Asus PCI-DA2100 User Manual

Pci to scsi disk array controller

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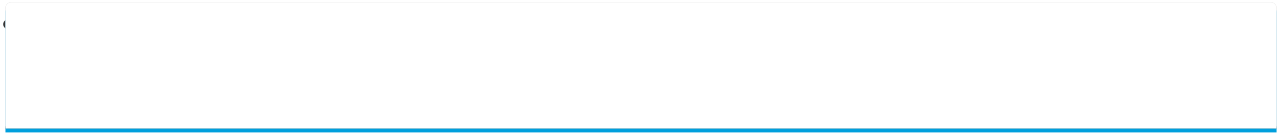

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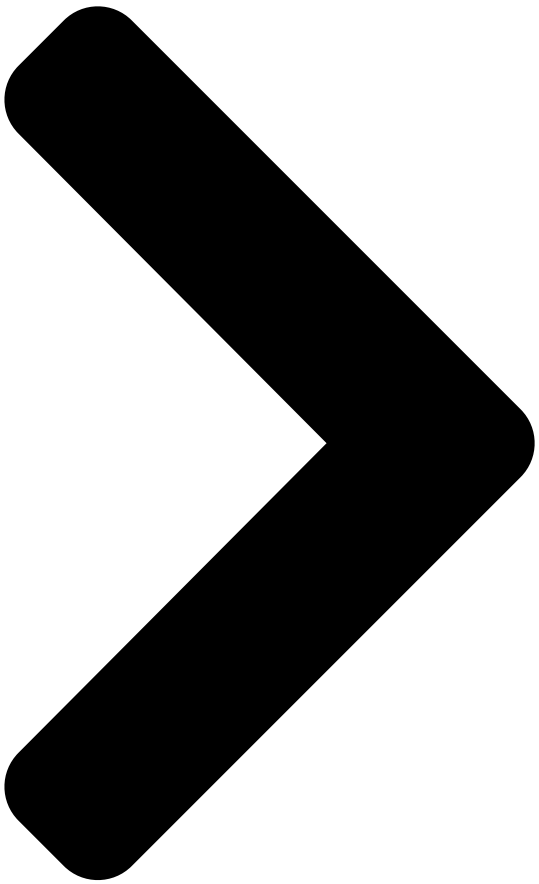

PCI-DA2100

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PCI to SCSI Disk Array Controller

USER'S MANUAL

Hardware Installation

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Related Manuals for Asus PCI-DA2100

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Pci-to-scsi ultrawide raid controller card (410 pages)

Summary of Contents for Asus PCI-DA2100

Page 1 PCI-DA2100 PCI to SCSI Disk Array Controller USER'S MANUAL Hardware Installation...

Page 2 In no event shall ASUS be liable for any loss or profits, loss of business, loss of use or data, interruption of business, or...

Page 3 Telephone: 1-408-474-0567 Fax: 1-408-474-0568 Email: info-usa@asus.com.tw Technical Support: BBS: 1-408-474-0555 Email: tsd-usa@asus.com.tw ASUS COMPUTER GmbH Marketing Info: Address: Harkort Str. 25, 40880 Ratingen, BRD, Germany Telephone: 49-2102-445011 Fax: 49-2102-442066 Email: info-ger@asus.com.tw Technical Support: BBS: 49-2102-448690 Email: tsd-ger@asus.com.tw ASUS PCI-DA2100 User's Manual...

Page 4 How this manual is organized .....1 Item Checklist ..... 1 II. FEATURES .....2 Features of the ASUS Motherboard .....2 Parts of the ASUS Motherboard .....3 III. INSTALLATION .....4 Map of the ASUS Motherboard .....4 Installation Steps .....

Page 5 Save and Exit Setup .....47 Exit Without Saving .....47 V. DESKTOP MANAGEMENT .....49 Desktop Management Interface (DMI) .....49 Introducing the ASUS DMI Configuration Utility ....49 System Requirements .....49 Using the ASUS DMI Configuration Utility .....50 Notes: .....50 VI.

