



Matrox Imaging Library (MIL) >>>

Release 7.5

Field-proven software development toolkit for machine vision, medical imaging and image analysis.



Key features

- > complete and easy-to-use programming library for image capture, processing, analysis, display and archiving
- > fully exploits Intel® MMX™/ SSE2 technology and Matrox vision processors
- > applications easily ported to new hardware platforms
- > processing performed to sub-pixel accuracy
- > multi-processing and multi-threading support
- > available as DLL and OCX for Microsoft® Windows® 98, Windows® Me, Windows NT® 4.0, Windows® 2000 and Windows® XP¹
- > includes Matrox Intellicam camera configuration utility
- > flexible run-time licensing

Extensive and highly-optimized imaging library

Matrox Imaging Library (MIL) is a high-level programming library with an extensive set of optimized functions for image capture, image processing (e.g., point-to-point, statistics, filtering, morphology, geometric transformations and FFT), pattern recognition, blob analysis, measurement, OCR, bar and matrix code recognition, calibration, graphics, and image compression, display and archiving.

New in latest release

Release 7.5 introduces Edge Finder, a powerful tool for feature extraction and analysis that works with lines, crests and contours of objects. Edge Finder can be used in applications as varied as defect detection (e.g., scratches), finding objects with significant deformity (e.g., seals and gaskets) or finding simple objects very quickly (e.g., circles). Feature extraction is performed with incredible sub-pixel accuracy using an interpolation technique that utilizes more than just pixel intensity, making Edger Finder an extremely discerning tool. Moreover, features can be extracted from both monochrome and color images with the complete color space (i.e., luminance and chrominance) taken into account. Once extracted, features can be measured, analyzed (e.g., shape) and sorted in a manner that is independent or dependent of one another (e.g. isolate scratches within a ring).

Edge Finder is also an ideal companion to the Geometric Model Finder tool. It enables one to perform custom edge extraction on the model or target image independently of one another. This is particularly useful in situations with variable lighting (e.g. robotics) or noise (e.g. scanning electronic microscope). Results from Geometric Model Finder can be sent back to Edge Finder for further measurements.

Also included in release 7.5 are several notable enhancements to the bar and matrix code reader, Geometric Model Finder and OCR tools, and support for the Matrox Cronos*Plus* entry-level frame grabber board.



Increased productivity

Designed to facilitate development and increase productivity, MIL offers a common C API that supports Matrox Imaging's entire hardware line as an intuitive and easy-to-use function set.

Rapid development

For fast Windows application development, MIL comes bundled with ActiveMIL, a collection of ActiveX controls (OCX) for managing image capture, processing, analysis, display and archiving. ActiveMIL fully integrates into Microsoft® Visual Basic® or Visual C++® rapid application development (RAD) environments.

ActiveMIL lets you quickly and easily put together an imaging application with a custom, professional-looking Windows user interface. Application development consists of drag and drop tool placement with point and click configuration, resulting in substantially less coding. With ActiveMIL, OEMs and integrators save development time by focusing on the imaging task rather than implementing the user interface.

Common API for image capture, processing and display

A common API provides seamless support for the full range of Matrox Imaging hardware, letting you capture images using the frame grabber of your choice. MIL also supports image capture from IEEE 1394-based imaging devices compatible with the IIDC specification. Images are processed using any x86 compatible processor or Matrox vision processor, while image display is optimized for Matrox graphics controllers but can be performed using any graphics controller.

Reusable application code

Once your application is built, you can move it from one platform to another with little or no rewriting. For example, moving an application from one frame grabber to another can be as simple as changing a single line of code.

»» Moving from one board to another

```
...
/* Allocate a system */
MilSystem = MsysAlloc(M_SYSTEM_METEOR_II, ...);
...
```

```
...
/* Allocate a system */
MilSystem = MsysAlloc(M_SYSTEM_ORION, ...);
...
```

By changing a single line of code, an application using a Matrox Meteor-II can work with a Matrox Orion.

Optimum use of hardware resources

Optimized for Intel® MMX™ and Streaming SIMD Extensions 2 (SSE2), MIL maximizes the power of today's high performance processors such as the Intel® Pentium® 4 and AMD Athlon™ XP. For applications running on Matrox vision processors, MIL is designed to exploit the full processing power of the Motorola® G4 PowerPC™ microprocessor with AltiVec™ technology and Matrox ASICs.

