Framing Control Software Installation Procedures

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Introduction

Framing Control Software is an application software that operates on Ubuntu 18.04LTS.

Using this software, settings for devices that configure 8K Multi camera system and crop control settings can be done.

This manual describes the installation procedures and setting methods of this software.

Operating Environment

Refer to our company's website (http://panasonic.biz/sav [Support and Download]) for the operating environment of this software.

About the Descriptions in this File

- The illustrations and screen displays in this file may be different from those in reality.
- In this file, a personal computer is mentioned as a "PC".

About Registration and Registered Trademarks

• All other names, company names, and product names are trademarks or registered trademarks of each company. TM and the ® mark are not specified in this manual.

To use this software, Ubuntu 18.04 LTS must be installed on your PC. Follow the steps below to install Ubuntu 18.04 LTS.

Downloading the Ubuntu 18.04 LTS

- 1. Download the Ubuntu 18.04.3 LTS installation image file from the official Ubuntu website (<u>https://www.ubuntu.com/download/desktop</u>).
- 2. Create the installation media by writing the downloaded installation image file to a USB memory or DVD.

Installing the Ubuntu 18.04 LTS

- * The displayed screen may vary depending on the PC environment.
- * Please install the file with the PC connected to the Internet.
 - 1. Insert the Ubuntu installation media into the PC and start the PC.
 - 2. The language selection screen will be displayed. Select any language.

The rest of this manual is written when English is selected.

	Language			
Amharic	Français	Македонски	Tamil	
Arabic	Gaeilge	Malayalam	ජිවාහා	
Asturianu	Galego	Marathi	Thai	
Беларуская	Gujarati	Burmese	Tagalog	
Български	עברית	Nepali	Türkçe	
Bengali	Hindi	Nederlands	Uyghur	
Tibetan	Hrvatski	Norsk bokmål	Українська	
Bosanski	Magyar	Norsk nynorsk	Tiếng Việt	
Català	Bahasa Indonesia	Punjabi(Gurmukhi)	中文(简体)	
Čeština	Íslenska	Polski	中文(繁體)	
Dansk	Italiano	Português do Brasil		
Deutsch	日本語	Português		
Dzongkha	ქართული	Română		
Ελληνικά	Қазақ	Русский		
English	Khmer	Sámegillii		
Esperanto	ಕನ್ನಡ	ະ ິ∘ທ⊚		
Español	한국어	Slovenčina		
Eesti	Kurdî	Slovenščina		
Euskara	Lao	Shqip		
ىسراف	Lietuviškai	Српски		
Suomi	Latviski	Svenska		
1 Help F2 Language F3	3 Keymap F4 Modes	F5 Accessibility F6 O	ther Options	

3. The operation selection screen will be displayed. Select "Install Ubuntu".



4. The language selection screen will be displayed again. Select any language and click the [Continue] button. The rest of this manual is written when English is selected.



5. The keyboard layout selection screen will be displayed. Select an arbitrary layout and click the [Continue] button.

	Wed 11:01	
	Install	
Keyboard layout		
English (Chana) English (Chana) English (Nigeria) English (South Africa) English (UK) English (UK) Esperanto Estonian Faroese Filipino Type here to test your keyboard Detect Keyboard Layout	English (US) English (US) - Cherokee English (US) - English (Colemak) English (US) - English (Dvorak) English (US) - English (Dvorak, alt. intl.) English (US) - English (Dvorak, intl., with dea English (US) - English (Dvorak, intl., with dea English (US) - English (Dvorak, intl., manded) English (US) - English (Dvorak, right-handed) English (US) - English (Macintoch)	ad keys))
	Quit	Back Continue
	• • • • • •	

6. The installation setting screen will be displayed. Select "Normal Installation" and click the [Continue] button.

	Wed 11:04		
	Install		
Undates and other software			
What apps would you like to install to start wi	ith?		
O Normal installation			
Web browser, utilities, office software, games, and med	dia players.		
O Minimal installation			
Web browser and basic utilities.			
other options			
Download updates while installing Ubuntu			
NOL AVAILABLE DECAUSE LITERE IS NO INCERNET CONNECTION.			
Install third-party software for graphics and W	/i-Fi hardware and additional m	edia formats	
This software is subject to license terms included with i	its documentation. Some is proprietary	у.	
		Ouit	Back Continue
		•	

7. The installation type selection screen will be displayed. Select "Erase disk and install Ubuntu" and click the [Install Now] button.