Page 6 Canadian Department of Communications Statement This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications. ASUS PCI-DA2100 User's Manual...

Page 7 1. Introduction 1. Introduction The ASUS PCI-DA2100 is a PCI to SCSI RAID controller specifically designed to provide RAID 0, 1, 3 or 5 capability to any host system equipped with Little Endian PCI Local Bus interface. All the RAID functions of ASUS PCI-DA2100 are per- formed by a 486 CPU coupled with high-speed DRAMs and firmware in Flash Memory.

Page 8 Uses 486 CPU with all executable firmware downloaded into high-speed DRAM. • BIOS INT 13 support. • Flash EEPROM for easy firmware and BIOS upgrading. • Up to 32 MBytes of intelligent Read-Ahead/Write-Back cache. • EDO RAM support for enhanced performance. ASUS PCI-DA2100 User's Manual...

Page 9 2. Features Layout of the ASUS DA-2100 SIMM Socket for Cache upgrade Non Volatile SRAM Fast & Wide SCSI Ch.0 Fast & Wide SCSI Ch.1 486 Processor ASUS PCI-DA2100 User's Manual...

Page 10 3. Hardware Installation 3.1. Layout of the ASUS DA-2100 Channel 0 Channel 1 Memory Expansion (72-Pin DRAM) Non Volatile SRAM 486DX2-66 FLASH ROM Central Processing Unit JP1, JP2: Factory use. Open for normal operation. JP6: LED Connector for Hard Disk Drive Activity light.

Page 11 3. Hardware Installation 3.2. Installing DRAM SIMM IMPORTANT: The ASUS PCI-DA2100 requires a minimum of 2 MBytes of DRAM in one SIMM (with or without parity function) installed in SIMM socket to operate. The controller is normally delivered without any DRAM installed.

Page 12 • SCSI nodes on the same channel have unique ID number. The SCSI ID 7 is reserved for the ASUS PCI-DA2100 adapter and thus no drives should use ID7. • Both ends of all SCSI cables are properly terminated. Disable the termination of channel-0 and enable the termination of channel-1 •...

Page 13 In the event of a disk failure, disk access will continue normally with the failure transparent to the host system. The ASUS PCI- DA2100 will announce a disk failure with a repeated two-beep sequence over the speaker on the ASUS PCI-DA2100.

Page 14 “Scan” in as a new drive and then assigned as a spare drive of the logical drive. Data rebuilding will have to be manually initiated as instructed in the following section. 4.3. Data Rebuilding Via Text RAID Manager Data rebuilding can be done through running RAIDMAN.EXE under DOS. ASUS PCI-DA2100 User’s Manual...

Page 15 Port: Show the I/O port base address been assigned to ASUS PCI-DA2100. IRQ: Show the Interrupt level been assigned to ASUS PCI-DA2100. The level is in deci- mal. EDO RAM DRAM: Displays the cache RAM type and size been installed on ASUS PCI-DA2100.

Page 16 IO Port Address 330 Press [Enter] to select the desired IO port address. NOTE: If you want to use the diskette-provided device driver, you MUST set the I/O port address to Disabled, otherwise the card will ignore this driver. ASUS PCI-DA2100 User’s Manual...

Page 17 * Maximum Tagged Command Queue. * SCSI Disconnect. * SCSI Parity. 5.1.4. Reset to Defaults If this option is selected, all the configurations are reset to the manufacture’s de- faults. 5.2. Color/Monochrome Switches display mode between color and monochrome. ASUS PCI-DA2100 User’s Manual...

Page 18 (This page was intentionally left blank) ASUS PCI-DA2100 User’s Manual...

Page 19 System is not stable after 1 SCSI cable is no more than 2 meters. running a period of time 2 Terminators are properly installed. 3 Power supply voltage is within the specifi- cation. ASUS PCI-DA2100 User’s Manual...

Page 20 68- pin High-Density female connector for external channel SCSI cabling Single-ended Voltage +5 Volts Current 2 Amp Operating Temperature 0˚ to 45˚ C Relative Humidity 10-96%, non-condensing Operating Altitude Sea level to 10,000 ft. Dimensions 6.87"(L) x 4.2(W) ASUS PCI-DA2100 User’s Manual...