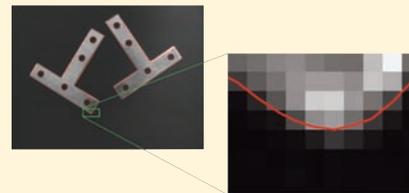
Simplified system management

With MIL, a user does not require an in-depth knowledge of the particular system. MIL is designed to deal with the specifics of each hardware platform and provide simplified system management and control (i.e., hardware detection, initialization and buffer copy). For example, when grabbing to host memory, MIL transparently allocates a buffer of the appropriate type (i.e., non-paged memory).

Sub-pixel accuracy

The imaging industry demands precision. To meet this requirement, MIL's blob analysis, calibration, edge finder, geometric model finder, measurement and pattern matching operations are performed with sub-pixel accuracy.

»» Sub-pixel accuracy



MIL's analysis modules perform operations with sub-pixel accuracy. For example, Geometric Model Finder has a translational accuracy of up to 1/40th of a pixel.

Multi-processing and multi-threading

MIL supports multi-processing and multi-tasking programming models. Multiple MIL applications not sharing MIL data or a single MIL application with multiple threads sharing MIL data can run under Windows® 98/Me/NT 4.0/2000/XP.

MIL provides synchronization mechanisms to access shared MIL data and ensures that multiple threads using the same MIL resources do not interfere with each other. These capabilities, coupled with Windows® NT 4.0/2000/XP, enable the creation of applications that distribute workload across several CPUs in a multi-processor PC or multi-node Matrox vision processor configuration.

Saving and loading

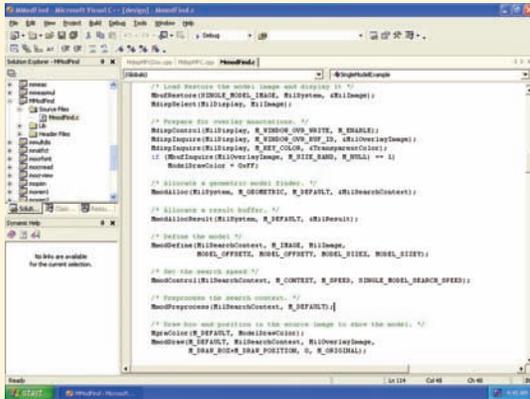
MIL supports saving and loading of individual images or sequence of images from disk. Supported file formats are TIF (TIFF), BMP, JPG (JPEG), JP2 (JPEG2000 bit stream only) and AVI, as well as a raw format.

Image display

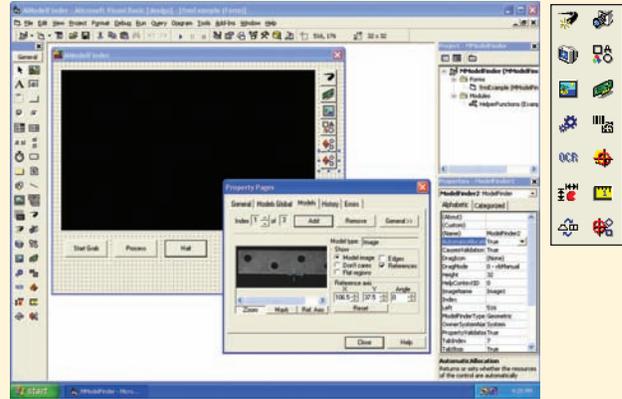
MIL provides transparent image display management with automatic tracking and updating of image display windows at live video rates. MIL also allows for image display in a user-specified window. Hardware permitting, MIL also enables non-destructive graphics overlay of live video with no host CPU intervention and can eliminate the tearing artifact present during live video display.

» Classic 'C' versus OCX method

MIL provides a choice of programming environments for Windows application development: classic C/C++ or ActiveX (OCX).



MIL's 'C' programming interface consists of descriptive command names and parameters. Commands are not only intuitive, but highly integrated, so applications are developed quickly with relatively few lines of code.



ActiveMIL (see enlarged controls on right) fully integrates into rapid application development (RAD) environments for Windows®, such as Microsoft® Visual Basic®. Application development consists of drag and drop tool placement with point and click configuration, resulting in substantially less coding than the classic 'C' method.

Image display (cont.)

