CNI/32

Computer Network Interface

Features

- Remote executive services
- Remote I/O operations
- Data-chained I/O
- Random access of remote Global Common Regions
- Route through any number of CPUs with CNI or CNI/32 to reach destination
- Path probing to detect link failures
- Supports:
  - 4820 Parallel Links
  - 4821, 4824, 5927 Serial Links
  - 4828 Bit Serial Link (HDLC)
  - Asynchronous Links
  - Other BIOS communication devices
- Interfaces:
  - OC
  - JM
  - Callable subroutines
  - REX
- Reconfiguration without rebooting any computers
- Facilitates distributed INFINITY database networking across multiple CPUs
- Compatible with MAX 32 (revisions C.0 and later) and REAL/IX(1)

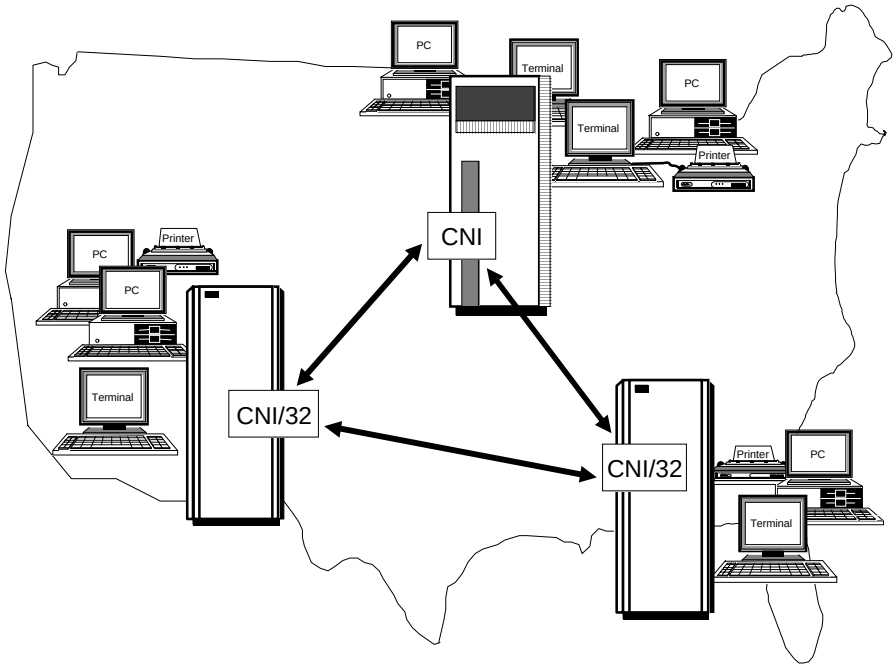

Figure 1: Typical Computer Network Interface System

The Computer Network Interface (CNI/32) provides extensive networking functions with simple but flexible interfaces for operators and programmers. The networking functions, established through a system of physical links and logical paths as illustrated in Figure 2, support remote executive services and transparent remote Input/Output operations. CNI/32 operates in MODCOMP CLASSIC Tri-Dimensional* computers under the MAX 32 operating system.

The primary component of the CNI/32 system is the non-resident symbiont task, usually but not necessarily named CNI. This task is responsible for processing user requests in the form of I/O operations, managing the network communications, and performing remotely requested operations. All of CNI/32's data structures, buffers, etc., are maintained by the non-resident symbiont in its own virtual addressing space (or unmapped actual memory), minimizing the impact on the MAX 32 Operating System structures.

The resident elements of CNI/32 consist of a custom REX service, an extension to the

MAX 32 exit service, and a symbiont test-assign entry point to the CNI REX. Depending on the type of communications hardware to be used, custom handlers may also be included. The only additional Map-zero overhead required is that of the symbiont and a slight modification to the Basic I/O System (BIOS). Note that only one symbiont device is needed for each CPU (Central Processing Unit) in the linked network, regardless of the number of physical communications links for each CPU.

The remaining elements of CNI/32 are the network configuration macros, the high level language interface subroutines, and the operator command overlays. The network configuration macros are used to generate each symbiont task in the network much like the MAX 32 SYSGEN process. The high level language interface subroutines are used by FORTRAN IV, FORTRAN 77, C, Pascal, and COBOL programmers to access the network services. Operator command overlays are provided for both the Job Control and Operator Communications (OC) tasks.

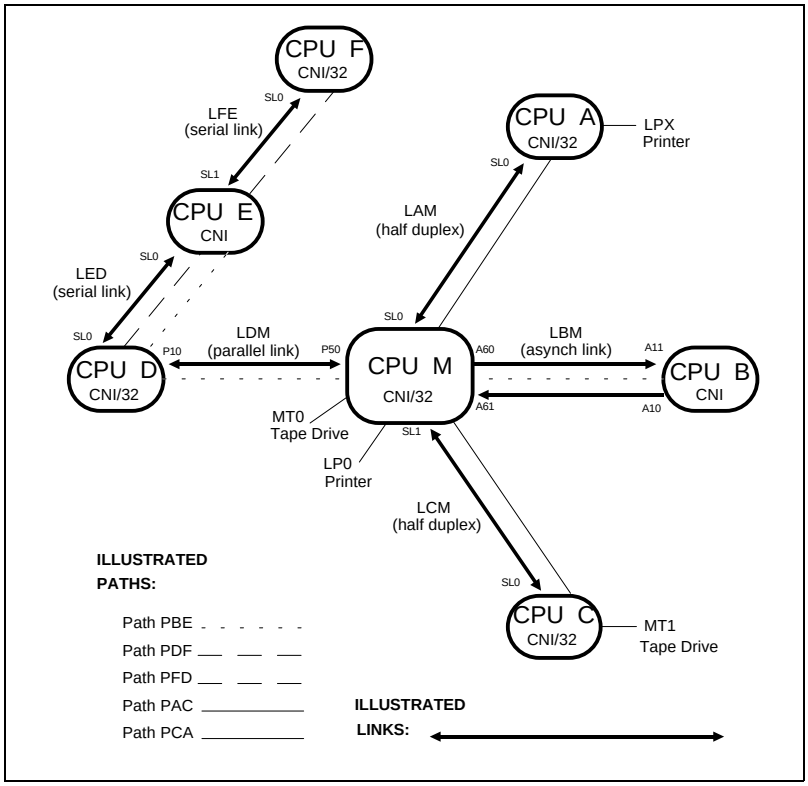

Figure 2: Physical Links and Logical Paths

CNI/32 is ideally suited for high-reliability redundant systems with failover capability. Automatic recovery from data transmission errors insures the integrity of user data and prevents potentially disasterous effects of executing erroneous functions from corrupted operation packets. Also, a series of user definable actions may be taken whenever a communications link or CPU changes state from operable to inoperable or vice versa.