

# **Photron FASTCAM Viewer**

**for High Speed Digital Imaging**

**Release Notes**  
**Ver. 4.0.6.0 E**

**Photron**

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## Chapter 1. Release Summary

## 1.1. PFV4 Release Notes

### 1.1.1. PFV Version

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- PFV Ver. 4.0.6.0
- SDK (PDCLIB.DLL) Ver. 4.0.0.0

### 1.1.2. Contents of the folder in DVD

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- PFV Setup64: PFV installer for 64bit Windows
- PFA: PFA (Photron FASTCAM Analysis) installer
- SDK: SDK components, documents, and samples
- LabVIEW and MATLAB: SDK for LabVIEW and MATLAB, documents, and samples
- Doc: Manuals of PFV, cameras, and others
- CheckerBoard: Image data of checkerboard for lens distortion correction
- ReleaseNotes: Release notes of PFV
- ReportSample: Sample data for Report output function
- Driver: Device drivers

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## Chapter 2. New Functions

## 2.1. PFV4.0.6.0 New Functions

### 2.1.1. New Camera Support

FASTCAM Nova S20 and FASTCAM Nova R5-4K are supported.

### 2.1.2. Additional Function

Common to the all modes		
Command / Modified Item		Fixed / Modified Item
[MENU]	[Configuration] – [Preference] – [Unit]	It is now possible to choose the angle display method between “0 to 360 degrees” and “-180 to 180 degrees” for Angle 1 and Angle 2 of [Measurements] menu. It is now also possible to select the direction of rotation.
	[Export support file]	Changed the encoding of the log file to UTF8.
		SDK-related logs are now output as support files.
[Monitors]	[Histogram]	Rectangle transformation is now available for histogram range selection. Rectangle movement and rectangle transformation can now be changed using the [Arrow] keys or [Shift]+[Arrow] keys.
[Assistance]	[S/W image trigger]	When closing the window, the plug-ins currently displayed in the Function Panel were automatically applied and closed, but it is now closed with an application confirmation message displayed.
[Special Effects]	[Lens Calibration]	The maximum input value for the length of a checkerboard used in the calibration has been extended from 99 mm to 999 mm.
Other	<p>In the following functions, it is now possible to use the [Arrow] keys to move a rectangle and the [Shift] + [Arrow] keys to transform a rectangle.</p> <ul style="list-style-type: none"> <li>• [Function panel] - [Trigger mode] - [H/W image trigger] in LIVE mode</li> <li>• [Function panel] - [Variable] - [Settings...] in LIVE mode</li> <li>• [Function panel] - [Lens control] - [AF] in LIVE mode</li> <li>• [Monitors] - [Brightness Change] in MEMORY and FILE mode</li> <li>• [Edit] - [Trimming] in MEMORY and FILE mode</li> <li>• [Assistance] - [S/W image trigger] in ALL modes</li> </ul>	

LIVE mode		
Command / Modified Item		Fixed / Modified Item
[Function panel]	[Trigger mode] – [Trigger parameters]	Added a trigger lock button for the Manual trigger series. When the number of recording frames changes due to changes in resolution, partitions, etc., the number or percentage of frames before and after the trigger input can be fixed.
	[Camera Controls] – [Save/Load camera control settings] – [Load]	When loading pcsx file, it is now possible to add the contents of pcsx file without changing the current camera list. In addition, a warning message is now displayed when a camera cannot be connected and restored.
	[Camera Controls] – [Save/Load camera control settings]	When Mini CX is connected, the preset number would be set to “1” when the window was reopened after saving / loading the camera settings, but it has been improved so that the preset number saved / loaded immediately before is initially selected.
	[Edit info] – [Edit Format & Size]	The display size of “Sync signal input state”, “Camera state”, and “Elapsed time” in the information display has been improved to be selectable from [Large], [Medium], and [Small]. The icon design of “Sync signal input state” and “Camera state” has also been changed.
	–	When multiple cameras are connected, some setting processes, such as frame rate setting and low light setting, are now parallelized. This is expected to improve processing speed.
[Add-ons]	[PFV4 Mobile]	Added the button to minimize the screen of PFV4 Mobile.
Other	Shortened the time it took to exit PFV4 in LIVE mode when using a multi-head camera.	

LIVE/MEMORY mode		
Command / Modified Item		Fixed / Modified Item
Other	In LIVE and MEMORY mode, the graph settings can now be retained and restored next time. The settings are also saved in the CIHX file, so they will be restored when the file is opened.	

MEMORY mode		
Fixed / Modified Item		
The GRAW format has been added to the data storage format, allowing for faster downloading of recording data from cameras with 10GbE connection.		

