What's New in Pixie Viewer Revision 4.51 (Released October 29, 2018)

General

- This is a partial release for Pixie-4e (14/500) and (16/125)
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Firmware

- Fixed bug for 0x402 data acquisitions that could bring events from different channels out of sync.

Version Numbers	Pixie-4e (16/125)	Pixie-4e (14/500)	Pixie-500e	Pixie-4
Pixie Viewer release	0451			
C library release	0450			
C library build	3202 on 32bit Windows, 6402 on 64bit Windows			
DSP code release	0450			1473
DSP code build	7104			2004
FiPPI version	0451	0451	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.50 (Released September 12, 2018)

General

- This is a partial release for Pixie-4e (14/500) and (16/125)
- **Online PSA and CFD functions now are executed only if a specific control bit is set**, to minimize processing time in non-PSA data acquisitions.
- Update PSA related settings files

Firmware

- Added "16x trigger" function. Similar to the 4x trace function, it averages the incoming Adc data by 16 before sending it to the trigger filter logic. This acts as 16x longer trigger filters. The increase is implied, not shown in the settings or displays.
- Added "Slow CFD" algorithm for Pixie-4e (16/125). This algorithm is based on the difference of delayed and scaled fast filter response, and better suited to slow rising pulses.
- Added online 2D spectrum (PSA value vs energy) and above/below PSA threshold computation to DSP'sPSA offline functions, to compute counts e.g. for neutron/gamma separation

Software

- Updated LabView VIs for "16x trigger" function.
- Added above/below PSA threshold computation to Pixie Viewer's PSA offline functions, to compute energy projections and counts e.g. for neutron/gamma separation
- Revise timing analysis to be compatible with Pixie-4e and Pixie-Net time scales.

Version Numbers	Pixie-4e (16/125)	Pixie-4e (14/500)	Pixie-500e	Pixie-4
Pixie Viewer release	0449			
C library release	0449			
C library build	3202 on 32bit Windows, 6402 on 64bit Windows			
DSP code release	0450			1473
DSP code build	7104			2004
FiPPI version	0450	0450	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.49 (Released May 24, 2018)

General

- Fix "end run timeout" error
- Fix bug in display of Pixie Viewer expert panel options

Version Numbers	Pixie-4e (16/125)	Pixie-4e (14/500)	Pixie-500e	Pixie-4
Pixie Viewer release	0449			
C library release	0449			
C library build	3201 on 32bit Windows, 6401 on 64bit Windows			
DSP code release	0447			1473
DSP code build	7104			2004
FiPPI version	0448	0448	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.48 (Released May 11, 2018)

This is a preliminary release for debug purposes

General

- Port "trace 4x" option from Pixie-4.
  With this option enabled, waveforms store averages of 4 samples at ¼ the ADC sampling speed and the trigger filter times are increased by a factor 4. Still buggy for the 14/500 variant.

Version Numbers	Pixie-4e (16/125)	Pixie-4e (14/500)	Pixie-500e	Pixie-4
Pixie Viewer release	0448			
C library release	0448			
C library build	320B on 32bit Windows, 640B on 64bit Windows			
DSP code release	0447			1473

DSP code build	7104			2004
FiPPI version	0448	0448	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.47 (Released Feb. 15, 2018)

This is a preliminary release for debug purposes

General

- Enable PSA and CFD functions for Pixie-4e 16/125
- Increase digital gain limit to +/- 20%
- Add function to export MCA spectrum as csv file
- Update fonts and fontsizes for better visibility in Igor 7
- Add function to gain match 4 channels

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0447			
C library release	0447			
C library build	320B on 32bit Windows, 640B on 64bit Windows			
DSP code release	0447			1473
DSP code build	7104			2004
FiPPI version	0447	0447	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.46 (Released Dec. 13, 2017)

This is a preliminary release for debug purposes

General

- revise end run procedure in C library and DSP
- increase MCA histogramming buffer (**Pixie-4e (16/125) only for now)**
- add PSA parsing task 0x7030 in C library and function call in Pixie_PSA.pxp

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0446			
C library release	0446			
C library build	320B on 32bit Windows, 640B on 64bit Windows			
DSP code release	0446			1473
DSP code build	7104			2004
FiPPI version	0446	0438	0431	00CA

System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.45 (Released Dec. 7, 2017)

This is a preliminary release for debug purposes

General

- revise end run procedure in C library
- modify DSP code for MCA histogramming

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0445			
C library release	0445			
C library build	320B on 32bit Windows, 640B on 64bit Windows			
DSP code release	0445			1473
DSP code build	7104			2004
FiPPI version	043A	0438	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.44 (Released Dec. 4, 2017)

General

- New option to keep Blcut parameter unchanged when changing gain, filters or tau.

C library

- New PSA runtask 0x7030 (draft)
- Fix bug causing extra empty lines in Pixie-4 bin file parsing into .dat/dt2/dt3 files

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0444			
C library release	0444			
C library build	320B on 32bit Windows, 640B on 64bit Windows			
DSP code release	0440			1473

DSP code build	7104			2004
FiPPI version	043A	0438	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.43 (Released Nov. 1, 2017)

General

- Update for NMISA variant
- Test SAUNA variant with Pixie-4

DSP code

- Fix bug in clearing runstatistics for Pixie-4 modules

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0443			
C library release	0442			
C library build	320B on 32bit Windows, 640B on 64bit Windows			
DSP code release	0440			1473
DSP code build	7104			2004
FiPPI version	043A	0438	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.42 (Released October 16, 2017)

General

- Update for NMISA variant

C library

- Fix bug in end run routine causing timeout
- Support booting of Pixie-32 modules

Version Numbers	Pixie-4e (16/125)	Pixie-4e (14/500)	Pixie-500e	Pixie-4
Pixie Viewer release	0442			
C library release	0442			
C library build	320B on 32bit Windows, 640B on 64bit Windows			
DSP code release	0440			1472
DSP code build	7104			2004
FiPPI version	043A	0438	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.41 (Released October 3, 2017)

C library

- Fix bug in parsing of 0x400 LM files with no traces. (Every other event was skipped)

Version Numbers	Pixie-4e (16/125)	Pixie-4e (14/500)	Pixie-500e	Pixie-4
Pixie Viewer release	0441			
C library release	0441			
C library build	320B on 32bit Windows, 640B on 64bit Windows			
DSP code release	0440			1472
DSP code build	7104			2004
FiPPI version	043A	0438	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.40 (Released September 2017)

This is a full release for Pixie-4e (16/125), Pixie-4e (16/125), Pixie-500e, and Pixie-4. The list of changes below includes only the most important updates. Please see release notes 4.31 -4.3A for the full list.

General

- (4.31) List mode file header[12] now contains serial number
- (4.32) Set default MCA and Pulseshape path to a common "Data" folder

LabVIEW Demo

- (4.31) Support for 64bit LabVIEW

Igor

- (4.33) New plot of LM energy waves as scatter plot
- (4.40) Tested with Igor 7 on Win 7 (32bit and 64 bit): works ok
    - Use only 32bit version of Igor Pro 7 – NOT Windows Start Menu "Igor Pro (64-bit)"
    - Must copy Pixie.xop to ...\IgorPro 7 Folder\Igor Extensions (or run 4.40+ installer)
    - Has minor changes in fonts and appearance
    - Can co-exist with Igor 6.

