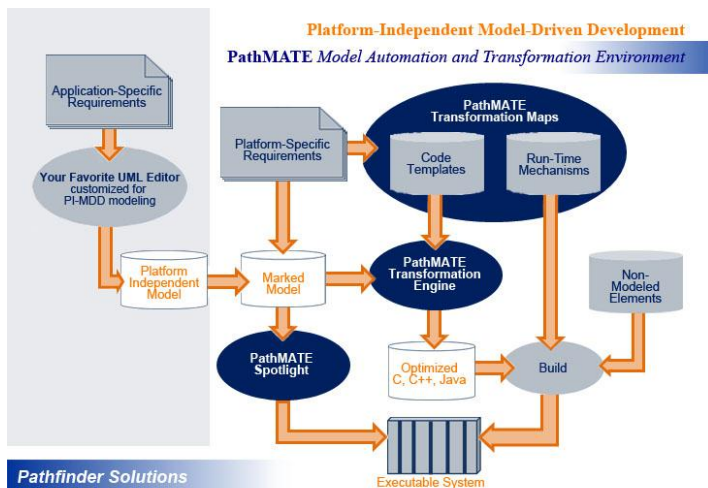# PathMATE for high performance systems software development

*Automate high performance software development with **Platform Independent MDD** and PathMATE*
Fully integrates with Rational Rhapsody or Rational Software Architect on Eclipse

Software organizations today are continually challenged to rapidly respond to changing competitive, regulatory, and technological requirements on top of the additional pressure to control or reduce costs. How do you address the universal mandate to "do more with less"? Replace expensive senior talent with less experienced or off-shore resources? Make quality or architectural sacrifices to meet time to market demands? These common responses often fail to deliver in the short term and are universally flawed in the long term.

Platform-Independent Model-Driven Development
PathMATE *Model Automation and Transformation Environment*

PathMATE transforms Platform-Independent MDD Models (PIMs) into high-performance embedded C, C++ & Java. Fully integrated with Eclipse and the Rational Software Developer Platform, PathMATE is the most open and advanced environment for the development and deployment of high performance systems.

> *"With PathMATE, I focus on high-level objectives, requirements and overall architecture, not memory management and I/O details—I'm much more informed and productive than I used to be."*
>
> *Software engineer*
> *Factory Control Solution Provider*

PathMATE automates Platform-Independent MDD, an agile, model-driven and test-driven approach for rapidly developing and deploying high-performance systems software. Based on industry standards and available in leading development platforms, *PathMATE delivers key strategic benefits:*

Substantially Accelerated Time to Market
PathMATE automatically transforms Platform-Independent UML models into high-performance embedded C, C++ or Java systems. By moving development up-abstraction, PathMATE shifts the focus of development from code-centric to problem-space focused, enabling developers to maintain their product vision directly. *PathMATE customers have consistently measured development productivity gains of over 100 percent within their first 14 months of adoption and correspondingly accelerated time to market.*

Implementation Consistency
In a team setting, code inconsistency can seem inevitable, negatively affecting maintenance, quality and performance. Through automation PathMATE makes the production of tight, readable and consistent code—including your project-specific implementation optimizations—a highly repeatable process. *Defect measurement during product integration shows the quality of PI-MDD components is typically 10x that of non-modeled components.*

Architectural and Platform Agility
PathMATE transforms your UML PIMs into high performance deployable code. Rapidly redeploy to tune topology and optimize implementation strategies, leveraging the power of platform independence, while maximizing implementation efficiency. *Quantum leaps in product quality and acceleration of time to market give PathMATE customers gain product agility as a strategic competitive advantage.*

Large-Scale Software Reuse
With PathMATE, you define component functionality once—in a PIM, and by separately adjusting model properties and deployment settings, you redeploy your system in different implementation languages, platforms and topologies, controlling a wide range of optimization tradeoffs. *Many traditional reuse limitations of hand-coding disappear, greatly enhancing your ROI and ability to respond to dynamic opportunities.*

Ready for
IBM Rational software

eclipse

PathMATE™ Features

PathMATE's distinguishing features help customers produce the highest quality systems:

- *Most Configurable* - Easily control optimizations and topology of generated system
- *Most Open* - Integrates with leading UML environments & provides open transformation logic
- *Fastest* - Delivers quickest -turnaround iterative model development - edit/transform/build/test

Open Integration

- Integrates with popular UML editing platforms such as IBM Rational Rhapsody, Software Architect and Rational Rose
- Model versioning & archival via leading change management systems
- Integrated with popular requirements management systems
- Eclipse Ganymede plugin architecture for full extensibility

Industry Standards Based

- Reference technology for the OMG MDA Model-to-Code standard
- Supports MDA Model Marking
- XMI data import
- Tracks emerging MDA Executable UML (xUML) and Functional UML standard

UML Modeling Support

- Logical Architecture Components with subject-matter Domains and interfaces
- Classes, attributes, class operations, signals
- Associations and association classes
- Generalization including polymorphism support
- Interface classes, realization
- Harel State Semantics including state entry and exit actions, transition actions and guards, composite states, pseudo states, and history
- UML Standard Action Semantics
- Supports all UML diagrams including Class, Object, State Chart, Use Case, Sequence Chart, Interface, Subsystem, Deployment & Collaboration
- Model differencing and merging
- Flexible model storage for component-level management and reuse
- Eclipse Ganymede and Rational Software Development Platform integration

Model Checking and Static Analysis

- Built-in model syntax, completeness and consistency checks
- Automated error correction
- Run-time performance, safety-critical, high-availability, and modeling consistency analysis (customizable for project-specific requirements)

Transformation Performance

- Generates > 50,000 SLOC/minute
- Fastest edit-transform-debug cycle for effective iterative development and testing

Architectural Configurability

- Reconfigure across task & processor topologies for performance prototyping, varying product line configurations, etc.

Documentation & Report Generation

- Generates formatted Word documents
- Injects diagrams into generated target documentation
- HTML output for web-based collaboration and reference lookup
- XML output for open data interchange
- Rich document template library provides a range of reports, and starting points for custom reports

Product Support

- PathTECH on-line tech resource site
- PI-MDD training & on-site hands-on project mentoring and consulting
- Fully-executable sample systems

Platform Support

- PathMATE runs on the Eclipse and Windows platforms. Browse our wide range of supported deployment platforms, refer to the PathMATE Transformation Maps datasheet