

# BALDOR



## Mint<sup>®</sup> Automation Software and Applications

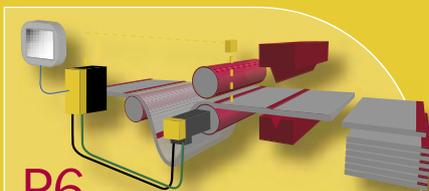


# Mint® – The Real-time Automation Language

- › High speed compiled BASIC programming language for motion and machine control
- › Multitasking capability for motion, I/O, HMI and communication tasks. Allows complex applications to be broken down into simpler, more manageable sub-tasks
- › Modular programming capability, including functions and subroutines, allows for code re-use and ease of debugging
- › Common programming interface for both Baldor's NextMove and intelligent drives reduces the learning curve
- › Comprehensive library of motion types including interpolated moves, CAM profiling, flying shears, gearing and more
- › Comprehensive Windows® tools including color keyword highlighting in the editor, software oscilloscope, online help, drive configuration wizard and auto-tuning
- › ActiveX® components, supplied free of charge, aid in the development of Windows® front end applications

## BASIC – the de facto Programming Language

With nearly two decades of history, Mint® was designed from the outset around the BASIC programming language. It was understood then, and it is still true today, that BASIC is the de-facto programming language around the world. Now in its fifth generation, Mint fully embraces all the modern BASIC programming functionality including features such as multitasking, function and procedures, data types and local data. This functionality makes it simple to write and develop modular programs that are easily understood by others, easily maintained and easily re-used across different applications. Mint's new Code Library makes code re-use even simpler by allowing snippets of code to be stored and used for other projects. This is just one of the many features found in the Mint development front end, Mint WorkBench, which are designed to get you up and running quickly.



**P6**

**Applications**

Mint applications and move types



**P10**

**Mint WorkBench**

Windows development and commissioning tools



**P12**

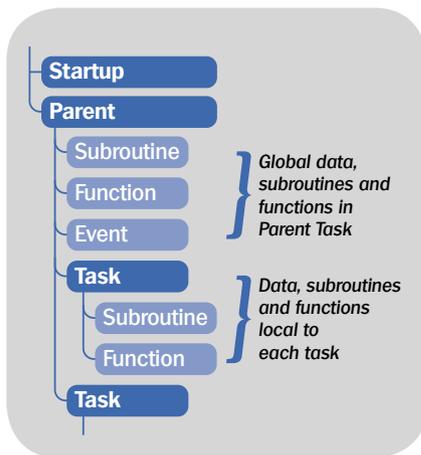
**Mint Motion Center**

Network configuration tool

## More than just Motion Control

Mint is a leading hi-performance automation language excelling in motion control applications, but equally at home in HMI interaction, communications, I/O handling and complex mathematical functions. While some choose a standard 'open' PLC language platform that offer a 'standard' set of motion features, those looking for an edge will find it in the advanced motion capabilities of Mint. Many industries at the cutting edge of motion control realize this and find PLC technology limited in its capabilities for motion control.

Realizing that today's applications are more demanding, more precise, more dynamic and more complex, Mint focuses on providing creative features, advanced motion capabilities and facilities for the user to innovate the application solution.



## Multitasking Streamlines Program Flow

With many devices to control and machine functions to coordinate, it helps to be able to structure code into specific tasks and allocate the resource dynamically at runtime. Multitasking is one of the key features of Mint. Numerous software tasks can be written, initiated, suspended, terminated and prioritized to optimize workflow and improve machine performance. In its simplest form, consider that separate program tasks can be allocated to functions of motion control, HMI interaction, I/O control, communications and much more. This provides a structured programming solution, ensuring more dynamic program flow.



## Re-use Code and Save Time

With its multitasking structure, user friendly named variables, functions and subroutines, code re-use could not be easier. Mint employs all the programming techniques used in modern programming languages today, such as allowing meaningful names to variables, local data in functions and subroutines, and parameter passing. This makes code easier to read, debug and re-use in future projects. Multiple programs can even be stored on the same controller for different machine configurations.

The Mint WorkBench's new Mint Code Library allows snippets of code to be saved for re-use in future projects.

## Flexible and Powerful Data Support

Mint supports real numbers (floating point), integers and even strings. All data can be easily manipulated with Mint's extensive library of math functions and operators. Data can be stored using the multi-dimension array capabilities.

New functions can be easily created for use within any project and used time and time again. Functions can contain simple or complex math and can be used within any calculation.

# ActiveX

## P13

### ActiveX Tools

Windows front end development tools



## P14

### MintNC

CAD-to-motion interpreter and machine controller



## P15

### HPGL

Low-cost 2D/2.5D profiling

## Time Critical Responses Handled with Ease

Mint provides software events to deal with time critical responses to application changes, such as error conditions, communication, fast position capture (registration), move buffer low or inputs acting as interrupts. For example, reacting to inputs by triggering an event in this way is more responsive than polling to check for input states in a loop or PLC scan. This makes your program more responsive.

Events are designed to interrupt program flow and can be programmed to handle high or low priority situations. In a high priority situation, such as an error condition, the event can run to completion suspending all running tasks. For a low priority situation, another task can be started allowing the program flow to continue. Flexibility and versatility are key to Mint's ease of use.

## Intelligent Error Handling

Configurable and controlled error conditions allow error handling to be tailored to the application, providing a means of trapping errors as simple or as detailed as required. Unique responses can be developed and actions defined to conditions such as limit switch activated or position error exceeded.

Errors can be viewed from within the Mint WorkBench. Each controller will record up to 32 error events within their onboard event logs.

## Trap Errors Early in the Development Cycle

Mint programs are compiled offline from within the Mint WorkBench. Multiple errors and warnings will be flagged when encountered. Simply click on the error or warning message and you will be taken straight to the problem line of code within your application. Pressing F1 gives you more information on the error. Multiple errors to be tracked down easily and dealt with quickly.



## Secure your Solution

Having leveraged the capabilities of Mint to realize an innovative control design, you can choose to protect your solution, preventing unauthorized uploading, copying or evaluation of your software. Code can even be targeted for specific controllers based on serial number.

