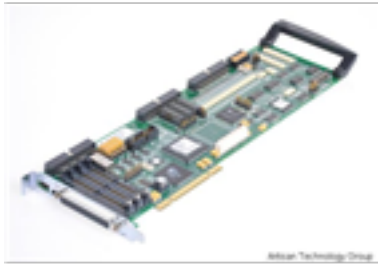
Compumotor ACR8020

Motion Controller



Limited Availability
Used and in Excellent Condition

Open Web Page

https://www.artisantg.com/63839-1

PCI/PC Bus Operation

The ACR8020 is Compumotor's premier controller for PCI bus operation. It has the ability to run eight servo loops (16 with expansion board), DAC or Stepper outputs and 10 encoders (20 with expansion board) at 20 MHz counting rate. It can also be equipped with up to 8 analog (12- or 16-bit resolution) inputs. Multi-axis coordinated motion can be performed in multiple groups of axes. Because of the ACR8020's modular design, a combination of both servo and stepper axes can be applied on the same controller. All of Compumotor's Acroloop products utilize the same system software and programming language; this assures users complete flexibility in upgrading their hardware while maintaining their investment in program development.

The ACR8020's processing speed is unmatched in the industry at 120 Mega Floating-point Operations Per Second (MFLOPS)!

ACR8020 Exclusives

- 120 MFLOPS, 32-bit floating-point DSP
- 8 axes of servos or steppers (expandable to 16)
- 10 encoder inputs at 20 MHz (expandable to 20)
- User and system memory 512 KB (expandable to 2 MB) each
- Encoder loss and fault protection
- 64 optically isolated 24VDC I/O expandable to 320 I/O
- Dual-port memory standard
- Master PCI DMA interface
- Full-size PCI card
- Optional communications interface (includes 2 serial ports–RS232/RS422/RS485–and 1 parallel port)

ACR8020 (1- to 8-Axes) Ordering

8020 □ □ □ □ □ □ □

PC - PCI Bus Card
PS - PCI Bus Card w/ 2 Serial and and 1 Parallel Port

E0 - 0 Encoder Inputs
E4 - 4 Encoder Inputs
E5 - 5 Encoder Inputs
E8 - 8 Encoder Inputs
E10 - 10 Encoder Inputs

