

Texas Instruments ushers the IC industry into a new era of BCD technology platforms, says Petrov Group

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Texas Instruments (TI), the largest analog IC vendor, is an undisputed market share and trend-setter in power management. The company broadly covers all power IC market segments, according to The Petrov Group.

Standard power ICs are the highest growth business of TI's Analog Group, which represents 51% of total revenues, 40% of operating profits, and 94% of all TI's standard products.

In 2009, TI had a 12% revenues market share in all analog ICs and 13% share in the power IC segment. In general-purpose power ICs it had 19% market share. TI's 2009-2014 annual growth in the power IC segment is projected at nearly 20%, noted Boris Petrov, president of the Petrov Group.

The Power IC landscape is rapidly evolving. New technologies are in development, new competitors are entering the market, and new market segments and applications are opening up – often with unique requirements. Even well established mega-markets are changing the process technologies currently used – driven, for example, by the integration of added sensor functionality.

TI's general purpose (standard linear) power management ICs can be grouped into ten power domains – the broadest coverage in the industry; TI covers nearly all power IC segments. Its ten power IC domains provide TI with a balanced portfolio of leadership in mainstream and in select growth domains for general purpose power ICs.

TI's power domains also leverage each other. For example, Digital power is emerging as a new core power domain that serves as a foundation for other high growth and emerging business power domains – LED lighting, energy harvesting, wireless power, and Smart Grid.

TI already has several generations of BCD-based technology platforms. Its current workhorse BCD process, LBC7 (250nm, 40V), was introduced in 2005, and it generates about 40% of TI's total analog production. The LBC7 process is dominated by power ICs – both standard and application specific.

A distinct new era in analog/mixed-signal technology platforms starts in 2010 with the upcoming next generation processes – LBC8 (180nm, 20-60V) and LBC9 (130nm, 20V). These processes will be deployed in TI's new 300mm analog fab which will provide an up to 30% manufacturing cost reduction in comparison with 200mm fabs. TI has already triggered outsourcing plans among competitors for migration to foundries which can offer BCD-based technology platforms in 200mm and 300mm wafers.

The benefits of new technology platforms will change the analog IC landscape as substantially as digital CMOS platforms did – by allowing low cost, high volume production, and high performance and reliability. General-purpose single-function products where high analog performance is the top attribute will remain in legacy processes for a very long time

All other power ICs, especially application-specific multifunction products, that is, mixed-signal analog products which require high integration and are cost-performance optimized – will start to migrate to state-of-the-art BCD (BiCMOS-DMOS) platform technologies.

The superiority of such platform technologies is that they allow process modularity – one can tailor the process to specific requirements by adding and removing process elements allowing for many process options (BiCMOS, DMOS, BCD, CDMOS) and variants.

Volume production, combined with 300mm wafers, fundamentally changes the economics of the analog ICs business. Although TI will use its internal fabrication capability, the primary fabrication beneficiaries of the new era of BCD-based platform technologies will be foundries.

The Petrov Group's in-depth analysis of Texas Instruments strategy confirms that its current strategic position (leadership) and future financial performance (revenues and profitability potentials) in power Management ICs may be significantly underestimated.

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