

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
10 October 2002 (10.10.2002)

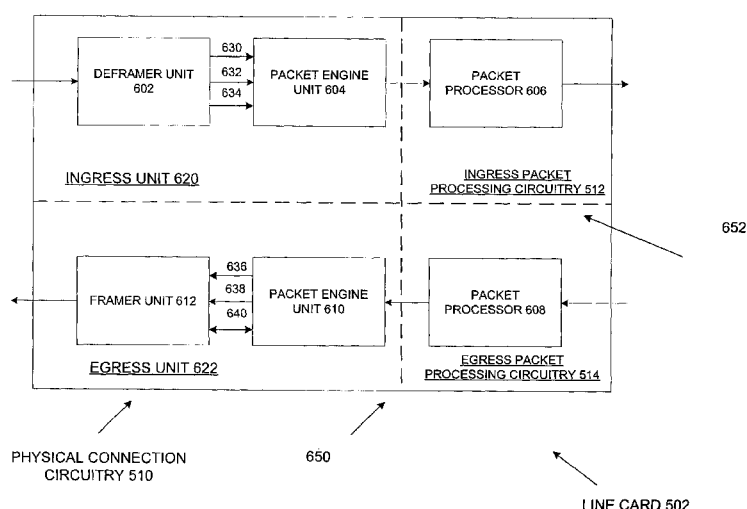
PCT

(10) International Publication Number
WO 02/080421 A1

- (51) International Patent Classification⁷: **H04J 3/24**
- (21) International Application Number: PCT/US02/04451
- (22) International Filing Date: 14 February 2002 (14.02.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/280,661 31 March 2001 (31.03.2001) US
09/837,448 17 April 2001 (17.04.2001) US
- (71) Applicant: **REDBACK NETWORKS INC.** [US/US];
250 Holger Way, San Jose, CA 95134 (US).
- (72) Inventors: **MCCLARY, Michael**; 36347 Christine Street,
Newark, CA 94560 (US). **NARAHARI, Sharath**; 925
Roselma Place, Pleasanton, CA 94566 (US). **STILES,
David, R.**; 21108 Brush Road, Los Gatos, CA 95033 (US).
- (74) Agents: **MALLIE, Michael, J.** et al.; Blakely, Sokoloff
Taylor & Zafman LLP, 12400 Wilshire Boulevard, 7th
Floor, Los Angeles, CA 90025 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN,
YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent
(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

[Continued on next page]

(54) Title: ALIGNMENT OF TDM-BASED SIGNALS



(57) **Abstract:** A method and apparatus for alignment of TDM-based signals for packet transmission using framed and unframed operations are described. In an embodiment, a line card (502) in a network element includes a deframer (602) unit that receives a Time Division Multiplexing (TDM) signal. The TDM signal includes a payload and overhead data. The deframer (602) generates frame alignment data based on the overhead data. The line card (502) also includes a packet engine (604) unit coupled to the deframer (602). The packet engine (604) receives the payload, the overhead data and the frame alignment data and generates a number of packet engine packets. The packet engine packets represent a frame within the TDM signal such that the packet engine packet include the payload, the overhead data and the frame alignment data. Additionally, the line card (502) includes a packet processor (606) coupled to the deframer (602). The packet processor (606) receives the packet engine packets and generates network packets based on the packet engine packets.



WO 02/080421 A1



Published:

— with international search report

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.

(48) Date of publication of this corrected version:

31 October 2002

(15) Information about Correction:

see PCT Gazette No. 44/2002 of 31 October 2002, Section II