



- [54] **DIGITAL ENTERTAINMENT TERMINAL PROVIDING MULTIPLE DIGITAL PICTURES**
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- [73] Assignee: **Bell Atlantic Network Services, Inc.**, Arlington, Va.
- [21] Appl. No.: **698,281**
- [22] Filed: **Aug. 14, 1996**
- [51] Int. Cl.⁶ **H04N 5/445; H04N 5/45**
- [52] U.S. Cl. **348/564; 348/565; 348/567; 348/568; 348/588**
- [58] **Field of Search** **348/564, 565, 348/567, 568, 588, 598; 382/240; H04N 5/445, 5/45**

Attorney, Agent, or Firm—McDermott, Will & Emery

[57] **ABSTRACT**

Two MPEG-encoded digital data streams are simultaneously decoded in a digital entertainment terminal to provide Picture-in-Picture (PIP) and Picture-on-Picture (POP) capabilities for a conventional television. A primary MPEG-encoded data stream is decoded using a digital video processor optimized for MPEG2 decoding or a dedicated MPEG2 decoder system. A secondary MPEG-encoded data stream is partially processed by filtering the B frames of the secondary MPEG-encoded data stream and using the corresponding I and P frames in a partial decoding arrangement to obtain decompressed video data providing a limited-resolution representation of a second program. Partial decoding may also be performed using only I frames. The partial decoding may be implemented through execution of software by a general-purpose microprocessor. Alternatively, the media processor may perform the partial decoding during the idle intervals of the dedicated media processor.

- [56] **References Cited**
 - U.S. PATENT DOCUMENTS
 - 5,481,315 1/1996 Matsunaga 348/565
- Primary Examiner*—Sherrie Hsia

