MOTOROLA COMPUTER GROUP

Powering

Possibilities
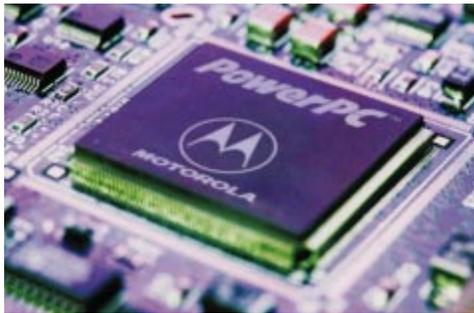
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Ⓜ **MOTOROLA**

Motorola Computer Group gives you

a wide array of embedded solutions,

to meet a broad spectrum of needs.

Motorola Computer Group is your premier source for single-board computers, controllers and embedded motherboards. Built around Motorola 68K and PowerPC™ microprocessors, our open-architecture products are ideal whenever you need the modularity and durability of open standards, and are especially appropriate for high-end monitoring and control. Choose from off-the-shelf or semi-standard products to fit your specific requirements. Our wide array of product options make Motorola Computer Group your choice to address a variety of embedded application needs.

Motorola builds the technology that builds your embedded business.

Technology

Performance-hungry embedded applications—and the sophisticated OEMs that create them—demand premier technology, versatility and plenty of options. Our VMEbus boards and PCI-based embedded motherboards answer the call, with Motorola microprocessors that can provide the firepower necessaary to meet your customers' needs.

Motorola 68K microprocessors are a rock-solid foundation.

Motorola's 68K microprocessor family is by far the leading 32-bit architecture in the embedded marketplace. When your application demands the fastest time-to-market for performance upgrades, plus complete binary compatibility with your existing code base, Motorola is your choice. With a large, compatible product portfolio that simplifies development, 68K microprocessors satisfy a broad range of embedded design requirements. Our 68K-based VMEbus family capitalizes on these benefits, giving you a wealth of price/performance options.

PowerPC microprocessors push embedded applications to new heights.
Our VMEbus boards and PCI-based motherboards are available with PowerPC microprocessors, the industry's premier RISC architecture. The PowerPC Architecture™ which supports multiple operating systems, continues to drive improvements in price, performance and feature sets for PowerPC boards. And because of the impressive range of price points, power management and scalable performance, PowerPC technology is the future for the embedded market.

Our VMEbus board technology is strong enough to carry your application all the way. VMEbus is the most popular 32-bit bus architecture, and the right choice for communications, imaging, automation and a variety of other uses. The VMEbus is stable, proven, and provides a versatile range of expansion options, plus great reliability, real-time response and high throughput. VMEbus acceptance and openness have created off-the-shelf product availability, giving you design freedom and room to grow. And new developments, enhancements and extensions keep VME technology moving forward with no end in sight. For customers with their eyes on tomorrow, the combination of PowerPC microprocessors and VMEbus boards is a total winner.

Our design leadership and manufacturing expertise are a package deal.

Design &
Manufacturing

Finding the right answer takes the right team.
Our design expertise and manufacturing experience make Motorola Computer Group the ideal source to help cut your development costs and speed your time-to-market. Working with us, you have the freedom to focus your resources on differentiating your product.

