High Performance Computing Glossary

Version 1.2

acyclic graph (n.) a graph without any cycles.

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broadcast (n.) To send a message to all possible recipients. Broadcast can be implemented as a repeated send, but is more efficiently implemented by using spanning trees and having each node in the tree propagate the message to its descendants. See also multicast and process group.

buffer (n.) A temporary storage area in memory. Many methods for routing messages between processors use buffers at the source and destination, or at intermediate processors. See also packet switching, virtual cut–through and wormhole routing.

buffered message passing (n.) See message passing system.

bus (n.) A single physical communications medium shared by two or more devices. The network shared by processors in many distributed computers is a bus, as is the shared data path in many multiprocessors. See also link.

busy–waiting (n.) a situation whereby processor cycles are used to test a variable until it assumes a desired value.

butterfly(n.) A topology in which nodes are organised into levels, and there is a unique path from any node in the first level to any node in the last. A butterfly is a recursive topology . See also hypercube and shuffle exchange network.