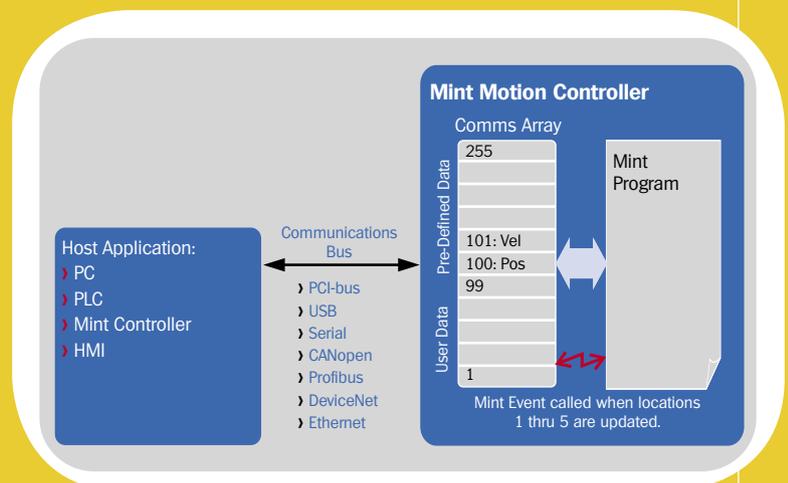
You can choose to store just the object code on the controller, or store a copy of the Mint source alongside the object code. This can be useful when making future modifications to the program onsite.

## › Data Transfer with Ease (Peer-to-Peer)

Many applications need to communicate with an external device, such as a PLC, PC or HMI. Mint does this with ease using the Comms Array. The Comms Array is an area of memory within the Mint controller that can be written, or read, over RS232/485, USB, PCI-Bus, Ethernet and all supported fieldbuses. Up to 99 data elements are freely available for use within a Mint application. An external device, such as a PLC, can read or write to any one of these locations. Likewise, a Mint application can read or write any of the 99 locations.

Frequently used data, such as axis position, error status or I/O status is available in Comms locations 100 through to 255. This saves having to update the locations within the Mint application.

The Comms Array is easily accessed over an RS232/485 network using a simple ASCII based protocol. This makes it simple to implement on many devices such as third party HMI panels or PLCs.



## C Programming

For optimum performance, programs can be written in C and embedded for advanced real-time performance, via a library of Mint compatible C language routines. The function library shares the same Application Programming Interface (API) as Mint and the ActiveX control, making multi-platform development simple, with only one Mint API to remember.

With its open architecture the C programming libraries even allow for custom motion profilers and control algorithms to be embedded deep within the real time code.

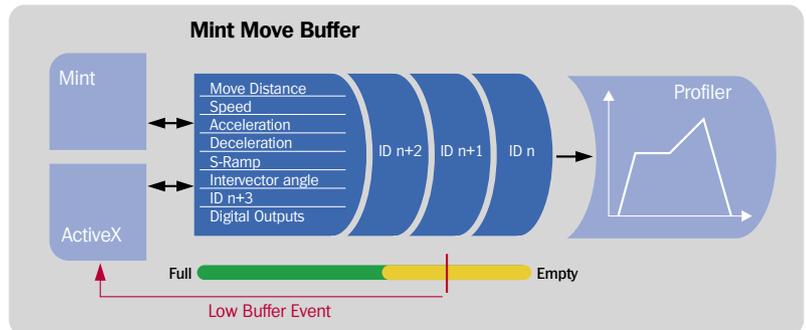
A third party Texas Instruments compiler must be purchased in order to program the NextMove controllers in C.

## Move Buffer Enables Continuous Motion

All axes have a flexible and powerful move buffer that allows multiple move commands to be loaded and executed with minimum impact on the executing program. Each entry in the move buffer can contain a unique identifier, independent Speed, Acceleration, Deceleration and Jerk (S-Ramp) settings. The move buffer size is limited only by memory and once loaded, acceleration, deceleration etc for new positions are taken care of automatically.

For interpolated axes, inter-vector angles can be loaded. The profiler will make decisions about when to slow down or stop coming to corner, to ensure both smooth and sharp corners and reduce mechanical shock.

Speed settings can be loaded into the move buffer and can be assigned to each move. Alternatively, a change in the speed parameter can take immediate effect on all moves in the buffer.



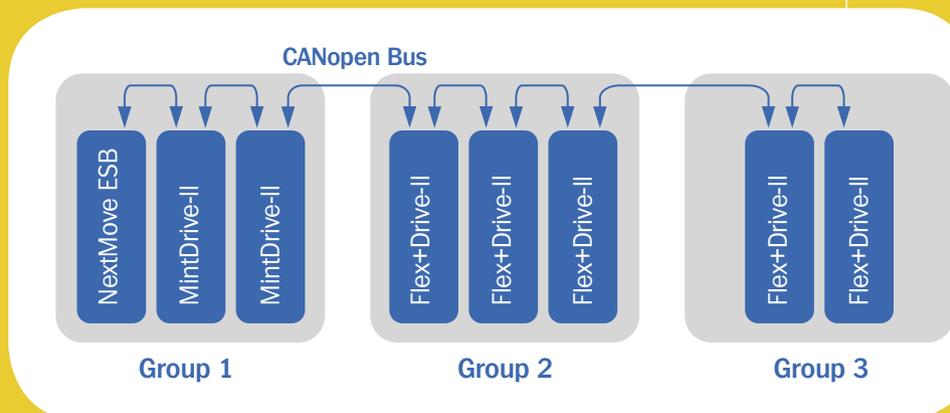
A configurable *move buffer low* system event will trigger either a Mint routine or ActiveX service which you can customize to refill the buffers.

Output transitions states and pulse times and even dwell times can be loaded into the move buffer to ensure they are synchronous to the axes motion.

## Peer-to-Peer Communications

Baldor's CANopen implementation extends the Comms Array further and allows peer-to-peer networking between compatible Mint nodes. Once a node on the network has been set up to communicate with another node, it is free to read and write the Comms Array on its partner node.

Peer to Peer communications is ideally suited to machines where a large number of loosely coordinated axes are required. Data can easily be passed between nodes, such as target positions or new recipe data. Group communication features provide a simple method for two or more nodes to receive the same data at the same time, with a single Mint command.



