.0	XP 1.2	No	Yes	No	No	No	No	No	No	No	No	No	No	No		
Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)	ZOS-XP-RSVP-TE	RFC 3812	mplsTunnelCRLDPreTable - Section 6.7	XP 1.0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	Yes	No		

			ZebOS XP					ZebIC												
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Forwarder Support	Data plane integration												Comments
								ZebIC 2.1 (ZebOS version 7.10.1)			ZebIC 3.1 (ZebOS-XP version 1.1)			ZebIC 3.2 (ZebOS-XP version 1.2)	ZebIC 4.0 (ZebOS-XP version 1.3)	ZebIC 4.1(ZebOS-XP version 1.4)				
							Comments	PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Broadcom BCM56643	Broadcom BCM56440	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56340		
RSVP-TE Scalability - 25,000 Tunnels	ZOS-XP-RSVP-TE			XP 1.1	XP 1.1	No	No	No	No	No	No	No	No	No	No	No	No	No		
Calculating Interior Gateway Protocol (IGP) Routes Over Traffic Engineering Tunnels	ZOS-XP-NSM, ZOS-XP-RSVP-TE, ZOS-XP-OSPF-CSPF	RFC 3906		XP 1.0	XP 1.2	No	No	No	No	No	No	No	No	No	No	No	No	No		
Extensions to Resource Reservation Protocol - Traffic Engineering (RSVP-TE) for Point-to-Multipoint TE Label Switched Paths (LSPs)	ZOS-XP-RSVP-TE	RFC 4875	Setup / teardown of multiple S2L-SubLSPs using single message, sections 4.5, 5.2.1, 5.2.2, 5.2.3: SERO, SRRO not supported GMPLS Extensions, section 8 Usage of Integrity Bit, section 5.2.4 One-to-One Backup, section 15.2	XP 1.0	XP 1.3	Yes	No	No	No	No	No	No	No	No	No	No	No	No		
L2VPN (VPWS and VPLS)																				
Pseudowire Setup and Maintenance using the Label Distribution Protocol	ZOS-XP-LDP-VC	RFC 4447		XP 1.0	XP 1.3	Yes	Yes	MPLS-SWFWDR supports basic Ethernet and VLAN PW forwarding functionality	No	No	Yes	No	Yes	Yes	Yes	Yes	No	Yyes	No	
Encapsulation Methods for Transport of Ethernet Over MPLS Networks	ZOS-XP-LDP-VC	RFC 4448	1) Frame ordering [Only section 4.1, 4.2 are supported] 2)Sequencing of Frames using Control word [Section 4.6]	XP 1.0	XP 1.3	Yes	Yes	MPLS-SWFWDR supports basic Ethernet and VLAN PW forwarding functionality	No	No	Yes	No	Yes	No	No	Yes	No	Yes	No	
Structure-Aware Time Division Multiplexed (TDM) Circuit Emulation Service over Packet Switched Network (CESoPSN)	ZOS-XP-TDMoMPLS	RFC 5086	1)Layer 2 Tunneling Protocol Version 3 [Section 4.1] 2)Basic NcDSO Services [Section 5.2] 3)Extending Basic NcDSO Services with CE Application Signaling [Section 5.3] 4) Trunk-Specific NcDSO Services with CAS [Section 5.4]	XP 1.0	No	No	No		No	No	No	No	No	No	No	No	No	No	No	
Structure-Agnostic Time Division Multiplexing (TDM) over Packet (SAToP)	ZOS-XP-TDMoMPLS	RFC 4553	1)L2TPv3 PW demultiplexing [Section 4.3] 2) Time stamp generation in RTP header [Section 4.3.2]	XP 1.0	No	No	No		No	No	No	No	No	No	No	No	No	No	No	
Control Protocol Extensions for Setup of TDM Pseudowires in MPLS Networks	ZOS-XP-TDMoMPLS	draft-ietf-pwe3-tdm-control-protocol-extensi-07		XP 1.0	No	No	No		No	No	No	No	No	No	No	No	No	No	No	
Segmented Pseudowire	ZOS-XP-LDP-VC	draft-ietf-pwe3-segmented-pw-13.txt	MS-PW Setup using LDP using the generalized FEC 129 [Section 7] MS-PW Switching: Switching between a static and a dynamic LDP control plane [Section 7.2] Switching between LDP using FEC 128 and LDP using the generalized FEC 129 [Section 7.4] LDP Using FEC 128 to LDP Using the Generalized FEC 129 [Section 7.3] LDP SP-PE TLV [Section 7.4] Group ID [Section 7.5] PW Loop Detection [Section 7.6] MPLS-PW to L2TPv3-PW Control Plane Switching [Section 8] Operations, Administration, and Maintenance (OAM) [Section 9] Extensions to VCCV to Support MS-PWs [Section 9.1] OAM from MPLS PW to L2TPv3 PW [Section 9.2] Signaling OAM Capabilities for Switched Pseudowires [Section 9.4] OAM Capability for MS-PWs Demultiplexed Using MPLS [Section 9.5]	XP 1.0	XP 1.3	Yes	No		No	No	No	No	No	No	No	No	No	No	No	
Multi Segment Pseudowire (PW)	ZOS-XP-LDP-VC	RFC 5659	Sections are not supported 7, 8, 9.2, 9.3, 10, 11, 12	XP 1.0	No	No	No		No	No	No	No	No	No	No	No	No	No	No	
Pseudowire (PW) Management Information Base (MIB)	ZOS-XP-LDP-VC	RFC 5601	Tables: pwPerformanceTable pwPerfCurrentTable pwPerfIntervalTable pwPerfDayIntervalTable pwIndexMappingTable pwPeerMappingTable Scalars: pwGenFecIndexMappingTable NOTIFICATIONS pwDown NOTIFICATION-TYPE pwUp NOTIFICATION-TYPE pwDeleted NOTIFICATION-TYPE	XP 1.0	XP 1.3	Yes	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	No		