	Wed 11:07		
	Install		
Installation type			
This computer currently has no detected operating s	ystems. What would you like to do?		
 Erase disk and install Ubuntu Warning: This will delete all your programs, documents 	, photos, music, and any other files in all opera	ating systems.	
 Encrypt the new Ubuntu installation for securi You will choose a security key in the next step. 	ty		
 Use LVM with the new Ubuntu installation This will set up Logical Volume Management. It allows to 	aking snapshots and easier partition resizing.		
 Something else 			
You can create or resize partitions yourself, or choose r	nultiple partitions for Ubuntu.		
		Quit Back Insl	all Now

8. When the installation confirmation screen is displayed, click the [Continue] button.

	Wed 11:09			•1) () -
		▶		
	Install			ND.
Installation type				
This computer currently has no detected operating	g systems. What would you lil	ke to do?		
• Erase disk and install Ubuntu	ats abotas music and any other f	iles is all operating systems		
	Write the changes to d	lisks?	8	
If you continue, the changes listed below will b	e written to the disks. Other	wise, you will be able to ma	ke further changes manually.	
The partition tables of the following devices a SCSI3 (0,0,0) (sda)	re changed:			
The following partitions are going to be forma partition #1 of SCSI3 (0,0,0) (sda) as ext4	itted:			
			Go Back Continue	
			Back Install Now	
		•		

9. The time zone selection screen will be displayed. Select any time zone and click the [Continue] button.



10. The Ubuntu account settings screen will be displayed. Enter your account information and click the [Continue] button.

		Wed 07:13	
	k		
		Install	
Who are	you?		
	Your nam Your computer's nam Pick a usernam Choose a passwor Confirm your passwor	ne: The name it uses when it talks to other computers. ne:	
		••••	Back

11. If the following screen is displayed, Ubuntu 18.04.3 LTS installation is complete. Click the [Restart Now] button to restart your PC.



- 12. After restarting the PC, log in to Ubuntu and start the terminal.
- 13. Execute the following command from the terminal to update the Ubuntu software.

 $\$ sudo apt update

 $\$ sudo apt upgrade

14. Execute the following command from the terminal to install the software necessary for the operation of this software.

\$ sudo apt install libcurl4-openssl-dev gstreamer1.0-plugins-base gstreamer1.0-plugins-good gstreamer1.0-plugins-bad libpango1.0-dev v4l2loopback-dkms

15. Downgrade the kernel according to the contents of "Downgrading of Ubuntu kernel version" in the next section.

Downgrading of Ubuntu kernel version

Depending on your Ubuntu environment, the kernel version may be automatically updated to 5.x.x, but this software does not support kernel version 5.x.x.

In order to use this software, you need to downgrade the kernel version to 4.x.x with automatic update disabled.

Follow the steps below to disable automatic updates and downgrade the kernel.

- If you are prompted for an administrator password during operation, enter the administrator password.
- If a message confirming the continuation of processing is displayed during operation, enter Y to continue processing.
- 1. Connect your PC to the Internet.
- 2. Log in to Ubuntu and start the terminal.
- 3. Execute the following command in the terminal.

hwe-support-status

If the message "Your Hardware Enablement Stack (HWE) is supported until ..." is displayed as a result of executing the command, automatic updating is enabled. Proceed to step 3 and subsequent steps.

If no message is displayed, automatic updates are disabled. No further steps are required.

