

MPEG-2 Patent Portfolio License Illustrative Cross-Reference Chart
(Shows *illustrative* essential claims in each patent family; other claims may also be essential)

Ctry.	Patent No.	Claims	Category	Description	Standard Sections
EP	230,338	1	Spatial Encoding	Field/frame DCT selection	Video: Intro. 1, Intro. 4.1.2, 3.85, 6.1.1, 6.1.1.2, 6.1.3, 6.3.17.1, Figs. 6-13, 6-14; Systems: Figs. Intro. 1, Intro. 2
EP	276,985	1	Spatial Encoding	Frame_centre_horizontal_offset / frame_centre_vertical_offset	Video: 6.3.6, 6.3.12, 6.3.12.1, Fig. 6-16
EP	279,053	1	Motion Compensation	Predictive encoding including intra coded macro blocks	Video: Intro. 4.1.1, 6.1.3, 7.6, 7.6.2.2, 7.6.3, Table B-3
EP	401,638	1	Systems	Transport stream, transport packet format with PID, transport_priority	Systems: Intro. 1, Intro. 8.1, 1.1, 2.4.1, 2.4.3, 2.4.3.2, 2.4.3.3, 2.4.3.6, 2.4.3.7, 2.4.4, 2.4.4.8, 2.4.4.9, Ann. D.0.1, Figs. Intro. 1, 2, D.1, Tables 2-23 and 2-29.
EP	1,030,523	8	Spatial Encoding	Repeat first field	Video: 1, 6.3.5, 6.3.10, 7
JP	1,835,550	1	Motion Compensation	Forward and backward prediction	Video: Intro. 4.1.1, 6.1.1.5, 7.6.3
JP	1,869,940	1	Spatial Encoding	Skipped macroblocks; coded block pattern	Video: Intro. 4.1, 6.3.17.4, 7.5.1, Ann. B.3, B.5, Tables B.9, B.14
JP	1,939,084	1	Picture Sequence	Picture sequence including I, P and B pictures	Video: Intro. 4.1.1, 6.1.1.5
JP	2,510,456	1	Spatial Encoding	Skipped macroblocks; coded block pattern	Video: Intro. 4.1, 6.3.17.4, 7.5.1, Ann. B.3, B.5, Tables B.9, B.14
JP	2,524,044	1	Motion Compensation	Macroblock-based predictor selection	Video: Intro. 4.1.1, 6.1.1.5, 6.3.17.1, 7.6, Ann. B.2, Table B.4
JP	2,562,499	1	Spatial Encoding	Field/frame DCT selection	Video: Intro. 4.1.2, 6.1.1.4.1, 6.1.1.4.2, 6.1.3, 6.3.10
JP	2,577,745	1	Picture Sequence	Repeat first field	Video: 6.3.10, Ann. D.2.2
JP	2,666,793	1	Systems	STC recovery from PCR's or SCR's	Systems: 2.4.3.5, 2.5.3.4, Ann. D.0.3, Fig. D.2
JP	2,712,645	1	Motion Compensation	Motion vector precision/range	Video: 6.3.10, 6.3.17.3, 7.6.3.1, Ann. B.4, Table B.10
JP	2,722,933	1	Systems	PTS/DTS decoding delay	Systems: 2.4.2, 2.4.2.3, 2.4.2.6, 2.4.3.6, 2.4.3.7, Fig. 2-1, Ann. D, D.02, Tables 2-17, 2-18
JP	2,794,899	1	Spatial Encoding	Slice layer with slice identifiers	Video: 3.24, 3.97, 3.122, 6.3.16, 6.3.17, 7.2.1, 7.6.3.4, Ann. D.13.2
JP	2,808,860	2	Motion Compensation	Prediction field selection	Video: 6.3.17.2, 7.6.2, 7.6.2.1, Figs. 7-7, 7-8 and 7-9, Table 7-7.
JP	2,812,446	1	Spatial Encoding	Intra/inter VLC tables for coefficients	Video: 3.78, 3.89, 7.2.2.1, Ann. B.5, Tables 7-3, B.14, B.15
JP	2,814,819	1	Systems	Demultiplexing elementary streams based on PID's	Systems: Intro. 2.1.32, 2.1.44, 2.4.1, Ann. F
JP	2,828,095	1	Motion Compensation	Bidirectional motion compensation	Video: Intro. 4.1.1, 6.3.17.1, 7.6.2.2, 7.6.7, 7.6.7.1, Ann. B.2, Table B.4
JP	2,882,161	7	Picture Sequence	Repeat first field	Video: 6.3.5, 6.3.10
JP	2,899,478	1	Motion Compensation	Adaptive field or frame prediction	Video: Intro. 4.1.2, 6.1.1.4.1, 6.1.3, 7.6.2.1, 7.6.2.2
JP	2,907,072	1	Systems	Program mux rate	Systems: 2.5.2.2, 2.5.3.4