DSP

- (4.32) Added User parameter block at fixed memory location for additional user I/O
- (4.32) Added DSP variables ExtraIn, ChExtraIn#, UextraIn, UextraOut
- (4.36) fixed bug in end run timeout

C library

- (4.33) sign driver for Windows 10, 64 bit
- (4.33) add debug print options for DAQ and print to file from Igor
- (4.31) Visual Studio 2012 project for compiling 64bit dll for 64bit LabVIEW
- (4.32) Added global C variables EXTRA_IN, EXTRA_OUT, FCFD_THRESHOLD, CH_EXTRA_IN
- (4.32) Support for IEC list mode standard
- (4.39) add compiler switch COMPILE_TOOL_MINGW32 for mingw32 (must be defined in makefile)

- (4.3B) reorganized PCIe driver library files for end user compile

Bug Fixes

- (4.31) fixed bug in multi-thread run mode causing Igor crash
- (4.31) fixed bug in end run routine
- (4.31) fixed trigger and coincidence bugs in runtype 0x402 group mode (Pixie-4e only)

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0440			
C library release	043B			
C library build	320B on 32bit Windows, 640B on 64bit Windows			
DSP code release	0440			1472
DSP code build	7104			2004
FiPPI version	043A	0438	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.3A (Released July 8, 2017)

This is a partial release for Pixie-4e (16/125) . The list of changes below includes versions 4.31 -4.39

General

- (4.31) List mode file header[12] now contains serial number
- (4.32) Added custom code for coincidence counting application
- (4.32) Set default MCA and Pulseshape path to a common "Data" folder
- (4.34) Fix typos in manual

LabVIEW Demo

- (4.31) Demo VI for new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) (revised to use first word of user data array as the number of MCA bins to return)
- (4.31) Support for 64bit LabVIEW

Igor

- (4.33) New plot of LM energy waves as scatter plot
- (4.35) add option to disable Ims specific actiona at run start/stop (SAUNA)
- (4.39) fixed bug in setting SAUNA DSP parameters
- (4.39) Add SAUNA beta 2D spectrum plot

Firmware

- (4.34) tweak timing in Pixie-4e (14/500)
- (4.33) Fixed bug in ADC calibration for Pixie-4e (14/500)
- (4.31) Added 2 more lower bits to trigger threshold
- (4.36) revise FW registers for runtype 0x402
- (4.36) fix bug where channels marked as not "GOOD" still contributed to hit pattern
- (4.38) bug fixes in runtask 0x402
- (4.39) fixed bug in VETO REJECT LOW option

DSP

- (4.32) Added User parameter block at fixed memory location for additional user I/O
- (4.32) Added DSP variables ExtraIn, ChExtraIn#, UextraIn, UextraOut
- (4.35) fixed bug in SAUNA histogramming
- (4.36) fixed bug in end run timeout
- (4.38) Add option to suppress LM data (for SAUNA variant)
- (4.39) Suppress bin 0 increments, revise bining of beta 2D spectrum (for SAUNA variant)

C library

- (4.35) fixed bug in parameter I/O of UserIn and ExtraIn arrays (SAUNA and NMISA)
- (4.34) more debug messages
- (4.33) sign driver for Windows 10, 64 bit
- (4.33) add debug print options for DAQ and print to file from Igor
- (4.31) new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) revised to use first word of user data array as the number of MCA bins to return
- (4.31) Visual Studio 2012 project for compiling 64bit dll for 64bit LabVIEW
- (4.32) Added global C variables EXTRA_IN, EXTRA_OUT, FCFD_THRESHOLD, CH_EXTRA_IN
- (4.32) Support for IEC list mode standard
- (4.36) fix double declaration of some global variables
- (4.39) fix bug in Pixie_Acquire_Data, runtype 0x140#, causing invalid module number
- (4.39) add more return error codes for Pixie_Acquire_Data
- (4.39) add compiler switch COMPILE_TOOL_MINGW32 for mingw32 (must be defined in makefile)
- (4.3A) revert “improvemtns” to make booting more reliable

Bug Fixes

- (4.31) fixed bug in multi-thread run mode causing Igor crash
- (4.31) fixed bug in end run routine
- (4.31) fixed trigger and coincidence bugs in runtype 0x402 group mode (Pixie-4e only)

Coming Soon

- Update to Igor Pro 7

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	043A			
C library release	043A			
C library build	320A on 32bit Windows, 640A on 64bit Windows			
DSP code release	0439			1472
DSP code build	7104			2004
FiPPI version	043A	0438	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.39 (Released June 16, 2017)

This is a partial release for Pixie-4e (16/125) . The list of changes below includes versions 4.31 -4.38

General

- (4.31) List mode file header[12] now contains serial number
- (4.32) Added custom code for coincidence counting application
- (4.32) Set default MCA and Pulseshape path to a common "Data" folder
- (4.34) Fix typos in manual

LabVIEW Demo

- (4.31) Demo VI for new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) (revised to use first word of user data array as the number of MCA bins to return)
- (4.31) Support for 64bit LabVIEW

Igor

- (4.33) New plot of LM energy waves as scatter plot
- (4.35) add option to disable Ims specific actiona at run start/stop (SAUNA)
- (4.39) fixed bug in setting SAUNA DSP parameters
- (4.39) Add SAUNA beta 2D spectrum plot

Firmware

- (4.34) tweak timing in Pixie-4e (14/500)
- (4.33) Fixed bug in ADC calibration for Pixie-4e (14/500)
- (4.31) Added 2 more lower bits to trigger threshold
- (4.36) revise FW registers for runtype 0x402
- (4.36) fix bug where channels marked as not "GOOD" still contributed to hit pattern
- (4.38) bug fixes in runtask 0x402
- (4.39) fixed bug in VETO REJECT LOW option

DSP

- (4.32) Added User parameter block at fixed memory location for additional user I/O
- (4.32) Added DSP variables ExtraIn, ChExtraIn#, UextraIn, UextraOut
- (4.35) fixed bug in SAUNA histogramming
- (4.36) fixed bug in end run timeout
- (4.38) Add option to suppress LM data (for SAUNA variant)
- (4.39) Suppress bin 0 increments, revise bining of beta 2D spectrum (for SAUNA variant)

C library

- (4.35) fixed bug in parameter I/O of UserIn and ExtraIn arrays (SAUNA and NMISA)
- (4.34) more debug messages
- (4.33) sign driver for Windows 10, 64 bit
- (4.33) add debug print options for DAQ and print to file from Igor
- (4.31) new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) revised to use first word of user data array as the number of MCA bins to return
- (4.31) Visual Studio 2012 project for compiling 64bit dll for 64bit LabVIEW
- (4.32) Added global C variables EXTRA_IN, EXTRA_OUT, FCFD_THRESHOLD, CH_EXTRA_IN
- (4.32) Support for IEC list mode standard
- (4.36) fix double declaration of some global variables
- (4.39) fix bug in Pixie_Acquire_Data, runtype 0x140#, causing invalid module number
- (4.39) add more return error codes for Pixie_Acquire_Data
- (4.39) add compiler switch COMPILE_TOOL_MINGW32 for mingw32 (must be defined in makefile)

Bug Fixes

- (4.31) fixed bug in multi-thread run mode causing Igor crash
- (4.31) fixed bug in end run routine
- (4.31) fixed trigger and coincidence bugs in runtype 0x402 group mode (Pixie-4e only)

Coming Soon

- Update to Igor Pro 7

Version Numbers	Pixie-4e (16/125)	Pixie-4e (14/500)	Pixie-500e	Pixie-4
Pixie Viewer release	0439			
C library release	0439			
C library build	320A on 32bit Windows, 640A on 64bit Windows			
DSP code release	0439			1472
DSP code build	7104			2004
FiPPI version	0438	0438	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.38 (Released May 15, 2017)

This is a partial release for Pixie-4e (16/125) . The list of changes below includes versions 4.31 -4.37

General

- (4.31) List mode file header[12] now contains serial number
- (4.32) Added custom code for coincidence counting application
- (4.32) Set default MCA and Pulseshape path to a common "Data" folder
- (4.34) Fix typos in manual