			ZebOS XP					ZebIC													
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Forwarder Support	Data plane integration												Comments	
								ZebIC 2.1 (ZebOS version 7.10.1)			ZebIC 3.1 (ZebOS-XP version 1.1)			ZebIC 3.2 (ZebOS-XP version 1.2)	ZebIC 4.0 (ZebOS-XP version 1.3)	ZebIC 4.1(ZebOS-XP version 1.4)					
							Comments	PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Broadcom BCM56643	Broadcom BCM56440	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56340			
Pseudowire (PW) over MPLS PSN Management Information Base (MI)	ZOS-XP-LDP-VC	RFC 5602	1) PW to Non-TE mapping Table. 2) PW to TE MPLS tunnels mapping Table	XP 1.0	XP 1.3	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	No			
Ethernet Pseudowire (PW) Management Information Base (MI)	ZOS-XP-LDP-VC	RFC 5603	1) Ethernet PW Statistics Table	XP 1.0	XP 1.3	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	No			
Pseudowire Redundancy	ZOS-XP-LDP-VC	Pseudowire Redundancy(RFC 6718) draft-ietf-pwe3-redundancy-bit-03.txt (RFC 6870)	1)ZebOS does not support "PW Redundancy for S-PE Protection". Section 3.2.3 of draft-ietf-pwe3-redundancy-09 draft-ietf-pwe3-redundancy-09 2) ZebOS does not support "PW Redundancy for PE Protection in a VPLS Ring using SS-PWs". Section 3.2.5 of draft-ietf-pwe3-redundancy-09 draft-ietf-pwe3-redundancy-09 3) ZebOS does not support "PW Redundancy for VPLS n-PE Protection using SS-PWs". Section 3.2.6 of draft-ietf-pwe3-redundancy-09 draft-ietf-pwe3-redundancy-09 4)There is no support of control protocol between PE-CE to determine the active/standby AC. draft-ietf-pwe3-redundancy-09 speaks of a possible control protocol for this but that is outside its scope. draft-ietf-pwe3-redundancy-09 5)ZebOS does not support "Standby PW forwarding OAM traffic". draft-ietf-pwe3-redundancy-09 6)When PW switchover happened in MTU's. MAC Address flush is not supported in this release. draft-ietf-pwe3-redundancy-09 7)ZebOS doesn't support this "An OPTIONAL, locally configured precedence to govern the selection of a PW when more than one PW qualify for the active state" draft-ietf-pwe3-redundancy-bit-07 8)ZebOS does not support "PW Request Switchover Status" bit. It only supports "PW Preferential Forwarding Status" bit. draft-ietf-pwe3-redundancy-bit-07	XP 1.0	XP 1.3	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No		
Pseudowire Emulation Edge-to-Edge (PWE3) Control Word for Use over an MPLS PSN	ZOS-XP-LDP-VC	RFC 4385		XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	Yes	No			
Virtual Private LAN Service (VPLS) Using Label Distribution Protocol (LDP) Signaling	ZOS-XP-VPLS	RFC 4762	1) VPLS encapsulation actions [Section 7.1] 2)Multi-domain VPLS Service [Section 10] 3) Hierarchical VPLS Model Using Ethernet Access Network - Dual homing and failure recovery[Section 11]	XP 1.0	XP 1.3	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	Yes	No			
Virtual Private LAN Service (VPLS) Using BGP for signaling and auto-discovery	ZOS-XP-VPLS-DUAL	RFC 4761	1)Multi-AS VPLS [Section 3.4] 2)Multi-homing Path Selection [Section 3.5] 3)Hierarchical BGP VPLS [Section 3.6]	XP 1.0	XP 1.3	Yes	No	No	No	No	No	No	No	No	No	No	No	No			
Provisioning, Auto-Discovery, and Signaling in Layer 2 Virtual Private Networks (L2VPNs)	ZOS-XP-VPLS-DUAL	RFC 6074	1)Pseudowires as VPLS Attachment Circuits [Section3.2.4] 2)Colored Pools: Full Mesh of Point-to-Point Pseudowires [Section 3.3] 3)Colored Pools: Partial Mesh [Section 3.4] 4)Distributed VPLS [Section 3.5] 5)Inter-AS Operation [Section 4] 6)BGP-AD and VPLS-BGP Interoperability [Section 7]	XP 1.2	XP 1.3	Yes	No	No	No	No	No	No	No	No	No	No	No	No			
L2VPN Scalability: 25K PWs, 3K VPLS VSIs 8 PWs per VSI				XP 1.1	No	No	No	No	No	No	No	No	No	No	No	No	No	No			

