



CPRM and CPXM:

*Enabling New Business Models for
Robust Delivery of Premium Digital Content*





Introduction

An increasing consumer appetite for mobile entertainment is creating new business opportunities for content providers, service providers, media manufacturers, independent software vendors and device manufacturers. New business models for the sale and distribution of digital content are rapidly emerging. Content Protection for Recordable Media (CPRM) and Content Protection for Extended Media (CPXM) are enabling many of these opportunities. These content protection technologies enable a wide variety of digital content to be consumed anywhere, anytime and on virtually any authorized device, yet are transparent to consumers. CPRM and CPXM provide a mechanism to share and move protected digital content while preserving the rights of content owners. Best of all, CPRM technology is already widely implemented in SD memory cards and devices with embedded SD memory, as well as some DVD players, significantly shortening time-to-market.



Transfer Content to DVD

Using these technologies, consumers can order content online and burn it to DVD for personal consumption. KDDI Corporation, a Japanese telecommunications carrier, has developed a service called “DVD Burning®” that allows consumers to download movies, animation and video to a PC or DVD recorder over a broadband connection. CPRM technology protects the content as it is transferred from these devices and stored on to DVD-RW, DVD-RAM and DVD-R discs. Currently, KDDI offers access to about 3,500 titles including movies, dramas and animations from more than 100 content providers.

Retail Applications

CPRM and CPXM can similarly be put to work in the retail sector. A retailer can implement media kiosks that allow consumers to download content directly to an SD memory card. Kiosks can offer a huge library of music, movies, videos, and television programs that consumers could buy and transfer to an SD memory card they bring with them or purchase at the retailer. The content may be purchased, subscribed, or rented and consumed on CPRM and CPXM enabled devices. See Figure 1 below.

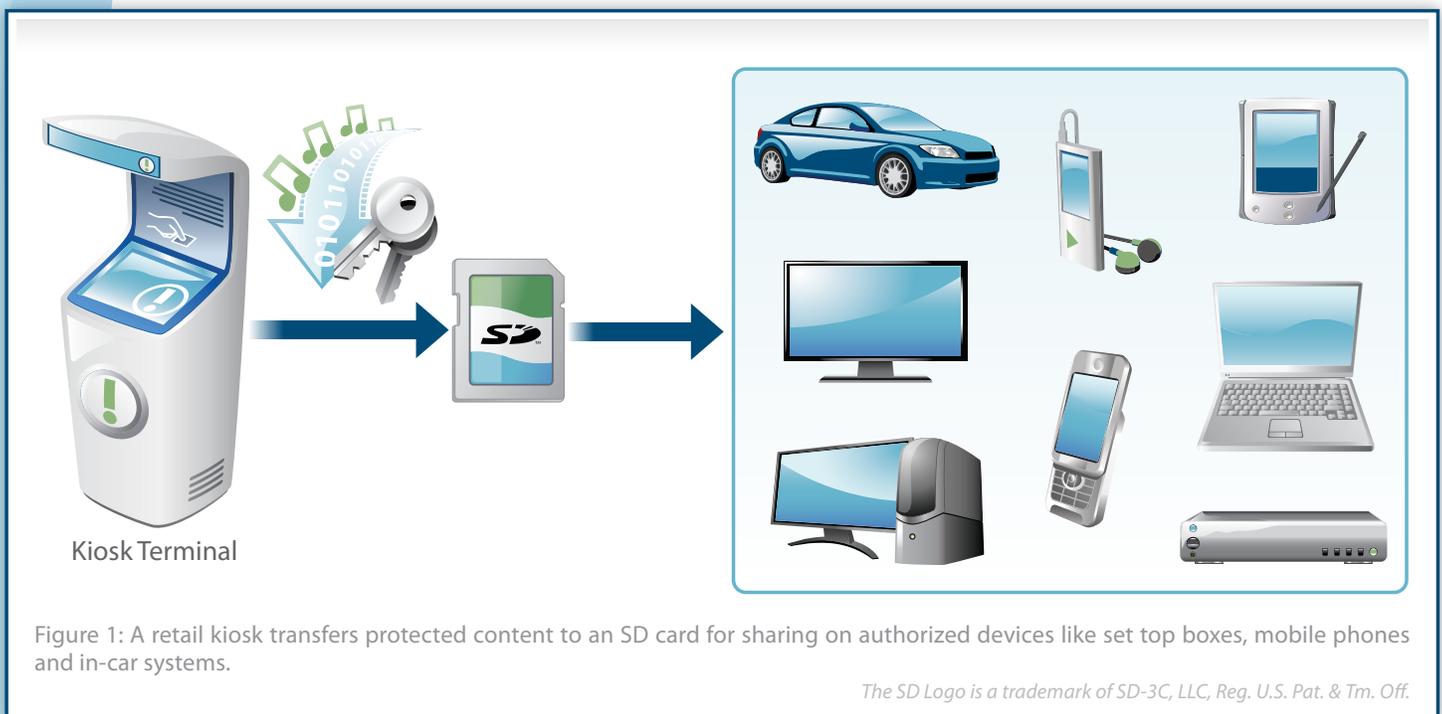


Figure 1: A retail kiosk transfers protected content to an SD card for sharing on authorized devices like set top boxes, mobile phones and in-car systems.

The SD Logo is a trademark of SD-3C, LLC, Reg. U.S. Pat. & Tm. Off.

