Photron FASTCAM Analysis

for Image Analysis

Release Notes
Ver. 2.1.0.0 E

Photron

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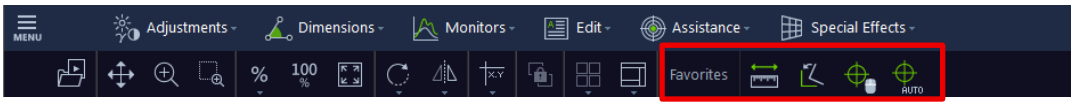
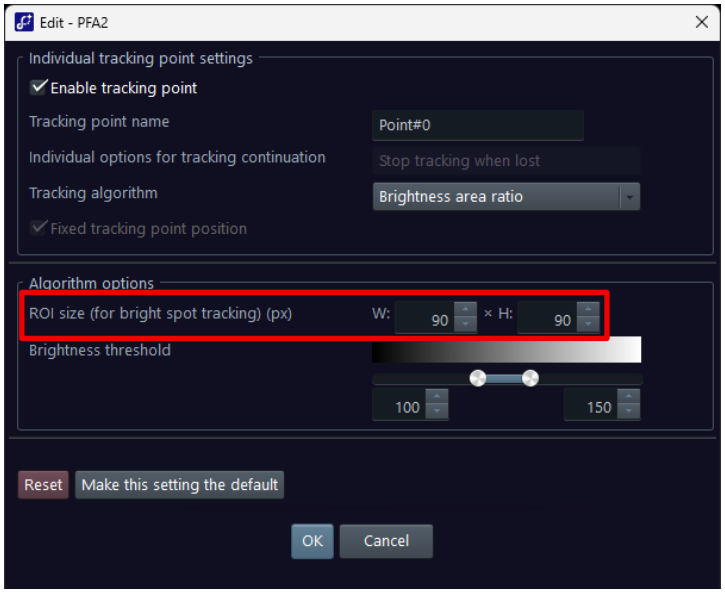
2.1. PFA Ver. 2.1.0.0 New Functions

2.1.1. Additional Functions

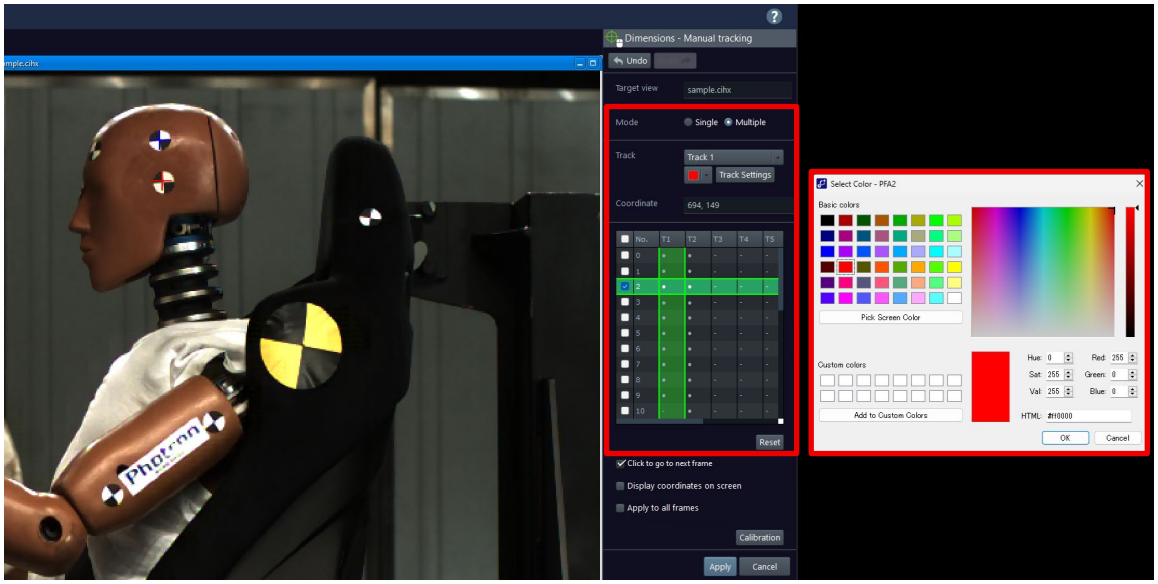
- Supports data recorded with FASTCAM Mini W5 / W2 and FASTCAM Orion S40.
- Added integration with the high-speed camera control software "PFV4 (Photron FASTCAM Viewer 4)" to facilitate smooth data analysis after high-speed camera recording.
  - ➢ Supported PFV4 version: PFV4.7.0.0 or later
- Added "Chinese" as an operating language.
  Settings: Select "Chinese" for the operating language under [MENU] - [Configuration] - [Display], then restart PFA2.
- You can now register frequently used functions as Favorites on the Quick Tools.
  This allows quick access and improves usability.