# Comprehensive Library of Move Types

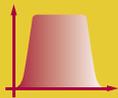
Mint provides a comprehensive library of motion types to suit a vast arena of application requirements. Even the most complex moves types are easily accessible through simple keywords. All of these move types can be initiated from a Mint program, via ActiveX or from within an embedded C application. NextMove motion controllers support single and multiple coordinate groups or alternatively, all axes can operate independently.

A library of application notes are available for download from [www.baldormotion.com](http://www.baldormotion.com).

## Library of Moves



Speed Control



Positional (index) Moves



Interpolated Moves



Helical Interpolation



Tangential Knife



Splining



Electronic Gearbox & Clutch



Registration on the Fly



Electronic CAM



Flying Shear



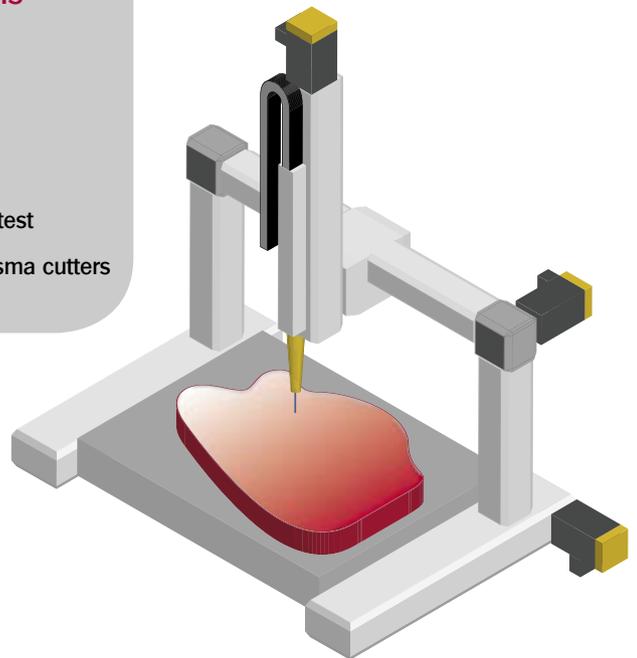
Virtual Axes

## Multi Axis Interpolated Moves

Mint supports linear interpolation across all supported axes, circular interpolation across two and helical Interpolation across three axes. Circular and linear moves can be blended together to achieve a smooth continuous motion along a complex path. Inter-vector angle control allows Mint to make decisions about sharp corners, i.e. whether to slow down or stop. An axis can even be configured as a tangential knife, following the outline profile of a shape. Baldor's MintNC and HPGL products make extensive use of Mint's move buffer and linear interpolation capabilities.

## Applications

- › Sign cutting
- › Wood routing
- › Glue laying
- › Pick & Place
- › Inspection & test
- › Water jet/plasma cutters



## Teach & Replay

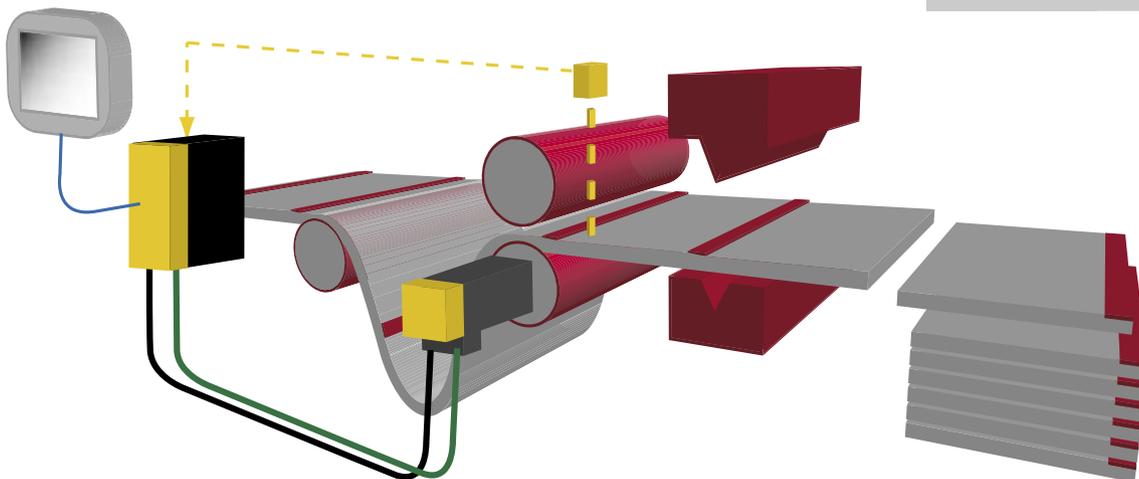
Mint's data array capabilities are ideal for teaching and replaying the positions of a pick and place robot. Axis positions can be numerically programmed from Baldor's HMI panel or manually taught by jogging each axis to the desired position. Arrays provide an efficient way of storing a large number of position points and they offer the flexibility of editing, deleting or replaying a small segment of the data.

## Indexing

Many applications require rapid incremental moves with minimal mechanical jerk, and control of processes such as cut, crimp, or seal. Mint can position an axis fast and accurately, using smooth velocity profile with precise jerk limitation. Mint's move buffers allow multiple moves to be loaded with different feedrates. Digital outputs can be loaded into the move buffer to ensure highly accurate synchronization of the move with the I/O logic. Final target position can be changed on the fly, for example on the basis of an input signal.

### Applications

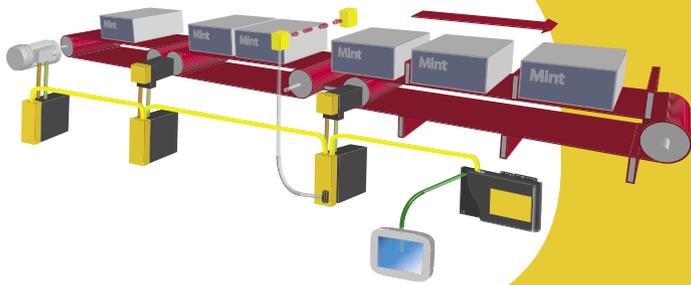
- › Press feeders
- › Wrapping machines
- › Cut to length
- › Labeling
- › Component alignment
- › Paper converting



### Cut to Registration Example

Cut to length, press feeders, and label feeding are typical applications requiring a change in target position during the move without stopping and based on some form of reference signal. An example would be cutting pre-printed material to length, so that the printed information is always in the same location on the sheet of material. This is often referred to as "cut registration". In this example, nip rollers, controlled by Baldor's programmable controllers, feed printed material into the jaws of a cutter, which is also controlled by an output signal.

