Chapter 5

Understanding Hardware Inventory (*hinv*) Output

There is a great deal of information about a system's configuration that can be obtained by running the 'hinv' program. With the number of systems and options that exist, understanding the output from this program can be potentially confusing. This chapter details the history of processors in Silicon Graphics systems and explains how to interpret the output from the 'hinv' program.

Each table shows some category of possible output from the 'hinv' program. For each possible output line, valid values for certain parts of the output are shown and any comments that would help understand what this line tells you.

Here is a list of the tables in this chapter and the categories they discuss:

5.1 Understanding CPU Types

The CPU type is one of the key pieces of information used to determine what kind of system you are looking at. Table 5-2 shows the history of Silicon Graphics processor boards. However, there are some cases where the output from the ‘hinv’ command might lead you astray.

This introduces the concept of “hardware CPU” and “software CPU” types. The hardware CPU type describes the physical CPU board itself and what this board is called during the design and manufacturing of the board. The software CPU type describes the architecture of the CPU board that the software sees. In almost all cases the IP number reported by the ‘hinv’ command reflects both the software and hardware CPU type.

The best way to understand this is with an example. The processor boards in the Indigo^2 and the Indy are completely different when viewed from a physical point of view. If they were to be set side by side, they would not be mistaken for each other. The Indigo^2 processor board (using the R4000 or R4400 MIPS processor) is called the IP22. The Indy’s processor board is called the IP24.

Running ‘hinv’ on an Indigo^2 and an Indy will show that each report the presence of an IP22 processor (assuming you aren’t dealing with an Indigo^2 with an R8000 or R10000 processor). While the boards are very different physically, their architecture from a software point of view in terms of the processor and logical location of certain pieces of the hardware architecture are identical. In fact, the Indy processor board uses many of the same ASIC components that were used in the Indigo^2. One way to tell if the IP22 system is an Indigo^2 is to check the hinv output for the line “EISA bus: adapter 0”. If this is in the hinv output, the system is an Indigo^2 - the only SGI system with an EISA bus.

This underscores the fact that the ‘hinv’ program reports the software CPU type, not the hardware CPU. Hopefully, this will not be a problem in many cases, but there are occasions where knowing the difference between the software and hardware CPU types can be handy.

There are only a few instances where the hardware and software CPU types differ. Table Table 5-1 shows these instances.

Table 5-1 Hardware/Software CPU Differences

Hardware CPU	Software CPU
IP4.5	IP4
IP7, IP9	IP5
IP10	IP6
IP13, IP15	IP7
IP14	IP12
IP24	IP22
IP29	IP27

Table 5-2 Processor History

Processor (Hardware CPU)	Used in	Chassis	Software CPU Type (if different from hardware type)	Number of Micro-processors per board	Micro-processor	CPU Speed	Comments
R2300	4D/60	Twin Tower		1	R2300	8 MHz	
IP4	4D/70				R2000	12.5 MHz	
IP4	4D/50				R2000	8 MHz	
IP4.5	4D/80				R2000	16 MHz	
IP4.5	4D/85	Single Tower			R2000	20 MHz	
IP5	4D/1x0	Twin Tower		2	R2000	16 MHz	
IP6	4D/20	Personal IRIS		1	R2000	12.5 MHz	
IP7	4D/2x0	Single/Twin Tower/ Predator		2	R3000?	25 MHz	
IP9	4D/210	Single/Twin Tower	IP7	1	R3000	25 MHz	
IP10	4D/25	Personal IRIS	IP6		R2000	20 MHz	
HP1	Indigo	Indigo	IP12		R3000	33 MHz	
IP13	4D/3x0	Single/Twin Tower/ Predator	IP7	1 or 2	R3000	33 MHz	
IP14	4D/30	Personal IRIS	IP12	1	R3000	30 MHz	
IP14	4D/35				R3000	36 MHz	
IP15	4D/4x0	Single/Twin Tower/ Predator	IP7	2	R3000	40 MHz	
IP17	Crimson	Diehard2		1	R4000	100, 150 MHz	
IP19	Onyx/Challenge L XL	Eveready/Terminator		1, 2 or 4	R4400	150, 200 MHz	

