Chapter 1

Introduction

The CM-5 Integrated Tape System (ITS) combines scalable hardware with CM software to provide fast, cost-effective tape backup and archiving of SDA files. The ITS is also used for staging data from tape storage onto the SDA for subsequent use by CM-5 applications.

Data transfers between the ITS and SDA media are carried out directly via the CM-5 Data Network under control of I/O software running on the ITS. No CM-5 partition resources are involved in the transfers.

The ITS consists of an ITS tape controller board and its associated tape drives. See Figure 1. The tape controller board resides in an SDA backplane. It includes:

- a CM-5 processing node (a SPARC chip set without vector units)
- 16 Mbytes of main memory for storing the resident operating system (CMIX) and tape application software
- 8 Mbytes of I/O memory for buffering I/O traffic to and from the SDA
- two SCSI-2 (Small Computer System Interface) controllers, each managing a separate, differentially driven SCSI multidrop bus
- a single NI chip providing a 20-Mbyte-per-second connection to the DR network
- four *address engines* (microprocessor front ends to the NI chip) for managing incoming and outgoing message packets

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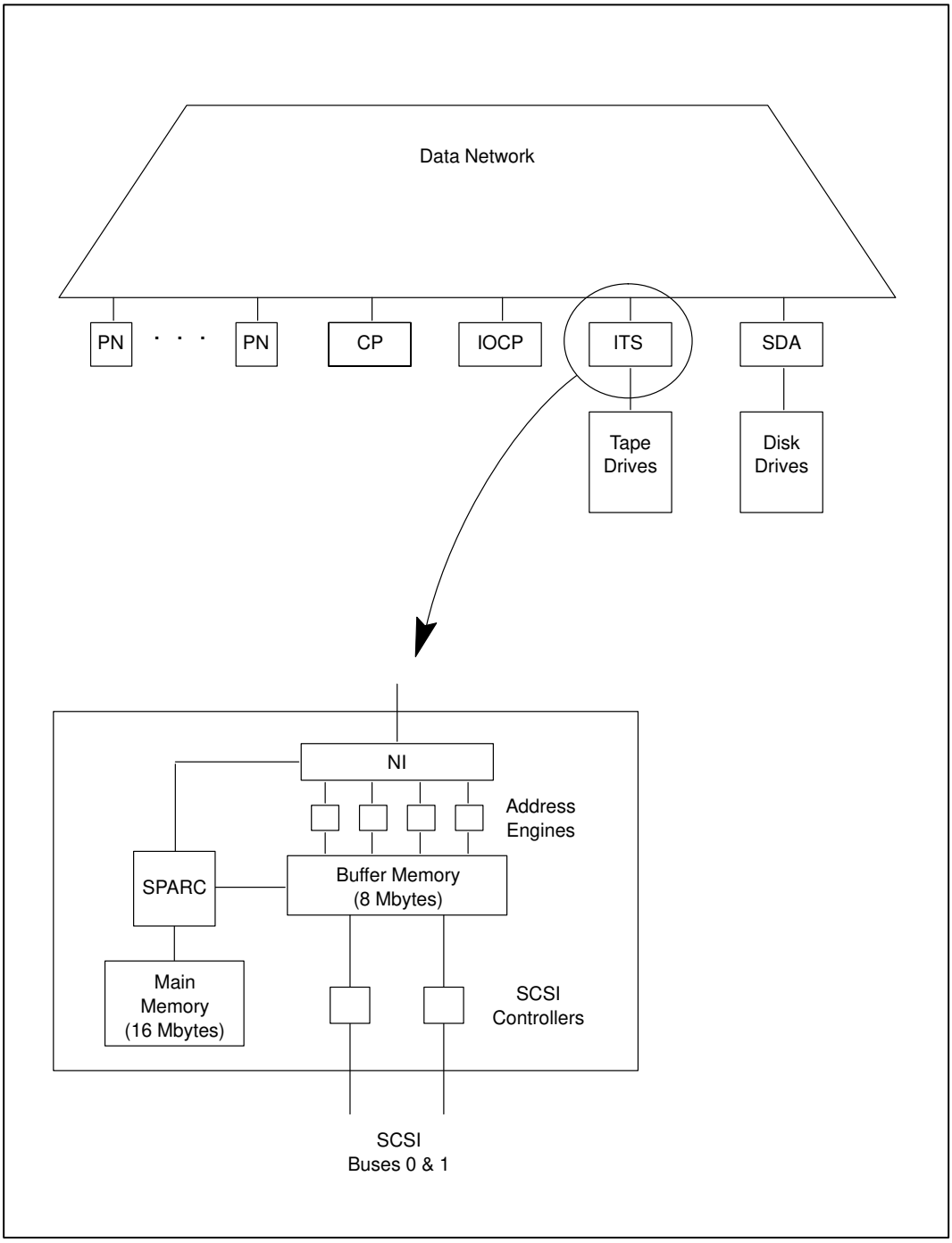

Figure 1. CM-5 system configuration with ITS and SDA.

