

## **KFLOP**

Fix bug where changes to Kanalog Outputs sometimes are missed when multiple Threads are simultaneously changing them.

“Standard Derivative Method” can now be selected. In “Standard” mode the D term is derived from the Error rather than the Position.

```
BOOL StandardDerivativeMethod=FALSE; // select PID Derivative term based on: 0-Position, 1-Error
```

ch->Output now reset to 0 when Axis is Reset

Added Definitions in KMotionDef for:

```
void iOpenBuf(void); // Open Coordinated Motion Buffer
```

```
void iExecBuf(void); // Execute Coordinated Motion Buffer
```

```
void *memcpy(void *s1, const void *s2, size_t n); // copy bytes from s2 -> s1
```

```
void *memset(void *mem, int ch, size_t n); // set memory bytes with unsigned byte specified by ch
```

MessageBox() Flags no longer declared as 'L' (long long) to avoid warnings

Atomic Functions added for atomically setting 16-bit values to avoid multi-Threading issues

```
void AtomicSet16(unsigned short int *p, int mask);
```

```
void AtomicClear16(unsigned short int *p, int mask);
```

Firmware Compiled with newer Compiler 7.4.24

TI Compiler and utilities Version 7.4.24 included

DSP\_KFLOP\DSPKFLOP.sym Symbol table included to facilitate TI Compiler for User Programs

C Program code Validation using CppCheck or TI Compiler feature added – Right Click in C Code

C Program Indent Feature added to automatically prettify C Code – Right Click in C Code

## **CCoordMotion Library**

CheckCollinear is exported

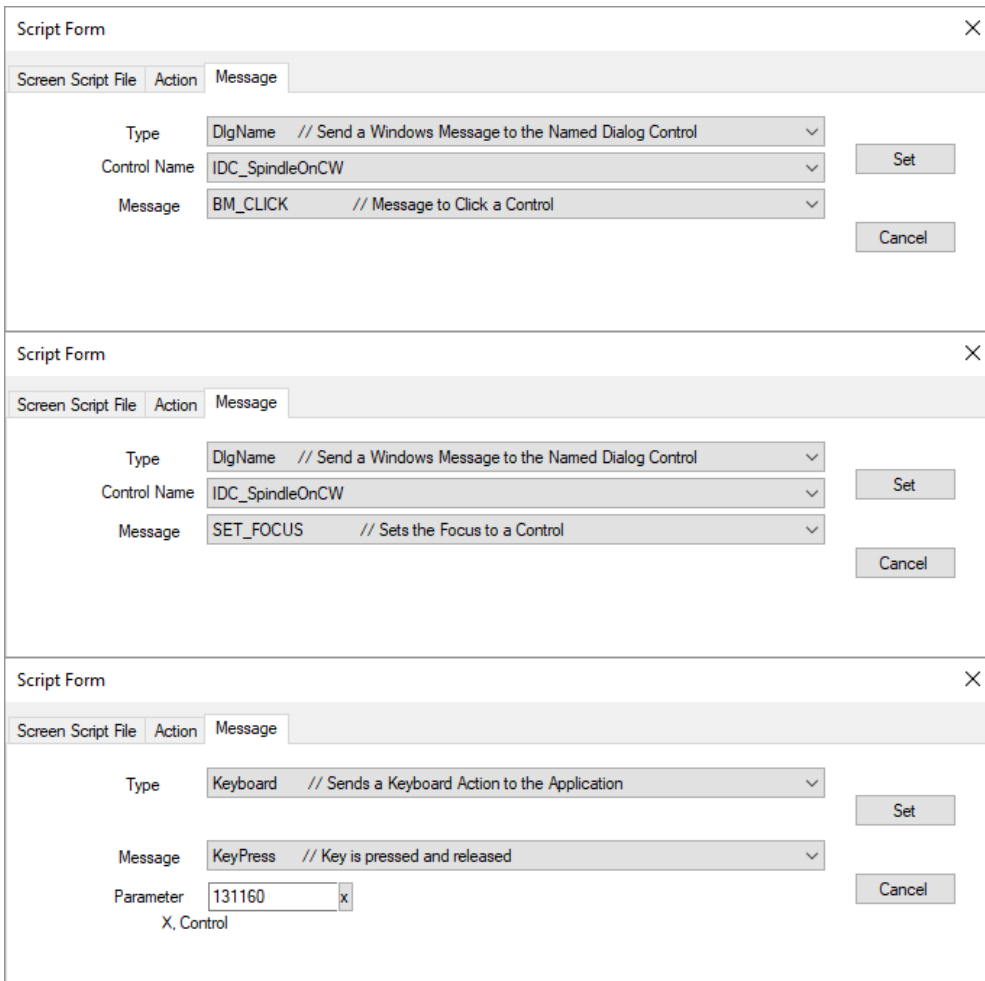
## **Kinematics**

New Kinematics Kinematics5AxisTableAGimbalB - Table rotates about A Gimbal rotates tool about B