Table 5-2 Processor History

Processor (Hardware CPU)	Used in	Chassis	Software CPU Type (if different from hardware type)	Number of Micro-processors per board	Micro-processor	CPU Speed	Comments
HP2	Indigo R4K	Indigo	IP20	1	R4000	100 MHz	
					R4400	100, 150 MHz	
IP21	Power Onyx/Challenge	Eveready/Terminator		1 or 2	R8000	75, 90 MHz	
IP22	Indigo^2	Indigo^2		1	R4000	100 MHz	
					R4400	100, 150, 200 MHz	
IP22					R4600SC	133 MHz	
IP24	Indy	Indy	IP22	1	R4000PC	100, 133MHz	
					R4000SC	100 MHz	
					R4400SC	150, 175 MHz	
					R4600SC	133 MHz	
IP25	Onyx/Challenge	Eveready/Terminator			R10000	194 MHz	
IP26	Power Indigo^2	Indigo^2		1	R8000	75 MHz	
IP27	Origin200/Origin2000/ Onyx2	Origin200/Origin2000/ Onyx2			R10000	180, 195 MHz	
IP28	Indigo^2 R10K	Indigo^2		1	R10000	195 MHz	
IP30	OCTANE	OCTANE		2	R10000	175, 195 MHz	
IP32	O2	O2		1	R5000	180 MHz	
					R10000	150, 174 MHz	

Table 5-3 Processor Boards

hinv Output	Where valid values are:		Comments
	N (Quantity)	***SP*** (Speed in MHz)	
N SP MHZ IP4 Processor	1	8,12,16	Original processor board for 4D series. Found in 4D/50 and 4D/70
N SP MHZ IP5 Processor(s)	2,4	16	Used in 4D/120
N SP MHZ IP6 Processor	1	12,20	Processor board in the 4D/20 Personal IRIS
N SP MHZ IP7 Processor(s)	1,2,3,4,6,8	25,33,40	Dual processor board used in 4D/200 series
N SP MHZ IP9 Processor	1	25	Single processor board used in 4D/200 series (i.e. 4D/210)
N SP MHZ IP12 Processor	1	30,33,36,40	R3000 based processor in both the 4D/30 Personal IRIS and Indigo
N SP MHZ IP17 Processor	1	50,100,150	Processor used in the Crimson series
N SP MHZ IP19 Processor	1,2,4,8,10,12,15, 16,20,24	100,150,200	Processor used in the Onyx/Challenge series
N SP MHZ IP20 Processor	1	50,100,150	R4000 based processor used in the Indigo series
N SP MHZ IP21 Processor	1,2,4,6,8,18	70,75,94	R8000 based processor used in the Power Onyx and Power Challenge Systems
N SP MHZ IP22 Processor	1	100,132,134,150, 176,200,222	Processor used in the Indigo^2, Challenge M and Indy systems
N SP MHZ IP25 Processor	2,4,6,8,10,12...24	194	R10K based processor used in the Onyx/Challenge systems
N SP MHZ IP26 Processor	1	75	R8000 based processor used in the Indigo^2 chassis
N SP MHZ IP27 Processor	2, 4, 6, 8 ...	195	Processor used in the Origin200/Origin2000/Onyx2 systems
N SP MHZ IP28 Processor	1	195	R10K based processor used in the Indigo^2 system
N SP MHZ IP30 Processor	1,2	195	Processor board used in the OCTANE systems
N SP MHZ IP32 Processor	1	134, 174, 180	Processor board used in the O2. Processor type could be either R5000 or R10000 (134MHZ speed was only for pre-MR systems)
Processor ***N***: ***SP*** MHZ IP7	0-7	25/33/40	Dual processor board used in 4D/200 series
Processor ***N***: ***SP*** MHZ IP19	0-27	100,150	Processor used in the Onyx/Challenge series
Processor ***N***: ***SP*** MHZ IP21	0-15	70,75	R8000 based processor used in the Power Onyx and Power Challenge Systems

