Ultrabooks to Shake up Semiconductor Markets

Booming shipments of ultrabooks during the next four years will shake up various semiconductor markets, boosting the prospects for sensors as well as power and analog semiconductors, but decreasing the market opportunity for upgrade memory modules, according to IHS iSuppli Semiconductor Value Chain research from information and analysis provider IHS.

Global ultrabook shipments are expected to soar to 136.5 million units in 2015, up from less than 1 million in 2011, a massive level of growth that will have major repercussions for the global electronics supply chain.

While the ultrabook is regarded as a type of notebook computer, its thin and light form factor requires changes in design and component selection compared to conventional mobile PCs. And although ultrabooks on the whole represent a huge new growth opportunity for semiconductor suppliers, their rapid growth will cause major realignments among chipmakers serving the notebook markets.

Backed by Intel Corp. and other major players in the PC business, ultrabooks are extremely light and thin notebooks at less than 0.8 inches in thickness. While employing a full PC operating system like Microsoft Windows, Ultrabooks also add features now commonly found in media tablets, such as instant-on activation, always-connected wireless links, solid state drives and battery lives longer than eight hours on a single charge. Ultrabooks are targeted to be priced at less than $1,000, although most of the early models are more expensive.

Sensors feel the love from Ultrabooks
One major semiconductor winner in the ultrabook sweepstakes will be the sensor, including devices based on microelectromechanical system (MEMS) technology.

“In terms of usage of sensors, ultrabooks much more closely resemble media tablets than conventional notebooks,” said Jérémie Bouchaud, principal analyst, MEMS and sensors, for IHS. “Media tablets make extensive use of such devices, incorporating MEMS microphones, accelerometers, gyroscopes and pressure sensors as well as non-MEMS devices like compasses, ambient light sensors and possibly proximity sensors. In contrast, today’s notebooks make relatively minimal use of sensors. With ultrabook shipments expected to rise to account for 42 percent of the notebook market by 2015, this represents a major growth opportunity for MEMS.”

Media tablets in 2011 contain an average of $3.45 worth of sensors, compared to $0.51 for conventional notebooks, illustrating the huge opportunity for these devices in ultrabooks.

Ultrabooks power up

Another beneficiary of the ultrabooks' increasing share of notebook shipments will be analog semiconductors, particularly power-management devices.

"With their stringent battery-life requirements, notebooks have represented a key market for power-management semiconductor suppliers," said Marijana Vukicevic, senior principal analyst, power management, for IHS. "However, power requirements in ultrabooks will be even more rigorous than in notebooks, due to the Ultrabook's slimmer form factor and longer battery life. This will increase the value of power management electronics in each unit sold, boosting the opportunity for analog suppliers."

Just as with sensors, Ultrabooks resemble media tablets that conventional notebooks in terms of their power management electronics. The tiny size of ultrabooks will require more highly integrated power and analog components compared to notebooks. Furthermore, the form factor of these devices must be smaller and will require slimmer packages in comparison to notebooks.

Finally, the usage of solid state drives in ultrabooks will spur demand for new and more sophisticated power management solutions.

DRAM modules get the boot
While the thin, media-tablet style of Ultrabooks will benefit power management semiconductor suppliers, this form factor will act as a detriment to the market for dynamic random access memory (DRAM) modules—particularly those used for memory upgrades.

"The vast majority of Ultrabooks now shipping have DRAM chips soldered directly onto the motherboard," said Clifford Leimbach, memory demand forecasting analyst at IHS. "This helps to achieve an extra-thin design by eliminating the additional PCB traditionally used in notebook PCs required for support of a DRAM module. However, this also eliminates the need for a traditional small outline dual in-line memory module DRAM module."

Notebooks represent a key market for DRAM modules, both those built into the PCs and those purchased to upgrade memory capacity. Because of this, the upgrade DRAM module market will be negatively impacted, as Ultrabooks account for an increasing portion of notebook shipments.

While the reduction initially will be limited, the ultrabook in 2015 will reduce the number of upgrade notebook PC modules shipped by 13.5 percent, amounting to some 10.8 million units, as presented in the figure below.

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