APPENDIXES

Appendix A

Keys and Shortcuts

Design/CPN provides a range of “power commands” for quick and efficient performance. The modifier keys are used with a command, during an operation invoked by a command, or during direct manipulation with the mouse.

Keystroke Shortcuts

You can invoke some of the most commonly applied commands by using *keystroke shortcuts* instead of the items in the menus. Some keystroke shortcuts have different meanings in different contexts. The following table lists all shortcuts.

A	Select All Nodes
B	Transition, Bind
C	Copy
D	Stop
E	Place, Interactive Run
F	Find
G	Enter/Leave Group Mode
H	Horizontal
I	Get Info
J	Vertical
K	Arc, Continue
L	Label
M	Make Region
N	Find Next
O	Open
P	Print
Q	Quit
R	CPN Region, Automatic Run
S	Save
T	Enter/Leave Text Mode
U	General Simulation Options

V	Paste
W	Select All Text
X	Cut
Y	Open Page
Z	Undo/Redo
1	Select
2	Drag
3	Displace
4	Adjust
5	Fit to Text
6	Text Attributes
7	Graphic Attributes
8	Shape Attributes
9	Region Attributes
0	Page Attributes
-	Hide Regions
=	Show Regions
[	Between
]	Projection
;	ML Evaluate
'	Syntax Check, Reswitch
,	Cleanup
.	Terminates modal commands
/	Duplicate Node
`	Reduce
****	Blowup

Modifier keys

You can change the way a command works by pressing certain keys:

Option key

Pressing the OPTION key with the relevant command produces the following results:

- Makes port assignment to ports with a non-matching port type.
- Constrains repositioning to horizontal or vertical for **Drag**.

- Constrains resizing with the mouse to horizontal or vertical.
- Invokes the instance menu.
- Modifies all Align menu commands in group mode.
- Selects target node for connector drag.

Shift key

Pressing the SHIFT key with the relevant command produces the following results:

- Arrow keys scroll or move in text pointer hierarchy .
- Adds and subtracts to/from current selection.
- Repositions during adjust/creation.
- Creates a single binding for the selected transition.
- Invokes the page instance dialog box.
- Modifies all **Align** menu commands in group mode.

Option + Shift keys

Pressing the OPTION + SHIFT keys:

- In the editor, maintains object proportions.
- In the simulator, creates a single binding for the selected transition and starts an execution.

Space bar

Pressing the space bar:

- Removes a point from object when the graphic tool is placed on it.
- Hides an object during selection.

Command key

Pressing the Command key while dragging:

- Snaps the connector to right angle.

Appendix B

Troubleshooting

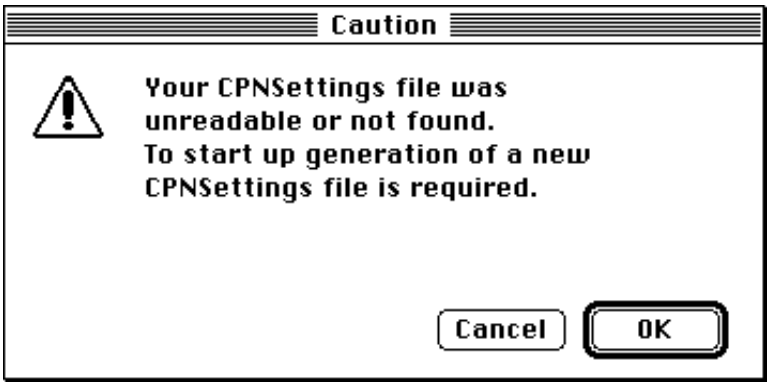
This appendix describes various problems that you may encounter when you attempt to run Design/CPN, and tells you how to solve them. All of the problems relate in some way to the interface between Design/CPN and the computer on which it runs. The problems described are:

- CPN Settings file is missing or obsolete.
- Printer has not been specified.
- ML configuration has not been specified.
- ML Interpreter cannot be started.

When one of these problems occurs, Design/CPN displays a descriptive dialog box. The fastest way to get information about a particular problem is to scan through this appendix until you see a picture of the dialog box Design/CPN has displayed. A description of the problem and its solution follows the picture.

CPN Settings File Missing or Obsolete

When you try to start Design/CPN, and the CPN Settings file is missing or obsolete, Design/CPN displays:



Problem Description

When Design/CPN is installed, a folder called Design/CPN is created. This folder contains a file called CPN Settings. In order for Design/CPN to run, this file must be copied to the system folder. If the file was not copied there, or was subsequently renamed or removed, Design/CPN cannot find the settings it needs in order to run correctly. It therefore displays the above dialog.

Problem Solution

- Click **Cancel**.