A sensor detects the pre-printed registration mark. This sensor is connected to the high speed *Fast Input* of Baldor's controller. This automatically latches the position of the Nip Roll axis in  $<1\mu\text{s}$  and triggers a section of code within a pre-defined Mint event. The captured position is used to calculate a new target position for the Nip Roll axis. In this case the new desired position will be set so that the material will always be cut in the correct place relative to the printed registration mark.

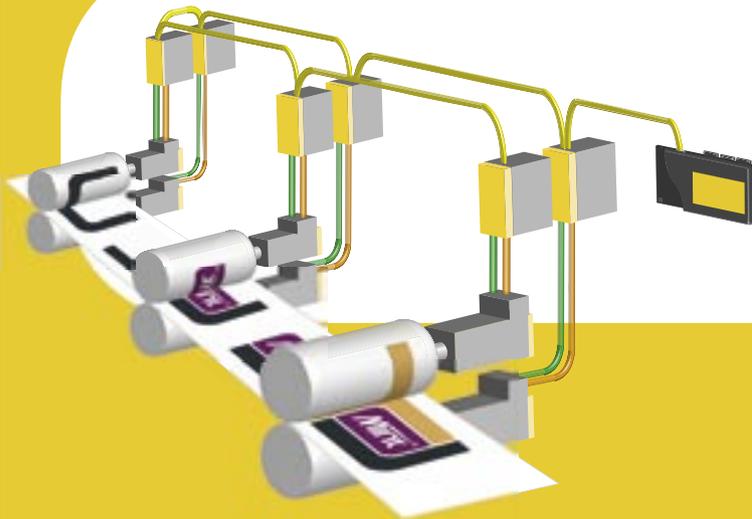


## Packaging Example

Packages arrive at irregular intervals from an input conveyor and must be aligned to the next part of the process. The packages are transferred to a *correction* conveyor which advances or retards the position of the package so that it enters a flight on the output conveyor. In the illustration, the position of the next available flight on the output conveyor is captured as the next package passes the sensor. Correction is calculated and initiated to ensure the package arrives in the flight accurately.

### Applications

- › Line shaft replacement
- › Packaging machines
- › Printing machines
- › Paper and plastics
- › Steel processing
- › Bag making



## Printing Example

Multi-color printing applications require precise synchronized lock of numerous roller axes, including, ink, impression and chiller rolls. Each print tower must lay down ink in accurate registration to the previous color. Mint's software gearbox features, fast position capture and position correction features provide an elegant solution to this type of application.

## Software Gearbox

Advanced software gearbox and clutch functions enable two or more axes to be linked together in precise synchronization. Replacing traditional mechanical linkages such as pulleys, belts, gearboxes and line shafts with precise but flexible electronic ratios. Ratio configurations can be changed in an instant for rapid production changes increasing productivity by reducing set-up time. There is less mechanical wear, and hence maintenance requirements. Transmission errors of mechanical linkages are removed resulting in higher precision and production quality.

Single or multiple axes can be position locked to a master axis in much the same way as a mechanical linkage would be used. The input shaft (Master) can be any position feedback encoder or a Mint virtual axis, which would eliminate variations in the master axis affecting all the follower axes.

## Software Clutch

Software clutches can be used to accelerate a following axis from standstill to match the speed of the Master speed at the defined gear ratio. The acceleration can be controlled over a defined distance on the Master machine to maintain precise position registration, eliminating the need for mechanical clutch systems.

## Position Advance and Retard

In many applications it is necessary to correct for irregularities in processed materials or mechanical deficiencies: plastic film webs used for wrap packaging stretch and distort; cartons exiting a filling machine do so in random orientations and spacings; worn mechanical elements introduce backlash or slip into a line process; product slip and slide on a continuous conveyor line.

Such irregularities can be compensated by advancing or retarding the position of a controlled axis in relation to a measured product or axis position. Mint can be used to introduce a positive or negative positional adjustment, on top of the current speed of an axis, with controlled acceleration and differential speed. Speed reversal during correction can also be prevented.

## Fast Position Registration

Mint products have multiple fast inputs which can latch axis positions to within 1 $\mu$ s. Software events for each input can be automatically executed in response to perform calculations and initiate any determined corrective motion, based on this sensed information. This is widely used in applications such as printing, packaging, labeling, inspection and test machines.

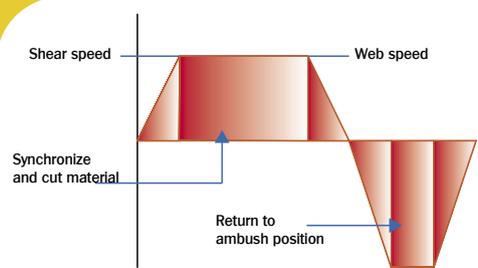
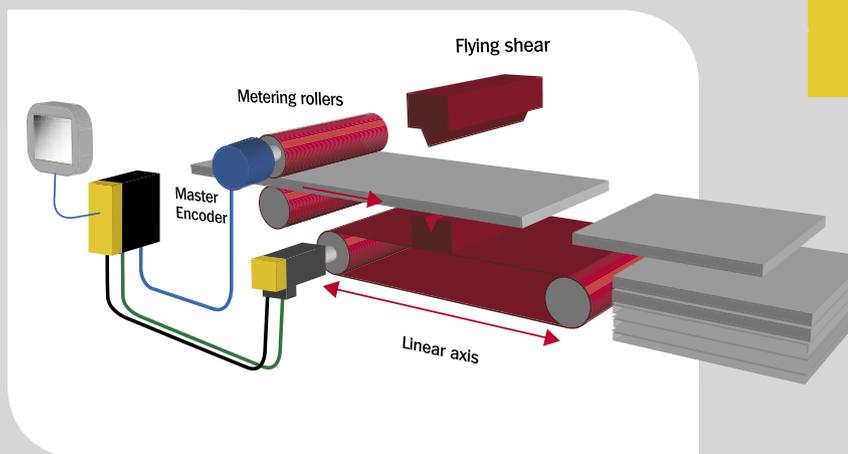
## Electronic CAMS

Software CAM emulation is flexible and more dynamic than mechanical versions. They do not suffer from CAM bounce, or mechanical wear. CAM profiles can be calculated in software or downloaded from CAD software packages as numeric data. Multiple CAM profiles can be stored and used as required. CAM stroke can be scaled dynamically, allowing a machine operator to adjust on the fly.

