

irix 5.3 on SGI Indigo R3000 installation notes

Here's one for all the retrocomputing enthusiasts out there! Back when SGI was a going concern and the R3k Indigo was still nominally used, they always claimed that IRIX 5.3 was unsupported on IP12 and just would not work. Inspection of my IRIX 5.3 discs, however, shows differently: undocumented support for the IP12! With just a bit of hacking around in SASH and the PROM monitor, your Indigo R3000 will be booting IRIX 5.3 like a champ! The performance isn't too bad either, so long as you're packing plenty of RAM... Just follow the steps below to make it happen.

Note that you can use this same general procedure through step 3 to prepare any SGI system for loading where the installed hard disk does not already contain a SGI disklabel. Simply substitute "IPnn" or "ARCS" for "IP12" in all examples to be consistent with the system that you are loading. Once labelling and formatting is done manually, many newer SGI systems will permit you to continue loading IRIX through the "Install System Software" option in the start-up menu.

As well, you can also follow the procedure all the way through, substituting "IPnn" or "ARCS" appropriately, to perform a completely manual installation of IRIX on any SGI system. This may be required on older models where the "Install System Software" start-up menu option is not available, or if some trouble occurs while performing the more automated installation.

What you'll need for this project: (1) A functional R3000 Indigo with graphics head (monitor, keyboard, mouse) or a serial console with the appropriate cable (I've done it both ways). An old Mini-DIN-8 serial cable from a Mac substitutes perfectly. (2) One SCSI hard disk of at least 500 MB or so capacity. (3) One SCSI CD-ROM drive; I don't think 512-byte sectors is required. (4) IRIX 5.3 installation media on CD-ROM (sorry, I can't help if you

have a tape...)

1. Boot the IP12 SASH from the IRIX 5.3 CD-ROM from within the PROM monitor with the following command. Assume X is the SCSI ID of the CD-ROM drive.

```
boot -f dksc(0,X,8)sashIP12
```

2. Once you have started SASH, you need to run the fixed disk formatter program, FX, to prepare the hard disk for installation. Again, X will be the SCSI ID of your CD-ROM device.

```
dksc(0,X,7)/stand/fx.IP12
```

In FX, specify that you would like to label the disk, and have FX throw a default label with all partitions on the disk. Sync the changes to the disk, then exit FX.

3. Now that the disk has been properly prepared, you can write the installation miniroot to the swap partition on the disk using the cp command from within SASH. Here, X is the SCSI ID of the CD-ROM device and Y is the SCSI ID of the hard disk drive.

```
cp -b 32k dksc(0,X,8)mr dksc(0,Y,1)
```

After you have finished writing out the miniroot, reboot the system and drop back into the PROM monitor.

4. Now that you have written the miniroot to disk, you can boot the installation kernel. However, before you do this, you first must specify the partition that will be used as miniroot by the installation kernel. This is the same partition we wrote to in step (3). Again, Y is the SCSI ID of the hard disk drive.

```
setenv root dks0dYs1
```

5. Now that the miniroot is ready to go, boot SASH again from the CD-ROM (for some reason, the PROM will not boot

the miniroot directly) using the same command as in step (1). Once SASH has started, boot the miniroot like so. Substitute the SCSI ID of the hard disk drive for Y.

```
boot -f dksc(0,Y,1)unix.IP12
```

6. Once you issue the command in step (5) the installation kernel should begin to boot. It will ask you about formatting some partitions; just say yes at this point and it will set everything up for / and /usr.

7. Once the installer has started up, you first must drop out to a shell, set up a mount point for the CD-ROM and mount it manually before you may proceed. To begin:

```
Inst> sh
```

From within the shell, create a mount point for the CD-ROM. It really can be anything, but I like to use /mnt.

```
mkdir /mnt
```

Now, mount the installation media. Again, X is the SCSI ID of the CD-ROM device. Note that the installation disk is formatted SGI EFS, *not* ISO9660 (this is actually printed on the disk, if you happen to notice it).

```
mount -t efs -o ro /dev/dsk/dks0dXs7 /mnt
```

This operation should complete fairly quickly without any errors. If you go look in the /mnt directory, you should be able to see the installation files at this point.

8. Exit the shell and return to the installer.

```
exit
```

9. Once back in the installer, tell it to look in your newly created mount point for install sets (the sets are in the "dist" directory on the CD-ROM).

```
Inst> from /mnt/dist
```

10. Then, I just like to tell the installer to install everything; quick and easy.

```
Inst> install all
```

11. Finally, kick off the installation.

```
Inst> go
```

12. After the installation is complete, quit the installer.

```
Inst> exit
```

13. After you have completed the installation, there is one more step before you will have a happy running system: you must tell the machine where it will boot IRIX from. Type the following commands in the PROM monitor to set the relevant environment variables. As usual, Y is the SCSI ID of your hard disk.

```
setenv bootfile dksc(0,Y,8)sash  
setenv root dksc(0,Y,8)
```

14. The installation process is complete! Go boot up your Indigo and have some fun. Just one more command in the PROM monitor and you're off to the races.

```
boot
```

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