Design/CPN quits. If you have a copy of CPN Settings in your Design/CPN folder:

- Copy CPN Settings to the System folder.

If you do not have a copy of CPN Settings in your Design/CPN folder:

- Reinstall Design/CPN from the source disks.
- Copy CPN Settings to the System folder.

After you have copied the settings file:

- Start Design/CPN.

The application should now start without problems relating to CPN settings.

Printer Not Specified

When you try to start Design/CPN, and no printer has been specified in the Chooser, Design/CPN displays:

Problem Description

Design/CPN needs to know what printer you are using, so it can configure diagram pages appropriately. It derive this information from the current printer specification in the Chooser. If no printer is specified in the Chooser, Design/CPN cannot find the printer information it needs. It therefore displays the above dialog.

Problem Solution

- Click **OK**.

Design/CPN remains active

- Open the Chooser.
- Select a printer.
- Close the Chooser.

You can now use Design/CPN without encountering problems relating to printer specification.

ML Configuration Not Specified

When you try to start the ML interpreter, and you have not specified the interpreter to use, Design/CPN displays:

Problem Description

Design/CPN for the Macintosh offers a choice of two ML interpreters: the Edinburgh interpreter (EML) and the New Jersey inter-

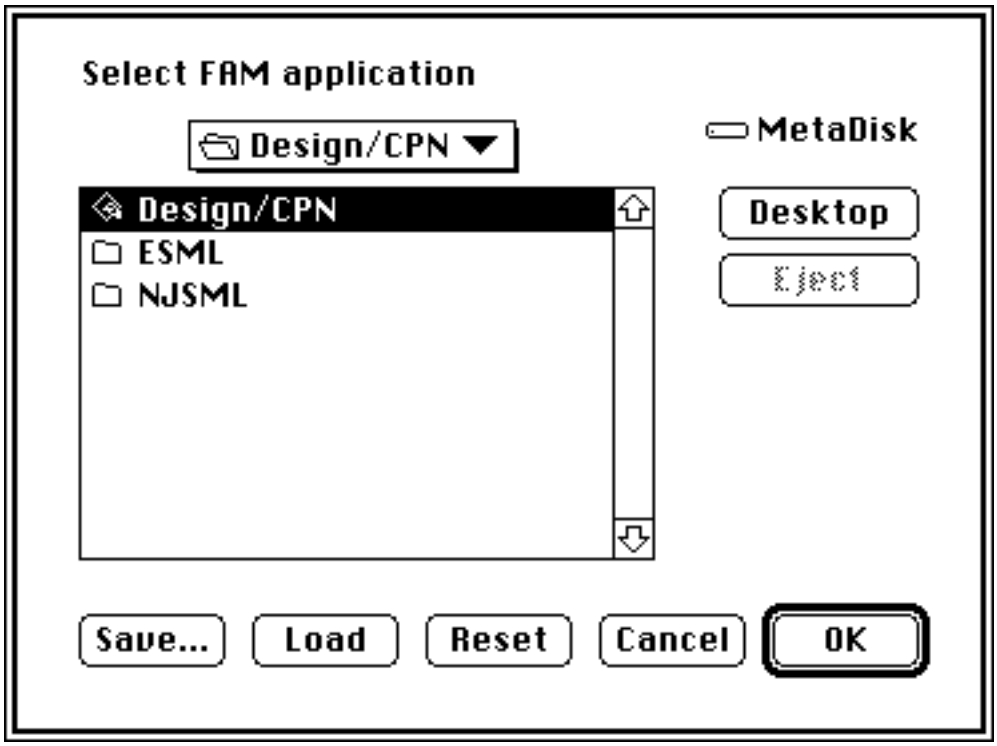
preter (NJML). When you use Design/CPN for the first time after installation, or after replacement of a missing or obsolete CPN Settings file, the application does not know which ML interpreter to use. If you execute a command that requires an ML, such as **Syntax Check** or **Enter Simulator**, but have never specified an interpreter, Design/CPN displays the above dialog.

Problem Solution

To solve the problem, you must tell Design/CPN which interpreter to use.

- Click **Yes**.

The Select FAM Application dialog appears:



This is the same dialog that appears when you choose **ML Configuration Options** from the **Set** menu.

- Navigate if necessary to the folder that holds the Design/CPN application.

The Design/CPN folder contains two folders: ESML, which holds the Edinbergh interpreter, and NJSML, which holds the New Jersey interpreter. It may also hold other folders and/or files. You can ignore these.

