INTERNATIONAL STANDARDS ACTIVITIES IN IMAGE DATA COMPRESSION

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INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

D channel ..... 16 kilobits/second (packetized)

B channel ..... 64 kilobits/second

H0 channel ..... 384 kilobits/second

H11 channel ..... 1.5 Megabits/second (T1)

H22 channel ..... 45 Megabits/second (T3)

H4 channel ..... 135 Megabits/second (packetized)

INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

- Basic Access 2B + D
- Primary Access H11 = 23B + D
- Other Access (Evolving)

Coding for Color TV

Common Committee for International Radio (CCIR)

- Recommendation 601 (called CCIR 601)
  - Component coding - Y, Cr, Cb
  - Sampling: Y 13.5Mhz, Cr & Cb 6.75Mhz
  - Total bit rate 216 Megabits/second
  - Full frame: 720 x 480 NTSC, 720 x 576 PAL

Coding for Color TV

American National Standards Institute (ANSI)

- Committee T1Y1.1
  - So called "Network Quality"
  - NTSC Composite Signal Coding
  - Sampling: 14.32Mhz = 4 x Fsc
  - Bit rate: H11 T3 45Mbs
- Unofficial
  - So called "CATV" Quality
  - NTSC Composite Coding
  - Sampling: 10.7Mhz = 3 x Fsc
  - DPCM at 4 bits/pel
  - Bit rate: H22 ~ T3 ~ 45Mbs

  - Coding chips exist

Coding for Video Conferencing

Consultative Committee for Telephone and Telegraph (CCITT)

- Recommendations H.110 & H.120
  - — Conditional Replenishment
  - — Interframe DPCM
  - — Bit rates: H11 ~ 1.5Mbs or H12 ~ 2.0Mbs

Coding for Video Conferencing

Consultative Committee for Telephone and Telegraph (CCITT)

- Recommendation H.12x
  - — Common Intermediate Format (CIF)
    - 360 pels, 288 lines, 30 frames/second, noninterlaced
  - — Conditional Replenishment
  - — Motion Compensation
  - — Discrete Cosine Transform (DCT)
    - DCT Chip available (8 x 8)
  - — Bit rates: N x 384 kbs (N x H0)
  - — Standard complete 1989

Coding for
Video Conferencing/Telephone

Consultative Committee for Telephone and Telegraph (CCITT)

- Recommendation H.????
  - Bit rates: M x 64 kbs
  - Conditional Replenishment
  - Motion Compensation
  - Remainder under study
  - Standard complete 1990???

Coding of Still Color Images

International Standards Organization (ISO)

Studied many algorithms

- Pel Domain
  - DPCM and Subsampling
  - Universal Coding
- Transform Domain
  - DCT fairly well understood
- Bit Plane Coding
  - Compatible with FAX

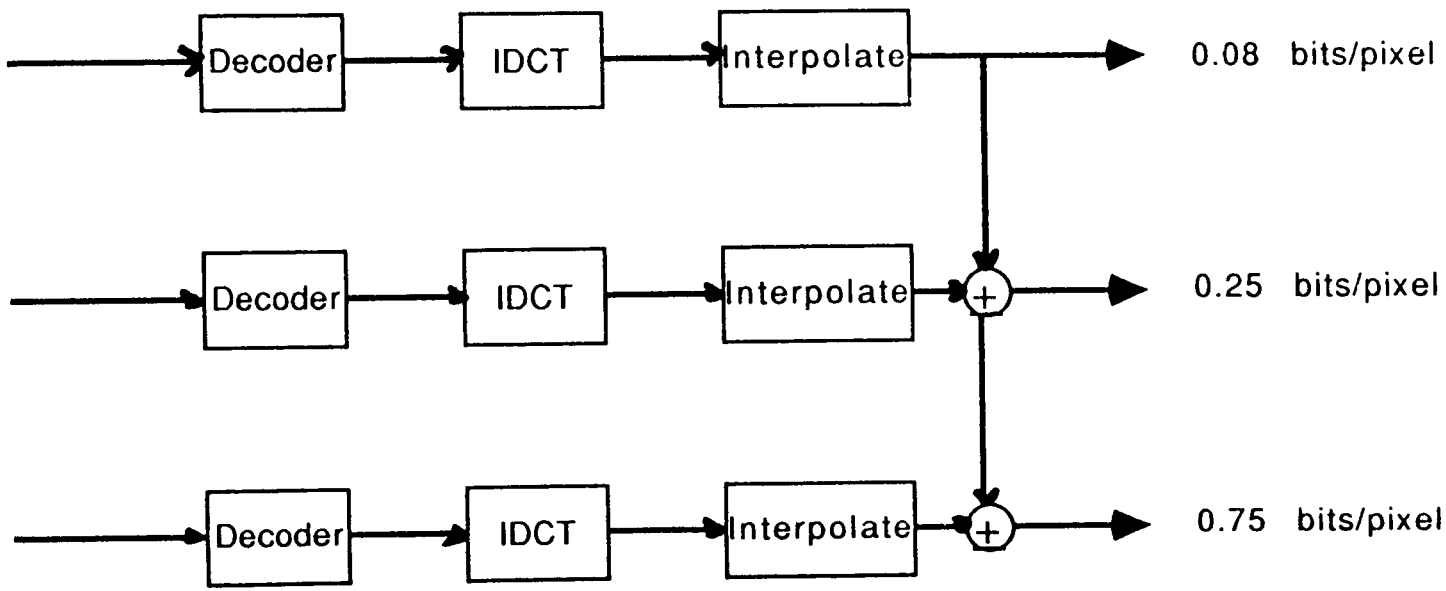
ISO Color Image Coding Standard

Pyramid DCT Gave Best Quality

- Progressive Coding and Transmission
  - .08, .25, .75 and 2.25 bits/pel
  - One final transmission for bit preservation

Proposal

ISO Still Picture Standard



Proposal

ISO Still Picture Standard