

How *does* Lopoco achieve such remarkable power efficiency?

### State of the industry

Fact is, conventional server manufacturers aren’t investing into R&D to develop efficient servers. Even knowing about the value of the marketing message “efficient” the conventional manufacturers label their product as such.

The simple proof is to compare our guaranteed power consumption per each LOPOCO server with the ones currently in use or offered, the difference is substantial.

Most manufacturers even don't actively communicated their power consumption, Lopoco does so. Lopoco server´s power consumption is approximately 100 Watts.

There it´s recommended to evaluate any so called “efficient” Server and benchmark this with the outstanding “100 Watts”.

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We have seen a similar phenomenon in the car industry already, in the 60s no one really was interested in efficient car´s, so no one made them. Lopoco is approaching proactively the energy saving based on the following factors and was able to achieve remarkable results.

### No compromise design

At Lopoco, we concentrate on **just one thing**: making the most efficient servers possible. And we hate compromises. Our belief system includes the notion that compromising leads to products we wouldn’t be proud to offer to the industry and be confident selling to our customers. We’ll leave that to the conventional server companies.

You may notice that our servers don’t include a similar choice of options like some other companies do offer. During the 2.5+ man-years of R&D that went into the design of our first products, we examined every aspect of modern day servers and asked ourselves ‘is that necessary anymore, and is it efficient?’ The eject button was pressed on many things that entrenched manufacturers are still pushing customers to buy in their servers, but truly are no longer needed. This fresh look at all aspects of server design is just one of the reasons why we’ve been able to achieve break through efficiency: power consumption reduction through the elimination of unnecessary components and component selection based on energy efficiency and performance rather than just performance alone. So while our servers definitely don’t fit the conventional mold, please do inquire about the possibility of a custom run with an option we don’t list on our web site, because we don’t have them all listed yet. If it’s something that we don’t include by design, we’ll tell you and we’ll tell you why.

Our servers are *very tightly designed* with maximum efficiency in mind. Adding too many “unused, therefore not necessary Options”that could affect overall power consumption means that design changes are then needed to accommodate the increased overall consumption, resulting in loss of efficiency. We’ve gone to great lengths to carefully and tightly design our products to achieve maximum possible efficiency without compromising performance. We are all veterans of the server, storage and processor industry in Silicon Valley, and we staunchly believe in performance, thats the mission a server has to fulfil at first! If a product can’t deliver the performance your application needs, then in our opinion it’s not sellable. The trick for end user customers is knowing those requirements well enough to make a good buying decision. And that is where the experts at Lopoco can help. We’re intimately familiar with all the classic server applications, including web serving (apache/nginx), email, database, hadoop, openstack, VMware, and …. We can assist in helping decide the right Lopoco server model, if any, for any customer application. Yes, you heard right. If one of our products isn’t suited to your application, or if you feel that you absolutely must have certain components that we don’t feel are good for efficiency, then we will tell you.

### Painstaking component engineering

Sometimes overlooked or dismissed as tinkering, component engineering is one of the pillars of our efficiency story. And while it’s a never ending task, to be truly able to make products as efficient as ours, more than 1000 man-hours of component engineering and selection went into our first designs. Far from tinkering with a few well known parts, we’ve scoured the global component market place for the most efficient, reliable and low power consumption components, we’ve done the R&D to package and utilized them that results in a very highly reliable system. All while keeping a close eye on providing the requisite performance needed by common server applications.

We start by selecting only CPUs and other IC components that are efficient enough to meet our standards, but provide excellent performance. Then we tightly design a server around them with countless hours of R&D to home in on maximum power consumption reductions. Shaving ¼ watt off a design or a component is a win for our R&D team. At the end, all of the little savings in a wide variety of areas add up to power consumption reductions that make our products stand out from the conventional manufacturers in a big way.

### History

A little bit of history can go a long way. Back 5 years or so, and for all the years before that during which X86 processor based servers were available, as a customer you had to buy as much CPU (and other components) horsepower that you could afford. The reason for that was simple: there wasn’t enough available performance in these CPUs to adequately power even basic applications for enterprise use. So an IT manager would get a budget from the higher-ups and would literally buy a server based solely on the size of this purse. That became a procedure that is well understood by IT buyers, finance departments, and management teams, and has continued to this day. We call this the candy store buying model. Budget based server selection.

### Data Centers of Today

Starting in the 2009-2010 time frame, processor technology advanced to the point that CPUs from AMD and Intel had become so powerful that it was no longer necessary to obtain the most GHz, the most CPU cores, the biggest CPU caches. Memory controllers moved onto the CPU die, and the performance got so great that it was no longer necessary to employ the candy store buying model. Now, IT buyers can choose a server based on good enough performance to meet their requirements.

The problem is that more than ten years has gone by where the entire industry became accustomed to this buying model. And that’s become quite an entrenched habit. The notion of understanding the performance requirements of an application is a bit of a lost art in many companies now. We at Lopoco think it’s time to get back to engineering fundamentals in this regard, because the payoff in terms of reduced energy consumption and spending, and greater densities, can be enormous. When building and provisioning a new datacenter, the cost savings can be measured in the 100s of millions of dollars for data centers with double digit megawatt power consumption. A new data center with a low PUE of, say, 1.1, could go from a 12 megawatt facility to a 6 megawatt power connection, with equivalent or better data processing capacity. For operators in those ranges, they understand the immense cost significance of getting the same or better processing capacity for half the power.

### Reducing energy consumption -- you’re not on your own

You don’t have to be a XXL data center to reap the benefits of Lopoco’s products. A modest data center can get help in the form of incentives from their local electrical utility to replace existing servers with Lopoco servers, partially paying the equipment cost of such a project. Add to that the significant savings on their monthly power bill, and it all starts to make sense. Contact your local electric utility provider for details, and start taking steps today to reduce your costs, increase your profit by decreasing your operational costs increase your capacity, and feel good about doing your part to conserve non-renewable natural resources..