

Appendix I

Extreme Vertices Countings for Two Color 2D-Animations

This appendix shows countings associated to the two Color 2D-Animations represented through the 4D-EVM which are described in **Section 7.1.1**. The **Tables I.1** and **I.2** show the cardinalities of the sets of extreme vertices in the couplets perpendicular to X_4 -axis in the referred animations.

k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices		
1	45,492	37	74,360	73	72,034	109	90,294	145	77,298	181	86,870	217	87,110	253	71,888
2	73,016	38	82,782	74	78,894	110	89,100	146	81,828	182	88,632	218	88,236	254	74,408
3	80,002	39	85,942	75	72,928	111	87,540	147	81,464	183	85,660	219	83,026	255	73,318
4	74,870	40	70,680	76	74,022	112	85,766	148	82,618	184	90,548	220	83,472	256	80,740
5	72,160	41	67,450	77	73,932	113	87,710	149	81,432	185	79,022	221	83,960	257	75,634
6	73,760	42	74,062	78	71,124	114	85,108	150	80,198	186	85,896	222	81,726	258	72,528
7	73,610	43	85,400	79	79,064	115	82,346	151	86,070	187	84,958	223	83,410	259	75,014
8	75,220	44	67,594	80	69,018	116	79,290	152	88,632	188	84,636	224	83,526	260	77,482
9	70,942	45	68,912	81	77,536	117	81,832	153	88,626	189	87,970	225	85,832	261	80,572
10	73,600	46	58,576	82	70,242	118	81,578	154	81,516	190	79,154	226	85,394	262	75,268
11	70,438	47	65,456	83	76,654	119	79,142	155	83,816	191	85,532	227	85,728	263	79,328
12	73,126	48	62,600	84	68,718	120	78,742	156	81,786	192	77,306	228	86,544	264	75,278
13	70,924	49	66,974	85	69,176	121	79,752	157	86,858	193	88,644	229	85,220	265	75,054
14	73,528	50	69,266	86	87,808	122	81,520	158	84,104	194	81,686	230	81,136	266	76,048
15	74,012	51	69,638	87	78,928	123	78,614	159	86,698	195	83,014	231	83,998	267	79,822
16	71,906	52	76,528	88	72,696	124	79,706	160	87,356	196	85,856	232	82,884	268	80,094
17	73,138	53	69,964	89	82,504	125	76,396	161	90,290	197	76,782	233	83,640	269	76,364
18	63,182	54	75,168	90	73,298	126	75,852	162	90,414	198	84,410	234	82,122	270	76,008
19	66,182	55	67,496	91	74,684	127	78,498	163	88,510	199	79,590	235	80,826	271	72,338
20	61,574	56	73,200	92	70,238	128	81,118	164	88,816	200	84,904	236	84,468	272	76,364
21	78,412	57	71,576	93	77,412	129	77,602	165	84,194	201	81,754	237	77,444	273	70,734
22	60,312	58	78,284	94	70,390	130	77,660	166	84,044	202	85,582	238	77,110	274	71,718
23	68,096	59	78,292	95	76,026	131	80,778	167	82,592	203	82,110	239	74,270	275	69,958
24	67,820	60	72,062	96	73,388	132	72,158	168	82,086	204	84,846	240	76,000	276	69,114
25	62,000	61	78,616	97	80,376	133	76,244	169	79,732	205	82,214	241	75,936	277	67,692
26	70,424	62	73,384	98	71,406	134	74,800	170	78,894	206	81,238	242	74,048	278	69,768
27	84,826	63	84,548	99	71,222	135	78,326	171	78,804	207	85,392	243	78,692	279	71,268
28	75,858	64	72,962	100	75,066	136	60,226	172	84,080	208	81,770	244	71,416	280	65,690
29	78,350	65	83,394	101	75,984	137	66,626	173	88,282	209	85,816	245	75,928	281	66,372
30	75,728	66	77,284	102	80,558	138	62,884	174	88,342	210	85,604	246	67,912	282	61,216
31	80,528	67	77,358	103	83,046	139	69,524	175	86,426	211	90,584	247	74,954	283	67,754
32	80,150	68	78,736	104	88,268	140	62,820	176	84,770	212	89,808	248	70,788	284	64,644
33	80,596	69	77,506	105	84,936	141	65,362	177	83,742	213	91,684	249	67,860	285	65,670
34	84,546	70	79,278	106	89,048	142	65,084	178	86,962	214	92,332	250	70,692		
35	77,266	71	73,078	107	89,522	143	64,234	179	84,726	215	88,552	251	70,482		
36	82,352	72	80,256	108	88,218	144	63,704	180	87,352	216	90,778	252	75,906		

