LARSON PACKAGING COMPANY

Packaging Checklist
High Performance Computing

High-performance or hyperscale computing infrastructure can be as heavy and costly as a new Ferrari (or more). However, this equipment is far more delicate and sensitive to shock and vibration than a Ferrari. You can't afford to wonder: Will it arrive safely?

Specifying the correct packaging for your rack system is the most effective way to ensure your high-value equipment arrives at its destination ready-to-use. But while most rack crate/pallet companies have the basics down, they tend to overlook small yet critical things that can be the difference between arriving safely and arriving damaged.

We've put together this checklist to give yourself the best chance of getting your valuable cloud, hyperscale, computing and networking, AI, OCP and Data Center Infrastructure equipment to where it needs to go undamaged, ready to plug in and use.

Fragility

Always choose packaging in direct proportion to the sensitivity of your equipment and the care your supply chain takes. Highly fragile or abusive supply chain? Go with a crate with specialized foam. Less so, and you may be able to save costs and use a floater pallet with a bag or corrugated cap. Just remember that something as inconspicuous as a pothole can lead to tens of thousands of dollars damage if you get the packaging selection wrong.

Pro Tip

Consider how your rack is being shipped. Do you have a dedicated truck and confident the delivery team will handle the rack carefully. If so, you may opt to use an external floater design. Going on general LTL, then maybe a skid with internal floater may be the best option to avoid the shock protection skids getting damaged during transit.

Check the performance characteristic of the specified foam if the loaded rack crate will sit in the warehouse for an extended period of time. Inferior foams have a tendency to decay and compress over time increasing compression creep which leads to decreased performance and material handling issues during transit.

Transport

Domestic, international, sea, road or rail? Each has its own specific requirements. Get them wrong and your equipment won't even leave the warehouse.

Pro Tip

Freight companies have strict shipping restrictions. For example, crates going by air have a max height of 96 inches. Sea freight (not recommended) often requires the use of barrier or corrosion inhibiting film or bags. International destinations have various phytosanitary and lumber requirements.

Pro Tip

It's not just the total weight, but how the weight is distributed in the rack that's important. Is it in the front, back or uniform? Where's the center of gravity? All these factors affect how you design the crate or floater base, and how you apportion the foam and cushioning system to handle the downward and sideways force of the weight. Equally important, is the type of foam used as it impacts the overall performance of the package.

Weight

Modern servers and storage are denser and heavier than in the past. It's not uncommon for rack servers to weigh from 1,500lbs to 4,000lbs depending on the configuration. The increased trend to AI racks is making payloads even heavier. It's imperative that today's rack crates and pallets are manufactured and assessed to withstand the pressures of transporting equipment weighing in excess of a ton or more. The right foam makes a huge difference. Anything less and you risk in-transit damage.

Loading & unloading

If speed is critical, then the time required to load and unload your system should take priority over simply transporting it to the data center at the lowest possible cost. It can be the difference between having it unpacked in minutes versus hours.

Pro Tip

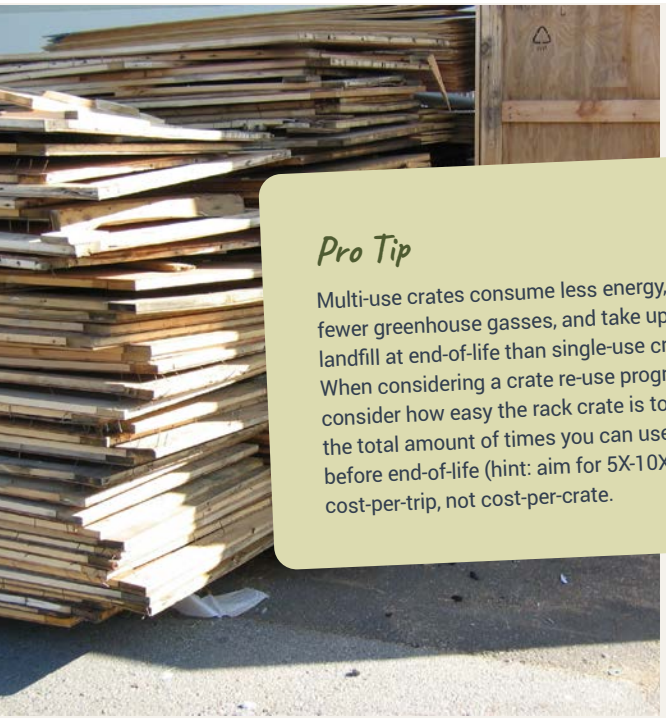
Wooden crates that require workmen to pull straps or remove bolts and brackets can be avoided as it wastes time and is a frequent cause of injury. Consider instead using a toolless crate with built-in ramp as it is up to six times faster to load and unload than traditional crates requiring tools. But be careful. A good ramp will be designed at the correct angle to prevent the racks from tipping over during handling. The incline must also be tailored to the size and shape of the casters so your rack will slide into the crate properly. Add hinged doors or rear access panels to make it even easier and faster to guide the equipment out of the crate.

Configurability

Rack servers are not one size fits all—your rack crate shouldn't be either. Consider a crate design that can handle a wide range server configurations and hardware components within the one configurable crate to save money and logistical hassles.

Pro Tip

LPC has developed a crate cartridge system — a new innovation that allows shippers to support racks of different weights within the one crate shell. The cartridge system works by swapping the cartridges that go inside the crate according to weight and set up. This saves money by having one crate with interchangeable cartridges for different weights or to extend the life of the crate floater (internal design only).