4. Execute the following command in the terminal.

sudo apt update

ubuntuuser@ubuntuuser-Virtual-Machine: ~	• • •
File Edit View Search Terminal Help	
ubuntuuser@ubuntuuser-Virtual-Machine:~\$ hwe-support-status Your Hardware Enablement Stack (HWE) is supported until 4月 2023. ubuntuuser@ubuntuuser-Virtual-Machine:~\$ sudo apt update [sudo] password for ubuntuuser: Hit:1 http://jp.archive.ubuntu.com/ubuntu bionic InRelease Hit:2 http://jp.archive.ubuntu.com/ubuntu bionic-updates InRelease Hit:3 http://jp.archive.ubuntu.com/ubuntu bionic-backports InRelease Hit:4 http://security.ubuntu.com/ubuntu bionic-security InRelease Reading package lists Done Building dependency tree Reading state information Done All packages are up to date. ubuntuuser@ubuntuuser-Virtual-Machine:~\$	

5. Execute the following command in the terminal.

sudo apt -y purge ubuntu-desktop xorg

ubuntuuser@ubuntuuser-Virtual-Machine: ~	- • •
File Edit View Search Terminal Help	
<pre>ubuntuuser@ubuntuuser-Virtual-Machine:~\$ sudo apt -y purge ubuntu-desktop x Reading package lists Done Building dependency tree</pre>	когд
Reading state information Done The following packages were automatically installed and are no longer requi acpi-support acpid adium-theme-ubuntu aisleriot alsa-base app-install-data-partner apturl apturl-common baobab bluez-cups branding-ubuntu brltty cheese dc deja-dup dmz-cursor-theme efibootmgr espeak-ng-data example-content file-roller fonts-freefont-ttf fonts-kacst fonts-kacst-one fonts-khmeros-core fonts-lao fonts-lklug-sinhala fonts-noto-cjk fonts-noto-color-emoji fonts-sil-abyssinica fonts-sil-pada	.red: : : ouk

6. Execute the following command in the terminal.

sudo apt install linux-generic

ubuntuuser@ubuntuuser-Virtual-Machine: ~	
File Edit View Search Terminal Help	
<pre>ubuntuuser@ubuntuuser-Virtual-Machine:~\$ sudo apt install linux-generic Reading package lists Done Building dependency tree Reading state information Done The following packages were automatically installed and are no longer requ acpi-support acpid adium-theme-ubuntu aisleriot alsa-base app-install-data-partner apturl apturl-common baobab bluez-cups branding-ubuntu brltty cheese dc deja-dup dmz-cursor-theme efibootmgr espeak-ng-data example-content file-roller fonts-freefont-ttf fonts-kacs fonts-kacst-one fonts-khmeros-core fonts-lao fonts-lklug-sinhala fonts-noto-cjk fonts-noto-color-emoji fonts-sil-abyssinica fonts-sil-pad fonts-thai-tlwg fonts-tibetan-machine fonts-tlwg-garuda</pre>	ired: t auk
fonts-tlwg-garuda-ttf fonts-tlwg-kinnari fonts-tlwg-kinnari-ttf	

7. Execute the following command in the terminal.

sudo apt purge linux-generic-hwe-18.04

ubuntuuser@ubuntuuser-Virtual-Machine: ~	- • •
File Edit View Search Terminal Help	
<pre>ubuntuuser@ubuntuuser-Virtual-Machine:~\$ sudo apt purge linux-generic-hwe-1 Reading package lists Done Building dependency tree Reading state information Done The following packages were automatically installed and are no longer requi acpi-support acpid adium-theme-ubuntu aisleriot alsa-base app-install-data-partner apturl apturl-common baobab bluez-cups branding-ubuntu brltty cheese dc deja-dup dmz-cursor-theme efibootmgr espeak-ng-data example-content file-roller fonts-freefont-ttf fonts-kacst fonts-kacst-one fonts-khmeros-core fonts-lao fonts-lklug-sinhala fonts-noto-cjk fonts-noto-color-emoji fonts-sil-abyssinica fonts-sil-pada</pre>	.red: .red:

