Palletizing and Loading Simulation Package

INTELOAD - Intelligent Load Planner

1. System Overview

Overview

INTELOAD can help reduce your shipping costs by optimizing the load distribution based on the container, cargo, truck or pallet. INTELOAD is composed of the following two subsystem

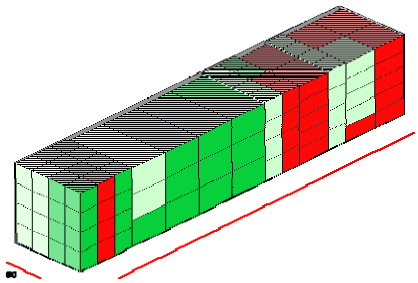
☆ Loading Engine
☆ Loading Plan Editor.

2. Loading Engine

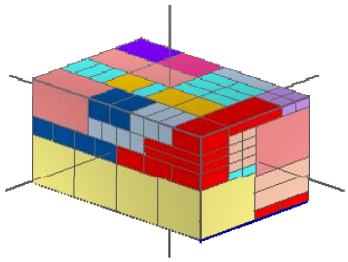
Loading Engine

The load planning system of INTELOAD is built around the best loading engine on the market and will give you optimal volume/weight utilization. Below are some sample outputs of the loading engine.

Truck/Container Loading

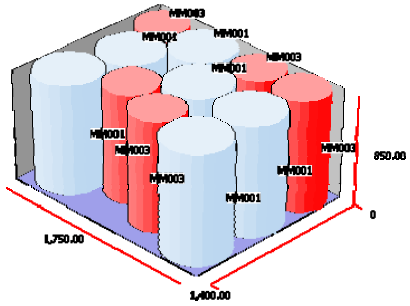


Palletizing

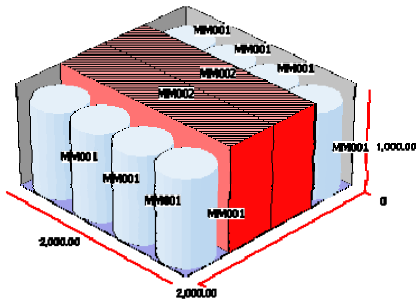


(1) Roll Loading

Roll Loading



Mixed Loading



(2) Optimization over multiple containers

Settings

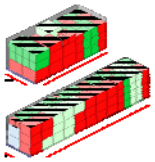
Container Type	Available
20 feet dry	3
40 feet dry	2

Boxes	Number
A	5
B	8
...	...

INTELOAD

Optimal result

Container Type	Number
20 feet dry	1
40 feet dry	1



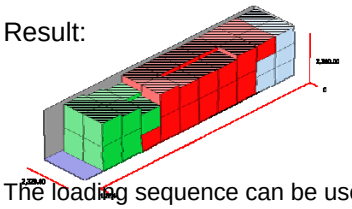
(3) Complex loading rules

INTELOAD creates 3D load plans using complex loading rules including loading sequence, comprehensive stacking order and box orientation rules

Loading sequence sample settings:

1. light blue boxes
2. red boxes
3. green boxes

Result:

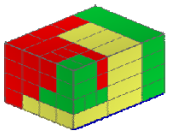


The loading sequence can be used to handle multiple stops and priority loading.

Stacking order sample settings:

1. yellow boxes
2. green boxes
3. red boxes

Result:

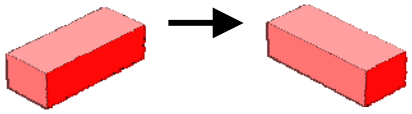


Stacking order can be used to prevent heavy boxes from being put on top of light boxes.

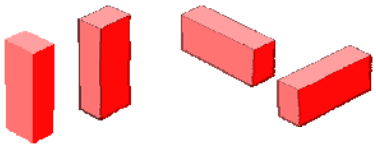
Settings for top only or bottom only boxes are also possible.

Possible box orientation rules:

1. Can the box be rotated?



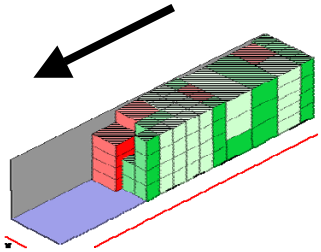
2. Can the box be loaded standing on one of the sides or the ends?



