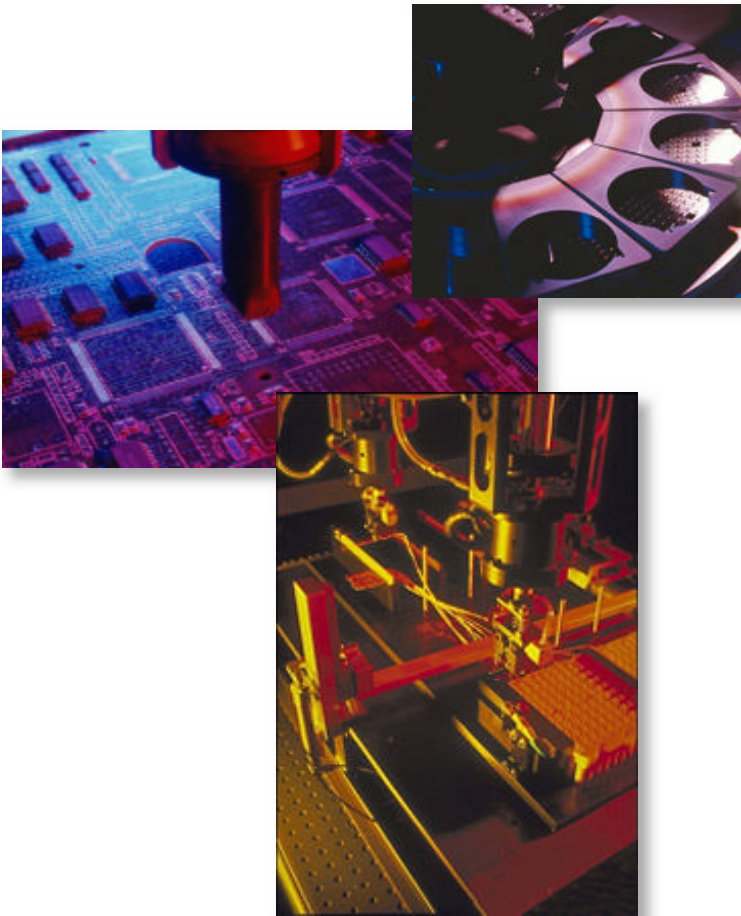# PMC...
Motion Control for
OEM Machine Builders

Precision MicroControl is a leading manufacturer of multi-axis motion controllers for servo & stepper motor control. Since 1987 we have been dedicated to helping OEM's design and build more reliable, accurate and cost-effective machines.

Helping Machine Designers Achieve

- *Higher Reliability*
- *Lower Cost*
- *Faster Time-to-Market*
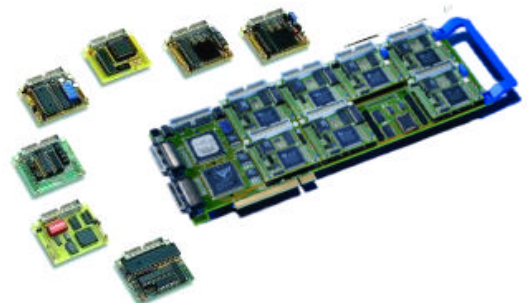
PMC motion controllers are intimately involved in the development, production and operation of hundreds of products – from telescopes and jet airliners to cell phones and semiconductors. Today, more than 50,000 PMC motion controllers are deployed around the world for applications in semiconductor manufacturing, robotics, material cutting, electro-optics, instrumentation and electronics assembly.

Our Mission

PMC's mission is to help capital equipment manufacturers design and build more reliable, accurate and cost-effective machines by providing motion controllers, software tools and engineering support offering the best quality and value in the motion control industry.
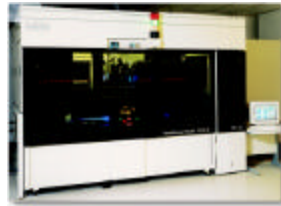
Our Values

Excellence and integrity are the cornerstones of our old-fashioned approach to business - and it shows. Our long-term customer relationships, many lasting over a decade, attest not only to the strength of our products, but also to the quality of our dedicated employees. We are proud of the PMC engineers & staff who have embodied these key values. By doing so they have earned the trust and respect of customers around the world.

