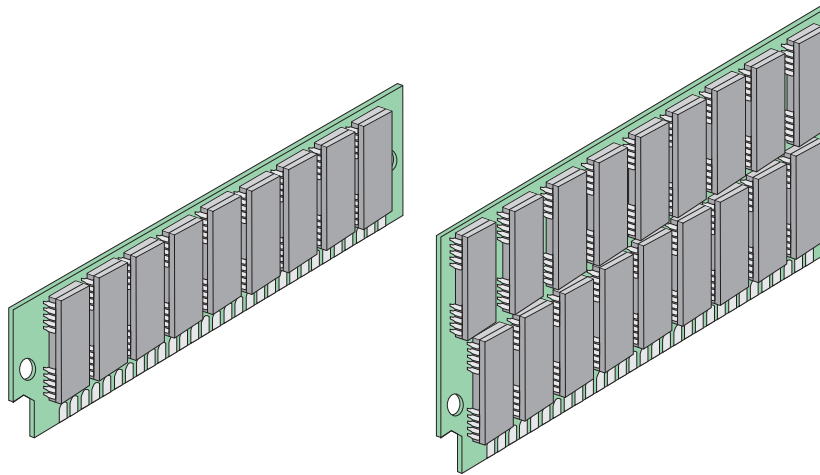## 4.5   Memory

Memory for the Silicon Graphics systems has been in the form of memory modules - either SIMMs or DIMMs. However, as memory and processor technology has advanced new memory modules have been introduced. This section documents the types of memory modules that have been used in the systems. Table 4-32 shows the overview of memory module types.

Table 4-32   Memory Modules on IRIS Systems

| Chassis	CPU or Memory Bd	CPU Memory Module Type			
		Type	Size(s)	Bank = *n* modules	Available Slots
Twin Tower	IP4	30 Pin SIMM	2MB, 4MB, 8MB	4	16
	MC2				
Diehard					
Predator Rack					
Personal IRIS	R2000		1MB, 2MB	4	16
	R3000	64 Pin SIMM (SGI Custom)	2MB, 4MB, 8MB	4	16
Diehard2	R4000/ R4400	30 Pin SIMM	2MB, 4MB, 8MB	4	32
Terminator Eveready	R4400/ R8000	200 Pin SIMM (ECC)	16 MB, 64MB, 256MB	4	32
Indigo	R3000	64 Pin SIMM (SGI Custom)	2MB, 4MB, 8MB	4	12
	R4000	72 Pin SIMM	4MB, 16MB, 32MB, 64MB	4	12
Indigo^2	R4000, R4400, R4600, R8000, R10000	72 Pin SIMM	4MB, 16MB, 32MB, 64MB	4	12
Indy	All	72 Pin SIMM	4MB, 8MB, 32MB	4	8
O2	All	278 Pin DIMM	32MB, 64MB	2	8
OCTANE	All	200 Pin DIMM (SDRAM)	32MB, 64MB, 128MB	2	8
Origin200, Origin2000, Onyx2	All	244 Pin DIMM (SDRAM)	64MB, 128MB	2	8

4.5.1 4D and Personal IRIS (R2000) Memory Modules

These modules are 30 Pin SIMM modules similar to those used in the PC industry. They came in capacities of 1 MB per module, or a "tall" module that could hold 2 MB. In the Personal IRIS these modules had to be installed in groups of 4.

Figure 4-34 4D and Personal IRIS Memory Modules

### 4.5.2 Indigo R3K/Personal IRIS Memory Module

These memory modules were custom designed by Silicon Graphics and were second sourced by some third party memory manufacturers. These modules were easy to recognize since there was a custom chip on the back side of the module. They were used in both the R3000 based Personal IRISs and the R3000 based Indigos. They were available in capacities of 2, 4 and 8 MBytes. They would typically have a sticker on the backside denoting the size of the module.