LabVIEW Demo

- (4.31) Demo VI for new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) (revised to use first word of user data array as the number of MCA bins to return)
- (4.31) Support for 64bit LabVIEW

Igor

- (4.33) New plot of LM energy waves as scatter plot
- (4.35) add option to disable Ims specific actiona at run start/stop (SAUNA)

Firmware

- (4.34) tweak timing in Pixie-4e (14/500)
- (4.33) Fixed bug in ADC calibration for Pixie-4e (14/500)
- (4.31) Added 2 more lower bits to trigger threshold
- (4.36) revise FW registers for runtype 0x402
- (4.36) fix bug where channels marked as not "GOOD" still contributed to hit pattern
- (4.38) bug fixes in runtask 0x402

DSP

- (4.32) Added User parameter block at fixed memory location for additional user I/O
- (4.32) Added DSP variables ExtraIn, ChExtraIn#, UextraIn, UextraOut
- (4.35) fixed bug in SAUNA histogramming
- (4.36) fixed bug in end run timeout

- (4.38) Add option to suppress LM data (for SAUNA variant)

C library

- (4.35) fixed bug in parameter I/O of UserIn and ExtraIn arrays (SAUNA and NMISA)
- (4.34) more debug messages
- (4.33) sign driver for Windows 10, 64 bit
- (4.33) add debug print options for DAQ and print to file from Igor
- (4.31) new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) revised to use first word of user data array as the number of MCA bins to return
- (4.31) Visual Studio 2012 project for compiling 64bit dll for 64bit LabVIEW
- (4.32) Added global C variables EXTRA_IN, EXTRA_OUT, FCFD_THRESHOLD, CH_EXTRA_IN
- (4.32) Support for IEC list mode standard
- (4.36) fix double declaration of some global variables

Bug Fixes

- (4.31) fixed bug in multi-thread run mode causing Igor crash
- (4.31) fixed bug in end run routine
- (4.31) fixed trigger and coincidence bugs in runtype 0x402 group mode (Pixie-4e only)

Coming Soon

- Update to Igor Pro 7

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0438			
C library release	0438			
C library build	3208 on 32bit Windows, 6408 on 64bit Windows			
DSP code release	0438			1472
DSP code build	7104 (7114)			2004
FiPPI version	0437	0434	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.37 (Released May 1, 2017)

This is a partial release for Pixie-4e (16/125) . The list of changes below includes versions 4.31 -4.36

General

- (4.31) List mode file header[12] now contains serial number
- (4.32) Added custom code for coincidence counting application
- (4.32) Set default MCA and Pulseshape path to a common "Data" folder
- (4.34) Fix typos in manual

LabVIEW Demo

- (4.31) Demo VI for new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) (revised to use first word of user data array as the number of MCA bins to return)
- (4.31) Support for 64bit LabVIEW

Igor

- (4.33) New plot of LM energy waves as scatter plot
- (4.35) add option to disable Ims specific actiona at run start/stop (SAUNA)

Firmware

- (4.34) tweak timing in Pixie-4e (14/500)
- (4.33) Fixed bug in ADC calibration for Pixie-4e (14/500)
- (4.31) Added 2 more lower bits to trigger threshold
- (4.36) revise FW registers for runtype 0x402
- (4.36) fix bug where channels marked as not "GOOD" still contributed to hit pattern

DSP

- (4.32) Added User parameter block at fixed memory location for additional user I/O
- (4.32) Added DSP variables ExtraIn, ChExtraIn#, UextraIn, UextraOut
- (4.35) fixed bug in SAUNA histogramming
- (4.36) fixed bug in end run timeout

C library

- (4.35) fixed bug in parameter I/O of UserIn and ExtraIn arrays (SAUNA and NMISA)
- (4.34) more debug messages
- (4.33) sign driver for Windows 10, 64 bit
- (4.33) add debug print options for DAQ and print to file from Igor
- (4.31) new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) revised to use first word of user data array as the number of MCA bins to return
- (4.31) Visual Studio 2012 project for compiling 64bit dll for 64bit LabVIEW
- (4.32) Added global C variables EXTRA_IN, EXTRA_OUT, FCFD_THRESHOLD, CH_EXTRA_IN
- (4.32) Support for IEC list mode standard
- (4.36) fix double declaration of some global variables

Bug Fixes

- (4.31) fixed bug in multi-thread run mode causing Igor crash
- (4.31) fixed bug in end run routine
- (4.31) fixed trigger and coincidence bugs in runtype 0x402 group mode (Pixie-4e only)

Coming Soon

- Update to Igor Pro 7

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0437			
C library release	0435			
C library build	3208 on 32bit Windows, 6408 on 64bit Windows			
DSP code release	0437			1472
DSP code build	7102			2004
FiPPI version	0437	0434	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.34 (Released Mar. 15, 2017)

This is a partial release for Pixie-4e (16/125 and 14/500) . The list of changes below includes versions 4.31 -4.33

General

- (4.31) List mode file header[12] now contains serial number
- (4.32) Added custom code for coincidence counting application
- (4.32) Set default MCA and Pulseshape path to a common "Data" folder
- (4.34) Fix typos in manual

LabVIEW Demo

- (4.31) Demo VI for new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) (revised to use first word of user data array as the number of MCA bins to return)
- (4.31) Support for 64bit LabVIEW

Igor

- (4.33) New plot of LM energy waves as scatter plot

Firmware

- (4.34) tweak timing in Pixie-4e (14/500)
- (4.33) Fixed bug in ADC calibration for Pixie-4e (14/500)
- (4.31) Added 2 more lower bits to trigger threshold

DSP

- (4.32) Added User parameter block at fixed memory location for additional user I/O
- (4.32) Added DSP variables ExtraIn, ChExtraIn#, UextraIn, UExtraOut

C library

- (4.34) more debug messages
- (4.33) sign driver for Windows 10, 64 bit (post install)
- (4.33) add debug print options for DAQ and print to file from Igor
- (4.31) new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) revised to use first word of user data array as the number of MCA bins to return
- (4.31) Visual Studio 2012 project for compiling 64bit dll for 64bit LabVIEW
- (4.32) Added global C variables EXTRA_IN, EXTRA_OUT, FCFD_THRESHOLD, CH_EXTRA_IN
- (4.32) Support for IEC list mode standard

Bug Fixes

- (4.31) fixed bug in multi-thread run mode causing Igor crash
- (4.31) fixed bug in end run routine
- (4.31) fixed trigger and coincidence bugs in runtype 0x402 group mode (Pixie-4e only)

Coming Soon

- Update to Igor Pro 7

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0434			
C library release	0434			
C library build	3208 on 32bit Windows, 6408 on 64bit Windows			
DSP code release	0432			1472
DSP code build	7109			2004
FiPPI version	0431	0434	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.33 (Released Mar. 6, 2017)

This is a partial release for Pixie-4e (16/125 and 14/500) . The list of changes below includes versions 4.31 and 4.32.

