

[PATCH 1/4] media-video: Pci probing for stradis driver

Source: <http://linux.derkeiler.com/Mailing-Lists/Kernel/2005-12/msg08710.html>

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 - *Date:* Sat, 31 Dec 2005 23:26:59 +0100
-

Pci probing for stradis driver

Pci probing functions added, some functions were rewritten.
Use PCI_DEVICE macro.
dev_* used for printing when pci_dev available.

Signed-off-by: Jiri Slaby <jirislaby@xxxxxxxxxx>

commit 820bd12326966a092c066d4e91bd9d94029c207c
tree 0fc43d38166de3c1b0adac8becac1350e1c09bfa
parent bfa07669d3c622d43a425742d46d95ee80cb02a9
author <[ku@bellona.\(none\)](mailto:ku@bellona.(none))> Sat, 31 Dec 2005 21:35:57 +0100
committer <[ku@bellona.\(none\)](mailto:ku@bellona.(none))> Sat, 31 Dec 2005 21:35:57 +0100

drivers/media/video/saa7146.h | 1
drivers/media/video/stradis.c | 201 ++++++-----
2 files changed, 115 insertions(+), 87 deletions(-)

```
diff --git a/drivers/media/video/saa7146.h b/drivers/media/video/saa7146.h
--- a/drivers/media/video/saa7146.h
+++ b/drivers/media/video/saa7146.h
@@ -73,7 +73,6 @@ struct saa7146
 unsigned int nr;
 unsigned long irq; /* IRQ used by SAA7146 card */
 unsigned short id;
- struct pci_dev *dev;
 unsigned char revision;
 unsigned char boardcfg[64]; /* 64 bytes of config from eeprom */
 unsigned long saa7146_adr; /* bus address of IO mem from PCI BIOS */
diff --git a/drivers/media/video/stradis.c b/drivers/media/video/stradis.c
--- a/drivers/media/video/stradis.c
+++ b/drivers/media/video/stradis.c
@@ -1991,12 +1991,10 @@ static struct video_device saa_template
 .minor = -1,
 };

-static int configure_saa7146(struct pci_dev *dev, int num)
```

[PATCH 1/4] media-video: Pci probing for stradis driver

```
+static int __devinit configure_saa7146(struct pci_dev *pdev, int num)
{
int result;
- struct saa7146 *saa;
-
- saa = &saa7146s[num];
+ struct saa7146 *saa = &saa7146s[num];

saa->endmarkhead = saa->endmarktail = 0;
saa->win.x = saa->win.y = 0;
@@ -2013,7 +2011,6 @@ static int configure_saa7146(struct pci_
saa->picture.contrast = 38768;
saa->picture.colour = 32768;
saa->cap = 0;
- saa->dev = dev;
saa->nr = num;
saa->playmode = VID_PLAY_NORMAL;
memset(saa->boardcfg, 0, 64); /* clear board config area */
@@ -2033,14 +2030,14 @@ static int configure_saa7146(struct pci_
init_waitqueue_head(&saa->vidq);
spin_lock_init(&saa->lock);

- if (pci_enable_device(dev))
+ if (pci_enable_device(pdev))
return -EIO;

- saa->id = dev->device;
- saa->irq = dev->irq;
+ saa->id = pdev->device;
+ saa->irq = pdev->irq;
saa->video_dev.minor = -1;
- saa->saa7146_adr = pci_resource_start(dev, 0);
- pci_read_config_byte(dev, PCI_CLASS_REVISION, &saa->revision);
+ saa->saa7146_adr = pci_resource_start(pdev, 0);
+ pci_read_config_byte(pdev, PCI_CLASS_REVISION, &saa->revision);

saa->saa7146_mem = ioremap(saa->saa7146_adr, 0x200);
if (!saa->saa7146_mem)
@@ -2051,16 +2048,15 @@ static int configure_saa7146(struct pci_
result = request_irq(saa->irq, saa7146_irq,
SA_SHIRQ | SA_INTERRUPT, "stradis", (void *) saa);
if (result == -EINVAL)
- printk(KERN_ERR "stradis%d: Bad irq number or handler\n",
- num);
+ dev_err(&pdev->dev, "%d: Bad irq number or handler\n", num);
if (result == -EBUSY)
- printk(KERN_ERR "stradis%d: IRQ %ld busy, change your PnP"
- " config in BIOS\n", num, saa->irq);
+ dev_err(&pdev->dev, "%d: IRQ %ld busy, change your PnP config "
+ "in BIOS\n", num, saa->irq);
if (result < 0) {
```