Table 5-4 CPU & FPU Types

hinv Output	***REV***	Comments
CPU: MIPS R2000 Processor Chip Revision: ***REV***	5.0	
CPU: MIPS R2000A/R3000 Processor Chip Revision: ***REV***	1.6, 2.0, 3.0	
CPU: MIPS R4000 Processor Chip Revision: ***REV***	2.2, 3.0, 5.0	
CPU: MIPS R4400 Processor Chip Revision: ***REV***	4.0, 5.0, 6.0	
CPU: MIPS R4600 Processor Chip Revision: ***REV***	1.0,2.0	
CPU: MIPS R5000 Processor Chip Revision: ***REV***	1.0, 2.1	
CPU: MIPS R8000 Processor Chip Revision: ***REV***	1.1, 2.1, 2.2	
CPU: MIPS R10000 Processor Chip Revision: ***REV***	2.5, 2.6	
FPU: MIPS R2010 VLSI Floating Point Chip Revision: ***REV***	2.0	
FPU: MIPS R2010A/R3010 VLSI Floating Point Chip Revision: ***REV***	1.5, 2.0, 3.0, 4.0	
FPU: MIPS R4000 Floating Point Coprocessor Revision: ***REV***	0.0	
FPU: MIPS R4010 Floating Point Chip Revision: ***REV***	0.0	
FPU: MIPS R4600 Floating Point Coprocessor Revision: ***REV***	2.0	
FPU: MIPS R4610 Floating Point Chip Revision: ***REV***	0.0, 2.0	
FPU: MIPS R5000 Floating Point Coprocessor Revision: ***REV***	1.0	
FPU: MIPS R8010 Floating Point Chip Revision: ***REV***	0.1	
FPU: MIPS R10010 Floating Point Chip Revision: ***REV***	0.0	

Table 5-5 Cache

hinv Output	***S*** (size)	Comments
Data cache size: ***S*** Kbytes	8, 16, 32, 64	
Instruction cache size: ***S*** Kbytes	8, 16, 32, 64, 99	
Secondary data cache size: ***S*** Kbytes	64, 256	
Secondary data cache size: ***S*** Mbyte	1	
Secondary unified instruction/data cache size: ***S*** Kbytes [on Processor 0]	512	
Secondary unified instruction/data cache size: ***S*** Mbyte [on Processor 0]	1, 2, 4	

Table 5-6 Memory

hinv Output	***S*** (size)	Comments
Main memory size: S Mbytes	8, 12, 16, 20, 24, 28, 32, 40, 48, 56, 64, 72, 80, 88, 96, 104, 112, 128, 144, 160, 176, 192, 224, 256, 288, 320, 384, 2048, 4096	
Main memory size: S Mbytes, 1-way interleaved	32, 64, 128, 192, 256, 320, 512, 576, 768, 1280	
Main memory size: S Mbytes, 2-way interleaved	64, 128, 256, 384, 512, 640, 768, 1024, 1280, 2048	
Main memory size: S Mbytes, 4-way interleaved	256, 512, 768, 1024	
Main memory size: S Mbytes, 8-way interleaved	1024, 2048, 4096	

Table 5-7 SCSI Controllers

hinv Output	Where valid values of are:		Comments
	Y (controller)	***REV*** (Revision)	
Integral SCSI controller ***Y***: Version WD33C93	1,2		The SCSI controller used in the 4D Twin Tower, Single Tower, Personal IRIS and Indigo
Integral SCSI controller ***Y***: Version WD33C93A	1,2		A later version of the SCSI controller above. Was phased in on the Indigo product line. This controller was also used in the Crimson systems.
Integral SCSI controller ***Y***: Version WD33C93A, revision ***REV***	1,2	9	
Integral SCSI controller ***Y***: Version WD33C93B, revision ***REV***	0,1,2	C,D	A follow on version of the SCSI controllers listed above. Implemented on the Indigo^2 and Indy
Integral SCSI controller ***Y***: Version WD33C95A, [differential,] [single ended,] revision ***REV***	0,1,2,3,4,5,6,7,70, 71,90,91,95,96,97, 110,111,115,116, 117,130,131,135,	0,1,80,81	The SCSI controller used in the Challenge/Onyx systems. These controllers could be configured for either single ended or differential operation.
Integral SCSI controller ***Y***: Version SCIP/WD33C95A [differential]	2,3,4,5,6,7,72,73, 74,75,76,77,92,93, 94,112,113,114, 132,133,134,135, 136,137		The SCSI controller located on the IBUS (or mezzanine) card.
Integral SCSI controller ***Y***: Version ADAPTEC 7880	0,1		Adaptec SCSI controller chips built into the O2
Integral SCSI controller ***Y***: Version QL1040B	0 - 15		QLogic SCSI controller chips built into the OCTANE, Origin200/2000 and Onyx2 systems
Interphase 4210 VME-SCSI controller ***Y***: Firmware revision ***REV***	1,2...	01J,A05, A08,X87	A SCSI controller card OEM'd from Interphase. This card supported one SCSI bus and was the initial SCSI controller used in the 4D Twin Tower chassis.
GIO SCSI controller ***Y***: Version WD33C93B, revision ***REV***	1,2	D	An optional add in GIO32bis card that added a SCSI bus to the Indy. Not available for the Indigo.

