

## 4.14 Drive Sleds/Modules and Drive Mounting

There are a number of ways of installing disk drives and other SCSI devices in IRIS systems. The most frequently encountered is the Drive Sled or Drive Module. But some chassis have locations where additional devices may be mounted in a fixed, or “captive” fashion.

There are several different drive sleds and/or modules used on IRIS systems. All of them were designed by Silicon Graphics. All the designs are proprietary. All these designs share one aspect - they allow drives to be installed or removed from the system without taking the covers off of the system.

There are some differences between the way the drives were jumpered for various systems. For the early 4D systems (Twin Tower, Single Tower, and Predator) the drives would be jumpered to spin up as soon as power was applied to the drive. For systems starting with the Personal IRIS, drives were jumpered so that drives would spin up one at a time while the system was booting. This saved on power supply load during the boot process.

The systems which have some sort of “captive” disk mounting are not included in Table 4-90, but are documented in sections 4.14.8 through 4.14.12. These sections include the captive drives found in the 15 Slot Twin Tower chassis, the Predator Rack, the Personal IRIS, the Indy and the 5.25” drive carrier in the Origin200.

Table 4-90, on page 4-154 denotes which style is used for the various IRIS chassis.

**Table 4-90** Drive Sleds on IRIS Systems

Chassis Style	Twin Tower Module	Personal IRIS	Indigo	Indigo <sup>2</sup>	Onyx/Challenge	O2	OCTANE/Origin/Onyx2
Maximum Drive Size	5.25"	5.25"	3.5"	5.25" or 3.5"	5.25" or 3.5"	3.5" (1" high)	3.5"
Twin Tower (All)	X						
Single Tower (Diehard)		X					
Rack (Predator)							
Single Tower (Diehard2)		X					
Rack (Terminator)					X		
Single Tower (Eveready)					X		
Personal IRIS		X					
Indigo			X				
Indigo <sup>2</sup>				X			
O2						X	
OCTANE							X
Origin200							X
Origin2000							X
Onyx2							X

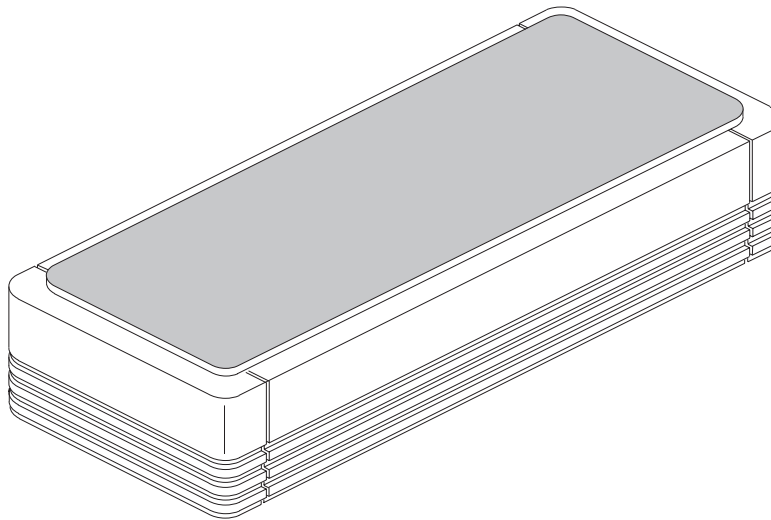
#### 4.14.1 Twin Tower Drive Module

This module design accommodates a single 5.25" full height drive. A SCSI (8 bit, SCSI-1) connection was available via the paddle card that connected the drive module to the power supply module. This paddle card connection also carried the +5V and +12 V power for the drive.

For ESDI drives, data and control connections were made via a panel on the back of the module. For an example of this panel, consult the section on the ESDI Disk Drive interface, page 4-43.

The drive modules included a power lock out switch that would prevent the power supply from working unless the top hat was in place.