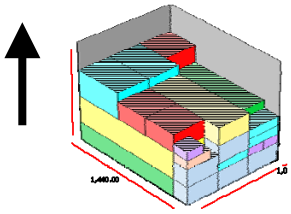
(4) Loading direction

A choice between “Back to Front” and “Bottom to Top” is available. The first option is typically used for containers and trucks, and the latter for pallets.

“Back to Front” loading



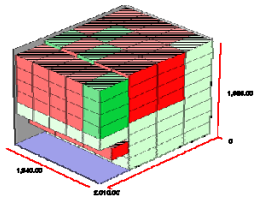
“Bottom to Top” loading



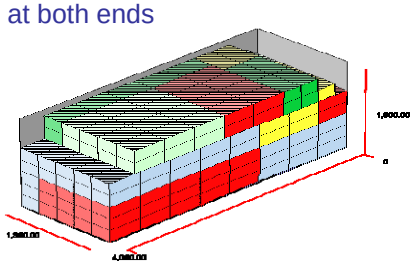
(5) ULD container handling

INTELOAD has the capability to handle irregularly shaped containers such as airline containers.

Half width container angled at one end



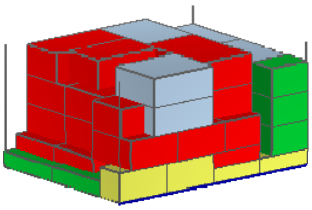
Full width container angled at both ends



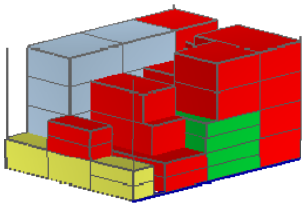
(6) Overhang on top of boxes

INTELOAD has two options of loading boxes on top of another. One option is with overhang and the other is without overhang.

With overhang

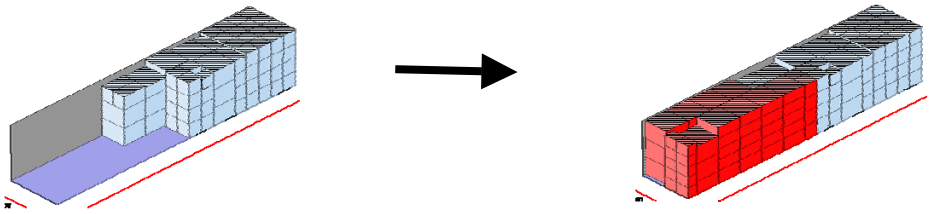


No overhang



(7) Partial loading

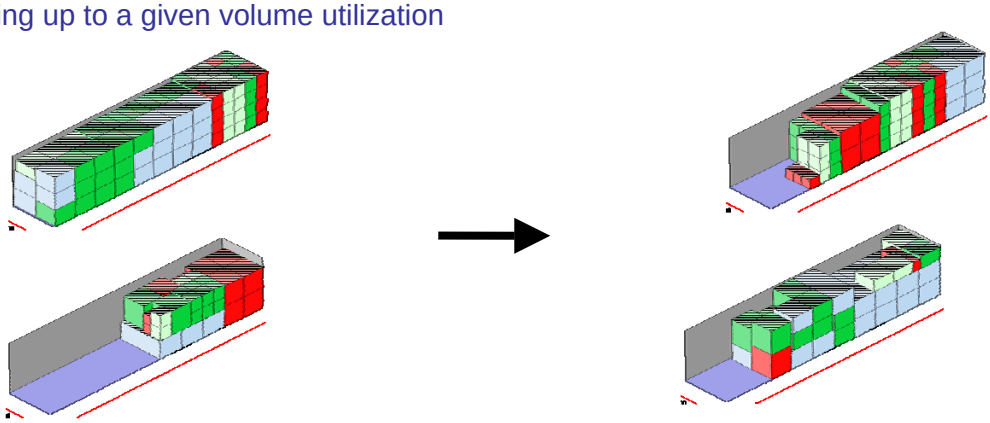
In INTELOAD, it is possible for the user to first optimize a part of the loading plan, and then fix that part to make it permanent, make additional inputs and re-optimize the loading plan without changing the fixed parts.



