

Chapter 1

Introduction

Identifying Silicon Graphics workstations and knowing what kind of interfaces they contain can be a difficult problem. It's the purpose of this document to help in that quest.

This document is organized so that information about the broad range of SGI systems is collected here in one document. Reading through the information from front to back will progress from general information about SGI systems to the more specific information about particular interfaces. Along the way terminology will be defined that will help in identifying systems, options and interfaces available. These definitions are also listed in the Glossary of Terms.

This document covers all of the "4D", Mips RISC-based systems from the original 4D/60 to the latest systems including the O2, OCTANE, Origin 200, Origin 2000, and Onyx2. The IRIS systems that contained Motorola 680X0 processors with model numbers like 1000, 1400, 2400, 3000 and 3030 are not covered here. The Cray products - with the exception of the Origin2000 - are also not covered in this document.

While the names of the systems have changed over time, all these systems are considered part of the "IRIS" family, even though IRIS is not part of the product name.

1.1 The Goals

The major goals of this document are to allow you, the reader, to do two things:

Look at a Silicon Graphics workstation, maybe type in a few commands, and determine what kind of system it is, and what options it contains.

Know what kind of interfaces are available, and on what platforms those interfaces are available.

1.2 What You'll Find

1.2.1 Platform Information

The term *platform* is used here to specify a particular set of three characteristics - the chassis the system is contained in, the number and type of processor(s), and the type of graphics subsystem (if any) the system contains. This aspect of SGI systems is seen most clearly in the Periodic Table of the IRIS's. A *platform* is the intersection of a graphics choice with a processor choice. See The Periodic Table of the IRIS's that starts on page 1-7.

When talking about the processor in a Silicon Graphics system, it is important to know whether you are talking about the "software" CPU type or "hardware" CPU type. The Periodic Table of the IRIS's shows the "hardware" CPU type - the name of the physical processor board in the system. There are some circumstances where this is different than the "software" CPU type. This is discussed in Chapter 5 - "Understanding Hardware Inventory (hinv) Output".

Inherent in determining the kind of machine is the use of one or more names. Machines are known by marketing names, engineering code names, or model numbers. Knowing what each of these names refer to will assist in defining the system in question. Names and their meanings are covered in the section on page 1-4.

1.2.2 IRIS Family Tree

Another key element in understanding SGI platforms is knowing where, historically, these platforms belong. The IRIS Family Tree has been created to answer this question. This diagram shows each major new chassis and shows which processor and graphics types were originally shipped with it. The diagram shows the year in which the platforms first shipped. These diagrams can be found starting on page 1-9.

1.2.3 Color and Marking Information

Silicon Graphics has become known for its use of bold colors on its products. This too, is a way to determine what might be inside the IRIS. On some systems badges have been used to reflect certain graphics or CPU options. The Color and Marking Chapter (page 2-1) shows how to decode these colors.

1.2.4 Chassis Tour

Knowing what a chassis looks like and where to find a particular input or output connection can be a great advantage in working with the system. For each chassis particular attention is devoted to identifying each interface and a pointer to a detailed definition of that interface. The Chassis Drawings chapter (starting on page 3-1) will help you in finding the interfaces available.

1.2.5 Interfaces

The various interfaces available on SGI platforms are documented in the Interfaces chapter. This information is truly the heart of this document and the longest section. The interfaces are grouped in categories:

- Serial Ports
- Keyboard/Mouse Ports
- Parallel Ports
- Disk Drive Interfaces
- Monitors
- Memory
- Graphics Interfaces
- Video Interfaces
- Audio Interfaces
- CPU Interfaces
- Bus Interfaces
- Backplanes and Board Slots
- Networking Connections
- I/O Panel Plates
- Drive Sleds/Modules and Drive Mounting

1.2.6 Understanding Hardware Inventory (*hinv*) Output

A great deal of information about a system's hardware can be determined by looking at the results of the 'hinv' command. This chapter takes on the task of decoding the information presented by 'hinv' and also provides a history of the processor boards used in Silicon Graphics systems, noting the difference between "hardware CPU" and the "software CPU" types.

1.2.7 The IRIX Operating System

The IRIX operating system has changed significantly over the years. This chapter is an aide to understanding the changes that have occurred in IRIX due to new systems, new CPUs, new graphics and new capabilities. It also notes which releases were used to merge functionality from previous releases.

1.2.8 Software Tools

Some information about the system is not discernible from examining the outside of the system. To aid in gathering more information about the system the chapter on Software Tools was created. This contains information on commonly known tools, such as hinv, as well as some less well known tools that can help determine the exact configuration of the system.