8. Restart your PC.

9. After logging in to Ubuntu, start the terminal.

10. Execute the following command in the terminal.

sudo apt purge xserver-xorg-core-hwe-18.04 xserver-xorg-input-all-hwe-18.04 xserver-xorg-legacy-hwe-18.04 linux-headers-generic-hwe-18.04 linux-image-generic-hwe-18.04

ubuntuuser@ubuntuuser-Virtual-Machine: ~	000
File Edit View Search Terminal Help	
<pre>ubuntuuser@ubuntuuser-Virtual-Machine:~\$ sudo apt purge xserver-xorg-core .04 xserver-xorg-input-all-hwe-18.04 xserver-xorg-legacy-hwe-18.04 linux- -generic-hwe-18.04 linux-image-generic-hwe-18.04 [sudo] password for ubuntuuser: Reading package lists Done</pre>	-hwe-18 headers
Building dependency tree	
The following packages were automatically installed and are no longer req acpi-support acpid adium-theme-ubuntu aisleriot alsa-base app-install-data-partner apturl apturl-common baobab bluez-cups branding-ubuntu brltty cheese dc deja-dup dmz-cursor-theme efibootmgr	uired:

11. Execute the following command in the terminal.

sudo apt install xserver-xorg-core

				ubuntuuser@ubuntuuser-Virtual-Machine: ~	• • •
File	Edit	View	Search	Terminal Help	
ubunt Readi Builo Readi The f acp app bra	tuuse ing p ing s follo pi-su p-ins andir peak-	er@ubu backag deper state bwing upport stall ng-ubu	untuuse ge list inform packag t acpid -data-p untu br ata exa	er-Virtual-Machine:~\$ sudo apt install xserver-xorg-cor tree mation Done ges were automatically installed and are no longer requ d adium-theme-ubuntu aisleriot alsa-base partner apturl apturl-common baobab bluez-cups Titty cheese dc deja-dup dmz-cursor-theme efibootmgr ample-content file-roller fonts-freefont-ttf fonts-kacs	e ired: t

12. Execute the following command in the terminal.

sudo apt install ubuntu-desktop xserver-xorg xserver-xorg-video-all xserver-xorg-input-all libgl1-mesa-dri libgl1-mesa-glx

ubuntuuser@ubuntuuser-Virtual-Machine: ~	
File Edit View Search Terminal Help	
ubuntuuser@ubuntuuser-Virtual-Machine:~\$ sudo apt install ubuntu-desktop xs -xorg xserver-xorg-video-all xserver-xorg-input-all libgl1-mesa-dri libgl1 glx Reading package lists Done Building dependency tree Reading state information Done	server -mesa-
libgl1-mesa-dri is already the newest version (19.2.8-Oubuntu0~18.04.3). libgl1-mesa-dri set to manually installed. libgl1-mesa-glx is already the newest version (19.2.8-Oubuntu0~18.04.3).	

13. Execute the following command in the terminal.

sudo gedit /etc/default/grub

After executing the command, the editor screen opens. Change the following items in the editor (Items in the red frame in the figure below)

 $GRUB_TIMEOUT_STYLE=hidden \rightarrow GRUB_TIMEOUT_STYLE=menu$

 $GRUB_TIMEOUT=0 \rightarrow GRUB_TIMEOUT=10$

After changing the items, press the "Save" button at the top right of the editor to save the changes, then close the editor window with the X button.

Open 🕶 🖪	*grub /etc/default	Save	Ξ	
<pre># If you change this file # /boot/grub/grub.cfg. # For full documentation # info -f grub -n 'Simp</pre>	, run 'update-grub' afterwards to update of the options in this file, see: le configuration'			
GRUB_DEFAULT=0 GRUB_TIMEOUT_STYLE=menu GRUB_TIMEOUT=10 GRUB_DISTRIBUTOR=`lsb_rel GRUB_CMDLINE_LINUX_DEFAUL GRUB_CMDLINE_LINUX=""	ease -i -s 2> /dev/null echo Debian` T="quiet splash"			
<pre># Uncomment to enable Bad # This works with Linux (# the memory map informat #GRUB_BADRAM="0x01234567,</pre>	RAM filtering, modify to suit your needs no patch required) and with any kernel that obtains ion from GRUB (GNU Mach, kernel of FreeBSD) 0xfefefefe,0x89abcdef,0xefefefef"			
# Uncomment to disable gr #GRUB_TERMINAL=console	aphical terminal (grub-pc only)			
# The resolution used on # note that you can use o # you can see them in rea #GRUB_GFXMODE=640x480	graphical terminal nly modes which your graphic card supports via VBE l GRUB with the command `vbeinfo'			
# Uncomment if you don't #GRUB_DISABLE_LINUX_UUID=	want GRUB to pass "root=UUID=xxx" parameter to Linux true			
# Uncomment to disable ge #GRUB_DISABLE_RECOVERY="t	neration of recovery mode menu entries rue"			
# Uncomment to get a beep #GRUB_INIT_TUNE="480 440	at grub start 1"			

