DVM Command mapping

CCMP CmdAddress filed		CHI CmdAddress filed		ACE CmdAddress filed (First command filed)		
Addr	**Contents**	**Addr**	**Contents**	**Addr**	**Contents**	**Comment**
0	Reserved 0	0	Reserved 0	7	Reserved 0	
1	Reserved 0	1	Reserved 0		Reserved 0	
2	Reserved 0	2	Reserved 0		Reserved 0	
3	Part Number	3	Part Number	1	Reserved 0	
4	Va Valid	4	Va Valid	0	single /two part	
5	VMID Valid	5	VMID Valid	6	VMID Valid	
6	ASID Valid	6	ASID Valid	5	ASIDValid	
8:7	Security	8:7	Security	9:8	Security	
10:9	Exception Level	10:9	Exception Level	11:10	Guest OS or hypervisor	
13:11	DVMOp Type	13:11	DVMOp Type	14:12	DVMOp Type	
21:14	VMID[7:0]	21:14	VMID[7:0]	31:24	VMID[7:0] or Virtual Index [27:20]	
37:22	ASID[15:0]	37:22	ASID[15:0]	39:32	ASID[15:8]	
				23:16	ASID[7:0] or Virtual Index [19:12]	
39:38	Staged Invalidation (S2,S1)	39:38	Staged Invalidation (S2,S1)	3:2	Staged Invalidation (S2,S1)	
40	Leaf Entry Invalidation	40	Leaf Entry Invalidation	4	Leaf Entry Invalidation	
max:41	Reserved 0	max:41	Reserved 0	max:40	Reserved 0	

DVM DTW mapping

CCMP Dtw Data filed		CHI Dtw Data filed		ACE Dtw Data filed (Mixed first and second)		
Addr	**Contents**	**Addr**	**Contents**	**Addr**	**Contents**	**Comment**
0	Reserved 0	0	Reserved 0	0	Reserved 0	
1	Reserved 0	1	Reserved 0	1	Reserved 0	
2	Reserved 0	2	Reserved 0	2	Reserved 0	
3	0b0	3	Reserved 0	4	Reserved 0	
43:4	PA[MPA-1:6] or VA[45:6]	43:4	PA[MPA-1:6] or VA[45:6]	40	VA[45]	first part
				43:40	VA[44:41]	second part
				3	VA[40]	second part
				39:6	VA[39:6]	second part
46:44	VA[48:46]	46:44	VA[48:46]	43:41	VA[48:46]	first part
47	VA[49]	47	VA[49]	44	VA[49]	second part
48	VA[50]	48	VA[50]	45	VA[50]	second part

49	VA[51]	49	VA[51]	46	VA[51]	second part
50	VA[52]	50	VA[52]	47	VA[52]	second part
55:51	Reserved 0	55:51	Reserved 0	55:51	Reserved 0	
63:56	VMIDext[15:8] / {2'b0, VA[56:53] & VA[5:4]}	63:56	VMIDext[15:8]	63:56	{2'b0, VA[56:53], VA[5:4]}	second part

DVM First Snp mapping

CCMP Snp 1 Addr filed		CHI Snp 1 Addr filed		ACE Snp 1 Addr filed		
Addr	**Contents**	**Addr**	**Contents**	**Addr**	**Contents**	**Comment**
0	Reserved 0	0	Reserved 0	7	Reserved 0	
1	Reserved 0	1	Reserved 0			
2	Reserved 0	2	Reserved 0			
3	0b0	3	0b0		Snoop Sequence ID	
4	VA Valid	4	VA Valid	0	single /two part	First Snoop
5	VMID Valid	5	VMID Valid	6	VMID Valid	First Snoop
6	ASID Valid	6	ASID Valid	5	ASIDValid	First Snoop
8:7	Security	8:7	Security	9:8	Security	First Snoop
10:9	Exception Level	10:9	Exception Level	11:10	Guest OS or hypervisor	First Snoop
13:11	DVMOp Type	13:11	DVMOp Type	14:12	DVMOp Type	First Snoop
21:14	VMID[7:0] or Virtual Index: VA[27:20]	21:14	VMID[7:0]	31:24	VMID[7:0] or Virtual Index [27:20]	First Snoop
37:22	ASID[15:0] or Virtual Index: {0x00 | VA[27:20]}	37:22	ASID[15:0]	39:32	ASID[15:8]	First Snoop
				23:16	ASID[7:0] or Virtual Index [19:12]	First Snoop
39:38	Staged Invalidation	39:38	Staged Invalidation (S2,S1)	3:2	Staged Invalidation (S2,S1)	First Snoop
40	Leaf Entry Invalidation	40	Leaf Entry Invalidation	4	Leaf Entry Invalidation	First Snoop
43:41	VA[48:46]	43:41	VA[48:46]	43:41	VA[48:46]	First Snoop
44	VA[50]	44	VA[50]	45	VA[50]	Second Snoop
45	VA[52]	45	VA[52]	47	VA[52]	Second Snoop
max:46	Reserved 0	max:46	Reserved 0	max:48	Reserved 0	
				40, 44, 46	Reserved 0	

DVM Second Snp mapping

CCMP Snp 2 Addr filed		CCMP Snp 2 Addr filed		ACE Snp 2 Addr filed		
Addr	**Contents**	**Addr**	**Contents**	**Addr**	**Contents**	**Comment**
0	Reserved 0	0	Reserved 0	0	Reserved 0	
1	Reserved 0	1	Reserved 0	1	Reserved 0	
2	Reserved 0	2	Reserved 0	2	Reserved 0	
3	0b1	3	0b1		Snoop Sequence ID	
43:4	VA[45:6]	43:4	VA[45:6]	40	VA[45]	First Snoop
				43:40	VA[44:41]	Second Snoop
				3	VA[40]	Second Snoop
				39:6	VA[39:6]	Second Snoop
44	VA[49]	44	VA[49]	44	VA[49]	Second Snoop
45	VA[51]	45	VA[51]	46	VA[51]	Second Snoop
From MPF1 if TOF = ACE else 0 (MPF1 is same on both snoops)				5:4	VA[5:4]	Second Snoop
				47:44	VA[56:53]	First Snoop

DVM Snp MPF mapping for First Snoop

Field	CHI	ACE
MPF1	VMID[15:8]	{2'b0, VA[56:53], VA[5:4]}
MPF2	DVE TTID	DVE TTID
MPF3	0	0

DVM Snp MPF mapping for Second Snoop

Field	CHI	ACE
MPF1	'b0	{2'b0, VA[56:53], VA[5:4]}
MPF2	DVE TTID	DVE TTID
MPF3	1	1

Notes

AT CHI Snoop AIU

- If Snoop TOF == ACE at CHI AIU

    - VMID[15:8] should be tied to zero

AT ACE Snoop AIU

- If first snoop has bit 4 set then there will be 2 snoops to the ACE agent else only one snoop to the ACE agent. Note that ACE AIU will receive two snoops in either case.
- Bit 15 DVM Complete required is derived as follows
    - DVM op is DVMSync (0b100)
    - Anything else??? TBD
- If Snoop TOF == CHI at ACE AIU
    - VA[56:53] & VA [5:4] need to be tied to zero

AT ACE Req AIU

- In the case of Single part DVM command the DTW still needs to be sent out but with payload as zero.