

# Clever Cast ADDS VALUE TO

## DIGITAL VIDEO BROADCASTING



**The move to digital video broadcast is accelerating. Audio and Video are increasingly transported in the form of bits. This creates the opportunity to use some of these bits for interactive TV applications or data services, i.e. added value to your infrastructure investment. Clever Cast is just that: all the software and hardware you need to enhance the Philips Digital Video Broadcast system to become a versatile application platform for custom made services.**

CleverCast  
ADHERES TO

INTERNATIONAL  
STANDARDS

Philips is actively participating in the development of international standards in order to achieve a large and open market for digital video and interactive TV systems and services. Philips is a leading member of the group that has developed the industry standard for digitally compressed audio visual data: MPEG (Moving Pictures Experts Group). Philips is a founding member of the group that has defined the widely adopted standard for digital video broadcast for satellite, cable, terrestrial and microwave distribution: DVB (Digital Video Broadcasting).

For interactive television Philips is participating in the globally supported standardisation initiative of DAVIC (Digital Audio Visual Council)

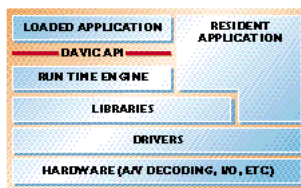
Moreover Philips is a main participant in the related standardisation efforts endorsed by DAVIC for the application representation (MHEG, Multimedia and Hypermedia Experts Group) and the communication protocols (DSM-CC, Digital Storage Media - Command and Control) respective-

ly. The DAVIC approach ensures a natural evolution of the DVB standards. Now all this work comes together in the Philips end-to-end system for interactive television: CleverCast.

**A COST EFFECTIVE INTERACTIVE TELEVISION PLATFORM**  
With CleverCast real interactive applications can be realised without the need for continuous use of a return channel and without the need for individual bandwidth per user. Because CleverCast is optimised for broadcast environments the basis of the infrastructure is identical to the Philips digital video broadcasting system.

CleverCast is an integral part of the Philips end-to-end solution. Hence CleverCast adds value in a cost effective manner.

**AN OPEN PLATFORM**  
DAVIC has specified all relevant interfaces. This means that the CleverCast platform can easily interface with other systems.



Decoder software architecture

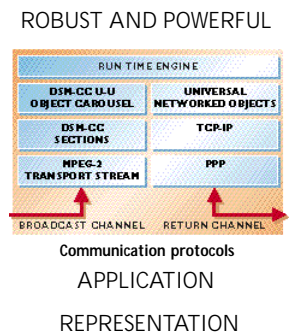
Moreover Clever Cast is flexible with respect to replacing compliant components from other vendors or to enhance functionality and performance of components.

DAVIC has a software architecture of well defined layers. This makes CleverCast open for additions like new network infrastructures, new protocols as well as new application engines. Moreover the DAVIC architecture is independent of the underlying hardware and software platform.

**A PLATFORM FOCUSING ON INTEROPERABILITY**  
Interoperability is a prerequisite for the interactive television market to take off. It avoids market confusion especially for consumers. Interoperability ensures that applications are independent of equipment, system and network type. It allows the business of application development to be independent of the equipment industry.

A DAVIC compliant application will run on every DAVIC compliant receiver throughout the network. In order to achieve interoperability DAVIC has defined the Reference Decoder Model that determines the requirements on

resources and performance level of the decoder functions. This model makes it possible to verify the correctness of an application without the need to explicitly test it on every type of decoder in the field. This significantly reduces the time and effort required to introduce new applications.



**ROBUST AND POWERFUL**  
The object oriented hypermedia representation of MHEG provides inherent application robustness. MHEG is relatively simple and it consists mainly of declarative code for which the receiver behaviour and resource usage is well determined. Yet MHEG is a powerful format with an efficient high level functional abstraction focusing on application presentation and user interface.

Moreover a well defined procedural interface allows for an extension with the Java virtual machine for an even more powerful and rich application functionality.

REACH THE  
CONSUMER THROUGH

CleverCast

CleverCast, Philips' implementation of interactive television will allow you to achieve your business objectives. In the end it is your application that determines which functions are used. Whether you need a graphically rich user interface for a game; or application behaviour synchronised with the video of a TV show for a play-along; or a return channel message to accommodate the transaction for homeshopping; or an advertisement enhancement for the Electronic Programme Guide, CleverCast will allow you to reach all the powerful functions of the decoder in the consumer's home.