			ZebOS XP					ZebIC												
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Forwarder Support	Data plane integration												Comments
								ZebIC 2.1 (ZebOS version 7.10.1)			ZebIC 3.1 (ZebOS-XP version 1.1)			ZebIC 3.2 (ZebOS-XP version 1.2)	ZebIC 4.0 (ZebOS-XP version 1.3)	ZebIC 4.1(ZebOS-XP version 1.4)				
							Comments	PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Broadcom BCM56643	Broadcom BCM56440	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56340		
L3VPN																				
BGP MPLS IPv4 VPN	ZOS-XP-BGPVPXN	RFC 4364 RFC 3107	Multi-path support for MPLS-VPNs Per-VRF label allocation (section 4.3.2) Use of Route Reflectors (section 4.3.3)	XP 1.2	XP 1.3	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No		
BGP-MPLS IP Virtual Private Network (VPN) Extension for IPv6 VPN	ZOS-XP-6VPE	RFC 4659	Multi-path support for MPLS-VPNs Per-VRF label allocation (section 4.3.2)	XP 1.0	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
Connecting IPv6 Islands over IPv4 MPLS Using 6PE	ZOS-XP-6PE	RFC 4798		XP 1.0	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
MPLS OAM																				
OAM for MPLS Networks	ZOS-MPLS-OAM	RFC 4377		XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No		
A Framework for MPLS OAM	ZOS-MPLS-OAM	RFC 4378		XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No		
Detecting MPLS Data Plane Failures	ZOS-MPLS-OAM	RFC 4379		XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No		
BFD For MPLS LSPs	ZOS-MPLS-OAM	draft-ietf-bld-mpls-07.txt		XP 1.0	XP 1.3	Yes	No	No	No	No	No	No	No	No	No	No	No	No		
Bidirectional Forwarding Detection (BFD) for the Pseudowire Virtual Circuit Connectivity Verification (VCCV)	ZOS-MPLS-OAM	draft-ietf-pwe3-vccv-bld-07	Support of IPv6 LSPs/VC, section 3.2; supported for IPv4 LSPs/VCs BFD VCCV for L2TPv3, section 5.3; L2TPv3 is not supported Congestion, section 6; implemented for SWFWDR only Security considerations, section 7; LDP module supports MD5 authentication BFD VCCV for LDP signaled PW	XP 1.0	No	No	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No	Only BFD CV-type (v1.0) is supported. (BFD, PW-ACH Encapsulation)	
Pseudowire Virtual Circuit Connectivity Verification (VCCV)	ZOS-MPLS-OAM	RFC 5085	Only "LSP Ping" CV Type supported, sections 4, 5.2.1 VCCV for L2TPv3, sections 6, 8.3; L2TPv3 is not supported Congestion, section 9; implemented for SWFWDR only Security considerations, section 10; LDP module supports MD5 authentication	XP 1.0	No	No	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No	Only CC-type 0x01 is supported. (Type 1: PW/E3 Control Word with 0001b as first nibble)	
PW Status for Static PW	ZOS-MPLS-OAM	RFC 6478		XP 1.0	XP 1.3	Yes	No	No	No	No	No	No	No	No	No	No	No	No		

