



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G06K	A2	(11) International Publication Number: WO 98/32090 (43) International Publication Date: 23 July 1998 (23.07.98)
(21) International Application Number: PCT/US97/24152 (22) International Filing Date: 19 December 1997 (19.12.97) (30) Priority Data: 08/775,791 31 December 1996 (31.12.96) US (71) Applicant: ELECTRONICS FOR IMAGING, INC. [US/US]; 2860 Campus Drive, San Mateo, CA 94403 (US). (72) Inventor: JACKSON, Bernard, G.; 18 Parker Avenue, Ather- ton, CA 94027 (US). (74) Agents: GLENN, Michael, A. et al.; Law Offices of Michael A. Glenn, P.O. Box 7831, Menlo Park, CA 94026 (US).		(81) Designated States: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HU, ID, IL, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, UZ, VN, YU, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published Without international search report and to be republished upon receipt of that report.
(54) Title: INTERLEAVED-TO-PLANAR DATA CONVERSION (57) Abstract Interleaved data are converted to a planar format by an algorithm that follows map cycles throughout a frame buffer. Such map cycles result from iterating a function that maps planar addresses to CMYK addresses. There are three phases to the algorithm: in phase I, a 1-Cycle is processed and all of its member indices that are $\leq \text{MAX_HIT}$ in the array firstHit[] are saved. In phase II, all indices between 1 and MAX_HIT are visited, skipping any indices that have already been in a cycle. As each cycle is converted, any hits to indices between 1 and MAX_HIT are directly recorded in the array hit[], so that indices that have been used are quickly skipped. Phase III is skipped unless there are still some copies left to process. In phase III, there is no more space for recording every hit individually. When looking for new cycles, only indices that are not multiples of anything in the 1-Cycle are considered. Also, once the remaining number of uncycled bytes drops below the 1-Cycle's length, all remaining cycles are known to belong to factors of Q, and the search is narrowed to those values only. When an index i is found that cannot be rejected for one of these reasons, the algorithm begins processing the indices cycle, but if the algorithm ever ends up at an index less than i, then this i-cycle has already been processed. In that case, the i-cycle is restored to its previous state by copying in the reverse direction, and the algorithm skips to the next candidate for i. <pre> graph TD 100[100 MAP THE 1-CYCLE THROUGH THE FRAME BUFFER] --> 110[110 FIND CYCLES FROM 1 TO MAX_HIT AND MAP THROUGH THE FRAME BUFFER] 110 --> 120[120 MAP ALL REMAINING CYCLES] </pre>		