The EML interpreter switches a model to the simulator more quickly than the NJML interpreter, but executes the model more slowly. The NJML interpreter switches a model quite slowly, but executes the model very rapidly. The difference results from the large amount of code optimization that the NJML interpreter performs. In general, EML is preferable:

- For learning about CP nets, when slow switching would be annoying and fast execution would bring no advantage.
- During model development, which often requires a model to be modified and reswitched frequently.
- For large models, where slow switching would produce very long switching times.
- For models whose executions are brief, so that fast execution does not bring a great advantage.

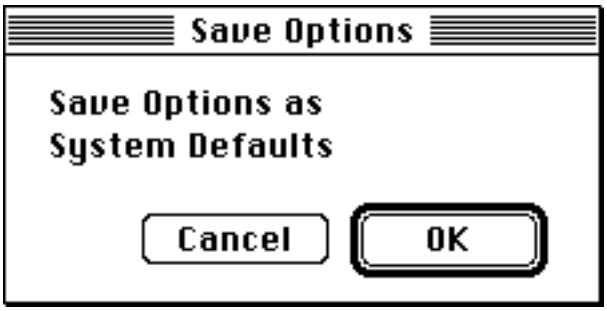
However, these criteria trade off against each-other in complex ways, so there is no algorithmic way to decide every case. If you aren't sure which to interpreter to use, try EML first.

- Open the folder that holds the interpreter you want to use.
- Select the application named CPN FAM.

(An ML interpreter is known as a CPN FAM to the file system.)

- Click **Save**.

A confirmation dialog appears:



The "System Defaults" the dialog refers to are the defaults that relate specifically to the ML interpreter, not the defaults for Design/CPN overall.

- Click **OK**.

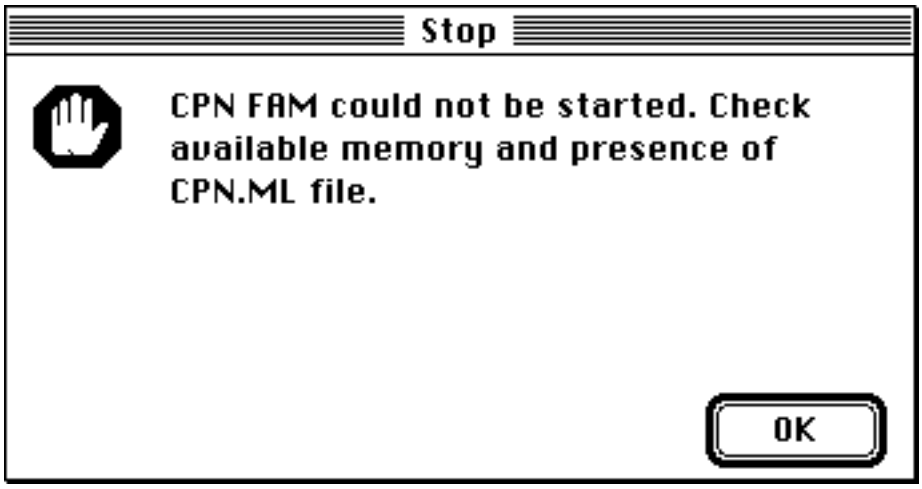
Design/CPN stores a record of the selection you nave made in the CPN Settings file, so you will not have to respecify it in the future. To close the Select FAM Application dialog:

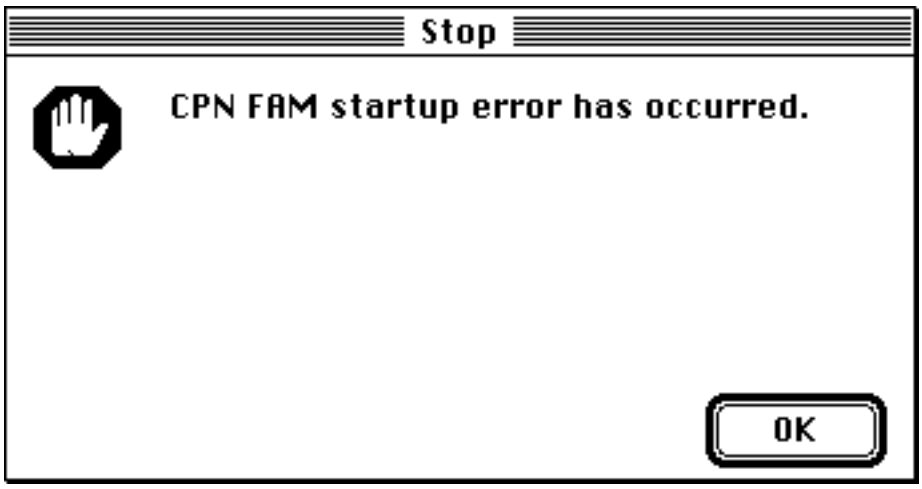
- Click **OK**.

Design/CPN proceeds with the command that caused the problem to be encountered.