General

- (4.31) List mode file header[12] now contains serial number
- (4.32) Added custom code for coincidence counting application
- (4.32) Set default MCA and Pulseshape path to a common "Data" folder

LabVIEW Demo

- (4.31) Demo VI for new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) (revised to use first word of user data array as the number of MCA bins to return)
- (4.31) Support for 64bit LabVIEW

Igor

- (4.33) New plot of LM energy waves as scatter plot

Firmware

- (4.33) Fixed bug in ADC calibration for Pixie-4e (14/500)
- (4.31) Added 2 more lower bits to trigger threshold

DSP

- (4.32) Added User parameter block at fixed memory location for additional user I/O
- (4.32) Added DSP variables ExtraIn, ChExtraIn#, UextraIn, UExtraOut

C library

- (4.33) sign driver for Windows 10, 64 bit (post install)
- (4.33) add debug print options for DAQ and print to file from Igor
- (4.31) new runtype 0x9007 to read only 8K of MCA spectrum
  (4.32) revised to use first word of user data array as the number of MCA bins to return
- (4.31) Visual Studio 2012 project for compiling 64bit dll for 64bit LabVIEW
- (4.32) Added global C variables EXTRA_IN, EXTRA_OUT, FCFD_THRESHOLD, CH_EXTRA_IN
- (4.32) Support for IEC list mode standard

Bug Fixes

- (4.31) fixed bug in multi-thread run mode causing Igor crash
- (4.31) fixed bug in end run routine
- (4.31) fixed trigger and coincidence bugs in runtype 0x402 group mode (Pixie-4e only)

Coming Soon

- Update to Igor Pro 7

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0433			
C library release	0433			
C library build	3207 on 32bit Windows, 6407 on 64bit Windows			
DSP code release	0432			1472
DSP code build	7109			2004
FiPPI version	0431	0433	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.32 (Released Feb. 1, 2017)

This is a partial release for Pixie-4e (16/125). The list of changes below includes versions 4.31 and 4.32.

General

- List mode file header[12] now contains serial number
- Added custom code for coincidence counting application
- Set default MCA and Pulseshape path to a common "Data" folder

LabVIEW Demo

- Demo VI for new runtype 0x9007 to read only 8K of MCA spectrum
  (revised to use first word of user data array as the number of MCA bins to return)
- Support for 64bit LabVIEW

Firmware

- Added 2 more lower bits to trigger threshold

DSP

- Added User parameter block at fixed memory location for additional user I/O
- Added DSP variables ExtraIn, ChExtraIn#, UextraIn, UExtraOut

C library

- new runtype 0x9007 to read only 8K of MCA spectrum
  revised to use first word of user data array as the number of MCA bins to return
- Visual Studio 2012 project for compiling 64bit dll for 64bit LabVIEW
- Added global C variables EXTRA_IN, EXTRA_OUT, FCFD_THRESHOLD, CH_EXTRA_IN
- Support for IEC list mode standard

Bug Fixes

- fixed bug in multi-thread run mode causing Igor crash
- fixed bug in end run routine
- fixed trigger and coincidence bugs in runtype 0x402 group mode (Pixie-4e only)

Coming Soon

- Update to Igor Pro 7

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0432			
C library release	0432			
C library build	3207 on 32bit Windows, 6407 on 64bit Windows			
DSP code release	0432			1472
DSP code build	7109			2004
FiPPI version	0431	0431	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.31 (Released Jan. 17, 2017)

This is a partial release with bug fixes and support for 64bit LabVIEW. Full release 4.32 coming soon.

General

- List mode file header[12] now contains serial number

LabVIEW Demo

- Demo VI for new runtype 0x9007 to read only 8K of MCA spectrum
- Support for 64bit LabVIEW

Firmware

- Added 2 more lower bits to trigger threshold

C library

- new runtype 0x9007 to read only 8K of MCA spectrum
- Visual Studio 2012 project for compiling 64bit dll for 64bit LabVIEW

Bug Fixes

- fixed bug in multi-thread run mode causing Igor crash
- fixed bug in end run routine
- fixed trigger and coincidence bugs in runtype 0x402 group mode (Pixie-4e only)

Coming Soon

- Update to Igor Pro 7
- Support for IEC list mode standard

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0431			
C library release	0431			
C library build	3207 on 32bit Windows, 6407 on 64bit Windows			
DSP code release	0431			1472
DSP code build	7109			2004
FiPPI version	0431	0431	0431	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.30 (Released Dec. 5, 2016)

General

This is a full release incorporating bug fixes and a number improvements. Note that .ifm files are not compatible with versions 4.10 and earlier due to added run statistics entries.

Changes since 4.10:

- (4.30) Verify Pixie-4 supported after all changes
- (4.2A) Add external trigger (P4e only)
- (4.2A) Add coincidence time counters (P4e only)
- (4.2A) Fix bugs in module run statistics read after run, MCA read back from file for runtype 0x402, list mode QC data error false positives
- (4.28) Add SAUNA variant
- (4.27) Revise parameter I/O with DSP
- (4.27) Update P500e firmware for recent changes
- (4.27) LabView: add PPR field to Runstatistics, update dlls
- (4.26) Internal testing of Linux compatibility
- (4.25) Fixed bug in interrupt allocation that can lead to resource conflicts
- (4.24) Increased maximum coincidence window to 511 clock ticks (~4μs)
- (4.24) Fixed bug of bad data in waveforms longer than energy filter for 16/125 MHz version
- (4.24) Added C project for standalone parsing functions
- (4.24) Updated installer to include some missing files for C library compilation
- (4.24) Fixed bug in MCA histogramming (recently introduced fixed binning factor of 2)
- (4.23) Fixed omission of coincidence window and coincidence pattern in file header
- (4.23) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.23) Fixed bug of mixing data in 2-module systems
- (4.23) Revised/improved multi-file runs in list mode and MCA mode
- (4.23) Added function to read raw LM data from file (expert panel)
- (4.23) Increase GateDelay range to 2us
- (4.23) Add option to view Gate signal (after delay/repulse) in ADC filter display
- (4.23) Changed default readout mode to Igor polling (some chassis don't support interrupts)
- (4.23) Improved boot reliability
- (4.21) Added CFD timing for 14/500 version
- (4.21) Added out-of-range counter in variables UserOut 8-15
- (4.21) Fixed bug in module synchronization
- (4.21) Fixed bug in ordering of energies and waveforms for filter range > 2
- (4.21) Improved uninstaller to remove Jungo drivers from Windows directories and xop from Igor Extensions. Does not remove main software folder (since it may contain data).
- (4.21) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.20) Added counter for events passing pileup inspection (NPPI) and rate PPR = NPPI/COUNT TIME. This can be used for dead time correction (true count = measured count * ICR/PPR) for cases where group triggering adds events or veto/coincidence requirements remove events from the output count rate
- (4.20) Revised User's Manual and Programmer's Manual to use IEC notation "Ki" for 1024

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0430			
C library release	0430			
C library build	3207 on 32bit Windows, 6407 on 64bit Windows			
DSP code release	042A			1472
DSP code build	710			2004
FiPPI version	042A	042A	0430	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.2A (Released Nov. 17, 2016)

General

This is a beta release with bug fixes and a few extensions of parameter ranges. The .ifm files are not compatible with versions 4.10 and earlier. This release only supports Pixie-4 Express 16/125 , Pixie-4 Express 14/500, and Pixie-500 Express

Changes since 4.10:

