BusLogic Family SCSI Adapter Device Driver
by
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Version 1.16 of BusLogic Family SCSI Adapter Device Driver for NEXTSTEP Release 3.2 for Intel Processors

OVERVIEW:

BusLogic Family SCSI adapter device driver lets you take advantage of the following SCSI adapters:

Manufacturer	Adapter	PC Bus	Tested firmware
Bus Logic	445S	VL-Bus	3.31C, 3.36 , 3.37
Bus Logic	445C	VL-Bus	4.21
Bus Logic	747S	EISA	3.37
Bus Logic	946C	PCI	4.22

Note: There is a very high probability that other version of firmware mentioned above will work with driver.

WARRANTY:

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COPYING:
The **BusLogicFamily** is shareware. You can freely distribute without changing or

removing any parts of the package. If you found the driver reliable, please, register the driver. For more details see document **Registration.rtf**;Registration.rtf;;¬.

Changes between version 1.0 and 1.13:
1. The driver was tested and works with these versions of the firmware on **BT445S**:
   3.31C,
   3.36,
   3.37.
2. The driver was tested and works with these versions of the firmware on **BT747S**:
   3.37.
3. The driver works correctly with Toshiba XM-3401 CD-ROM and CDPlayer.app. The only thing you need is a program called XAmode, which switchs TOSHIBA to XAmode. This also enables you to read KodakPhotoCD. XAmode is available from anonymous ftp ftp.uni-stuttgart.de:/pub/systems/next/Tools .
4. Better timeout handling.
5. Copying policy of the driver was changed from freeware to shareware.
6. The name of the driver was changed from BusLogicBT445S to BusLogicFamily.

Changes between version 1.13 and 1.16:
1. The version 1.13 of the driver was tested and works with these versions of the firmware on **BT445C**:
   4.21
2. The driver was adapted to work with PCI **BT946C** and was tested with these versions of the firmware:

4.22

3. The driver now uses the disconnect flag from scsiReq to determine correct disconnection setting.
4. The SCSI selection timeout was extended from default 250 ms to 500 ms.

Release 1.0 notes:

1. We have found at least one particular configuration (Gateway 4DX2/66V board, PAS-16 sound adapter, Logitech bus mouse, ATI UltraPro graphics, SEAGATE ST3600N hard disk) where this driver doesn't work properly. Anyway, even the NeXT's universal Adaptec154x Driver doesn't work with the same configuration. Should you possibly happen to have any problems, we will very appreciate to be informed, so as to be able to fix the problems.

Release 1.13 notes:

1. The BusLogic BT946C PCI card does not work yet. :-(

Release 1.16 notes:

1. The BusLogic BT946C PCI card is finally supported.

INSTALLATION:

These instructions show you how to install the BusLogic SCSI adapter device driver on an Intel-based computer running NEXTSTEP™ Release 3.2. The driver is distributed as file named **BusLogicFamily_1.16.tar.Z**.

1. If you received the **BusLogicFamily_1.16.tar.Z** file via NeXTmail™ or downloaded via FTP or another electronic source, place a copy of the file in a location where you can access it when you log in as **root**.
2. Log in as **root**.
   Only the superuser, **root**, can install the device drivers. If you're not sure how to log in as **root**, see your system administrator.
3. Double-click the **BusLogicFamily_1.16.tar.Z** file and uncompress and unarchive it.
4. Double-click the **BusLogicFamily.config.** It automatically launch **Configure.app** and copy the driver into **/NextLibary/Devices** directory.
5. Add Buslogic driver as SCSI device and configure IRQ and port address according to setting of the card. The default setting is the same as Adaptec setting and should be OK for most cases.
6. Save configuration and quit **Configure.app**.
7. Reboot computer.

INSTALLATION of the NSFIP from the scratch with BusLogic card:

These instructions show you how to install NEXSTEP with BusLogic SCSI adapter and **BusLogicFamily** device driver on an Intel-based computer running NEXTSTEP™ Release 3.2. The driver is distributed as file named **BusLogicFamily_1.16.tar.Z**.

1. The driver **BusLogicFamily.config** must be on a NeXT formatted floppy in directory **/usr/Devices/**

2. boot from installation floppy with CD-ROM inserted in the CD-ROM drive
3. At boot:, type: `mach_kernel "Boot Drivers"="PS2Keyboard IDE"`
   (IDE is only necessary when using an IDE harddisk)
4. select your language
5. When you are prompted:
   `The following SCSI adapter.....If you have a different kind...insert the floppy disk...` etc.
   insert the floppy with the Buslogic driver, type: `1 [RETURN]` and select the driver from the list
6. Proceed as normal
7. When the computer reboots for the first time, insert the installation disk again
8. At "boot" prompt, type : `mach_kernel -s "Boot Drivers"="PS2Keyboard IDE"` to start the computer in single user mode
9. Repeat step 3 (afterwards, let the driver floppy remain in the drive)
10. When reaching the single user shell (prompt #),   type:
    # driverLoader D=Floppy
    # mount   -n /dev/hd0a (or /dev/sd0a for SCSI) /disk
    # mount -n /dev/fd0a /floppy
    # cp -r   /floppy/usr/Devices/BusLogicFamily.config /disk/usr/Devices
    # reboot
11. When the screen blanks out, remove the driver floppy for rebooting from harddisk
12. When, while rebooting, the system reaches the "boot" prompt, type:
    `mach_kernel "Boot Drivers"="PS2Keyboard IDE BusLogicFamily"`
13. Continue the installation as normal

14. When the Configure.app is launched, choose the BusLogic driver as SCSI driver

Notes about hardware setting of BT-445S:
1. In order to achieve a 10MBytes/sec transfer rate, the 'Maximim Synchronous Data Rate Allowed' option must be enabled (switch 7 -Off) and the 'Adapter Initiate Synchronous Negotiation must be enabled (switch€6€-€Off).
2. Some older SCSI drives that can only support a data rate of up to 5 MB/s may misinform the BT-445S during the negotiation that it can transfer data above 5 MB/s. When the BT-445S is connected to such drives, 5 MB/s option must be used (switch 7 - On) . Otherwise, it will cause data transfer failure!

Notes about hardware setting of BT-946C:
1. The BusLogic card must run in **compatibility mode**. This require at least one jumper presented on JP4/JP5 switches to use BIOS and instruct card to work in compatibility mode.
2. Boot computer and enter AutoSCSI utility with Ctrl-B and configure adapter. The best way is to use default setting :
   port: 0x330,
   irq: 11,
   DMA channel: none,
3. Very important is setting of '**Host adapter interrupt PIN**'. It depends on the PCI slots. The slot close to the edge of the board uses PIN A, the slot in the middle uses PIN B and the slot close to the 3.3V connector uses PIN C. The best way to check if your machine works OK with interrupts, is to setup a MS-DOS bootable disk with

DEVICE=BTDOSM.SYS /D in **config.sys** file. If you can boot and have MS-DOS keyboard prompt, the system is save about IRQ. If it hangs, just after the BTDOSM banner, check your setting. Note that system using only BIOS (not BTDOSM.SYS) to   access   hard disk should always works, because the BIOS don't use IRQ.
4. If the driver will not work, first of all try to get the newest version of both motherboard BIOS and BusLogic BIOS & firmware.

BUGS:
Send all bug reports and any other suggestion via e-mail to **tom@hukatronic.cz**. Please, don't forget to write us your configuration.

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