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Panda Computers: Dense, Upgradeable and Roly-Poly

By Walter Alan Zintz

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Forget the PC clones for a while. Here comes a startup company building PC-class workstations and servers that are definitely not clones of any existing designs. Archistrat computers from The Panda Project are built around three innovations that just might generate an upheaval in the commodity PC marketplace.

Here's a 34K GIF Photograph of the Archistrat computers.

Reinventing the PC

First, Archistrat computers are linked internally via ultra- high-density connectors. The Compass connector, developed by another division of The Panda Project, puts four connections on each pin. The square pin itself is an insulator, with a conductor on each of its four faces. (The Panda folks refer to the four as the north, south, east and west faces -- thus the name Compass.) They've built these multi-conductor pins small enough to fit a remarkable 1100 contacts into a square inch, and they assert that their choice of contact and insulator materials, plus the hundred-gram normal contact force allowed by their back- to-back opposing contacts, makes the connections quite reliable.

High-density connectors allow compact boxes. Panda's workstation enclosure occupies less than a cubic foot. Of course the next question is heat buildup in the server versions, but these servers are built to resist that with power supplies away from boards, multiple ventilating fans, and upward airpaths to utilize the chimney effect.

Next, Panda has combined fine-grain internal modularity with these dense connectors, linking each board to a novel passive backplane via up to 912 contacts. That's gross overkill today, but Panda is looking toward the future. When Panda owners need to go to 128-bit or even 256-bit data paths, when they want to increase throughput by switching to a more-powerful CPU with a different architecture, when it's time to take advantage of potential future developments such as multiple primary PCI buses, then all the connectivity needed is already there. Plugging in a new board or boards should be the primary hardware change required. The Panda people see this architecture eliminating the need to replace entire systems every time PC technology moves forward another step or two.

The last innovation is appearance. No pizza boxes or beige suitcases here, Panda designs look like something you'd see at Toys-R-Us. Enclosures are jovially bulgey, like the figures in Walt Disney's comic cartoons. They come in a choice of colors that ranges from pale purple to something near safety orange. The company logo, a lounging panda, fills about half of the side of each workstation enclosure.

Finding Markets

Archistrat is deciding prices right now, but there's no doubt these systems will sell for noticeably more than standard PC clones. These systems' compact size won't persuade many buyers to pay much more than the price of a clone--after all--anyone willing to pay a substantial premium can have a laptop that's even smaller yet, and has easy portability thrown in. The toystore styling is dubious as a selling point. People who like that sort of look are for-fun users, whose other principal buying demand is rock-bottom price.

Ongoing upgradeability must be the main selling point for Archistrat systems, and that's fundamentally a future savings issue. It won't sell to most home and small-business users, who buy a PC these days thinking, ''I don't know whether I'm buying the right thing here, but for less than two thousand dollars I can always use it as a doorstop''. Technical people would have more interest in a lasting investment, and they know they have the ability to make those swap upgrades as needed. The downside of the technical user market is that these people generally buy at razor-thin margins, and they usually have uses for obsolescent computers they've just replaced.

The big market for ultra-upgradeable PCs is big business. Monster companies have PCs by the hundreds and the thousands, and they typically replace them all every two or three years in order to be able to run the latest software at its full capabilities. It could seem very appealing to them to simply have technicians spend a night replacing a few boards to get the same improvement, without even having to dump and restore the users' files. They'll also like the idea of all their PCs--at every performance level--running the same architecture which means one vendor to deal with, one set of technicians to maintain all these units, and one line of spare parts.

Can Panda Pull it Off?

Whether that question refers to technical or marketing ability, the main point in Panda's favor is that most of their people came from IBM. (It's no coincidence that Panda is in Boca Raton--one of their key people, Bill Sarubbi, was on the team that developed the original IBM PC there.) Technical people know that IBMers rarely sign off on flakey technology, and to big-business suits IBM is still a magic word.

On the marketing side, Panda faces a real challenge. Selling big business on a proposition where the cost savings are several years down the road means more than making non-technical executives believe that a scheme they can't test now will work in the future. Since Panda is the only company offering this technology, those executives also have to be convinced that this brash startup will still be in existence when the upgrade components are needed.

So far, Panda's marketing work doesn't seem up to this challenge. The press material I received is poorly organized, stresses features rather than benefits, and lacks punch--all hallmarks of technical people who imagine they can do marketing on the side. Making the Archistrat enclosures look different from ordinary PCs was a good idea, but the clown-house look that Panda went with is a fiasco that will not be easy to live down. Still, at this early stage there is time left in which to turn the marketing around.

The technical picture looks brighter. The material I've received is short on technical details, but what there is suggests that the concept is valid and promising. I'll be after Panda to let me have an evaluation unit from which I can write a full review for *UnixWorld Online*.

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