



An EPICS solution that can provide a comprehensive, and high performance motor control system for use at synchrotrons and other research laboratories

Model 3 motor architecture

Model 3

•Top level object is the EPICS motor record

•Lots of code/scripts written to this object

•Next layer is the device support

•Knows about the motor record and talks to the driver

- •Lowest layer is EPICS driver
 - •Knows nothing about the motor record and talks to the hardware
- •C++ model based on asynPortDriver

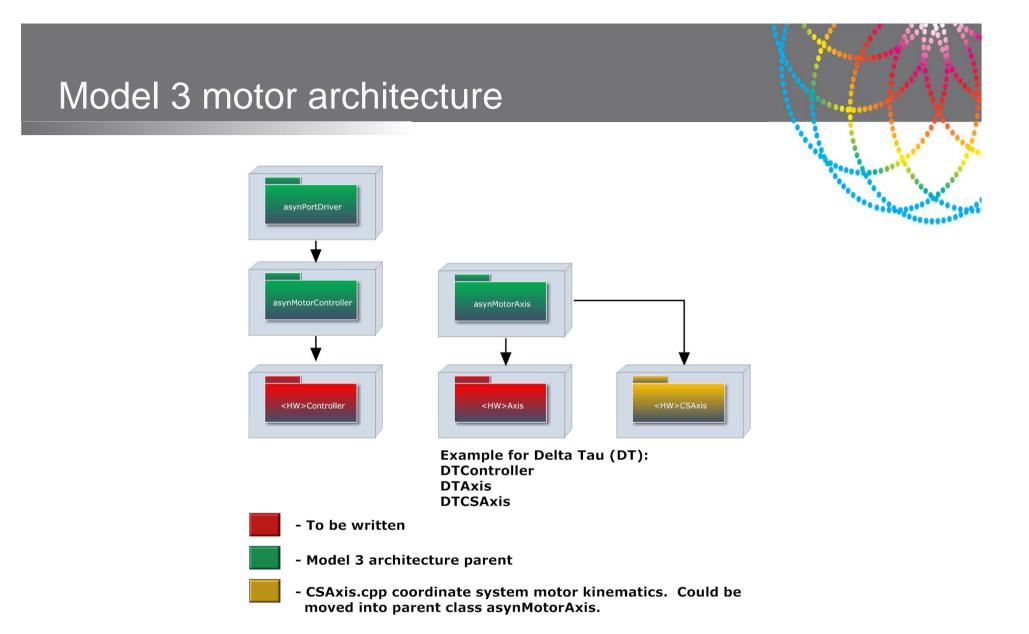
•ASYN paramList makes it easy to support hardware specific features

- •Support for ad-hoc coordinated motion
- •Support for coordinated profile motion

•Easily extended to provide a framework for coordinate system motors











Hardware specific features

- ASYN paramList
 - Auto amplifier on/off
 - Auto brake on/off
 - Encoder stall time
 - Motor type
 - Encoder type



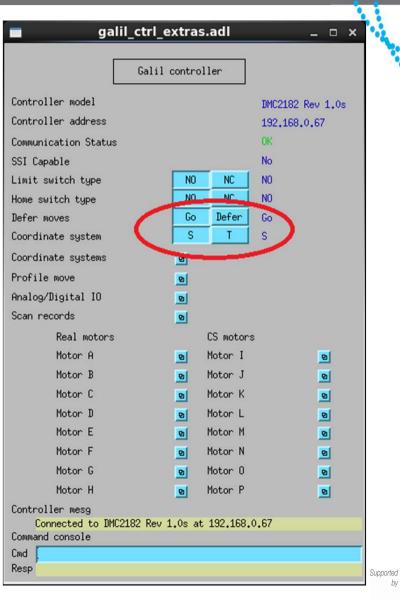
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Motor connected	Connected			
dotor type	LA Stepper		LA Stepper	
Main encoder	Normal Quadrature	1000	Normal Quadrature	
Aux encoder	Normal Quadrature	lines (Pulse and Dir	
Motor off on error	Off	-	Off	
Wrong limit protection	On	*	On	
Motor amplifier	On	*	Off	
Amp auto on/off	On	•	On 0.001 Secs	
Amp on/brake off delay	0.001 Secs	_	0.200 Secs	
Amp off delay Brake on delay	0.200 Secs	_	0.200 Secs	
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Incoder stall			0 cts Working Ok	
Incoder stall time	0.001 Secs	-	0.001 Secs	
Incoder deadband	0.001 mm	-1	0.001 mm	
Step smooth factor	1.313	-	1.312 mm	
GU after limit	0.001 mm		0.001 mm	
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log after home	No	-	No	
log after home to	1.000 mm		1.000 mm	
Servo velocity			0 cts/s	
Servo velocity			0 mm/s	