Table 5-8 SCSI Devices

hinv Output	Where valid values of are:			Comments
	U (unit)	***C*** (controller)	***L*** (lun)	
CDROM: unit ***U*** on SCSI controller ***C***	1-7 or 1-15	1-4		A CDROM unit
Disk drive / removable media: unit ***U*** on SCSI controller ***C*** [floptical]		1-4		The 20 MB floptical drive
Disk drive / removable media: unit ***U*** on SCSI controller ***C***: 720K/1.44M floppy				A 3.5” floppy drive
Disk drive: unit ***U*** on SCSI controller ***C***				A typical disk drive
Disk drive: unit ***U*** on VME-SCSI controller ***C***				A disk drive connected to a VME SCSi controller
Disk drive: unit ***U***, lun z on SCSI controller ***C***				
Disk drive: unit ***U*** on SCSI controller ***C***: RAID				
Jukebox: unit ***U*** on SCSI controller ***C***				A tape drive jukebox
Jukebox: unit ***U***, lun 1 on SCSI controller ***C***		4,6,131, 134		
Printer: unit ***U*** on SCSI controller ***C***				A SCSI based printer
Processor: unit ***U*** on SCSI controller ***C***				A scanner connected to the SCSI bus
Scanner: unit ***U*** on SCSI controller ***C***				
Tape drive: unit ***U*** on VME-SCSI controller ***C***: 8mm(8500) cartridge				An 8mm Exabyte 8500 tape drive connected to a VME SCSI controller
Tape drive: unit ***U*** on SCSI controller ***C***: DAT				A 4mm DAT drive
Tape drive: unit ***U*** on SCSI controller ***C***: DLT				A DLT tape drive
Tape drive: unit ***U*** on SCSI controller ***C***: QIC 1000				A QIC1000 tape drive
Tape drive: unit ***U*** on SCSI controller ***C***: 8mm(8200) cartridge				An 8mm Exabyte 8200 tape drive

Table 5-8 SCSI Devices

hinv Output	Where valid values of are:			Comments
	U (unit)	***C*** (controller)	***L*** (lun)	
Tape drive: unit ***U*** on SCSI controller ***C***: 8mm(8500) cartridge				An 8mm Exabtye 8500 tape drive
Tape drive: unit ***U*** on SCSI controller ***C***: 8mm cartridge				An 8mm Exabyte tape drive (what's different about this one?)
Tape drive: unit ***U*** on SCSI controller ***C***: QIC 150				A QIC150 tape drive
Tape drive: unit ***U*** on SCSI controller ***C***: QIC 24				A QIC24 tape drive
Tape drive: unit ***U*** on SCSI controller ***C***: unknown				The system can't determine what kind of tape device this is.
Tape drive: unit ***U*** on SCSI controller ***C***: 9 track				A 9 track tape drive
Tape drive: unit ***U*** on SCSI controller ***C***: NTP				
WORM: unit ***U*** on SCSI controller ***C***				A WORM drive
RAID controller: unit ***U*** on SCSI controller ***C***				A RAID Controller
RAID lun: unit ***U***, lun ***L*** on SCSI controller ***C***	1- 4		0,1	
Unknown type 0: unit ***U*** on SCSI controller ***C***				The system can't figure out what kind of SCSI device this is.

Table 5-9 Ethernet

hinv Output	***U*** (unit)	***S*** (slot)	***V*** (version)	***IO*** (IO Board)	***MFG*** (manufacturer)	Comments
E-Plex Ethernet controller: ep0-7, slot ***S***, adapter 5, firmware ***V***		3	9412101300			IBUS Ethernet board for Onyx/Challenge
EFast FXP controller: fxp***U***	0,1,2,3					Fast VME Ethernet
ENP-10 Ethernet controller ***U***, firmware version ***V*** (***MFG***)	0		4		SGI	The original ethernet card shipped with the 4D systems
ENP-10 Ethernet controller: enp***U***, firmware version ***V*** (***MFG***)	0,1		0,4		CMC,SGI	
E++ controller: ***U***, version ***V***	ec1,ec2, ec3,ec4		1,2			An additional ethernet interface. Can be either a VME, GIO, EISA or PCI bus card.
Integral Ethernet controller: Version ***V***			0,3			
Integral Ethernet controller: et***U***, Ebus slot ***S***	0,1,2	2,3,4,5,9, 10,11,13, 15				The ethernet controller built into the Onyx/Challenge systems
Integral Ethernet: ec***U***, version ***V***	0,1,2,3		0,1			Ethernet controller built into the Personal IRIS, Indigo, Indigo^2, Indy and O2 systems
Integral Ethernet: et***U***, ***IO***	0,1			IO2, IO3		Ethernet controller built into the IO2 and IO3 boards. Used in 4D and Crimson systems
Integral Fast Ethernet: ef***U***, version ***V***	0		1			10/100 Base-T ethernet built into OCTANE and Origin200

