



Realizing Blu-ray Disc™ opportunities

Philips Applied Technologies your ideal partner for Blu-ray Disc applications.

As one of the creators of the Blu-ray Disc format, we have extensive know-how and experience that can help you with Blu-ray Disc applications across a wide range of working areas.

For example, we can help you create your own Blu-ray Disc applications or even create them for you. If you have specific application

ideas, we can judge the feasibility and then develop the ideas further with you.

Support with Blu-ray implementation, or providing you with a complete solution are two more examples of where you can benefit from our experience. Blu-ray Disc is the future of optical storage: we can make it work for you today.

PHILIPS
sense and simplicity

The advantages, challenges and solutions of Blu-ray Disc™

Advantages

Blu-ray Disc is an exciting new technology that offers opportunities far beyond DVD:

- The format supports a huge data storage capacity on an optical disc of the same physical size as a DVD disc (12 cm): 25 GB can be stored on a single layer disc; 50 GB on a dual-layer disc. Both a read-only version (BD-ROM) and a rewritable and write-once recordable version are supported (BD-RE and BD-R).
- The format supports high-definition video using modern encoders. 1920x1080p video is supported with MPEG-2, AVC and VCI coding schemes. AVC and VCI allow higher quality video with lower bitrates compared to the more traditional MPEG-2 encoder.
- The format supports modern audio encoders, including multi-channel Dolby Digital and DTS and even the lossless encoders DTS-HD and Dolby True-HD. On Blu-ray Disc these encoders can be used for up to 8 (7.1) audio channels.

- The format supports traditional DVD-like menus and a Java-based enhanced interactivity including Internet connectivity. Blu-ray Disc offers an open platform for interactive and connected applications written in Java.
- The installed-base of Blu-ray players world-wide in 2008 is projected to be beyond 10.000.000 (source: CES 2008 Blu-ray Disc Association press statement). After the end of the format war between Blu-ray Disc and HD-DVD it is now clear that the future of optical disc is Blu. Blu-ray Disc is a registered trademark of the Blu-ray Disc Association.

Challenges

With the possibilities of Blu-ray Disc new challenges are set for existing content producers that want to publish their content on this new format: how to make the best possible use of the new capabilities of the format?

At the same time the format offers new opportunities that go beyond traditional DVD production. Using the Java-based interactivity and the Internet connectivity, the



format attracts new parties that publish their applications on Blu-ray Disc. Their challenge is to find the best ways to make use of this new open platform for the living room. Last, but not least, consumer electronics manufacturers and silicon suppliers have to create products and software stacks that support this new demanding format. The format demands significantly more CPU horse-power and memory than DVD did. The challenge is to implement the format in a cost-effective manner while still meeting all the requirements that are set by the Blu-ray Disc standards.

Expertise

Philips Applied Technologies has a rich expertise in Blu-ray Disc. Together with Philips Research we defined the Philips input in the format. We provided the DVD- and Java experts that wrote and edited the application layer of the Blu-ray Disc BD-ROM standard. We are heavily involved in defining, maintaining and extending the standard. Recent extensions are related to the combination of on-line possibilities and the content protection scheme used in Blu-ray (AAC3).

During our involvement in the format we created the first prototype Blu-ray Java implementation that served as an early testing tool for content creators (Hollywood Studios). Next we created a portable and modular Blu-ray Disc implementation that has been ported to a number of different hardware (silicon) platforms.

We built in-house tooling in order to be able to develop Blu-ray Discs before authoring tools could be bought elsewhere. We are using these tools for the creation and maintenance of a number of official Blu-ray Disc test discs. These discs are designed to test the standard thoroughly to ensure interoperability of Blu-ray discs and implementations in the market.

In a very early stage, we developed a Blu-ray demonstrator application that showed the features of the format on trade-shows and possible extensions.



What we offer

Integral solutions

Executing projects in every phase of the product lifecycle: from concept, design and engineering towards industrialization of small series ready for mass production. We have a track record in managing large and complex multi-technology projects in a wide variety of industries.

Consultancy

Our consultants and interim managers deliver practical support and functional expertise for industrial engineering, product innovation and business engineering around road map development, quality, cost effectiveness, sustainability, time-to-market, reliability of product designs and architectures.

Specialist services

We transform first-of-a-kind technology concepts and prototypes into reliable and high quality products ready for pre-production and manufacturing transfer. We offer quality & reliability engineering and industrialization & manufacturing through advanced technologies.

Application areas



Content creators and authoring services

Explore the opportunities of the Blu-ray Disc format:

- Electronic commerce
- Games and communities
- New content distribution schemes via internet
- Personal usage for photos, videos, music

One example would be a Blu-ray Disc with a movie magazine with trailers of new movies that can be viewed in the cinema or ordered from the studio once available. The set of available trailers could be updated regularly thus circumventing the need to produce a new disc for each edition of the magazine. The addition of an application that links to a forum with movie commentaries is another possibility. The magazine would be able to host on-line trivia games with prizes in the form of new commercial discs.