##### 4.14.1.1 Twin Tower Drive Module Drawing



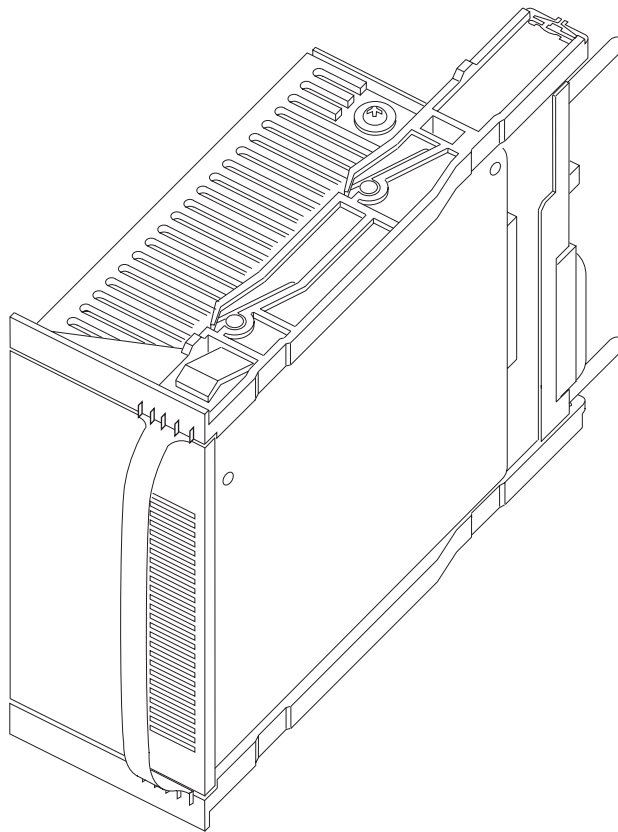
**Figure 4-84** Drive Module for Twin Tower Chassis

#### 4.14.2 Personal IRIS Drive Sled

This drive sled arrangement would accommodate either a half-height or full height 5.25" SCSI based drive. The connection to the chassis was via a 3 row, 50 pin "D" type connector. Power for the drive was via a 4 pin molex style connector.

Some, but not all, drive modules provided by SGI had small selector switches used for defining the SCSI ID number of the drive. Drives in Personal IRIS chassis were jumpered for drive spin up on command while those drives in Diehard and Diehard2 chassis were jumpered for immediate drive spin up.

##### 4.14.2.1 Personal IRIS Drive Sled Drawing

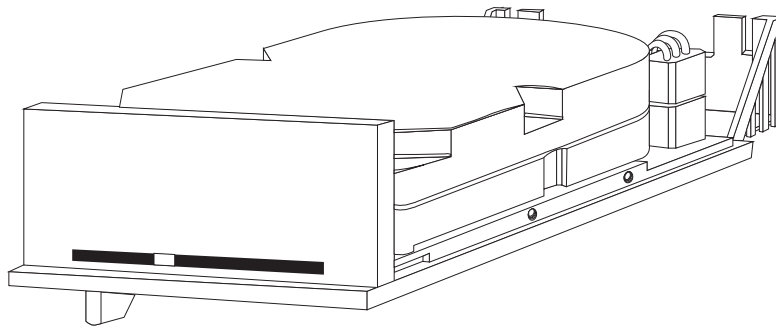


**Figure 4-85** Personal IRIS Drive Sled

### 4.14.3 Indigo Drive Sled

This drive sled accommodates a single 3 1/2" drive. It connects to the SCSI bus and derives power from the Indigo backplane. Rather than have SCSI ID switches on the drive module, the design connects the ID signals from the drive to the backplane. The backplane defines the ID number by it's location - SCSI ID 1 is always the bottom of the three drive slots, SCSI ID 2 is the middle slot, and ID 3 is always the top slot. External drives can set their own SCSI ID's as long as they don't conflict with any ID's used in the Indigo chassis.