			ZebOS XP					ZebIC													
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Forwarder Support	Data plane integration												Comments	
								ZebIC 2.1 (ZebOS version 7.10.1)			ZebIC 3.1 (ZebOS-XP version 1.1)			ZebIC 3.2 (ZebOS-XP version 1.2)	ZebIC 4.0 (ZebOS-XP version 1.3)	ZebIC 4.1(ZebOS-XP version 1.4)					
							Comments	PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Broadcom BCM56643	Broadcom BCM56440	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56340			
MPLS TP																					
MPLS TP frame work	ZOS-MPLS-TP-IETF, ZOS-MPLS-TP-ITU, ZOS-MPLS-TP-IETF-ITU	RFC 5921		XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
MPLS Generic Associated Channel	ZOS-MPLS-TP-IETF, ZOS-MPLS-TP-ITU, ZOS-MPLS-TP-IETF-ITU	RFC 5586	"ACH TLV may be included in the ACH message"; section 3: not supported	XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
Requirements of an MPLS Transport Profile	ZOS-MPLS-TP-IETF	RFC 5654	"MPLS-TP MUST support P2MP transport path"; section 2.1: no infrastructure for MPLS-TP P2MP tunnel supportConcatenated Segment, definition section; No support for MS-PW with MPLS TP Dynamic Control plane based provisioning of MPLS TP tunnel, section 2.1.1 8th point, 2.4: standards are evolving for this feature Native service for Client MPLS, ATM, FR eth, section 2.1.30th point: supports native service only for IP, Ethernet, Ethernet + VLAN; legacy support for PPP and HDLC exists in ZebOS, but is not tested with MPLS-TP Server layers other than Ethernet, section 2.1.31st point: supports only Ethernet as server layer of MPLS-TPProtection and restoration mechanisms support, section 2.5 MPLS-TP Network management, section 3.1: only CLI based configuration is supported	XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
MPLS Transport Profile Data Plane Architecture	ZOS-MPLS-TP-IETF	RFC 5960	Section support other than data link section, section 3.2: only data link section support is provided with the control plane support only in the tunnel head node Multi segment Pseudo wires, section 3.3: MS-PW support exists in ZebOS for MPLS, but is not integrated with MPLS-TP	XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
Operations, Administration and Maintenance Framework for MPLS-based Transport Networks	ZOS-MPLS-TP-IETF	RFC 5960		XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
MPLS On-demand Connectivity Verification and Route Tracing	ZOS-MPLS-TP-IETF	RFC 6426	ITU Carrier Code (ICC) identifiers are not supported	XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
Proactive Connectivity Verification, Continuity Check and Remote Defect Indication for MPLS Transport Profile	ZOS-MPLS-TP-IETF	draft-ietf-mpls-tp-cc-cv-rd-03.txt	Sections 3.5.2 – 3.5.4: Defect entry criteria, defect entry consequent action, and defect exit criteria are not supported When the session is in DOWN or INIT state, messages should be transmitted at a rate of one per second, section 3.5.1: messages are transmitted per the configured TX values LSP-Ping with IP encapsulation, On-demand CV with IP encapsulation over ACH, On-demand LSP Route Tracing with IP encapsulations, sections 3.2, 3.3, and 4.1: not supported	XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
MPLS-TP Identifiers	ZOS-MPLS-TP-IETF	RFC 6370		XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
Packet Loss and Delay Measurement for MPLS Networks	ZOS-MPLS-TP-IETF	RFC 6374	Unidirectional measurement, dyadic measurement, loss and delay measurements to and from an intermediate node and measurements from different transmit and receive nodes is not supported, sections 2.6, 2.7, 2.8.5, and 2.9.6: RFC 6075 supports only in-band responses by default, therefore measurements from different transmit and receive nodes are not supported	XP 1.0	XP 1.3	Yes	No	Only control-plane implementation is available. Data-plane support is not available.	No	No	No	No	No	No	No	No	No	No			
Packet Loss & Delay Measurements for MPLS-TP networks	ZOS-MPLS-TP-IETF	RFC 6375		XP 1.0	XP 1.3	Yes	No	Only control-plane implementation is available. Data-plane support is not available.	No	No	No	No	No	No	No	No	No	No			
MPLS Fault Management Operations, Administration, and Maintenance (OAM)	ZOS-MPLS-TP-IETF	RFC 6427		XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
MPLS Transport Profile Lock Instruct and Loopback Functions	ZOS-MPLS-TP-IETF	RFC 6435		XP 1.0	XP 1.3	Yes	Yes	Only control-plane implementation is available. Data-plane support is not available.	No	No	Yes	No	Yes	No	No	Yes	No	No			
MPLS Transport Profile (MPLS-TP) Linear Protection	ZOS-MPLS-TP-IETF	RFC 6378		XP 1.0	XP 1.3	Yes	Yes	1+1 protection switching scheme is not supported	No	No	Yes	No	Yes	No	Yes	No	No	No	1+1 protection switching scheme is not supported.		
MPLS TP identifiers following ITU conventions	ZOS-MPLS-TP-ITU	draft-ietf-mpls-tp-itu-identifiers-03		XP 1.0	XP 1.3	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	No	No			
MPLS TP OAM based on Y1731 (CCM, AIS, LCK, LM, LDM, LOM, LBM, LBR, TST,)	ZOS-MPLS-TP-ITU	draft-bhh-mpls-tp-oam-y1731-08	The Client Signal Fail (CSF) protocol, sections 4.9 and 5.9: not supported	XP 1.0	XP 1.3	Yes	Yes	Partial: s86-MPLS-SWFWDR Only control-plane implementation is available for LM, LDM and LOM. Data-plane support is not available.	No	No	Yes	No	Yes	No	No	Yes	No	No	LM, LDM and LOM. Data-plane support is not available.		
MPS TP ITU-T-based Linear Protection Switching	ZOS-MPLS-TP-ITU	ITU-T Recommendation G.8131/Y.1362 (2007) – Amendment 1	T-MPLS SNC protection, section 7.2: no support for MPLS-TP sub-LSP, therefore no LPS support for SNC	XP 1.0	XP 1.3	Yes	Yes	1+1 protection switching scheme is not supported on the MPLS-SWFWDR.	No	No	Yes	No	Yes	No	Yes	No	No	No	1+1 protection switching scheme is not supported.		
MPLS-TP Ring Protection Switching (MRPS)	ZOS-MPLS-TP-IETF, ZOS-MPLS-TP-IETF-ITU	draft-helicon-mpls-tp-ring-protection-switching-03.txt	Section 3.1.2: p-t-p wrapping protection scheme for link and node failures	XP 1.0	XP 1.3	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No			

			ZebOS XP					ZebIC													
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Forwarder Support		Data plane integration												Comments
									ZebIC 2.1 (ZebOS version 7.10.1)			ZebIC 3.1 (ZebOS-XP version 1.1)			ZebIC 3.2 (ZebOS-XP version 1.2)	ZebIC 4.0 (ZebOS-XP version 1.3)	ZebIC 4.1(ZebOS-XP version 1.4)				
								Comments	PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56643	Broadcom BCM56643	Broadcom BCM56440	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56340		
Multi Segment Pseudowire (PW)	ZOS-XP-STATIC-VC	RFC 5659	Below sections are not supported 7, 8, 9.2, 9.3, 10, 11, 12	XP 1.3	No	No	No		No	No	Yes	No	Yes	No	No	Yes	No	No	No	MS-PW only for MPLS-TP is supported on 56440, dynamic signalling of MS-PW is not supported.	
Encapsulation Methods for Transport of Ethernet Over MPLS Networks	ZOS-MPLS-TP-IETF, ZOS-MPLS-TP-IETF-ITU	RFC 4448	Only sections 4.1, 4.2, 4.3, 4.4.1 are supported	XP 1.3	No	No	No		No	No	Yes	No	Yes	No	No	Yes	No	No	No		
Segment Routing																					
Segment Routing Framework	ZOS-XP-SR	draft-ietf-spring-segment-routing-03 draft-ietf-spring-segment-routing-mpls-01	HGP-Adjacency Segment BGP Peering Segments Binding Segment	XP 1.3	XP 1.3	Yes	Yes	N/A									No	No	No		
OSPF Segment Routing Extensions	ZOS-XP-SR	draft-ietf-ospf-segment-routing-extensions-04 draft-ietf-ospf-prefix-attr-04	SID/Label Binding Sub-TLV Adjacency Segment Identifier	XP 1.3	XP 1.3	Yes	Yes	N/A									No	No	No		