Ad-hoc coordinated motion

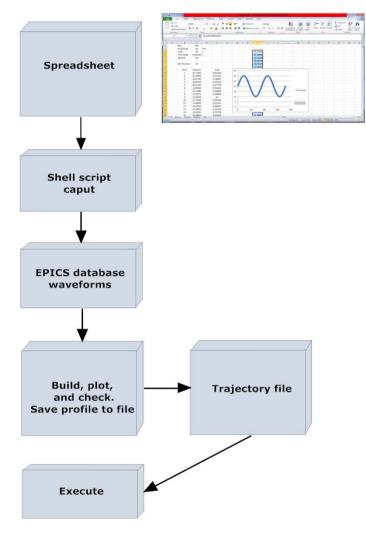
- Deferred moves facility
 - Select deferred
 - Select coordinate system
 - Move all motors
 - Select go
 - Motion coordinated by hardware





ted by Australian Government

HowTo: Profile moves





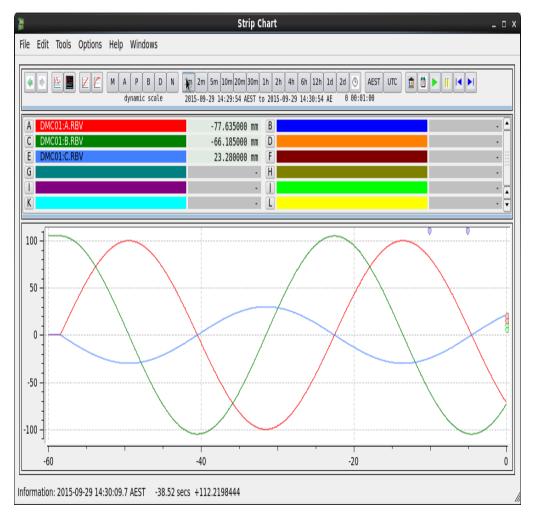
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HowTo: Profile moves

• Motor profile in action







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Coordinate system (CS) motors

- CSAxis.cpp provides kinematics for coordinate system motors
- 8 Real motors are A to H
- 8 CS motors are I to P
- 10 variables for use in kinematics

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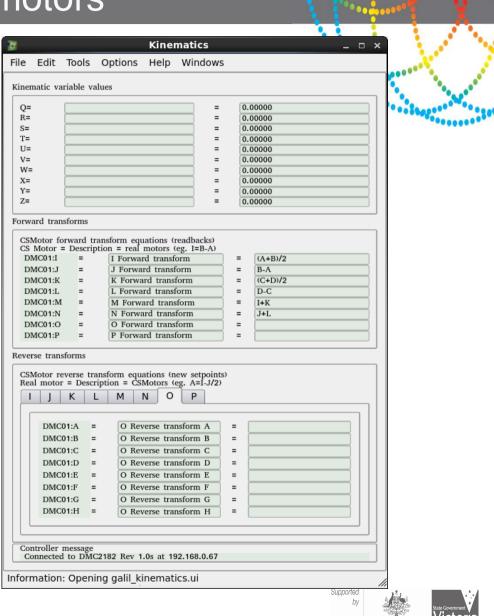




Coordinate system (CS) motors

- Kinematics changed by database
- Kinematics could be moved into asynMotorAxis parent class or remain in CSAxis

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Motor Motor de	DMC01:I			Ø
Readback	52.50000	mm		
Drive	52.50000			
Jog- <	1.00000		>	Jog+
Home-	Go	•	Н	ome+



Australian Government



Questions?

• Demo at Motion Solutions Australia booth