MIL also supports multi-screen display configurations that are in an extended desktop mode (Windows® desktop across multiple monitors), auxiliary mode (monitor not showing Windows® desktop but dedicated to MIL display) or a combination of both. Multi-screen display configurations are achieved using Matrox Imaging boards and/or Matrox graphics boards.

» Image Display Management



MIL automatically manages multi-screen display configurations.

Data formats

MIL can manipulate data, such as monochrome images, stored in 1, 8, 16 and 32-bit integer, as well as 32-bit floating point formats. MIL can also handle color images stored in packed or planar RGB/YUV formats. Included are commands for converting between data types.

Flexible image capture

Choose from Matrox Imaging's line of hardware products for flexible, high-quality image capture. MIL processes images acquired from virtually any type of color or monochrome source including standard, high-resolution, high-rate, frame-on-demand cameras, line scanners, slow scan devices, VCRs and custom-designed devices. Camera support is board-specific, so refer to the respective Matrox board datasheet for more information.

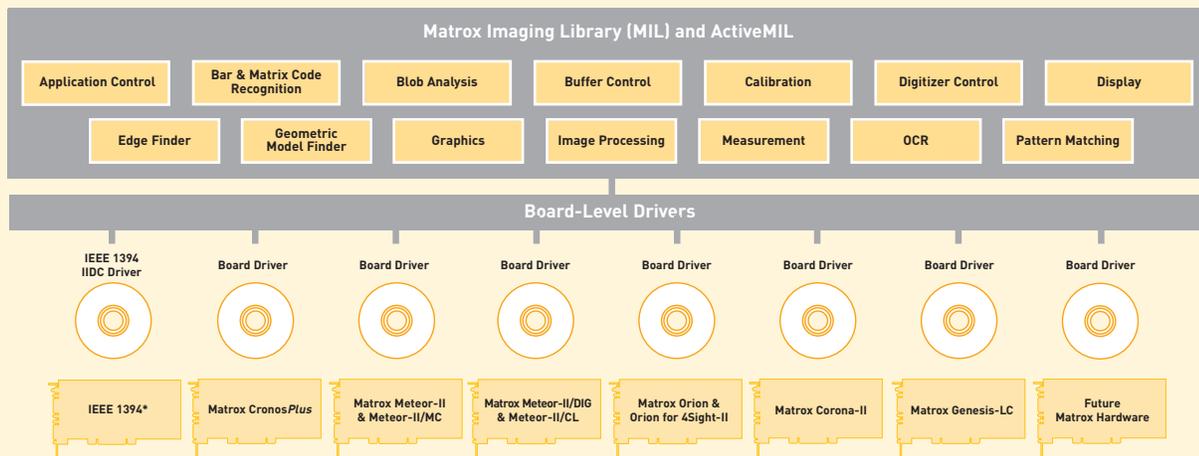
Matrox Intellicam

MIL includes Matrox Intellicam camera configuration utility, a Windows®-based program that allows users to interactively configure Matrox image capture hardware with a variety of image sources.

Comprehensive yet highly accessible documentation

Online help provides users with thorough yet easy-to-find documentation covering all aspects of MIL. It seamlessly integrates into Microsoft® Visual C++® and Visual Basic® and is context-sensitive, putting it within easy reach when one needs it most. The online help can even be tailored to match the environment in use.

» Software Architecture



MIL/ActiveMIL has a common API across Matrox Imaging's entire hardware line.

*Matrox Meteor-II/1394, 4Sight-II or third-party adapter.

Matrox Imaging Library (MIL)

Programming toolkit with full range of functions for machine vision, medical imaging and image analysis. MIL has a modular architecture for board and system control, as well as for image processing and analysis.

MIL modules

Image Processing

Extensive set of imaging primitives including point-to-point, statistical, filtering, morphological, geometric transformations, FFT and segmentation.

