The SGI IOC4 PCI device is a bit of a strange beast, so some notes on it are in order.

First, even though the IOC4 performs multiple functions, such as an IDE controller, a serial controller, a PS/2 keyboard/mouse controller, and an external interrupt mechanism, it's not implemented as a multifunction device. The consequence of this from a software standpoint is that all these functions share a single IRQ, and they can't all register to own the same PCI device ID. To make matters a bit worse, some of the register blocks (and even registers themselves) present in IOC4 are mixed-purpose between these several functions, meaning that there's no clear "owning" device driver.

The solution is to organize the IOC4 driver into several independent drivers, "ioc4", "sgiioc4", and "ioc4_serial". Note that there is no PS/2 controller driver as this functionality has never been wired up on a shipping IO card.

ioc4
====
This is the core (or shim) driver for IOC4. It is responsible for initializing the basic functionality of the chip, and allocating the PCI resources that are shared between the IOC4 functions.

This driver also provides registration functions that the other IOC4 drivers can call to make their presence known. Each driver needs to provide a probe and remove function, which are invoked by the core driver at appropriate times. The interface of these IOC4 function probe and remove operations isn't precisely the same as PCI device probe and remove operations, but is logically the same operation.

sgiioc4
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This is the IDE driver for IOC4. Its name isn't very descriptive simply for historical reasons (it used to be the only IOC4 driver component). There's not much to say about it other than it hooks up to the ioc4 driver via the appropriate registration, probe, and remove functions.

ioc4_serial
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This is the serial driver for IOC4. There's not much to say about it other than it hooks up to the ioc4 driver via the appropriate registration, probe, and remove functions.