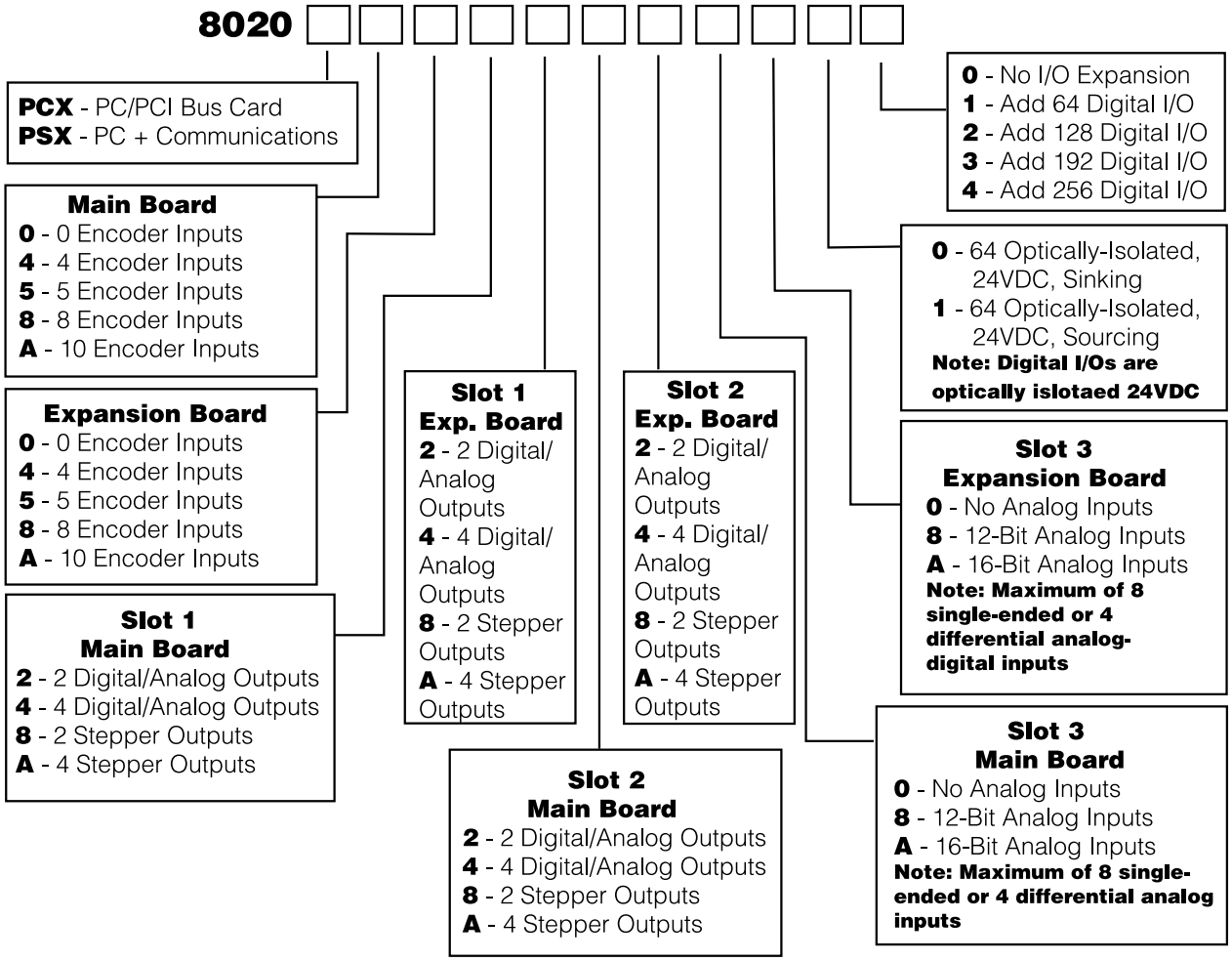
D2 00 - 2 Servo/Analog Outputs
D4 00 - 4 Servo/Analog Outputs
D4 D2 - 6 Servo/Analog Outputs
D4 D4 - 8 Servo/Analog Outputs
S2 00 - 2 Stepper Outputs
S4 00 - 4 Stepper Outputs
S4 S2 - 6 Stepper Outputs
S4 S4 - 8 Stepper Outputs
D2 S2 - 2 Analog and 2 Steppers
D4 S2 - 4 Analog and 2 Steppers
D2 S4 - 2 Analog and 4 Steppers
D4 S4 - 4 Analog and 4 Steppers

A0 - No Analog Inputs
A8 - 12-Bit Analog Inputs
AA - 16-Bit Analog Inputs
Note: Maximum of 8 single-ended or 4 differential analog inputs

0 - 64 Optically-Isolated, 24VDC, Sinking
1 - 64 Optically-Isolated, 24VDC, Sourcing

0 - No I/O Expansion
1 - Add 64 Digital I/O
2 - Add 128 Digital I/O
3 - Add 192 Digital I/O
4 - Add 256 Digital I/O

ACR8020 (9- to 16-Axes) Ordering



ACR8020 Specifications

	Value
Hardware	
Axes/controller	2-8 axes (Expandable to 16)
PC-Bus interface	PCI
Standalone option	NA
Processor	32- /64-bit floating-point DSP @ 120 MFLOPS / 60 MHz
Trajectory calculation	64-bit precision
User memory	512 KB (expandable to 2 MB); 2 MB (standard for 9- to 16-axes cards)
System memory	512 KB (expandable to 2 MB); 2 MB (standard for 9- to 16-axes cards)
Firmware	Flash-based
Flash memory	512 KB (expandable to 2 MB)
Size	Full-size PCI
Operating system	Multi-tasking RTOS
Performance	
Multi-tasking	16 coordinated systems, motion/PLC programs
Trajectory update	Every 100-500 usec
Servo update	25 usec/axis
Ladder Logic PLC	100-500 usec scan time
Interpolation	Linear, circular, sinusoidal, helical and elliptical, splines, NURBS, 3D arcs
Servo loop	PID, velocity feedforward, acceleration feedforward notch, LoPass filtering
Position regulation	Hardware, < 1usec
Communications	Simultaneous PCI, serial and LPT ports
Communications	
PC bus	Bus mastering PCI with dual-port memory
Optional interface	2 serial ports (RS232 and/or RS422), 1 parallel port (8 bits)
Inputs	
Encoder input	10 (expandable to 20) at 20 MHz post-quadrature
Analog input - Auxiliary	Up to 8 (12- or 16-bit)
Command Signal	
Analog outputs	Up to 16 (16-bit precision)
Stepper outputs	Up to 16 @ 1 MHz
Digital I/O	64, 24 VDC optically-isolated (expandable to 320)
Software Support	
Standard language	Visual Basic, Visual C++, C++
Program tools	AcroVIEW Motion/PLC Program
Development tools	ActiveX controls/OCX controls
Operating system	Windows® NT, 98, 2000, XP
Additional firmware highlights	Triggered floating point electronic GEARING Triggered segmented electronic CAM On-the-fly position and velocity matching Ladder Logic PLC Interruptible moves Either analog or digital feedback for position or velocity loops Dual-encoder feedback Data teach and learn functions Parameter-based with over 15,000 addressable pre-defined hardware registers Sinusoidal commutation NURBS and splines 3D arcs Automatic tangential tool operation