JP	2,924,430	3	Motion Compensation	Field prediction	Video: 3.55, 6.1.3, 6.3.17.1, 7.6.2.1
JP	2,938,677	1	Motion Compensation	Dual prime	Video: 7.6, 7.6.3.6, 7.6.4, 7.6.7.4; Figure 7-12
JP	2,951,861	3	Spatial Encoding	Variable length decoding using intra_vlc_format	Video: 6.3.10, 7.2.2, 7.2.2.1, Tables 7-3, B-14, B-15
JP	3,019,827	1	Systems	Demultiplexing elementary streams based on PID's	Systems: 2.1.32, 2.4.1, 2.4.3.2, 2.4.3.3
JP	3,040,410	21	Motion Compensation	Intra/inter coding of luminance and chrominance	Video: Intro. 4.1, 6.1.1.5, 6.1.3, 6.1.4, 6.3.17.1, Ann. B.2, Fig. 6-10 and Tables B-2 and B-3
JP	3,085,289	3	Motion Compensation	Forward prediction; dual prime	Video: 7.6.1, 7.6.2.1, 7.6.4, 7.6.7.4, Figs. 7-7, 7-8
JP	3,173,508	1	Motion Compensation	Prediction from preceding reference field; dual prime	Video: 7.6.1, 7.6.2.1, 7.6.4, 7.6.7.4
JP	3,186,685	1	Motion Compensation	Dual prime	Video: 7.6.3.6, 7.6.4, Fig. 7-12 and Table 7-11
JP	3,191,935	10	Spatial Encoding	Decoding pictures of dimensions vertical_size and mb_height	Video: 6.3.3
JP	3,201,079	1	Motion Compensation	Dual prime	Video: 7.6.1, 7.6.3.6 Figure 7-12
JP	3,257,643	2	Spatial Encoding	Picture extension header decoding	Video: Intro. 1, 6.2.3.1, 6.2.3.3, 6.3.12
JP	3,258,984	1	Spatial Encoding	Intra/inter VLC tables for coefficients	Video: 3.43, 3.134, 3.140, 7, 7.2, 7.2.2, 7.3, Fig. 7-1 and Tables B-14, B-15
JP	3,265,287	1	Spatial Encoding	Field/frame DCT selection	Video: 6.1.3, 6.3.17.1, Figs. 6-10, 6-11, 6-12, 6-13, 6-14
JP	3,265,290	1	Motion Compensation	macroblock_type; frame_motion_type	Video: 6.3.17.1, 7.6.1, Ann. B.2, Tables 6-17 and B-4
JP	3,303,869	11	Spatial Encoding	Decoding pictures of dimensions vertical_size and mb_height	Video: 6.3.3
JP	3,496,926	1	Spatial Encoding	Field/frame DCT selection	Video: 4.1.2, 6.1.3, 6.3.10, 6.3.17.1, Tables 6-14, 6-19, Figs. 6-13, 6-14
JP	3,548,731	1	Motion Compensation	Field/frame prediction; dct_type; frame_motion_type	Video: 6.1.1.1, 6.1.3, 6.3.17.1, 7.6.1, 7.6.5, Fig. 6-13, 6-14; Table: 6-17, 7-14.
JP	3,657,200	1	Systems	PTS and PCR This patent is a counterpart of US Patent 5,565,923 owned by and separately listed under Thomson Licensing.	Systems: 2.4.2.1, 2.4.3.2, 2.4.3.4, 2.4.3.6, 2.5.2.1
JP	3,761,525	1	Spatial Encoding	VLC, escape coding	Video: 3.5, 3.19, 3.83, 3.93, 7.2, 7.2.2.3, Table B.16
JP	3,809,117	2	Motion Compensation	macroblock_type; frame_motion_type; dct_type	Video: 3.43, 3.8, 3.83, 6.1.3, 6.3.17.1, 7.5, 7.6, 7.6.1 and Figures 6-13, 6-14, 7-9, 7-11.
JP	3,809,119	1	Motion Compensation	macroblock_type; frame_motion_type; dct_type	Video: 3.4.3, 3.8, 3.83, 6.1.3, 6.3.17.1, 7.5, 7.6, 7.6.1, Figs. 6-13, 6-14, 7-6, 7-9, 7-11; Tables: 6-17, 7-14.
JP	3,809,120	1	Motion Compensation	macroblock_type; frame_motion_type; dct_type	Video: 3.23, 3.43, 3.83, 6.1.3, 6.3.17.1, 7.5, 7.6, 7.6.1; Figures 6-13, 6-14, 7-6, 7-9, 7-11 and Table 7-14
JP	3,809,121	1	Motion Compensation	macroblock_type; frame_motion_type; dct_type	Video: 3.4.3, 3.83, 6.1.3, 6.3.17.1, 7.5, 7.6, 7.6.1, Figs. 6-13, 6-14, 7-9, 7-11; Table: 7-14.