- (4.2A) Add external trigger (P4e only)
- (4.2A) Add coincidence time counters (P4e only)
- (4.2A) Fix bugs in module run statistics read after run, MCA read back from file for runtype 0x402, list mode QC data error false positives
- (4.28) Add SAUNA variant
- (4.27) Revise parameter I/O with DSP
- (4.27) Update P500e firmware for recent changes
- (4.27) LabView: add PPR field to Runstatistics, update dlls
- (4.26) Internal testing of Linux compatibility
- (4.25) Fixed bug in interrupt allocation that can lead to resource conflicts
- (4.24) Increased maximum coincidence window to 511 clock ticks (~4μs)
- (4.24) Fixed bug of bad data in waveforms longer than energy filter for 16/125 MHz version
- (4.24) Added C project for standalone parsing functions
- (4.24) Updated installer to include some missing files for C library compilation
- (4.24) Fixed bug in MCA histogramming (recently introduced fixed binning factor of 2)
- (4.23) Fixed omission of coincidence window and coincidence pattern in file header
- (4.23) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.23) Fixed bug of mixing data in 2-module systems
- (4.23) Revised/improved multi-file runs in list mode and MCA mode
- (4.23) Added function to read raw LM data from file (expert panel)
- (4.23) Increase GateDelay range to 2us
- (4.23) Add option to view Gate signal (after delay/repulse) in ADC filter display
- (4.23) Changed default readout mode to Igor polling (some chassis don't support interrupts)
- (4.23) Improved boot reliability
- (4.21) Added CFD timing for 14/500 version
- (4.21) Added out-of-range counter in variables UserOut 8-15
- (4.21) Fixed bug in module synchronization
- (4.21) Fixed bug in ordering of energies and waveforms for filter range > 2
- (4.21) Improved uninstaller to remove Jungo drivers from Windows directories and xop from Igor Extensions. Does not remove main software folder (since it may contain data).
- (4.21) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.20) Added counter for events passing pileup inspection (NPPI) and rate PPR = NPPI/COUNT TIME. This can be used for dead time correction (true count = measured count * ICR/PPR) for cases where group triggering adds events or veto/coincidence requirements remove events from the output count rate
- (4.20) Revised User's Manual and Programmer's Manual to use IEC notation "Ki" for 1024

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	042A			
C library release	042A			
C library build	3207 on 32bit Windows, 6407 on 64bit Windows			
DSP code release	042A			1465
DSP code build	710			2004
FiPPI version	042A	042A	0429	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.28 (Released October 12, 2016)

General

This is a beta release with bug fixes and a few extensions of parameter ranges. The .ifm files are not compatible with versions 4.10 and earlier. This release only supports Pixie-4 Express 16/125 , Pixie-4 Express 14/500 and Pixie-500 Express

Changes since 4.10:

- (4.28) Add SAUNA variant
- (4.27) Revise parameter I/O with DSP
- (4.27) Update P500e firmware for recent changes
- (4.27) LabView: add PPR field to Runstatistics, update dlls
- (4.26) Internal testing of Linux compatibility
- (4.25) Fixed bug in interrupt allocation that can lead to resource conflicts
- (4.24) Increased maximum coincidence window to 511 clock ticks (~4µs)
- (4.24) Fixed bug of bad data in waveforms longer than energy filter for 16/125 MHz version
- (4.24) Added C project for standalone parsing functions
- (4.24) Updated installer to include some missing files for C library compilation
- (4.24) Fixed bug in MCA histogramming (recently introduced fixed binning factor of 2)
- (4.23) Fixed omission of coincidence window and coincidence pattern in file header
- (4.23) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.23) Fixed bug of mixing data in 2-module systems
- (4.23) Revised/improved multi-file runs in list mode and MCA mode
- (4.23) Added function to read raw LM data from file (expert panel)
- (4.23) Increase GateDelay range to 2us
- (4.23) Add option to view Gate signal (after delay/repulse) in ADC filter display
- (4.23) Changed default readout mode to Igor polling (some chassis don't support interrupts)
- (4.23) Improved boot reliability
- (4.21) Added CFD timing for 14/500 version
- (4.21) Added out-of-range counter in variables UserOut 8-15
- (4.21) Fixed bug in module synchronization
- (4.21) Fixed bug in ordering of energies and waveforms for filter range > 2
- (4.21) Improved uninstaller to remove Jungo drivers from Windows directories and xop from Igor Extensions. Does not remove main software folder (since it may contain data).
- (4.21) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.20) Added counter for events passing pileup inspection (NPPI) and rate PPR = NPPI/COUNT TIME. This can be used for dead time correction (true count = measured count * ICR/PPR) for cases where group triggering adds events or veto/coincidence requirements remove events from the output count rate
- (4.20) Revised User's Manual and Programmer's Manual to use IEC notation "Ki" for 1024

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0428			
C library release	0427			
C library build	3207 on 32bit Windows, 6407 on 64bit Windows			
DSP code release	0428			1465
DSP code build	710			2004
FiPPI version	0427	0427	0427	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.27 (Released October 7, 2016)

General

This is a beta release with bug fixes and a few extensions of parameter ranges. The .ifm files are not compatible with versions 4.10 and earlier. This release only supports Pixie-4 Express 16/125 , Pixie-4 Express 14/500 and Pixie-500 Express

Changes since 4.10:

- (4.27) Revise parameter I/O with DSP
- (4.27) Update P500e firmware for recent changes
- (4.27) LabView: add PPR field to Runstatistics, update dlls
- (4.26) Internal testing of Linux compatibility
- (4.25) Fixed bug in interrupt allocation that can lead to resource conflicts
- (4.24) Increased maximum coincidence window to 511 clock ticks (~4µs)
- (4.24) Fixed bug of bad data in waveforms longer than energy filter for 16/125 MHz version
- (4.24) Added C project for standalone parsing functions
- (4.24) Updated installer to include some missing files for C library compilation
- (4.24) Fixed bug in MCA histogramming (recently introduced fixed binning factor of 2)
- (4.23) Fixed omission of coincidence window and coincidence pattern in file header
- (4.23) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.23) Fixed bug of mixing data in 2-module systems
- (4.23) Revised/improved multi-file runs in list mode and MCA mode
- (4.23) Added function to read raw LM data from file (expert panel)
- (4.23) Increase GateDelay range to 2us
- (4.23) Add option to view Gate signal (after delay/repulse) in ADC filter display
- (4.23) Changed default readout mode to Igor polling (some chassis don't support interrupts)
- (4.23) Improved boot reliability
- (4.21) Added CFD timing for 14/500 version
- (4.21) Added out-of-range counter in variables UserOut 8-15
- (4.21) Fixed bug in module synchronization
- (4.21) Fixed bug in ordering of energies and waveforms for filter range > 2
- (4.21) Improved uninstaller to remove Jungo drivers from Windows directories and xop from Igor Extensions. Does not remove main software folder (since it may contain data).
- (4.21) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.20) Added counter for events passing pileup inspection (NPPI) and rate PPR = NPPI/COUNT TIME. This can be used for dead time correction (true count = measured count * ICR/PPR) for cases where group triggering adds events or veto/coincidence requirements remove events from the output count rate
- (4.20) Revised User's Manual and Programmer's Manual to use IEC notation "Ki" for 1024

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0427			
C library release	0427			
C library build	3207 on 32bit Windows, 6407 on 64bit Windows			
DSP code release	0427			1465
DSP code build	710			2004
FiPPI version	0427	0427	0427	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.25 (Released August 10, 2016)

General

This is a beta release with bug fixes and a few extensions of parameter ranges. The .ifm files are not compatible with versions 4.10 and earlier. This release only supports Pixie-4 Express 16/125 and Pixie-4 Express 14/500.