## Flying Shear Motion

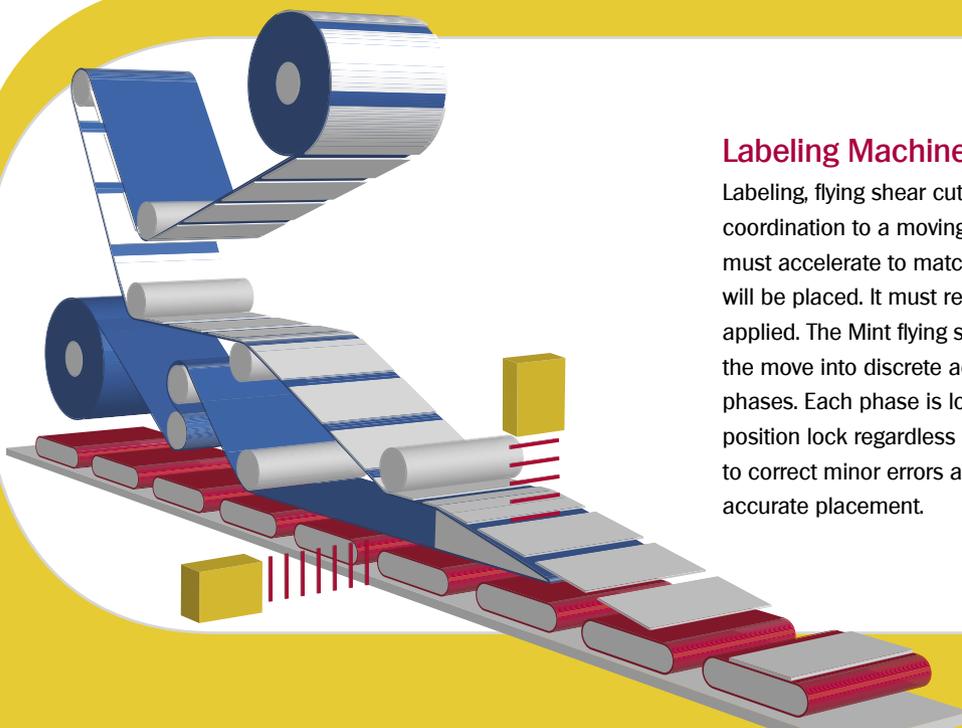
There are numerous applications where the motion of one axis must be either speed or position locked with another axis. In some instances the axis must perform incremental or absolute moves in position lock i.e. synchronous to the product or process. For example cutting lengths from a continuous moving material. Mint encompasses a host of motion functions to provide this capability.

Flying shear functions perform operations at accurate intervals on a moving product tracked by feedback from a measuring encoder. In a typical application, the cutter is mounted on a linear reciprocating stage, and is synchronized with the moving product for each cut. The acceleration, synchronization and deceleration phases can be specified and linked by software to the movement of the product, so accurate position reference is always maintained.



## Applications

- › Flying shears
- › Electronic clutch simulation
- › Labeling on the fly
- › Press feeding
- › Pick & place from a moving conveyor
- › Packaging applications



## Labeling Machine Example

Labeling, flying shear cutters and flow wrapper applications require axis coordination to a moving web. In a labeling example, the label strip must accelerate to match the speed of the product onto which the label will be placed. It must remain locked at this speed while the label is applied. The Mint flying shear command achieves this by breaking down the move into discrete acceleration, constant speed and deceleration phases. Each phase is locked to the master position and will maintain position lock regardless of machine speed. Label position is registered to correct minor errors and product position is also registered to ensure accurate placement.

# Application Development Tools

Mint® WorkBench is a Windows front end which is common across Baldor's range of NextMove motion controllers and servo drives. Used as a commissioning and setup tool, the tuning wizard allows you to tune a motor in minutes. Mint WorkBench offers an easy to use Windows development front end for Mint programming, with its color highlighting of keywords and context sensitive help. The Program Navigator makes it a breeze to navigate and organize the source code, no matter how complicated.

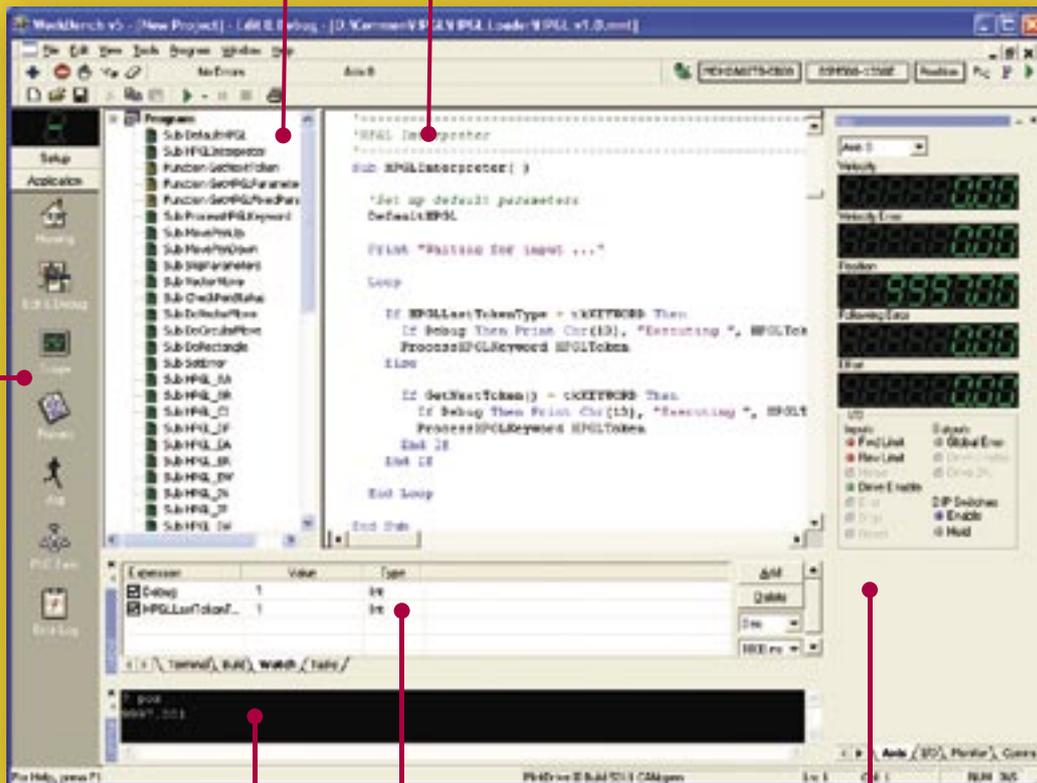
## Features include:

- › Command line interface to interrogate the controller even when the program is running.
- › Spy window to monitor common motion variables and I/O.
- › Software oscilloscope.
- › Watch window for variable and task monitoring.
- › SupportMe function with automatic e-mail generation for rapid technical support.
- › Web updates of product firmware within Mint WorkBench.
- › Easy management of firmware files.