Table 5-10 FDDI

hinv Output	***U*** (unit)	***S*** (slot)	***A*** (adapter)	***V*** (version)	***ATT*** (attach)	Comments
XPI FDDI controller: xpi***U***, firmware version ***V***, ***ATT*** [with bypass]	0,1,2,3			9310220901, 9310221105, 9402200310, 9406220038, 9407151532, 9408151911, 9410312218, 9411032038,	SAS,DAS	GIO FDDI board for Indigo^2
XPI FDDI controller: xpi***U***, slot ***S***, adapter ***A***, firmware version ***V***, ***ATT***	0,1,2,3	3,5,11, 13,15	5,6,13,14	9411032000, 9412150700, 9412271100, 9409011200, 9409271400, 9410050000	SAS,DAS	IBUS FDDI board for Onyx/Challenge
FDDIXPress controller: ipg***U***, version ***V***	0,1,2			1		VME FDDI board

Table 5-11 Other Networking

hinv Output	***U*** (unit)	***S*** (slot)	***A*** (adapter)	***V*** (version)	Comments
5080 Gateway card ***U***	0-3				The VME based 5080 board
ATM OC-3c unit ***U***: slot ***S***, adapter ***A***	0	5	6		VME based ATM board
ATM unit ***U***: slot ***S***, adapter ***A***, Multi-Mode Fiber, SONET STS-3c 155.52 Mbps	0,1	9,10,11, 12,13	5,6		VME based ATM board
Integral ISDN: Basic Rate Interface unit ***U***, revision ***V***	0	1.0		1.0	The built in ISDN interface on the Indy
X.25 controller ***U***	0,1				The VME based X.25 controller
VME Synchronous Communications board ***U***	0,1,2,3				
GIO Synchronous Communications board ***U***	0,1				A GIO32bis synchronous comm board
HIPPI adapter: hippi***U***, slot ***S*** adap ***A***, firmware version ***V***	0	3,5,13,15	2,5,6	000000, 170276, 1210308, 1432176, 15185228	IBUS HIPPI board
IRIS TokenRing controller fv***U***: 16 Mbit	0-3				VME TokenRing board
IRIS GIO TokenRing controller gtr***U***: 16 Mbit	0-3				GIO TokenRing board

Table 5-12 Video Devices

hinv Output	***U*** (unit)	***V*** (version)	***B*** (bus)	Comments
Cosmo Compression: unit ***U***, revision ***V***	0,1,2	0		The GIO32bis compression board, used with Indy Video
Galileo video (ev1): unit ***U***, revision ***V***. [Indycam connected.] [601 option connected.] [601 not connected]	0	2		The video board for the Indigo^2 that worked with the Extreme and XZ graphics board sets. The Galileo board supported component output and 601 style digital video output and input.
Indigo2 video (ev1): unit ***U***, revision ***V***. [Indycam connected.]	0	3		The video board for the Indigo^2 that worked with the Extreme and XZ graphics board sets. This board does not support component or 601 output and input.
Indigo2 video: unit ***U***, revision ***V***	0	3		
IndigoVideo board: unit ***U***, revision ***V***	0	2,3		The IndigoVideo board. Composite and S-Video inputs and outputs only. A custom board - not a GIO board that only fit the Starter graphics on the Indigo
Indy Video (ev1): unit ***U***, revision ***V***	0	0		The GIO32bis add-in board for the Indy
Indy Video: unit ***U***, revision ***V***	0	0		
Sirius video: unit ***U*** rev ***V*** at 0xf4	0	0		The Sirius video option board for the Onyx system
Sirius video: unit ***U*** revision ***V*** on bus ***B*** with [CPI] [DGI] [BOB] [SD1] [no] options	0	4	0	The Sirius video option to the Onyx system. Options are: CPI - DGI - BOB - Break Out Box SD1 -
Vino video: unit ***U***, revision ***V***, [IndyCam connected] [IndyCam not connected]	0	0,1		The ‘Vino” is the chip in the Indy that processes video input. Indicates whether the IndyCam is connected or not. Vino = “Video In, Not Out”
AV: AV1 Card Version ***V***, [Camera not connected] [O2Cam type 1 version 0 connected]		1		The Audio/Video board for the O2, indicates whether the O2Cam is connected or not.
Video: unit ***U*** version ***V*** (sw:1) with AV1 Card version 1 and no Camera	0	1		
Video: MVP unit ***U*** version ***V***	0	1.2		