point to point -

- manual or automatic thresholding (binarizing, clipping)
- arithmetic operations: add, subtract, multiply, integer divide, fixedpoint divide (two images or an image and constant), negate, absolute value, copy image (conditional, mask, etc.), clear buffer to a constant
- logical operations: NOT, AND, NAND, OR, XOR, NOR, or XNOR (two images or an image and a constant)
- comparative (minimum/maximum)
- shifting
- LUT mapping
- frame averaging

statistics -

- intensity histogram
- minimum/maximum pixel values
- locate certain pixel values
- count differences between two images
- 2D to 1D projection
- histogram equalization

filtering -

- noise removal and image smoothing: low-pass spatial filter (Gaussian), rank (median) filter
- edge enhancement: sharpen, sharpen with increased contrast
- edge detection (extraction): horizontal, vertical, Sobel, Laplacian, compass gradient
- customizable filters with kernels of any size

morphological operations -

- erosion, dilation, opening, closing, thinning (skeleton), thickening, "hit or miss", binary matching, zone of influence, distance and labeling
- customizable morphological operators with structuring elements of any shape and size

geometric transformations -

- image resizing (nearest neighbor or interpolated)
- image rotation (nearest neighbor or interpolated)
- sub-pixel translation
- polar coordinates conversion (from Cartesian to polar coordinates and vice-versa)
- warping using first order polynomial or look-up table (LUT) based method:
 - first order polynomial warping: translation, rotation, scaling, and shearing effects
 - LUT-based warping: perspective mapping, translation, rotation, scaling, shearing and four-corner effects, 2nd and 3rd order transformations (radial, barrel, pincushion lens distortions) and custom transformations

FFT -

Transform images from spatial to frequency domain and vice-versa for frequency domain analysis.

- results provided in real and imaginary form or as power spectrum (scaled to display range) and phase (°)

segmentation -

Powerful watershed grayscale morphology operator for difficult blob segmentation. Function used in conjunction with other MIL functions to label and/or segment connected blobs.

- regular and straight watershed (particle separation)
- regular watershed and catchment basin (segment blobs from background)

Blob Analysis

Analyze connected components (blobs) in an image. Count, label and measure features of blobs. Measure over 50 different binary and grayscale features. Select and sort blobs by feature. Obtain count of blobs that meet specific feature criteria. Reconstruction and drawing of blobs are also supported.

calculated features -

- individual label
- area
- center of gravity
- perimeter: normal, convex
- size: Feret diameter (minimum, maximum, average, at specific angle), length (sub-pixel accuracy), breadth (sub-pixel accuracy), elongation (ratio of length to breadth)
- shape: compactness (closeness of blob particles), roughness (ratio of perimeter to convex perimeter), number of holes in blob, Euler (number of blobs minus number of holes), central and ordinary moments of any order
- location: X Y center of gravity (sub-pixel accuracy), bounding box position, minimum/maximum X Y value, X pixel coordinate corresponding to Y min/max value, Y pixel coordinate corresponding to X min/max value
- runs (horizontal string of consecutive foreground pixels): total number, length, location
- chain-pixels or coordinates of pixels along a blob's border and/or inner hole(s)
- grayscale measurements: sum of all pixels, minimum, maximum, mean, standard deviation, sum of the squares, center of gravity

Measurement

Specify or automatically locate reference markers. Find multiple reference markers using a single function call. Perform accurate measurements between markers.

- specify points, edges, stripes
- automatically locates edges and stripes
- calculate:
 - distance, angle, line to a point (line equation)
 - edge position, position variation, orientation, strength, angle, width, width variation, polarity contrast, line, average spacing, average width
 - stripe position, position variation, orientation, angle, width, width variation, polarity contrast, line, number of inside edges, average spacing, average width
- adjustable aspect ratio

Compression/decompression

Compress and decompress monochrome and color images using JPEG or JPEG2000 standard.

- support for lossy and lossless compression modes
- process 8/16-bit per pixel/plane (8-bit only for lossy JPEG)
- handle planar/packed RGB/YUV to:
 - planar RGB/YUV and packed YUV for lossy JPEG
 - planar RGB for lossless JPEG
 - planar RGB/YUV for JPEG2000
- support for image sequences (saved as AVI)

- variable quantization factor (Q-factor)
- customizable JPEG codec
 - select predictor #0, #1 or #2 for lossless mode
 - specify Huffman and quantization tables
 - specify restart markers
- customizable JPEG2000 codec
 - set target image size for lossy mode
 - specify quantization table
 - specify number of discrete wavelet transform (DWT) iterations

Edge Finder New!

Powerful edge extraction and analysis tool used for defect detection, finding objects with significant deformity or finding simple objects very quickly.

