

PRODUCT GUIDE

Server Blades – A bright spot in a moribund market

By Lance A. Leventhal

Server blades are extremely small but complete servers, including one or more processors, memory, I/O interfaces, a network interface, and perhaps even on-board storage. The idea is one we have seen before in other areas. Modularize the elements, making them small and inexpensive – and thus simplify maintenance and expansion. In theory, one can repair a system by simply removing the malfunctioning blade and replacing it with another (this can be done without even powering down the system if the blades are hot-swappable). Also, one can expand the system by simply adding more blades. This both avoids delays in acquiring and installing additional large servers, and reduces capital expenditures by allowing one to buy only what one needs right now

As has so often been the case in the past, reality is not quite as nice as a block diagram indicates. Large numbers of servers require management hardware and software (one cannot very well have a keyboard and display for each one), an interconnection mechanism, and other miscellany (such as load balancing software if one intends to divide servicing tasks). Configuration is also far from trivial, both initially and after system changes. The additional software, management, and communications requirements may make the modularization surprisingly inefficient and expensive.

But surely, even if we aren't going to have "billions and billions" (as Carl Sagan would have put it), the smaller form factors do have advantages. At the very least, one saves on rack space, power, and unit cost. In fact, as of today, this is the primary market for blades – customers with expansion needs but no more space in their enterprise data center or telecom equipment.

What does this mean for CompactPCI? Obviously, it is a potential market at a time when the telecom business seems to never reach bottom. CompactPCI provides an obvious interconnection mechanism and expansion capabilities through the various PICMG-standardized backplanes and fab-

Server blades represent one of the few expanding technology markets in today's economy. Both IDC and IMEX Research expect them to approach \$5 billion in sales by the end of the next five-year period (up from almost nothing in 2002). This article will explore what blades are, what their advantages and disadvantages are, and how they relate to CompactPCI.

rics. Hewlett-Packard has, in fact, introduced a series of CompactPCI blades called the bh Class, which have found some use in telecom applications. The end result here would be to make telecom equipment more modular and cheaper – unfortunately, no one seems to want to buy it anyway. Note, however, that the small, low-power blades are particularly suitable for mobile military systems and shipboard systems where space is always at a premium.

The enterprise data center market has shown some life recently, down but not suffering the huge drops telecom has seen. However, the CompactPCI form factor is unknown in enterprise applications. In general, the attitude there is to buy the cheapest servers available and assume they will last until they become obsolete anyway. If not, the best approach is to keep spares and simply discard the sick elements (a sensible approach when it costs as much to diagnose the problem as it does to buy another system). One can always use discarded servers in demolition derbies, as shown in recent Dell commercials. Enterprise users obviously find CompactPCI expensive and more than they think they need.

So is there a future for CompactPCI in blades? The answer is a firm "maybe" Certainly we will see some use of blades in telecom equipment if and when the market eventually rebounds. The enterprise market seems more problematic. As the number of blades increases, it would be nice to have access to proven interconnection mechanisms. Also blade failures are not as easy to handle as the above scenarios suggests. Servers have the unfortunate characteristic of failing intermittently (particularly in the middle of the night and on weekends). Culprits can be hard to find (particularly on large racks), and the problems may lie in substandard connectors, power supplies, and other miscellany. Paying more initially for higher reliability may not be such a bad deal after all.

There are many technology trends to consider as well. The current slowdown will surely lead to less innovation, meaning that we may be able to keep servers around for a longer time. Also, wider use of voice over IP means that the data center becomes a telecom installation as well, and that may bring CompactPCI in anyway. As Ionesco put it, "You can only predict things after they have happened."

One thing I can state unequivocally is that we will discuss many of these issues at next year's Server Blade Summit (see www.serverbladesummit.com) to be held March 4-6, 2003 at the San Jose Wyndham Hotel. We are also forming the Server Blade Trade Association (SBTA) to provide a focal point for the industry, promote the use of blades, and educate potential users (see www.serverbladeta.org).

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