Guide to Packaging and Palletizing Computers and Electronics for Recycling

This guide is intended to be a resource for packing and palletizing computers, electronics and other e-waste material for recycling.

By following proper packing protocols you can reduce the time and costs associated to recycling as well as safely recycle more material.

Contact a Southeastern Data team member if you have questions about packing or palletizing computers, electronics and any other material by telephone: 1-800-810-0432 or email: contact@SoutheasternData.com

The Southeastern Data Team
E-Recycling for a Brighter Future
Guide to Packing and Palletizing Computers and Electronic Material for Recycling

1. **CRT Monitors**: Prepare the monitors by wrapping each power cords around the base of the monitor. Put a sheet of cardboard onto a pallet. Place all outside monitors face down and the inside/center monitors face up. Do not let units hang over the edge of the pallet. You should be able to get at least 6 monitors to a layer. Place another layer of cardboard and another layer of monitors. Continue this process until the pallet is full. (Usually 5 layers, see picture 3) Tightly shrink wrap all layers onto the pallet. Affix a labeling sheet to each pallet.

2. **LCD/Flat Panel Monitors**: Individually wrap LCD/Flat Panel Monitors with bubble wrap or foam padding. Over pack several of these into a large box with bubble wrap as filler before palletizing. Affix a labeling sheet to each pallet.

   For more on LCD wrapping and packing see the step-by-step instructions provided at the end of this guide.

3. **Desktop PCs**: Place a cardboard sheet onto a pallet. Desktop PCs can be stacked on pallets without the layers of cardboard between each row. Tightly shrink wrap the PCs to the pallet and affix a labeling sheet.

4. **Laptops**: Pack laptops in boxes standing on their sides or ends. Do not lay flat in a box. Place bubble wraps or foam padding in the bottom of box and between laptops to cushion. Fill the box with bubble or foam so items cannot move or shift around.

5. **Servers not in racks**: Place a cardboard sheet onto a pallet. Servers can be stacked on pallet without the layers of cardboard between each row. Tightly shrink wrap the servers to the pallet and affix a labeling sheet.

6. **Printers and other miscellaneous items**: Can be mixed on a pallet with cardboard sheet on bottom. Bring boxes or place in Gaylord all keyboards, mice, cords, and miscellaneous items (see picture 1 and 2). Shrink wrap and label. Cardboard should separate stacked printers to protect the casings.

   Larger items, e.g. large printers and copiers may be placed on a pallet and stacked with the use of stretch film or shrink wrap, for easier to transporting and loading with the pallet jacks or forklifts

7. **Consolidation**: To avoid unnecessary dimensional weight charges, material should be consolidated on the pallets as much as possible without compromising protection, e.g. the number of CRTs needed to fill up a level could be 4 to 9 depending on the size and there should typically be 4-5 levels on a single pallet. Cardboard can be folded into shapes to fill voids or give stability and be used between layers. Additionally, odd shaped items can be stacked using cardboard to fill gaps and maintain stability.

   It is important that the cardboard be placed on the pallet before putting the items on the pallet. This provides protection and keeps cords or loose items falling through the pallet which can cause damage. Items should be stacked according to weight—heaviest on bottom and smaller, lighter items on top.
# Quick guide to material packaging

<table>
<thead>
<tr>
<th>Description</th>
<th>Packaging Height</th>
<th>Average Weight/Skid</th>
<th>Best Packing Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Televisions (TVs)</td>
<td>Items should not exceed 7 ft.</td>
<td>1,000 lbs.</td>
<td>Boxed in Gaylord or Pallet. Stacked/Pallet Wrapped</td>
</tr>
<tr>
<td>CRT Monitors</td>
<td>7 ft. – Skid (4x4)</td>
<td>1200/lbs.</td>
<td>Pallet Stacked/Card Board Sheet on Pallet and between layers. Wrapped in tight cubes</td>
</tr>
<tr>
<td>CPU’s</td>
<td>7ft. - Skid</td>
<td>1350/lbs.</td>
<td>Pallet Wrapped on Pallet in tight cubes</td>
</tr>
<tr>
<td>Computer Peripherals</td>
<td>Gaylord Container</td>
<td>550/lbs.</td>
<td>Placed in Gaylord Container or Can be mixed on a pallet with cardboard sheet on bottom</td>
</tr>
<tr>
<td>Flat Panel Monitors</td>
<td>Gaylord Container</td>
<td>700/lbs.</td>
<td>Boxed in Gaylord Containers with cardboard separating each screens and layers.</td>
</tr>
<tr>
<td>UPS – Battery Back-up Units</td>
<td>4ft</td>
<td>1400/lbs.</td>
<td>Placed on pallet and Wrapped in tight cubes or placed at bottom of Gaylord container with cardboard separating each layer.</td>
</tr>
<tr>
<td>Laptops</td>
<td>Gaylord, or stacked on top layer of PC on pallets</td>
<td>700/lbs.+</td>
<td>3 laptops layers with cardboard separating each level or loosely in Gaylord box on their side, not flat.</td>
</tr>
<tr>
<td>Wires, Cables and Cords</td>
<td>Gaylord Container or Box – do not overflow</td>
<td>600/lbs.</td>
<td>Pack loosely in a box or Gaylord container.</td>
</tr>
<tr>
<td>Accessories, keyboards, mice, and miscellaneous materials</td>
<td>Gaylord Container or Box – do not overflow</td>
<td>600/lbs.</td>
<td>Pack loosely in a box or Gaylord container.</td>
</tr>
</tbody>
</table>