- Improved to display a message prompting for frame rate input when loading data without frame rate information. If frame rate is not entered upon loading, the message will reappear before graph generation.
- Improved to allow adjustment of tracking points on the image while the tracking point edit window is open. This enables moving and resizing tracking points on-screen while adjusting algorithm settings in the editing screen.
- Improved the automatic tracking feature to allow flexible setting of the ROI range for the luminance area ratio, moving beyond a fixed square shape.

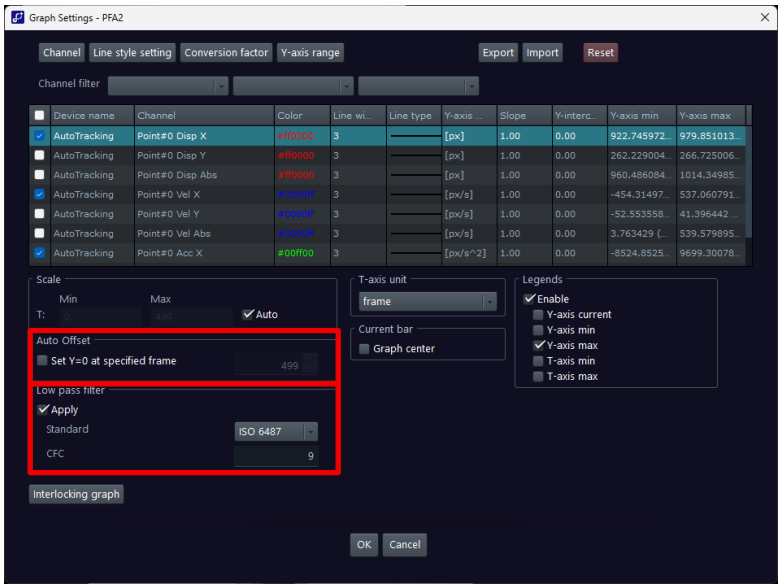


- Improved manual tracking functionality.
  - ➢ Changed the maximum number of tracking points from 10 to unlimited.
  - ➢ Changed the specification from allowing only one tracking point per frame to allowing multiple tracking points.
  - ➢ Changed the method for selecting tracking point colors from a choice of 10 colors to a more flexible configuration method.



- Added a feature to offset the Y-axis of XT graphs and composite graphs to zero at a user-specified frame. This allows graphs to be displayed at an optimal scale, eliminating the need for manual adjustments.

- Added a low-pass filter which cuts out minute value changes over short periods to graph settings.
  Low-pass filter method: CFC (Channel Frequency Class) filter
  Standards: ISO 6487, SAE J211



- The issue where opening a large number of files via Batch converter function caused delays in displaying the list has been fixed. This significantly improves processing speed when opening files, reducing the time per file from approximately 180 milliseconds to about 1 millisecond.

- [Adjustments] - [Color Correction]
  A histogram display has been added to the auto white balance adjustment function for checking brightness distribution. This allows you to work while confirming the brightness distribution within the specified range during adjustment.

- [Edit] - [Trimming]
  It is now possible to specify the range in multiple areas (up to 10).

- [Edit] - [Trimming]
  The Save Range Trimming settings window now allows you to specify a Zoom ratio for each cropping area.
  Even when multiple trimming ranges are set, you can individually configure the Zoom ratio (10%, 25%, 50%, 100%, 150%, 200%) for each range.
  This enables you to complete both trimming and Zoom ratio adjustments within a single window, improving workflow efficiency.

- Improved playback slider bar operability.
  PFA2.0.0.0: Dragging and dropping the current frame cursor on the playback slider bar during playback resumes playback from the new position.
  To stop playback at a specific frame, you must press the stop button.
  PFA2.1.0.0 and later: Dragging and dropping the current frame cursor on the playback slider bar during playback stops playback at the new position.
  This allows for more intuitive and faster operation when you want to check a specific frame during playback.