Table I.1. Cardinalities of $EVM_3(\pi_4(\Phi_i^+(p)))$ in the animation shown in **Table 7.1**.

Appendix I - Extreme Vertices Countings for Two Color 2D-Animations

k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices
1	20,388	63	28,552	125	58,188	187	67,526	249	33,256	311	16,352	373	22,704
2	31,940	64	30,790	126	53,622	188	68,558	250	32,800	312	11,796	374	24,234
3	27,826	65	27,832	127	55,452	189	68,346	251	34,596	313	12,724	375	23,952
4	24,920	66	29,478	128	54,338	190	69,386	252	30,892	314	12,398	376	23,288
5	22,212	67	26,560	129	56,620	191	68,870	253	32,426	315	12,514	377	27,004
6	18,702	68	29,172	130	56,206	192	71,110	254	30,266	316	12,156	378	28,136
7	19,128	69	29,350	131	59,490	193	69,624	255	32,098	317	14,202	379	26,394
8	19,882	70	30,678	132	57,646	194	71,946	256	30,562	318	14,988	380	26,070
9	20,518	71	32,030	133	57,254	195	70,296	257	32,140	319	13,526	381	25,928
10	20,978	72	30,316	134	60,528	196	68,168	258	29,256	320	13,030	382	35,212
11	18,988	73	35,832	135	59,386	197	70,834	259	27,550	321	10,362	383	33,024
12	19,510	74	34,100	136	61,296	198	69,470	260	31,558	322	11,968	384	21,364
13	18,562	75	37,718	137	60,850	199	72,482	261	27,630	323	13,868	385	23,982
14	19,182	76	34,176	138	62,564	200	70,890	262	29,262	324	12,966	386	23,216
15	18,118	77	40,518	139	61,460	201	73,990	263	25,654	325	14,570	387	25,366
16	18,026	78	35,392	140	64,280	202	70,858	264	26,946	326	15,346	388	29,180
17	18,778	79	40,428	141	63,896	203	72,288	265	24,556	327	15,734	389	35,580
18	19,054	80	35,468	142	63,462	204	72,648	266	26,718	328	13,044	390	37,008
19	19,104	81	32,454	143	64,240	205	71,884	267	25,638	329	14,258	391	39,744
20	18,036	82	37,940	144	62,600	206	71,864	268	26,878	330	14,830	392	42,422
21	18,006	83	33,182	145	65,306	207	72,030	269	27,288	331	11,546	393	44,284
22	16,300	84	42,372	146	64,424	208	73,818	270	26,708	332	12,896	394	42,414
23	17,394	85	40,146	147	66,690	209	73,238	271	27,318	333	13,300	395	43,994
24	16,976	86	42,914	148	65,328	210	73,608	272	25,014	334	11,908	396	47,492
25	17,518	87	43,328	149	68,298	211	74,572	273	25,456	335	12,264	397	45,926
26	19,196	88	39,568	150	67,060	212	75,946	274	23,452	336	11,552	398	46,054
27	18,650	89	44,542	151	67,672	213	74,944	275	23,294	337	10,634	399	44,470
28	18,406	90	41,522	152	69,608	214	73,504	276	21,048	338	12,968	400	46,866
29	18,514	91	45,916	153	69,632	215	76,484	277	22,228	339	13,346	401	45,398
30	19,806	92	43,274	154	69,914	216	74,400	278	21,822	340	11,038	402	47,712
31	20,160	93	46,388	155	71,804	217	72,988	279	23,300	341	12,782	403	48,804
32	23,764	94	51,190	156	72,608	218	69,560	280	24,856	342	11,598	404	52,254
33	22,640	95	52,684	157	68,418	219	69,988	281	24,210	343	10,818	405	55,410
34	20,756	96	47,200	158	69,438	220	66,854	282	26,522	344	12,854	406	55,460
35	19,468	97	47,386	159	68,034	221	69,220	283	23,576	345	13,402	407	56,620
36	18,076	98	49,896	160	66,824	222	66,240	284	23,672	346	12,608	408	54,596
37	21,340	99	50,434	161	68,628	223	64,848	285	21,358	347	14,890	409	58,370
38	23,584	100	53,810	162	65,874	224	62,780	286	24,156	348	15,472	410	53,584
39	25,194	101	52,230	163	65,328	225	59,396	287	25,426	349	13,174	411	52,402
40	22,462	102	55,028	164	63,592	226	61,476	288	25,476	350	14,916	412	49,510
41	25,368	103	52,016	165	62,910	227	58,466	289	26,600	351	16,868	413	51,484
42	26,090	104	53,866	166	60,462	228	61,186	290	23,884	352	17,022	414	50,046
43	27,842	105	49,190	167	62,992	229	59,244	291	21,680	353	18,614	415	51,710