- specify image mask
- quickly extract and construct object contours or thin line crests
- modify extraction parameters: accuracy, chaining method, filter (Sobel, Prewitt, Frei Chen and Shen), filter smoothness, calculation in integer or floating point, threshold values, threshold sensitivity, threshold type, magnitude type (gradient or square of gradient) and foreground value
- adjust construction parameters: chain linking (aperature angle, continuity maximum radius and polarity) and polygonal fit (chain approximation and approximation tolerance)
- record intermediate results: raw angles, raw magnitudes, chain angles, chain magnitudes and derivatives
- calculate features: average strength, bounding box coordinates, center of gravity, closure, convex perimeter, length (fine or coarse), Feret elongation, Feret angles (minimum and maximum), Feret diameter (minimum and maximum), Feret lengths (horizontal and vertical), first chain point, general Feret, label, elongation moment, position, size, strength, tortuosity and contact points
- select and sort by feature, cropped chain feature, inter-relationship (inside or outside chain or bounding box) and neighborhood (within radius) criteria
- integrated calibration compensates for optical and perspective distortions, and provides results in real-world units, all with negligible performance overhead
- accuracy of well over 1/40th of a pixel
- send extraction results to Geometric Model Finder for pattern recognition
- receive located model(s) or filtered target image from Geometric Model Finder for measurements
- save chains and/or edge approximation to an AutoCAD® DXF file
- interactive Windows® utility for experimentation

Geometric Model Finder Enhanced!

Use geometric features (i.e., contours) to solve robot guidance, CMP wafer alignment and other challenging applications. Unique algorithm provides exceptional flexibility with unparalleled levels of accuracy and robustness.

- allocate search model manually from a source image, using a pre-defined fiducial (circle, cross, ellipse, line, rectangle, ring and square) or from an AutoCAD® DXF file **New!**
- define model including mask for irrelevant, inconsistent or featureless areas continued

Geometric Model Finder (cont.) **Enhanced!**

- adjust smoothness of contour filter and minimum threshold for contours
- quickly search and locate a predefined model that is translated, rotated (0° to 360°) and/or scaled (50% to 200%)
- very quickly search a complex scenery with a limited range of angle and scale **New!**
- accept absence and occlusion of significant contours
- tolerate non-uniform contrast changes (e.g., specular reflections) including full or partial contrast reversal
- quickly search for multiple models and/or occurrences in parallel
- modify search parameters: model and target coverage, fit error and weight, acceptance and certainty thresholds, number of occurrences, reference axis and angle, warping coefficients, angle and scale range, contour polarity, minimum separation criteria, shared contours, search region, speed, accuracy and timeout interval
- search results: model index, target score, model coverage, fit error, warping coefficients, polarity, number of occurrences, score, position including angle and scale
- integrated calibration compensates for optical and perspective distortions, and provides search results in real-world units, all with negligible performance overhead
- translational accuracy at up to 1/40th of a pixel, rotational accuracy at up to 1/20th of a degree and scaling accuracy at up to 0.1%
- search speed is independent of rotation and loosely dependent on size of model and number of models and/or occurrences
- interactive Windows® utility for model definition and experimentation

Pattern Matching

Use normalized grayscale correlation (NGC) to solve alignment, measurement and inspection applications. Algorithm handles degraded, noisy or out-of-focus images, and uses an intelligent search strategy for maximum speed.

- allocate search model manually or automatically
- define model including "don't care pixels"
- quickly search and locate a predefined model translated and/or rotated
- modify default search parameters: model center, number of matches, acceptance and certainty threshold, search region, speed and accuracy
- search results: score, number of matches and position including angle
- translational accuracy at up to 1/40th of a pixel and rotational accuracy at up to 1/10th of a degree
- find orientation of whole image or of model on a simple background

Bar and Matrix Code **Enhanced!**

Read/write the more popular bar and matrix code symbologies. Easily handle rotated, scaled and degraded codes. Automatically find codes located in complex scenes.

- supports Code39, Code128, Codabar, BC412, UPC-A, UPC-E/EAN-13, Interleaved 2 of 5, Pharmacode, Planet and Postnet 1D code symbologies **Expanded!**
- supports DataMatrix (including ECC200), Maxicode and PDF417 2D code symbologies
- interactive Windows® utility for experimentation **New!**

Calibration

Compensate images, positions and/or measurements for non-ideal spatial representation of a camera's field of view and/or objects in an image using linear interpolation.