				ZebOS-XP				ZebOS																				
Feature	SKU	Standard	Sub-features not supported	Version first supported	Previous version validated	ZebOS-XP 1.4	Comment	Data plane integration																				
								ZebOS 2.1 (ZebOS version 7.10.1)				ZebOS 3.1 (ZebOS-XP Version 1.1)				ZebOS 3.2 (ZebOS-XP version 1.2)				ZebOS 4.0 (ZebOS-XP version 1.3)				ZebOS 4.1 (ZebOS-XP version 1.4)				
								PMC-Serra	Broadcom BCM5644	Broadcom BCM5640	Broadcom BCM5646	Broadcom BCM5640	Broadcom BCM5643	Marvell Prestera CX 8248/8234	Marvell Prestera 86CX8129	Broadcom BCM5640	Broadcom BCM5643	Marvell Prestera 86CX8236	Marvell Prestera 86CX8129	Broadcom BCM5640	Broadcom BCM5644	Marvell Prestera 86CX8236	Marvell Prestera 86CX8129	Marvell Prestera 86CX8236	Broadcom BCM5640	Broadcom BCM5643	Comments	
								Winpath-3	Tidense	Katana	Tidense+	Katana	Triumph3	Lion	Hooper	Tidense2	Triumph3	Lion2	Hooper	Tidense2	Katana	Lion2	Hooper	Lion2	Tidense2	Hooper4		

ZebHA									
Feature	SKU	Standard	Sub-features not supported	SSO	HA-GR	Version first supported	Previous version validated	Zeb-HA 1.1	Comments
Bridge									
Bridge	ZOS-XP-NSM-HA			Yes	NA	ZebHA 1.1	No	Yes	Basic functionality tested.
VLAN									
Port based VLANs		IEEE 802.1Q (2005)		No	NA				
IP Subnet-based VLANs				No	NA				
Private VLAN				No	NA				
VLAN Classifier		IEEE 802.1v		No	NA				
Spanning Tree									
STP	ZOS-XP-L2-xSTP-HA	IEEE 802.1D (2004)		Yes	NA	ZebHA 1.1	No	Yes	Basic functionality tested. With complex scenarios and topologies still some issues are open.
MSTP	ZOS-XP-L2-xSTP-HA	IEEE 802.1Q (2005): Clause 13		Yes	NA	ZebHA 1.1	No	Yes	Basic functionality tested. With complex scenarios and topologies still some issues are open.
RSTP	ZOS-XP-L2-xSTP-HA	IEEE 802.1D (2004): Clause 17		Yes	NA	ZebHA 1.1	No	Yes	Basic functionality tested. With complex scenarios and topologies still some issues are open.
RPVST+		Cisco version of Spanning tree/Rapid spanning tree		No	NA				
Disable Spanning Tree on specific instance	ZOS-XP-L2-xSTP-HA			Yes	NA	ZebHA 1.0	No	No	Not tested
Support for 64 MSTP Instances	ZOS-XP-L2-xSTP-HA			Yes	NA	ZebHA 1.0	Yes	Yes	Scalability not tested.
MIB-II		RFC 1213		No	NA				
Definition of Managed Objects for Bridges		RFC 4188		No	NA				
Definition of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions		RFC 4363		No	NA				
Definitions of Managed Objects for Bridges with RSTP		RFC 4318		No	NA				
MSTP MIB		draft-mahotra-mstp-mib-01.txt		No	NA				
LACP									
Link Aggregation	ZOS-XP-L2-LACP-HA	IEEE 802.1AX-REV-D3.1		Yes	NA	ZebHA 1.1	No	Yes	LACP SSO basic functionality tested. Many issues are open/To be fixed and to be re-tested.
LACP MIB		IEEE 802.1AX-REV-D3.1		No	NA				
BGP									
BGP	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 4271		Yes	Yes	ZebHA 1.1	No	Yes	Basic BGP SSO and HA-GR functionality tested. All BGP sub features Scalability has Issues to be addressed and to be re-tested.
BGP Community Attributes	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 1997		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
BGP Route Flap Damping	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 2439		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
BGP Route Reflection	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 4456		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
BGP Route Server Update for BGP MPLS VPN for IPv4				No	No				
Using a Link State Advertisement Options Bit to Prevent Looping in BGP/MPLS IP Virtual Private Networks		RFC 4576		No	No				
Autonomous System Confederation for BGP	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 5065		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
Carrying Label Information in BGP		RFC 3107		No	No				
Capabilities Negotiation with BGP-4	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 2842		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
Application of BGP-4 in the internet		RFC 1772		No	No				
Protection of BGP Sessions via the TCP MD5 Signature Option	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 2385		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.