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KR	100,718	1	Systems	PCR and SCR	Systems: 2.1.42, 2.1.54, 2.4.2.2, 2.4.3.5, 2.5.2.2 and 2.5.3.4
KR	114,338	1	Picture Sequence	Top field first, repeat first field	Video: 6.3.10, 6.3.17.3, 7, 7.2, 7.4, 7.5, 7.6, 7.12, Figs. 7-1, 7-2, 7-5, 7-6, 7-21, 7-22
KR	132,895	3	Spatial Encoding	Inverse quantizer adaptation	Video: 6.1.3, 6.3.17.1, 7.4, Fig. 7-1
KR	166,715	1	Spatial Encoding	VLC of run-level pairs	Video: 7.2, 7.2.1, 7.2.2, 7.2.2.1, 7.2.2.2, 7.2.2.3: Tables 7-3, B.12 to B.16
KR	400,800	1	Systems	Transport packet with PID, continuity_counter & transport_error_indicator	Systems: 2.4.1, 2.4.3.3, 2.4.4, 2.4.4.3, 2.4.4.8, Tables 2-2, 2-3, 2-23
US	4,698,672	1,38	Spatial Encoding	VLC coding of run-level pairs	Video: 7.2.2, Ann. B.5, Tables B.14, B.15
US	4,706,260	1	Bit Rate Control	VBV buffer control based on amount of encoded information	Video: Ann. C, C.3, C.3.1, C.3.2, C.5
US	4,796,087	1	Spatial Encoding	Skipped macroblocks; coded block pattern	Video: Intro. 4.1.3, Intro. 4.1.4, 6.1.3, 6.3.17, 6.3.17.4, 7.5.1, 7.6, 7.6.6, Ann. B.3
US	4,800,432	1	Motion Compensation	Macroblock prediction, skipped macroblocks, coded block pattern	Video: Intro. 4.1.1, 3.86, 3.99, 3.100, 3.110, 3.111, 6.3.17.1, 6.3.17.4, 7.5.1, 7.6, 7.6.8, B.2, B.5, Fig. 7-5, Tables B-3, B-14, B-15, B-16
US	4,813,056	21	Spatial Encoding	VLC and FLC coding of run-level pairs	Video: 3.134, 7.2, Ann. B.5, Tables B.14, B.15, B.16
US	4,833,543	1	Spatial Encoding	Field/frame DCT selection	Video: 6, 6.1.1.4, 6.1.1.8, 6.1.3, 6.3.17, 6.3.17.1, 7, Figs. 6-1, 6-2, 6-3, 6-13, 6-14 and 7-1
US	4,849,812	1	Spatial Encoding	Field/frame DCT selection	Video: Intro. 4.1.2, Intro. 4.1.4, 6.1.3, 6.3.10, 6.3.17.1, 7.1, 7.5
US	4,864,393	1	Motion Compensation	Half pel motion vector resolution	Video: 7.6.4
US	4,901,075	8	Spatial Encoding	VLC coding of run-level pairs	Video: 7.2.2, 7.3, 7.4, 7.5
US	4,954,892	1	Bit Rate Control	Low delay VBV buffer control	Video: 6.3.5, 6.3.9, Ann. C, C.7
US	4,958,226	12	Motion Compensation	Interpolated predictions	Video: 1, 3.86, 3.99, 3.100, 3.101, 6.1.1.11, 7.6.4, 7.6.7.1, 7.6.8, Figs. 7-1, 7-5,
US	4,969,055	8	Picture Sequence	GOP	Video: Intro. 4.1.1, 3.71, 3.77, 3.111, 6.1.1, 6.1.1.4, 6.1.1.7, 7, 7.6.1, 7.6.2.2, Fig. 6-15
US	4,970,590	1	Systems	Multiplexing elementary and systems layer streams	Video: Intro. 4 and 4.1 Systems: 2.4.3.7, 2.4.4.8, 2.4.4.9, 2.5.4.2, 2.5.5.1, 2.5.5.2 Tables 2-18, 2-28, 2-35, 2-36
US	4,982,270	9	Spatial Encoding	Slice start codes	Video: 3.12, 6.1.2, 6.1.3, 6.3.16
US	5,021,879	1	Spatial Encoding	Macroblock header, coded block pattern	Video: Intro. 4.1.1, Intro. 4.1.3, Intro. 4.1.4, 6.1.3, 6.3.17.1, 6.3.17.4, 7.5.1
US	5,027,206	3	Picture Sequence	Repeat first field	Video: 6.3.9, 6.3.10, 6.3.17.1, 7.1, 7.6, 7.6.4, 7.12, Ann. D.2.2
US	5,068,724	17	Motion Compensation	Macroblock-based predictor selection	Video: 6.3.17.1, 7.4, 7.5, 7.6, 7.6.4, 7.6.8
US	5,072,295	3,4	Spatial Encoding	Saturation control	Video: 7.2, 7.4, 7.4.3, 7.5, 7.6
US	5,091,782	21	Spatial Encoding	Field/frame DCT selection	Video: Intro. 4.1.2, Intro. 4.1.4, 6.1.3, 6.3.10, 6.3.17.1, 7.1
US	5,093,720	36	Motion Compensation	Prediction field selection	Video: Intro. 4.1.4, 6.3.17.2, 7.6, 7.6.2.1, 7.6.4, 7.6.8
US	5,103,307	4	Motion Compensation	B-frames	Video: Intro 4.11, 6.1.1.4, 6.1.1.5, 6.1.1.11, 7, 7.1, 7.2, 7.4, 7.5, 7.6, 7.6.2.2, 7.6.4, 7.6.7, 7.6.8, 7.12: Figs. 7-1, 7-2, 7-3, 7-4, 7-5, 7-11; Table 6-12
US	5,128,758	7,11	Spatial Encoding	Luma-chroma Intra DC coefficient size VLC tables	Video: 6.1.1.2, 6.1.1.3, 6.1.1.4, 7.2, 7.2.1, Ann. B.5, Tables B.12, B.13
US	5,175,618	4	Picture Sequence	IP frame followed by another P field	Video: Intro. 4.1.1, 6.1.1.4.1, 7.6.2.1
US	5,179,442	1	Spatial Encoding	Luma-chroma Intra DC coefficient size VLC tables	Video: 6.1.1.2, 6.1.1.3, 6.1.1.4, 7.2, 7.2.1, Ann. B.5, Tables B.12, B.13
US	5,191,436	1	Picture Sequence	Broken link	Video: 6.3.8
US	5,223,949	1,5	Picture Sequence	Frame reordering	Video: Intro. 4.1.1, 6.1.1, 6.1.1.11, 6.3.9, 7.12
US	5,227,878	13	Motion Compensation	Adaptive field or frame prediction	Video: 1, 7.1, 7.6.1, 7.6.3, 7.6.3.1, 7.6.4, 7.6.5, 7.6.7, Figs. 7-1, 7-5, Tables 7-13, 7-14
US	5,235,618	25	Bit Rate Control	VBV buffer control based on amount of encoded information	Video: Ann. C, C.2
US	5,268,846	1	Systems	Program_stream_directory	Systems: Intro., 2.11, 2.1.36, 2.5.1, 2.5.5, 2.5.5.2, Table 2-36, MPEG-2 Video: Intro. 4.1.1, 3.107, 6.1.1.6, 6.1.1.7, 6.3.9.
