Appendix to VLBA Memo #4 Computer Useage :

or How much is that in real money?

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The purpose of this appendix is to update VLBA memo #4 and to state the estimated post-correlation computer requirments. As in all such estimates, the numbers quoted here should be viewed with some skepticism.

I. Continuum Fringe Fitting.

The values given in VLBA memo #4 in Table 1 were based on Mk II values and are not entirely relevant to the VLBA. Estimates of Mk III fringe searching are based on values obtained from A. Rogers at Haystack from their experience with the Mk III correlator. One example:

8.5 min of data searched, 2 sec preaveraging, 14 tracks
Disk I/O = 40 sec
mostly FFT search = 120 sec.
search window = 0.8 Hz and 0.5 microsec.

The figures given above were based on a firmware FFT which does a full complex 1024 point FFT in 200 millisec.; the advertised time for the same operation on an FPS array processor is 6 millisec. A crude conversion of the above values to the useage on a machine with an array processor is 0.25 CPU-Hr / baseline hour; or 11 such systems to keep up with the processor. It should be noted that the time is 80% disk I/O. This requirment can be reduced in several ways: 1) the fringe search window can be restricted and data preaveraged for longer times. If the amount of I/O can be reduced by a factor of 10 then one computer plus array processor will be sufficient. 2) In the case of strong sources, either the amount of data recorded can be reduced and/or only a subset of the data used for the fringe search.

II. Useage Requirments.

In order to estimate the amount of computing required Table 1A uses the values given above and in VLBA memo #4. The requirments are expressed in units of a minicomputer (such as a VAX) with an array processor.

Table 1A
Total Computer Useage Requirments

Process	No. Minicomputer + Ap
Cont. pre-mapping	1
Cont. mapping	0.5
Spectral pre-mapping *	1
Spectral mapping *	1
Total	3.5

* Spectral line observations assumed 20% of the time.