



US007095945B1

(12) **United States Patent**
Kovacevic

(10) **Patent No.:** **US 7,095,945 B1**
(45) **Date of Patent:** **Aug. 22, 2006**

(54) **SYSTEM FOR DIGITAL TIME SHIFTING AND METHOD THEREOF**

6,792,000 B1 * 9/2004 Morinaga et al. 386/124

(75) Inventor: **Branko Kovacevic**, Willowdale (CA)

(73) Assignee: **ATI Technologies, Inc.**, Toronto (CA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 943 days.

(21) Appl. No.: **09/707,060**

(22) Filed: **Nov. 6, 2000**

(51) **Int. Cl.**
H04N 9/80 (2006.01)

(52) **U.S. Cl.** **386/12**; 386/46; 386/98

(58) **Field of Classification Search** 386/46;
386/48, 68, 124-126, 12, 98; 348/423.1;
360/39, 48; 369/32.01

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 5,521,922 A * 5/1996 Fujinami et al. 348/423.1
- 5,936,925 A * 8/1999 Yoshio et al. 360/39
- 6,072,832 A * 6/2000 Katto 348/423.1
- 6,148,135 A * 11/2000 Suzuki 386/12
- 6,233,389 B1 * 5/2001 Barton et al. 386/68
- 6,751,170 B1 * 6/2004 Ueki 369/32.01

OTHER PUBLICATIONS

“Transmission of Non-Telephone Signals,” Information Technology—Generic Coding of Moving Pictures and Associated Audio Information: Systems, ITU-T Recommendation H.222.0, Jul. 1995, 120 pp.

“Information Technology—Generic Coding of Moving Pictures and Associated Audio Information—Part 3: Audio,” ISO/IEC 13818-3, Second Edition, Apr. 15, 1998, 116 pp.