ZebHA									
BGP-4 Multiprotocol Extensions for BGP-4		RFC 4760		No	No				
Capabilities advertisement with BGP-4	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 3392		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
Route Refresh capability for BGP-4	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 2918		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
BGP Extended communities attributes	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 4360		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
Graceful Restart Mechanism for BGP with MPLS		RFC 4781		No	No				
Outbound Route Filtering Capability for BGP-4	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 5291		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
BGP Support for Four Octet AS number space	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 4893		Yes	Yes			No	Not tested. Not in the initial BGP-HA-GR/HA-SSO scope
Subcodes for BGP Cease Notification	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 4486		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
4-Byte AS-Specific Extended Communities	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	draft-ietf-3vpn-as4octet-ext-community-03.txt		Yes	Yes				Not tested. Not in the initial BGP-HA-GR scope
Address-prefix-based outbound route filter for BGP-4	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 5292		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
Graceful BGP Session Shutdown		draft-ietf-grow-bgp-gshut-03		NA	NA				
BGP Support for Next-Hop Address Tracking	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR			Yes	Yes				Not tested. Not in the initial BGP-HA-GR scope
BGP Next-Hop Trigger Delay Timer	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR			Yes	Yes				Not tested. Not in the initial BGP-HA-GR scope
BGP Internal and External Distance Configuration per AFI	SSO: ZOS-XP-BGP-HA-SSO HA-GR: ZOS-XP-L3-HA-GR			Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested for IPv4 Internal and External Distance Only. Not tested per AFI
Managed Object for BGP-4 using SMIv2		RFC 4273		No	No				
BFD Trigger for BGP				No	No				
OSPF									
OSPFv2	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 2328		Yes	Yes	ZebHA 1.1	No	Yes	Basic OSPFv2 SSO and HA-GR functionality tested. All OSPFv2 sub features Scalability has Issues to be addressed and re-tested.
OSPFv2 MIB		RFC 4750		No	No				
Applicability statement for OSPF		RFC 1370		NA	NA				
OSPF Opaque LSA option	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 5250		Yes	Yes				Not tested separately. Not in the initial OSPF SSO / HA-GR scope Not sure about the support.
OSPF-TE		RFC 3630		No	No				
Alternate implementation of OSPF Area Border Routers	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 3509		Yes	Yes				Not tested. Not in the initial OSPF SSO / HA-GR scope
OSPF Database Overflow	HA-GR: ZOS-XP-L3-HA-GR	RFC 1765		No	Yes				Not tested. Not in the initial OSPF SSO / HA-GR scope
OSPFv2 Multiple Instance Support	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR			Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
OSPFv2 On Demand Support	HA-GR: ZOS-XP-L3-HA-GR	RFC 1793		No	Yes				Not tested. Not in the initial OSPF HA-GR scope

ZebHA									
OSPF Optimization of Message/Refresh Walker	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR			Yes	Yes				Not tested. Not in the initial OSPF HA-GR scope
OSPF enhancement for NSSA/AS-External and Reducing CPU Loads	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR			Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested. Performance testing not done.
OSPF Exponential backoff	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR			Yes	Yes				Not tested. Not in the initial OSPF SSO / HA-GR scope
PE-CE Extensions for OSPFv2				No	No				
Prioritized treatment of Specific OSPFv2 Packets and Congestion Avoidance	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 4222		Yes	Yes				Not tested.
OSPF Scalability to 1000 Neighbors, 100000 Routes and 500 Nodes				No	No				
OSPF as the Provider/Customer Edge Protocol for BGP/MPLS IP VPN		RFC 4577		No	No				
Passive Interface Support for OSPFv2	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR			Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
OSPF Multi-Area Adjacency	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 5185		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
OSPF Multi instance extensions		draft-ace-ospf-multi-instance-21.txt		No	No				
OSPF database exchange Summary List Optimization in OSPFv2.	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 5243		Yes	Yes				Not tested.
OSPF Not-So-Stubby-Area Option	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 3101		Yes	Yes	ZebHA 1.0	Yes	Yes	Functionality tested.
BFD trigger for OSPFv2				No	No				
OSPF LSA Throttling	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR			Yes	Yes				
IP FRR: OSPF-LFA Support for OSPFv2		RFC 5286		No	No				
Support for Multiple Address Families	SSO: ZOS-XP-OSPF-HA-SSO HA-GR: ZOS-XP-L3-HA-GR	RFC 5838		Yes	Yes				Not tested.
ISIS									
Dynamic hostname exchange Mechanism for IS-IS	ZOS-XP-L3-HA-GR	RFC 2763		No	Yes				Not tested
IS-IS Extension in support of Generalized MPLS	ZOS-XP-L3-HA-GR	RFC 4205		No	Yes				Not tested Not in the initial ISIS / HA-GR scope
BFD Trigger for IS-IS	ZOS-XP-L3-HA-GR			No	Yes				Not tested Not sure about this support in HA-GR.
IS-IS Mesh Groups	ZOS-XP-L3-HA-GR	RFC 2973		No	Yes				Not tested Not in the initial ISIS / HA-GR scope
Domain-wide Prefix Distribution with Two-Level IS-IS	ZOS-XP-L3-HA-GR	RFC 2966		No	Yes				Basic functionality tested for multiple level type.
Three-Way handshake for IS-IS Point to Point Adjacencies	ZOS-XP-L3-HA-GR	RFC 3373		No	Yes				Not tested
IS-IS extension for Traffic Engineering	ZOS-XP-L3-HA-GR	RFC 3784		No	Yes				Not tested
IS-IS extension in support for generalized MPLS	ZOS-XP-L3-HA-GR	RFC 4205		No	Yes				Not tested Not in the initial ISIS / HA-GR scope
Point to Point Operation over LAN in Link State Routing Protocols	ZOS-XP-L3-HA-GR	RFC 5309		No	Yes				Not tested
Multi Topology Routing in IS-IS	ZOS-XP-L3-HA-GR	draft-ietf-isis-wg-multi-topology-11.txt		No	Yes				Not tested Not in the initial ISIS / HA-GR scope
IS-IS Cryptographic Authentication	ZOS-XP-L3-HA-GR	RFC 3567		No	Yes				Not tested
IS-IS Exponential Back-off of SPF	ZOS-XP-L3-HA-GR			No	Yes				Not tested

