



Intel[®] Ethernet Controller X710/ XXV710/XL710

Dynamic Device Personalization MPLS Payload

Ethernet Products Group (EPG)

May 2020

Intel Confidential

Revision 1.0



Revision History

Revision	Date	Comments
1.0	May, 2020	Initial release (Intel Confidential).



1.0 Introduction

This document describes the Dynamic Device Personalization (DDP) functionality supported by the Intel® Ethernet Controller X710/XXV710/XL710 starting with firmware version 6.01.

The DDP mpls-pay profile (0x80000011) contains the X710/XXV710/XL710 parser graph for MPLS packets. The MPLS profile uses the MPLS labels for directing traffic into multiple queues, which can later be processed by multiple cores. The profile supports up to 2 MPLS headers, either directly after the L2 header or tunneled in UDP. The packets are not parsed beyond the MPLS headers.

Table 1. Terms and Definitions

Term	Definition
DPDK	Data Plane Development Kit
MPLS	Multiprotocol Label Switching

Table 2. Version History

Version	Description
0.0.0.3	Initial release of mpls pay parser graph for the X710/XXV710/XL710.

Table 3. MPLS Packet Field Vector

Word Num	Protocol Layers			
	L2 Protocol Layers			
0:2	Destination MAC address (in outer or single L2 header).			
3:5	Source MAC address (in outer or single L2 header).			
6	0x00			
7	0x00			
8	0x00			
	L3 Protocol Layers			
	IPv4		IPv6	
9	First eight words of the IPv4 header (up to including the source IP address)		First four words of the IPv6 header (up to including the hop limit)	
10				
11:12			IPv6 source address	
13:16				
17:20	0x00			
21:22	0x00		IPv6 destination address	
23:26	0x00			
27:28	Destination IP address			
	L4 Protocol Layers			
	TCP	UDP	SCTP	ICMP



Table 3. MPLS Packet Field Vector [continued]

29:30	First 16 bytes of the TCP header.	First 8 bytes of the UDP header.	First 8 bytes of the SCTP header.	Words 0, 1 of the header.
31:32				0x00
33:36				0x00
DPDK Outer VLAN for QinQ				
37	S-tag (DPDK)	S-tag (DPDK)	S-tag (DPDK)	S-tag (DPDK)
MPLS				
38:41	0x00			
42:43	First MPLS label			
44:45	Second MPLS label			
MPLS Payload				
46:49	0x00			
50:57	Outer destination IP address or flexible payload.			

Note: DPDK (up to release 17.11) forces flexible payload to the first 16 bytes of the payload and overrides the outer destination IP address. Starting from DPDK 18.02, the flexible payload is extracted only if enabled by the flow director configuration.

Table 4. Packet Classifier Types and Its Input

PCTYPE	PCTYPE Description	Hash Input Set	FD Input Set
24	One MPLS label	MPLS label	MPLS label
25	Two MPLS label	Both MPLS labels	Both MPLS labels

Table 5. Packet Types

PTYPE	Description
167	MAC, MPLS, PAYLOAD
168	MAC, MPLS, MPLS, PAYLOAD
169	MAC, IPv4, UDP, MPLS, PAYLOAD
170	MAC, IPv4, UDP, MPLS, MPLS, PAYLOAD
171	MAC, IPv6, UDP, MPLS, PAYLOAD
172	MAC, IPv6, UDP, MPLS, MPLS, PAYLOAD



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