US	5,289,276	1	Systems	Transport stream carrying repeat sequence headers	Systems: 2.1.20, 2.4.1, 2.4.3.2, 2.4.3.3, Table 2-3 Video: 6.1.1.6, 6.3.1, Fig. 6-15
US	5,291,284	12	Spatial Encoding	Mismatch control	Video: 3.86, 7, 7.4, 7.4.4, 7.5, 7.6, Annex A and Figures 7-1, 7-4 and 7-5
US	5,291,486	12	Bit Rate Control	Halting input of data when decoder buffer fills	Systems: 2.4.2, 2.5.2 Video: Ann. C, C.3.2
US	5,298,991	9	Motion Compensation	Motion vector precision/range	Video: 6.3.10, 6.3.17.3, 7.6.3.1, 7.6.3.2, Ann. B.4, Table B.10
US	5,317,397	9,13	Motion Compensation	Dual prime	Video: 6.2.5, 6.2.5.2, 6.2.5.2.1, 6.2.6, 6.3.17.3, 7.6.1, 7.6.3.6, 7.6.4, 7.6.7.4
US	5,333,135	10	Systems	PSI table format	Systems: 2.4.3.2, 2.4.3.3, 2.4.4.1, 2.4.4.2, 2.4.4.8, Ann. C.3, C.4
US	5,343,248	1,7	Picture Sequence	Top field first	Video: Intro. 4.1.2, 6.3.5, 6.3.10, 7.10
US	5,365,272	1	Systems	Transport packet format with PID, continuity_counter & adaptation_field_control	Systems: 2.4.1, 2.4.3.3, 2.4.3.5, Tables 2-2, 2-5, 2-6
US	5,381,181	1	Systems	Transport stream carrying PCR's and PTS's in packets	Systems: 1.1, 2.4.1, 2.4.2.1, 2.4.2.2, 2.4.3.3, 2.4.3.5, 2.4.3.7, 2.7.2, 2.7.4 Fig. D.1, Table 2-5
US	5,412,430	15	Motion Compensation	Dual prime	Video: 7.6.1, 7.6.4, 7.6.8
US	5,418,782	1,4	Systems	PMT, PAT	Systems: Intro., Intro. 1, 2.1.20, 2.1.41, 2.4.4, 2.4.4.5, 2.4.4.8, Ann. C.5, C.7, C.9
US	5,420,866	1,4,8,9	Systems	CAT, EMM's, ECM's.	Systems: 2.4.4, 2.4.4.6, 2.4.4.8, 2.6.16

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US	5,422,676	10	Spatial Encoding	Field/frame DCT selection	Video: Intro. 4.1, Intro. 4.1.2, 6.1.3, 6.1.4, 6.3.5, 6.3.10, 6.3.17.1, 7, 7.5, Figs. 6-13, 6-14, 7-1
US	5,424,779	1,9	Motion Compensation	Dual prime	Video: 6.3.17.3, 7, 7.6.1, 7.6.3.6
US	5,426,464	15	Picture Sequence	Top field first, repeat first field	Video: 6.1.1.4.2, 6.3.5, 6.3.10, 6.3.18, 7.1, 7.2, 7.4, 7.5, 7.5.1, 7.6.6, 7.12, Ann. D.2.2
US	5,428,396	1,14	Motion Compensation	Motion vector precision/range	Video: 6.3.10, 6.3.17.3, 7.6.3.1, 7.6.3.2, Ann. B.4, Table B.10
US	5,442,400	1	Motion Compensation	Concealment motion vectors	Video: Intro. 4.1.1, 3.49, 6.1, 6.1.1.5, 6.1.1.11, 6.2.5, 7.6.3.9
US	5,453,790	1	Spatial Encoding	Decoding and outputting frame pictures	Video: 1, 6, 6.1.1.1, 6.1.11, 6.3.5, 6.3.10, 7, 7.12; Figures: 7-1, 7-20, 7-21, 7-22.
