From Clutter to Showcase:  
Phase Dock® Solution Organizes Dozens of Nanocomputers in Firmware Test Bed

SITUATION
The team leader of a firmware development group with the power management business of a Fortune 500 company was tasked to organize and cleanly mount dozens of nanocomputers and other electronic devices that were cluttering the work area. The challenge? Everything had to fit into a very limited space and still be accessible.

SOLUTION
The Phase Dock standard matrix, in a custom vertical installation, enabled the development team to neatly mount and easily organize dozens of nanocomputers as well as manage power and communications cables.

BENEFITS
Very densely mounted nanocomputers are well organized in the small space assigned to them. The team can easily see each device and, when needed, quickly replace SD cards or the entire board. Management is impressed, and the test bed is now a showcase, not an embarrassment.

“FIX THIS!”
The firmware development team had dozens of nanocomputers (mostly BeagleBone Black and STM Nucleo-144 dev boards) cabled and arranged on a desktop in their work area. “It was all over the place, cables running everywhere. The boards were loose, so if you moved one, they would all shift because nothing was really secured,” said JT, the dev team leader.

Management laid down a mandate: “Fix this,” with the caveat that the test bed must be contained within minimal space in the Firmware Test Lab.

The hunt for a solution was on. JT looked at pull-out drawer solutions that would fit in the server rack, including a 3D-printed vertical mounting concept.

“Nothing offered the accessibility we needed,” said JT. “It’s one thing when you have a cluster where you are doing data mining or something when you just don’t touch the boards. But at times we have to change the SD cards. We may have to take a board out of production and put a new one in.”

He considered using Command™ strips to mount electronics on the wall in the lab, but was stumped by the cable management. Then a colleague pointed him at the Phase Dock WorkBench Project Development Kit.
ADAPTING AN EXISTING PRODUCT

JT contacted Phase Dock asking “Can you make custom bases? If so, what's the largest size?”

Discussions led Phase Dock and JT to a vertical-mount solution that could be attached to the side of the server cabinet in the lab. Prior to this request, the largest benchtop WorkBench offered by Phase Dock had a work surface of 10” by 14”. JT’s team would need three wall-mounted units approximately 20” x 28”.

To facilitate the installation, Phase Dock designed extra-strength keyhole mounts on the matrix base and provided a drill jig, as well as researching and procuring all hardware necessary for the vertical installation of the three bases.

“The hardest part was drilling all the holes in the side of the server case. The drill jig helped a lot. I was able to drill it in a couple of hours,” said JT.

Now that the test bed is beautifully organized, JT is considering changing out the power distribution system. With the WorkBench platform, his only challenge is finding the right size power supply, because reorganizing the devices is straightforward.

THE SUCCESSFUL OUTCOME

“Everybody who has seen it has loved it. Having a system like this one was a much better solution than the others I looked at,” said JT. “Now that [the test bed] is set up, it will save time in terms of maintenance. We can easily see if everything is working properly.”

Happy with their wall-mounted test bed, the dev team added desktop WorkBenches to their toolkit.

“Everybody has some of these electronic devices on their desk in one form or another,” said JT. “Usually more than one. The hardware is usually just sitting there, getting knocked around or whatever, so this is a way to have it a little more secure, stable. Now, we can pick it up, move it. The ability to work with multiple electronic components helped sell it internally. It wasn’t something that needed a lot of persuasion.”