Our Products

In 1987, PMC developed and commercialized the first modular multi-processing motion control architecture, which today offers the most flexible and robust board-level motion control available. We provide a wide range of motion control cards, accessories and software for OEM machine builders. See our detailed brochures and product manuals to learn more about PMC's unique products and technology.
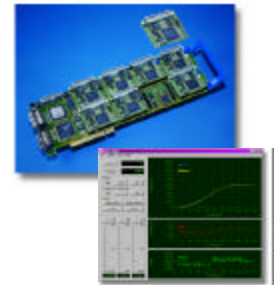
Our Support

You can rely on our application engineers to provide immediate technical assistance throughout your project cycle – from specification to full-scale production and beyond. We strive to help ensure your success. To that end, we also offer *Free Evaluations*, *Custom Engineering, Individually Tailored Training Courses* and a comprehensive *5 Year Warranty on all products*.

Our Experience

On the following page we've summarized some examples of real-world applications that represent the fulfillment of our mission; To help manufacturers design and build more reliable, accurate and cost-effective machines…

15 Years of Experience...

To illustrate the extent of PMC's experience and contributions in industry over the past 15 years, we've summarized below some broad highlights of just a few of the many customers and applications that we serve.
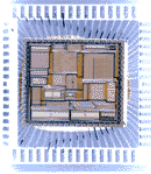
- The leading US manufacturer of inspection systems for the global semiconductor industry uses PMC motion controllers to calibrate and focus their multi-million dollar inspection machines. These state-of-the-art machines are being used to dramatically improve part yields in major semiconductor fabs around the world.

- Two of the largest providers of fiber-optic and electro-optical components for high-speed digital networking & telecommunications use PMC controllers to calibrate and precisely align their components during the demanding assembly processes.

- A major manufacturer of CNC forming machines relies on PMC controllers to provide accurate coordinated motion for shaping complex metal parts. These powerful machines are used by US aerospace companies to form critical structural members of the world's largest commercial airliners.

- The world's top producer of cellular telephones relies on PMC motion controllers for fast and accurate assembly and inspection of their products.

- A leading Japanese manufacturer of scanning electron microscopes uses PMC motion controllers to accurately control the image focus and field-of-view of their highly sophisticated instruments.

- A global manufacturer of commercial printing presses uses PMC motion controllers to control high-speed slitting operations on their flagship family of printing presses. These presses are responsible for a significant portion of the world's daily production of newspapers and magazines.

- The world's largest computer disk-drive manufacturer uses PMC motion controllers extensively throughout their global manufacturing operations to assemble and test their products.

- For over a decade, many of the world's prestigious national laboratories have consistently relied on PMC motion controllers to carry out their advanced research programs.

These are just a few brief examples that represent the fulfillment of our mission to help manufacturers design and build more reliable, accurate and cost-effective machines. We likewise welcome the opportunity to help make your next machine design project a success.