#### 4.14.3.1 Indigo Drive Sled Drawing



**Figure 4-86** Indigo Drive Sled

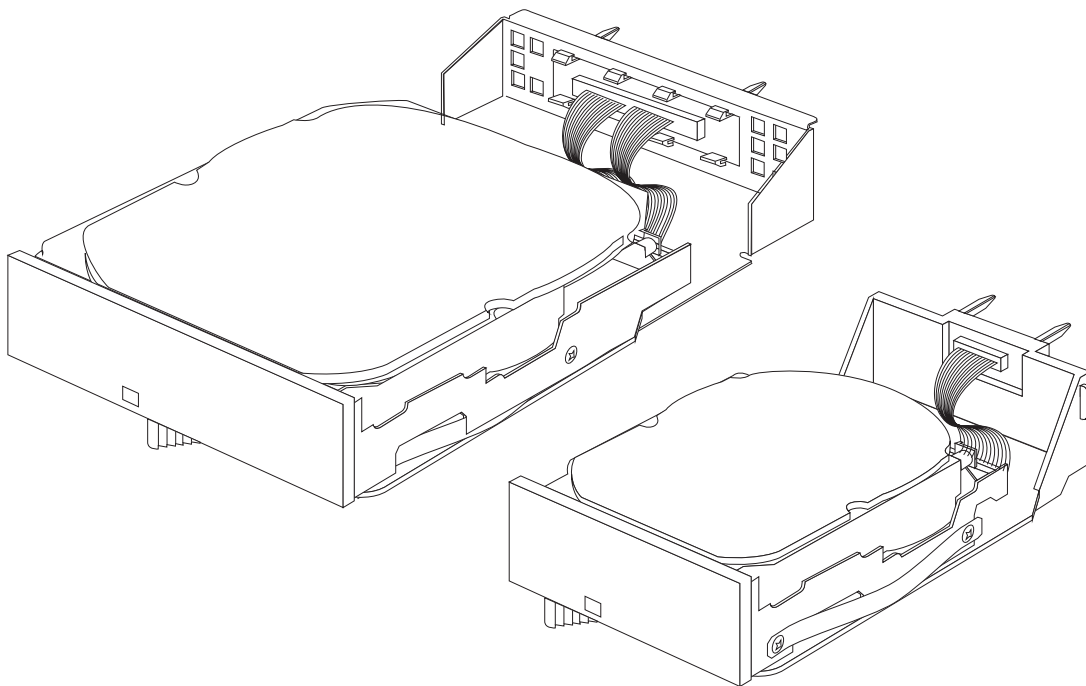
#### 4.14.4 Indigo<sup>2</sup> Drive Sled

There are actually two drive sleds for Indigo<sup>2</sup>. One is for 5.25", half height drives. The other is for 3 1/2" drives. The Indigo<sup>2</sup> has two 3 1/2" drive slots and one 5.25" drive slot.

In a manner similar to the Indigo, the SCSI ID for the three available drive slots is determined by their physical location. The bottom 3 1/2" drive slot is always SCSI ID 1. The upper 3 1/2" drive slot is always SCSI ID 2 and the 5.25" drive slot is always SCSI ID 3. The SCSI bus these internal drives use (controller 0) is not brought out to the outside of the chassis. The SCSI connection on the back of the Indigo<sup>2</sup> (controller 1) is available for external drives or devices.

The 80 pin connector and pinout used for both of these sleds is identical to the new SCA type connector and pinout used on the O2, OCTANE, Origin200/2000 and Onyx2 systems. The location of the connector on the back of these sleds does not allow an SCA drive to be plugged directly into the connector of the Indigo<sup>2</sup>.

##### 4.14.4.1 Indigo<sup>2</sup> Drive Sled Drawings

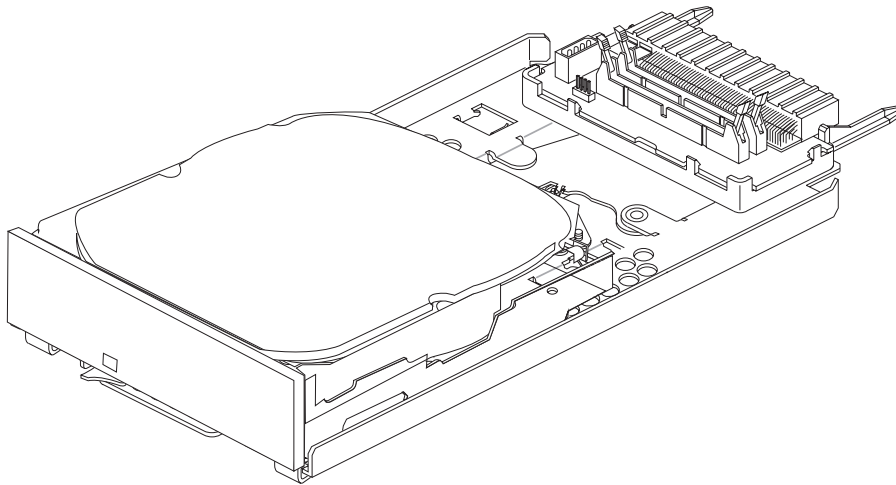


**Figure 4-87** Indigo<sup>2</sup> Drive Sleds

#### 4.14.5 Onyx/Challenge Drive Sled

This sled was designed to accommodate 5.25" and 3.5" (Full Height) drives. The interface connector (a 152 pin connector - 144 signal pins and 8 wide power pins) and the interface board on the rear of the drive was created to allow single-ended and differential devices to be connected to one of two internal SCSI buses. Configuration of the drive is done at the rear of the sled using jumpers.