Simply click on the function, task or subroutine from within the Program Navigator and you will be taken to the appropriate place in the editor. Program Navigator can be used to organize the source code, allow sections of code to be moved or delete with ease.

Program Editor provides color syntax highlighting for all Mint keywords. Help is just a keystroke away. The new tool-tip will show you variable declarations and constant values. Right click to go straight to the variable declaration itself.

Toolbar provides quick access to useful tools

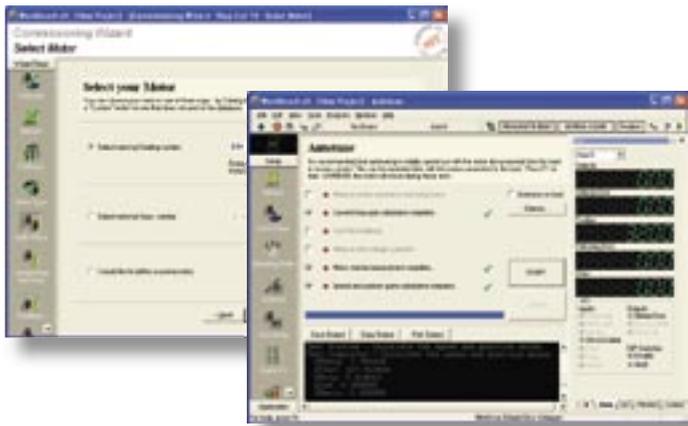


Command line provides access to Mint keywords during program execution and is useful during set-up

The Output window can be configured to show:

- › Terminal output from the controller
- › Program data via the Watch window
- › Compiler errors and warnings

The Spy Window can be configured to show typical information such as axis position or error and can be customized to suit the application. Data can be plotted on the software oscilloscope.

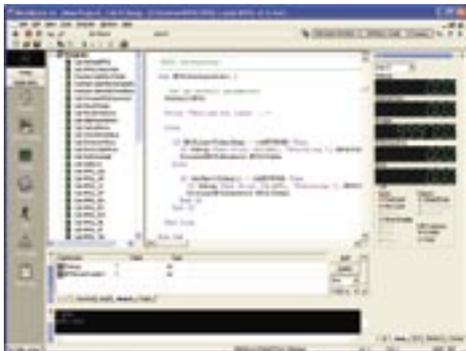
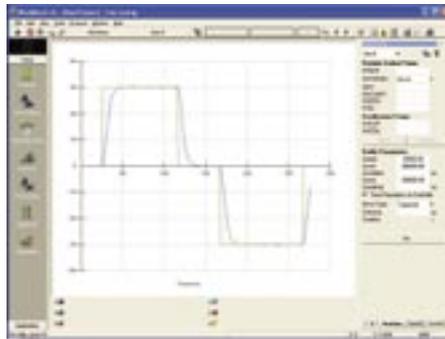


### Commissioning Wizard

- › Step-by-Step guide to fully tune current loop, velocity and position
- › User defined units for velocity and position
- › Motor selection from database
- › Automatic selection of drive parameters
- › Automatic detection of U, V and W connections
- › Measurement of system inertia and friction
- › Feedback test

### Software Oscilloscope

- › Digital capture of data - up to 6 channels
  - › User configurable color schemes
  - › Save data for future comparison
- New features include:
- › Cursor bars to measure value between two points
  - › Intelligent zoom
  - › Save and overlay existing data



### Program Editor

- › Comprehensive editor for creating Mint applications
- › Color syntax highlighting of Mint keywords
- › Hit F1 for online help for any Mint keyword
- › Program Navigator - simply click on the task, function or subroutine to navigate the program.
- › New features provide the ability to re-order your code from within the Program Navigator

### Online Help

- › Full, online help for Mint WorkBench functions, Mint keywords, ActiveX library and embedded C functions
- › Complete reference for the Mint programming language
- › Full search capabilities
- › Update via the internet



### SupportMe™

When you need technical support, Mint WorkBench makes this task fast and simple. Using your e-mail, Mint WorkBench automatically collects information on your PC and motion controller or drive for diagnostics. This is sent, including your Mint program, via e-mail to your local support team.

The Mint WorkBench SupportMe function is backed by the SupportMe website ([www.Supportme.net](http://www.Supportme.net)), containing all the latest firmware releases, user manuals and more.

# Mint® Machine Center Design and Create

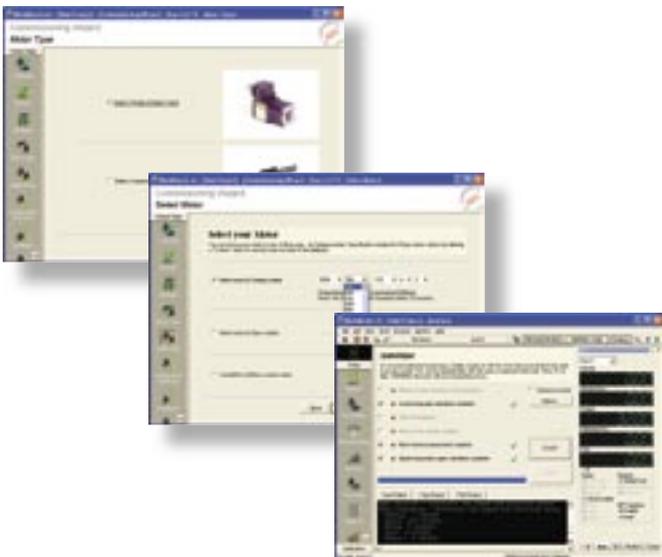
Mint® Machine Center (MMC) provides a suite of tools to design, create and ultimately control your application, and can streamline your design cycles to save you time and money.