Table 5-13 Audio Devices

hinv Output	***U*** (unit)	***B*** (base)	***V*** (version)	***R*** (revision)	Comments
Iris Audio Processor, rev ***R***				1,2, 3,10	The audio subsystem in the Personal IRIS
Iris Audio Processor: version ***V*** revision ***R***			69, A2, A3	0, 6.9.6, 0.1.0, 1.1.0, 4.1.0	The audio subsystem for the Indigo, Indigo^2 and Indy
Iris Audio Processor: version RAD revision ***V***, number ***U***	1		12.0		The audio subsystem in the OCTANE
ViGRA 110 Audio ***U***, base ***B***, revision ***R***	0	0x1A000000		1	A VME add in card used in the Onyx and Challenge systems prior to the ASO options availability.

Table 5-14 Graphics

hinv Output	***P*** (pipe)	***S*** (slot)	***A*** (adapter)	Comments
CRM graphics installed				O2 graphics
GT Graphics option installed				Graphics found in 4D/XXGT systems
Genlock option installed				The Genlock option for the Personal IRIS
Graphics board: GR1.1 [Bit-plane], [Z-buffer] options installed				Personal IRIS graphics - original base level graphics - RE1 rendering engine, 8 bitplanes, 2 auxplanes, 2 widplanes, no Z-buffer planes. Bitplane option created 24 Bitplanes. Z-buffer option added 24 Z-buffer planes.
Graphics board: GR1.2 [Bit-plane] [Auxiliary planes] [Z-buffer] [Turbo] [Small monitor] option[s] installed				Personal IRIS graphics - RE2 rendering engine, 8 bitplanes, 2 auxplanes, 2 widplanes, no Z-buffer planes. Bitplane option created 24 Bitplanes. Z-buffer option added 24 Z-buffer planes.Turbo option added an additional graphics hardware acceleration.
Graphics board: GR2-Elan				The “Elan” version of the Express graphics family - 4 GEs, 1 RE, 24 Bitplanes, 4 auxplanes, 4 cidplanes, Z-buffer. This graphics set could be installed in an Indigo, a Personal IRIS, or a Crimson.
Graphics board: GR2-Unknown configuration				
Graphics board: GR2-XS [with Z-buffer]				The XS version of the Express graphics family - 1 GE, 1 RE, 8 Bitplanes, 4 auxplanes, 4 cidplanes, no Z-buffer. This graphics set could be installed in an Indigo, a Personal IRIS, or a Crimson.
Graphics board: GR2-XS24 [with Z-buffer]				The XS24 version of the Express graphics family - 1 GE, 1 RE, 24 Bitplanes, 4 auxplanes, 4 cidplanes, no Z-buffer. This graphics set could be installed in an Indigo, a Personal IRIS, or a Crimson.
Graphics board: GR2-XSM				The XSM version of the Express graphics family - 4GEs, 1 RE, 24 Bitplanes, 4 auxplanes, 4 cidplanes, no Z-buffer. This graphics set could be installed in an Indigo, a Personal IRIS, or a Crimson.