US	5,457,701	1,4	Systems	Transport error indicator	Systems: Intro. 1, 2.4.2.6, 2.4.3.1, 2.4.3.2, 2.4.3.3, Fig. J.1
US	5,459,789	9	Systems	Demultiplexing elementary streams based on PID's	Systems: 2.4.1, 2.4.2, 2.4.3.3, 2.4.4.8, Figs. 2-1, Intro. 2, Table 2-2, 2-28, 2-39
US	5,461,420	6,14	Picture Sequence	Repeat first field	Video: 6.3.6, 6.3.10, 7.12, Ann. D.2.2
US	5,461,421	33	Spatial Encoding	Intra DC coefficient encoding for 4:2:0 color format	Video: 6.1.3, 7, 7.2.1, 7.6.4, 7.6.8
US	5,467,086	19	Motion Compensation	Macroblock-based intra/inter selection	Video: 3.86, 3.109, 3.111, 6.3.17.1, 6.3.17.3, 7.1, 7.2, 7.4, 7.5, 7.6, 7.6.4, 7.6.8, Figs. 7-1, 7-5
US	5,467,136	13	Motion Compensation	Dual prime	Video: 6.3.17.3, 7, 7.6.1, 7.6.3.6, 7.6.4, 7.6.7.4, 7.6.8
US	5,481,553	1,17	Spatial Encoding	Mismatch control	Video: 7.4.4, 7.5
US	5,483,287	1	Systems	Transport packet format with PID, continuity_counter, transport_priority, payload_unit_start_indicator, transport_scrambling_control & adaptation_field_control	Systems: 2.4.1, 2.4.3.3, 2.4.3.5 Tables 2-2, 2-4, 2-5, 2-6
US	5,486,864	7	Systems	PTS, PCR, OPCR	Systems: 2.4.1, 2.4.3.2, 2.4.3.5, 2.4.3.7, Ann.D.0.4, Tables 2-2, 2-6
US	5,491,516	3	Picture Sequence	Top field first, repeat first field	Video: 6.3.10, 7, 7.1, 7.12, Ann. D.2.2, Figs. 7-1, 7-20
US	5,500,678	1	Spatial Encoding	Alternate Scan	Video: 1, 3.12, 3.134, 6.2.3.1, 6.2.6, Fig. 7-3
US	5,510,840	4,7,19	Picture sequence	Field/frame picture selection	Video: Intro. 4.1.2, 6.3.10, 6.1.3
US	5,539,466	1	Spatial Encoding	Field/frame DCT selection	Video: Intro. 4.1.2, 6.1.3
US	5,543,847	1,7,25	Picture Sequence	I field predicting P field	Video: Intro. 4.1.4, 6.1.1.4.1, 7.6.8
US	5,559,557	1,18	Spatial Encoding	DC coefficient precision	Video: 6.3.10, 7.2, 7.2.1, 7.4, 7.4.1
US	5,563,593	12	Spatial Encoding	VLC; intra_vlc_format	Video: 1, 3.119, 3.134, 6.2.3.1, 6.2.6, Annex B.5, Tables 7-3, B.12, B.15
US	5,565,923	1	Systems	PCR and OPCR	Systems: 2.4.1, 2.4.3, 2.4.3.2, 2.4.3.3, 2.4.3.5, Ann. D.04, Tables 2-2, 2-5, 2-6
US	5,600,376	1	Picture Sequence	Top field first, repeat first field	Video: 6.1.1.4.2, 6.3.5, 6.3.10, 7.1, 7.12, Figs. 7-20, 7-21
US	5,606,539	1,18,23,29	Bit Rate Control	VBV delay	Video: 6.3.9, Ann. C, C.3.1
US	5,606,539	1,18,23,29	Systems	PTS/DTS decoding delay	Systems: 2.7.5, Ann. D, D.0.2, F
US	5,608,697	1	Bit Rate Control	VBV delay	Video: 6.3.9, Ann. C, C.3.1
US	5,608,697	1	Systems	PTS/DTS decoding delay	Systems: 2.7.5, Ann. D, D.0.2, F
US	5,654,706	1,7,13	Spatial Encoding	Alternate Scan	Video: 7.2, 7.3, 7.4
US	5,663,763	1	Spatial Encoding	Nonlinear quantization	Video: 6.2.5, 6.3.10, 6.3.17.1, 7.4.2.2, 7.4.2.3
US	5,666,461	1	Motion Compensation	Field/frame motion compensation/DCT format and macroblock addresses	Video: 6.2.5, 6.2.5.1, 6.3.17, 6.3.17.1
US	5,699,476	5	Picture Sequence	Picture sequence with P and B pictures	Video: Intro. 4.1.4, 3.110, 3.111, 6.3.9, 7.6.2.1, 7.6.2.2, 7.6.4, 7.6.8, Figs. Intro. 1, 7-6 to 7-11
US	5,701,164	1,4,7,10	Motion Compensation	Prediction motion vectors	Video: 6.2.5, 6.2.5.1, 6.2.5.2, 6.3.17.1, 7.6.3, 7.6.3.1, 7.6.5
US	5,740,310	1,2	Bit Rate Control	Picture header with temporal reference, big picture decoding	Video: 6.1.1.7, 6.3.8, 6.3.9, 7.1, Ann. C, C.7
US	5,742,344	13	Motion Compensation	Dual prime	Video: Intro. 4.1.4, 6.3.10, 6.3.17.3, 7.1, 7.2, 7.6, 7.6.3.6, 7.6.7.4, 7.6.8
US	5,784,107	11	Motion Compensation	Field/frame picture selection	Video: Intro. 4.1.2, 6.1.1.4.1, 6.1.3, 6.3.10, 7.1, 7.6.1, 7.6.4
US	5,784,110	1	Systems	PES header alignment in Transport packet	Systems: 2.4.1, 2.4.3, 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4, 2.4.3.5, 2.4.3.7, Tables 2-2
US	5,796,743	1	Systems	PES header alignment in Transport packet	Systems: 2.4.1, 2.4.3.2, 2.4.3.3, 2.4.3.4, 2.4.3.7, Tables 2-2, 2-6 Video: 6.2.1, 7.2.1, 7.2.2
US	5,844,867	1,19,29	Bit Rate Control	VBV delay	Video: 6.3.9, Ann. C, C.3.1