ML Interpreter Cannot be Started

If an ML interpreter has been selected, but Design/CPN cannot start it, one of the following dialogs appears:





If you see either of these dialogs:

- Click **OK**.

There are four possible causes of this problem:

- There is not enough memory available to run the ML interpreter.

- The ML configuration options have been incorrectly specified.
- The ML interpreter (CPN FAM) has been moved.
- Another file, called CPN.ML, is not in the folder with the CPN FAM.

Not Enough Memory to Run the Interpreter

This is by far the most common cause of trouble starting ML. To see whether lack of memory is the problem:

- Switch to the Finder.
- Choose **About This Macintosh** from the **Apple** menu.
- Note the size of the **Largest Unused Block**.
- Close the **About This Macintosh** window.
- Navigate to the folder that holds the ML interpreter you are trying to use.
- Select the CPN FAM application (the ML interpreter).
- Choose **Get Info** from the **File** menu.
- Note the **Preferred size** shown for the interpreter.

If the preferred size is larger than the largest unused block, there is not enough memory. There are three possible causes of insufficient memory:

- The needed memory is in use or fragmented.
- Design/CPN and/or the ML interpreter requests more memory than it needs.
- There is not enough memory installed in the computer.

More than one of these may be contributing to the problem, so there may be more than one possible solution. You should read about all three possible causes, and their respective solutions, before you decide what to do.

Memory in Use or Fragmented

If your computer has active applications other than Design/CPN, there may be too little memory left for the ML interpreter to run. If

you have started and quit applications before encountering trouble starting ML, the available memory may be divided into more than one block, no one of which is large enough for the ML interpreter. The answer is the same in either case:

- Quit some or all applications other than Design/CPN.

The information in the **About This Macintosh** box can help you decide which applications to quit, and tell you whether a sufficiently large memory block has been freed. If only Design/CPN is running, and there is still not enough memory, Design/CPN itself may be fragmenting the memory.

- Quit and restart Design/CPN.

All memory not used by the system or Design/CPN is now available in a single block.

Memory Requests Too Large

Macintosh applications specify the amount of memory they need in fields in the **Get Info** box. There are three such fields. Their Macintosh standard meanings are:

- **Suggested Size**: This is set by the software manufacturer and cannot be changed. The application must have at least this amount of memory in order to run.

- **Minimum Size**: Allows the application to require more memory than the Suggested Size provides, to insure that additional memory will be available to the application.

- **Preferred Size**: Allows the user to request more memory than the Minimum Size requires. If the memory is available, it will be allocated to the application. If not, the application will run in less, down to the limit established by Minimum Size.

Design/CPN and its associated ML interpreters ignore the figure in Minimum Size, and treat the Preferred Size as the Minimum Size. Setting the Preferred Size to a value higher than the Suggested Size in Design/CPN and/or a CPN FAM allows the application to run faster, but can also leave the ML interpreter without enough memory to run.

To decrease the memory requirement of the ML interpreter.

- In the Finder, select the icon of the appropriate CPN FAM application.

- Choose **Get Info** from the **File** menu.

- Reduce the Preferred Size to a value not less than the Suggested Size.

You can **Get Info** on a running application, but you cannot change its memory requirements. To reduce Design/CPN's memory allocation:

- Quit Design/CPN.
- Reduce its allocation as for the ML interpreter.

Not Enough Installed Memory

You may not want to quit other applications in order to run Design/CPN, or to accept the slower performance that results from reducing Design/CPN and/or the ML interpreter's memory requirements; or you may not have enough memory even if you do accept these restrictions. In this case, you must either:

- Install more memory in your computer. Contact your Macintosh dealer for information.
- Use virtual memory. See your Macintosh System 7 documentation for information.

Virtual memory is the cheapest solution, since the capability is built into System 7, but using it carries a significant performance overhead.

ML Configuration Options Incorrectly Specified.

If the ML interpreter you specified via ML Configuration Options was not a CPN FAM, Design/CPN will not be able to start an ML interpreter. One common error is to select the file CPN.ML rather than the application CPN FAM. To insure that no error has occurred in specifying the interpreter to use:

- Respecify the ML interpreter, as described above is the section "ML Configuration Unspecified."

ML Interpreter Has Been Moved

If the ML interpreter specified via ML Configuration Options has been moved since the specification was made, Design/CPN will no longer be able to find it. If you suspect this has occurred:

- Respecify the ML interpreter, as described above is the section "ML Configuration Unspecified."

CPN.ML Is Not Present

There should be a file named CPN.ML in the folder that contains the CPN FAM file. If the file is not there, it was renamed or removed after Design/CPN was installed. If possible:

- Locate and restore the CPN.ML file.

If the file cannot be located:

- Re-install Design/CPN.