

SOURCE : JAPAN
TITLE : HARDWARE VERIFICATION OF H.26X SPECIFICATIONS
PURPOSE: Discussion

1. Introduction

At the final stage of H.26X standardization, we need hardware verification of the specifications by confirming that at least a set of independently designed coder and decoder correctly interworks.

This document provides a list of study items to initiate preparation of the hardware verification.

2. Time schedule

According to the current plan to freeze the video specifications in March 1993, the earliest possible time to start the hardware tests will be autumn 1993 if we assume several months are necessary for designing hardware and software.

3. System configuration for the experiments

All the necessary elements and possible interface points are listed in Figure 1, covering video input/output through network. The target of verification is the box indicated as "H.26X", but surrounding elements should also be prepared even if their specifications are provisional.

4. Study items

4.1 ATM network

- Are there any ATM-based networks available for the hardware trials late in 1993?
- If networks are not available, we have to transport equipment and carry out back-to-back tests at an appropriate interface point.
- Are there any network simulators available? What interface do they provide to the terminal?
- Can those simulators cause bit errors and cell losses?

4.2 Network interface

- Do we need to worry about call controls since the initial B-ISDN services are not switched ones?
- Is the physical interface 155 Mbit/s? Optical or electrical?

4.3 AAL

- As per Type 1 (1992 version)?
- At what bit rates? We should test several rates?

4.4 TA

- If the equipment providing AAL is separate from the codec, what would be the interface specifications at point (3) in Figure 1?
- Are there such TAs available in the market? Do we eventually have to test the TA?

4.5 Multimedia multiplex

- It is desirable to multiplex at least audio with video? How are they multiplexed?
- Do we also test a multimedia multiplex method?
- What audio coding should be used?
- Do we transmit video only in the worst case by bypassing the multimedia multiplex?

4.6 FEC

- We need a random error correction scheme comparable with that of H.261.
- Is the cell loss resilience scheme implemented in the source or video multiplex coding or in this transmission coding part?

4.7 Source coding, video multiplex coding, buffer - Video coding algorithm

- What profiles do we test?
 - * Low delay (coding and decoding)
 - * High quality (decoding?)
 - * Cell loss resilience
 - * H.261 compatibility?
 - * Scalability?

4.8 Pre- and post-processings

- For interregional communications, we need both pre- and post-processing for format conversion if the common format approach is employed. If the "coding at local formats" approach is employed, post-processing may be necessary for format conversion.

4.9 Video source and display

- Both of 525/60 and 625/50 versions of CCIR-601 are mandatory.
- Progressive source?

5. Local tests before interconnection

5.1 Bitstream interchange

A simulation bitstream generated by one organization should be decoded by another organization, and reproduced pictures should be examined.

5.2 Test signal generator

Such a test signal generator as the one for H.261 Flexible Hardware will be helpful for the H.26X hardware codec. Any volunteer?

6. Conclusion

Study items to prepare for the hardware verification have been listed for discussion. We should materialize a test plan and decide necessary actions. We particularly need a policy to cope with those items surrounding the coding algorithm, which are not subjects of verification but required to test H.26X.

END

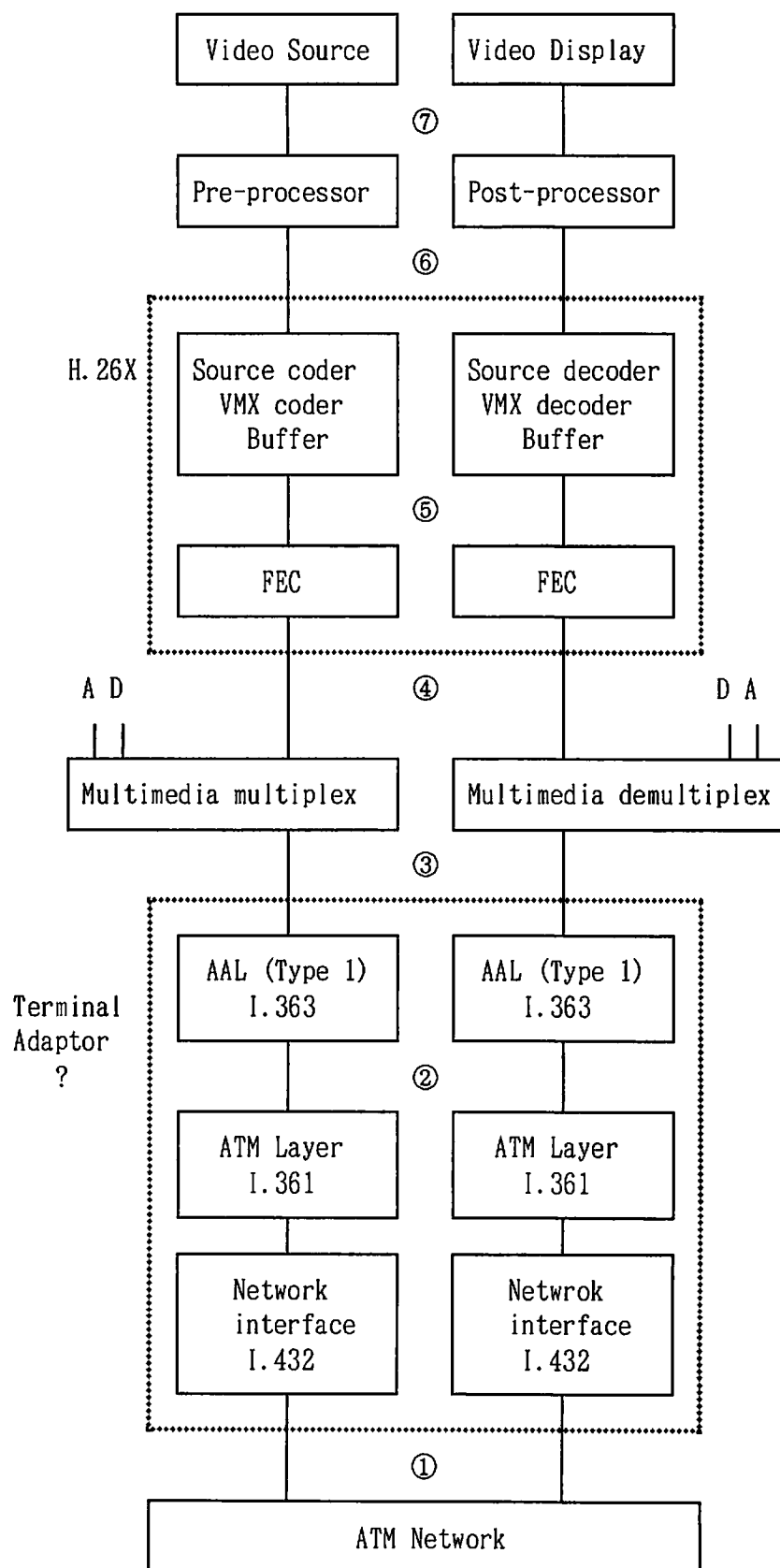


Figure 1 System configuration for H.26X hardware verification