- Added a [Snapshot] button to the Snapshot Settings window to allow direct snapshot capture.
  This enables you to capture a snapshot directly from that window after configuring settings like the save destination and format.

- [Layout save]
  It is now possible to save information for images after stitching.

- [Layout save]
  Changed the settings to display a confirmation message when the horizontal resolution after merging is 5,000 pixels or more.
  Please note that we have confirmed a bug where the image cannot be saved properly when using an Intel integrated GPU and the horizontal resolution after merging is 5,464 pixels or more.

- [Layout save]
  When setting the layout area, a guideline (dashed line) indicating the maximum resolution is now displayed.
  - Recommended maximum resolution savable using GPU (5,000 x 5,000 pixels)
  - Maximum resolution savable (8,196 x 8,196 pixels)

- [Save] - [Report output]
  When outputting reports to Word, Excel, or PowerPoint, you can now easily insert the image of the currently displayed frame.
  The specification has been changed so that if no frame number is specified in the report output template, the currently playing frame (current frame) is automatically inserted. You can pause playback and review at the desired frame, then insert the image into the report with a single click.

- Changed so that the settings for normal saving and layout saving, which were previously shared, can now be applied separately with different formats, save locations, and other settings.

- Improved usability of the multiple save path settings window.
  Previously, attempting to change one path in the list of multiple save paths could unintentionally change other selected paths as well.
  This update fixes that issue so only the clicked path is modified. This makes adjusting individual path settings easier. Note that the functionality to modify multiple paths simultaneously by holding down the [Control] key while clicking remains unchanged.

- When deleting a save path currently in use by the camera in the Edit multiple save path window, the target row will now be highlighted simultaneously with the display of the error message.

- The default settings for the save window have been changed as follows.
  - “Include Add information” for editing group folder name: Off
  - “Include Add information” for editing subfolder name: Off
  - “Add sequence number” for editing file name: Off

- You can now choose whether to draw the cross cursor in the save settings.
  PFA2.0.0.0: When saving with “Apply Image Processing” enabled, the displayed cross cursor is embedded into the image. If you only want to use the cross cursor as an alignment reference, the cursor may unintentionally remain in the image.
  PFA2.1.0.0 and later: Added an "Include cross cursor display" checkbox in [Configuration] - [Save] (default is off).

- When saving in AVI format (.avi) using the H.264 codec, it was unintentionally saved with a variable frame rate (VFR). Other formats (MP4, MOV) saved with a constant frame rate (CFR), meaning the specification differed depending on the file format.
  This has been fixed so that when saving in AVI format, it also saves with a constant frame rate (CFR).

- [Quick Tools]
  The behavior when clicking on “Rotate” and “Invert” has been changed as follows.
  - Rotate: Click to rotate the image 90° to the right. Hover over the mouse cursor to specify the amount of rotation (90°, 180°, 270°).
  - Invert: The image will flip each time you click (“horizontal flip” to “vertical flip” to “horizontal&vertical flip” to “cancel flip”). Hover over the mouse cursor to specify the type of flip (horizontal flip, vertical flip, horizontal&vertical flip).

- The shortcut keys for [Ctrl] + [C] have been changed as follows.
  - When text is selected: Copy text
  - When the view window is clicked and selected: Snapshot

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Chapter 3 Bug Fix and Other Changes

3.1. PFA Ver. 2.1.0.0 Fixed Bugs and Changes

3.1.1. Improved Functions / Fixed Bugs

- Changed the sample color (black) for graph line for the Dark UI mode to a color (white) that can be distinguished from the background color in the Line Style Settings window.

- Modified the CodeMeter license screen to distinguish between PFA (Photron FASTCAM Analysis) and PFA2 (Photron FASTCAM Analysis 2).

- The center position for zooming in and out using the mouse wheel has been changed to “mouse position”.

- Fixed the following issues with origin position tracking in [Special Effects] - [Stabilization].
  - Performing mouse operations during tracking prevents tracking from ending.
  - Even if tracking fails, it may not end and become unresponsive.

- Changed the track number in CSV output for manual tracking results to “one-based” (starting from 1).

- Removed the “▲” from the No. column in the tracking list of the auto-tracking feature.

- Fixed an issue where the list display would jump to the top item when the auto-tracking feature’s tracking list was updated (e.g., adding or removing tracking points).

- Fixed an issue where the reference frame for velocity and acceleration calculations was incorrect when the graph filter length setting was “2”.
  Incorrect: Referenced values from “Current Frame” and “Current Frame +1”
  Correct: Referenced values from “Current Frame” and “Current Frame -1”

- Added a high-pass filter to the frequency analysis (FFT analysis) to prevent the analysis results from peaking at 0Hz.

