

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 September 2006 (21.09.2006)

PCT

(10) International Publication Number
WO 2006/099228 A1

(51) International Patent Classification:

G06F 17/14 (2006.01) **H04L 27/26** (2006.01)

(21) International Application Number:

PCT/US2006/008769

(22) International Filing Date: 10 March 2006 (10.03.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/660,899 10 March 2005 (10.03.2005) US

(71) Applicant (for all designated States except US): **QUALCOMM INCORPORATED** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **KRISHNAMOORTHY, Raghuraman** [IN/US]; 8730 Costa Verde Boulevard, #2302, San Diego, California 92122 (US).

(74) Agents: **WADSWORTH, Philip, R.** et al.; 5775 Morehouse Drive, San Diego, California 92121 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

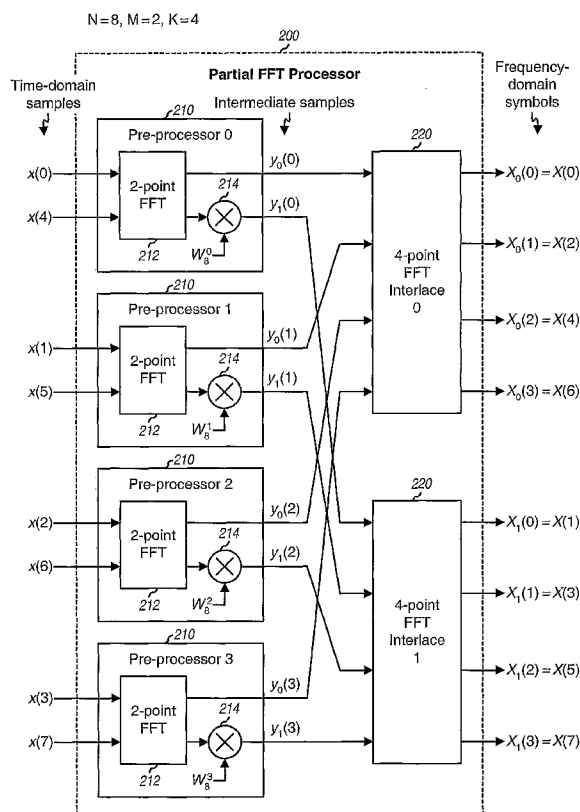
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

[Continued on next page]

(54) Title: PARTIAL FFT PROCESSING AND DEMODULATION FOR A SYSTEM WITH MULTIPLE SUBCARRIERS



(57) Abstract: Techniques for efficiently performing partial FFT for subcarriers of interest are described. The N total subcarriers may be arranged into M sets. Each set may contain K subcarriers uniformly distributed across the N total subcarriers, where $N = M \cdot K$. For the partial FFT, pre-processing is initially performed on time-domain samples to obtain intermediate samples. The pre-processing may include performing M -point FFTs on the time-domain samples and multiplying the FFT outputs with unit complex values. For each set of subcarriers of interest, a K -point FFT is performed on a set of intermediate samples to obtain a set of frequency-domain symbols for that set of subcarriers. Since K is typically much smaller than N , substantial savings in computation and power may be realized when only one or few sets of subcarriers are of interest.



- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.