##### 4.14.5.1 Onyx/Challenge Drive Sled Drawing

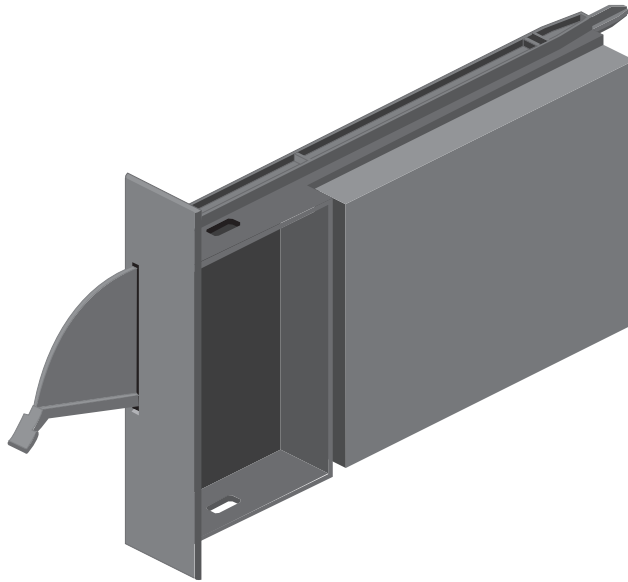


**Figure 4-88** Onyx/Challenge Drive Sled

#### 4.14.6 O2 (SCA) Drive Sled

The drives used in the O2 are SCA (Single Connector Assembly). The drive sled is just a mechanical device that aligns the drive with the frontplane connectors and locks it into the chassis. This sled will accept 3.5" devices that are no taller than 1".

##### 4.14.6.1 O2 Drive Sled Drawing



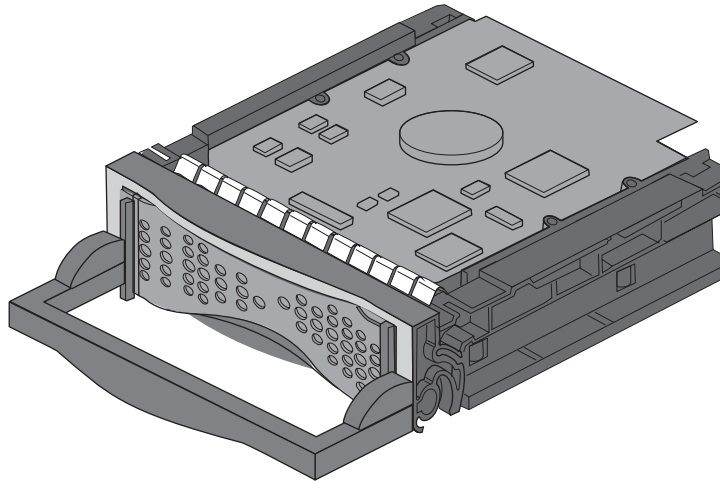
**Figure 4-89** O2 (SCA) Drive Sled



#### 4.14.7 OCTANE/Origin/Onyx2 (SCA) Drive Sled

The drives used in the OCTANE, Origin200, Origin2000 and Onyx2 systems are SCA type devices. The drive sled provides the alignment with the system and a method of locking the device in the chassis.