- [Adjustments] - [HDR]
  When applying the HDR feature the image became excessively bright. This bug is fixed.

- Even if the image was rotated or flipped, the coordinate values of the output waveform data would be the same as before rotation or flipping. This bug is fixed.

- When displaying “Info save” items at the top or bottom, the position would be offset even if the center alignment setting was applied. This bug is fixed.

- [Dimensions] - [Calibration]
  When “By camera” - “Manual” was selected for an image file (other than a CIHX file) that does not have device information, the scale value would be displayed as a negative number. This bug is fixed.

- [Dimensions] - [Calibration]
  Rotating or flipping an image might cause the grid lines to disappear. This bug is fixed.

- [Dimensions] - [Measurements]
  When creating a circle with overlapping centers using “Two circles” measurement, the measurement result might be expressed as an exponent rather than “0”. This bug is fixed.

- [Dimensions] - [Measurements]
  When measuring from [Dimensions] - [Measurements] with the binning function enabled, the binning setting would not be applied to the measurement results displayed in the information display. This bug is fixed.

- [Dimensions] - [Manual tracking]
  The following operations would delete the last tracking point in the tracking point list. This bug is fixed.
  1. Add two or more tracking points from [Dimensions] - [Manual tracking].
  2. Select two or more tracking points in the checklist in the tracking point list.
  3. Click the [Color change] button and click the [OK] button without selecting a color.
  4. Click the [OK] button in the displayed error message.

- [Measurements] - [Manual tracking]
  When tracking points were not set continuously, the line on the graph might be missing. This bug is fixed.

- [Special Effects] - [Stabilization]
  The size of the tracking template for the stabilization display could not be changed without dragging the template location before binning was applied. This bug is fixed.
  1. Apply the binning function and then disable it from the effect status bar icon.
  2. Add tracking points from [Special Effects] - [Stabilization].
  3. Enable the binning function from the effect status bar icon.

- When performing the following operations with the binning function enabled, the cursor would not change, and the size of the shape could not be resized. This bug is fixed.
  1. Display a shape on the image using the following menu.
  - Histogram
  - Trimming
  - Color Adjustment (ROI for auto white balance adjustment)
  - Software Image Trigger
  2. Set the zoom rate to 501% or higher from the Quick Tools.
  3. Hover the mouse at the right or bottom edge of the shape.

- The following operations would prevent data from playing. This bug is fixed.
  1. Uncheck “Repeat” and check “Skip” in the play mode.
  2. Set the current frame as the start frame.
  3. Click the [Forward 1 frame] button once.
  4. Click the [Reverse play] button.

- With the snapshot settings as follows, the brightness of the snapshot image would be higher than the original image. This bug is fixed.
  - Save format: TIFF or PNG
  - Bit depth: 16bit
  - Bit position: Higher

- Graph drawing took a long time for data with many samples, causing the PFA2 to become unresponsive. This bug is fixed. Graph drawing speed has been improved.

- When performing the following settings on the save window, even if you had changed the resolution using the binning function, etc., the resolution displayed in the report output preview would be the values before image processing was applied. This bug is fixed.
  - File format: TIFF, MRAW, or RAWW
  - Bayer format / Raw data: Enabled
  - Apply image processing: Enabled

- The aspect ratio of the image would change if automatic layout or automatic stitching was performed in the following cases. This bug is fixed.
  1. Open multiple images, including images (A) with resolutions other than a 1:1 aspect ratio.
  2. Perform recording, moving to MEMORY mode, and rotating the image on camera (A) 90° or 270°.
  3. Click [Layout save] button from the [Save] button.
  4. Click the [Auto layout] or [Auto stitching] button.

- When performing data conversion from the [Batch converter] button without opening any files, PFA2 would crash. This bug is fixed.

- If the support file was output with the following procedure, the snapshot might not be output, or PFA2 might crash. This bug is fixed.
  1. With data with a resolution of “1,024 x 1,024”, set the zoom ratio to “801% or higher“ using the “Zoom ratio” feature in the Quick Tools.
  2. Open the Save window, check the “Save scaling” option, and click the [OK] or [Cancel] button to close the window.
  3. Click [MENU] - [Export support file] to output the support file.

Photron FASTCAM Analysis 2

for Image Analysis

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