Sharing Content on SD Memory Cards

The built-in CPRM and CPXM technology within the SD memory card and embedded SD technology gives consumers the flexibility to share content across multiple platforms. The ability to move an SD memory card among CPRM and CPXM enabled devices increases content portability for consumers and in turn, creates more opportunities for service providers and device manufacturers. For example, a consumer can create a library of content on a single SD memory card and move that to virtually any authorized device (mobile phone, PC, portable audio player, home entertainment system, in-car system) where it can be consumed and/or recorded to the device's embedded SD memory.



Figure 2. Protected content is shared among authorized devices via removable SD card.

Record/Play Digital TV Broadcasts

Protecting content distributed via over-the-air (terrestrial) TV broadcast is possible with CPRM and CPXM technology as well. Technology for the reception of mobile TV programming is currently available in Japan through "1seg TV" and T-DMB services are either available or are currently being rolled out in parts of Asia and Europe. These services allow consumers to access broadcast TV programming on a mobile or home-based device. CPRM and CPXM could extend these services by securing the content for delivery and recording to a device's embedded SD memory, as well as for sharing on other authorized devices. This provides new opportunities for broadcast and wireless service providers to offer subscription or download services to mobile or home-based customers. See Figure 3 below.

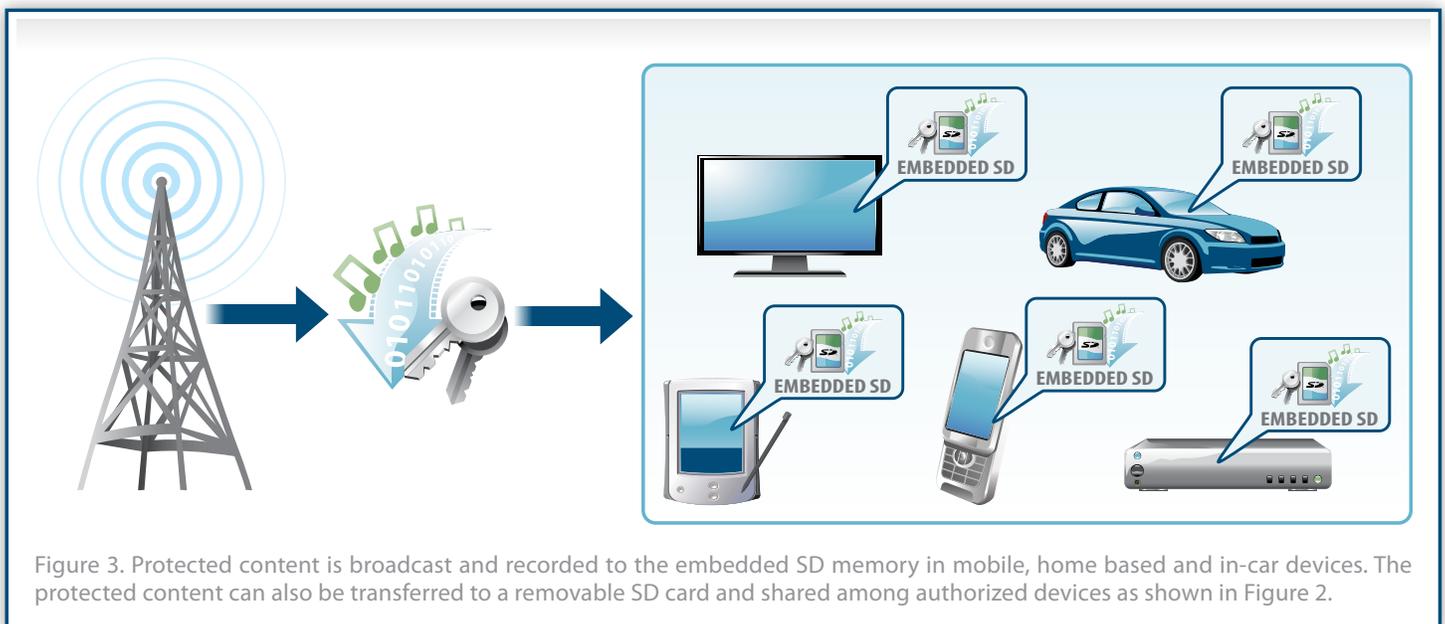


Figure 3. Protected content is broadcast and recorded to the embedded SD memory in mobile, home based and in-car devices. The protected content can also be transferred to a removable SD card and shared among authorized devices as shown in Figure 2.

Conclusion

CPRM and CPXM technology enables new opportunities for the entire content delivery value chain including content owners, device manufacturers, media manufacturers and service providers as well as independent software vendors. The ability to secure a wide variety of content for authorized devices will enable content and service providers to enhance their market exposure and develop new markets. The inherent mobility of the SD memory card provides device manufacturers with a common and low cost interface for new products that can share entertainment content. Additionally, time-to-market for these new products is extremely short because CPRM is a proven technology already widely implemented in SD memory cards sold today.

About 4C Entity

4C Entity is the licensing body for technologies including the Content Protection for Recordable Media (CPRM) and Content Protection for Extended Media (CPXM) specifications. 4C Entity specifications are critical to enabling users to easily shift copyright-protected content among devices built by multiple manufacturers. 4C Entity is working to provide consumers with flexible access to all forms of digital content, while ensuring that the content is high quality, easy to store and maintain, transferable to similar digital devices and copyright-holder friendly.

SD Association

The SD Association is an open industry standards organization established in January 2000 by Panasonic, SanDisk and Toshiba. Supported by a consortium of more than 1,100 companies, the SDA's mission is to set industry standards and promote SD product acceptance in a variety of applications. SD Memory Card standards are currently being built into a wide range of digital products such as cellular phones, audio players, automotive multimedia systems, handheld PCs and digital video and still cameras.



www.4CEntity.com