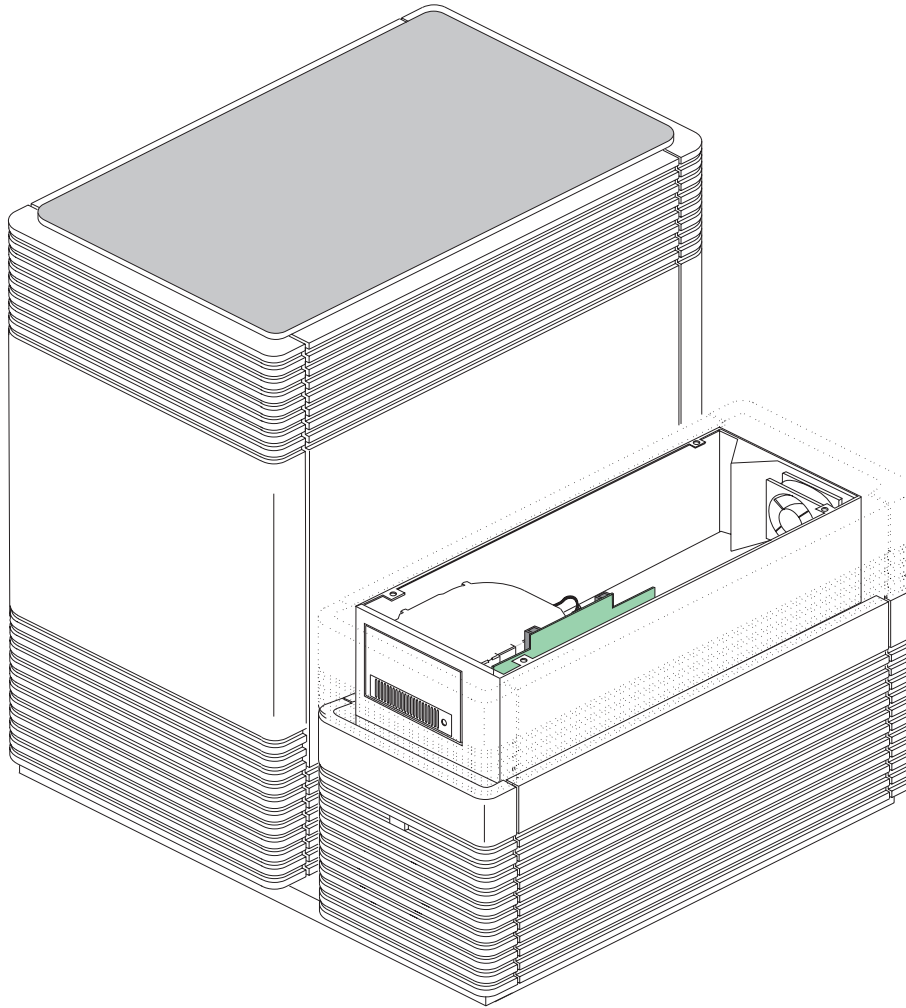
##### 4.14.7.1 OCTANE/Origin/Onyx2 Drive Sled Drawing



**Figure 4-90** OCTANE/Origin/Onyx2 Drive Sled

#### 4.14.8 15 Slot Twin Tower Captive Drive

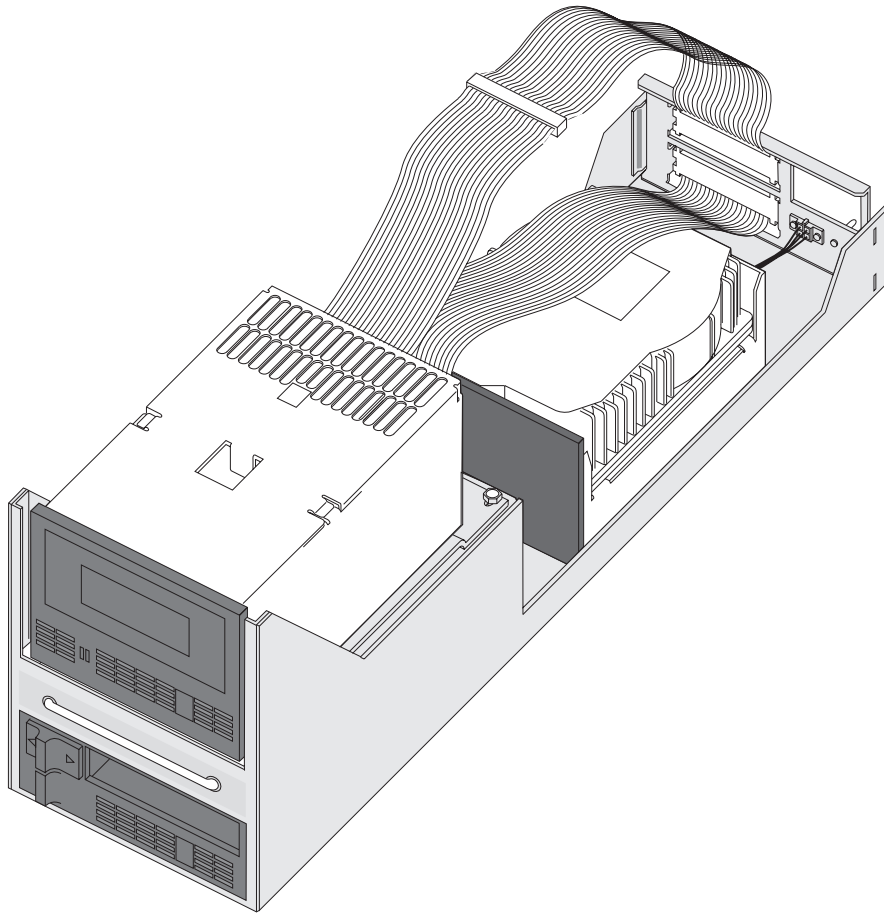
The 15 Slot Twin Tower chassis included a location for one, full-height 5.25" disk drive in the drive tower. This was normally the boot disk. Twin Tower Drive Modules could then be added on top of the drive tower for additional disk storage.



