Timing Comparison between SETLB and FORTRAN E. Desautels

The following comparable programs were run in SETL and FORTRAN, and the timing comparisons reported below were made.

FORTRAN:

```
      DO 1 I=1,N
1     IA(I) = I
      K = 0
      DO 2 I=1,N
2     K = K + IA(I)
      PRINT K
      END
```

SETLB:

```
DO;  A = {X, 1 ≤ X ≤ N};
B = [+: X ∈ A]X;  PRINT. B;
COMPUTE;  FINISH;
```

Timings and related figures are as follows:

N	FORTRAN Execution Time (Secs.)	SETLB Estimated Execution Time	SETLB/FORTRAN Ratio
100	.003	.54	180
200	-	1.02	-
1000	.010	5.75	575
10000	.066	-	-

It appears from these figures that for this type of calculation (which is, of course, very much FORTRAN's home ground) SETLB is some 500 times slower than FORTRAN.

If compilation times for these short programs are included, the comparisons become less extreme, the ratio in favor of Fortran lying in the neighborhood of 50. The following figures may be examined. Note that CP-MW-Sec is processor seconds times megawords of memory; that 'Total $' refers to the billing

algorithm used on the Indiana University 6600; and that 'Execution CP Secs' includes BALM compilation time in the SETLB case. This time is probably something like 1 sec.

	FORTRAN			SETL		
N	100	1,000	10,000	100	200	1,000
Total $	.01	.01	.02	.90	1.04	2.39
Total CP-MW-Sec	.002	.002	.003	.179	.208	.477
Total CP Secs.	.157	.163	.223	4.562	5.111	9.769
Execution CP Secs.	.003	.010	.066	1.536	2.017	6.749

An effort will be made to run a comparable program in SNOBOL and report related timing figures.