Table 5-14 Graphics

hinv Output	***P*** (pipe)	***S*** (slot)	***A*** (adapter)	Comments
Graphics board: GR2-XZ [missing Z]				The XZ version of the Express graphics family - 2GEs, 1 RE, 24 Bitplanes, 4 auxplanes, 4 cidplanes, Z-buffer. This graphics set could be installed in an Indigo, a Personal IRIS, or a Crimson.
Graphics board: GR3-Elan				The Indigo^2 version of the Elan graphics. Same specs as the GR2-Elan, but in the GIO64 board form factor. Two board set.
Graphics board: GR3-XZ				The Indigo^2 version of the XZ graphics. Same specs as the GR2-XZ, but in the GIO64 board form factor. Two board set.
Graphics board: GU1-Extreme				The Indigo^2 “Extreme” graphics - 8 GEs, 2 REs, 24 Bitplanes, 4 auxplanes, 4 cidplanes, Z-buffer. A 3 board GIO64 board set. Available only in the Indigo^2 chassis.
Graphics board: High Impact [/TRAM option card]				High IMPACT graphics for the Indigo^2 - 1 GE, 1 RE, 1 TRAM. TRAM option card increases TRAMs to 4
Graphics board: High-AA Impact [/TRAM option card]				High-AA IMPACT graphics for the Indigo^2 - 2 GE, 1 RE, 1 TRAM. TRAM option card increases TRAMs to 4
Graphics board: Indy 24-bit				Indy “Newport” graphics, 24 Bitplanes
Graphics board: Indy 8-bit				Indy “Newport” graphics, 8 Bitplanes
Graphics board: InfiniteReality				InfiniteReality graphics for the Onyx - 4 GEs, RM6
Graphics board: InfiniteReality2				InfiniteReality2 graphics for the Onyx - 4 GEs, RM7
Graphics board: LG1				Starter graphics for the Indigo. 8 Bitplanes, no Z-buffer. 1024x768 maximum resolution.
Graphics board: MG10 Impact				The MG10 version of IMPACT graphics for the Indigo^2 - 1 GE, 1 RE, no TRAM.
Graphics board: MXI				Maximum IMPACT graphics for the OCTANE. 2 GEs, 2 REs, 4 TRAMs
Graphics board: Maximum Impact				Maximum IMPACT graphics for the Indigo^2 - 2 GE, 2RE, 1 TRAM. TRAM option card increases TRAMs to 4

Table 5-14 Graphics

hinv Output	***P*** (pipe)	***S*** (slot)	***A*** (adapter)	Comments
Graphics board: Reality				Reality Engine for the Onyx2 - 2 GEs, RM8
Graphics board: SI [with texture option]				Solid IMPACT graphics for the OCTANE. 1 GEs, 1 REs, 4 TRAMs
Graphics board: XL				The Indigo^2 version of Newport graphics.
Indy Presenter adapter board [and display.]				Add in GIO card that allows the Indy Presenter to be connected
Multi-Channel Option board installed				The Multi-Channel option for Onyx
RealityEngine Graphics option installed				Reality Engine graphics for Onyx
RealityEngineII Graphics Pipe ***P*** at IO Slot ***S*** Physical Adapter ***A*** (Fchip rev 2)	0,1,2	3,9,11	A,2,5,6	Reality Engine II graphics for Onyx - 12 GEs, RM4 or RM5
VGX Graphics option installed				VGX graphics for 4D, and Crimson systems
VGXT Graphics option installed				VGXT graphics for 4D and Crimson systems
VTX Graphics Pipe ***P*** at IO Slot ***S*** Physical Adapter ***A*** (Fchip rev 2)	0	3,11	2	VTX graphics for Onyx systems - 6 GEs, RM4

Table 5-15 Serial & Parallel Ports

hinv Output	***U*** (unit)	***S*** (slot)	***N*** (number of ports)	***V*** (version)	Comments
Integral EPC serial ports: ***N***			4,8,12,16		
Integral IO4 serial ports: ***N***			4		
On-board serial ports: ***N***			2		
On-board serial ports: ***N*** [per CPU board]			2		
On-board serial ports: ***N***			4		
IOC3 serial port: [tty1] [tty2]					Built in serial ports on the OCTANE
Central Data Serial controller ***U***, firmware version ***V***	0,1			1006, 1007,	The Central Data “CDSIO” serial port VME board
async serial controller: cdsio***U***, firmware version ***V***	0,1,2,3			1006, 1007, 20005, 20006	
Integral EPC parallel port: Ebus slot ***S***		2,3,4,5,7, 9,10,11, 13,15			The parallel port on the Onyx and Challenge systems
Integral IO4 parallel port: Ebus slot ***S***		3			
On-board bi-directional parallel port					The Indy parallel port
On-board parallel port					
On-board EPP/ECP parallel port					The O2’s parallel port
IOC3 parallel port: plp1					OCTANE built in parallel port