14. Execute the following command in the terminal.

sudo update-grub

15. Restart your PC.

16. After restarting the PC, the boot selection menu is displayed. Select "Advanced options for Ubuntu" and press the Enter key.

				GNU GF	RUB ve	rsion 2	.02				
Ubuntu											
*Advance	d option	ns for Ubu	ıntu								
Memory Memory	test (me test (me	emtest86+) emtest86+,	serial	console	115200)					
Use Pres for	the ↑ ar s enter a commar	nd ↓ keys to boot t nd-line.	to seleo he seleo	ct which cted OS,	entry `e' to	is high edit t	lighted he comma	ands bef	ore boot	ing or `	с'

17. An additional boot selection menu is displayed. Select "Ubuntu, with Linux 4.15.0-**-generic" and press the Enter key.

The value of ** varies depending on the environment. If there is more than one "Ubuntu, with Linux 4.15.0-**-generic", select the one with the highest ** value.

GNU GRUB version 2.02

- 18. After logging in to Ubuntu, start the terminal.
- 19. Execute the following command in the terminal.

sudo dpkg -l | grep -e linux-headers

After executing the command, a list of packages installed on the PC is displayed as shown below.

(The following list is an example. The packages displayed depend on the environment)

ii	linux-headers-4.15.0-88	4.15.0-88.88
ii	linux-headers-4.15.0-88-generic	4.15.0-88.88
ii	linux-headers-5.0.0-23	5.0.0- 23.24 ~ $18.04.1$
ii	linux-headers-5.0.0-23-generic	$5.0.0 \cdot 23.24 \sim 18.04.1$
ii	linux-headers-5.3.0-40	5.3.0-40.32~18.04.1
ii	linux-headers-5.3.0-40-generic	5.3.0-40.32~18.04.1

- ii linux-headers-generic
- 20. Execute the following command in the terminal to delete all the packages in the format of "linux-headers-5.x.x-xx" displayed in step 19.

sudo apt purge [package name in linux-headers-5.x.x-xx format]

- If there are multiple packages, list them with a space.
- Those with the suffix -generic do not need to be specified.

In the case of the display example in step 19, the command is as follows.

sudo apt purge linux-headers-5.0.0-23 linux-headers-5.3.0-40

21. Execute the following command in the terminal.

sudo dpkg -l | grep -e linux-image

After executing the command, a list of packages installed on the PC is displayed as shown below.

(The following list is an example. The packages displayed depend on the environment)

ii	linux-image-4.15.0-88-generic	4.15.0-88.88
ii	linux-image-5.0.0-23-generic	$5.0.0 \cdot 23.24 \sim 18.04.1$
ii	linux-image-5.3.0-40-generic	$5.3.0 - 40.32 \sim 18.04.1$
::	line survive a gran gran arris	

- ii linux-image-generic
- 22. Execute the following command in the terminal to delete all the packages in the format of "linux-image-5.x.x-xx-generic" displayed in step 21.

sudo apt purge [package name in linux-image-5.x.x-xx-generic format]

- If there are multiple packages, list them with a space.

In the case of the display example in step 21, the command is as follows.

sudo apt purge linux-image-5.0.0-23-generic linux-image-5.3.0-40-generic

23. Execute the following command in the terminal.

sudo dpkg -l | grep -e linux-modules

After executing the command, a list of packages installed on the PC is displayed as shown below.