[PATCH 1/4] media-video: Pci probing for stradis driver

```
ionmap(saa->saa7146_mem);
return result;
}
- pci_set_master(dev);
+ pci_set_master(pdev);
if (video_register_device(&saa->video_dev, VFL_TYPE_GRABBER, video_nr) < 0) {
ionmap(saa->saa7146_mem);
return -1;
@@ -2068,10 +2064,11 @@ static int configure_saa7146(struct pci_
return 0;
}

-static int init_saa7146(int i)
+static int __devinit init_saa7146(int i, struct device *dev)
{
struct saa7146 *saa = &saa7146s[i];

+ memset(saa, 0, sizeof(*saa));
saa->user = 0;
/* reset the saa7146 */
saawrite(0xffff0000, SAA7146_MC1);
@@ -2104,7 +2101,7 @@ static int init_saa7146(int i)

/* allocate 32k dma buffer + 4k for page table */
if ((saa->dmadebi = kmalloc(32768 + 4096, GFP_KERNEL)) == NULL) {
- printk(KERN_ERR "stradis%d: debi kmalloc failed\n", i);
+ dev_err(dev, "%d: debi kmalloc failed\n", i);
return -1;
}
#if 0
@@ -2117,19 +2114,19 @@ static int init_saa7146(int i)
saa->audtail = saa->vidtail = saa->osdtail = 0;
if (saa->vidbuf == NULL)
if ((saa->vidbuf = vmalloc(524288)) == NULL) {
- printk(KERN_ERR "stradis%d: malloc failed\n", saa->nr);
+ dev_err(dev, "%d: malloc failed\n", saa->nr);
return -ENOMEM;
}
if (saa->audbuf == NULL)
if ((saa->audbuf = vmalloc(65536)) == NULL) {
- printk(KERN_ERR "stradis%d: malloc failed\n", saa->nr);
+ dev_err(dev, "%d: malloc failed\n", saa->nr);
vfree(saa->vidbuf);
saa->vidbuf = NULL;
return -ENOMEM;
}
if (saa->osdbuf == NULL)
if ((saa->osdbuf = vmalloc(131072)) == NULL) {
- printk(KERN_ERR "stradis%d: malloc failed\n", saa->nr);
+ dev_err(dev, "%d: malloc failed\n", saa->nr);
vfree(saa->vidbuf);
```

[PATCH 1/4] media-video: Pci probing for stradis driver

```
vfree(saa->audbuf);
saa->vidbuf = saa->audbuf = NULL;
@@ -2137,7 +2134,7 @@ static int init_saa7146(int i)
}
/* allocate 81920 byte buffer for clipping */
if ((saa->dmavid2 = kmalloc(VIDEO_CLIPMAP_SIZE, GFP_KERNEL)) == NULL) {
- printk(KERN_ERR "stradis%d: clip kmalloc failed\n", saa->nr);
+ dev_err(dev, "%d: clip kmalloc failed\n", saa->nr);
vfree(saa->vidbuf);
vfree(saa->audbuf);
vfree(saa->osdbuf);
@@ -2159,89 +2156,121 @@ static int init_saa7146(int i)
return 0;
}

-static void release_saa(void)
+static void stradis_release_saa(struct pci_dev *pdev)
{
u8 command;
- int i;
- struct saa7146 *saa;
+ int i = (int)pci_get_drvdata(pdev);
+ struct saa7146 *saa = &saa7146s[i];

- for (i = 0; i < saa_num; i++) {
- saa = &saa7146s[i];
+ /* turn off all capturing, DMA and IRQs */
+ saawrite(0xffff0000, SAA7146_MC1); /* reset chip */
+ saawrite(0, SAA7146_MC2);
+ saawrite(0, SAA7146_IER);
+ saawrite(0xffffffffUL, SAA7146_ISR);
+
+ /* disable PCI bus-mastering */
+ pci_read_config_byte(pdev, PCI_COMMAND, &command);
+ command &= ~PCI_COMMAND_MASTER;
+ pci_write_config_byte(pdev, PCI_COMMAND, command);
+
+ /* unmap and free memory */
+ saa->audhead = saa->audtail = saa->osdhead = 0;
+ saa->vidhead = saa->vidtail = saa->osdtail = 0;
+ vfree(saa->vidbuf);
+ vfree(saa->audbuf);
+ vfree(saa->osdbuf);
+ kfree(saa->dmavid2);
+ saa->audbuf = saa->vidbuf = saa->osdbuf = NULL;
+ saa->dmavid2 = NULL;
+ kfree(saa->dmadebi);
+ kfree(saa->dmavid1);
+ kfree(saa->dmavid3);
+ kfree(saa->dmaalin);
+ kfree(saa->dmaalout);
```