Table 5-16 ESDI

hinv Output	***C*** (controller)	***V*** (version)	***U*** (unit)	Comments
Interphase 3201 2-drive ESDI disk controller ***C***	0,1			The Interphase VME ESDI disk controller - 2 drives
Interphase 3201 2-drive ESDI disk controller ***C***: Firmware Revision ***V***	0,1	X0J		
Interphase 4201 4-drive ESDI disk controller ***C***	0,1			The Interphase VME ESDI disk controller - 4 drives
Interphase 4201 4-drive ESDI disk controller ***C***: Firmware Revision ***V***	0,1	040,04H,050		
ESDI Disk drive: unit ***U*** on Interphase controller ***C***	0,1		0,1,2,3	How actual ESDI drives show up in the hinv output

Table 5-17 IPI

hinv Output	***U*** (unit)	***V*** (version)	***C*** (controller)	Comments
Xylogics 7800 16-drive IPI disk controller ***U***: Firmware version ***V***	0,1	2.2.4,2.2.9		This is a VME based IPI controller
IPI Disk drive: unit ***U*** on Xylogics controller ***C***	0-15		0,1	How the IPI drive is reported in hinv

Table 5-18 SMD

hinv Output	***U*** (unit)	***V*** (version)	***C*** (controller)	Comments
Xylogics 754 4-drive SMD disk controller ***C***			0, 1	The VME based SMD disk controller card
Xylogics 754 4-drive SMD disk controller ***C***: Firmware version ***V***		2.7.0	0, 1	
SMD Disk drive: unit ***U*** on Xylogics controller ***C***	0-3		0, 1	How the SMD disks are reported by hinv

Table 5-19 1/2 Tape Controller

hinv Output	***C*** (controller)	***V*** (version)	Comments
Xylogics 1/2 inch tape controller ***C*** ctlr type: 772 firmware: ***V***	0,1	2.7,2.8	The VME based tape controller board

Table 5-20 Bus Adapters

hinv Output	***A*** (adapter)	***M*** (adapter mapping)	***V*** (version)	Comments
EISA bus: adapter ***A***	0			This is a dead give away that the system is an Indigo^2
VME bus: adapter ***A***	0, 1, 13, 21, 36, 37, 45, 47, 61			The VME bus. Seen on the Personal IRIS, Onyx and Challenge systems.
VME bus: adapter ***A*** mapped to adapter ***M***	0	13, 21, 45, 61		Seen on the Onyx and Challenge systems.

Table 5-21 I/O Boards

hinv Output	***S*** (slot)	***IO*** (IO board)	***V*** (version)	Comments
I/O board, Ebus slot ***S***: IO4 revision ***V***	2,3,4,5,7,9, 10,11,13,15		1	
I/O board, slot ***S***: ***IO*** [revision ***V***]	E,F	IO2,IO3, IO3B	2	

Table 5-22 PCI Devices

hinv Output	***B*** (bus)	***S*** (slot)	***F*** (function)	Comments
Bit3 PCI Bridge Card: Bus ***B***, Slot ***S***	0,1,2	0-7		Bit3 card that links to the PCI expansion chassis
PCI controller, slot: ***S***, Texas Instruments E++ Ethernet Controller		0-7		Texas Instruments Ethernet card
Unknown Type PCI: Bus ***B***, Slot ***S***, Function ***F***, Vendor ID 0x***VID***, Device ID 0x***DID*** No driver	0,1,2	0-7	?	This indicates that the system has found a PCI device, but does not have a driver for the specific Vendor ID (***VID***) and Device ID (***DID***).

Table 5-23 Miscellaneous

hinv Output	***C*** (controller)	***U*** (unit)	***V*** (version)	Comments
EPC external interrupts				External Interrupts on the Onyx and Challenge systems
IOC3 external interrupts: 1				OCTANE external interrupt connections
IEEE-488 bus controller ***C***	0			A VME based IEE-488 controller board made by National Instruments
Light Video unit ***U*** Rev ***V***		0	2	
CC synchronization join counter				
Processor: unit ***U*** on SCSI controller ***C***	0,1	2, 3, 4, 5, 6, 7		
IRIS Channel Adapter board ***U***		0		
IndyComp: unit ***U***, revision ***V***		0	1:3	
FLASH PROM version			1.0,2.3, 4.0	The O2 uses Flash Prom for the system prom. This prom image may be upgraded by software rather than replacing the actual prom chip.
Vice: [DX] [TRE]				The VICE image processing chip on the O2. The DX is the earlier version, the TRE the later version.

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