48 Claims, 8 Drawing Sheets

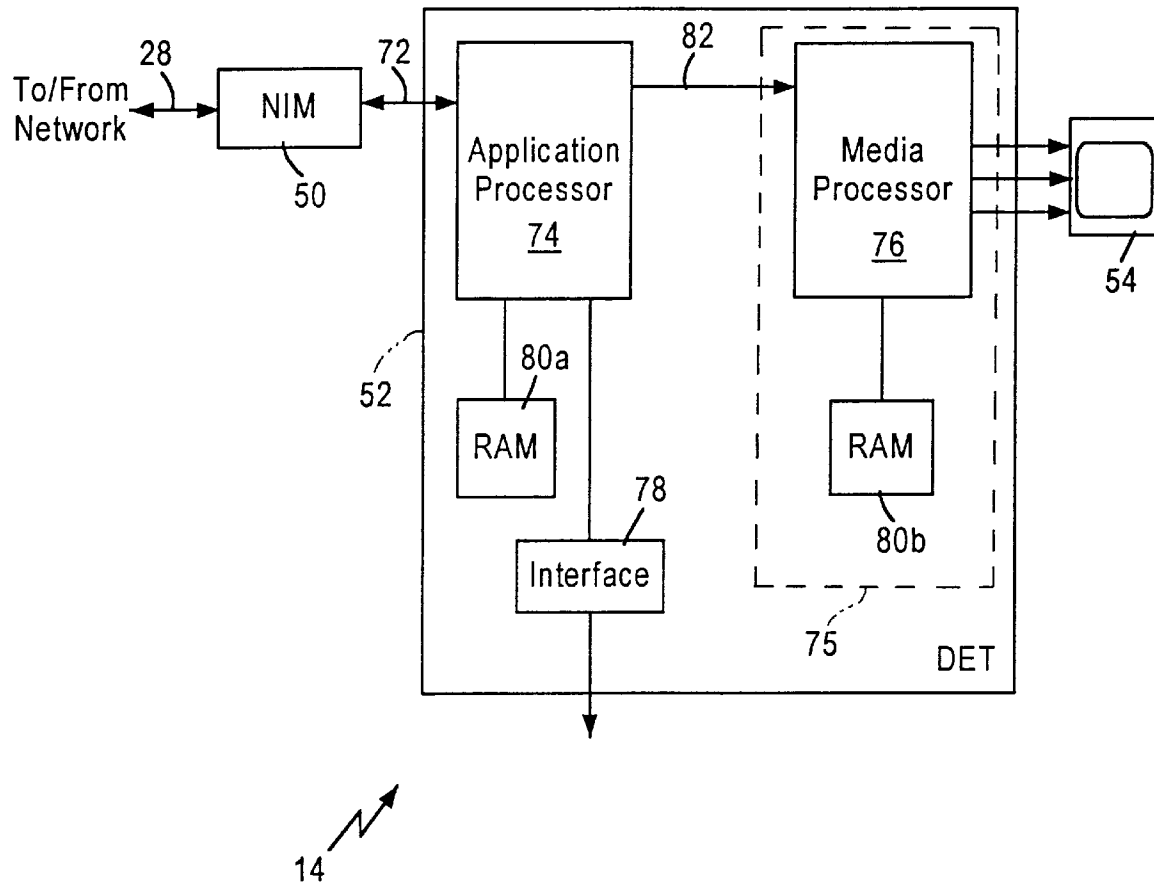


Figure 1

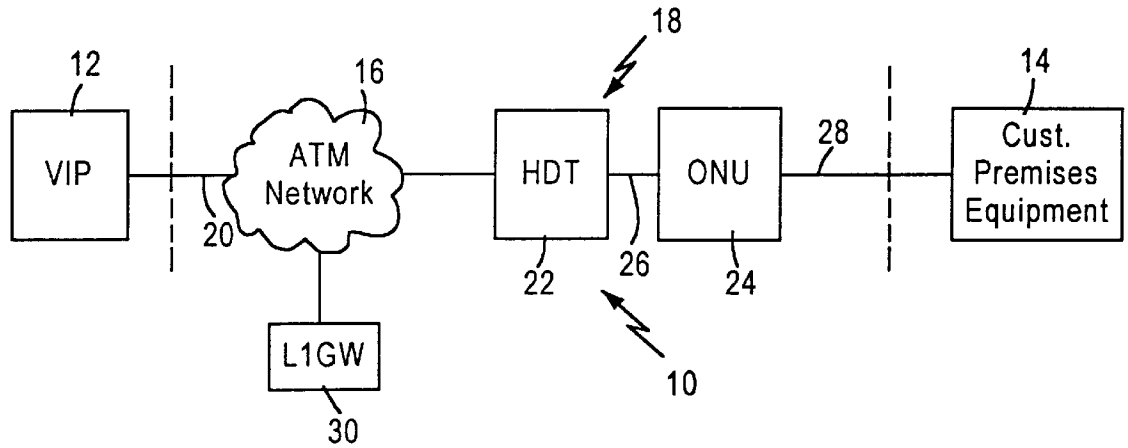