## Design

A graphical tree-view interface represents all connected devices within a Mint network configuration. Devices can be added offline and the design implemented later, or the system simply scanned and devices detected. This *network view* is useful for visualizing all devices and starting commissioning. The *application view* allows you to group devices into a logical order other than address or type sequence of the network view. By allowing group names to be defined and each device given a logical name, you can create a custom view of the system which represents your application or machine configuration.

## Configure

Making configuration changes to any device is simple. Click on the device icon, within the network or application view, to launch the Mint Workbench directly connected to that device. Wizards, auto-tuning, and online help have been designed to guide you through the process of device configuration.



## Document Project with Document Links, Web Links and Images.

MMC allows you to create document links to any related documents such as specifications, images, web links, user manuals and reports. These describe the application design and simultaneously document the system as part of the project file.

## Wizard Setup Minimizes Knowledge Requirement and Saves you Time.

Wizards have been designed to automate many tasks, reducing set up time and minimizing knowledge required by incorporating the knowledge of skilled technicians. These step-by-step guides automate processes such as network configuration, drive configuration, auto-tuning and more.

## Network Wizard

Configuring an Ethernet control system is simplified by providing a step-by-step guide through the process. All devices are configured by simple choices, such as mode of operation, which automatically recommends the data to send and receive. Additional data from any device can be mapped back to the manager and used in the Mint application directly. This includes data such as measured speed, digital input states, measured current and absolute position from an encoder.

# Windows<sup>®</sup> development through ActiveX<sup>®</sup>

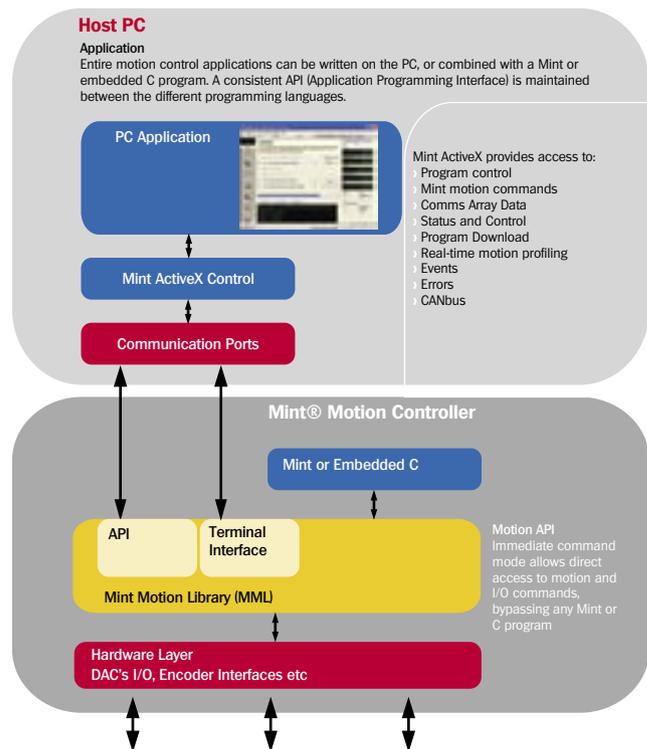
The supplied ActiveX<sup>®</sup> control provide programmers with the ability to call high level Mint language functions on the motion controller, or servo drive, from popular high-level rapid application development environments for Windows<sup>®</sup>, such as Visual Basic, Visual C++, Delphi and LabVIEW.

The ActiveX control provides access to all the motion control and I/O functions on the controller, allowing a Windows front end to act as a machine controller. All Mint based events are supported, allowing for example, an input to interrupt the executing Windows program. In addition, an ActiveX developed front-end can operate in parallel with a Mint or Embedded C application running on the controller.

All ActiveX commands share the same Application Programming Interface (API) names as Mint, making it easy to switch between languages on the controller and PC.

**Features include:**

- › Common API with Mint language
- › Full access to all I/O and motion keywords
- › Interrupt capability on Mint events - operational over PCI-bus and USB
- › Controller objects allow projects to be quickly and easily moved between Baldor products
- › Support for all Baldor motion controllers and servo drives



## Consistent API Eases Programming

Whether you are programming in Mint, embedded C or using the ActiveX control, Baldor provides a consistent Application Programming Interface (API). This can be seen in the example, below which demonstrates a simple relative move of 50 user units.

Programming in Windows is further simplified with an object orientated approach where each controller is assigned as an object. Communicating with another controller is simply a matter of changing the object's properties.

Mint Basic	ActiveX - Visual Basic	Embedded C
Speed.1 = 100	myController.Speed(1) = 100	SetSpeed( 1, 100 )
MoveR.1 = 50	myController.MoveR(1) = 50	SetMoveR( 1, 100 )
Go.1	myController.DoGo 1	DoGo( 1 )

# Mint®NC – CAD to Motion

- › HPGL, DXF and G-Code to motion
- › No graphic or CNC programming language to learn
- › Offline mode for planning and object ordering
- › Graphical interface allowing re-ordering of geometry
- › Machine control panel for direct machine control
- › Interfaces to NextMove multi-axis motion controllers



The Mint®NC front end is a comprehensive front end allowing full control of any job both on and offline. Geometry from different sources can be imported into MintNC and optimized to suit the operation. Geometry can be re-ordered to optimize job speed, or to maximize material use and minimize waste. With its multiple document interface, geometry can be integrated from various CAD/CAM sources.

Geometry is shown in both a 2D graphical format and as a list format, detailing all the vectors that make up the geometry. This geometry can be easily manipulated in both views, including re-ordering, copying, deleting etc.

