XcalableMP
Directive-Based Language eXtension for Scalable Parallel Programming

Language Status
- Omni XcalableMP compiler 0.5.3 for C is available from University of Tsukuba
- Supported platforms are Linux cluster, Cray XT5, ...
- Interface of tlog and Scalasca profiling tools
- XcalableMP specification ver. 1.0 is available
- For accelerators (GPU, etc)

Examples

Laplace Solver by global-view programming

```
#pragma xmp nodes p(N_Y, N_X)
#pragma xmp template t(0:YSIZE, 0:XSIZE)
#pragma xmp distribute t(block, block) onto p
#pragma xmp align u[y][x] with t(x, y)
#pragma xmp align uu[y][x] with t(x, y)
#pragma xmp shadow uu[1:1][1:1]
#pragma xmp loop (x, y) on t(x, y) threads
for(y = 1; y < YSIZE-1; y++)
for(x = 1; x < XSIZE-1; x++)
    uu[y][x] = u[y][x];
#pragma xmp reflect uu
#pragma xmp loop (x, y) on t(x, y) threads
for(y = 1; y < YSIZE-1; y++)
for(x = 1; x < XSIZE-1; x++)
    u[y][x] = (uu[y-1][x] + uu[y+1][x] +
                uu[y][x-1] + uu[y][x+1])/4.0;
```

Integer Sort of NPB by local-view programming

```
int key[SIZE_OF_BUFFERS];
#pragma xmp coarray key
#pragma xmp barrier
for(i=0; <comm_size; i++)
    key[recv_displ[i]:count[i]] =
        buff[send_displ[i]:count[i]];
```

The key[start:length]:[N] means elements from the key[start] to
the key[start+length-1] located on compute node N