

AN EXECUTIVE WHITE PAPER ON:

**THE EMBEDDED SOFTWARE
STRATEGIC MARKET INTELLIGENCE PROGRAM
2001-2002:**

VOLUME V: ADA IN EMBEDDED SYSTEMS

*An Executive White Paper for Senior Managers
Interested in Maximizing Growth and Profitability*

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TECHNOLOGY MARKET RESEARCHERS AND STRATEGISTS SINCE 1971

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MARKET OVERVIEW

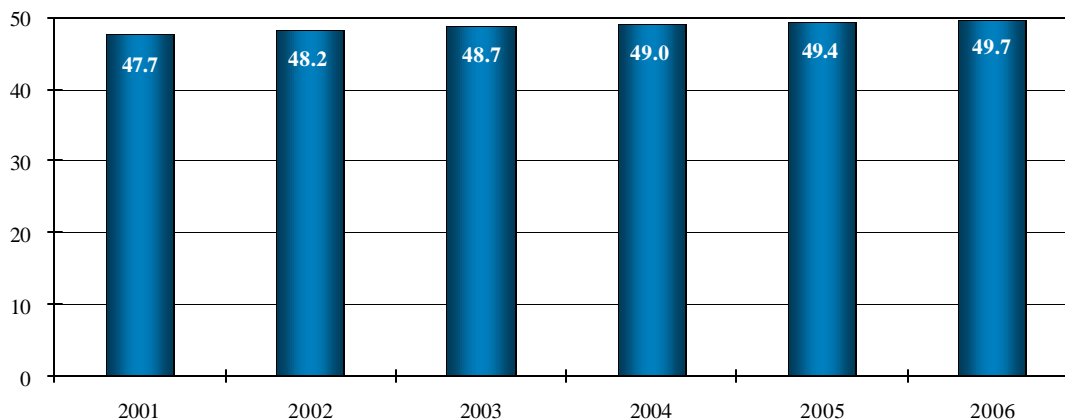
VDC estimates that the market for embedded Ada software development tools (IDEs, compilers and debuggers) and related services was \$47.7 million in 2001. VDC expects demand for these tools and services to be relatively flat over the forecast period with the average annual growth being only 0.8% through 2006.

VDC believes that the market for Ada software development tools has fallen over the past 5 years and is now reaching a point of stability as the decline in military use is being offset by commercial aerospace and other safety-critical applications.

Developers

VDC estimates that there were between 8,000 and 10,000 embedded firmware developers using the Ada language on a regular basis in 2001.

Exhibit 1
Worldwide Shipments of Embedded Ada Software Development Tools and Related Services Through 2006
(Millions of Dollars)



VERTICAL MARKETS

VDC is estimating that use of Ada in military applications will continue to fall, despite programs such as the US Joint Strike Fighter and EU Eurofighter. These projects will, however, continue to provide a significant amount of Ada revenue to vendors of software development tools through ongoing tools sales and maintenance and support revenues. Other findings include:

- Commercial aerospace should continue to see slight gains for Ada tools vendors. Demand for airliners remains reasonably strong given the slowdown in flying.
- The non-Automotive transport, which includes trains and train systems, should be a bright spot for Ada tools vendors.

Exhibit 2	
Worldwide Shipments of Embedded Ada Software Development Tools and Related Services Segmented by Application Segments (Percent of Dollar Volume)	
<u>2001 Total</u> : \$47.7 Million	
	Military Aerospace
	Commercial Aerospace
	Military—Non Aerospace
	Transportation—Non Automotive
	Others
	Industrial Automation
	Automotive
	Medical

GEOGRAPHIC DISTRIBUTION

The largest Ada market, North America, is forecast to be essentially flat through 2006. Declining use of Ada in military applications, even as military spending increases, will be slightly offset by commercial aerospace and other smaller but emerging applications. Europe is forecast for moderate growth through 2006.

Processors Supported

Power PC accounts for over half of the shipments of Ada software development tools. x86 is the second leading processor followed by 68k.

Target Operating Systems Supported

Wind River Systems' VxWorks is the leading commercial OS supported by Ada tools. However, most Ada tools and services go to support either a proprietary OS or projects that use no OS.

Exhibit 3	
Worldwide Shipments of Embedded Ada Software Development Tools and Related Services Segmented by OS Supported (Percent of Dollar Volume)	
<u>2001 Total</u> : \$47.7 Million	
	No OS/Proprietary
	VX Works
	Other
	INTEGRITY
	LynxOS

Key findings include:

- Fewer developers think that they will be using Ada in the future. Though the drop is slight.
- Over one-third of developers say that there are 2-5 developers using Ada in their organization.

- Developers cite Ada's ability to catch most bugs at compilation as the language's most important benefit. Support for object oriented programming and ANSI and ISO standardization were ranked second and third.
- The language's most severe drawback is the lack of developers who know Ada. A lack of educational opportunities and a lack of tools were ranked second and third.
- Almost one-half of all developers using Ada believe the language reduces project costs.
- Developers rated Ada Core Technologies and Aonix the most highly across a wide range of criteria.

Leading Vendors

The top 5 leading vendors of embedded Ada development tools in rank order are:

Rational
Green Hills
Aonix
Ada Core Technologies
DDC-I

About VDC and Our Philosophy

VDC is a technology market research and strategy firm. Graduates of the Harvard Business School and the Massachusetts Institute of Technology founded the company in 1971. We have over 30 years of experience in providing market research, strategic analysis and consulting services to technology companies worldwide.

Since 1982 VDC has been conducting analyses and forecasts within the embedded systems industry. Our initial focus on embedded single board computers used in telecommunications, industrial automation and military/aerospace applications has now been expanded to cover the market for commercial embedded OSs and software development tools.

VDC is not affiliated with any industry trade journal and we accept no advertising. Our goal is to provide the embedded systems community with unbiased, fact driven research and analysis on the embedded hardware and software space.

We offer an a la carte market research plan that allows you to pick and choose only the embedded systems market research report you need.

Embedded Software Reports

- Vertical Markets and Applications Analysis
- Proprietary Operating Systems and Development Tools
- Internet Enabling Applications in Embedded Systems
- Embedded/Real-Time Operating Systems and Toolkits
- Embedded Software Development Tools

- Embedded Design Automation Tools
- Embedded Software Test Automation Tools
- Ada: Traditional and Emerging Applications
- Linux's Future in the Embedded Systems Market
- Java in Embedded Systems
- Third-Party Outsourcing of Embedded Software Development Services

Embedded/Real-Time Application

Specific Reports for Merchant Computer Boards

- Telecom/Datacom
- Military/Aerospace
- Industrial Automation
- Medical
- General Business
- Scientific Instruments
- Transportation
- Retail

Embedded/Real-Time Hardware Reports

- VME
- PCI, including PCI boards, PCI/ISA hybrids, CompactPCI (cPCI), PMC and miscellaneous other embedded PCI buses
- Legacy Buses: ISA, Multibus I/II, STD, EISA, etc.
- Embedded Motherboards (ATX, EBX, Baby AT, LPX, NLX, Flex-ATX, Micro-ATX, etc.) PC/104 and PC/104-Plus
- Redundant/High Availability Computers
- Integrated Ruggedized/Industrial-Grade
- Computers

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