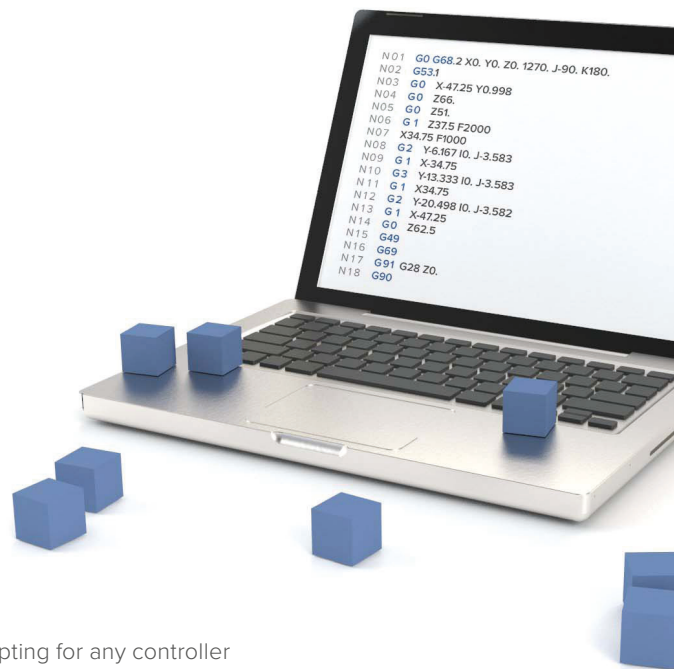# Post Processor Framework
Component

ModuleWorks Post Processor Framework (PPF) uses a custom post script to generate NC-Code from the output of the ModuleWorks kinematic solver (MultiXPost) or from any other source. PPF runs on a network server and on any operating system with python support.

The Post Processor Framework (PPF) lets you script the NC-output for any custom machine tool or robot and stream it directly to that device. PPF uses ModuleWorks MultiXPost as a front-end component to resolve any machine kinematic. Alternatively, you can use the API to integrate the software into your own toolpath environment, independent of the ModuleWorks toolpath calculation.

```
N01   G0 G68.2 X0. Y0. Z0. 1270. J-90. K180.
N02   G53.1
N03   G0   X-47.25 Y0.998
N04   G0   Z66.
N05   G0   Z51.
N06   G1   Z37.5 F2000
N07   X34.75 F1000
N08   G2   Y-6.167 I0. J-3.583
N09   G1   X-34.75
N10   G3   Y-13.333 I0. J-3.583
N11   G1   X34.75
N12   G2   Y-20.498 I0. J-3.582
N13   G1   X-47.25
N14   G0   Z62.5
N15   G49
N16   G69
N17   G91 G28 Z0.
N18   G90
```

```
73 Y-72.500000 Z-19.7
46 Y-72.500000 Z-19.7
19 Y-72.500000 Z-19.8
91 Y-72.500000 Z-19.8
64 Y-72.500000 Z-19.9
36 Y-72.500000 Z-19.9
09 Y-72.500000 Z-20.0
82 Y-72.500000 Z-20.0
54 Y-72.500000 Z-20.1
27 Y-72.500000 Z-20.1
00 Y-72.500000 Z-20.2
```

NC-Code

Key Benefits

- Flexible and customized scripting for any controller
- Fast NC-code generation, up to 50,000 moves per second
- Open kinematics format definition
- API for easy integration into existing CAM solutions
- API documentation with descriptions of CI commands
- Available as a cloud server for multiple post processing
- NC-Code streaming of over 100 million toolpath points

Controller

Custom output

- ISO-4343
- Sinumerik
- Fanuc
- Heidenhain
- MWCL (shows supported options for simulation)
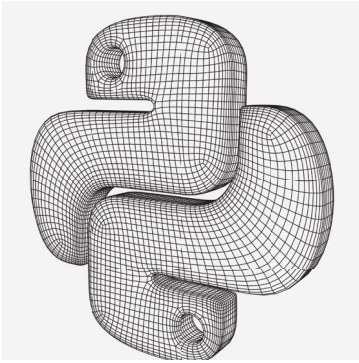- Binary data / APT
- and more

Flexible logic

Flexible logic

- Output NC-commands prior to and after an operation
- Output NC-commands at specific positions in the toolpath
- Add NC-commands if specific markers (e.g. layer start/end, slice start/end) are present in the toolpath moves.

Python code language

Python scripts

Customize the post processor with your own Python scripts:
- Force the Machine Simulator to use different axis values or return axis values.
- Simulate complex machine kinematics that are not supported in the current kinematic tree.
- Open source post-processor writing
- Full debugging capability

Documentation

API and user documentation

Full PPF documentation for users and developers:
- Sample posts
- Tutorials and concepts
- PPF architecture and versioning
- Descriptions of the CL commands
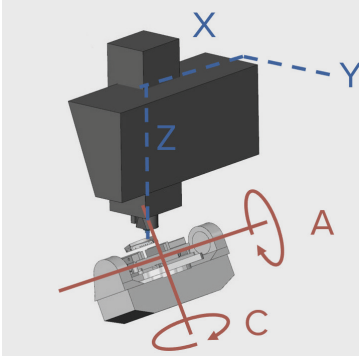- C++ integration
- .NET integration

Illustration of a Multiaxis machine

MultiXPost

Universal kinematics solver for inverse and direct machine kinematics that converts MW toolpath objects to the machine tool coordinate system:
- Open XML format for machine definition
- Use the kinematics model of the machine to refine the kinematics solution
- Fast kinematics solver: >50K moves/sec
- Supports 2-6 axis machines
- Supports 6-axis robots, rail tables, grippers etc.

For information on other CAD/CAM components, including simulation and 5-axis toolpaths, visit:
www.moduleworks.com

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