4 MB Module
(Front)

8 MB Module
(Front)

Module Rear
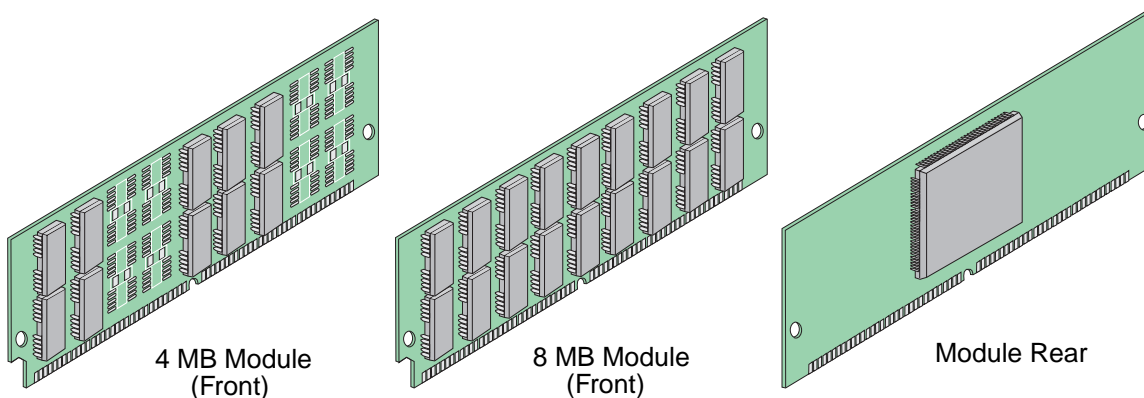
Figure 4-35 Indigo R3K/Personal IRIS Memory Module

4.5.3 Indigo/Indigo2/Indy Memory Module

These memory modules were used in the R4000 based Indigo, Indigo2 and Indy systems. These modules are industry standard 72 pin SIMMs in capacities of 4, 16, 32 and 64 MB.
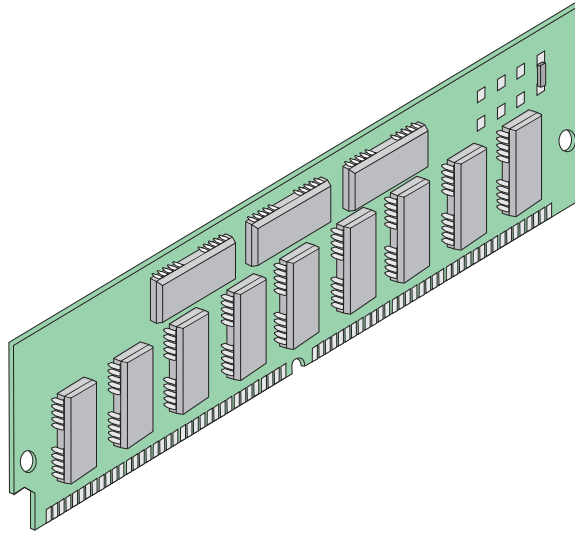
Figure 4-36 Indigo/Indigo2/Indy Memory Module

4.5.4 Onyx/Challenge Memory Modules

These memory modules are a proprietary, patented design by Silicon Graphics. Multiple third parties have been licensed to manufacture these memory modules. The modules have 200 pins and provide 144 bits of data, including bits used for ECC. They are available in 16 MB, 64 MB and 256 MB sizes.
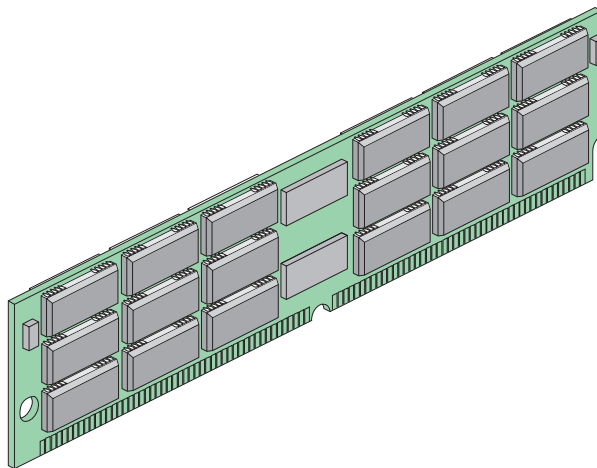
Figure 4-37 Onyx Challenge Memory Modules