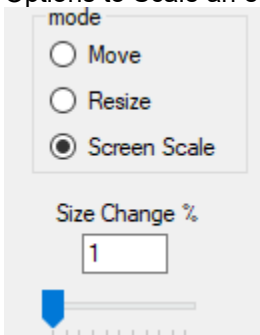
## **KMotionCNC Screen Editor**

“Subscript” command added to allow Top level Script files to not reset all controls to default before executing the Screen Script

New Screen Script Message Types added to allow Buttons to be Clicked, Set Focus to any Control, Keyboard Keys Pressed Down, Released up, or Pressed and Released.



Options to Scale an entire Screen added



KMotionCNC\Screens\RawCustomWithJobTimeDRO.scr example added – works with ServiceJobTimer.c example

## **C Program Examples**

KflopToKMotionCNCFunctions.c – Add Execute Screen Script  
 int ScreenScript(char \*s) and fix warnings

to send a Screen Script String to KMotionCNC  
 KFLOPtoKMotionCNCScreenScript.c

CorrectEncoders.c Added (similar to lead screw comp)

InterCommunicateThread1.c Added

InterCommunicateThread2.c Added

ServiceJobTimer.c Added for use with screen script RawCustomWithJobTimeDRO.scr

Setup GCode 4 axis DAC signMag.c Added

Flash/Restore Coordinated Motion Buffer Examples for standalone operation

\FlashNonVolatile\FlashCoordMotionBuffer\FlashCoordMotionReadData.c

\FlashNonVolatile\FlashCoordMotionBuffer\FlashCoordMotionWriteData.c

\FlashNonVolatile\FlashCoordMotionBuffer\MonitorParametricIndex.c

MPGServiceSmoothHardwareEncFiltered.c fix K1M K2M bug

MPGServiceSmoothHardwareEncFilteredRev2.c Cleanup

MPGServiceSmoothHardwareEncFilteredRev3.c new Rev Factors Added

SimulateMotor.c numerically simulates motor/mass/encoder/delay use with ConfigForMotorSimulation.mot

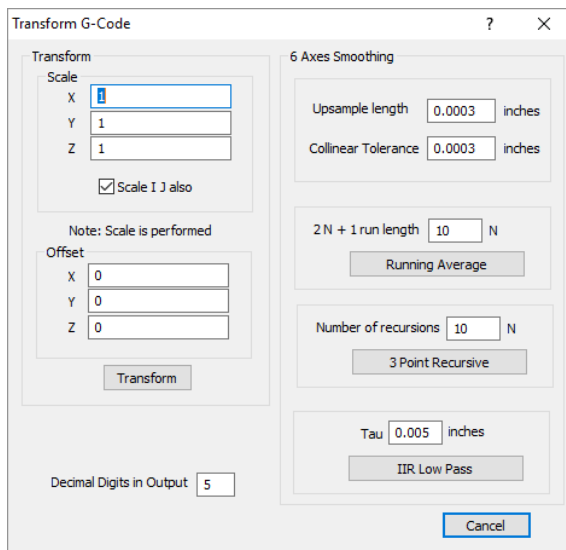
## **KMotionCNC / GCode Interpreter**

Command added to send KMotionCNC Screen Script commands from KFLOP

```
#define PC_COMM_SCREEN_SCRIPT 56 // Persist+1 = gather buffer offset (32-bit words) to Screen Script String
```

“Subscript” command added to allow Top level Script files to not reset all controls to default before executing the Screen Script

GCode Smoothing options added. Various options (Up Sample, Low Pass/3pt recursive/running average, Re-Combine with Collinear Tolerance) Filter added to the Right-Click Transform Dialog to allow Low Pass filtering of a selected GCode Path.



Issue with saved Origin offsets being incorrectly converted between mm/Inches solved. When offsets were saved in one unit but KMotionCNC starts up in another unit, and the same origin was selected as the default, the offsets were incorrect.

Invalid Q Value in G83 Canned Cycle now detected

\Data\KeepOffsetsMMFanucComp.set GCode Compiler Settings example to keep offsets, default mm, Fanuc Compensation Mode.