(The following list is an example. The packages displayed depend on the environment.)

ii	linux-modules-4.15.0-88-generic	4.15.0-88.88
ii	linux-modules-5.0.0-23-generic	$5.0.0 \cdot 23.24 \sim 18.04.1$
ii	linux-modules-5.3.0-40-generic	5.3.0-40.32~18.04.1
ii	linux-modules-extra-4.15.0-88-generic	4.15.0-88.88
ii	linux-modules-extra-5.0.0-23-generic	$5.0.0-23.24\sim18.04.1$
ii	linux-modules-extra-5.3.0-40-generic	5.3.0-40.32~18.04.1

24. Execute the following command in the terminal to delete all the packages in the format of "linux-modules-5.x.x-xx-generic" or "linux-modules-extra-5.x.x-xx-generic" displayed in step 23.

sudo apt purge [package name in linux-modules-5.x.x-xx-generic format] [package name in linux-modules-extra-5.x.x-xx-generic format]

- If there are multiple packages, list them with a space.

In the case of the display example in step 23, the command is as follows.

sudo apt purge linux-modules-5.0.0-23-generic linux-modules-5.3.0-40-generic linux-modules-extra-5.3.0-40-generic

- 25. Restart your PC.
- 26. After logging in to Ubuntu, start the terminal.
- 27. Execute the following command in the terminal.

uname –r

If "4.xx.x-xx-generic" is displayed after executing the command, the kernel version downgrade has been completed successfully.

If "5.xx.x-xx-generic" is displayed, check again whether packages in 5.x.x-xx format have been completely deleted in steps 19 to 24.



28. Execute the following command in the terminal.

sudo gedit /etc/default/grub

After executing the command, the editor screen opens. Change the following items in the editor (Items in the red frame in the figure below)

 $GRUB_TIMEOUT_STYLE=menu \rightarrow GRUB_TIMEOUT_STYLE=hidden$

GRUB_TIMEOUT=10 \rightarrow GRUB_TIMEOUT=0

After changing the items, press the "Save" button at the top right of the editor to save the changes, then close the editor window with the X button.

Open ▼ *grub /etc/default	Save	
# If you change this file, run 'update-grub' afterwards to update # /boot/grub/grub.cfg. # For full documentation of the options in this file, see: # info -f grub -n 'Simple configuration'		
<u>GRUB_DEFAULT=0</u> GRUB_TIMEOUT_STYLE=hidden <u>GRUB_TIMEOUT=0</u> GRUB_DISTRIBUTOR=`lsb_release -i -s 2> /dev/null echo Debian` GRUB_CMDLINE_LINUX_DEFAULT="quiet splash" GRUB_CMDLINE_LINUX=""		
# Uncomment to enable BadRAM filtering, modify to suit your needs # This works with Linux (no patch required) and with any kernel that obtains # the memory map information from GRUB (GNU Mach, kernel of FreeBSD) #GRUB_BADRAM="0x01234567,0xfefefefe,0x89abcdef,0xefefefef"		
# Uncomment to disable graphical terminal (grub-pc only) #GRUB_TERMINAL=console		
# The resolution used on graphical terminal # note that you can use only modes which your graphic card supports via VBE # you can see them in real GRUB with the command `vbeinfo' #GRUB_GFXMODE=640x480		
# Uncomment if you don't want GRUB to pass "root=UUID=xxx" parameter to Linux #GRUB_DISABLE_LINUX_UUID=true		
# Uncomment to disable generation of recovery mode menu entries #GRUB_DISABLE_RECOVERY="true"		
# Uncomment to get a beep at grub start #GRUB_INIT_TUNE="480 440 1"		

29. Execute the following command in the terminal.

sudo update-grub

30. The kernel version downgrade process is complete.

Installing the software for Blackmagic Decklink

If you are using a Blackmagic Decklink capture board, follow the steps below to install the Desktop Video software.

- 1. Download the latest Desktop Video software from the BlackMagic support site (https://www.blackmagicdesign.com/support/).
- 2. Execute the following commands in order from the Ubuntu terminal.

