HSSI for Mobile Displays
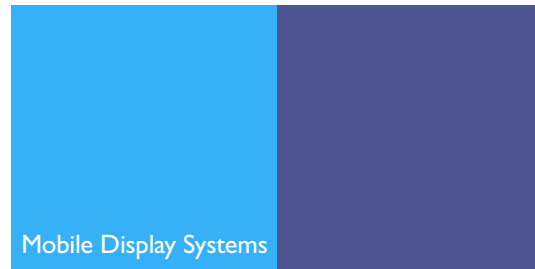
High speed serial interface for high resolution mobile displays

As today's mobile handsets continue their trend toward higher-resolution displays, there is an increasing need for high-speed interfaces that support the transfer of rich multimedia content from the baseband or the applications processor to the display module. The High Speed Serial Interface (HSSI) shows promise as a high-performance yet low-cost interface that delivers excellent reliability and low-power operation.

Philips is at the forefront of HSSI development, working with leading standards bodies like the MIPI Alliance to speed its deployment in mobile applications. A recently completed Philips prototype of HSSI is viewed by many as the industry benchmark.

Mobile Display Systems

Principle of the technology

Designed as a drop-in bridge solution, the Philips HSSI prototype demonstrates a high-speed link suitable for use with QVGA, VGA, WVGA, and even XSGA displays. It supports a color depth increase from 18 to 24 bits and offers an easy-to-use, high-speed serializer/deserializer.

To perform hardware framing, the prototype uses a high-speed word clock (for synchronization) or a dedicated wordsync option that uses a high-speed bit clock (and thus avoids a secondary PLL). The prototype supports bandwidth from 120 to 1950 Mbps and additionally allows the usage of an 18-bit display module to enable 24-bit performance via embodiment of the Advanced Frame Mixing concept.

The prototype is based on a transitional solution, intended to meet current demands whilst formal industry standards are finalised. Over the longer term, the Philips HSSI solution is expected to be combined with a source driver IC and LTPS integration. Ultimately, the HSSI solution will be integrated with an LTPS timing and control IC, manufactured in a high-density CMOS technology, and will be combined with imaging algorithms, video scaling, and more.

Advantages

· General high-speed link for QVGA/VGA/WVGA/XSGA displays
· Drop-in bridge solution
· Easy-to-use, high-speed serializer/deserializer
· Cost-effective serial interface
· Low-power operation
· Excellent reliability
· Industry-supported standard

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