MEMORY/FILE mode		
Command / Modified Item		Fixed / Modified Item
[Special Effects]	[Stabilization]	The [Arrow] keys can now be used to move the origin while dragging it with the Stabilization function.
[Save]	–	The “Create group folder” checkbox can now be selectable even when there is only one camera.



FILE mode		
Command / Modified Item		Fixed / Modified Item
[Report output]	–	By checking the [Playback frame rate] checkbox, you can now select a file to be used as the reference for report output. This makes it possible to output files with different frame rates synchronized in time.
[Open]	–	Files can now be opened correctly even if the file path uses a language different from the OS locale.

Other		
Command / Modified Item		Fixed / Modified Item
[MENU]	[Configuration] – [Connection] – [Ethernet settings]	<p>Ethernet settings can now be configured individually.</p> <p>In addition, packet size / packet count is now selectable for easier selection.</p> <p>The packet interval mode has been changed from 1 to 19 to selectable packet size and packet count settings, and the notation of packet interval mode has been changed.</p> <p>The packet count can now be set to a maximum of 1024 (for some models only).</p> <p>Improved the flow of communication optimization.</p> <p>Optimization function has been improved as follows;</p> <ul style="list-style-type: none"> <li>• Packet interval mode is also optimized.</li> <li>• Optimization can be performed even when 1GbE / 10GbE cameras are connected in a mixed configuration.</li> </ul>
Other	Support for Windows 11.	
	Removed the 32-bit PFV4 installer.	
	Significantly reduced the amount of memory used when connecting cameras.	
	Faster camera connection when connecting Nova and MH6 for the second times or later.	
	When a packet loss occurred due to unstable communication, the communication was lost for 5 seconds, but it is now restored quickly.	
	Live image update for multiple cameras has been made faster by acquiring images in parallel depending on the device configuration.	
	Shortened the connection time when adding a camera while there are already cameras connected.	
	When SA-Z or SA-X2 is connected to two ports for downloading, it used to use both ports for parallel transfer, but since PFV4.0.6.0, it always uses single port for transfer. In the case of read-ahead parallel transfer, the transfer on a single port is faster than the transfer on two ports.	
	In the PFV4 installation wizard, the checkbox for installing PFA trial version has been changed to unchecked by default.	
Improved the message when powering off or rebooting the camera from Camera Controls.		

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## Chapter 3. Bug Fix and Other Changes

## 3.1. PFV4.0.6.0 Fixed Bugs and Changes

Common to the all modes		
Command / Modified Item		Fixed / Modified Item
[MENU]	[Configuration] – [Save] – [After saving file]	When downloading divided MRAW files, if the “Add to file list automatically” checkbox was checked, each divided file would be added to the file list. This bug is fixed.
[Dimensions]	–	When the zoom window of [Dimensions] was displayed with the screen rotated from [Quick Tools], the inside of the zoom window was not rotated. This bug is fixed.
[Special Effects]	[Lens Calibration]	When opening the plug-in again after executing up to the shutter count limit (100), the message “Processing” was displayed. This bug is fixed.
Other	The shortcut keys [Ctrl]+[Z] (undo) and [Ctrl]+[Y] (redo) did not work properly in some plug-ins that have Undo / Redo buttons. This bug is fixed.	
	If the mode was switched immediately after the camera connection was disconnected by unplugging the LAN cable, PFV4 crashed. This bug is fixed.	

LIVE mode		
Command / Modified Item		Fixed / Modified Item
[MENU]	[Configuration] - [Record] - [Partition]	When non-partitionable and supported cameras were mixed, partitioning became inactive when both cameras were selected. When non-partitioning compatible and supported cameras were mixed, partitioning would not be activated even when only the supported camera was selected. These bugs are fixed.
	[Configuration] - [Record]	When the device selection was switched from “Camera 1” to “All”, etc., the partition setting area might appear even on models that did not support partitioning. This bug is fixed.
	[Configuration] - [Image Quality]	After connecting Nova or MH6 and checking the “Apply software pixel gain” checkbox, the brightness of the camera became darker when connected to another PC. This bug is fixed.
[Function panel]	[Camera Controls] - [Save/Load camera control settings]	When using [Save] or [Load], the file could not be opened if double-low line “_” was used for the file path. This bug is fixed.
	[Camera Controls] - [Camera list]	The IP address, subnet mask, and gateway of the camera could not be changed at once from the [Edit] - [Edit Camera Info] window. This bug is fixed.
	[Shutter speed]	When Nova was connected, during external synchronization, when the shutter speed was displayed in “seconds”, each shutter value in the shutter speed list was incorrect. This bug is fixed.
	[Lens controls]	In the Auto Focus setting, if the resolution was changed after selecting the range, the range selection was set outside the image. This bug is fixed.
When selecting a rectangle, if the image was inverted, the mouse cursor was also inverted. This bug is fixed.		