**Figure 4-91** 15 Slot Twin Tower Captive Drive Location

#### 4.14.9 Predator Captive Drives

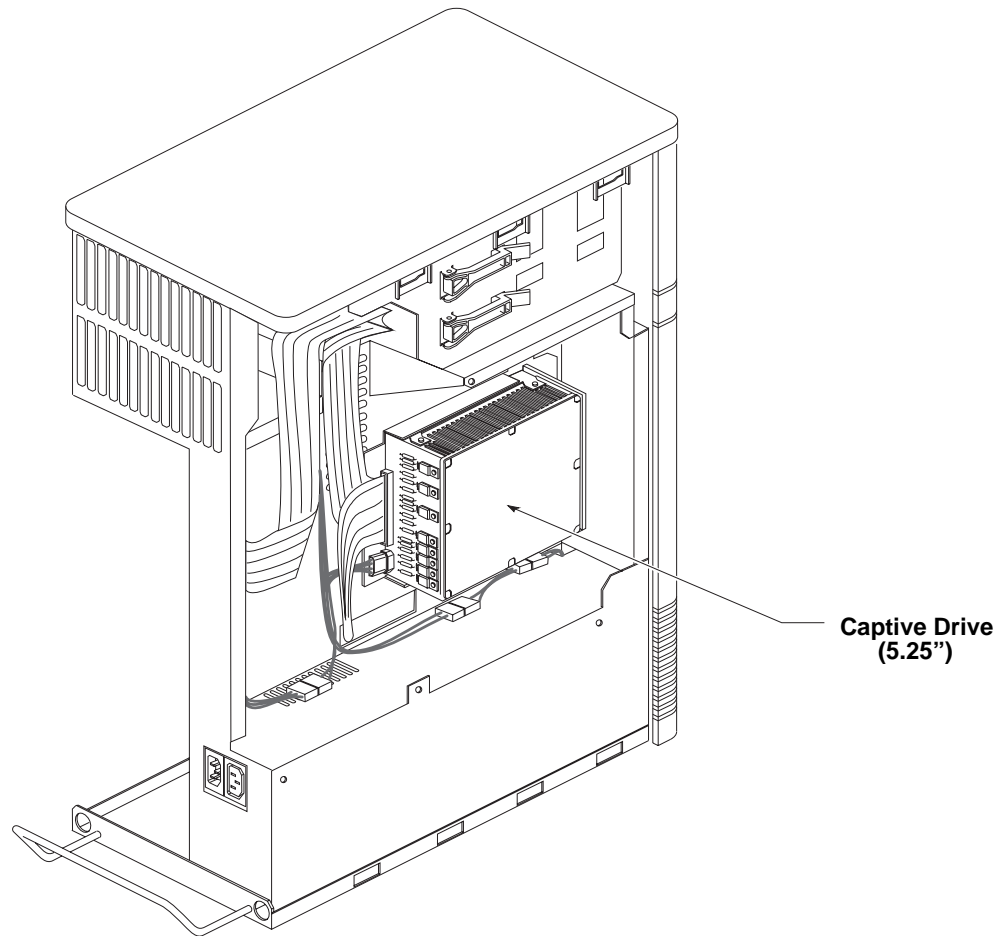
The Predator rack chassis has three locations for disk or tape drives to be installed in the System Controller assembly. There is space for one full-height 5.25" drive inside the chassis that is not accessible from the front panel and one full-height and one half-height 5.25" drive opening on the front panel. Systems were normally configured with a full-height disk inside the bay, an Exabyte tape drive and a half-height QIC tape drive. The disk was configured as the boot disk. This configuration is shown in Figure 4-92.