Table I.2. (First part) Cardinalities of $EVM_3(\pi_4(\Phi_k^4(p)))$ in the animation shown in **Table 7.2.**

k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices	k	Extreme Vertices
44	29,152	106	47,522	168	59,946	230	59,778	292	18,350	354	19,848	416	51,740
45	26,392	107	51,188	169	59,210	231	56,730	293	18,258	355	21,098	417	53,554
46	26,712	108	45,812	170	62,188	232	54,822	294	17,384	356	22,072	418	52,588
47	27,688	109	50,830	171	64,706	233	55,230	295	18,386	357	21,550	419	52,946
48	30,710	110	45,834	172	67,238	234	52,650	296	19,618	358	20,610	420	51,150
49	29,858	111	48,600	173	65,842	235	55,148	297	21,872	359	21,792	421	49,058
50	30,778	112	45,278	174	68,256	236	50,442	298	22,984	360	22,430	422	49,478
51	26,218	113	48,462	175	66,736	237	52,520	299	21,922	361	22,854	423	47,552
52	30,574	114	49,452	176	69,468	238	49,014	300	22,386	362	22,680	424	47,630
53	31,100	115	51,648	177	68,296	239	50,012	301	20,922	363	23,672	425	47,584
54	33,084	116	53,898	178	66,920	240	46,240	302	22,446	364	22,030	426	51,628
55	35,474	117	51,538	179	69,772	241	45,152	303	20,568	365	21,744	427	57,668
56	32,142	118	54,594	180	68,764	242	44,722	304	18,734	366	20,154	428	63,764
57	36,056	119	54,532	181	69,976	243	37,714	305	14,286	367	21,568	429	64,052
58	31,528	120	57,992	182	66,952	244	38,466	306	17,680	368	23,518	430	63,204
59	33,840	121	56,310	183	69,466	245	37,930	307	19,672	369	24,032	431	67,610
60	29,492	122	60,188	184	69,816	246	36,908	308	20,670	370	24,822		
61	31,500	123	57,604	185	70,950	247	33,536	309	20,998	371	25,474		
62	31,112	124	56,400	186	69,420	248	34,830	310	18,546	372	25,116		

Table I.2. (Second part) Cardinalities of $EVM_3(\pi_4(\Phi_k^+(p)))$ in the animation shown in **Table 7.2**.