

Re: Any libraries for vector mask and vector population count?

## Re: Any libraries for vector mask and vector population count?

---

*Source:* <http://coding.derkeiler.com/Archive/Fortran/comp.lang.fortran/2008-04/msg00266.html>

---

- *From:* Dan <davison19067@xxxxxxxx>
  - *Date:* Sun, 6 Apr 2008 14:48:55 -0700 (PDT)
- 

Hi all,

Yes, raw speed is needed. That's why we went from fortran to assembler in the first place. Since the code was written, the amount of data has increased by three, perhaps four, orders of magnitude.

I just looked over the standard's definition of integer, and it implies all integers are signed. Is that true? If there are unsigned integers, then there should be no problem.

For those with serious assembler leanings, appended below is a brief description of the CAL routine, then the cal routine itself. I added "< ++++" at the vector mask instructions.

For those lucky enough not to have to program in CAL, S registers are scalar, V are vector, T are transfer, A and B are data registers, This code was originally written for a Cray-1, so it is simpler than X and Y assembler. The code is uncommented deliberately. Sorry about that.

thanks all,  
dan davison

### CAL SUBROUTINES:

```
c
c CMPRS1N (number-1,element1 array1,element1 array2)
c
c The number of consecutive elements examined is specified,
c as well as the addresses of the first elements in each array.
c If the element of array2 is nonzero, the corresponding
c element of array1 is kept. The kept elements are written
c without space between and in their original order in
c the array1 commencing with the position of the first
c element specified. The value of the first argument is changed
c to the number of kept elements minus one.
```

Re: Any libraries for vector mask and vector population count?

Re: Any libraries for vector mask and vector population count?

- \* Copyright, 1989, The Regents of the University of California.
- \* This software was produced under a U. S. Government contract
- \* (W-7405-ENG-36) by the Los Alamos National Laboratory, which
- \* is operated by the University of California for the U. S.
- \* Department of Energy. The U. S. Government is licensed to use,
- \* reproduce, and distribute this software. Permission is granted
- \* to the public to copy and use this software without charge,
- \* provided that this Notice and any statement of authorship are
- \* reproduced on all copies. Neither the Government nor the
- \* University makes any warranty, express or implied, or assumes
- \* any liability or responsibility for the use of this software.
- \*

```
IDENT CMPRS1N (ju,iz(0),ii(0))
CMPRS1N ENTER PRELOAD=0,NP=3,ALIGN=ON
ARGADD A1,1,ARGPTR=A6 address of ju
ARGADD A2,2,ARGPTR=A6 address of iz(0)
ARGADD A6,3,ARGPTR=A6 address of ii(0)
B71 A1
A1 0,A1
S2 A1
A1 A1+1
VL A1
A7 VL
S2 S2>6
A1 S2
A1 -A1
A3 A2
B72 A2
JLUP = *
A0 A6
A6 A6+A7
V6 ,A0,1
V1,VM V6,N <+++++++ vector mask
S1 VM <+++++++ vector mask
B77 A7
A7 PS1
A0 A7
VL A7
JAZ SKIP
A0 A2
V2 ,A0,V1
A0 A3
A3 A3+A7
,A0,1 V2
SKIP = *
A7 B77
A2 A2+A7
A0 A1
A1 A1+1
A7 ZS0
VL A7
```

Re: Any libraries for vector mask and vector population count?

```
JAM JLUP  
A2 B72  
A2 A3-A2  
A2 A2-1  
A1 B71  
,A1 A2  
EXIT  
END
```