US	5,844,867	1,19,29	Systems	PTS/DTS decoding delay	Systems: 2.7.5, Ann. D, D.0.2, F
US	5,867,501	5	Systems	Transport stream, transport packet format with adaptation_field_control, continuity_counter, discontinuity_indicator	Systems: 2.1.52, 2.4.3, 2.4.3.2, 2.4.3.3, 2.4.3.5, Tables 2-2, 2-5, 2-6
US	5,946,042	2,4	Motion Compensation	Skipped P-field macroblocks and motion vector predictors	Video: 6.3.17, 7.6, 7.6.6, 7.6.6.1
US	5,949,489	9	Motion Compensation	Interpolating field predictors	Video: Intro. 4.1.2, 3.86, 7.6, 7.6.7.4, 7.6.8, Figs. 7-1, 7-5
US	5,963,258	20	Motion Compensation	Interpolating field predictors	Video: Intro. 4.1.2, 7.6, 7.6.7.4, Figs. 7-1, 7-5
US	5,970,175	1	Motion Compensation	Interpolating field predictors	Video: Intro. 4.1.2, 3.86, 6.3.17.1, 7.4, 7.5, 7.6, 7.6.4, 7.6.7.4, 7.6.8, Figs. 7-1, 7-5, Table 7-13
US	5,982,437	1,6,10,13	Spatial Encoding	Intra/inter VLC tables for coefficients	Video: 6.3.10, 6.3.17.1, 6.3.18, 7.1, 7.2.2, 7.2.2.1, 7.4

MPEG-2 Patent Portfolio License Illustrative Cross-Reference Chart
(Shows *illustrative* essential claims in each patent family; other claims may also be essential)

Ctry.	Patent No.	Claims	Category	Description	Standard Sections
US	5,986,713	7	Motion Compensation	Forward motion compensation; dual prime	Video: 3.86, 6.3.17.1, 7.6.1, 7.6.2.1, 7.6.3.6, 7.6.4, 7.6.7.2, 7.6.7.4, 7.6.8
US	5,990,960	4	Motion Compensation	Prediction from reconstructed pictures; alternate scan	Video: 7.3, 7.4, 7.5, 7.6, 7.6.2.1, 7.6.4, 7.6.8, Fig. 7-5
US	6,002,439	1	Motion Compensation	Interpolating field predictors; alternate scan	Video: 7.3, 7.4, 7.5, 7.6, 7.6.2.1, 7.6.4, 7.6.7.4, 7.6.8, Fig. 7-5
US	6,040,863	2,4	Motion Compensation	Skipped P-frame macroblocks and motion vector predictors	Video: 6.3.17, 7.6, 7.6.6, 7.6.6.2
US	6,097,759	4	Motion Compensation	Prediction from reconstructed pictures; alternate scan	Video: 7.3, 7.4, 7.5, 7.6, 7.6.2.1, 7.6.2.2, 7.6.4, 7.6.8
US	6,160,849	1	Motion Compensation	Frame motion type and frame/field prediction	Video: 6.3.17.1, 7.1, 7.6.4, 7.6.5, Table 7-14
US	6,181,712	1	Systems	Transport stream with ltw_offset	Systems: Introduction, Intro. 1, 2.4.1, 2.4.2.6, 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4, 2.4.3.5, Annex D.0.4, Tables 2-1, 2-2, 2-5, 2-6, Fig. Intro. 3
US	6,188,794	1	Motion Compensation	Interpolating field predictors	Video: Intro. 4.1.2, 7.6, 7.6.7.4
US	6,307,973	1	Motion Compensation	Interpolating field predictors	Video: Intro. 4.1.2, 7.6, 7.6.7.4, Fig. 7-5
US	6,680,975	56	Spatial Encoding	Alternate Scan	Video: 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	6,792,001	1	Systems	Transport packet format with adaptation_field_control	Systems: Intro. 1, 2.4.1, 2.4.3.1, 2.4.3.2, 2.4.3.3, 2.4.3.4, 2.4.3.5, Table 2-1, 2-2, 2-5, 2-6
US	7,020,204	1	Spatial Encoding	Weighted quantized coefficients, picture_start_code	Video: 3.19, 3.83, 6, 6.1.1.1, 6.1.1.5, 6.1.1.8, 6.1.3, 6.2.1, 6.2.3, 6.3.9, 6.3.11, 6.3.17.1, 7 and 7.4.2.1, Tables 6-12, 7-5 and Figure 6-10.
US	7,292,657	1	Spatial Encoding	Alternate Scan	Video: 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	7,334,248	1	Systems	Transport stream with PIDs, continuity_counter, transport_error_indicator	Systems: 2.1.13, 2.1.32, 2.4.1, 2.4.2.3, 2.4.3.1, 2.4.3.2, 2.4.3.3, Tables 2-1, 2-2, Figure 2-1
US	7,362,805	1	Motion Compensation	Macroblock_type	Video: Intro. 4.1.1, Intro. 4.1.2, 1, 3.5, 3.54, 3.57, 3.64, 3.77, 3.78, 3.93, 6.1.1.1, 6.1.1.5, 6.1.3, 6.1.4, 6.2.5, 6.2.5.1, 6.3.17.1, 7, 7.4, 7.5, 7.6, 7.6.8, Annex B.2, Table B.3, Figures Intro. 1, 6-13, 6-14, 7-1, 7-5
US	7,376,184	2	Motion Compensation	Predictive field/frame decoding	Video: Intro. 4.1.1, Intro. 4.1.2, 1, 3.5, 3.54, 3.57, 3.64, 3.77, 3.78, 3.86, 3.93, 6.1.1.1, 6.1.1.5, 6.1.3, 6.1.4, 6.2.5, 6.2.5.1, 6.3.17.1, 7, 7.1, 7.4, 7.5, 7.6, 7.6.4, 7.6.8, Annex B.2, Table B.3, and Figures Intro. 1, 6-13, 6-14, 7-1, 7-5.