![Picture 1: Empty Gaylord container](image1.png)  
![Picture 2: miscellaneous material in Gaylord](image2.png)  
![Picture 3: CRTs layered, stacked and shrink wrap on pallet with a tag.](image3.png)
Quick reference packing information

GAYLORD PACKING – Gaylord Container is set-up and placed onto Skid (Pallet)
- CPU’s Desk Top, Lap Top
- Rack Servers – (Tower Unit, loads directly onto transport trailer)Monitors, CRT and flat Panel
- Misc. Printers, Desktop Copiers, Scanners, Keyboards, Mice, Computer Speakers
- Wires, Video Cables, Power Cables
- UPS (Battery Back-up Systems)
- Power Supplies

CPU’s PC’s (DESKTOPS AND LAP TOPS) – Combination packaging
- Can be boxed in Gaylord Container with many layers of card board --as long as the equipment is tightly secured in the box with no room for jostling.
- Lap tops should not protrude above the wall height of Gaylord container.
- Lap tops can be packaged in a single Gaylord but should only contain lap top product.

PC’s (DESKTOPS AND TOWERS)
- Stack units no more than 7 ft in height
- Towers must be stacked on their sides.
- Units must not hang over the pallet (40”x48” size pallet preferred). A tight 2x2 pattern per layer is acceptable with the front of the computer facing outward and the back of the computer facing inward towards the center of the pallet.
- Include keyboards/mice/power cords, etc. in separate Gaylord containers labeled “MISCELLANEOUS”
- Pallet-loads must be pallet-wrapped and stable. Wrapping a few layers of film tightly around the pallet itself will help stabilize the load.
- DO NOT STACK ANTHING ON TOP OF THE PALLETS AND DO NOT “DOUBLE STACK” PALLETs.
- Keyboard. Mice power cords. Etc. boxes (1 additional layer) may be placed on top of the pallet and stretch-wrapped to the load. Ideally, a No-Stacking warning cone should be secured on top of the pallet-load.

NOTEBOOKS – LAP TOPS – Box on Skid wrapping
- Pallet-loads must be pallet-wrapped and stable. Wrapping a few layers of film tightly around the pallet itself will help stabilize the load.
- DO NOT STACK ANTHING ON TOP OF THE PALLETS.

MONITORS:
- CRT Monitors can be packed into Gaylord Containers or onto Skids, It’s recommended to pallet wrap monitors directly onto skids. They must be tightly secured with no extra space that could cause jostling.
- Flat Panel Monitors, MUST be packaged in Gaylord Containers, and tightly secured FACE TO FACE with no extra space that could cause jostling.

14”-15” Monitors
- Stack units no more than two (2) layers high with the screens facing downward Monitors must not overhang the pallet (40”x 48”size pallet preferred). Depending on size, either a 2x3 pattern per layer (18 monitor’s total) or a 3x3 pattern per layer (27 monitors total) is acceptable.
- Pallet-loads must be pallet-wrapped and stable. Wrapping a few layers of film tightly around the pallet itself will help stabilize the load.
- Place power cords and video cords into separate Gaylord container marked “Power Cords and Video Cables”.