Product Selection Guide

Product Family	Multi Flex		DCX							DC2	
Series	MultiFlex PCI Series		DCX 300 Series			DCX 200 Series		DCX 100 Series		DC2 Series	
Part Number	MFX-PCI 1440	MFX-PCI 1040	DCX-PCI 300	DCX-AT 300	DCX-VM 300	DCX-AT 200	DCX-VM 200	DCX-PCI 100	DCX-PC 100	DC2-PC100	DC2-STN100
Distinguishing Characteristics	4 analog axes plus 4 pulse axes	4 pulse axes	High-performance up to 16 axes	High-performance	High-performance	Value performance	Value performance	Direct-drive for small servo motors	Low cost up to 8 axes	Low cost 2+2 axes	Stand-alone 2+2 axes
Form-Factor	PCI short-card	PCI short-card	PCI	ISA	VME	ISA	VME	PCI	ISA	ISA	Stand-Alone
Servo Control	Yes	Pulse only	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stepper Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes	Indexing only	Indexing only
Total Number of Axes	8	4	1-16	1-6	1-6	1-6	1-6	1-8	1-8	4	4
Analog Command (Servo) Axes	4	-	1-16	1-6	1-6	1-6	1-6	1-8	1-8	2	2
Pulse Command (Stepper or Servo) Axes	4	4	1-16	1-6	1-6	1-6	1-6	0	1-8	2 (Indexer)	2 (Indexer)
Number of Closed-Loop Axes	4 or 8 (option)	4 (option)	1-16	1-6	1-6	1-6	1-6	1-8	1-8	2	2
Servo Loop Rate (each axis)	4 KHz PID-FF	1 KHz PID-FF	8 KHz PID-FF	8 KHz PID-FF	8 KHz PID-FF	2 KHz PID-FF	2 KHz PID-FF	3.3 KHz PID-FF	3.3 KHz PID-FF	1 KHz PID-FF	1 KHz PID-FF
Encoder Frequency Limit	20 MHz	20 MHz	10 MHz	10 MHz	10 MHz	1 MHz	1 MHz	1 MHz	1 MHz	1 MHz	1.25 MHz
Pulse (stepping) Frequency Limit	5 MHz	5 MHz	5 MHz	5 MHz	5 MHz	1.25 MHz	1.25 MHz	N/A	1.25 MHz	30 KHz	30 KHz
Multi-Axis Coordinated Motion	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Yes	Yes
Modes of Motion	Point-to-point Linear/Circular Velocity/Torque Gearing/Slaving Continuous Path	Point-to-point Linear/Circular Velocity Gearing/Slaving Continuous Path	Point-to-point Linear/Circular Velocity/Torque Gearing/Slaving Continuous Path	Point-to-point Linear/Circular Velocity/Torque Gearing/Slaving Continuous Path	Point-to-point Linear/Circular Velocity/Torque Gearing/Slaving Continuous Path	Point-to-point Linear/Circular Velocity/Torque Gearing/Slaving Continuous Path	Point-to-point Linear/Circular Velocity/Torque Gearing/Slaving Continuous Path	Point-to-point Velocity/Torque	Point-to-point Velocity/Torque	Point-to-point Linear/Circular Velocity/Torque Gearing/Slaving Continuous Path	Point-to-point Velocity/Torque Linear Gearing/Slaving Camming
Motion Profiles	Trapezoidal, Parabolic S-Curve	Trapezoidal, Parabolic S-Curve	Trapezoidal, Parabolic S-Curve	Trapezoidal, Parabolic S-Curve	Trapezoidal, Parabolic S-Curve	Trapezoidal, Parabolic S-Curve	Trapezoidal, Parabolic S-Curve	Trapezoidal	Trapezoidal	Trapezoidal	Trapezoidal
On-Board Program Multi-tasking	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	Yes
Direct-Drive of Small DC Servos	-	-	-	-	-	Yes	Yes	Yes	Yes	Yes	-
AC Brushless Sine Commutation	-	-	Yes	Yes	Yes	-	-	-	-	-	-
Closed-Loop Stepper	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	-	-	-
Axis I/O (limits, home, amp enable, etc.)	Yes (optoisolated)	Yes (optoisolated)	Yes (optoisolated)	Yes (optoisolated)	Yes (optoisolated)	Yes	Yes	Yes	Yes	Yes	Yes (optoisolated)
General-Purpose I/O	32 Digital I/O (16 in/16 out)	32 Digital I/O (16 in/16 out)	16 Digital I/O 8 in, 8 out	16 Digital I/O configurable	-	16 Digital I/O configurable, 4 Analog in	-	16 Digital I/O 8 in, 8 out	16 Digital I/O configurable, 4 Analog in	16 Digital I/O 4 Analog in	16 Digital I/O 8 in, 8 out 4 Analog in
Optional General-Purpose I/O	8 Analog in 14 bit	8 Analog in 14 bit	Digital - 128 I/O Analog 12 bit 32 in, 32 out	Digital 96 I/O Analog 12 bit 24 in, 24 out	Digital 96 I/O Analog 12 bit 24 in, 24 out	Digital 96 I/O Analog 12 bit 24 in, 24 out	Digital 96 I/O Analog 12 bit 24 in, 24 out	Digital - 128 I/O Analog 12 bit 32 in, 32 out	Digital - 128 I/O Analog 12 bit 32 in, 32 out	-	-
Interconnection & Cabling	High-density shielded cables for all signals	High-density shielded cables for all signals	High-density shielded cable or ribbon cable	Ribbon Cable	Ribbon Cable	Ribbon Cable	Ribbon Cable	Ribbon Cable	Ribbon Cable	15 pin D-Sub	15 pin D-Sub
Programming Libraries & Utilities for C/C++, Visual Basic, Delphi, LabVIEW	Yes	Yes	Yes	Yes	-	Yes	-	Yes	Yes	Yes	Yes
Operating System Support Win 98/NT/2000/XP	Yes	Yes	Yes	Yes	-	Yes	-	Yes	Yes	Yes	Yes

This chart represents only a limited sample of the features supported by our motion controllers.
For complete product specifications, see our individual product data sheets in the Products section of our web site - www.pmccorp.com