Another example would be the usage of a BD-RE disc for personal photo archiving and printing – including a customizable Java application for browsing through, and optionally printing, mailing or commenting the photographs.

Blu-ray Disc players can also be used to play games and have enough horsepower to support simple on-line games. A recent example of this is “Sudokia” – a Blu-ray Disc release that allows users to solve Sudoku puzzles on many levels. Many other applications can be considered.



Application areas

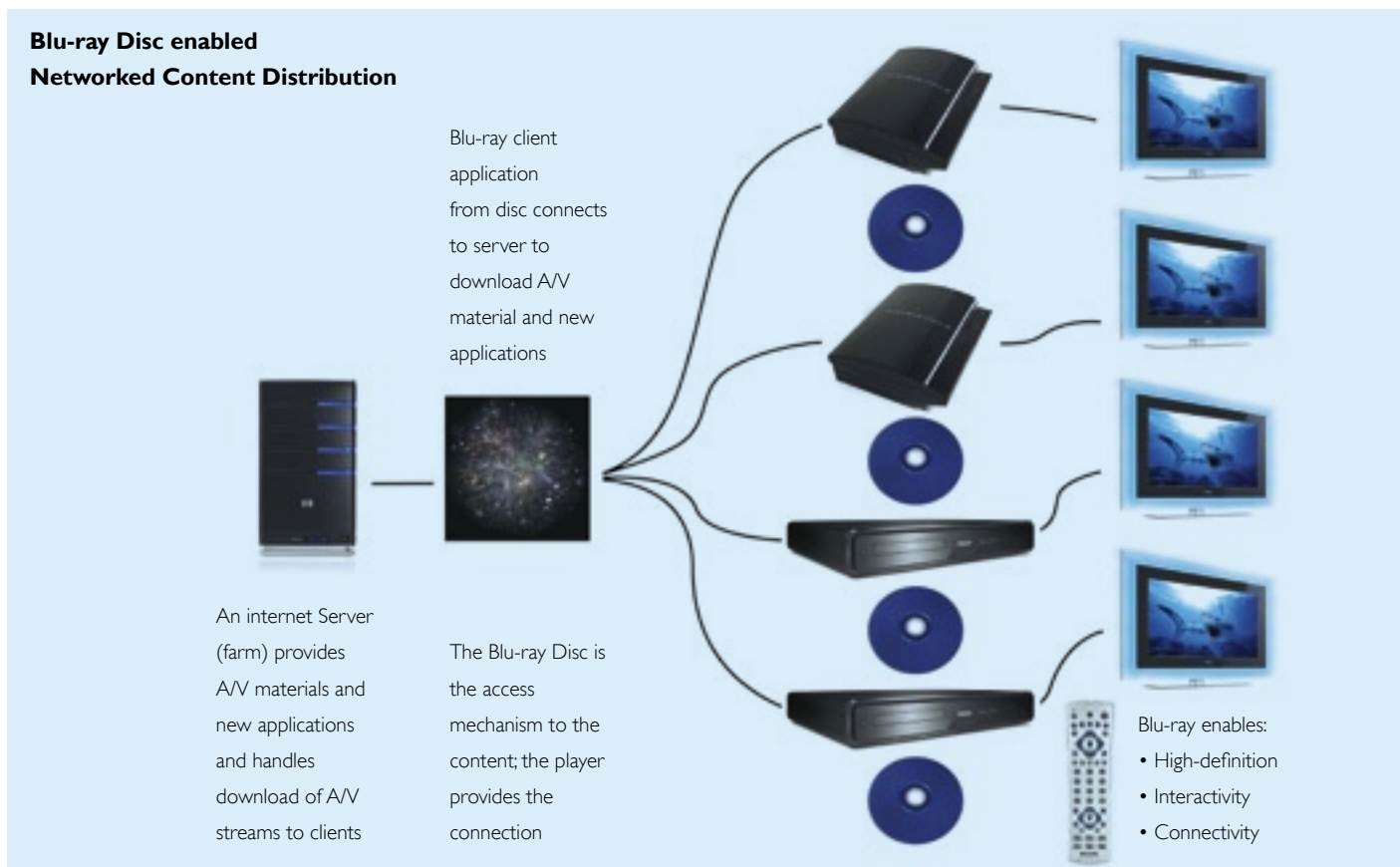
Content aggregators and distributors

Blu-ray Disc infrastructure (millions of network connected devices in living rooms) can be deployed to reach new markets. Doing this requires thorough knowledge of the format as well as of internet server set-up. The picture below shows how Blu-ray Discs can change audio/video content distribution to the living-room.

Device manufacturers

For device manufacturers the Blu-ray Disc format creates new opportunities: implement Blu-ray applications on silicon platforms; implement it in CE devices; connect Blu-ray players to other devices; build Blu-ray functionality into other products, such as PCs and home-theatres. Blu-ray drives will slowly replace DVD drives in more and more products.

After the first generation implementations of the Blu-ray Disc format we are now facing the maturing of the format with challenges of higher volumes and lower costs. Interoperability will be a bigger challenge – we can help you guarantee that every disc that adheres to the format will play on your player.