(8) Dead space

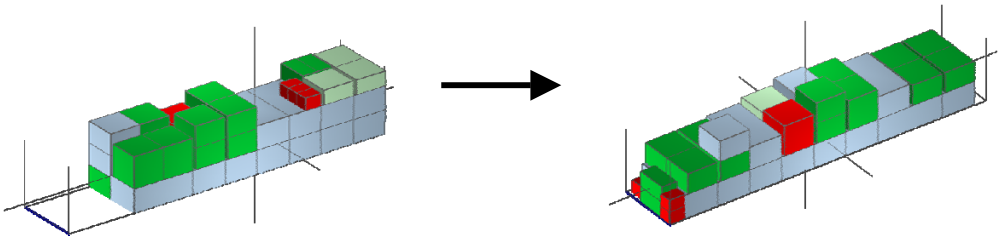
INTELOAD allows the user to define three-dimensional rectangular spaces in the container that cannot be used for loading. The figure on the right shows the use of the dead space to simulate warehouse loading.

(9) Loading up to a given volume utilization



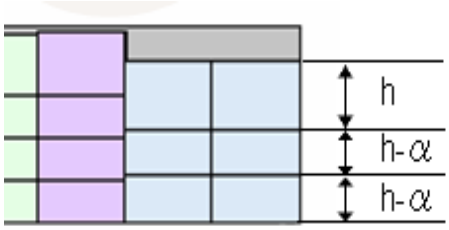
(10) Center of gravity settings

INTELOAD provides various settings on how to automatically position the center of gravity. For example, the user can set the center of gravity near the center of the container.



(11) Handling nested boxes

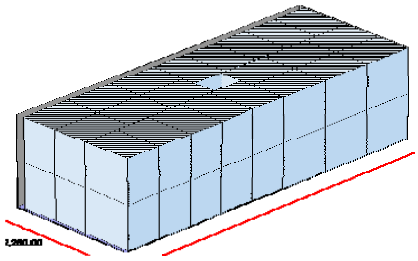
INTELOAD allows the user to define a nest height increase for boxes. It will be used to calculate a stack of boxes when nested. With this feature, stack/nest box loading (loading of boxes which shrink when stacked) is now possible.



Stack of same boxes

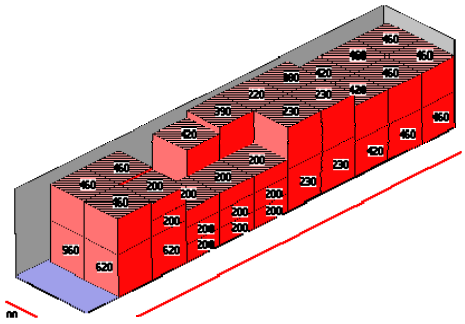
(12) Interlocking

INTELOAD can produce an interlocked load pattern, which is frequently used in palletizing. It can usually load more boxes than a non-interlocked pattern.



(13) Maximum supported weight for boxes

Maximum supported weight can be set for each box. The figure here shows a sample result with Maximum Supported Weight set to 500. Numbers printed on the boxes are the weights of each box.



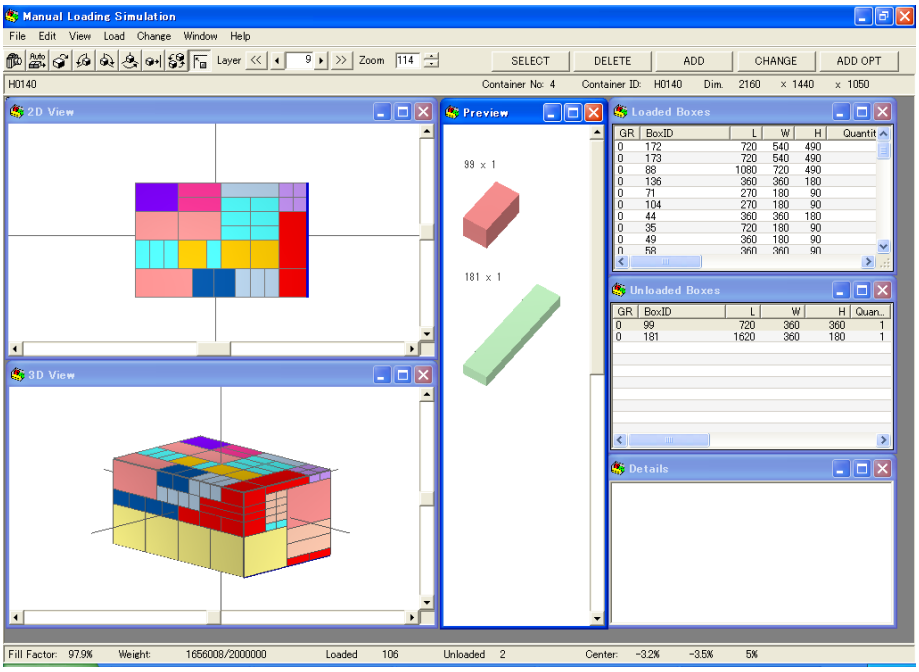
For more features of INTELOAD, please feel free to contact us

3. Loading Plan Editor Screen

Loading Plan Editor

INTELOAD has a 3D graphical interface for editing load plans using drag and drop functionality.