Page 21 4, then, when prompted for a file name, enter the name of firmware file. 6 When file transfer is complete, please wait a moment while the ASUS PCI- DA2100 burns the code into its EEPROM-Flash.

Page 22 2 meters Between 90 Ω to 132 Ω • Impedance • Signal Attenuation 0.095 dB/meter @ 5 MHz (max.) • Pair-Pair Propagation Delay Delta 0.2 ns/meter (max.) 0.23 Ω/meter @ 20˚ C (max.) • DC Resistance ASUS PCI-DA2100 User’s Manual...

Page 23 Mirroring and Striping - Copy of the same data is recorded into two set of striping drives. In the event of failure, the duplicate set continues operation. Set 1 Set 2 Drive 0 Drive 1 Drive 0 Drive 1 ASUS PCI-DA2100 User’s Manual...

Page 24 T / 2 RAID 3 T x (n - 1) / n RAID 5 T x (n - 1) / n T = Sum of the capacity of all connected drives n = Number of connected drives ASUS PCI-DA2100 User’s Manual...

Page 25 PCI-DA2000 Series PCI to SCSI Disk Array Controller Driver Installation...

Page 26 (This page was intentionally left blank) ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 27 This manual describes both the software drivers and utilities for All of ASUS PCI to SCSI RAID controllers. The ASUS PCI-DA2000 Series Controller will represent following products: •...

Page 28 2. Text RAID Manager and RS-232 Terminal Interface Operation For ASUS PCI-DA2100, there are no RS-232 Port on the board. So, the RS-232 Terminal Interface Operation doesn’t support on the product. The Text RAID Manager utility “RAIDMAN.EXE” and RS-232 Terminal Interface Operation provides a user-friendly menu-driven system for configuring and manag- ing the ASUS PCI-DA2000 Series Controller.

Page 29 <Main Menu> Quick installation View and edit logical drives view And edit SCSI ID Map view And edit SCSI drives Scan new SCSI drive Rebuild logical drives view and Edit SCSI channels system Functions ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 30 RS-232 Terminal Interface Operation Under normal operation the screen displays the average throughput (256 KBytes/ sec per division). After powering up the ASUS PCI-DA2000 Series Controller, the terminal screen will show: ASUS PCI-DA2000 Series Disk Array is installed with 8 MBytes DRAM...

Page 31 To escape and go back to the preceding menu. [Ctrl-l] To refresh terminal screen. NOTE: If the password feature is enabled, you will be prompted to enter the password before executing commands that affect configuration or operation. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 32 NOTE: A “Logical Drive” is a set of drives grouped together to operate under a given RAID level and appears as a single contiguous drive. The ASUS PCI- DA2000 Series is capable of grouping connected drives into as many as 8 logi- cal drives, each configured to the same or different RAID levels.

Page 33 A progress indicator similar to the one shown below will be displayed. When initialization is complete, the controller will automati- cally map the entire capacity of the logical drive to SCSI ID 0 LUN 0. Creating RAID 87 % Complete ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 34 4 Choose a RAID level by typing 5, 3, 1, 0 or N or use the keys to select a RAID level and press [Enter]. 5 The controller will start initialization and automatically map the logical drive to SCSI ID 0 LUN 0 of first host channel. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 35 3 The screen will display the current Array configuration and status. Logical Drive RAID Size(MB) Status #OnLine #STB #Fail NAME RAID5 4032 MB GOOD NONE NONE NONE NONE press [Enter] to start the creation of a new Logical Drive. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 36 [Enter]. Slot Chl ID Size(MB) Speed LG_DRV Status Vendor and Product ID 2048 Seagate ST12400N 2048 Seagate ST12400N 2048 Seagate ST12400N 2048 Seagate ST12400N 2048 Seagate ST12400N ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 37 (section 2.4.2.4.) menu to do the partitioning. 11 When the Logical Drive is properly partitioned, go to “View and Edit scsi id Map” (section 2.5.) menu to map the Logical Drive Partitions to LUNs. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 38 2 A list of available drives will appear. Use the to select the drive and press [Enter]. 3 The screen will redisplay the logical drive information indicating a spare drive has been assigned. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 39 Press the [Enter] key and type the desired size for the selected partition followed by [Enter]. The remaining size will be allotted to the next partition as displayed. Partition Offset(MB) Size(MB) 2048 3 Repeat Step 2 for all the other partitions to be created. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 40 SCSI ID and press [Enter] 4 A list of LUNs and their respective mapping will be displayed similar to the following: LG_DRV Partition Size (MB) RAID 8192 RAID5 8192 RAID5 2048 RAID3 2048 RAID3 ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 41 LUN and type [Enter]. 6.1 At a prompt for confirmation similar to the following, type Y or use keys to select “Yes” and press [Enter]. Delete Host LUN? ASUS PCI-DA2000 Series RAID