PC-Bus Operation

The ACR8010 is Compumotor's feature-rich controller for ISA PC-bus Operation. The ACR8010 is capable of standalone or PC-bus operation. It has the ability to run up to eight servo loops, with up to 10 encoders at 20 MHz. It can be equipped with eight optional analog inputs through a 12- or 16-bit analog/digital converter (ADC) and introduce these inputs into servo loops. Because of the unit's modular design, it is possible to have several axes of servo with several axes of stepper on the same controller. All of Compumotor's Acroloop products utilize the same system software and programming language; this assures users complete flexibility in upgrading their hardware while maintaining their investment in program development.

The ACR8010 is Compumotor's answer to affordable high-performance control when flexibility, real-time speed and ease of programming are most needed.

This product is the successor to the very popular ACR8000 and offers plug compatibility with the older product.

ACR8010 Exclusives

- 8 axes of servo or stepper control
- 60 MFLOPS floating-point DSP
- Up to 10 encoder inputs at 20 MHz
- User and system memory 512 KB standard (each expandable to 2MB)
- Encoder loss and encoder fault protection
- 64 optically isolated 24 VDC inputs and outputs (expandable to 320 optically isolated 24 VDC inputs and outputs)
- Up to 4 communication channels (PC bus, 2 serial RS-232/RS-422, 1 parallel port)
- Dual-port memory option
- Single slot plug-and-play controller

ACR8010 Ordering

8010 □ □ □ □ □ □ □

PC - PC/ISA Bus Card
SA - Standalone Card
PS - PC and Standalone
Note: SA and PS options include 2 serial and 1 parallel port. Serial ports are programmable for RS232 or RS422 communications.

E0 - 0 Encoder Inputs
E4 - 4 Encoder Inputs
E5 - 5 Encoder Inputs
E8 - 8 Encoder Inputs
E10 - 10 Encoder Inputs

D2 00 - 2 Servo/Analog Outputs
D4 00 - 4 Servo/Analog Outputs
D4 D2 - 6 Servo/Analog Outputs
D4 D4 - 8 Servo/Analog Outputs
S2 00 - 2 Stepper Outputs
S4 00 - 4 Stepper Outputs
S4 S2 - 6 Stepper Outputs
S4 S4 - 8 Stepper Outputs
D2 S2 - 2 Analog and 2 Steppers
D4 S2 - 4 Analog and 2 Steppers
D2 S4 - 2 Analog and 4 Steppers
D4 S4 - 4 Analog and 4 Steppers

A0 - No Analog Inputs
A8 - 12-Bit Analog Inputs
AA - 16-Bit Analog Inputs

Note: Maximum of 8 single-ended or 4 differential analog inputs

0 - 64 Optically-Isolated, 24VDC, Sinking
1 - 64 Optically-Isolated, 24VDC, Sourcing

0 - No I/O Expansion
1 - Add 64 Digital I/O
2 - Add 128 Digital I/O
3 - Add 192 Digital I/O
4 - Add 256 Digital I/O