4.5.5 O2 Memory Module

These DIMM style modules have 278 pins and come in capacities of 32 or 64 MB per module. This module includes bits used for ECC.
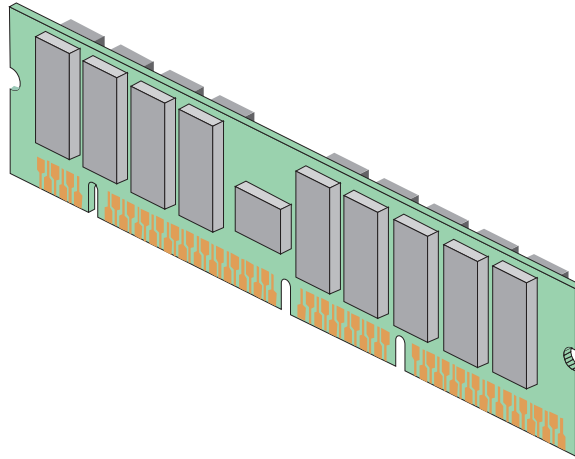

Figure 4-38   O2 Memory Module

4.5.6 OCTANE Memory Module

This 200 pin DIMM memory module is used only in the OCTANE. This memory module uses SDRAM (Synchronous DRAM) technology.
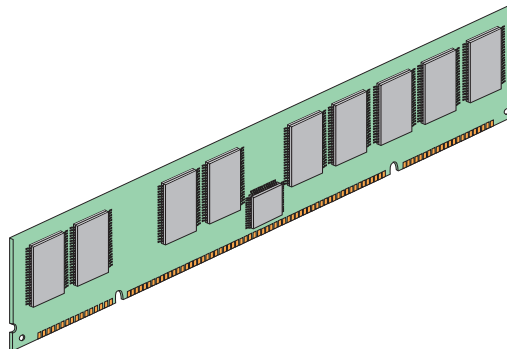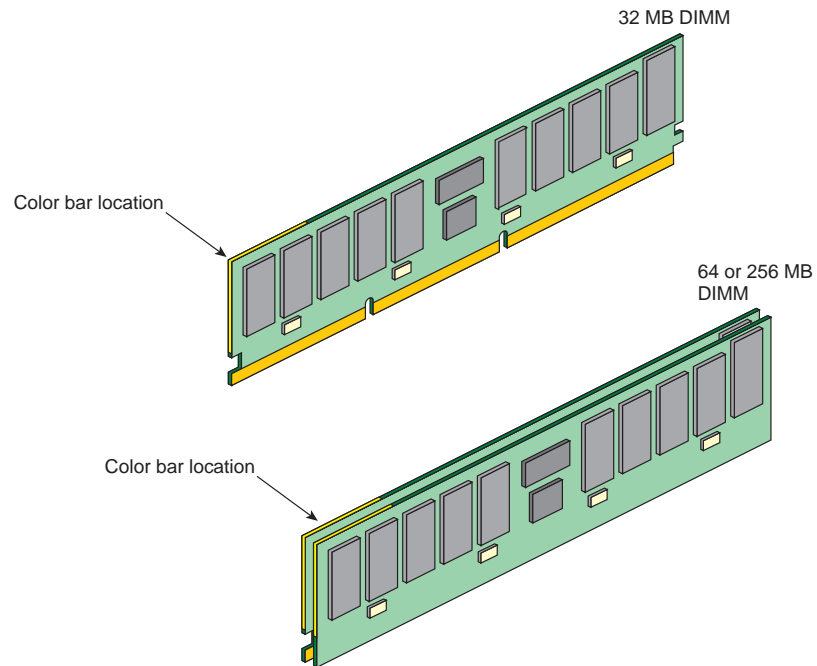

Figure 4-39   OCTANE Memory Module

4.5.7 Origin200/Origin2000/Onyx2 Memory Module

This 244 pin DIMM is used on all three of these platforms.

32 MB DIMM

Color bar location

64 or 256 MB DIMM

Color bar location

Figure 4-40 Origin200/Origin2000/Onyx2 Memory Module