[PATCH 1/4] media-video: Pci probing for stradis driver

```
+ kfree(saa->dmaa2in);
+ kfree(saa->dmaa2out);
+ kfree(saa->dmaRPS1);
+ kfree(saa->dmaRPS2);
+ free_irq(saa->irq, saa);
+ if (saa->saa7146_mem)
+ iounmap(saa->saa7146_mem);
+ if (saa->video_dev.minor != -1)
+ video_unregister_device(&saa->video_dev);
+}

- /* turn off all capturing, DMA and IRQs */
- saawrite(0xffff0000, SAA7146_MC1); /* reset chip */
- saawrite(0, SAA7146_MC2);
- saawrite(0, SAA7146_IER);
- saawrite(0xffffffffUL, SAA7146_ISR);
-
- /* disable PCI bus-mastering */
- pci_read_config_byte(saa->dev, PCI_COMMAND, &command);
- command &= ~PCI_COMMAND_MASTER;
- pci_write_config_byte(saa->dev, PCI_COMMAND, command);
-
- /* unmap and free memory */
- saa->audhead = saa->audtail = saa->osdhead = 0;
- saa->vidhead = saa->vidtail = saa->osdtail = 0;
- vfree(saa->vidbuf);
- vfree(saa->audbuf);
- vfree(saa->osdbuf);
- kfree(saa->dmavid2);
- saa->audbuf = saa->vidbuf = saa->osdbuf = NULL;
- saa->dmavid2 = NULL;
- kfree(saa->dmadebi);
- kfree(saa->dmavid1);
- kfree(saa->dmavid3);
- kfree(saa->dmaa1in);
- kfree(saa->dmaa1out);
- kfree(saa->dmaa2in);
- kfree(saa->dmaa2out);
- kfree(saa->dmaRPS1);
- kfree(saa->dmaRPS2);
- free_irq(saa->irq, saa);
- if (saa->saa7146_mem)
- iounmap(saa->saa7146_mem);
- if (saa->video_dev.minor != -1)
- video_unregister_device(&saa->video_dev);
+static int __devinit stradis_probe(struct pci_dev *pdev,
+ const struct pci_device_id *ent)
+{
+ int retval = -EINVAL;
+
+ if (saa_num >= SAA7146_MAX)
```

[PATCH 1/4] media-video: Pci probing for stradis driver

```
+ goto err;
+
+ if (!pdev->subsystem_vendor)
+ dev_info(&pdev->dev, "%d: rev1 decoder\n", saa_num);
+ else
+ dev_info(&pdev->dev, "%d: SDM2xx found\n", saa_num);
+
+ pci_set_drvdata(pdev, (void *)saa_num);
+
+ retval = configure_saa7146(pdev, saa_num);
+ if (retval) {
+ dev_err(&pdev->dev, "%d: error in configuring\n", saa_num);
+ goto err;
+ }
+
+ if (init_saa7146(saa_num, &pdev->dev) < 0) {
+ dev_err(&pdev->dev, "%d: error in initialization\n", saa_num);
+ retval = -EIO;
+ goto errrel;
+ }
+
+ saa_num++;
+
+ return 0;
+errrel:
+ stradis_release_saa(pdev);
+err:
+ return retval;
+}
+
+static void __devexit stradis_remove(struct pci_dev *pdev)
+{
+ stradis_release_saa(pdev);
+}
+
+static struct pci_device_id stradis_pci_tbl[] = {
+ { PCI_DEVICE(PCI_VENDOR_ID_PHILIPS, PCI_DEVICE_ID_PHILIPS_SAA7146) },
+ { 0 }
+};
+MODULE_DEVICE_TABLE(pci, stradis_pci_tbl);
+
+static struct pci_driver stradis_driver = {
+ .name = "stradis",
+ .id_table = stradis_pci_tbl,
+ .probe = stradis_probe,
+ .remove = __devexit_p(stradis_remove)
+};
+
+static int __init stradis_init (void)
+int __init stradis_init(void)
+{
```

[PATCH 1/4] media-video: Pci probing for stradis driver

```
- struct pci_dev *dev = NULL;
- int result = 0, i;
+ int retval;

saa_num = 0;
+
+ retval = pci_register_driver(&stradis_driver);
+ if (retval)
+ printk(KERN_ERR "stradis: Unable to register pci driver.\n");

- while ((dev = pci_find_device(PCI_VENDOR_ID_PHILIPS, PCI_DEVICE_ID_PHILIPS_SAA7146,
dev))) {
- if (!dev->subsystem_vendor)
- printk(KERN_INFO "stradis%d: rev1 decoder\n", saa_num);
- else
- printk(KERN_INFO "stradis%d: SDM2xx found\n", saa_num);
- result = configure_saa7146(dev, saa_num++);
- if (result)
- return result;
- }
- if (saa_num)
- printk(KERN_INFO "stradis: %d card(s) found.\n", saa_num);
- else
- return -EINVAL;
- for (i = 0; i < saa_num; i++)
- if (init_saa7146(i) < 0) {
- release_saa();
- return -EIO;
- }
- return 0;
+ return retval;
}

-static void __exit stradis_exit (void)
+void __exit stradis_exit(void)
{
- release_saa();
+ pci_unregister_driver(&stradis_driver);
printk(KERN_INFO "stradis: module cleanup complete\n");
}

-
module_init(stradis_init);
module_exit(stradis_exit);
-
```

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 - ◆ **[Re: \[PATCH 1/4\] media-video: Pci probing for stradis driver](#)**
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- **References:**
 - ◆ **[\[PATCH 0/4\] stradis video driver rewritten to 2.6 pci api](#)**
 - ◇ From: Jiri Slaby
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- Next by Date: **[\[PATCH 3/4\] media-video: Stradis Lindent](#)**
- Previous by thread: **[\[PATCH 4/4\] media-video: Stradis Kconfig url changed](#)**
- Next by thread: **[Re: \[PATCH 1/4\] media-video: Pci probing for stradis driver](#)**
- Index(es):
 - ◆ **[Date](#)**
 - ◆ **[Thread](#)**