ZebHA									
IS-IS Extended Use of Overload Bit for BGP Convergence	ZOS-XP-L3-HA-GR			No	Yes				Not tested
Passive interface support for IS-IS	ZOS-XP-L3-HA-GR			No	Yes	ZebHA 1.1	No	Yes	Basic functionality tested.
IS-IS Transient Blackhole Avoidance	ZOS-XP-L3-HA-GR	RFC 3277		No	Yes				Not tested
Use of OSI IS-IS for routing in TCP/IP and Dual Environments		RFC 1195		No	Yes	ZebHA 1.1	No	Yes	Basic functionality tested but Not tested for Dual Environments Not sure about this support in HA-GR.
Management Information Base for IS-IS	ZOS-XP-L3-HA-GR	draft-ietf-isis-wg-mib-09.txt		No	Yes				Not tested
LDP									
LDP Applicability	SSO: ZOS-XP-LDP-HA-SSO HA-GR: ZOS-XP-MPLS-HA-GR	RFC 3037		Yes	Yes	ZebHA 1.1	No	Yes	Basic functionality tested
Definition of Managed Objects for MPLS LDP		RFC 3815		No	No				
Label Distribution Protocol	SSO: ZOS-XP-LDP-HA-SSO HA-GR: ZOS-XP-MPLS-HA-GR	RFC 5036		Yes	Yes	ZebHA 1.1	No	Yes	Basic functionality tested. For ALL MPLS LDP SSO and HA-GR many issues still Open /to be fixed. To be re-tested. Scalability Not tested.
Support for LDP TCP-MD5	SSO: ZOS-XP-LDP-HA-SSO HA-GR: ZOS-XP-MPLS-HA-GR			Yes	Yes	ZebHA 1.1	No	Yes	Basic functionality tested
RSVP									
Use of RSVP with IETF Integrated Services	ZOS-XP-MPLS-HA-GR	RFC 2210		No	Yes	ZebHA 1.1	No	Yes	Basic functionality tested
RSVP Traffic Engineering	ZOS-XP-MPLS-HA-GR	RFC 2702		No	Yes	ZebHA 1.1	No	Yes	Basic functionality tested
RSVP Refresh Overhead reduction extensions	ZOS-XP-MPLS-HA-GR	RFC 2961		No	Yes	ZebHA 1.1	No	Yes	Basic functionality tested
RSVP-TE: Extensions to RSVP for LSP Tunnels	ZOS-XP-MPLS-HA-GR	RFC 3209		No	Yes	ZebHA 1.1	No	Yes	Basic functionality tested
Applicability Statement for Extensions to RSVP for LSP Tunnels	ZOS-XP-MPLS-HA-GR	RFC 3210		No	Yes	ZebHA 1.1	No	Yes	Basic functionality tested
Fast Reroute Extensions to RSVP-TE for LSP Tunnels	ZOS-XP-MPLS-HA-GR	RFC 4090		No	Yes	ZebHA 1.1	No	No	Not tested due to some basic issues in RSVP-GR functionality.
RSVPPv1 - Message Processing Rules	ZOS-XP-MPLS-HA-GR	RFC 2209		No	Yes	ZebHA 1.1	No	Yes	Basic functionality tested
MPLS TE Management Information Base		RFC 3812		No	No				
Calculating IGP Routes Over Traffic Engineering Tunnels		RFC 3906		No	No				
Resource Reservation Protocol	ZOS-XP-MPLS-HA-GR	RFC 2205		No	Yes	ZebHA 1.1	No	Yes	Basic functionality tested. For ALL MPLS RSVP HA-GR many issues still Open /to be fixed. To be re-tested. Scalability Not tested.
RSVP-TE for Point to Multipoint TE Label Switched Paths		RFC 4875		No	No				
L2VPN									
Encapsulation methods for Transport of Ethernet Over MPLS Networks	ZOS-XP-LDP-HA-SSO	RFC 4448		Yes	NA	ZebHA 1.1	No	Yes	Basic functionality tested.
Structure-Aware TDM Circuit Emulation Service over packet switched Network		RFC 5086		No	NA				
Structure-Agnostic Time Division Multiplexing Over Packet		RFC 4553		No	NA				
Control Protocol Extensions for Setup of TDM Pseudowires in MPLS Networks		draft-ietf-pwe3-tdm-control-protocol-extension-07		No	NA				
Segmented Pseudowire		draft-ietf-pwe3-segmented-pw-13.txt		No	NA				
Multi Segment Pseudowire		RFC 5659		No	NA				
Pseudowire MB		RFC 5601		No	No				
Pseudowire over MPLS PSN Management Information Base		RFC 5602		No	No				
Ethernet Pseudowire Management Information Base		RFC 5603		No	No				
Pseudowire Redundancy		Pseudowire Redundancy(RFC 6716) draft-ietf-pwe3-redundancy-bit-03.txt (RFC 6870)		No	NA				
Pseudowire Emulation Edge-to-Edge Control Word for use over an MPLS PSN		RFC 4385		No	NA				
Pseudowire Emulation Edge-to-Edge Control Word for use over an MPLS PSN		RFC 4385		No	NA				
VPLS using LDP Signalling		RFC 4762		No	No				
VPLS using BGP for Signalling and auto-discovery		RFC 4761		No	NA				
Pseudowire Setup and Maintenance using LDP	ZOS-XP-LDP-HA-SSO	RFC 4447		Yes	NA	ZebHA 1.1	No	Yes	Basic functionality tested.
Provisioning, Auto-Discovery and Signalling in L2VPN		RFC 6074		No	NA				