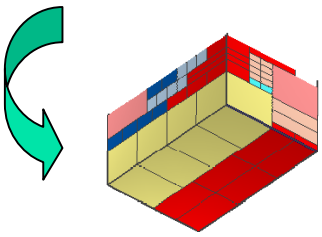
3.1 Screenshots (Manual Loading Simulation)



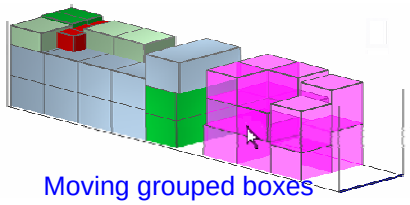
3.2 Features of the Loading Plan Editor

Loading Plan Editor functionalities:

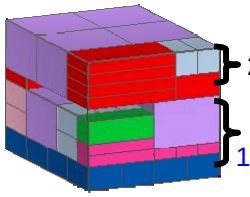
1.View per layer
2.Rotation of 3D view
3.Grouping of boxes
4.Rotation in any direction
5.Vertical partitioning of the container
6.Loading of multiple boxes of the same type with one mouse click
7.Auto-connection of boxes with their neighbors
8.2D and 3D zooming of the loading plan
9.Real time view of the fill factor, the total weight, the number of boxes loaded and the position of the center of gravity
10.View/change of the loading simulation (successive view of each step)
11.Changing the colors of the boxes …



Rotation of 3D view



Moving grouped boxes

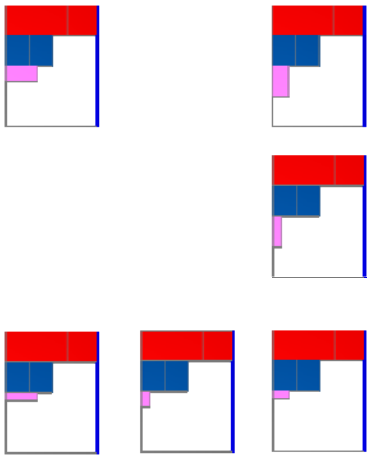


Vertical partitioning of the container

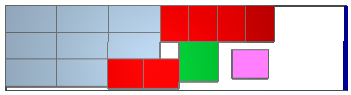
More functions

Box rotation:

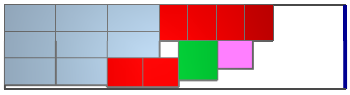
rotation in all possible directions



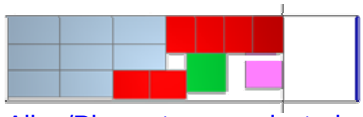
Box positioning:



