

Decision Time for Power Operating Systems

Companies must develop POS strategies now—before competitors sew up the market

By Chris Ambarian, iSuppli

How can an electronics system designer produce the most capable equipment for the least amount of money, as quickly and as flexibly as possible?

Many in the industry seem to think that the answer is Digitally-Controlled Power (DCP), which iSuppli Corp. defines as the use of processors for system monitoring, internal and external communication and control of power. However, DCP by itself doesn't address the larger issues of how to cut costs throughout a piece of electronic equipment, while simultaneously improving performance, flexibility and time to market.

The real answer to the question appears to be a technology that builds upon the development of DCP: the Power Operating System (POS). Used in conjunction with DCP, a POS is software that can conduct multiple tasks, including system- and component-level performance monitoring, system configuration, system and component debugging, management of communications-bus protocols and real-time parametric programming at the system, bus and power-management component levels.

With the POS playing such a pivotal role in future products, a battle is looming over which company or group of companies will dominate this area. Because of this, it is essential for power system suppliers to decide upon and implement a strategy for the POS now, rather than to wait until their competitors sew up the market.



To DCP or not to DCP—That is Not the Question!

New digital techniques are generating a great deal of excitement, and power-supply engineers and their managers must contend with a significant learning curve in order to be able to take advantage of the new digital paradigm.

While this transition to DCP is nearly revolutionary from an engineering standpoint, in the larger scheme of things, the benefits this transition brings can be considered only evolutionary in nature.

How can this be? The reason is that while DCP will enable some new features and functionality, its ultimate impacts will still be restricted to the component level. Thus, the questions addressed by DCP will be component-level issues like cost, or switching speed, or transient response, or

power density. And while these are important subjects for power-supply designers, they do not address the entire universe of significant cost and performance issues involved in the power management of a modern piece of electronic equipment.

When examining how to reduce the overall costs of the activities of OEM system designers, it becomes clear that DCP is not the answer. While it's nice to save a few dollars per power supply, it does not have as great of an impact as, say, reducing a \$1,000 per-unit design cost amortization for a high-end server system.

The System-Level View

So, if DCP is not the answer, what is? In order to answer this question, it makes sense to first look at the power supply from the standpoint of the equipment designers. The figure below presents the concept of the POS and how power supplies fit into the overall context of electronic systems.

From a functional-block standpoint, this diagram essentially presents a picture of how power supplies are already used—but with the all-important addition of an arrow denoting information flow through the system.

The basic supposition here is that there are many places in the creation and operation of such a system where significant costs can be extracted, or where significant performance benefits could be created. The appropriate communication and use of information