Controllers Driver Installation...

Page 42 The screen will display all drives assigned to the logical drive. Slot ID Size(MB) Speed LG_DRV Status Vendor and Product ID 2048 SEAGATE ST12400N 2048 SEAGATE ST12400N 2048 SEAGATE ST12400N 2048 SEAGATE ST12400N 2048 SEAGATE ST12400N ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 43 SCSI channel where the new drive is installed and press [Enter]. SCSI Channel 4 Use the keys to select the SCSI ID number (only available IDs will be dis- played) of the new drive and press [Enter]. SCSI ID ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 44 Lg_Drv 0 Channel 1 ID 2 Failed Rebuild? 4 To initiate rebuilding, press Y or use the keys to select “Yes” and press [Enter]. 5 Step 4 will automatically repeat for any other logical drives that needs rebuild- ing. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 45 Wide transfer 2.9.1. SCSI ID 1 To change the SCSI ID, type I or use the keys to select “scsi ID” and press [Enter]. SCSI ID SCSI Termination Sync transfer clock Wide transfer ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 46 1 Type T or use the keys to select “scsi Termination” and press [Enter]. SCSI ID SCSI Termination Sync transfer clock Wide transfer 2 Type Y or use the to select “Yes” and press [Enter] to toggle the channel termination function. Disable Channel Terminator ? ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 47 2.9.4. Wide Transfer This function serves to enable or disable wide transfer for the SCSI bus. Note: This feature is not available on the ASUS PCI DA-2000. 1 Type W or use the keys to select “Wide transfer” and press [Enter].

Page 48 1 To disable the beeper setting Use the keys to select “Mute Beeper” and press [Enter]. 2 When the following prompt is displayed, type Y to confirm the change or use to select “Yes” and press [Enter] to disable beeper. Mute Beeper ? ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 49 Disable write back cache ? 2.10.3. SCSI Motor Spin Up This option determines whether or not the ASUS PCI-DA2000 Series sequences the drives to start spinning in succession at five second intervals. Enabling such se- quencing can help to prevent overloading the power supply when several drives spin up at the same time.

Page 50 This cannot be modified. 2.10.9. Serial Number The screen will show the controller serial number. This cannot be modified. 2.10.10. CPU Type The screen will show the CPU type. This cannot be modified. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 51 This function can be used to set up parameters used for modem operation. 2.10.13. Reset Controller This function can be used to reset the entire ASUS PCI-DA2000 Series. 1 Use the keys to select “Reset controller” and press [Enter]. 2 When the following prompt appears, type Y To confirm reset or use the select “Yes”...

Page 52 Firmware Enter File Name: For RS-232 Terminal Interface Operation, download operation has been selected, have the host communication program “send” the file containing the data to be downloaded using ZMODEM protocol. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 53 3. DOS ASPI Drivers Installation 3. DOS ASPI Drivers Installation The ASUS PCI-DA2000 Series can be used as a host adapter for SCSI tape drives and CD-ROM drives. To access such devices under DOS, it is necessary to install the ASUS PCI-DA2000 Series DOS ASPI Manager device driver.