Free positioning

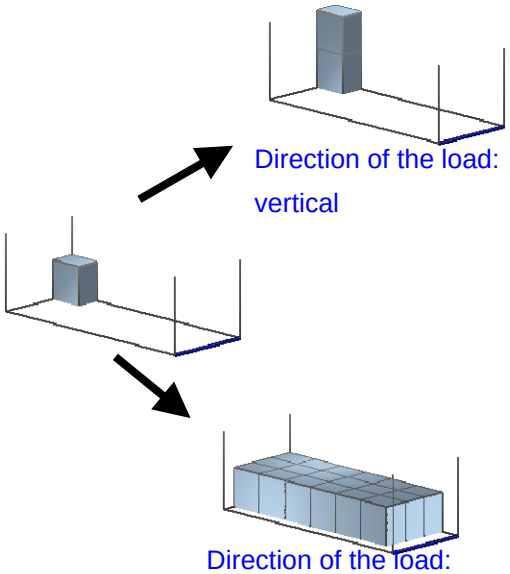


Align/Place to the nearest corner



Align/Place to a selected line

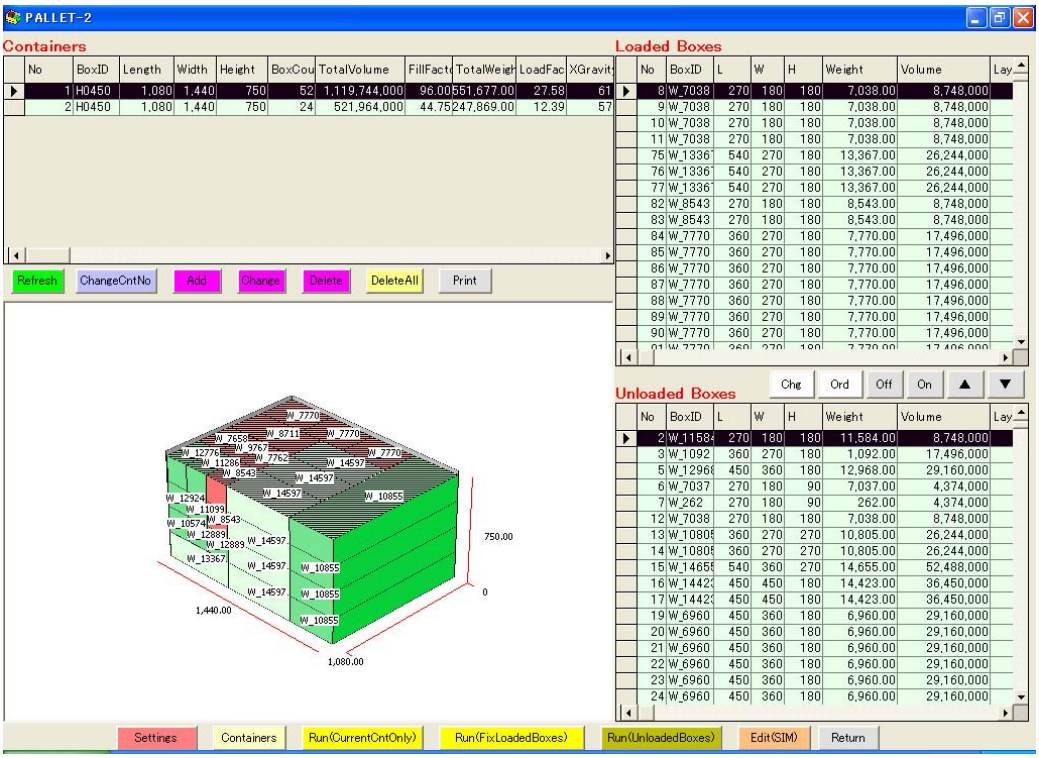
Auto-load of multiple boxes of the same type with one mouse-click:



4. Screenshots – Simulation Screen

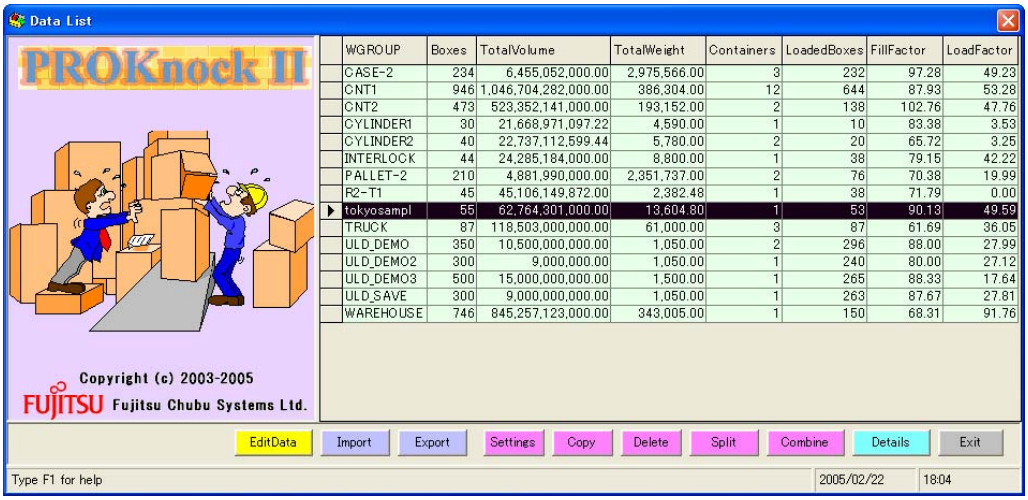
This figure shows the main simulation screen of INTELOAD. There are 4 sub-windows:

