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This document describes the ACT2000 driver for the
IBM Active 2000 ISDN card.

There are 3 Types of this card available. A ISA-, MCA-, and PCMCIA-Bus
Version. Currently, only the ISA-Bus version of the card is supported.
However MCA and PCMCIA will follow soon.

The ISA-Bus Version uses 8 IO-ports. The base port address has to be set
manually using the DIP switches.

Setting up the DIP switches for the IBM Active 2000 ISDN card:

Note: S5 and S6 always set off!

S1	S2	S3	S4	Base-port
on	on	on	on	0x0200 (Factory default)
off	on	on	on	0x0240
on	off	on	on	0x0280
off	off	on	on	0x02c0
on	on	off	on	0x0300
off	on	off	on	0x0340
on	off	off	on	0x0380
on	on	on	off	0xcfe0
off	on	on	off	0xcfa0
on	off	on	off	0xcf60
off	off	on	off	0xcf20
on	on	off	off	0xcee0
off	on	off	off	0xcea0
on	off	off	off	0xce60
off	off	off	off	Card disabled

IRQ is configured by software. Possible values are:

3, 5, 7, 10, 11, 12, 15 and none (polled mode)

The ACT2000 driver may either be built into the kernel or as a module.
Initialization depends on how the driver is built:

Driver built into the kernel:

The ACT2000 driver can be configured using the commandline-feature while
loading the kernel with LILO or LOADLIN. It accepts the following syntax:

act2000=b,p,i[,idstring]

where

b = Bus-Type (1=ISA, 2=MCA, 3=PCMCIA)
p = portbase (-1 means autoprobe)
i = Interrupt (-1 means use next free IRQ, 0 means polled mode)

The idstring is an arbitrary string used for referencing the card
by the actctrl tool later.

Defaults used, when no parameters given at all:

1,-1,-1,""

which means: Autoprobe for an ISA card, use next free IRQ, let the ISDN linklevel fill the IdString (usually "line0" for the first card).

If you like to use more than one card, you can use the program "actctrl" from the utility-package to configure additional cards.

Using the "actctrl"-utility, portbase and irq can also be changed during runtime. The D-channel protocol is configured by the "dproto" option of the "actctrl"-utility after loading the firmware into the card's memory using the "actctrl"-utility.

Driver built as module:

The module act2000.o can be configured during modprobe (insmod) by appending its parameters to the modprobe resp. insmod commandline. The following syntax is accepted:

act_bus=b act_port=p act_irq=i act_id=idstring

where b, p, i and idstring have the same meanings as the parameters described for the builtin version above.

Using the "actctrl"-utility, the same features apply to the modularized version as to the kernel-builtin one. (i.e. loading of firmware and configuring the D-channel protocol)

Loading the firmware into the card:

The firmware is supplied together with the isdn4k-utils package. It can be found in the subdirectory act2000/firmware/

Assuming you have installed the utility-package correctly, the firmware will be downloaded into the card using the following command:

actctrl -d idstring load /etc/isdn/bip11.btl

where idstring is the Name of the card, given during insmod-time or (for kernel-builtin driver) on the kernel commandline. If only one ISDN card is used, the -d isdstrin may be omitted.

For further documentation (adding more IBM Active 2000 cards), refer to the manpage actctrl.8 which is included in the isdn4k-utils package.