GCode Viewer Top, Right, Front View selections now zoom out and center properly in both perspective and orthographic modes

GCode Editor Hot key Ctrl-H now brings up Find/Replace dialog

GCode Editor Hot keys for Undo, Redo, Select All, Cut, Copy, Paste, Find, Find/Replace now displayed in context menu

Hot Keys for Jog Motion Buttons now allowed to be assigned for all 6 axes vs only the first 4

When internal automatic Tool Length Compensation is turned on RTCP is also enabled with G43.4 instead of only G43

Displayed Spindle Speed now correctly displayed when in CSS and Diameter mode

Logarithmic Sliders for Spindle and Feedrate now display properly when being scaled by Screen Editor

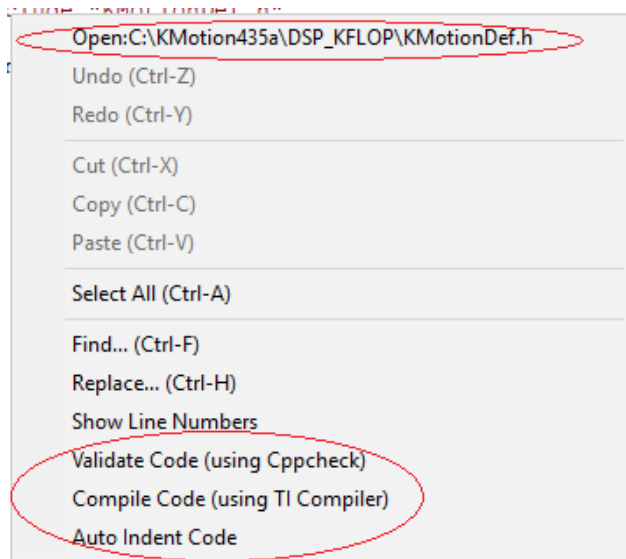
Jog Step buttons now move the correct amount in X when in diameter mode

## **KMotion.exe**

Right clicking on include file includes option to quickly open the include file in the next Thread (or switch to the Thread it is already open in)

C Program code Validation using CppCheck OR TI Compiler feature added – Right Click in C Code

C Program Indent Feature added to automatically prettify C Code – Right Click in C Code



Double clicking on errors in the output Window goes to the error and opens an included file if necessary.

The “New File” template now defines the main function as “void” to avoid any warning if there isn’t a value returned on exit

The Texas Instruments Optimizing Compiler is now easily usable by adding a compiler pragma at the beginning of the file. The optimization level of 0-3 can be specified as a parameter as well as the Thread Space Size if it is desirable to allow overflow of the Thread Space. Functions and Variables can also be linked to a small amount of high-speed Internal DSP RAM

```
pragma TI_COMPILER //defaults to optimization level 0 and normal Thread size of 0x10000 (Thread #7 = 0x50000)
#pragma TI_COMPILER(3)
#pragma TI_COMPILER(3,0x20000)
```

To put a function in Fast Internal RAM  
#pragma CODE\_SECTION(FunctionName, ".IRAM")

To put a variable in Fast Internal RAM  
#pragma DATA\_SECTION(VariableName, ".IRAM")

The C Program output window will now expand when it contains a large amount of Errors or Warnings.

C Program Editor Hot key Ctrl-H now brings up Find/Replace dialog

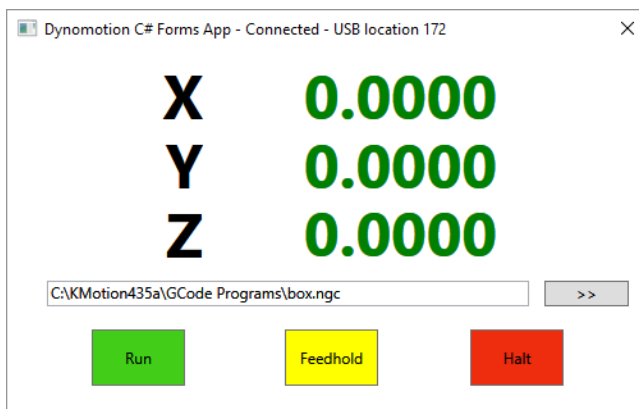
C Program Editor Hot keys for Undo, Redo, Select All, Cut, Copy, Paste, Find, Find/Replace now displayed in context menu

## .NET

KM\_Controller.Compile Function fixed

## SimpleGCodeWPF

C# .NET Windows Presentation Foundation Example to run GCode Added



## Help

Uniform Styles added

Local help now used IE 9 Emulation for better compatibility

How to set Parameters Flash Video converted to HTML to avoid requiring Adobe Flash

KNozz info corrected and updates

Many fixes and updates