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Embedded DRAM Market to Grow 21.3% - High-End Communications to Dominate Consumption

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Despite being limited in future growth by compatibility issues and the increased use of Application-Specific Standard Products (ASSPs), embedded Dynamic Random Access Memory (DRAM) will be a necessity for some high-performance, infrastructure, applications (Tai, 2000). As a result, In-Stat/MDR forecasts that worldwide merchant market dollar shipments of high-complexity, cell-based designs, containing at least one or more blocks of embedded DRAM, in conjunction with other functions, will grow from $95 million last year to $250 million by 2006, a Compound Annual Growth Rate (CAGR) 21.3%.

While embedded DRAM technology has been available for nearly a decade, it has never reached the level of revenues originally forecast by many industry prognosticators. In large part, it faces the same issue as the flash memory market - incompatibility between conventional memory and standard logic wafer processes (Chiueh, 1992). Even though these issues will be addressed and resolved in the future, density limitations within a system-level design will remain a major restriction (Warren & Sinclair, 1991). Embedded DRAM will never be used to implement main memory, on a personal computer, for example, in a single-chip design solution. It may be used to implement a version of on-board cache memory in a limited number of designs, somewhat similar to the inclusion of on-board static RAM.

In-Stat/MDR has also found that:

- In the embedded DRAM market, as is the case in other markets employing customer-specific, high complexity designs, high-end communications applications, in both the wired and wireless segments, will dominate product consumption, accounting for nearly three out of every four product dollars consumed, over the forecast period.
- On the geographic side, it will be The Americas, followed by Europe, which will control future product consumption. The Americas will average about a 50% consumption market share, with Europe accounting for nearly a 40% consumption market share, throughout the forecast period.

Unlike the standard DRAM market, which is dominated by the stacked or planar capacitor architecture, the embedded DRAM will be dominated by the trench capacitor architecture, a consequence of its' smaller footprint, a key to high-complexity designs.

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