LIVE mode		
Command / Modified Item		Fixed / Modified Item
[Function panel]	[Low light]	When there was a camera (head) of the same model and IP in the camera list, low light could not be used when a camera (head) of the same model and IP but with different color/monochrome was connected. This bug is fixed.
	[Variable]	When displaying the Variable Settings screen during external synchronization, PFV4 might crash. This bug is fixed.
	[Camera Controls] – [Save/Load camera control settings] – [Load]	Nova has a limitation that SYNC and TRIG signal setting cannot be set to both “Input 1” and “Input 2” at the same time. When loading a pcsx file, depending on the settings, the same signal settings could be applied to “Input 1” and “Input 2”, causing an error. The problem has been fixed so that changing the other port in advance and apply it successfully.
[Assistance]	[Synchronization Assistance]	The [Set] button did not blink red after changing the trigger polarity, Camera Hub sync signal, frequency, etc. This bug is fixed.
[Add-ons]	[DAQ Control]	If you closed the window after setting the synchronization and clicked the [Cancel] button in the synchronization confirmation message, it should return to the synchronization setting screen, but the synchronization setting screen would close as if you had clicked the [No] button. This bug is fixed.
		When using GRAPHTEC's DAQ, regardless of the “Level trigger” setting mode (Level Up/Down) in the [DAQ Device Configuration] window, the trigger was applied if the voltage was above (below) the specified voltage when it was in the trigger waiting state. This bug is fixed.
	[PFV4 Mobile] – [Side Panel (Right)]	Lens aperture adjustment could not be fine-tuned when using a remote lens with PFV4 Mobile. This bug is fixed.
		When the Auto Focus screen was closed by clicking the [Cancel] button on PFV4 Mobile, the rectangle position was shifted. This bug is fixed.
[Record]	–	The number of recordings in the Recording/playback panel became abnormal when Nova was connected and recording with Random Manual trigger, cancelling in the middle, and then switching to MEMORY mode. This bug is fixed.

LIVE mode	
Fixed / Modified Item	
Other	The Playback slide bar was not displayed correctly in LIVE mode on rare occasions. This bug is fixed.
	When executing [Rotate image] from [Quick Tool] and a rectangle is selected in [Auto Focus (AF)] from [Function Panel] or [S/W image trigger] from [Assistance], [W] and [H] of the plug-in did not follow. This bug is fixed.
	Auto Focus function did not work with some versions of Nova. When an error occurred during autofocusing, such as the lens not moving, control was lost and PFV4 froze. These bugs are fixed.
	After phase readjustment with MH6, the warning remained on for about 3 seconds. This bug is fixed.
	When Mini CX was connected, if the recording button was clicked to record frames after the trigger input while all frames before the trigger input had not been recorded, switching to MEMORY mode once, returning to LIVE mode and changed the trigger mode, the number of recorded frames was not displayed correctly on rare occasions. This bug is fixed.
	When Mini CX was connected, the recording data downloading process might take a long time during the Temperature data downloading phase at the end of the process. This bug is fixed.

MEMORY mode	
Command / Modified Item	Fixed / Modified Item
[Save]	When Mini CX was connected and the number of recordings was extremely small, an error may occur when downloading to a CFast card. This bug is fixed.
	If the [Cancel] button is clicked immediately when the camera was disconnected during downloading, PFV4 crashed. This bug is fixed.
Other	When the “Batch auto save after recording all the partitions function” was enabled, if the batch downloading was executed while there were unrecorded partitions, the downloading would fail. This bug is fixed.
	When Mini CX is connected and hardware auto data save is enabled, recording was canceled in “Ready” state and after clicking the [Cancel] button in the Auto Save progress window, the camera went back to “Ready” state. This bug is fixed.
	When using a multi-head camera, clicking the [Save] button during playing back the recorded data did not stop playback. This bug is fixed.

