PowePC Notes - March 17th 1994

Learning about the PowerPC

I can display info about Power Macs, but I am NOT in the business of developing reference materials.
The PowerPC Macs have a very different architecture from the 68K Macs.
The runtime environment of the PowerPC Macs is derived from IBM's AIX OS.

To get started, buy the 'Macintosh with powerPC Starter Kit" from APDA (R0563LL/A) for about $40.00 .
This is essential. The kit contains the Motorola/IBM reference manual for the 601 CPU.

Also consider buying the 'Programmer's Introduction to RISC & PowerPC" a self paced mini-course for $150 (R0172LL/A).
If you or your company will spring for it, consider attending one of Apple's Developer University courses.

The Debugger vs Power Macintosh (as of 3/16/94)

The Debugger is capable of debugging Power Mac (Native mode) programs.
When you enter The Debugger, the format of the display in the registers window is dependent on the mode the machine was in when the exception was taken. If the machine was in Native mode, then you will get a display of the PowerPC registers, else you will get the classic 68K register display.

At present, not all features of the 68K debugger have been implemented in native mode.
Features **not** implemented for native programs include:

Single statement source stepping (it is at the instruction level). Using Go Until PC is a bit faster.
Performance Timing
Intelligent step into for mixed mode calls.
Memory Watch and Proc Entry/Exit Trace
Trap Discipline
Trap Intercept & Trap Entry Trace
Transparent debugging of Executable resources.
Structured disassembly of Native code in the ROMs.

Jump Tracing	may never be available for Native programs
MMU Protection	may never be available for Native programs

In addition, CoverTest does not know how to do Code coverage of Native programs,
Nosy doesn't know how to disassemble the PowerPC (CFM) libraries, and IBS hasn't been touched.

Hopefully many of these deficiencies will be rectified in the next few months,
along with getting the Debugger to work with VM.

Features added for PowerPC debugging

PowerPC disassembly with 'training wheels' and emulation trace
The format of a line in a structured assembly window is:

```
addr:  result   label   opcode  operands      ;  meaning of instruction
```

The result field may hold the following: the result value of a load or register to register instruction, or '>address' , the effective address of a store instruction, or 'except n' if execution of the instruction will cause an exception.

In the Tables menu, two new items have been added: 'CFM…' and 'Target Lib…' .

The CFM item will display a list of all the loaded CFM libraries, or of all the entry points in a given library,

or it will find the address of a given symbol.

The 'Target Lib' command allows you to specify a library to be symbolically debugged.
You must have an 'xSYM' file for the library. To use the command, select it once, dismiss the dialog, hilight the name of the library you want to debug, and then select the '.xSYM' file from the Standard file dialog.

You may reference the pseudo variables: ?LR, ?CR, ?XER, ?CTR in expressions.