Figure 2

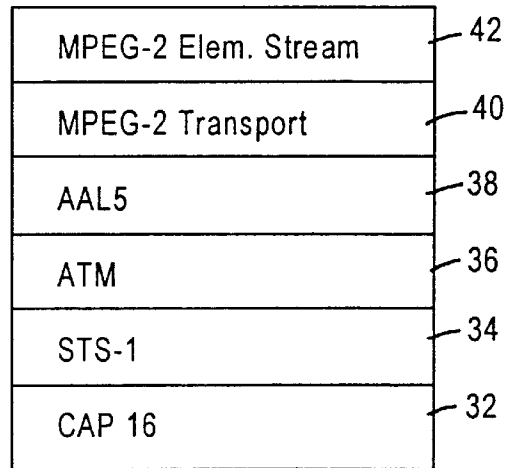


Figure 3

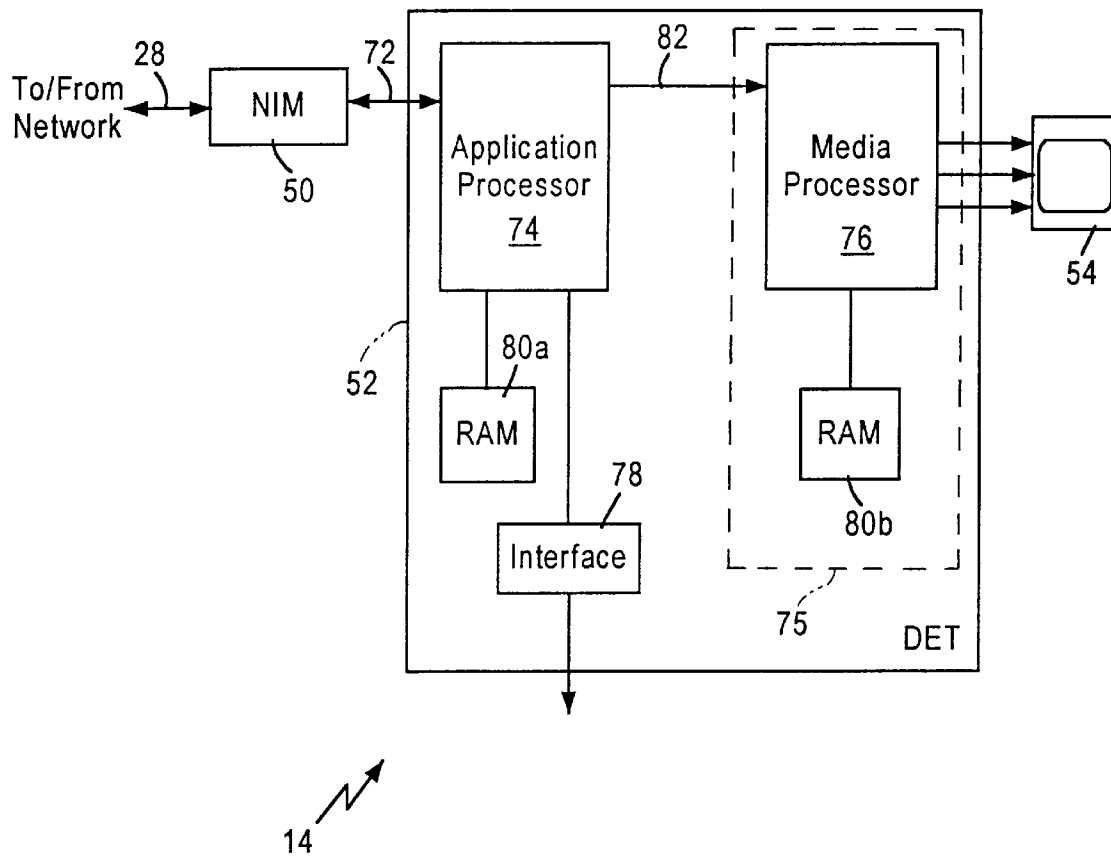


Figure 4

