MCS-8
The 8 axes motion control system

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PCaPAC, Jefferson Lab, October 24th 2006
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What is the MCS-8?

- 8-axes motion controller box (developed by Oxford Danfysik (UK) and Cosylab)
- Includes:
  - Commercial motion controller (Delta Tau Turbo PMAC2)
  - Embedded Cosylab microIOC
  - All the I/O units, including power drivers

- What can we do with it?
  - All kinds of motors: stepper, servo, pico, piezo...
  - Inputs for limit switches, home switches, encoders
  - Control or monitor digital and analog I/O
Hardware

- 4-U case
- 500W power supply
- Sufficient cooling (fans)
- Selectable motor drivers (external drivers possible)
- Over travel limits
- Encoder loss detection
Software

- **Turbo PMAC2**
  - Motion programs (capable of commanding up to eight axes of motion synchronously)
  - PLC programs (background tasks, status checking, ...) 
  - User written servo algorithms (executed at more than 2 kHz)

- **MicroIOC provides Linux (Debian) or Windows platform.**
  - Ethernet communication to PMAC (linux ethernet driver developed by Cosylab)
  - Can be used with EPICS, TANGO, TINE, ...

- **Supported third-party applications**
  - SPEC
Where is it being used?

- Optical chicane (ASP)
- Hexapod mirror control (SLS) – migrated from VME system developed for Diamond
- Protein Crystallography beamline (ASP)
- Powder Diffraction beamline (ASP)
- Non EPICS projects:  
  - INDUS (SPEC)
- More than 20 pcs already sold!
Main benefits

- Control any type of motor (power driver type has to be selected upon purchase)
- Plug and Play – Simplify life
- Reduce the installation time and effort (=cost)
  - Set up motor controls in a very simple way without giving up functionality
  - Reduced cabling (just bring in your motor, switches and encoder cables + Ethernet and power)
- All advanced features of the Delta Tau controller:
  - Fast acting PID control with multiple co-ordinate systems and a variety of flexible control algorithms.
  - Synchronized movement of multiple axes, also across several controllers
  - Forward and inverse Kinematics capability.
  - Full PLC control with programming facility as standard.
Future plans

• EPICS
  – we want to move to asyn driver based motor record

• TANGO or TINE device server
  – anybody interested?

• All development from our projects will get fed into the MCS-8 software

• Power PMAC is a new product line from Delta Tau featuring Power PC and a RT Linux (most probably) operating system
  – We are looking how to best use it in new generations of MCS-8
Conclusion

• A motion control solution that easily integrates into control system
• Basic functionality working out of the box
• Custom requirements are easily implemented
• Available now

• For orders and enquiries please contact:
  csl-sales@cosylab.com
  http://www.microioc.com/MCS-8.htm
Thank you for your attention

Any questions?