ACR8010 Specifications

	Value
Hardware	
Axes/controller	1-8 axes
PC-Bus interface	ISA
Standalone option	Yes
Processor	32- /64-bit floating-point DSP @ 60 MFLOPS / 60 MHz
Trajectory calculation	64-bit precision
User memory	512 KB (expandable to 2 MB)
System memory	512 KB (expandable to 2 MB)
Firmware	2 128 KB x 16 EPROMs
Flash memory	512 KB (expandable to 2 MB)
Size	Full-size ISA board
Operating system	Real-time system independent of PC
Performance	
Multi-tasking	8 coordinated systems, motion/PLC programs
Trajectory update	Every 200-500 usec
Servo update	50 usec/axis
Ladder Logic PLC	200-500 usec scan time
Interpolation	Linear, circular, sinusoidal, helical and elliptical, splines, NURBS, 3D arcs
Servo loop	PID, velocity feedforward, acceleration feedforward notch, LoPass filtering and programmable filtering
Position regulation	Hardware, < 1usec
Communications	Simultaneous ISA, serial and LPT ports
Communications	
PC bus	Dual 512 x 8 hardware FIFOs
Optional interface	2 serial ports (RS232 and/or RS422), 1 parallel port (8 bits)
Inputs	
Encoder input	10 @ 20 MHz post-quadrature
Analog input - Auxiliary	Up to 8 (12- or 16-bit)
Command Signal	
Analog outputs	Up to 8 (16-bit precision)
Stepper outputs	Up to 8 @ 1 MHz
Digital I/O	64, 24 VDC optically-isolated (expandable to 320)
Software Support	
Standard language	Visual Basic, Visual C++, C++
Program tools	AcroVIEW Motion/PLC Program
Development tools	ActiveX controls/OCX controls
Operating system	Windows® NT, 98, 2000, XP
Additional firmware highlights	Triggered floating point electronic GEARING
	Triggered segmented electronic CAM
	On-the-fly position and velocity matching
	Ladder Logic PLC
	Interruptible moves
	Either analog or digital feedback for position or velocity loops
	Dual-encoder feedback
	Data teach and learn functions
	Parameter-based with over 15,000 addressable pre-defined hardware registers
	Sinusoidal commutation
	NURBS and splines
	3D arcs
	Automatic tangential tool operation

ACR2000 Specifications

	Value
Hardware	
Axes/controller	1-4 axes
PC-Bus interface	ISA
Standalone option	Yes
Processor	32- /64-bit floating-point DSP @ 50 MFLOPS / 50 MHz
Trajectory calculation	64-bit precision
User memory	512 KB
System memory	512 KB
Firmware	2 128 K x 16 EPROMs
Flash memory	512 KB
Size	Half-size ISA board
Operating system	Real-time system independent of PC
Performance	
Multi-tasking	8 coordinated systems, motion/PLC programs
Trajectory update	Every 200-500 usec
Servo update	50 usec/axis
Ladder Logic PLC	200-500 usec scan time
Interpolation	Linear, circular, sinusoidal, helical and elliptical, splines, NURBS, 3D arcs
Servo loop	PID, velocity feedforward, acceleration feedforward notch, LoPass filtering and programmable filtering
Position regulation	Hardware, < 1usec
Communications	Simultaneous ISA, serial and LPT ports
Communications	
PC bus	Dual 512 x 8 hardware FIFOs
Standalone	2 serial ports (RS232 and/or RS422), 1 parallel port (8 bits)
Protocols	Binary (PC), string and ASCII
Inputs	
Encoder input	4 (32-bit registers), up to 8 MHz post quadrature
Analog input - Auxiliary	Up to 8 (12-bit)
Command Signal	
Analog outputs	Up to 4 (16-bit precision)
Stepper outputs	Up to 4 @ 1 MHz
Digital I/O	32, 24 VDC optically-isolated (expandable to 288)
Software Support	
Standard language	Visual Basic, Visual C++, C++
Program tools	AcroVIEW Motion/PLC Program
Development tools	ActiveX controls/OCX controls
Operating system	Windows® NT, 98, 2000, XP
Additional firmware highlights	Triggered floating point electronic GEARING
	Triggered segmented electronic CAM
	On-the-fly position and velocity matching
	Ladder Logic PLC
	Interruptible moves
	Either analog or digital feedback for position or velocity loops
	Dual-encoder feedback
	Data teach and learn functions
	Parameter-based with over 15,000 addressable pre-defined hardware registers
	Sinusoidal commutation
	NURBS and splines
	3D arcs
	Automatic tangential tool operation