- compensate for lens distortion (e.g., pincushioning, barreling), aspect ratios, rotation and perspective distortions
- convert data from pixel coordinates to real-world coordinate system and vice-versa (e.g., pixels to inches or millimeters)
- calibration mapping using a simple physical grid, image or a list of points
- supports user-defined Cartesian coordinate system relative to an object or position

OCR **Enhanced!**

Read and verify mechanically generated characters such as semiconductor wafer serial numbers. Module is capable of reading monospace and proportional fonts. Optimized to read predefined fonts, it can also recognize user-defined fonts.

- allocate predefined (MICR, OCR A and B, and SEMI M12-92 and M13-88) or user-defined font **Expanded!**
- calibrate font
- locate string that is translated
- read unknown string, multiple strings (same and different line) at once and blank character **Expanded!**
- verify known string
- read results (string value, position and reading score)
- define valid characters for each position
- save or load existing font
- copy font characters to/from target image
- specify custom checksum validation
- interactive Windows® utility for font definition and experimentation **New!**

Camera Auto-focus

Enable integration of automatic camera focusing. Use in conjunction with a user-supplied callback function for controlling a lens with a motorized focusing ring or a motorized camera positioning mechanism.

- optimum focus point determined using different focus assessment strategies

Application Control

Provides environment control functions such as error checking, function tracing and default allocation to simplify programming and debugging.

Data Control **Enhanced!**

Offers functions for manipulating data (including image) buffers.

- image buffer allocation/deallocation
- definition of region of interest (ROI)
- read/write and direct access of data buffers
- support for monochrome and color (RGB and YUV) image buffers
- Bayer filter with gamma correction (up to 16-bit) **Enhanced!**
- save images to disk in standard file formats including TIF, BMP, JPG, JP2 (bit stream only) and AVI, as well as a raw format.

Display Control

Includes functions such as image display, zoom, pan, scroll, output LUT management and graphics overlay control.

- image display in MIL or user-specified window
- non-destructive graphics overlay of live video with no host CPU intervention³
- "no-tearing" live image display mode³
- support for multi-screen display configurations (extended desktop and/or auxiliary modes)³
- VGA to UXGA, NTSC/PAL and custom display formats³

Digitizer Control

Supports control of digitizers (image capture boards).

- single, continuous, asynchronous and double-buffered grab³
- selectable gain, offset, hue, brightness and contrast³
- input LUT³
- input channel
- scale up and/or down³
- trigger and exposure control³
- user (auxiliary) I/O bits³

Graphics

Set of graphics primitives used to create image annotations.

- draw lines, rectangles, arcs, circles, ellipses and dots with selectable color
- write text with selectable font, size and color
- special drawing functions for blob analysis, edge finder, geometric model finder, measurement and pattern matching (e.g., bounding box, outline, center)

System Requirements

- PC with an IA32 processor (Pentium-class or better)
- Windows® 98/Me/NT 4.0/2000/XP
- minimum of 48 MB RAM for Windows® 98/Me/NT 4.0, 64 MB RAM for Windows® 2000 or 128 MB RAM for Windows® XP (excluding non-paged memory)
- minimum free hard disk space:
 - 100 MB and 150 MB for MIL and ActiveMIL development environments respectively
 - 25 MB and 30 MB for MIL and ActiveMIL run-time environments respectively
- Matrox frame grabber with a MIL driver for Microsoft® Windows® 98/Me/NT 4.0/2000/XP (optional)
- graphics adapter (may be on Matrox frame grabber)
- Microsoft® Visual C++®.NET4/Visual C++® or Visual Basic® 6.0

Supported Environments¹

	Windows® 98/Me/NT/2000/XP
MIL	Microsoft® Visual C++®.NET ² / Microsoft® Visual C++® (as DLL)
ActiveMIL	Microsoft® Visual Basic®/ Microsoft® Visual C++® (as OCX)

Ordering Information

Development Toolkits

Part number	Description
MIL 7 DEV P or U ²	Starter package. Includes CD with MIL, ActiveMIL, Intellicam, Matrox display drivers and online documentation, MIL User Guide manual, ActiveMIL User Guide manual, Intellicam User Guide manual and Parallel or USB hardware license key.
MIL 7 ADD DEV P or U ²	MIL additional developer package. Requires MIL starter package at same facility. Includes MIL User Guide manual, ActiveMIL User Guide manual, Intellicam User Guide manual and Parallel or USB hardware license key.