* cited by examiner

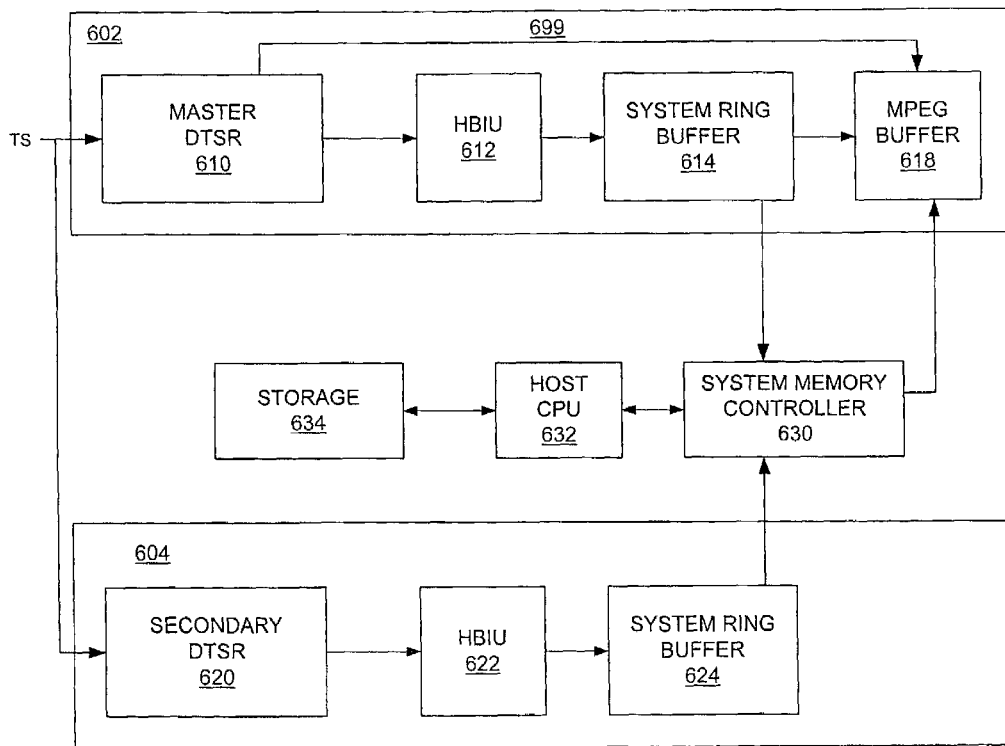
Primary Examiner—James J. Groody

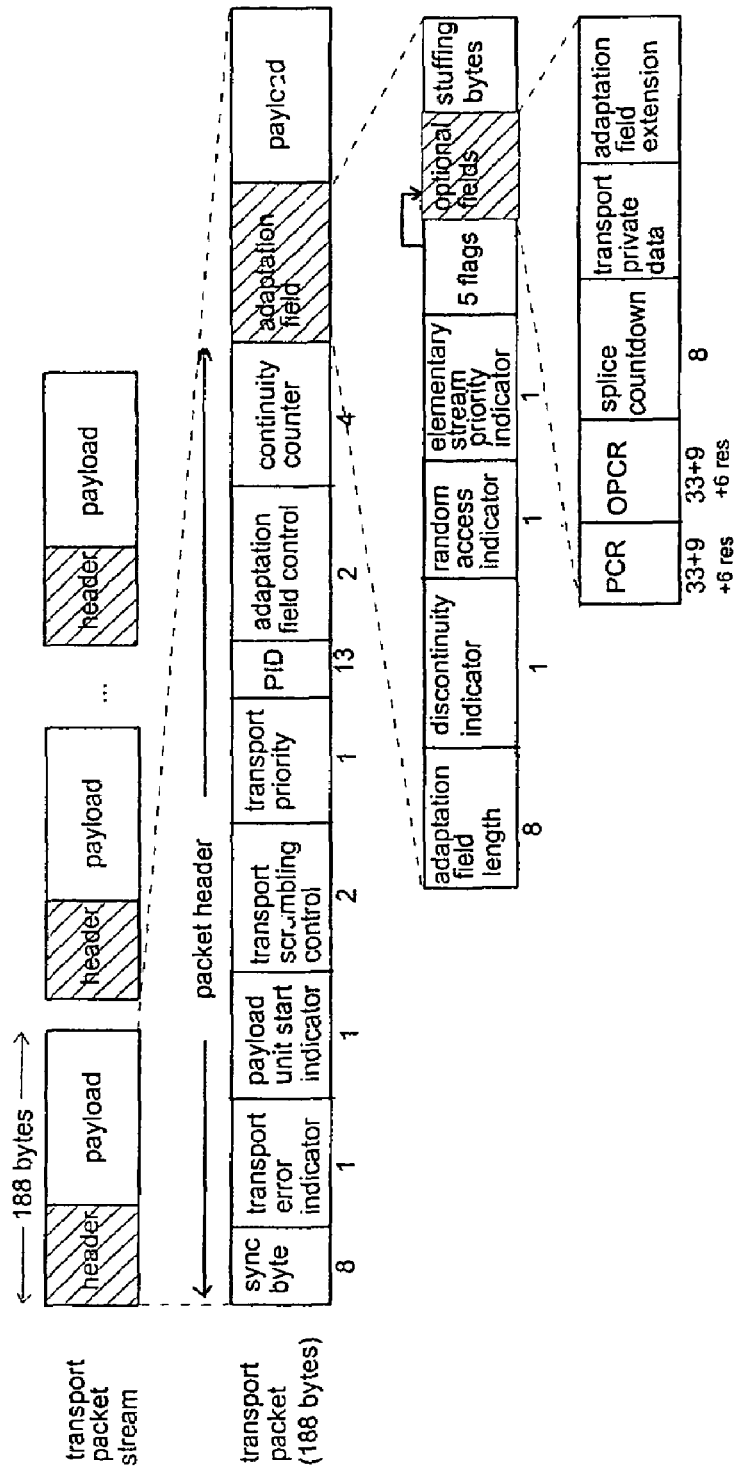
Assistant Examiner—Christopher Onuaku

(57) **ABSTRACT**

A multiplexed packetized data stream carrying real-time multimedia is received at a first hardware demultiplexer. Based on a user input, a video and timing portion of a program associated with the multiplexed packetized data stream can be stored for subsequent display. One type of subsequent display is time shifted display, where the stored portion of the program is played back while new portions of the program are being stored. During time shifted play back, a second hardware demultiplexer can be used, so that one demultiplexer stores new data and maintains a current clock value while the other decodes and displays the stored data.