US	7,609,760	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-1, 7-2, 7-3,
US	7,616,687	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-1, 7-2, 7-3,
US	7,627,041	5	Spatial Encoding	Picture display extension	Video: 1, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3.2, 6.2.3.3, 6.3.1, 6.3.11, 6.3.12, Tables 6-1, 6-2
US	7,684,490	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	7,724,821	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	7,724,822	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, Figs. 7-2, 7-3
US	7,724,823	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, Figs. 7-2, 7-3
US	7,724,824	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2.2.4, 7.3, Figs. 7-2, 7-3
US	7,724,828	1	Spatial Encoding	Alternate Scan	Video: 1, 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	7,724,829	1	Spatial Encoding	Alternate Scan	Video: 1, 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	7,742,522	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, Figs. 7-2, 7-3
US	7,742,527	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, Figs. 7-1, 7-2, 7-3
US	7,756,202	6	Motion Compensation	Predictive field/frame decoding	Video: intro. 4.1.1, 1, 3.77, 3.78, 3.86, 3.93, 6.1.1.5, 6.1.3, 6.1.4, 6.2.5, 6.2.5.1, 6.3.9, 6.3.17.1, 7, 7.1, 7.2, 7.2.1, 7.4, 7.5, 7.6, 7.6.4, 7.6.8, Annex B.2, Table B.3, Fig. Intro. 1, 7-1, 7-5
US	7,764,735	1	Spatial Encoding	Alternate Scan	Video: 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	7,782,956	1	Spatial Encoding	Alternate Scan	Video: 1, 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	7,787,538	1	Spatial Encoding	Alternate Scan	Video: 1, 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2, 7.2.2.1, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-1, 7-2, 7-3
US	7,936,817	1	Motion Compensation	Field/frame prediction; picture coding type	Intro. 4.1.1, 1, 3.110, 3.111, 6.1.1.1, 6.1.1.11, 6.2.3, 6.3.9, 6.3.10, 6.3.17.1, 6.3.17.2, 7, 7.6.1, 7.6.2.1, 7.6.2.2, 7.6.6.2, 7.6.6.4, Annex B.2, Tables 6-14, B.2, B.3, B.4 and Figures Intro. 1, 7-6, 7-7, 7-8, 7-9, 7-10, 7-11
US	7,949,045	1	Spatial Encoding	Alternate Scan	Video: 1, 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2.2.4, 7.3, Figs. 7-2, 7-3
US	7,949,046	1	Spatial Encoding	Alternate Scan	Video: 1, 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	7,953,148	1	Spatial Encoding	Alternate Scan	Video: 1, 3.39, 3.40, 3.49, 3.50, 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2.2.4, 7.3, Figs. 7-2, 7-3
US	7,953,149	1	Spatial Encoding	Alternate Scan	Video: 1, 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2.2.4, 7.3, 7.4, 7.5, Figs. 7-2, 7-3
US	7,953,150	1	Spatial Encoding	Alternate Scan	Video: 1, 3.39, 3.40, 3.49, 3.50, 4.6, 6.1.4, 6.2.3.1, 6.2.6, 6.3.10, 7.2.2.4, 7.3, 7.4, 7.5,
US	8,155,209	1	Spatial Encoding	Picture display extension	Video: 1, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3.2, 6.2.3.3, 6.3.1, 6.3.11, 6.3.12, 7, 7.1, Tables 6-1, 6-2
US	8,155,210	1	Spatial Encoding	Picture display extension	Video: 1, 3.127, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3, 6.2.3.2, 6.2.3.3, 6.3.1, 6.3.9, 6.3.11, 6.3.12, 7, 7.1, Tables 6-1, 6-2
US	8,160,155	1	Spatial Encoding	Picture display extension	Video: 1, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3, 6.2.3.2, 6.2.3.3, 6.3.1, 6.3.9, 6.3.11, 6.3.12, 7, 7.1, Tables 6-1, 6-2
US	8,249,169	1	Spatial Encoding	Picture display extension	Video: 1, 3.127, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3, 6.2.3.3, 6.3.1, 6.3.9, 6.3.12, 7, 7.1, Tables 6-1, 6-2
US	8,254,465	1	Spatial Encoding	Picture display extension	Video: 1, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3.3, 6.3.1, 6.3.12, 7, 7.1, Tables 6-1, 6-2
US	8,279,939	1	Spatial Encoding	Picture display extension	Video: 1, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3.3, 6.3.1, 6.3.12, 7, 7.1, Tables 6-1, 6-2
US	8,279,941	1	Spatial Encoding	Picture display extension	Video: 1, 6.2.1, 6.2.2, 6.2.3, 6.2.2.2.1, 6.2.3.3, 6.3.1, 6.3.9, 6.3.12, 7, 7.1, Tables 6-1, 6-2

MPEG-2 Patent Portfolio License Illustrative Cross-Reference Chart
(Shows *illustrative* essential claims in each patent family; other claims may also be essential)

Ctry.	Patent No.	Claims	Category	Description	Standard Sections
US	8,300,706	4	Spatial Encoding	Picture display extension	Video: 1, 3.127, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3, 6.2.3.3, 6.3.1, 6.3.9, 6.3.12, 7, 7.1, Tables 6-1, 6-2
US	8,320,468	1	Spatial Encoding	Picture display extension	Video: 1, 3.10, 3.40, 3.50, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3.3, 6.3.1, Tables 6-1, 6-2
US	8,320,469	4	Spatial Encoding	Picture display extension	Video: 1, 6.2.1, 6.2.2, 6.2.2.2.1, 6.2.3, 6.2.3.3, 6.3.1, 6.3.9, 6.3.12, 7, 7.1, Tables 6-1, 6-2
US	Re. 34,965	13	Motion Compensation	Bidirectional motion compensation	Video: 6.1.1.11, 7.6.4, 7.6.7.1, 7.6.8
US	Re. 35,093	30,46	Motion Compensation	Dual prime, bidirectional prediction	Video: 7.6.2.1, 7.6.4, 7.6.7, 7.6.7.2, 7.6.7.4, 7.6.8
US	Re. 35,158	16	Motion Compensation	Macro-block based predictor selection	Video: 6.1.1.11, 6.3.17.1, 7.6.4, 7.6.7.1, 7.6.8, Ann. B.2, Table B.4
US	Re. 35,910	2, 7	Motion Compensation	Bidirectional motion compensation	Video: Intro. 4.1.1, Intro. 4.1.4, 7.6, 7.6.2.2, 7.6.7, 7.6.7.1, 7.6.8
US	Re. 36,015	13,15	Picture Sequence	P-field predictions from fields of same and preceding frame	Video: Intro. 4.1.2, 3.109, 3.110, 6.1.1.4.1, 6.1.1.5, 6.1.1.11, 7.6.2.1
US	Re. 36,507	13	Picture Sequence	IP frame followed by another P field	Video: Intro. 4.1.1, Intro. 4.1.2, 3.86, 3.109, 3.110, 6.1.1.4.1, 6.1.1.5, 6.3.10
US	Re. 36,822	11	Motion Compensation	Concealment motion vectors	Video: Intro. 4.1.3, 3.85, 6.2.4, 6.2.5, 6.2.6, 6.3.17.1, 7.6.3.9
US	Re. 37,057	45	Spatial Encoding	Repeat first field	Video: Intro. 4.1.3, 3.30, 3.40, 3.85, 3.108, 6.3.3, 6.3.5, 6.3.6, 6.3.10, 6.3.12, 6.3.12.1, 7, 7.1, 7.12, Figures: 6-16, 7-2, 7-19, 7-21, 7-22.