NA - HA_GR is Not Applicable for these modules

ZebIC																					
Feature	SKU	Standard	Features not supported	Data plane integration																	Comments
				ZebIC 2.1 (ZebOS version 7.10.1)			ZebIC3.1 (ZebOS-XP version 1.1)				ZebIC3.2 (ZebOS-XP version 1.2)			ZebIC 4.0 (ZebOS-XP version 1.3)				ZebIC 4.1 (ZebOS-XP version 1.4)			
				PMC-Sierra	Broadcom BCM56846	Broadcom BCM56440	Broadcom BCM56846	Broadcom BCM56440	Marvell Prestera CX 8248/8234	Marvell Prestera 98CX8129	Broadcom BCM56850	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Broadcom BCM56850	Broadcom BCM56440	Marvell Prestera 98CX8296	Marvell Prestera 98CX8129	Marvell Prestera 98CX8296	Broadcom BCM56850	Broadcom BCM56340	
				Winpath-3	Trident+	Katana	Trident+	Katana	Lion	Hooper	Trident2	Lion2	Hooper	Trident2	Katana	Lion2	Hooper	Lion2	Trident2	Helix4	
Quality of Service (QoS)																					
DiffServ Field in IPv4/IPv6 Headers	ZOS-XP-QOS	RFC 2474		Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
Architecture for Differentiated Services	ZOS-XP-QOS	RFC 2475		Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
Assured Forwarding PHB Group	ZOS-XP-QOS	RFC 2597		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Expedited Forwarding PHB (Per-Hop Behavior)	ZOS-XP-QOS	RFC 3246		No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Optional policy attributes:												No	No							No	
Assign matching traffic flow to a specific queue	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
QoS Access Control Lists (ACLs) Permit/Deny for Inbound/Outbound IP traffic based on:																					
Type of Service (TOS) or DiffServ (DS) DSCP field	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
Source IP address	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
Destination IP address	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
TCP/UDP source port	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
TCP/UDP destination port	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
IP Protocol Number	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
QoS Class of Service (CoS) direct user configuration of the following:																					
IP DSCP to Traffic Class Mapping	ZOS-XP-QOS			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Interface Trust Mode: 802.1p, IP DSCP, or Untrusted	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
Police Rate (SRTCM/TRTCM)	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
Interface Traffic Shaping Rate	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
Minimum and Maximum Bandwidth Per Queue	ZOS-XP-QOS			No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
WRR/WFQ/SP Scheduling Per Queue	ZOS-XP-QOS			Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	No	Yes	No	
WRED Queue Depth Management	ZOS-XP-QOS			Yes	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No	No	No	Yes	No	

ZebIC						
Feature	SKU	Standard	Features not supported	Version	Data plane integration	Comments
Hierarchical QoS (HQoS)					Broadcom BCM56850	
					Trident2	
Quality of Service (QoS)						
DiffServ Field in IPv4/IPv6 Headers	ZOS-XP-HQOS	RFC 2474			Yes	
Architecture for Differentiated Services	ZOS-XP-HQOS	RFC 2475			Yes	
Assured Forwarding PHB Group	ZOS-XP-HQOS	RFC 2597			No	
Expedited Forwarding PHB (Per-Hop Behavior)	ZOS-XP-HQOS	RFC 3246			No	
Optional policy attributes	ZOS-XP-HQOS					
Assign matching traffic flow to a specific queue	ZOS-XP-HQOS				Yes	
QoS Access Control Lists (ACLs) Permit/Deny for Inbound/Outbound IP traffic based on:						
Type of Service (TOS) or DiffServ (DS) DSCP field	ZOS-XP-HQOS				Yes	
Source IP address	ZOS-XP-HQOS				Yes	
Destination IP address	ZOS-XP-HQOS				Yes	
TCP/UDP source port	ZOS-XP-HQOS				Yes	
TCP/UDP destination port	ZOS-XP-HQOS				Yes	
IP Protocol Number	ZOS-XP-HQOS				Yes	
QoS Class of Service (CoS) direct user configuration of the following:						
IP DSCP to Traffic Class Mapping	ZOS-XP-HQOS				No	
Interface Trust Mode: 802.1p, IP DSCP, or Untrusted	ZOS-XP-HQOS				Partial	Untrust not supported, By Default L2 ports are CoS trusted and L3 Ports are DSCP trusted. We can configure L2 ports as DSCP Trusted.
Police Rate (SRTCM/TRTCM)	ZOS-XP-HQOS				Yes	
Interface Traffic Shaping Rate	ZOS-XP-HQOS				No	
Minimum and Maximum Bandwidth Per Queue	ZOS-XP-HQOS				Yes	
Traffic shaping per queue	ZOS-XP-HQOS				Yes	
WRR/WFQ/SP Scheduling Per Queue	ZOS-XP-HQOS				Yes	WFQ Not Supported

ZebIC						
WRED Queue Depth Management	ZOS-XP-HQOS				Yes	
Hierarchical Queueing (HQoS)						
1 Level Queuing hierarchy	ZOS-XP-HQOS				Yes	
2 Level Queuing hierarchy	ZOS-XP-HQOS				Yes	
3 Level Queuing hierarchy	ZOS-XP-HQOS				Yes	

ZebIC							
Feature	SKU	Standard	Features not supported	Version	Data plane integration		Comments
Open-Flow (OFL)					Broadcom BCM56850	Broadcom BCM56846	
					Trident2	Trident+	
Open-Flow							
Open-Flow allows Controller to access or manipulate the forwarding plane of network device using flow-rules configuration.	ZOS-XP-OFL	ONF Open-Flow 1.3.4	1. Flow-rules for MPLS/QoS/MCAST 2. Hybrid mode 3. Programming flow-rules using Broadcom's OFDPA APIs		Yes	Yes	