MEMORY/FILE mode		
Command / Modified Item		Fixed / Modified Item
[Quick Tools]	[Tile windows]	The [Tile windows] button was not activated when there was only one view window, so when multiple graph windows were displayed, etc., they could not be aligned. This bug is fixed.
[Assistance]	[S/W image trigger]	During background acquisition by selecting specific area in MEMORY or FILE mode, background acquisition would start when the selected area was moved. This bug is fixed.
[Special Effects]	[Stabilization]	When you use keyboard shortcut keys to move the origin, you can move the origin to outside of the image. This bug is fixed.
		If a rectangle was moved with the keyboard shortcut while the image was rotated or flipped, it would move in the opposite direction of the key operation. This bug is fixed.
[Graph]	[Graph Settings]	The number of decimal places displayed for the minimum and maximum XY axis values were different in the graph window and graph settings screen. This bug is fixed.
	[Graph Settings] – [Channel]	When multiple channels were selected and channel names were changed, only the last channel name was changed. This bug is fixed.
	[Graph Settings] – [Export]	When exporting waveform data to CSV, data from the upper channels (e.g. CH1 and CH2) were output even if channels were specified in “Source” as CH3 and CH4. This bug is fixed.
[Save]	–	When downloading to FAST Drive, the [Apply] button on the Save window was not activated after editing the save file name. This bug is fixed.
	[Layout save]	When switching to FILE mode after the layout save, PFV4 crashed. This bug is fixed. When downloading the data in uncompressed AVI format, there was an error in the correction when the output resolution was not a multiple of 4, and the file might be downloaded in a resolution that could not be played by Windows Media Player, etc. This bug is fixed.
[Recording/ playback panel]	–	When the virtual trigger function was enabled and the camera (file) was switched to another camera (file) and the original camera (file) was selected again, the marker display of the trigger position becomes that of the other camera (file). This bug is fixed.
	–	The current frame did not move to the 0 position even if “Start Frame” or “End Frame” was changed. This bug is fixed.
Other	When playing back recorded data with graph open, the current frame in the information display was not displayed correctly on rare occasions. This bug is fixed.	

FILE mode		
Command / Modified Item		Fixed / Modified Item
[Function panel]	[File list]	Opening an INF file without grouping and then right-clicking to group it did not show the grouping menu. This bug is fixed.
[Batch converter]	–	After selecting [Folder], selecting another storage device (SD Card, FAST Drive, or CFast), and then selecting [Folder] again, the [Delete files] button was not activated. This bug is fixed.
[Save]	–	When attempting to synchronize playback by attaching a CSV to a skipped saved image, a warning was displayed even though the image was actually an integer multiple of the CSV frequency, because the CSV frequency was synchronized with the frame rate before the skipping process. This bug is fixed.
[Report output]	–	When the skip save unit was set to “frames” and changed to “msec”, if it was less than 0 msec or less, clicking the spinner (▲/▼) button resulted in an irregular value (NaN). This bug is fixed.
	–	Previous setting value of skip setting (msec) was not restored. This bug is fixed.
[Recording/playback panel]	[Sync]	In time-synchronized playback, time synchronization might not be accurate due to floating-point rounding errors. This bug is fixed.
Other		After executing hardware auto data save, if the trigger mode was changed to another mode and hardware auto data save was performed again, the denominator in the downloading progress screen would be the number of trigger frames from the previous recording, even though the downloading data was successful. This bug is fixed.
		After switching to FILE mode with a camera connected, disconnecting the camera and switching to LIVE mode, the view window remained without disappearing. This bug is fixed.
		When communication with the camera was lost and disconnected just before switching from [MEMORY] mode to [LIVE] mode, live images would not be displayed even after searching and connecting again. This bug is fixed.
		It was possible to delete a camera from the camera list while “Record while saving” was running. This bug is fixed.
		In the PFV4 installation wizard, if you checked the PFA installation checkbox and then click the [No] button on the message that asked if you want to configure the network settings, the PFA installation did not run. This bug is fixed.
		When closing PFV4 during recording, the message “Closing PFV...” would continue to be displayed, and PFV4 would not be closed. This bug is fixed.
		When an error occurred during camera shutdown when exiting PFV4, the camera information was not overwritten and the changed camera name, etc. were not retained. This bug is fixed.
		Tooltips no longer disappeared when changing modes with keyboard shortcuts while tooltips were displayed. This bug is fixed.

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## Chapter 4. The Contents of SDK



## 4.1. The Contents of SDK

### 4.1.1. New Camera Support

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FASTCAM Nova S20 and FASTCAM Nova R5-4K are supported.

### 4.1.2. Additional Function / Improvement

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- Unnecessary DLLs have been removed.

- D1024PCI.dll
- D512PCI.dll
- D8605P.dll
- DAPX.dll
- DAPXRS.dll
- DBC2.dll
- DDVR.dll
- DFDMCL.dll
- DIDPEX.dll
- DMH6.dll
- DNOVAR2.dll
- DNOVAS12.dll
- DNOVAS16.dll
- DNOVAS6.dll
- DNOVAS9.dll
- DPI5.dll
- DSP8.dll
- DUL512.dll
- DUT.dll
- DVIRTUAL.dll
- GEthLib.dll
- I1394.dll
- IOPTICAL.dll
- IPCI.dll

- Added DLL

LPDCLIB.dll

- Changed DLL name

DSA1.dll to DSA\_1.dll

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