- The container list;
- The 3D view (capable of 360-degrees rotation) of the selected container;
- The loaded box list of the selected container;
- The unloaded box list



5. Screenshots–Top Screen & Data I/O Interface

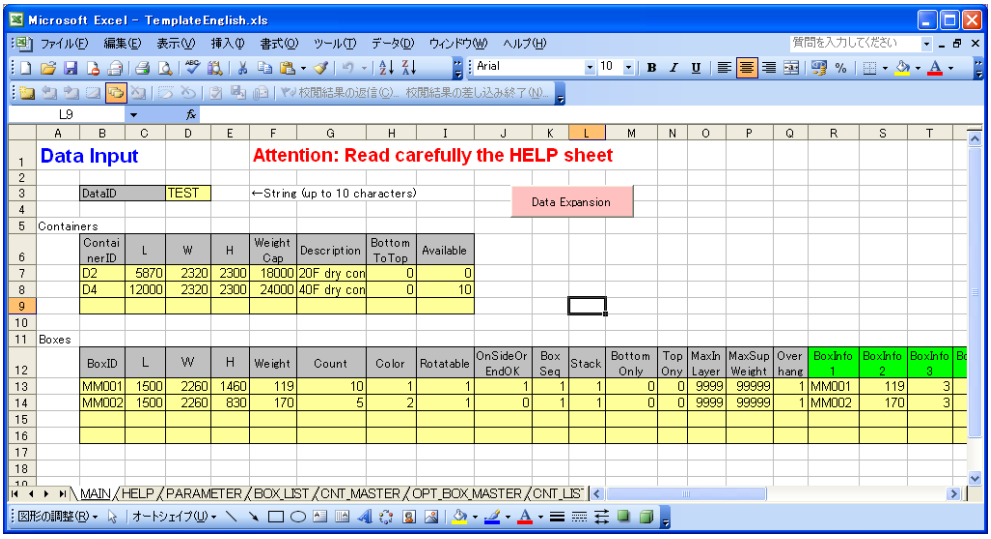
This is the main screen of INTELOAD. The data list is displayed. The user selects one item and can then proceed to the simulation screen.
Splitting the data as well as combining the data are possible.
The user can export/import data to/from an Excel file.
Upon request, we can also develop a custom interface that can link INTELOAD to your existing system.



6. Screenshots – Excel Application Interface for Data Input

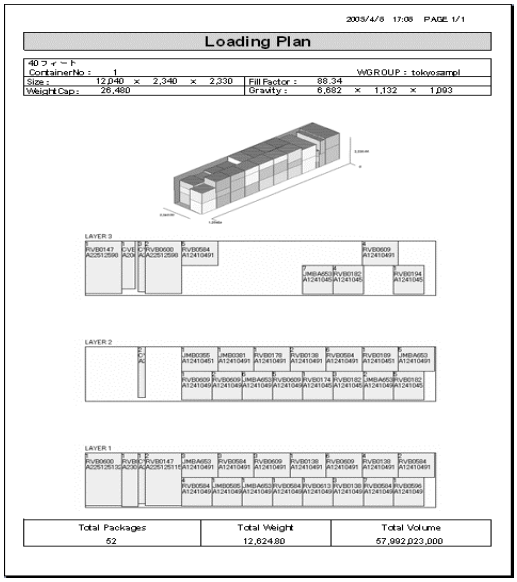
Excel Application Interface for Data Input

INTELOAD is provided with an Excel file, allowing the user to input data using spreadsheets. The Excel sheet is divided into 3 parts: the first part is for inputting parameters; the second part is for inputting container data; and the last part is for inputting box data.
We provide different versions of this Excel file according to each user requirement.



7. Reports

INTELOAD offers two reports: the Loading Plan and the Data List. All reports are printed into an Excel file, allowing the user to edit the contents before sending it to the printer.
The Loading Plan gives you a complete report on how to load each of the containers in the current loading case. You will see the 3D view of the container, followed by a top view of each layer.
The Data List is a list of loaded boxes per container.



8. Hardware and Software Specifications

CPU : Pentium III 1.2 GHz or above
Memory : 512MB (recommended)
Hard disk space : 1GB (minimum)
Display: 65,536 color resolution, 1024x768 screen resolution (minimum)
OS : Microsoft Windows 2000 or above
Applications : Microsoft Excel 2000 or above