Page 54 3. DOS ASPI Drivers Installation Example: If there is a subdirectory on the C:\DA2000 containing the ASUS PCI-DA2000 Series ASPI Manager Manager file I2DOSASP.SYS and CD-ROM Driver file ASPICDRM.SYS, a subdirectory on the C:\DOS containing the Microsoft CD- ROM extension program MSCDEX.EXE, and logical drives been assigned to Hard disk are C: and D:, then the following lines should be added to the CONFIG.SYS...

Page 55 SCSI ID. 3 Plug one or up to four ASUS PCI-DA2000’s Series into host PCI slots then

power on. ASUS PCI-DA2000 Series BIOS will show the following messages on the screen for each installed ASUS PCI-DA2000 Series: ASUS PCI-DA2000 Series (PCI-TO-SCSI RAID) BIOS v1.11...

Page 56 # load DA2000 slot = x x is the slot number of slot into which the ASUS PCI-DA2000 Series been plugged. The slot number is auto-detected by ASUS PCI-DA2000 Series driver and shown on the system console screen during ASUS PCI-DA2000 Series driver loading.

Page 57 ROM extension program “MSCDEX.EXE” are specified in DOS files CONFIG.SYS and AUTOEXEC.BAT. 5 Plug up to four ASUS PCI-DA2000 Series into host PCI slots then power on. ASUS PCI-DA2000 Series BIOS will show the following messages on the screen for each installed ASUS PCI-DA2000 Series: ASUS PCI-DA2000 Series (PCI-TO-SCSI RAID) BIOS v1.11...

Page 58 \NETWARE.40_____\LANDRV on the CD-ROM. Press <F3> to specify a different path; Press <Enter> to continue. Continue <Enter> Specify a different source drive/directory <F3> Help <F1> Previous screen <Esc> Abort INSTALL <ALT><F10> ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 59 Help <F1> Previous screen <Esc> Abort INSTALL <ALT><F10> 11 Insert the ASUS PCI-DA2000 Series Driver Diskette into floppy A: and type netware\v4.x and press [Enter] then wait for the following screen to appears: NetWare Server Installation v4.x NetWare loadable Module Select a new disk driver to install: DA2000.DSK...

Page 60 DA2000.DSK did not finish loading in the time allowed (15 seconds). Controller will be switched to the system console screen, where you may either see it finish or enter information to finish loading it. (INSTALL-4.0-247) Press <Enter> to continue. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 61 Slot: 11 The slot number (value) is auto-detected by ASUS PCI-DA2000 Series driver ac- cording to which PCI slot the ASUS PCI-DA2000 Series been plugged into. Write down the slot number for later using in STARTUP.NCF. 15 Press [Enter] on system console screen NetWare Server Installation v4.x...

Page 62 # load DA2000 slot = x x is the slot number of slot into which where the ASUS PCI-DA2000 Series been plugged. The slot number is auto-detected by ASUS PCI-DA2000 Series driver and shown on the system console screen during ASUS PCI-DA2000 Series driver loading.

Page 63 5. Windows NT Driver Installation 5. Windows NT Driver Installation Up to 4 ASUS PCI-DA2000 Series adapters can be installed in one computer. The following files are supplied for driver installation, to be found in the subdirectory \WINNT\V3_1 for Windows NT 3.1.

Page 64 ASUS PCI-DA2000 Series adapter installed for Windows NT, then follow step 1 through step 2 only. If you are adding an ASUS PCI-DA2000 Series adapter to a computer that has no ASUS PCI-DA2000 Series adapter installed for Windows NT, then follow all steps.

Page 65 5. Windows NT Driver Installation 3 Prepare for the installation by using DISKCOPY (or any other disk-copy utility) to make backup copy of ASUS PCI-DA2000 Series distribution diskette. If you are installing Windows NT 3.1, copy all files from \WINNT\V3_1 to root direc- tory of the backup diskette.