*This command is an example when the version of the Desktop Video software downloaded in step 1 is 11.3. If the version of the Desktop Video software is different, replace the 11.3 part of the command accordingly.

\$ tar xvzf Blackmagic_Desktop_Video_Linux_11.3.tar.gz
\$ cd Blackmagic_Desktop_Video_Linux_11.3/deb/x86_64
\$ sudo dpkg -i *.deb
\$ BlackmagicFirmwareUpdaterGui

- Reference: BlackMagic board port number assignment
 - $\boldsymbol{\cdot} \ \mathrm{DeckLink} \ \mathrm{Duo} \ 2$



 ${\boldsymbol{\cdot}}$ DeckLink Quad 2



Installing the driver for Tally signal I / O board

If you are using a CONTEC DIO-3232B-PE board as a Tally signal input / output board, follow the steps below to install the driver software.

1. Go to CONTEC's support site and download the software with

"Linux version digital input and output driver API-DIO (LNX) development environment (full set) Ver. *. **."

 $\underline{https://www.contec.com/download/donwload-list/?itemid=df3d7b93-be43-423c-a4f5-70b778e}aaa41\#software$

* The software version number is entered in *. ** at the end of the software name. In this document, it is assumed that the software of Ver. 6.80 (file name lzf826diol_680F.tgz) has been downloaded.

2. Execute the following commands in order from the Ubuntu terminal.

*This command is an example when the file name of the software downloaded in step 1 is lzf826diol_680F.tgz. If the software file name is different, replace the command file name as appropriate and execute.

- $tar xvzf lzf826diol_680F.tgz$
- \$ cd contec/cdio
- \$ make
- \$ sudo make install
- 3. Execute the following commands in order from the terminal.

\$ cd config

\$ sudo ./config

After executing the command, a menu screen is displayed on the terminal.

If the board is recognized correctly, a device named DIO000 will be displayed on the menu as shown in the following image.

If the device is not displayed, check that the board connection is correct.

	guest@Gigabyt	e: ~/AK-SFC1	01/contec/cdio/config	● 🖲 😣
File Edit View Search Te	erminal Help			
<pre>cp amd64/config ./ make[1]: Leaving direc guest@Gigabyte:~/AK-SI guest@Gigabyte:~/AK-SI</pre>	tory '/home FC101/contec FC101/contec	/guest/AK-: /cdio\$ cd / /cdio/conf	SFC101/contec/cdio/confi config/ ig\$ sudo ./config	-g'
CONTEC API-DIO(LNX) CO	onfiguration			
Message : Auto detecti	ing devices.	-		
•				
Devices list				
DeviceName Produ	Jct Name	ID	IP/Master IP	Status
[1]:+ DIO000 DIO-3	3232B-PE	Θ		
[#]:Select device	[o]:List	sort	[r]:Redetect device	es list
[d]:Delete device	[a]:Add d	evice manua	ally	
Please select the devi	ice to set u	D.		
Please input >				

 $4. \quad In the menu screen of step 3, enter the S key and Enter key of the keyboard in order.$

A save confirmation message will be displayed.

Enter the Y key and Enter key on the keyboard in order to execute the save.

After saving, enter the Q key and Enter key on the keyboard in order to exit the menu screen.

- 5. Execute the following commands in order from the terminal.
 - $sudo cp -f contec_dio.conf /usr/local/etc/contec_dio.conf$
 - \$ sudo cp cdio.ko /lib/modules/`uname -r`/kernel/drivers/char/
 - $\$ sudo depmod

6. Execute the following command in the terminal.

 $\$ sudo gedit contec_dio_start.sh

After executing the command, the editor screen opens. Make the following changes in the editor.

Delete "cp -f contec_dio.conf /usr/local/etc/contec_dio.conf" line

Change "insmod cdio.ko" line to "modprobe cdio"

The screen after the change is as follows.

```
#! /bin/sh
modprobe cdio
major=`cat /proc/devices | awk '$2=="cdio" { print $1 }'`
mknod /dev/cdio000 c $major 0
cat /usr/local/etc/contec_dio.conf > /proc/contec_dio.conf
#end
```

After changing the items, press the "Save" button at the top right of the editor to save the changes, then close the editor window with the X button.

