

Shining the Light on LEDs

Abundant applications adopting the technology and more coming in the next five years

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Light Emitting Diodes (LEDs) have stimulated the interest of numerous applications over the past several years. Many applications have adopted LEDs for use as displays in appliances as well as in consumer, medical and industrial equipment.

The intriguing thing about LEDs is their small form factor, high efficiency and potentially longer life than that of conventional light sources. While some applications adopted LEDs as a light source many years ago, others have struggled to make LEDs a mainstream light source.

Higher power LEDs (not including display applications) require higher drive capabilities that are usually managed through the combination of power conversion circuitry and driving circuitry. The growth of LED drivers is somewhat connected to the increased number of LEDs used in the applications, but different circuit techniques keep the number of LED drivers used per application at a minimum.

Driving LEDs

Major market applications for LED drivers as of today are in the mobile handset and consumer handheld markets. These markets combined to



account for approximately 81 percent of the LED driver sales. The penetration of LED lighting into these markets will peak during the next few years. Saturation of this market is influenced by LED price drops and integration of LED drivers into other power management circuits. This trend will influence LED driver suppliers, shifting it to other potentially higher growth markets.

However, it is the automotive market that is predicted to be a high revenue earner for both LEDs and LED drivers with a forecasted solid 15 percent growth in the next five years. Many LED applications in the automotive market benefit from the usage of compact and

efficient sources of light. The LEDs could find themselves in display backlight, interior lights and tail lights. Headlight LEDs have not taken off yet but they are expected to in 2008.

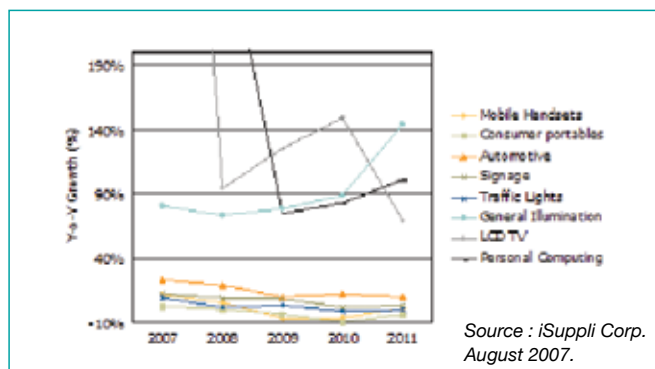
book monitors, Liquid Crystal Display-Televisions (LCD-TVs) and the general illumination market. The average growth rates for these markets are forecast to be 255 percent, 177 percent and 92 percent, respectively, for the next five years. Of the three, the notebook monitor market has the greatest potential as the application has possibly the highest benefits and solutions.

The LCD-TV market will have moderate penetration of LED backlighting technology until 2010 mostly because LEDs are only used to reduce power consumption and to improve brightness in these big displays—factors that are unlikely to be significant for some time to come.

The general illumination market is one of the most logical markets for LED penetration, but historically the dynamics of this market have shown resistance to change as well as opposition to new technology adoption. Still, the market for LED drivers is predicted to grow to \$89 million by 2011, mostly coming from commercial and office lighting.

Figure 1 presents iSuppli's forecast for LED driver market year-over-year growth rates.

Today, the LED driver market is shared among the top LED driver vendors for mobile handsets and consumer electronics. At the top are National Semiconductor, Maxim Integrated Products and Linear Technology. There are other small suppliers that are entering the LED driver business as well, but they hope to compete in other, more niche segments instead of fighting it out in the competitive mobile handset or consumer markets.



Source : iSuppli Corp. August 2007.

Figure 1: Year Over Year Growth Rates for LED Drivers.

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