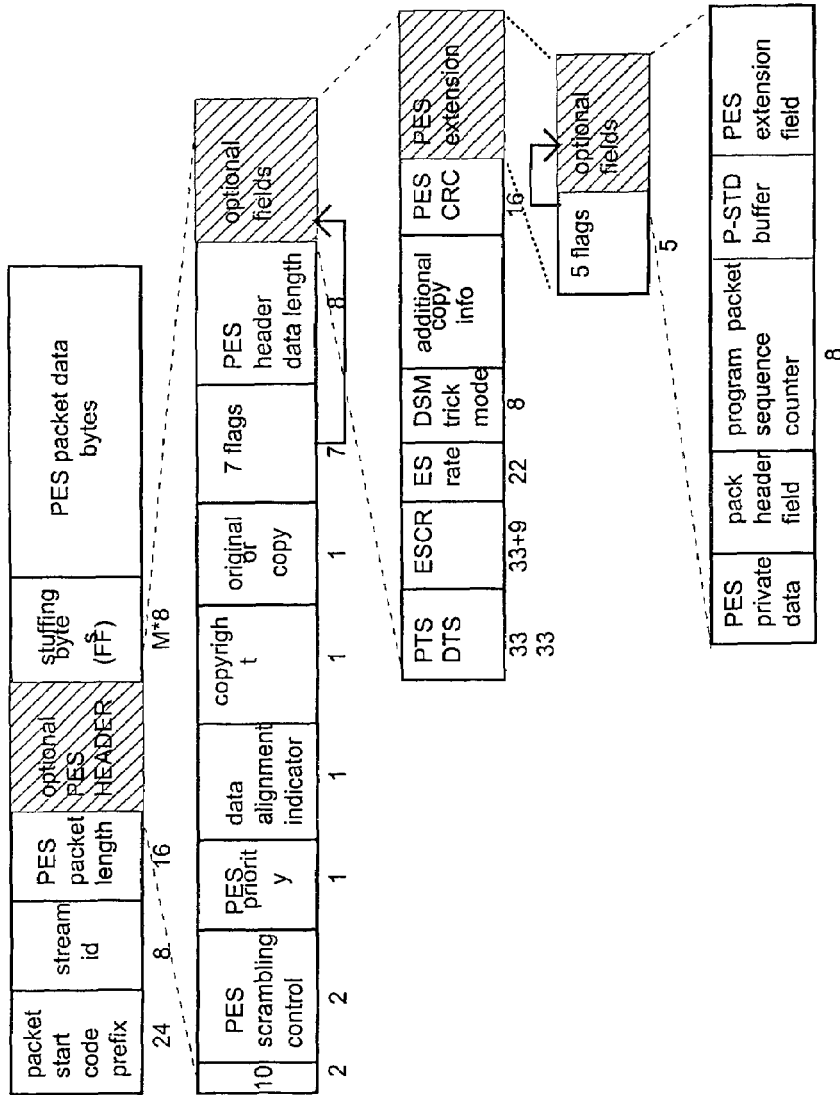
27 Claims, 6 Drawing Sheets





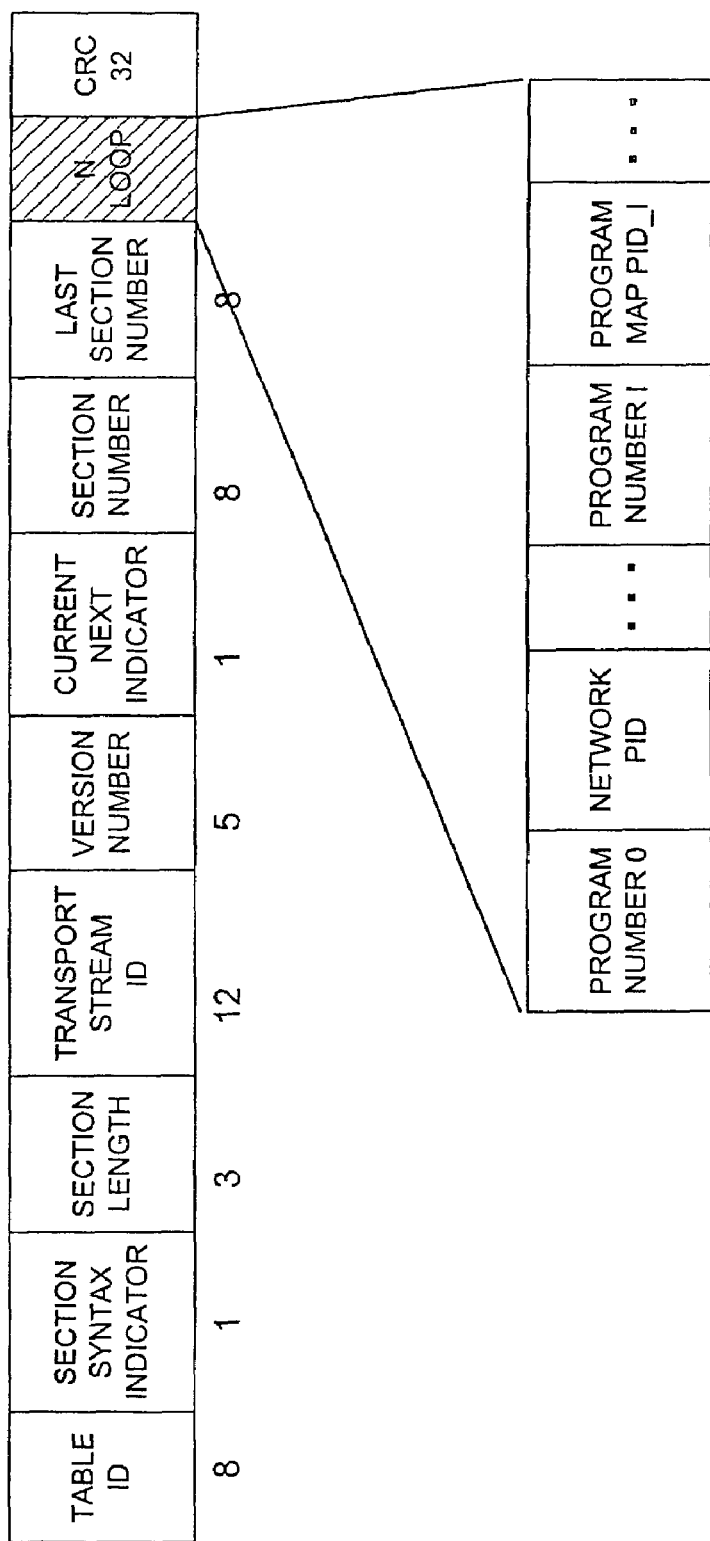
--PRIOR ART--

FIGURE 1