1.2.9 Terms, Nicknames and Code Names

Since terminology is so important, understanding how to “decode” the internally used project names into the actual names used by Marketing is crucial. There are two reasons for this:

- Since the three elements that define a platform - Graphics, CPU and Chassis - were often developed as separate projects, they would have different project names. Knowing which part of the system the code name refers to is helpful.
- Second, some of the code names - specifically for the CPU and graphics - are sprinkled throughout the software code for IRIX. To an outsider these names make little sense but are invaluable if you know how to decode them.

The Tables 1-1, 1-2 and 1-3 show the relationship between the internally used code name, the marketing name and the model numbers for SGI systems for chassis, CPU's and graphics.

Table 1-1 Chassis Names

Chassis Code Name	Chassis Type	Marketing Name	Model Numbers
“Twin Tower”	Twin Tower	Power Series	4D/60, 70, 80, 85, 120, 210, 220, 240, 280, 310, 320, 340, 380, 420, 440, 480
“Diehard”	Single Tower		
“Predator”	Rack		
“Eclipse”	PI, TFLU	Personal IRIS	4D/20, 25
“Magnum”	TFLU	Personal IRIS	4D/30, 35
“Diehard2”	Deskside	Crimson	Crimson
“Hollywood”	Desktop	Indigo	4D/RPC
“Eveready”	Deskside	Onyx/Challenge	Onyx, Challenge L
“Terminator”	Rack		Onyx, Power Challenge XL
“Fullhouse”	Desktop	Indigo ²	Indigo ²
“Guinness”	Desktop	Indy	Indy
“Moosehead”	Desktop	O2	O2
“Speedracer”	Desktop	OCTANE	OCTANE
“Speedo”	Deskside	Origin200	Origin200
“Lego”	Deskside/Rack	Origin2000/ Onyx2	Origin2000/ Onyx2

Table 1-2 CPU Names

CPU Code Name	Description	Marketing Name	Found In Model Numbers
"Lonestar"	First R400 CPU for 4D Systems	Crimson	Crimson
"Twin Peaks"	Enhanced Floating Point R4K CPU	R8000	Power Onyx, Power Chal- lenge, Power Indigo ²
"Triton"		R5000	Indy, O2
"T5"		R10000	O2, OCTANE, Origin200, Origin2000, Onyx2

A more lengthy glossary of terms used to identify IRIS systems is provided as an appendix. This glossary includes the Marketing terminologies as well as the Engineering terminologies. Project "code names" are created long before their commercial name is chosen. Even after a product has been announced and has been shipping, members of the team who created it still refer to it by its code name.

More importantly, references to the project code names can be found throughout software header files. Indeed some of these code names are used as nomenclature for various software and hardware pieces. Not knowing what code name equates to a "real" name is like being lost in a foreign land without a magic decoder ring. Hopefully this will help.

Table 1-3 Graphics Names

Graphics Code Name	Description	Marketing Name	Found In Model Numbers
"Clover1"	Original 4D Graphics	B, G	4D/50, 60, 70
"Clover2"	2nd Generation 4D Graphics	GT, GTX	4D/70, 80, 85, 120, 210, 220, 240, 280
"Stapuft"	3rd Generation 4D Graphics	VGX, VGXT	4D/310, 320, 340, 380, 420, 440, 480
"Venice"	4th Generation 4D Graphics	Reality Engine	4D/310, 420, 440, 480,
-	Original PI Graphics	B, G	4D/20, 25, 30, 35
-	Turbo PI Graphics	TG	4D/20, 25, 30, 35
"Da Vinci"	24 Bitplanes, No Z Buffer		4D/20, 25
"Starter"	Original Indigo Graphics	Entry Graphics	Indigo R3K, R4K
"Express"	Family of 2nd Generation Indigo Graphics	XS, XS24, XZ, Elan	Indigo R3K, R4K, Indy (XZ only)
"Ultra"	High End of Express Graphics Family	Extreme	Indigo ²
"Newport"	Original Indy Graphics, Low End Indigo ² Graphics	XL	Indy, Indigo ²
"Mardi Gras"		IMPACT	Indigo ²
"Kona"	5th Generation High End Graphics	Reality Engine2	Onyx2

1.3 What You Will Not Find

It would be ideal if it were possible to outline every possible combination of chassis, processor and graphics that ever existed. While tempting, this is not realistic. During the history of the IRIS systems, and primarily due to the modular nature of our graphics & processor subsystems and many upgrade programs, the markings on the outside of an IRIS may not actually reflect what is inside.