

Mobile HD Technology

Technology Brief

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Introduction – What is Mobile HD technology?

Silicon Image's Mobile HD technology is a low pin count HD audio and video interface that connects portable electronics devices such as mobile phones, digital cameras, camcorders and portable media players, to HDTVs. The technology allows mobile devices to output digital 1080p full HD resolution via the existing mobile connector without the space requirement and cost of another dedicated video connector. Together with a Mobile HD-to-HDMI® bridge, the Mobile HD-enabled mobile device may become a fully compliant HDMI source and can connect to the television's standard HDMI input port.

How will consumers benefit from Mobile HD technology?

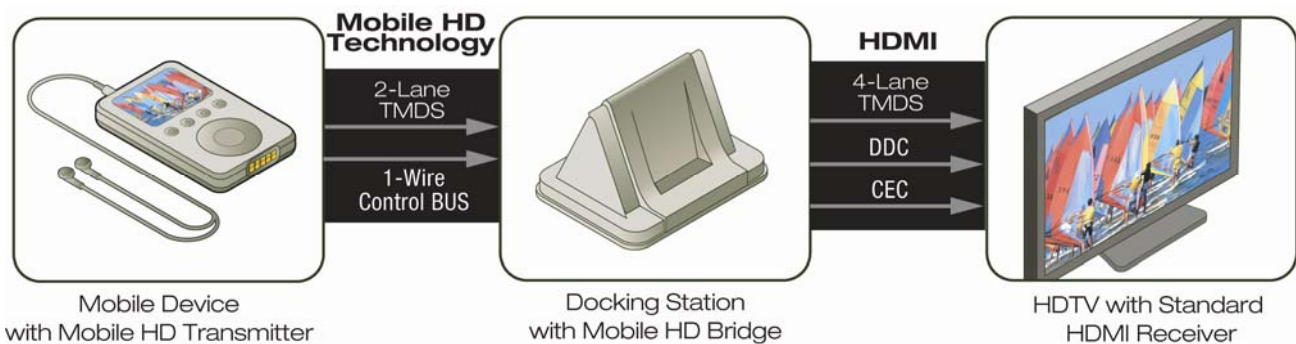
Mobile devices are now a source of a tremendous amount of multimedia content, including captured high-resolution still images and HD videos, and downloaded feature-length Hollywood films. Unfortunately, when consumers connect these portable devices to an HDTV with an analog composite connection, the native high-definition picture is reduced to below standard definition with poor image quality. Mobile HD technology-enabled devices, however, can connect to HDTVs allowing users to watch and listen to multimedia content on a large screen in its original pristine high-definition digital format.

How is Mobile HD technology implemented in mobile CE devices?

To equip a mobile device with Mobile HD technology, the manufacturer would add a Mobile HD transmitter IC to the mobile device. A minimal pin requirement on the device's connector is reserved for a single Transition Minimized Differential Signaling (TMDS) lane carrying audio/video (A/V) packets and a single pin is reserved for a bi-directional control bus, which supports authentication, A/V format discovery, and various control functions.

Mobile HD technology-enabled mobile devices will connect to the DTV via a docking station or dongle, which includes a Mobile HD-to-HDMI bridge IC that performs the conversion from the uncompressed Mobile video signals into standard HDMI compatible signals.

FIGURE 1: Mobile HD Transmitter, Bridge and HDMI Receiver Implementation



Why not just equip the mobile device with HDMI output?

Physical space for connectors on portable mobile devices such as digital cameras, portable media players and mobile phones is often extremely limited due to the small form factors of these devices. Mobile device manufacturers generally prefer to have a single connector that accommodates power charging, data transfer, and A/V transfer. Mobile HD technology offers a very low pin count solution that can be implemented on an existing mobile device connector.

Why not just use an analog connection between the mobile device and the HDTV?

Analog composite or component video requires up to three video connectors and two to eight audio connectors for multi-channel audio support, for a total of three to 11 connectors while providing only low quality analog 480i picture. This puts a burden on the manufacturer to integrate larger docking stations to accommodate the connectors. In some cases, manufacturers have implemented an interface to transmit compressed media between the mobile device and dock. The dock implements full digital signal processor and supporting circuits to decode compress media, before outputting uncompress video to the television. This is an expensive solution duplicating the functions that already exist in the mobile device. Mobile HD technology solves this problem with a low-cost, low pin count interface.

In summary, what are the key features of Mobile HD technology?

- Mobile HD technology provides HD A/V with a low pin count, enabling high-definition audio and video using the mobile device's existing multipurpose connector
- Mobile HD technology conserves battery life with ultra-low active and standby power draw
- Mobile HD technology supports high-quality digital HD video up to 1080p
- Mobile HD technology can be compatible with the HDMI input ports found on most DTVs today with an Mobile HD-to-HDMI bridge

About Silicon Image, Inc.

Silicon Image, Inc. is a leading provider of semiconductor and intellectual property products for the secure distribution, presentation and storage of high-definition content. With a rich history of technology innovation that includes creating industry standards such as DVI and HDMI, the company's solutions facilitate the use of digital content amongst consumer electronics, personal computer (PC) and storage devices, with the goal to securely deliver digital content anytime, anywhere and on any device. Founded in 1995, the company is headquartered in Sunnyvale, California, with regional engineering and sales offices in China, Japan, Korea and Taiwan. For more information, please visit <http://www.siliconimage.com>.



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