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MONITORS Continued:

17”-21” Monitors
- Stack unit’s no more than two (2) layers high with the screens facing downward. Monitors must not overhang the pallet (40”x48” size of monitor. A 2x3 pattern per layer (12 monitors total) is acceptable.
- Pallet-loads must be pallet-wrapped and stable. Wrapping a few layers of film tightly around the pallet itself will help stabilize the load.
- Place power cords and video cords into separate Gaylord container marked “Power Cords and Video Cables”.
- Attached a packing list to the front side of each pallet to indicate the contents of the load.
- DO NOT STACK ANYTHING ON THE TOP OF THE PALLET AND DO NOT “DOUBLE STACK” PALLETS. Items shouldn’t exceed 7 ft. tall

MISCELLANEOUS:
- Printers can be packaged into Gaylord Containers and/or wrapped directly to skids (pallets).
- Keyboards, mice, computer speakers should be organized and packaged securely into Gaylord Containers.
- Cables, keyboards, mice, etc. can be put into Gaylord Container.
- Keyboard. Mice, power cords, etc. boxes (1 additional layer) may be on top of the pallet and stretch-wrapped to the load. Ideally, a No-Stacking warning cone should be secured on top of the pallet-load.

POWER SUPPLY UNITS:
- Unfold Gaylord Container, place onto Skid
- Mark Gaylord Container “Power Supplies”
- Cut Wire from power supply Unit, place wire into Gaylord Container marked “Wire”
- Place wire in Gaylord Container “Marked Wire”.
- Place power supply unit into Gaylord Container marked “Power Supplies” wood skid (Pallet).

Information to be provided

1. Type of pick-up: □ Live Load □ Staged Trailer
2. Will there be access to forklifts? ______ Yes ________ No
3. Are items on loading dock ______ Yes ________ No
   a. If no loading dock, is the material located on a ground floor? ______ Yes ________ No
   b. If not on ground floor is there elevator access? ______ Yes ________ No
4. Requested pick-up date: Month __________ Day __________ Year
5. Recurring pick-up schedule request: □ Weekly □ Monthly □ One time
6. Number of pallets/Gaylord’s ready for pick-up: ____________
7. Gaylord’s/pallets (circle one)
8. Estimated total weight lbs./or number of items: ______________________________
9. Is there a need for packaging material? Yes___________ List items ___________________
Acceptable Computers and Electronics for Recycling

Computers
- Laptops, netbooks, notebooks
- PC tower,
- Portable disk drives
- Hard disk drives
- Blade servers
- Small-scale servers
- Tablets

Accessories
- Keyboards
- Mice
- Hard Drives
- Power and Network Cables
- Docking Stations
- Network Hubs
- Modems
- Switches
- Batteries

Phones
- Cell Phones
- Smart phone
- Telephones
- Desk Phones
- PDAs

Household Electronics and Appliances
- Gaming Consoles
- Gaming Controllers
- Small Household Appliances
- CD Players

Office Equipment
- Small personal Copiers
- Label printers
- Fax machines
- Terminals
- Printers
- Toner/Ink Cartridges* contained within equipment or unit (ink and laser)

Audio/Visual Equipment
- Stereos
- Tape players
- VCRs
- Radios
- DVD players
- Blu-Ray players
- DVDs
- CD-ROMs
- Flash Drives

Miscellaneous
- Electronic Circuit Boards and Components
- Switching Boxes
- Lasers
- Terminals
- Uninterruptible Power Supplies (personal & network)
GUIDE TO WRAPPING MONITORS

1. Remove all cables from monitors and place in a separate box.
   - Place box with cables on the top of the wrapped pallet or gaylord
   - Force the removal of cables - if cables cannot be removed from monitors, wrap the cables around the monitor bases

2. Place a piece of cardboard flat against the front of the monitor screen. Use bubble wrap to secure it.
   - Use the same size cardboard as the monitor
   - Lay cardboard against front of monitor
   - Wrap the monitor completely – to ensure it doesn’t get damaged during transit
   - Use extra large pieces of cardboard to cover the monitor

3. Secure the bubble wrap with packing tape.
   - Use enough tape to secure the cardboard, bubble wrap and monitor
   - Use tape on screen, body or mount surface
GUIDE TO PACKING
MONITORS

1. Place the wrapped flatscreen monitors upright on their bases in a gaylord or on a pallet, all facing the same direction.
   - Place a piece of cardboard on the empty pallet to make a flat base if no gaylord is available
   - Pack tightly, allowing for multiple monitors in a row
   - Place same size monitors in each layer when possible
   - Throw the monitors into a gaylord or on to a pallet
   - Let units extend over the front or back of the pallet

2. Place the next layer of monitors in between the first layer, upside down, with the screens facing the screens of the first layer.
   - Place bubble wrap where necessary, filling in gaps to ensure units are secure and do not shift during transit
   - Make the second layer as even as possible
   - Force monitors in between the monitors of the first layer

3. Wrap the first two layers with stretch wrap. Place a piece of cardboard flat on top of the second layer of monitors. Repeat steps 1 & 2.
   - Cover with gaylord top when gaylord is full
   - Tightly wrap with stretch wrap to secure units on the pallet
   - Leave empty space that allows units to shift