PC-Based, OEM-Priced

The ACR1500 is Compumotor's OEM 4-axes PC bus-based controller. The ACR1500 is a PC bus-based card only and offers no serial or LPT ports as an option. It has the ability to run up to four servo loops with up to four encoders at 8 MHz (post-quadrature). The ACR1500 can also be equipped with eight analog inputs through a 12- or 16-bit analog-to-digital converter and introduce these inputs into the servo loop. Because of the modular output design of the ACR family, it is possible to have two axes of servo with two axes of steppers on the same controller or all axes of one type. Unlike other members of the Compumotor Acroloop controller line, the ACR1500 utilizes a 16-bit bus, which reduces cost dramatically. With this feature, the ACR1500 provides a high level of control at roughly half the cost! All of Compumotor's Acroloop products utilize the same system software and programming language; this assures users complete flexibility in upgrading their hardware while maintaining their investment in program development.

The ACR1500 is Compumotor's answer to affordable, high-performance control in a standalone package when low cost, real-time speed and ease of programming are most needed.

ACR 1500 Exclusives

- 4 axes of servo or stepper control
- 40 MFLOPS floating-point DSP
- 4 encoder inputs at 8 MHz (post-quadrature)
- User and system memory 128 KB standard
- 48 TTL I/O with an industry standard Opto 22, 50-pin connector
- Low-cost 16-bit bus
- High performance at a low cost

Higher-Performance PCI Version Coming Soon

ACR1500 Ordering

1500 □ □ □ □ □ □ □

PC - PC/ISA Bus Card

E4 - 4 Encoder Inputs

D4 00 - 4 Servo/Analog Outputs
S4 00 - 4 Stepper Outputs
D2 S2 - 2 Servo/Analog Outputs/ 2 Stepper Outputs

A0 - No Analog Inputs
A8 - 12-Bit Analog Inputs
AA - 16-Bit Analog Inputs

Note: Maximum of 8 single-ended or 4 differential analog inputs

0 - 48 TTL Digital I/O
Note: Programmable as inputs or outputs in groups of 8

0 - No I/O Expansion

ACR1500 Specifications

	Value
Hardware	
Axes/controller	1-4 axes
PC-Bus interface	ISA
Standalone option	NA
Processor	32- /64-bit floating-point DSP @ 40 MFLOPS / 40 MHz
Trajectory calculation	64-bit precision
User memory	128 KB
System memory	128 KB
Firmware	256 KB x 16 EPROM
Flash memory	128 KB
Size	Half-size ISA board
Operating system	Real-time system independent of PC
Performance	
Multi-tasking	8 coordinated systems, motion/PLC programs
Trajectory update	Every 200-750 usec
Servo update	75 usec/axis
Ladder Logic PLC	200-750 usec scan time
Interpolation	Linear, circular, sinusoidal, helical and elliptical, splines, NURBS, 3D arcs
Servo loop	PID, velocity feedforward, acceleration feedforward notch, LoPass filtering and programmable filtering
Position regulation	Hardware, < 1usec
Communications	ISA
Communications	
PC bus	Dual 512 x 8 hardware, FIFOs
Optional interface	NA
Protocols	Binary (PC), string and ASCII
Inputs	
Encoder input	4 (32-bit registers) up to 8 MHz post-quadrature
Analog input - Auxiliary	Up to 8 (12- or 16-bit)
Command Signal	
Analog outputs	Up to 4 (16-bit precision)
Stepper outputs	Up to 4 @ 1 MHz
Digital I/O	48 Opto 22-compatible, programmable as inputs or outputs in groups of 8
Software Support	
Standard language	Visual Basic, Visual C++, C++
Program tools	AcroVIEW Motion/PLC Program
Development tools	ActiveX controls/OCX controls
Operating system	Windows® NT, 98, 2000, XP
Additional firmware highlights	Triggered floating point electronic GEARING
	Triggered segmented electronic CAM
	On-the-fly position and velocity matching
	Ladder Logic PLC
	Interruptible moves
	Either analog or digital feedback for position or velocity loops
	Dual-encoder feedback
	Data teach and learn functions
	Parameter-based with over 15,000 addressable pre-defined hardware registers
	Sinusoidal commutation
	Automatic tangential tool operation

