Every context of computing, including super-computing, can be described in term of the Turing Machine. The Turing Machine is a model of the simplest computing machine possible. Note that a Turing machine is a five tuple $T = \{K, \Sigma, \delta, s, h\}$ where

- K are the states of the Turing machine
- Σ is the alphabet of the Turing machine
- δ are transition functions on the Turing machine
- s are the starting states
- h are the halting states.

Also, a Turing machine can be viewed as a control unit with its collective of states. The transition functions tell the control unit to move from one set of states to another. A collective of states can be defined as one collective state for simplicity. In the distributed model, grid communications represents the I/O transmitting transition functions of the form

$$(K - H) \times \Sigma \rightarrow K \times (\Sigma \cup \{\leftarrow, \rightarrow\})$$