Run-time License Software Keys

Must supply system code obtained from MIL License Manager application. This unique system code identifies the target computer system and MIL/ActiveMIL package(s) to license.

NOTE: Place 0 in appropriate field if package is not required.

Part number	Description
MIL 7 RT A x x x x x	Image analysis package. Includes Image Processing, Blob Analysis, Measurement and Calibration modules.
MIL 7 RT M x x x x x	Machine vision package. Includes Image Processing, Blob Analysis, Pattern Matching (NGC-based), Measurement and Calibration modules.
MIL 7 RT x l x x x x	Identification package. Includes OCR and Bar/Matrix Code modules.
MIL 7 RT x x J x x x	Image compression package. Includes JPEG and JPEG2000 codecs.
MIL 7 RT x x x G x x	Geometric Model Finder package.
MIL 7 RT x x x x E x	Edge Finder package.
MIL 7 RT x x x x x S	Serial bus driver (IEEE 1394 IIDC). Required if using third-party IEEE 1394 hardware.
MIL 7 RT ID P or U ²	Parallel or USB hardware fingerprint. Replaces Matrox Imaging, Matrox Graphics or Ethernet boards as fingerprint used to generate unique system code. MIL 7 RT still required.

Run-time License Hardware Keys

Part number	Description
MIL 7 RT M 0 0 0 0 0 P or U ²	Parallel or USB hardware license key that enables Image Processing, Blob Analysis, Pattern Matching (NGC-based), Measurement and Calibration modules. Alternative to MIL 7 RT M 0 0 0 0 0.
MIL 7 RT 0 0 0 G 0 0 P or U ²	Parallel or USB hardware license key that enables Geometric Model Finder module. Alternative to MIL 7 RT 0 0 0 G 0 0.
MIL 7 RT M I J 0 0 0 P or U ²	Parallel or USB hardware license key that enables Image Processing, Blob Analysis, Pattern Matching (NGC-based), Measurement, OCR, Bar/Matrix Code, Calibration and JPEG/JPEG2000 modules. Alternative to MIL 7 RT M I J 0 0 0.
MIL 7 RT M I J 0 E 0 P or U ²	Parallel or USB hardware license key that enables Image Processing, Blob Analysis, Pattern Matching (NGC-based), Measurement, OCR, Bar/Matrix Code, Calibration, JPEG/JPEG2000 and Edge Finder modules. Alternative to MIL 7 RT M I J 0 E 0.
MIL 7 RT M I J G 0 0 P or U ²	Parallel or USB hardware license key that enables Image Processing, Blob Analysis, Pattern Matching (NGC-based), Measurement, OCR, Bar/Matrix Code, Calibration, JPEG/JPEG2000 and Geometric Model Finder modules. Alternative to MIL 7 RT M I J G 0 0.
MIL 7 RT M I J G E 0 P or U ²	Parallel or USB hardware license key that enables Image Processing, Blob Analysis, Pattern Matching (NGC-based), Measurement, OCR, Bar/Matrix Code, Calibration, JPEG/JPEG2000, Geometric Model Finder and Edge Finder modules. Alternative to MIL 7 RT M I J G E 0.

MIL Maintenance Programs

Included in the original purchase price of the MIL starter and additional developer packages, it entitles registered users to one year of technical support and free updates of the development toolkit. The maintenance program for the additional developer package will expire one year from the purchase date of the starter package and will expire every subsequent year on this date. Does not apply to MIL unlimited licenses.

Part number	Description
MIL MAINTENANCE	One year program extension for starter package.
MIL ADD DEV MAINT	One year program extension for additional developer package.

Unlimited Licenses

Development and run-time package for an unlimited number of seats. Requires no hardware or software license key but does require a duly executed license agreement. Contact Matrox Imaging Sales for more information.

MIL Training

Visit Matrox Imaging's website (<http://www.matrox.com/imaging/training/>) for more information on MIL training courses.

Notes:

1. Contact Matrox Imaging Sales or local representative for information regarding which environments are supported by specific Matrox hardware and the revision number of development tools.
2. USB hardware key only supported under Windows® 98, Windows® Me, Windows® 2000 and Windows® XP.
3. Hardware permitting.
4. Unmanaged code only.

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