7. Execute the following command in the terminal.

\$ sudo cp contec_dio_start.sh contec_dio_stop.sh /usr/local/bin

8. Execute the following command in the terminal.

\$ sudo gedit /etc/systemd/system/contec-cdio.service

After executing the command, the editor screen opens. Add the following content in the editor.

[Unit] Description=Contec CDIO Before=framing-ctrl.service

[Service] ExecStart=/usr/local/bin/contec_dio_start.sh ExecStop=/usr/local/bin/contec_dio_stop.sh RemainAfterExit=yes Type=oneshot

[Install]

WantedBy=multi-user.target

The screen after adding the content is as follows.

```
[Unit]
Description=Contec CDIO
Before=framing-ctrl.service
```

```
[Service]
ExecStart=/usr/local/bin/contec_dio_start.sh
ExecStop=/usr/local/bin/contec_dio_stop.sh
RemainAfterExit=yes
Type=oneshot
```

[Install]
WantedBy=multi-user.target

After changing the items, press the "Save" button at the top right of the editor to save the changes, then close the editor window with the X button.

9. Execute the following commands in order from the terminal.

\$ sudo systemctl daemon-reload

\$ sudo systemctl enable contec-cdio.service

 $\$ sudo systemctl start contec-cdio.service

10. The driver software installation process is complete.

Installation of the Software

Install this software according to the operation described below.

Downloading the Software

- 1. Download this software from our website (http://panasonic.biz/sav "Support & Download").
- 2. Unzip the downloaded file to a suitable location.

Installing the Software

1. Open the unzipped folder of this software and double-click the FCSInstaller icon to start the installer. Click the [Next] button.

Framing Control Software Setup	8
Setup - Framing Control Software Installer	
Welcome to the Framing Control Software Installer Installation Wizard.	
Next > Quit	

* The installer may not be able to be executed due to execution permission problems.

In that case, grant execution authority according to the following procedure.

- 1. Right-click on the FCSInstaller icon and select Properties
- 2. Select the Permissions tag
- 3. Check the Execute checkbox
- Or execute the following command in the terminal.
- \$ chmod + x FCSInstaller

2. The installation folder setting screen for this software will be displayed. Click [Next].

Framing Control Software Setup	8
Installation Folder	
Please specify the directory where Framing Control Software will be installed.	
/usr/local/bin/FCSInstaller	Browse
<u>.</u>	v
< <u>B</u> ack <u>N</u> ext >	Cancel

3. The license agreement for this software will be displayed.

Check the contents, and if there are no problems, select "I accept the license" and click [Next].

n this agreemer	t before continuing with the	installation.	contained	
Software Lice	nse Agreement			
Panasonic Corp exclusive licens "Software") unc considered to h	pration (hereinafter referred e to use "Framing Control So er the following conditions. I ave agreed with the Softwar	to as "Panasonic") gra oftware" (hereinafter r By installing the Softw e License Agreement.	ants to you a non- eferred to as the are, you are	
Article 1 Rights				
You can obtain other rights bel	a license to use the Software ong to Panasonic or third par	e, but the patent right rties, and will not be t	s, copyrights, and all ransferred to you.	
Article 2 Comm	unication			
I accept the I	cense.			
I do not acce	ot the license.			

4. When the screen to start installation is displayed, click [Install].

Framing Control Soft	ware Setup	8
Ready 🔊 Install]
Setup is now ready to begin installing Framing Contr interrupt process, as interruption may corrupt existing the set of t	trol Software on your computer. Do not ing installation.	
9 <u></u>	< <u>B</u> ack Install Cancel	_

5. The following window will be displayed.

Enter the Ubuntu administrator account password to start the installation

	070	
	Authorization required 🛛 😣	
ow Details	Enter your password to authorize for sudo:	
	Cancel @OK	

6. When installation is complete, the following screen will be displayed. Click the [Finish] button to close the dialog.



7. This completes the software installation procedure.