US	Re. 37,222	25,27,33	Motion Compensation	macroblock_type; motion vector coding	Video: 3.84, 6.2.5, 6.2.5.1, 6.3.17.1, 6.3.18, 7.2, 7.4, 7.5, 7.6, 7.6.3.1, Ann. B.2, B.4
US	Re. 37,222	16,29,36,41	Picture Sequence	Sequence of I, P and B pictures; picture reordering	Video: 3.109, 3.110, 3.111, 6.1.1.5, 6.1.1.11, 7.6.2.1, 7.6.2.2, 7.6.7.1, 7.6.7.2, 7.6.8, Fig. Intro. 1
US	Re. 37,568	4	Spatial Encoding	Inverse quantization	Video: 6.2.6, 6.3.11, 6.3.17.1, 7.3.1, 7.4, 7.4.1, 7.4.2, 7.4.2.1, 7.4.2.2, 7.4.2.3, 7.4.5, 7.5, table 7-5 and figure 7-4.
US	Re. 39,276	6	Motion Compensation	Dual Prime	Video: 1, 7.6, 7.6.3.6, 7.6.4, 7.6.7.4; Figures: 7-5, 7-12 and Tables: 7-11 & 7-12.
US	Re. 44,231	18	Systems	Demultiplexing elementary streams based on PID's	Systems: Intro. 5, 2.1.13, 2.1.32, 2.1.41, 2.1.42, 2.1.43, 2.4.1, 2.4.2, 2.4.2.2, 2.4.2.3, 2.4.2.4, 2.4.2.5, 2.4.3.2, 2.4.3.3, 2.4.4.8, 2.4.4.9, 2.6, 2.6.18, 2.6.19, Annex C.6, D.0.3, Tables 2-2, 2-3, 2-28, 2-29, Figures 2-1, D-2
US	Re. 44,259	18	Systems	Demultiplexing elementary streams based on PID's	Systems: Intro. 5, 2.1.13, 2.1.32, 2.1.41, 2.1.42, 2.1.43, 2.4.1, 2.4.2, 2.4.2.2, 2.4.2.3, 2.4.2.4, 2.4.2.5, 2.4.3.2, 2.4.3.3, 2.4.4.8, 2.4.4.9, 2.6, 2.6.18, 2.6.19, Annex C.6, D.0.3, Tables 2-2, 2-3, 2-28, 2-29, Figures 2-1, D-2
US	Re. 44,282	18	Systems	Demultiplexing elementary streams based on PID's	Systems: Intro. 5, 2.1.13, 2.1.32, 2.1.41, 2.1.42, 2.1.43, 2.4.1, 2.4.2, 2.4.2.2, 2.4.2.3, 2.4.2.4, 2.4.2.5, 2.4.3.2, 2.4.3.3, 2.4.4.8, 2.4.4.9, 2.6, 2.6.18, 2.6.19, Annex C.6, D.0.3, Tables 2-2, 2-3, 2-28, 2-29, Figures 2-1, D-2
US	Re. 44,729	18	Systems	Demultiplexing elementary streams based on PID's	Systems: Intro. 5, 2.1.13, 2.1.32, 2.1.41, 2.1.42, 2.1.43, 2.4.1, 2.4.2, 2.4.2.2, 2.4.2.3, 2.4.2.4, 2.4.2.5, 2.4.3.2, 2.4.3.3, 2.4.4.8, 2.4.4.9, 2.6, 2.6.18, 2.6.19, Annex C.6, D.0.3, Tables 2-2, 2-3, 2-28, 2-29, Figures 2-1, D-2
US	Re. 44,741	18	Systems	Demultiplexing elementary streams based on PID's	Systems: Intro. 5, 2.1.13, 2.1.32, 2.1.41, 2.1.42, 2.1.43, 2.4.1, 2.4.2, 2.4.2.2, 2.4.2.3, 2.4.2.4, 2.4.2.5, 2.4.3.2, 2.4.3.3, 2.4.4.8, 2.4.4.9, 2.6, 2.6.18, 2.6.19, Annex C.6, D.0.3, Tables 2-2, 2-3, 2-28, 2-29, Figures 2-1, D-2