Page 66 Skip step 2 if the version of your Windows NT is not v3.1. 2 If one of the ASUS PCI-DA2000 Series adapters control the system boot disk, use ATTRIB.EXE to disable the hidden, system and read only attributes of c:\ntbootdd.sys, then copy the same driver to c:\ntbootdd.sys and restore the...

Page 67 [Ctrl-I], select Configure Card option, then change IO Port Address to DIS- ABLED. 2 Use ASUS Text RAID Manager or RS-232 Terminal Interface to configure Logi- cal Drives and SCSI Devices and map them to valid SCSI-IDs/LUNs. Note that SCSI ID 7 is reserved for the ASUS PCI-DA2000 Series controller and thus no logical drives or devices should be mapped to this SCSI ID.

Page 68 ASUS PCI-DA2000 Series family Miniport Driver to support ASUS GUI RAID Manager. Please select “Do not install a driver” , and click on “OK”. 16 Make sure that the ASUS PCI-DA2000 Series family Miniport Driver is work- ing properly by using Device Manager tab of

System icon in Control Panel.

Page 69 6 Click on the “Have Disk” button and enter a:\win95 as the subdirectory to copy the manufacturer’s file from. Click “OK”. 7 Select ASUS PCI-DA2000 Series PCI-to-SCSI RAID Adapter, and click on “OK”. 8 Click on “OK”. The driver is copied.

Page 70 7. OS/2 Driver Installation 7. OS/2 Driver Installation Up to 4 ASUS PCI-DA2000 Series controllers can be installed in one computer. The following files are supplied for driver installation, they are put in the \OS2 subdirectory. DA2000.ADD: ASUS PCI-DA2000 Series OS/2 2.x and 3.0 (Warp) Device Driver.

Page 71 If you are adding an ASUS PCI-DA2000 Series controller to a computer that al- ready has an ASUS PCI-DA2000 Series controller installed for OS/2 2.x/3.0, then follow step 1 through step 2 only. If you are adding an ASUS PCI-DA2000 Series controller to a computer that has no ASUS PCI-DA2000 Series controller installed for OS/2 2.x/3.0, then follow all steps.

Page 72 (Disable) Enable Embedded Target Support. Makes the driver (disable) enable not- zero SCSI LUN support. Default setting is /ET. /PCI:n Maximum PCI Bus Number in the computer. Where n is a decimal value between 0 to 255. Default value is 255. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 73 Normally, adapters are numbered consecutively, starting at 0. /BUS:n PCI Bus Number which ASUS PCI-DA2000 Series is plugged in. You can get the PCI bus number from the information that ASUS PCI-DA2000 Series BIOS dis- plays at system bootup.

Page 74 SCSI Target ID(LUN) of the adapter specified by /A:n, to be supported by the IBM- supplied SCSI manager (OS2SCSI.DMD). The default setting is /SM. Note : The driver will find all the ASUS PCI-DA2000 Series controller in your computer automatically, if no /BUS and /DEV options specified.

Page 75 [Ctrl-I], select Configure Card option, then change IO Port Address to DIS- ABLED. 2 Use ASUS Text RAID Manager or RS-232 Terminal Interface Operation to con- figure Logical Drives and SCSI Devices and map them to valid SCSI-IDs/LUNs. Note that SCSI ID 7 is reserved for the ASUS PCI-DA2000 Series controller and thus no logical drives or devices should be mapped to this SCSI ID.

Page 76 8 A message similar to the following will be displayed: Please insert the pcida volume and press <ENTER>: Insert the ASUS BTLD diskette again and press [ENTER] 9 At the following prompt, type “y”: The BTLD packages will now be added to the Link Kit.

Page 77 SCO UNIX system Please enter the names of the packages you wish to install or q to quit:_ [default:pcida] 11 The ASUS PCI-DA2000 Series driver will now be linked into the SCO UNIX kernel. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...

Page 78 Modem Control Set up modem parameters. Reset Controller Reset the controller Controller Maintenance Download/Upload controller Firmware through the Text RAID Manager. NOTE: RS-232 Terminal Operation is not available on the ASUS PCI DA-2100. ASUS PCI-DA2000 Series RAID Controllers Driver Installation...