2-Axes, Standalone Control

The ACR1200 is Compumotor's OEM two-axes standalone controller. The ACR1200 is a standalone controller card only and offers no PC port as an option. It comes with two serial ports–RS232 and RS422–and has the ability to run two servo loops with up to three encoders at 20 MHz. It can also be equipped with eight analog inputs through a 12- or 16-bit analog/digital converter and introduce these inputs into the servo loop. Because of the modular design of our outputs, it is possible to control 2 servo or 2 stepper axes on the same controller. This level of control has previously not been available at this price. All of Compumotor's Acroloop products utilize the same system software and programming language; this assures users complete flexibility in upgrading their hardware while maintaining their investment in program development.

The ACR1200 is Compumotor's answer to affordable, high-performance, standalone control when low cost, real-time speed and ease of programming are most needed.

ACR 1200 Exclusives

- 2 axes of servo or stepper control
- 40 MFLOPS floating-point DSP
- Up to 3 encoder inputs at 20 MHz
- Standard user and system memory of 128 KB each
- Encoder loss and encoder fault protection
- High performance at a low cost
- Standard 32 optically isolated, 24 VDC I/O (expandable to 160 optically isolated, 24 VDC I/O)

ACR1200 Ordering

1200 ☐ ☐ ☐ ☐ ☐ ☐ ☐

SA - Standalone Card

E3 - 3 Encoder Inputs

D2 00 - 2 Servo/Analog Outputs
S2 00 - 2 Stepper Outputs

A0 - No Analog Inputs
A8 - 12-Bit Analog Inputs
AA - 16-Bit Analog Inputs
Note: Maximum of 8 single-ended or 4 differential analog inputs

0 - 32 Optically-Isolated, 24VDC, Sinking
1 - 32 Optically-Isolated, 24VDC, Sourcing

0 - No I/O Expansion
1 - Add 64 Digital I/O
2 - Add 128 Digital I/O
3 - Add 192 Digital I/O
4 - Add 256 Digital I/O

ACR1200 Specifications

	Value
Hardware	
Axes/controller	2 axes
PC-Bus interface	NA (standalone only)
Standalone option	Yes
Processor	32- /64-bit floating-point DSP @ 40 MFLOPS / 40 MHz
Trajectory calculation	64-bit precision
User memory	128 KB
System memory	128 KB
Firmware	2 128 KB x 16 EPROMS
Flash memory	128 KB
Size	8” W x 5” H
Operating system	Real-time system independent of PC
Performance	
Multi-tasking	8 coordinated systems, motion/PLC programs
Trajectory update	Every 200-750 usec
Servo update	75 usec/axis
Ladder Logic PLC	200-750 usec scan time
Interpolation	Linear, circular, sinusoidal, helical and elliptical, splines, NURBS, 3D arcs
Servo loop	PID, velocity feedforward, acceleration feedforward notch, LoPass filtering and programmable filtering
Position regulation	Hardware, < 1usec
Communications	Simultaneous, serial ports
Communications	
PC bus	NA
Optional interface	2 serial ports (RS232 and/or RS422)
Protocols	String and ASCII
Inputs	
Encoder input	3 (32-bit registers), up to 20 MHz post quadrature
Analog input - Auxiliary	Up to 8 (12- or 16-bit)
Command Signal	
Analog outputs	Up to 2 (16-bit precision)
Stepper outputs	Up to 2 @ 1 MHz
Digital I/O	32, 24 VDC optically-isolated (expandable to 160)
Software Support	
Standard language	Visual Basic, Visual C++, C++
Program tools	AcroVIEW Motion/PLC Program
Development tools	ActiveX controls/OCX controls
Operating system	Windows® NT, 98, 2000, XP
Additional firmware highlights	Triggered floating point electronic GEARING
	Triggered segmented electronic CAM
	On-the-fly position and velocity matching
	Ladder Logic PLC
	Interruptible moves
	Either analog or digital feedback for position or velocity loops
	Dual-encoder feedback
	Data teach and learn functions
	Parameter-based with over 15,000 addressable pre-defined hardware registers
	Sinusoidal commutation
	NURBS and splines
	3D arcs
	Automatic tangential tool operation