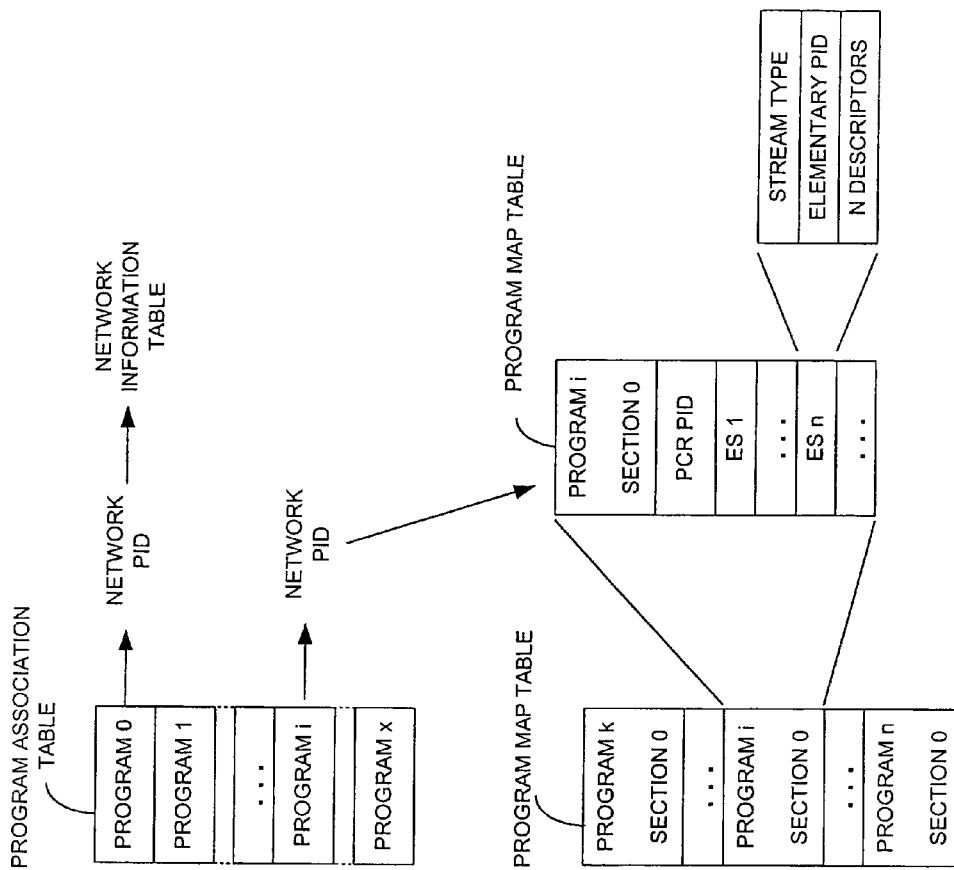
--PRIOR ART--

FIGURE 2



--PRIOR ART--

FIGURE 3



--PRIOR ART--

FIGURE 4

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.