BFF Motion Driver v2.6 Change List (Beta 25)

Added

- Support for SCN5 actuators.
- New joystick motion following mode (Use_Joy=1).
- Option to replace Heave acceleration with Yaw acceleration for 3 DOF platforms with Yaw as the 3rd DOF (Use_Yaw=1).
- New Rig_Type=2 platform type – for rigs with 3pt support type rear actuator pair and single independent (uncoupled) heave axis.
- Added FWD acceleration scaling parameters – to simplify configuration of small force cue additions to pitch & roll following visually open platforms/seats.
- Added actuator stroke mix balances to the range of cue parameters that can be adjusted “live” through the driver interface.
- New pop-up help items for motion cue settings parameters – hover mouse over input fields.
- New MD_Delay parameter in ms to vary data loop internal pause. Default is 20ms and helps to limit the CPU usage of the motion driver, however it does limit the refresh rate of the driver. Set MD_Delay=0 to remove all internal pauses and allow the driver to run at full speed. With FSX especially this will increase the data refresh rate up to the FPS of FSX, but it will be heavier on the CPU so you may need to experiment. NOTE, in some XP systems setting the delay to less than approx 15ms may have not be effective in reducing the delay – there is a fixed minimum time if the delay is active, setting MD_Delay=0 will completely remove the delay however.
- In the BFF_Motion_Bridge (V1.21) a similar parameter has been introduced into the bridge.cfg config file (line 5). This will allow the bridge program to be run at similarly higher refresh speeds to supply data to the motion driver on a LAN PC.
- New Scope_Mode parameter. Default is =0 to scope position output by DOF. If you have a 3 pt support type rig then set Scope_Mode=1 to scope position output by actuator.
- Programmable hot keys for Hold and Drive modes. Key_Hold and Key_Drive are the new parameters, eg Key_Hold=h sets the “h” key as the Hold hot key. Also, Key_Prefix sets the enable prefix key – default is “\” (backslash) – ie backslash needs to be held down before the other hot keys are acted on. The Hold and Drive hot keys allow the driver to be parked/released whilst the flight sim is in full screen mode.
- Programmable joystick buttons for Hold and Drive modes and to close down the motion driver. For this to work the joystick must be on the same PC as the motion driver. The new parameters are Joy_But to set the system number of the joystick to use. This is the order in which your joysticks are listed in Control Panel – Game Controllers, so Joy_But=1 specifies the 1st joystick in the list as the stick on which the hot buttons are programmed. But_Kill sets the close down button, But_Drive sets the Drive mode hot button and But_Hold sets the Hold mode hot button.
- Added Priority= parameter to .bff config file. This allows the motion driver process priority to be set at “High” to smooth the data output flow when running on the same PC as FSX. The motion driver does not consume much CPU time, however setting the process priority to “High” can prevent the process from being interrupted intermittently by FSX, this can help smooth the data output flow to the PID Servo Controller or other hardware.
- Similar Priority= parameter added for BFF_Motion_Bridge (V1.22) to help smooth the

UDP data export when running with FSX if required.

- Added polynomial curve fitted position demand output for MEM output mode. This allows v2.6beta9660 or later PID Servo Controller to more smoothly interpolate position and rate of change data when it runs faster than the motion driver (Not for Falcon F4 version of driver).
- Added Mode=POLO output data format to drive Pololu serial servo controller cards. This allows simple RC Servo driven platform models to be driven from the motion driver. The pololu serial output is to the COM port specified in the .bff config file at the baud rate specified. The servo pulse range is 1.0 to 2.0ms with 1.5ms as midpoint (matching driver 0-127-255 position range).
- Added simple settings wizards to the “P” and “R” cue settings windows. These allow simple specification of working range, fitted aircraft acceleration for tilt force cues and/or fitted aircraft pitch/bank angles for angle following cues. Makes cues setting tasks simpler.

Improved

- Coloured text indicators for Holding, Setting and Driving output modes.
- Altered TAB hotkey programming which closes the driver when TAB is hit. Now the kill hotkey can be set in the config file using the Key_Kill= parameter. The Default is Key_Kill=Tab to enable the TAB key as the kill key. Set Key_Kill=NONE to disable the kill key completely.
- Reduced FSUIPC data set for non-visual projector motion output – slightly eases processing load.
- Smoother progress bar motion.
- Additional data output to reg.log file to help debug registration issues.
- Scope button now toggles scope window on and off.
- Some small bug fixes.
- Fix for some hidden customised data output formats.
- Fixed broken full roll smoothness.

Added to PID Servo Controller V2.6beta96

- Added beta support for Dimension Engineering Sabertooth and SyRen motor controllers. In this version these can be used as an alternative motor driver to the Devantech MD03 controllers of the original drive. For more information see the support web page and the quick start document.
- Added a new startup output mode - “Stop_Motion”. Now when the servo controller is first started it will hold the platform actuators at their existing positions without initial movement. Subsequently the drive can be switched to “Hold_at_Start_Position” to bring the platform to its start position at reduced speed before the full position following mode is started using the “Engage_Drive” button.
- Added 40SPU-1 hardware error messaging for 40SPU-1 cards with firmware B programming (ie cards ordered after 16/2/10). This will help with system debugging activities.
- Made a number of smaller internal code improvements.
- Added ANALOG, SERVO and SERIAL output modes for use with special order dual chip 40SPU-2 cards.
- Added status logging with output to PID_SC.log and PID_DE.log files to assist set up trouble shooting.

- Added support for new 64SPU-1 signal processor card.
- Added SERIAL2x25 mode for dedicated Sabertooth 2x25 output formatting.
- Added support for 64SPU-1 Firmware B - for 12ADC-1 12bit pot feedback converter use. Raises servo loop speed to approx 70Hz with 12bit feedback resolution.
- Revised GUI to add “Display Minimise” button – with the display window “minimised” the CPU utilisation of the PID Servo Controller is substantially reduced. Background process handling also improved to reduce CPU utilisation.
- Added processing capability to interpolate Motion Driver v2.6beta22 cue demands in fitted polynomial curve format – improves motion smoothness and substantially improves PID algorithm “Derivative” term handling by deriving rate of change data analytically (Not for Falcon F4 version of driver).
- Improved position feedback processing from12ADC-1 12bit pot cards to give smoother position feedback rate of change data – improves PID algorithm “Derivative” term handling.

(Updated 25/11/10 for Motion Driver v2.6 beta25 & PID Servo Controller v2.6beta9660)

Note V2.6beta for Falcon F4 now available on the site to try as is a version for Condor Soaring!