

**NAME**

**snd\_csa** - Crystal Semiconductor CS461x/462x/4280 PCI bridge device driver

**SYNOPSIS**

To compile this driver into the kernel, place the following lines in your kernel configuration file:

```
device sound  
device snd_csa
```

Alternatively, to load the driver as a module at boot time, place the following line in loader.conf(5):

```
snd_csa_load="YES"
```

**DESCRIPTION**

The **snd\_csa** bridge driver allows the generic audio driver sound(4) to attach to Crystal Semiconductor CS461x/462x/4280 based sound cards.

**HARDWARE**

The **snd\_csa** driver supports the following sound cards:

- ⊕ Crystal Semiconductor CS4280
- ⊕ Crystal Semiconductor CS4610
- ⊕ Crystal Semiconductor CS4611
- ⊕ Crystal Semiconductor CS4614
- ⊕ Crystal Semiconductor CS4615
- ⊕ Crystal Semiconductor CS4622
- ⊕ Crystal Semiconductor CS4624
- ⊕ Crystal Semiconductor CS4630
- ⊕ Genius Soundmaker 128 Value
- ⊕ Hercules Game Theatre XP
- ⊕ Turtle Beach Santa Cruz

Some onboard CS4610 chips are accompanied by the CS423x ISA codec instead of the CS4297 AC97 codec. Such configurations are not supported by the **snd\_csa** driver yet.

**SEE ALSO**

sound(4)

**HISTORY**

The **snd\_csa** device driver first appeared in FreeBSD 4.0.

**AUTHORS**

Seigo Tanimura <*tanimura@r.dl.itc.u-tokyo.ac.jp*>