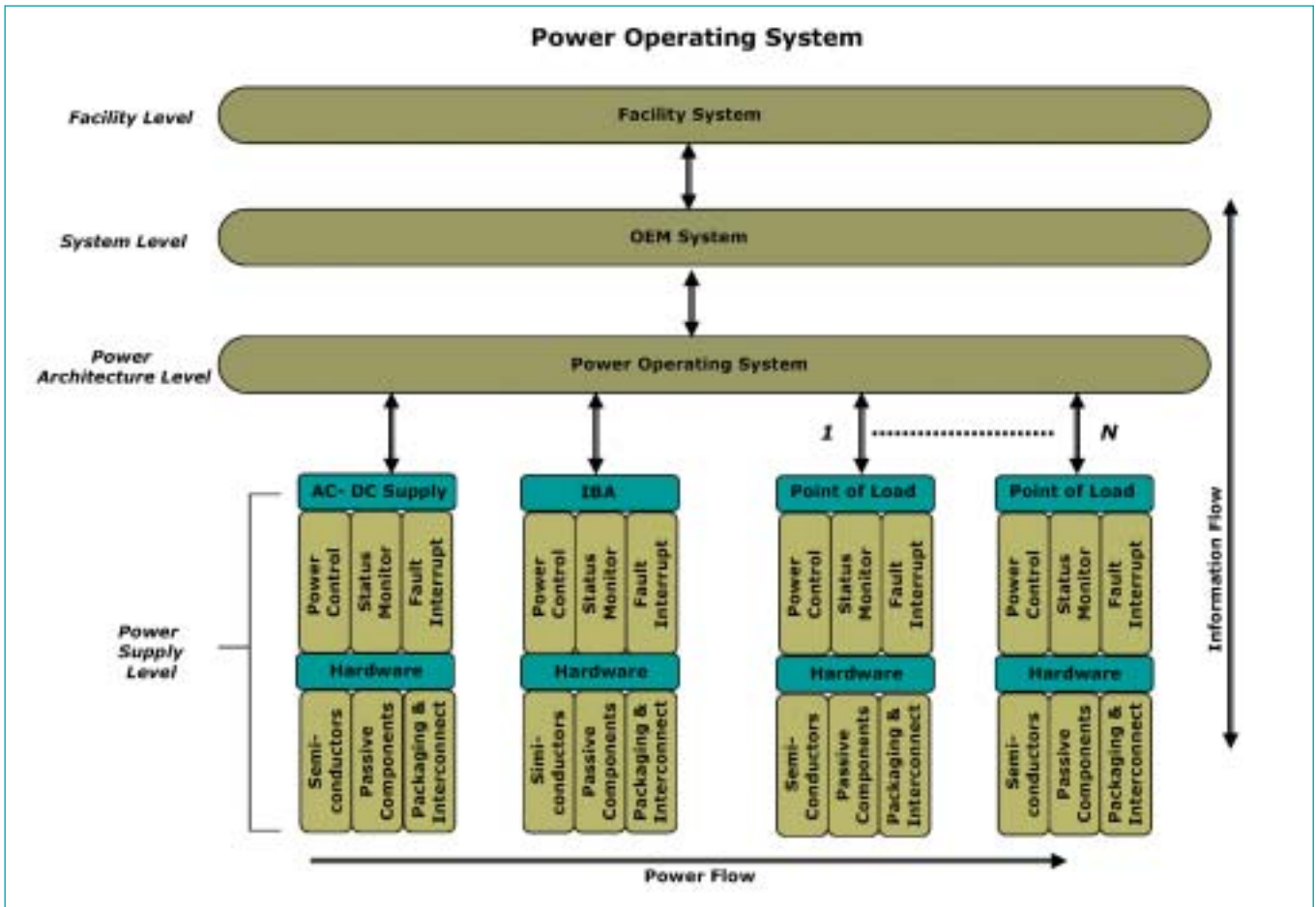


Figure 1. Power Operating System Diagram.

enables these improvements. In this context, then, DCP primarily facilitates the flow of some of the information.

However, there's much more involved in achieving cost reduction and performance optimization.

The Power of POS Thinking

This supposition about available benefits has been borne out in consultation between iSuppli and its clients regarding POSes.

We are only beginning to scratch the surface of the potential for improvements in speed of design, time to market, footprint, cost, reliability, efficiency and real-time performance optimization. And the types of improvements yielded by POSes we are seeing are not percentages, but more on the order of multiples, or orders of magnitude—such as man-years of effort reduced to man-months, or even man-weeks.

The challenges for implementation of the POS are many, but are addressable once they are understood. The larger challenge is deciding upon a strategy that will succeed when everyone joins the struggle for POS domination. Of course, several factors come into play whenever a company is faced with choosing an appropriate strategy, including timing, resources, competition, alliances and positioning.

The Danger of POSstponing

Often, such a strategic decision can be put off for some time—while the industry philosophers discuss the concepts. However, in the power supply industry today, several parties already are in the process of making key decisions regarding their POS strategy.

With the entire future of POS suppliers at stake, these companies must embark on the decision-making process now, enlisting whatever resources they

must in order to choose a strategy that will allow them to survive and prosper in the new world of POSes.

iSuppli believes that for companies that already are considering this issue—as well as for those that aren't—it is critical to make the basic strategic decisions related to the POS now, and to begin putting in place all of the elements required in order to make the new paradigm work. The companies that choose to make a decision now will have an advantage compared to those that decide to wait and see, iSuppli believes.

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