Competences



Applied Software Engineering

We deploy the most advanced software development methods to progress from idea to product in a short time-frame. We have proven competences in information streaming, storage and retrieval applications, internet media and applications, web services, semantic web, open source system architectures and multi-disciplinary system integration for new applications.

Proof points include our work on DVD, Blu-ray Disc, home network audio/video and IPTV.

Connectivity & Security

Our connectivity competence covers OSI level 2 and above. We are also fully conversant with many connectivity standards, such as Zigbee, UWB and Bluetooth, as well as with RFID protocols and standards. We have a track record in high-level protocol definition for new standards, standards creation, low power aspects and system architecture development and implementation. We also have extensive high-level information security competence in house (Digital Rights Management).

Electronic Design & Realization

We have world-class competences in high-speed digital design/signal integrity and power electronics, as well as in analog electronics, VHDL, PCB layout and design, system design and embedded SW development. Our deliverables include consultancy, training and feasibility studies, worst-case analysis on circuits and simulations using advanced tooling, as well as realization of prototypes and product development for professional equipment and high-volume consumer products.

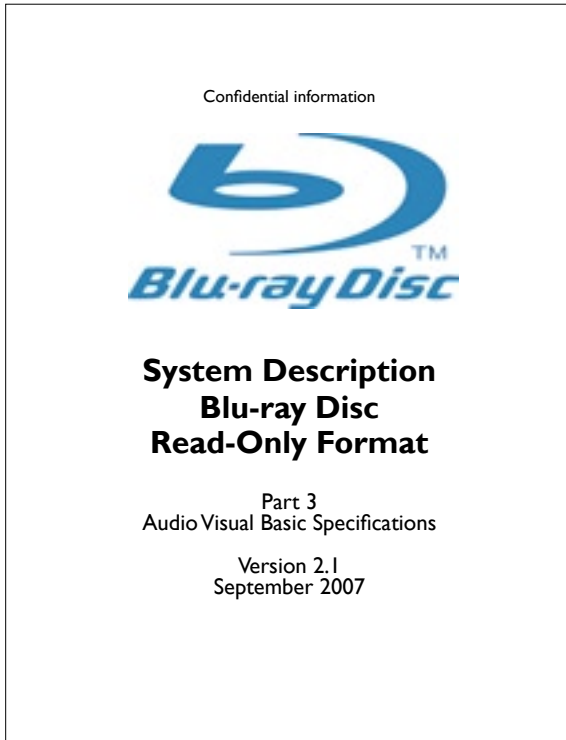
Other Philips Applied Technologies competences include:

- Human centered solutions (modeling, implementing man-machine interaction)
- Emerging applications (e.g. at-home patient monitoring, photo classification)
- Vision (image analysis, feature extraction, segmentation, recognition)
- AV processing (Audio and video signal processing, algorithms, coding, decoding)
- Optics and sensors (electro-optics, sensors, modeling)
- Electronic Packaging (System in Package)
- Applied chemical technology (materials, coatings, printing)

Philips Applied Technologies profile

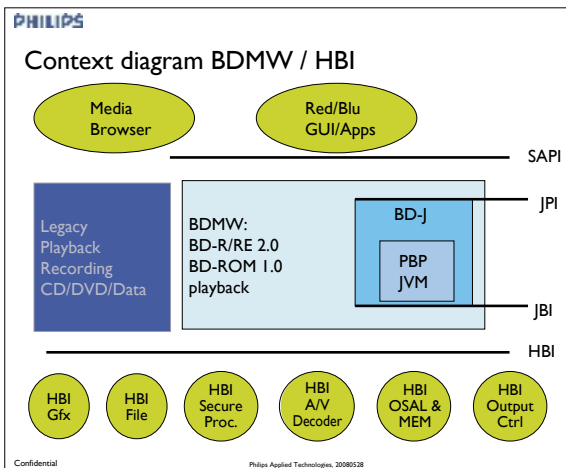
Philips Applied Technologies is a contract R&D organization that supports the development of products, applications and technical solutions. Our customers are market leaders, fast growing companies and start-ups. We offer contract R&D for integral solutions, as well as consultancy and specialist services for every phase of the innovation process. With over 1000 in-house experts, we can draw on a wide range of competences.

Solutions



Blu-ray Disc standardization support

We are responsible for the Philips input into the Blu-ray Disc application format for BD-ROM. Without us the format would not have been what it is today: an open and connected platform including Java that enables everybody to develop exciting applications featuring high-definition audio/video, rich interactivity and network connectivity.



Blu-ray Disc Middleware

We created one of the first fully compliant Blu-ray Disc playback implementations. This implementation was ported to three different hardware platforms. The Java part was used even more widely in pc software players.



Medical grade DVD recorder

We replaced existing expensive video recorders by a DVD-recording solution in very short lead time; co-operating with external suppliers of a large healthcare company.

The benefits for the customer included:

- A cost-effective standardized solution with improved video storage quality
- Improved user friendliness.

Contact data

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