**Figure 4-92** Location of Captive Drive in Predator Chassis

#### 4.14.10 Personal IRIS Captive Drive

Prior to the creation of the TFLU chassis for the Personal IRIS, the system disk was permanently located inside the chassis. It was located on the other side of the system from the E-module and just above the power supply.

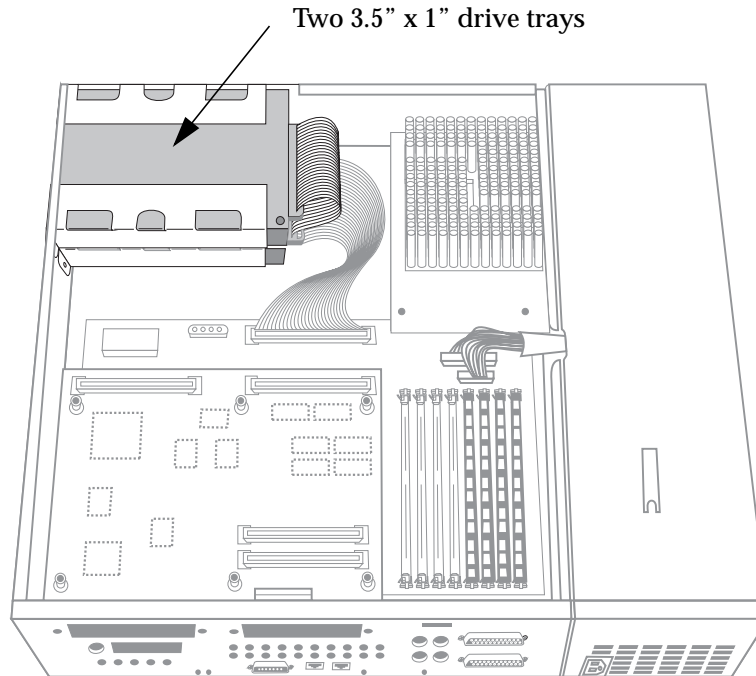


**Figure 4-93** Personal IRIS Captive Drive Location

#### 4.14.11 Indy Captive Drives

The Indy chassis includes space for two 3.5" x 1" high disks. These disks are mounted to metal trays which interlock with each other and are then slipped into the chassis and are attached with screws.

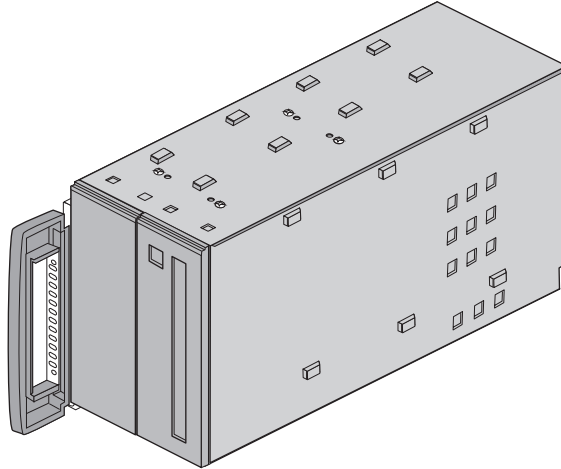
The top drive tray can hold a 3.5" floppy or floptical disk drive. The chassis and skins of the machine are made to allow the diskette to be inserted into the drive from the outside.



**Figure 4-94** Location of Captive Drives in the Indy Chassis

#### 4.14.12 Origin200 5.25" Drive Carrier

The Origin200 chassis can accept one full-height or two half-height 5.25" devices. The devices are mounted to a carrier which is then installed in the chassis.



**Figure 4-95** Origin200 5.25" Drive Carrier