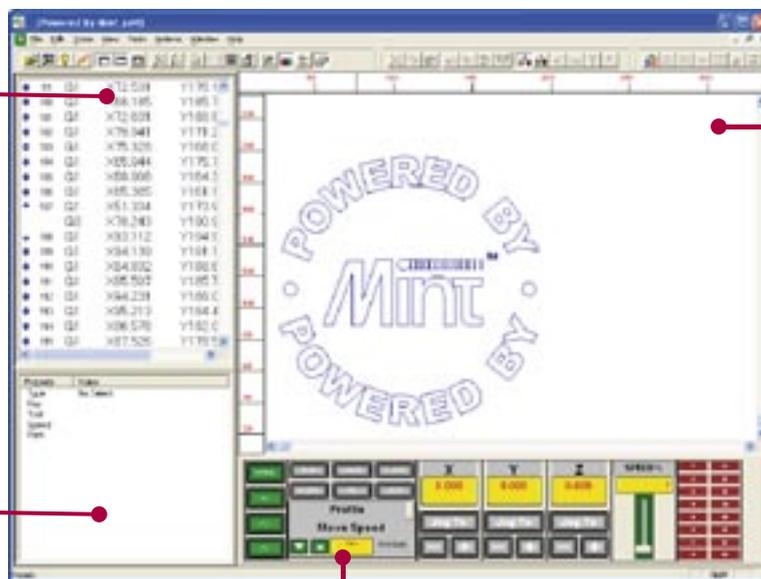
MintNC allows components larger than the machine frame to be cut with support for overlapping frames in both longitudinal and lateral directions.

Using the Machine Control Panel, full machine control is possible, allowing axes to be homed and jogged to new positions. Alternatively, MintNC can be used to translate different CAD and CNC formats to Mint code which can be executed directly on the motion controller.

Machine configurations are easily dealt with using a Mint application resident on the NextMove controller. This acts as a scripting language for complete machine configuration. Whether a start-up sequence or new tool sequence is required, Mint provides complete control over I/O and motion.

Applications:

- › Tangential Knife
- › Cutting
- › Grinding
- › Glue Laying
- › Welding
- › Engraving
- › Inspection
- › Water Jet



Object List displays the shape segments in a list format. These can be shown in native format or G-code. Selected items also appear on the graphical representation to enable optimum selection of an object. Objects can be re-ordered or grouped.

The Object Property window presents detailed information about the object including tool assignment and coordinates. Coordinates and control data can be easily managed from this window.

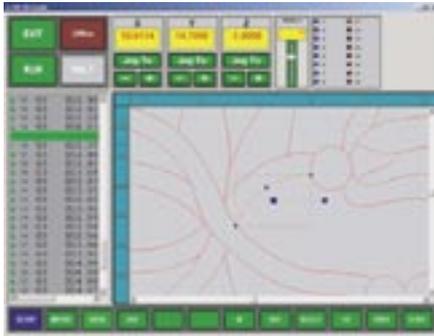
Graphical presentation of the job is shown in multiple document windows. Objects can be manipulated on-screen, including re-sizing, moving, flipping, rotating and tool assignment. Objects can be cloned and nested for optimum use of material.

The multiple document interface allows objects to be exchanged between different drawings.

Machine Control panel allowing online for control of machine or offline for job planning.

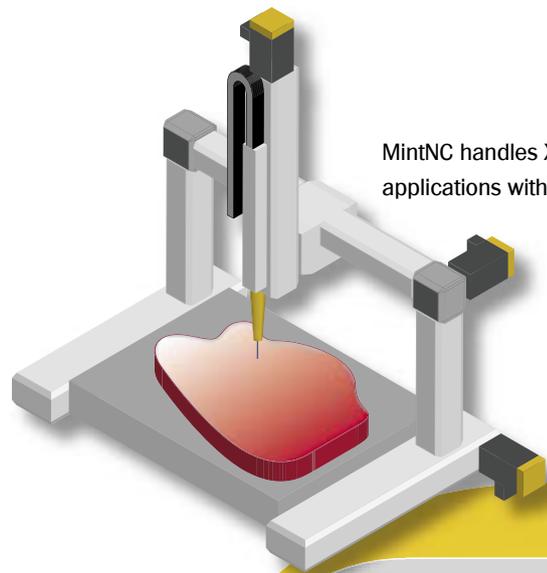
### Customization through ActiveX

Where a simpler operator interface is required, a developer library is available using ActiveX technology. This allows custom front ends to be quickly and easily realized in applications such as Visual Basic and Visual C++.



MintNC interfaces directly to the NextMove controller through either the USB or PCI interface.

A demonstration version of MintNC is available for download from the Baldor motion website [www.baldormotion.com](http://www.baldormotion.com).



MintNC handles XYZ applications with ease

### > Ordering Information

Catalog Number	Description
MNC001-501	MintNC Single Machine License

# HPGL – Low Cost, Industry Standard Interpolation

HPGL (Hewlett Packard Graphics Language) is an open standard that describes 2D vectored drawing and is typically used in plotters. With many CAD and drawing applications offering HPGL output, Baldor's HPGL interpreter is ideally suited for low cost XY and 2.5D applications such as pen plotters, routers, engravers and knife cutters.

#### Standard Commands

The HPGL interpreter is able to take standard commands sent over the serial interface and interpret these in real time. Commands in HPGL allow straight lines, circles and rectangles to be executed.

#### Fast Profiling

Full use is made of Mint's move buffer to provide fast and accurate profiling. Features such as inter-vector angle allow Mint to make decisions about when to slow down or stop for corners. Feedrate control allows the machine speed to be controlled by the operator using, for example, an analog pot

#### Mint – Power and Flexibility

Baldor's HPGL interpreter is written in Mint, demonstrating not only the power and flexibility of the programming language, but also providing a fully customization solution. The HPGL interpreter is available as Mint source and can be tailored to suit applications such as:

- › Routers with different Z depth
- › Pen plotters
- › Knife cutting with tangential knife control
- › Glue laying
- › Engraving

HPGL is supported on all NextMove controllers. The HPGL data is sent to Mint's serial buffer. This is supported on RS232/485, USB and PCI buses.

HPGL is available to download from the Baldor motion website [www.baldormotion.com](http://www.baldormotion.com).



## Baldor's Motion Solutions Catalogs

- BR1202-A** Motion Control Solutions
- BR1202-B** Mint® Software and Applications
- BR1202-C** NextMove Multi-Axis Motion Controllers
- BR1202-D** AC Servo Drives
- BR1202-E** AC Servo Motors
- BR1202-F** DC Servo Motors and Drives
- BR1202-G** Linear Motors and Stages
- BR1202-H** Motion Product Accessories
- BR1202-I** Real-Time Ethernet Motion Solutions

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