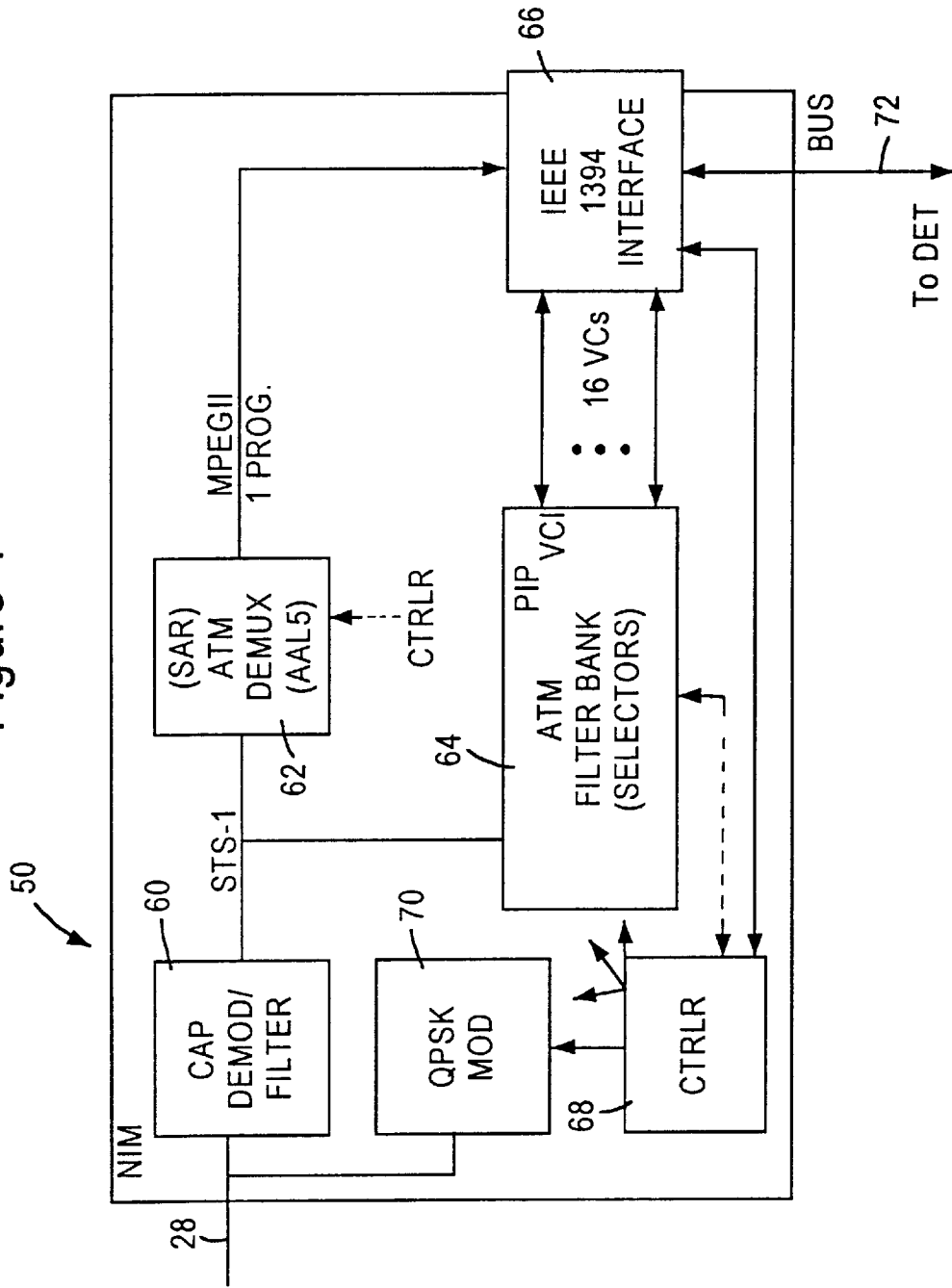
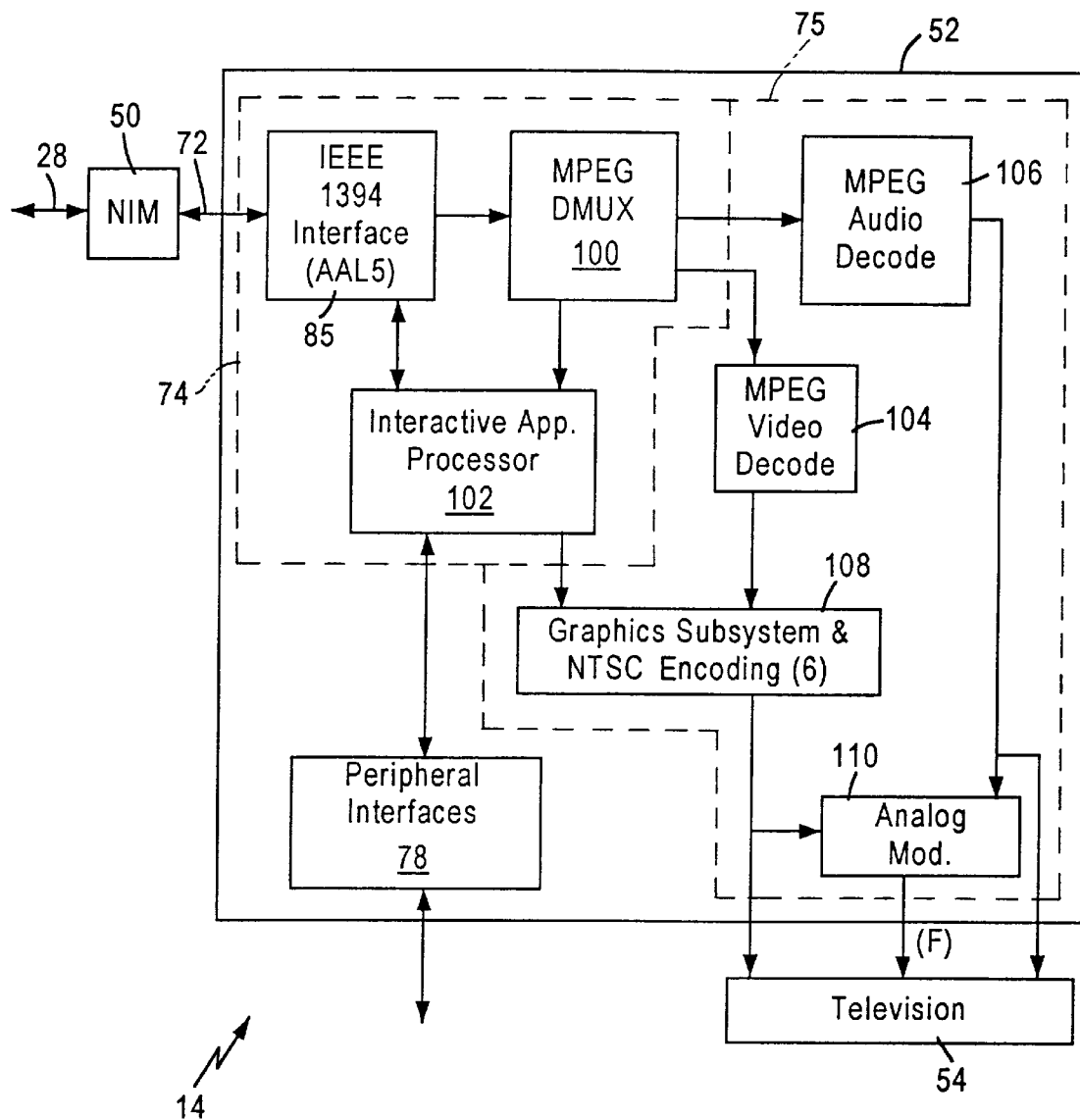


Figure 5



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