

Where to begin

Matrox Iris P-Series is a fully programmable smart camera that incorporates an embedded Intel® architecture processor and runs the Microsoft® Windows® CE .NET real-time operating system. Programming the Matrox Iris P-Series is done using Microsoft development tools and the Matrox Imaging Library (MIL). The purpose of this document is to briefly discuss the application development environments available to Microsoft Windows CE .NET developers and identify the appropriate one for the Matrox Iris P-Series. Topics discussed in this document assume that the reader is already familiar with embedded computing, Windows programming terminology, and the Matrox Imaging Library (MIL). The use of the term MIL in this document refers specifically to MIL for Microsoft Window CE .NET.

Application development for Microsoft® Windows® CE .NET

Microsoft Windows CE .NET is a member of the Microsoft Windows family of embedded operating systems and is the ideal operating system for devices with a small memory footprint, such as the Matrox Iris P-Series smart camera. Microsoft Windows CE .NET is also a hard real-time operating system with low latency and bounded deterministic performance. Programming the Matrox Iris P-Series under Microsoft Windows CE .NET is done using familiar Microsoft development tools and consists of a cross-platform development environment (see Figure 1). Cross-platform development requires development tools installed on a PC workstation for coding and compiling an application for Matrox Iris P-Series. Once generated, the application is downloaded directly to the Matrox Iris P-Series (through an Ethernet link) where it can then be executed and remotely debugged from the PC workstation.

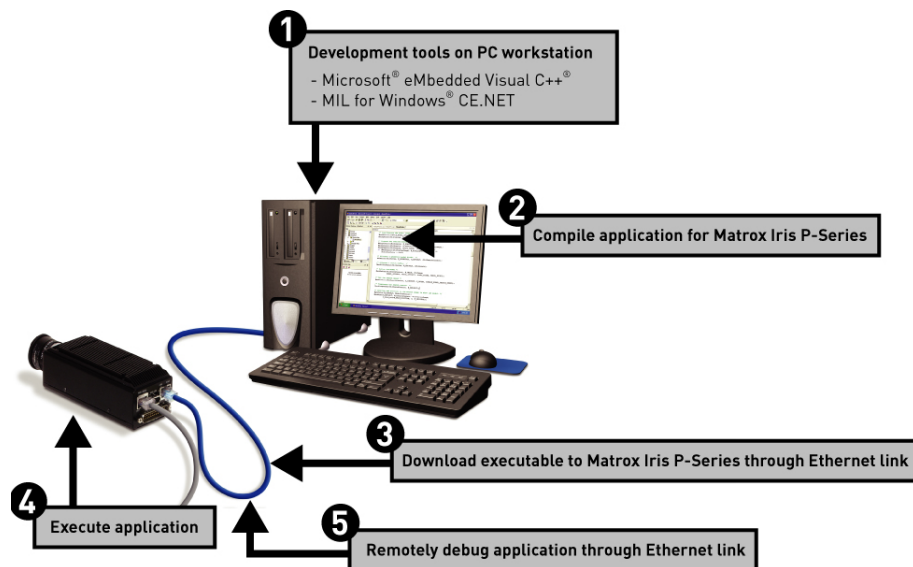


Figure 1: Cross-platform development for the Matrox Iris P-Series.

Choice of APIs and development environments

There are a variety of application programming interfaces (APIs) supported by Microsoft Windows CE .NET. These include Win32®, Microsoft® Foundation Classes (MFC) and .NET Compact Framework. Matrox Iris P-Series developers will need to program their application using native (unmanaged) code, or more specifically, using the Win32® API. Code developed with the Win32 API produces the smallest and fastest applications (EXE and DLL) for a Windows CE .NET platform. The MFC and .NET Compact Framework APIs cannot be used to program the Matrox Iris P-Series since they are not supported on a headless (no Windows GUI) configuration of Windows CE .NET. However, the Active Template Library (ATL) can be used to program the Matrox Iris P-Series.



Choice of APIs and development environments (cont.)

Win32 programming means working with the Microsoft® eMbedded Visual C++® integrated development environment (IDE). Experienced Microsoft® Visual C++® 6.0 developers will feel quite at ease within Microsoft eMbedded Visual C++ 4.0 and will be able to quickly develop applications for the Matrox Iris P-Series because of the similarities between the two IDEs (see Figure 2). Microsoft® Visual C++® .NET is not supported since it is restricted to programming using the .NET Compact Framework.

It is also important to note that Platform Builder, the Microsoft tool used for creating the operating system image is not required since the Matrox Iris P-Series comes with a pre-installed, Matrox-configured image of Microsoft Windows CE .NET.

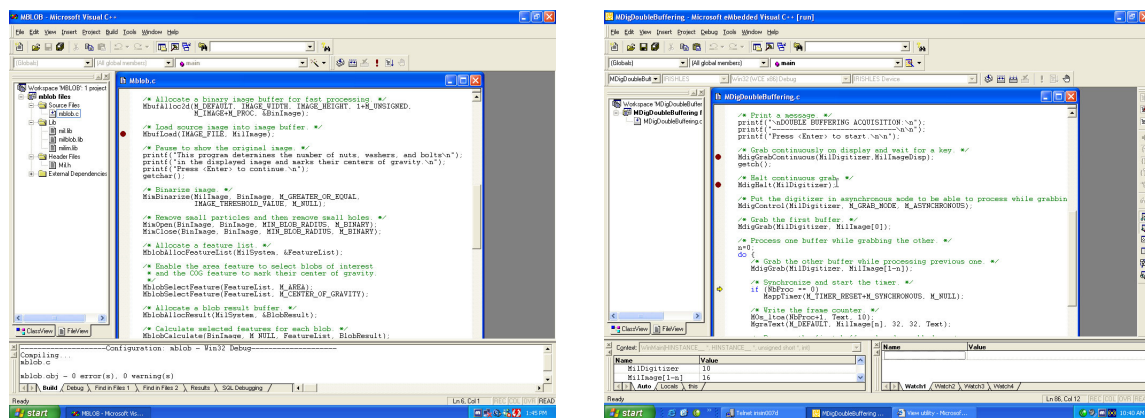


Figure 2: Microsoft® Visual C++® 6.0 (left) developers will feel quite at ease within the Microsoft eMbedded Visual C++ 4.0 environment (right).

Matrox Imaging Library for Microsoft® Windows® CE .NET

Matrox Imaging Library (MIL) is the 'C' callable library for image capture, processing and analysis. MIL only supports unmanaged C/C++ code development. Consequently, development of MIL-based applications under Microsoft Windows CE .NET requires the use of Microsoft eMbedded Visual C++. MIL for Microsoft Windows CE .NET running on the Matrox Iris P-Series works like MIL for desktop Windows except for image display, which is handled remotely (through Microsoft Windows Internet Explorer). For more information about MIL for Microsoft Windows CE .NET, contact Matrox Imaging sales or your local Matrox Imaging Sales representative.

References

- Paul Yao, 2002. Application Development Landscape for Windows CE .NET. Microsoft Developer Network (<http://msdn.microsoft.com>); Windows Embedded; Using Windows CE .NET; Technical Articles
- Paul Yao, 2002. Choosing a Windows® Embedded API: Win32® vs. the .NET Compact Framework. Microsoft Developer Network (<http://msdn.microsoft.com>); Windows Embedded; Using Windows CE .NET; Technical Articles

Additional Information

- Microsoft Developer Network (<http://msdn.microsoft.com>); Windows Embedded; Using Windows CE .NET; Technical Articles

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