Changes since 4.10:

- (4.25) Fixed bug in interrupt allocation that can lead to resource conflicts
- (4.24) Increased maximum coincidence window to 511 clock ticks (~4µs)
- (4.24) Fixed bug of bad data in waveforms longer than energy filter for 16/125 MHz version
- (4.24) Added C project for standalone parsing functions
- (4.24) Updated installer to include some missing files for C library compilation
- (4.24) Fixed bug in MCA histogramming (recently introduced fixed binning factor of 2)
- (4.23) Fixed omission of coincidence window and coincidence pattern in file header
- (4.23) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.23) Fixed bug of mixing data in 2-module systems
- (4.23) Revised/improved multi-file runs in list mode and MCA mode
- (4.23) Added function to read raw LM data from file (expert panel)
- (4.23) Increase GateDelay range to 2us
- (4.23) Add option to view Gate signal (after delay/repulse) in ADC filter display
- (4.23) Changed default readout mode to Igor polling (some chassis don't support interrupts)
- (4.23) Improved boot reliability
- (4.21) Added CFD timing for 14/500 version
- (4.21) Added out-of-range counter in variables UserOut 8-15
- (4.21) Fixed bug in module synchronization
- (4.21) Fixed bug in ordering of energies and waveforms for filter range > 2
- (4.21) Improved uninstaller to remove Jungo drivers from Windows directories and xop from Igor Extensions. Does not remove main software folder (since it may contain data).
- (4.21) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.20) Added counter for events passing pileup inspection (NPPI) and rate PPR = NPPI/COUNT TIME. This can be used for dead time correction (true count = measured count * ICR/PPR) for cases where group triggering adds events or veto/coincidence requirements remove events from the output count rate
- (4.20) Revised User's Manual and Programmer's Manual to use IEC notation "Ki" for 1024

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0425			
C library release	0425			
C library build	3206 on 32bit Windows, 6406 on 64bit Windows			
DSP code release	0424			1465
DSP code build	7108			2004
FiPPI version	0424	0424	0407	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.24 (Released August 3, 2016)

General

This is a beta release with bug fixes and a few extensions of parameter ranges. The .ifm files are not compatible with versions 4.10 and earlier. This release only supports Pixie-4 Express 16/125 and Pixie-4 Express 14/500.

Changes since 4.10:

- (4.24) Increased maximum coincidence window to 511 clock ticks (~4µs)
- (4.24) Fixed bug of bad data in waveforms longer than energy filter for 16/125 MHz version
- (4.24) Added C project for standalone parsing functions
- (4.24) Updated installer to include some missing files for C library compilation
- (4.24) Fixed bug in MCA histogramming (recently introduced fixed binning factor of 2)
- (4.23) Fixed omission of coincidence window and coincidence pattern in file header
- (4.23) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.23) Fixed bug of mixing data in 2-module systems
- (4.23) Revised/improved multi-file runs in list mode and MCA mode
- (4.23) Added function to read raw LM data from file (expert panel)
- (4.23) Increase GateDelay range to 2us
- (4.23) Add option to view Gate signal (after delay/repulse) in ADC filter display
- (4.23) Changed default readout mode to Igor polling (some chassis don't support interrupts)
- (4.23) Improved boot reliability
- (4.21) Added CFD timing for 14/500 version
- (4.21) Added out-of-range counter in variables UserOut 8-15
- (4.21) Fixed bug in module synchronization
- (4.21) Fixed bug in ordering of energies and waveforms for filter range > 2
- (4.21) Improved uninstaller to remove Jungo drivers from Windows directories and xop from Igor Extensions. Does not remove main software folder (since it may contain data).
- (4.21) Revised/improved acquisition and extraction of coincident event in run type 0x402.
- (4.20) Added counter for events passing pileup inspection (NPPI) and rate PPR = NPPI/COUNT TIME. This can be used for dead time correction (true count = measured count * ICR/PPR) for cases where group triggering adds events or veto/coincidence requirements remove events from the output count rate
- (4.20) Revised User's Manual and Programmer's Manual to use IEC notation "Ki" for 1024

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0424			
C library release	0424			
C library build	3206 on 32bit Windows, 6406 on 64bit Windows			
DSP code release	0424			1465
DSP code build	7108			2004
FiPPI version	0424	0424	0407	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.23 (Released July 20, 2016)

General

This is a beta release with bug fixes.. The .ifm files are not compatible with versions 4.10 and earlier. Currently only supports Pixie-4 Express 16/125.

- Improved boot reliability
- Fixed omission of CW and CP in file header
- Revised/impoved acquisition and extraction of coincident event in run type 0x402.
- Fix bug of mixing data in 2-module systems
- Revised/improved multi-file runs in list mode and MCA mode
- Added function to read raw LM data from file (expert panel)
- Increase GateDelay range to 2us
- Add option to view Gate signal (after delay/repulse) in ADC filter display
- Changed default readout mode to Igor polling (some chassis don't support interrupts)

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0423			
C library release	0423			
C library build	3206 on 32bit Windows, 6406 on 64bit Windows			
DSP code release	0423			1465
DSP code build	7103			2004
FiPPI version	0422	0421	0407	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.21 (Released May 18, 2016)

General

This is a beta release with improved run statistics. The .ifm files are not compatibel with earlier versions. Currently only supports Pixie-4 Express, 16/125 and 14/500 versions.

- Improved boot reliability
- Added CFD timing for 14/500 version
- Added out-of-range counter in variables UserOut 8-15
- Fixed bug in module synchronization
- Fixed bug in ordering of energies and waveforms for filter range > 2
- improved uninstaller to remove Jungo drivers from Windows directories and xopfrom Igor Extensions. Does not remove main software folder (since it may contain data).
- Revised/impoved acquisition and extraction of coincident event in run type 0x402.
- Known bugs: In two module operation, it can occur that both modules' files contain the same data.

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0421			
C library release	0421			
C library build	3203 on 32bit Windows, 6403 on 64bit Windows			
DSP code release	0421			1465
DSP code build	7102			2004

FiPPI version	0421	0421	0407	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.20 (Released April 2016)

General

This is a beta release with improved run statistics. The .ifm files are not compatibel with earlier versions. Currently only supports Pixie-4 Express, 16/125 version.

- Added counter NPPI and rate PPR = NPPI/COUNT TIME to count local events passing pileup inspection. This can be used for dead time correction (true count = measured count * ICR/PPR) for cases where group triggering adds events or veto/coincidence requirements remove events from the output count rate
- revised User's Manual and Programmer's Manual to use IEC notation "Ki" for 1024
- Improved boot reliability

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0420			
C library release	0420			
C library build	3203 on 32bit Windows, 6403 on 64bit Windows			
DSP code release	0420			1465
DSP code build	7102			2004
FiPPI version	0420	0409	0407	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.10 (Released March 2016)

General

- Supported Module Types
  - Pixie-4 Express, versions 16/125 and 14/500.
  - Pixie-500 Express
  - Pixie-4
- Regenerated default settings files for 4 modules
- Added "boot" option to release device handle (for switching GUI)
- Fixed adjust offset bug in LabView demo interface
- Updated programmer's manual and LabView manual
- Fixed bug in parsing list moe data in multi-module runs
- Redirect call to 0x83 to 0x85 for P4e and P500e
- Revised Igor background polling routine to allow Igor menus without pausing

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0410			
C library release	0410			
C library build	3203 on 32bit Windows, 6403 on 64bit Windows			
DSP code release	0408			1465
DSP code build	7102			2004
FiPPI version	0410	0409	0407	00CA
System version	A551	A5E1	A101	A71C

Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.09 (Released March 2016)

General

- Supported Module Types
  Pixie-4 Express, Module versions 16/125 and 14/500.
  Pixie-500 Express (Windows 7, 32bit only)
  Pixie-4
- Added CHN export of MCA spectra
- Fix bug in filter visualization of list mode traces
- Added new polling routine that returns new data
- Updated LabView demo interface
- Updated user manual
- Added workaround for system crash on full reboot (FPGA will no longer be rebooted)
- Fixed bug causing Igor crash at system boot (on Win64)
- Added check for software updates on XIA's support website to Igor program start

Version Numbers	**Pixie-4e (16/125)**	**Pixie-4e (14/500)**	**Pixie-500e**	**Pixie-4**
Pixie Viewer release	0409			
C library release	0409			
C library build	3204 on 32bit Windows, 6404 on 64bit Windows			
DSP code release	0408			1465
DSP code build	7102			2004
FiPPI version	0408	0409	0407	00CA
System version	A551	A5E1	A101	A71C
Board version	A551	A5E1	A101	A704

