

Tools/likwid/example_topology_Ice_Lake

Example likwid-topology on Intel Xeon Ice Lake

```
likwid-topology -g
```

```
-----  
CPU name:      Intel(R) Xeon(R) Platinum 8368 CPU @ 2.40GHz  
CPU type:      Intel Icelake SP processor  
CPU stepping:  6
```

```
*****
```

Hardware Thread Topology

```
*****
```

```
Sockets:      2  
Cores per socket: 38  
Threads per core: 2
```

```
-----  
HWThread      Thread      Core      Die      Socket      Available  
0              0          0          0          0          *  
1              0          1          0          0          *  
2              0          2          0          0          *  
...  
151            1          75         0          1          *
```

```
-----  
Socket 0:      ( 0 76 1 77 2 78 3 79 4 80 5 81 6 82 7 83 8 84 9 85 10 86 11 87 12 8  
Socket 1:      ( 38 114 39 115 40 116 41 117 42 118 43 119 44 120 45 121 46 122 47
```

```
*****
```

Cache Topology

```
*****
```

```
Level:         1  
Size:          48 kB  
Cache groups:  ( 0 76 ) ( 1 77 ) ( 2 78 ) ( 3 79 ) ( 4 80 ) ( 5 81 ) ( 6 82 ) ( 7 8
```

```
-----  
Level:         2  
Size:          1.25 MB  
Cache groups:  ( 0 76 ) ( 1 77 ) ( 2 78 ) ( 3 79 ) ( 4 80 ) ( 5 81 ) ( 6 82 ) ( 7 8
```

```

Level:          3
Size:           57 MB
Cache groups:   ( 0 76 1 77 2 78 3 79 4 80 5 81 6 82 7 83 8 84 9 85 10 86 11 87 12 8
-----

```

```

*****
NUMA Topology
*****

```

```

NUMA domains:    2
-----
Domain:          0
Processors:      ( 0 76 1 77 2 78 3 79 4 80 5 81 6 82 7 83 8 84 9 85 10 86 11 87 12 8
Distances:       10 20
Free memory:     241855 MB
Total memory:    256560 MB
-----

```

```

Domain:          1
Processors:      ( 38 114 39 115 40 116 41 117 42 118 43 119 44 120 45 121 46 122 47
Distances:       20 10
Free memory:     244937 MB
Total memory:    258029 MB
-----

```

```

*****
Graphical Topology
*****

```

```

Socket 0:
+-----+
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | 0 76 | | 1 77 | | 2 78 | | 3 79 | | 4 80 | | 5 81 | | 6 82 | | 7 8
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | 48 kB | | 48 kB | | 48 kB | | 48 kB | | 48 kB | | 48 kB | | 48 kB | | 48
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | 1 MB | | 1 MB | | 1 MB | | 1 MB | | 1 MB | | 1 MB | | 1 MB | | 1
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| +-----+
| |
| +-----+
+-----+

```

```

Socket 1:
+-----+
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | 38 114 | | 39 115 | | 40 116 | | 41 117 | | 42 118 | | 43 119 | | 44 120 | | 45 1
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+

```

```

| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | 48 kB | | 48 kB | | 48 kB | | 48 kB | | 48 kB | | 48 kB | | 48 kB | | 48 kB |
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | 1 MB | | 1 MB | | 1 MB | | 1 MB | | 1 MB | | 1 MB | | 1 MB | | 1 MB |
| +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| +-----+
| |
| +-----+
+-----+

```

- Graphical representation of cache groups
- 3 levels of cache
- 2 sockets, 2 NUMA domains

```
numactl -H
```

```
available: 2 nodes (0-1)
```

```
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
```

```
node 0 size: 256560 MB
```

```
node 0 free: 241855 MB
```

```
node 1 cpus: 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62
```

```
node 1 size: 258029 MB
```

```
node 1 free: 244952 MB
```

```
node distances:
```

```
node 0 1
```

```
0: 10 20
```

```
1: 20 10
```