Version 7.3, April 1994
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The processing node runs CMIX, a version of SunOS 4.1.3 that has been modified to include device drivers for the SCSI controller chips, the NI, and the address engines. In this configuration, the ITS processing node is the functional equivalent of a diskless client, with the DR network serving as its Internet link to a CP-based server. The user logs in to the node and issues commands at the CMIX prompt.

An ITS tape controller board supports up to eight tape drives, distributed between the two SCSI channels as shown in Figure 2. In formal SCSI parlance, each tape drive is referred to as a *target* and is assigned a target ID on its channel. Each SCSI channel controller is assigned a target ID as well.

NOTE: By convention, the SCSI channel controller is assigned target number 7 for its channel.

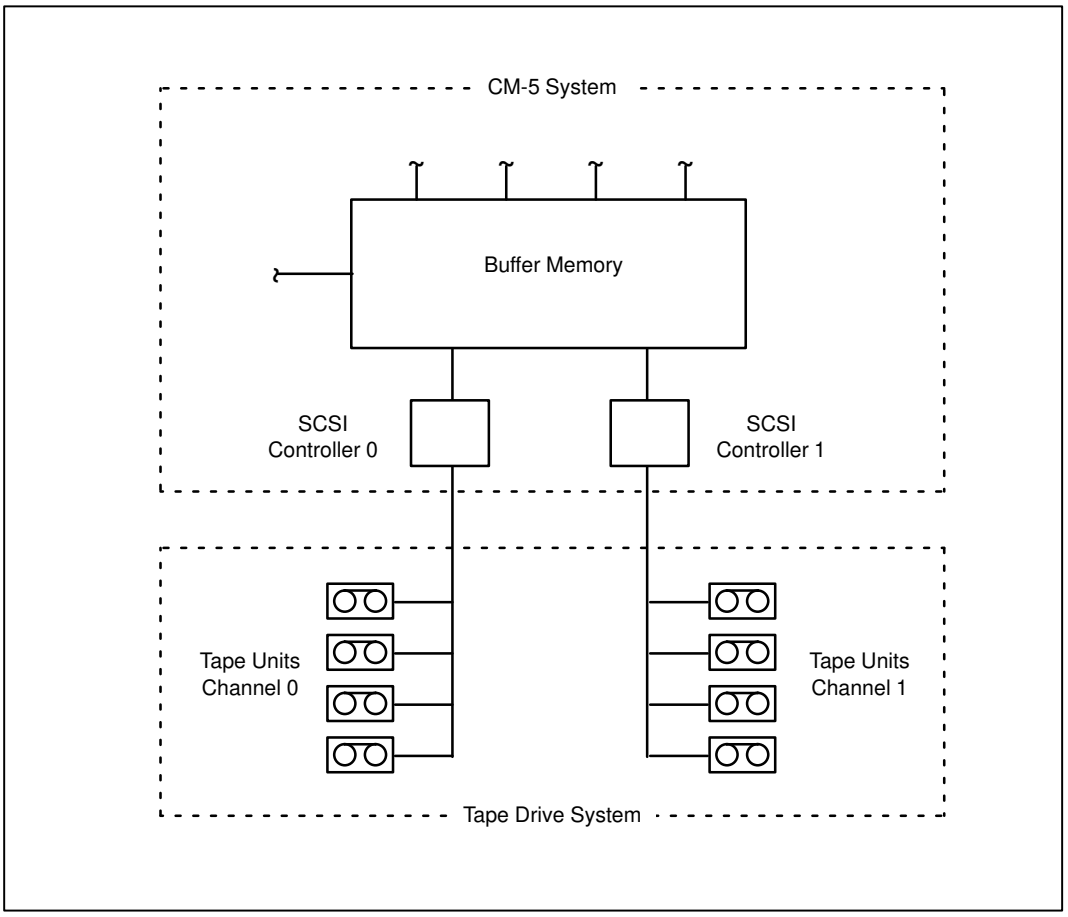

Figure 2. SCSI channel details.

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