What's New in Pixie Viewer Revision 4.08 (Released February 2016)

General

- Supported Module Types
  Pixie-4 Express, Module versions 16/125 and 14/500.
  Pixie-500 Express (Windows 7, 32bit only)
  Pixie-4
- Revised/Improved runtask 0x402 for synchronous acquisition from all 4 channels. New data format groups 4 channels into a common event record.
- Added online sum MCA of the 4 channels
- Restored digital gain correction for channel gain matching
- Corrected gain and polarity settings for 14/500 version

What's New in Pixie Viewer Revision 4.07 (Released December 2015)

General

- Supported Module Types
  Pixie-4 Express, Module versions 16/125 and 14/500.
  Pixie-500 Express (Windows 7, 32bit only)
  Pixie-4
- Renamed parameter "live time" to "count time"

- Added runtask 0x402 for synchronous acquisition from all 4 channels. New data format groups 4 channels into a common event record.
- Added online sum MCA of the 4 channels
- Restored digital gain correction for channel gain matching

Igor

- Actively require version 6.22 or higher
- Add function to check for software updates
- Igor source code for panels and functions now stored as separate text files, for svn tracking

Firmware

- Added support for 14bit, 500 MHz version of the Pixie-4 Express
- Add “coincidence delay” parameter to delay incoming ADC data in channel coincidences
- Added gate logic (individually gating acquisition for each channel)
- Revised maximum trace length restrictions – now always 4K samples
- Fix bug in Pixie-500 Express causing occasional data errors in list mode files

C library

- Revised boot file list to accommodate firmware for 14/500 version

What's New in Pixie Viewer Revision 4.06 (Released October 2015)

General

- Supported Module Types
  - Pixie-4 Express (Windows 7, 32bit and 64bit)
  - Pixie-500 Express (Windows 7, 32bit only
  - Pixie-4 (Windows 7, 32bit and 64bit)
- Pixie-4 uses new DSP code and settings files, not compatible with version 2 of the software
- Revised list mode data readout using interrupts
- Added error check for list mode data files
- Module identify themselves in Windows as P500e or P4e with PCI subvendor ID = XIA

Firmware

- Timestamps are reset to zero at boot time (synchronously for all modules).

Igor

- Added version check at boot time (C, Igor, FW, DSP)
- Modified implementation of multi-file runs for run tasks 0x400, 0x401:
  MCA and statistics are saved with each new file, but are cumulative (unlike 0x100-0x301)

C library

- Added new variable to control debug messages, interrupt mode, LM error check
- Runtask 7008 returns ADC digitization rate, used by Igor to scale LM traces
- Polling runtask 0x440# returns **total** number of spills written (not most recent addition)
- Added UserIn, UserOut to module parameter array
- Runtype, InSync treated as normal variables, saved in settings file
- Control task runs are started by setting CSR bit 1, DAQ runs by setting CSR bit 0

DSP

- New controltasks to investigate baselines
- DSP adds "end of run" record at the end of the list mode data stream
- Revised baseline cut finder and adjust offset routines
- Reinstated integrator mode fro Pixie-4 Express and Pixie-500 Express. Decay time tau is used as a scaling factor (by default should be set to 1).

Key Changes from Pixie-4 to Pixie-4 Express

- Increased throughput => higher maximum number of events per second
- Increased data rate to host => less dead time in list mode runs with long waveforms
- Front end buffer for event data => no dead time after pulse. Can record overlapping waveforms

- PXI Express chassis and controller required
- User serial number, not slot number to specify modules in startup dialog
- FPGA can only booted once after powerup. Use "Reboot DSP" when **re-**starting Pixie Viewer
- Number and order of I/O parameters changed. Earlier settings files are not compatible. Default settings files are provided (with suffix _125 for 16bit, 125 MHz Pixie-4e, suffix _75 for Pixie-4 etc)
- Run type is saved in settings file
- List mode runs are started as run type 0x400
- List mode runs create .b00 files with different data format.
  – See the user manual for a format description.
  – Can use runtask 0x7021 to translate to Pixie-4 style .bin format
  – Timestamps and hit patterns are 32bit numbers
  – Event records contain only a single channel
- Faster coincidence logic
- See new programmer's references for changes in C library

What's New in Pixie Viewer Revision 3.31 (Released December 2014)

Igor

- Added more checks to prevent execution of functions while data acquisition in progress
- Minor changes in PSA variant

What's New in Pixie Viewer Revision 3.30 (Released December 2014)

General

- Added controltask to find DC offsets (faster than previous task).
  DSP controltask 13, C library controltask 0x85
- Added/impoved controltask to find baseline cut
- Added runtype 0x401: no traces acquired, output header data as text file (.dt3 format)
- Revised function to break up long acquisitions into a series of files with increasing run number
  Less overhead for start/stop, but only final run statistics and MCA are saved into file with first run number

Igor

- Removed saving of ADC calibration data
- Added save and restore of settings during ADC calibration
- Added button to save Oscilloscope traces
- Added optional reference spectra to MCA display and LM spectrum display
- Added reminder to save settings when saving pxp file (unless offline)
- In top menu *XIA*, added link to *About* panel and function keys as shortcuts for common panels and graphs
- Added global gain multiplier(all channel multiplied by common factor)
- Added check to prevent Oscilloscope actions that would communicate with the module while run is in progress
- Added check to prevent reading of LM data file (e.g. change event number) while run is in progress
- Igor Version 6.2 or higher is required.

C library

- Speed up parameter I/O, run start/stop, and adjust offset by streamlining code and using new controltasks
- improved error parsing of list mode data streamed from module
- .dat/dt2/dt3 files created now without duplicate line endings
- new polling function for Pixie_Acquire_Data (0x4400, 0x4401) for Pixie-500 Express list mode runs
- Minor bug fixes

What's New in Pixie Viewer Revision 3.20 (Released July 2014)

Key Changes since revision 3.10:

General

- (3.20) Updated User's Manual
- (3.14) Revised clock synchronization for multiple modules, now generally precise to within 4 clock ticks
- (3.14) Added option to reset ADCs for one module, in case ADC calibration fails repeatedly
- (3.12) "Synchronize clocks" option is automatically cleared after first run, so that time correlation between subsequent runs (and files, in multi-file runs) is preserved.
- (3.12) Improved ADC core calibration: faster acquisition of trace mismatch vs ADC level
- (3.12) Add PSA settings to "copy" and "extract" panels
- (3.11) Revised Run Statistics:
  Simplified computation of RunTime and Total Time, somewhat less precise (~0.9ms)
  Livetime paused for SDRAM buffer full or ZDT buffer full.
  (Implies OCR will not plateau for very high rates when processing limit is reached. Use difference between LiveTime and RunTime to determine ZDT buffer full pauses and difference between RunTime and TotalTime to determine SDRAM buffer full pauses)

Firmware

- (3.11) Revised multi-module operation (clock sync and trigger)
- (3.11) Revised coincidence test, now applied at rising edge of pulse (vs at end of energy filter)
- (3.11) Added optional out-of-range rejection and corresponding flag in event info
- (3.11) Unchecking "good channel" option disables triggers and run statistics counters

Igor

- (3.14) Revised List Mode Trace Display to make it easier to change between modules
- (3.11) Add option to save and view reference waveform in List Mode Trace Display
- (3.11) **Revised/increased entries written to .ifm file, including header line.**

C library

- (3.11) **Format .dt3 files now report time stamp as 32 bit values**
- (3.11) **Format .dat/dt2/dt3 files now have suffix "_m#" for module # in file name**
- (3.11) **Format .dat/dt2/dt3 files "run start" time is now time of first event in file**
- (3.11) **Format .dt2 files and runtask 0x7008 report 32 bit "hit pattern" with event info**
- (3.11) Improved offline operation to reduce or avoid timeouts for file and module I/O