Pro Tip

Multi-use crates consume less energy, produce fewer greenhouse gasses, and take up less landfill at end-of-life than single-use crates. When considering a crate re-use program consider how easy the rack crate is to refurbish, the total amount of times you can use the crate before end-of-life (hint: aim for 5X-10X) and think cost-per-trip, not cost-per-crate.

Sustainability

Design your packaging for recyclability from the get-go. Consider the entire lifecycle of the packaging, from production to disposal. This includes the energy used in manufacturing, the emissions from transportation, and the waste generated at the end of its life. As much as possible, opt for materials that can be recycled or re-used to reduce landfill and for crates that can be refurbished and reused multiple times.

Cost-per-trip

There are six central components that need to be evaluated when pricing the actual cost of rack crates to reduce the risk of in-transit product damage:

1) Design
2) Durability
3) Product Life
4) Service & Support
5) Avoiding product damage
6) Time to load and unload

Each factor has a big impact on the total cost of your crate and shipping program. Consider using a long-term cost-per-trip costing model as opposed to a short-term price-per-crate model when evaluating suppliers and crate options. Cheaper upfront is not always cheaper overall.

Pro Tip

One of the biggest hidden costs is freight cost. Insist on a crate design that optimizes the number of crates that you can fit per load. Unnecessary heights, widths and awkward protrusions all reduce the number of crates you can ship per load, increasing overall costs and slowing down delivery of critical hardware.

We understand the unique challenges of Cloud, Hyperscale computing & networking, AI, OCP and Data Center Infrastructure

We are not simply distributors or resellers. We are a direct manufacturer of custom rack crates/pallets and packaging with an experienced inhouse design team for faster lead times and total control.

Our expertise is custom shock and vibration protective packaging for high-value, fragile and sensitive server hardware and technical equipment.

We are strategically located in the Silicon Valley and beyond, close to our key customers.

We have helped ship more than $90 Billion of sensitive equipment with zero damage.

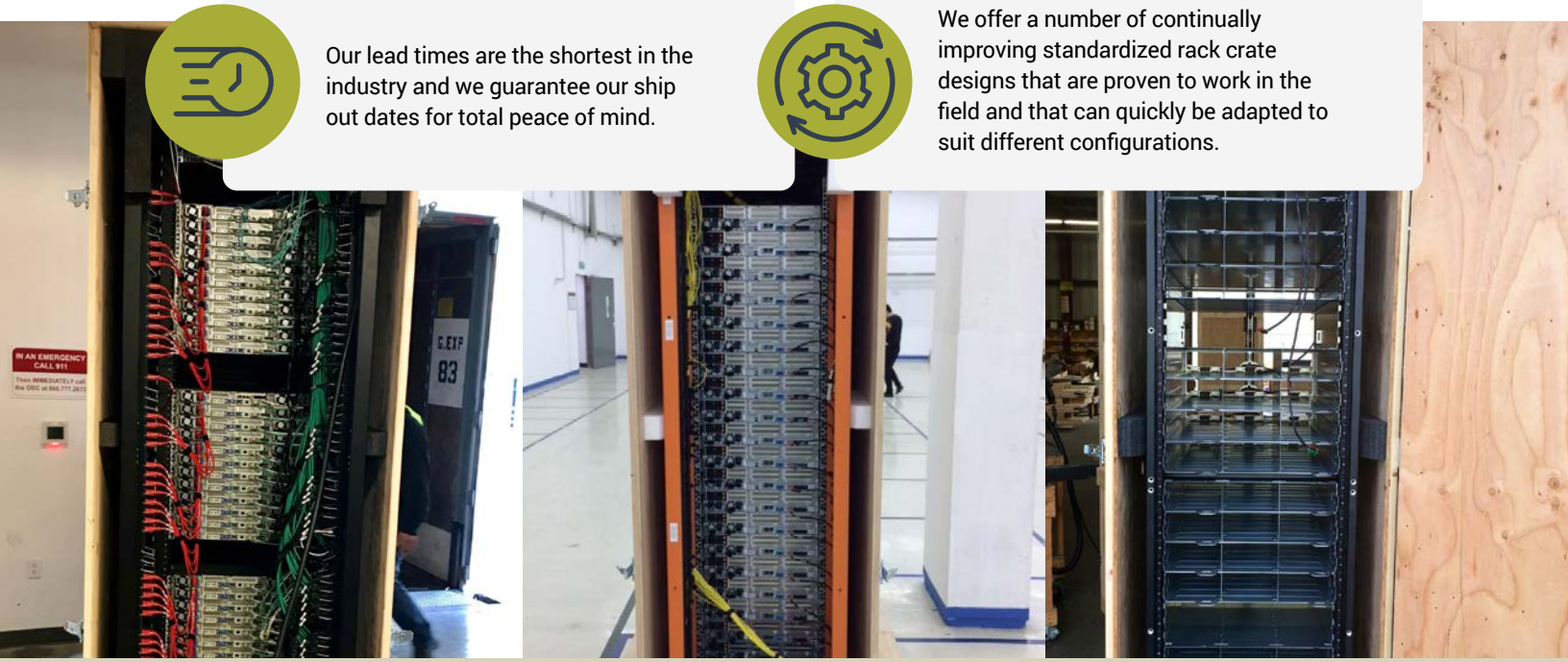
Our toolless rack crates are up to 6X faster to load and unload than our competitors' standard crates.

Our delivery in-full on-time performance is 99% (with 26% delivered early).

We are the first (and to date only) packaging company to offer the interchangeable crate cartridge system for increased flexibility and savings (patent pending).

Our lead times are the shortest in the industry and we guarantee our ship out dates for total peace of mind.

We offer a number of continually improving standardized rack crate designs that are proven to work in the field and that can quickly be adapted to suit different configurations.



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