behind the news

In a market where desktop sales are flat, the one area seeing growth is the portable computing industry. But is portability as important as processing speed, asks Wendy Brewer, when many people only use their notebooks connected to the mains?

Desktop replacement systems are notebooks that are designed not as mobile units, but as an alternative to bulky desktop PCs. They save on space and, at the expense of battery life and portability, can offer high performance for an affordable price. One way to offer value for money without sacrificing power is to use cheaper desktop components in a notebook chassis. This idea was initially shunned by manufacturers, such as Toshiba, but the Japanese technology giant and several of its competitors have since revised their positions. "For budget conscious customers [desktop] CPUs offer a great performance-to-value ratio, with no loss in performance or reliability," said Ken Chan, portable product manager at Toshiba. "They have been a tremendous success."

Power struggle

AJP was the first company to incorporate desktop CPUs into its laptop machines. "The majority of our customers want a true desktop replacement notebook with the processing power of a PC. With the use of a desktop processor we can achieve this safely and at an affordable price," explained John Ioannou, director at AJP.

But experts at chip maker AMD believe that it is a false economy, and that extra megahertz don't necessarily mean extra power. AMD spokesperson Martin Booth said, "As CPU architectures diverge, lower-megahertz processors can actually outperform higher-megahertz architectures due to more efficient internal processing. In notebook computing it is not performance that users should be worried about. Battery life, heat and noise also impact user performance."

But AMD and rival chip manufacturer Intel both have a vested interest in promoting their mobile processors as the profit margins on these CPUs are higher. Not surprisingly both recommend that notebooks use mobile chips.

"Mobile processors are specifically designed for use in laptops and include mobile-specific low-power and performance technologies that are not designed into desktop computing," said Graham Palmer, Intel's spokesperson.

A major challenge for manufacturers has been controlling the heat created by the more powerful desktop chips. "We appreciate that the P4 does produce more heat [than its mobile counterpart] but our engineers have developed very efficient heat dissipation technologies to cool the CPU," said Toshiba's Chan.

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Again, AMD is not convinced: "One problem often seen with [desktop] CPU-based notebooks is higher 'skin' temperature, where the outside of the box can heat to hotspots of 50 degrees centigrade. A notebook running a mobile CPU can be smaller and lighter and will create less heat, have less fan noise and operate as much as 30-50 percent longer on a battery", explains Booth.

Batteries not included

For Intel and AMD this is a crucial argument for the specialised chips: "Mobile processors consume less power due to lower voltages, which helps extend battery life," stressed Intel's Palmer.

But AJP's Ioannou believes it is of minor concern when what customers actually want is a replacement desktop. "Why pay more for a slower processor with battery-enhancing qualities when your machine will spend most of the time plugged into the mains?"

Indeed, at the Computex expo in Taiwan earlier this year, many manufacturers were showing notebooks that come with no battery. The idea is that people buy the notebook for its low price and high-power desktop components, and use it as a desktop replacement that will be tethered to the mains whenever it's in use.

It remains to be seen whether customers will be sold on the idea of notebooks without batteries, but if the trend towards buying PCs within a notebook chassis to save space and allow limited portability continues to grow then it seems like a logical progression. ∎