PSA variant

- (3.12) Minor changes in controls and appearance of PSA panels
- (3.12) specify default settings file EJ309.set, starting point for liquid scintillator gamma/neutron discrimination
- (3.12, 3.13) Add option to process all channels/modules into a cumulative scatter plot
- (3.12) revised the .dt3 file format
- (3.11) Updated PSA functions:
  Added online computation of amplitude and Q1/Q0 ratio.
  Q0, Q1 start and trigger no longer limited to multiple of 4
  PSAvalue now defined as 1000 * Q1/Q0 (was 100) to report more significant digits

What's New in Pixie Viewer Revision 3.14 (Released July 2014)

Code Changes:

General

- Revised clock synchronization for multiple modules, now generally precise to within 4 clock ticks
- Added option to reset ADCs for one module, in case ADC calibration fails repeatedly

Igor

- Revised List Mode Trace Display to make it easier to change between modules

What's New in Pixie Viewer Revision 3.13 (Released June, 24 2014)

Code Changes:

Igor – PSA variant

- In option to process all channels/modules into a cumulative scatter plot, keep all parameters, not only those in scatter plot

What's New in Pixie Viewer Revision 3.12 (Released June, 23 2014)

Code Changes:

General

- "Synchronize clocks" option is automatically cleared after first run, so that time correlation between subsequent runs (and files, in multi-file runs) is preserved.
- Improved ADC core calibration: faster acquisition of trace mismatch vs ADC level
- Add PSA settings to "copy" and "extract" panels

Igor - PSA Variant

- Minor changes in controls and appearance of PSA panels
- specify default settings file EJ309.set, starting point for liquid scintillator gamma/neutron discrimination
- Big fix: when processing waveforms from file with Igor to compute PSA values, prevent "missing graph" error by opening List Mode Trace Display automatically
- Add option to process all channels/modules into a cumulative scatter plot of PSA value vs energy.
  With the "all channels" box checked, instead of reading a single channel, Igor will loop over all channels and modules, read (or compute) the PSA data and keep/append 3 parameters in temporary waves. The 3 parameters are those chosen for x, y, and z in the PSA Analysis panel. At the end of the loop, the temporary waves are copied back into those specified for the plot.
- The .dt3 file now
  - reports 48 bit timestamps, in units of 2ns
  - is created as a single file for all modules during or at the end of the run
  - uses Q0 and Q1 in the column title, matching the Igor interface
  - reports the run start time in seconds

Known Bugs:

- The Blcut finder function may not be working properly
- Very rarely list mode data is corrupted, such events are reported **but not discarded;** waveform data may have 4 bad entries at end but header data is correct

What's New in Pixie Viewer Revision 3.11 (Released June 2014)

Code Changes:

Changes that may affect user data processing routines are shown in bold

General

- Revised Run Statistics:
  Simplified computation of RunTime and Total Time, somewhat less precise (~0.9ms)
  Livetime paused for SDRAM buffer full or ZDT buffer full.
  (Implies OCR will not plateau for very high rates when processing limit is reached. Use difference between LiveTime and RunTime to determine ZDT buffer full pauses and difference between RunTime and TotalTime to determine SDRAM buffer full pauses)

Igor

- Minor changes in controls and appearance of PSA panels
- Add option to save and view reference waveform in List Mode Trace Display
- **Revised/increased entries written to .ifm file, including header line.**
- Auto process LM file option generates .dat/dt2/dt3 files for all modules

Firmware

- Revised multi-module operation (clock sync and trigger)
- Updated PSA functions:
  Added online computation of amplitude and Q1/Q0 ratio.
  Q0, Q1 start and trigger no longer limited to multiple of 4
  DSP portion of PSA functions moved to "DSP user routines"
  PSAvalue now defined as 1000 * Q1/Q0 (was 100) to report more significant digits
- Revised coincidence test, now applied at rising edge of pulse (vs at end of energy filter)
- Added optional out-of-range rejection and corresponding flag in event info
- Unchecking "good channel" option disables triggers and run statistics counters

C library

- **Format .dt3 files now report time stamp as 32 bit values**
- **Format .dat/dt2/dt3 files now have suffix "_m#" for module # in file name**
- **Format .dat/dt2/dt3 files "run start" time is now time of first event in file**
- **Format .dt2 files and runtask 0x7008 report 32 bit "hit pattern" with event info**
- Improved offline operation to reduce or avoid timeouts for file and module I/O

Bug Fixes:

- Fixed bugs in "E<0" and "estimate E" options
- Fixed bugs in values reported in runtasks 0x7001, 0x7006, 0x7008
- Fixed bugs in Igor routines to break up run into several files

Known Bugs:

- The Blcut finder function may not be working properly
- Very rarely list mode data is corrupted, such events are reported and discarded

What's New in Pixie Viewer Revision 3.10 (Released April 2014)

Code Changes:

General

- Implemented "ZDT" processing to buffer multiple events in front end memory. This allows capture of closely following events, even with overlapping waveforms.
- Implemented basic pulse shape analysis to capture 2 sums at rising edge of pulse
- revised coincidence test: now based on fast trigger at rising edge of pulse (independent of pileup inspection)
- Improved data readout speed from Pixie memory to host PC memory

Igor

- Minor changes in controls and appearance
- Adapted general pulse shape analysis functions from Pixie-500

Bug Fixes:

- Improved ADC calibration routines
- Improved data quality check during readout
- Fixed bugs in list mode data parsing routines tasks 0x7004-7006

Known Bugs:

- The Blcut finder function may not be working properly
- Multiple module trigger distribution has not been tested
- Very rarely list mode data is corrupted, such events are reported and discarded

What's New in Pixie Viewer Revision 3.01 (Released November 2013)

Well, it's for a whole new product: the Pixie-500 Express!

Code Changes:

General

- Version 3.01 is derived from version 2.5x of the Pixie-4 and Pixie-500 software. While many functions and features are identical, the following differences exist:
    - Pixie-500 Express list mode runs are type 0x400, continuous streaming of data to host
    - List mode 0x400 output data is written as one file per module
    - List mode 0x400 "events" are single channel records
- Software will support Pixie-4, Pixie-500, Pixie-500 Express modules (but only tested with latter so far)
- Most changes are contained in the C library, top level API functions remain the same
- Software installer automates the PCI Express (WinDriver) setup for Pixie-500 Express

Igor

- Minor changes in controls and appearance
- Revised file name list to support Pixie-4, Pixie-500, Pixie-500 Express
- Removed "double buffer" readout mode for Pixie-4 and Pixie-500
- Removed "optimize" functions to find parameter settings
- Added "calibrate" button to Oscilloscope to calibrate ADC cores' gain/offset

C library

- Added WinDriver driver to support Pixie-500 Express specific functions.
  (WinDriver is not required to recompile C library for Pixie-4 and Pixie-500 only.)
- Added boot, I/O, and DMA readout functions for Pixie-500 Express

DSP, Firmware

- Completely rewritten DSP code for 32bit floating point SHARC DSP
- Reorganized and expanded DSP input parameters (=settings files)

Bug Fixes:

- None

Known Bugs:

- The LM data transfer rate is still significantly below the maximum
- The Blcut finder function may not be working properly
- Multiple module trigger distribution has not been tested
- Run Statistics may show inaccurate Live Times, especially in list mode runs
- Occasionally list mode data is corrupted, such events are reported and discarded

Coming soon:

- "zero dead time" data acquisition
- improved coincidence tests
- support for 64bit Windows