Work with a design team that knows embedded technology inside and out. As the developer of the 68K family and a key member of the strategic alliance behind the PowerPC Architecture, Motorola has the inside track on the leading technology in the embedded market. Motorola pioneered the VMEbus standard and continues to play a leading role in its definition. Our commitment to open standards was the reason behind launching the VMEbus without claiming patents, copyrights or trademarks—we were "open" before the term "open architecture" even existed. Today, Motorola Computer Group leads the VME market for specialized computer applications. And we're applying our VME expertise to craft the ideal PCI solutions for our embedded motherboards. Motorola's world-class design capabilities are built in to every one of our VMEbus and motherboard products. Now you can capitalize on that leadership to make your design a success.
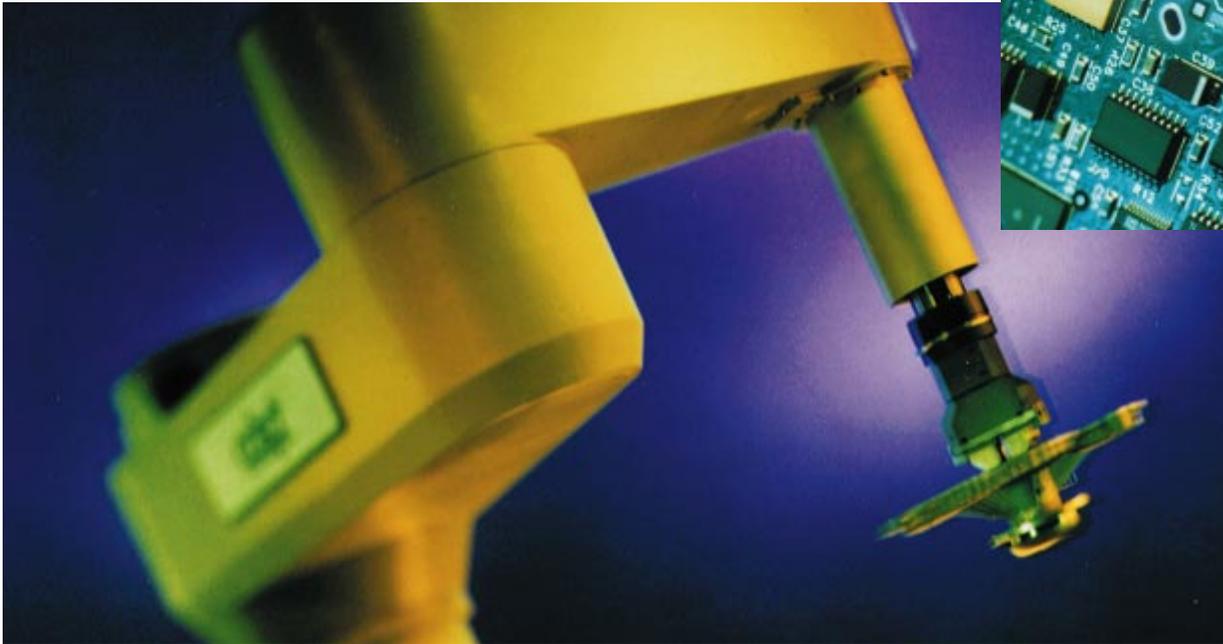
**VMEbus Board
Market Growth
(US $ in billions)**

2.0

1.0

0

1994
1995
1996
1997
1998
1999
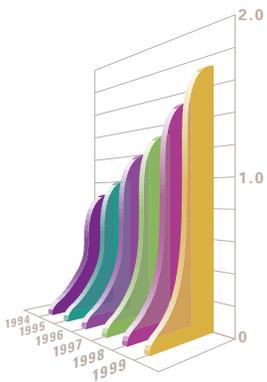
Strong growth in the VMEbus market is projected through the end of the century.

Source: Venture Development Corp.

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Our embedded VMEbus products support a variety of I/O sources to optimize control functions—a useful capacity for applications such as industrial robotics.

R e l y   o n   o u r   m a n u f a c t u r i n g   e x p e r t i s e   t o   s e e   y o u   t h r o u g h .

Motorola Computer Group's expanded manufacturing capabilities can help answer your time-to-market concerns and drive down your product's lifecycle costs through volume manufacturing, flexibility and just-in-time delivery. We leverage our strategic relationship with the Motorola Semiconductor Product Sector to facilitate timely semiconductor availability. And we feature leading-edge surface-mount manufacturing technology in two major board production areas: one to make the most of high-volume efficiencies, another designed for quick changeover to support many different board configurations. All to help meet your specifications—and your deadline.

We measure ourselves against the industry's "Best in Class" facilities, meet stringent ISO 9000 process standards and continually strive for Six Sigma quality, while maintaining competitive pricing. One of the ways we uphold these standards is through our Accelerated Life Test program, designed to over-stress each product and ferret out potential problems. Taken as a whole, our industry-leading manufacturing capabilities allow us to address challenging customer needs, while minimizing lifecycle costs and unnecessary delays.
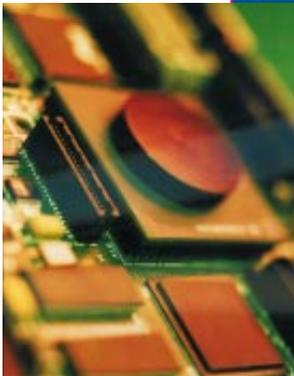
VMEbus
Products

Flight simulators use the multiprocessor capabilities of our VMEbus boards to create an artificial environment replicating thousands of variables.

Motorola Computer Group offers a full family of VMEbus modules, including embedded controllers, single-board computers, multiprocessor engines and complementary I/O expansion modules. We provide terrific performance and flexibility, plus leading-edge design capabilities, reusable technology, and an MPU migration path and strategy. Our off-the-shelf products cover a broad spectrum of design and functionality. Or you can use our OEM semi-standardization program to create the optimum solution for your product.
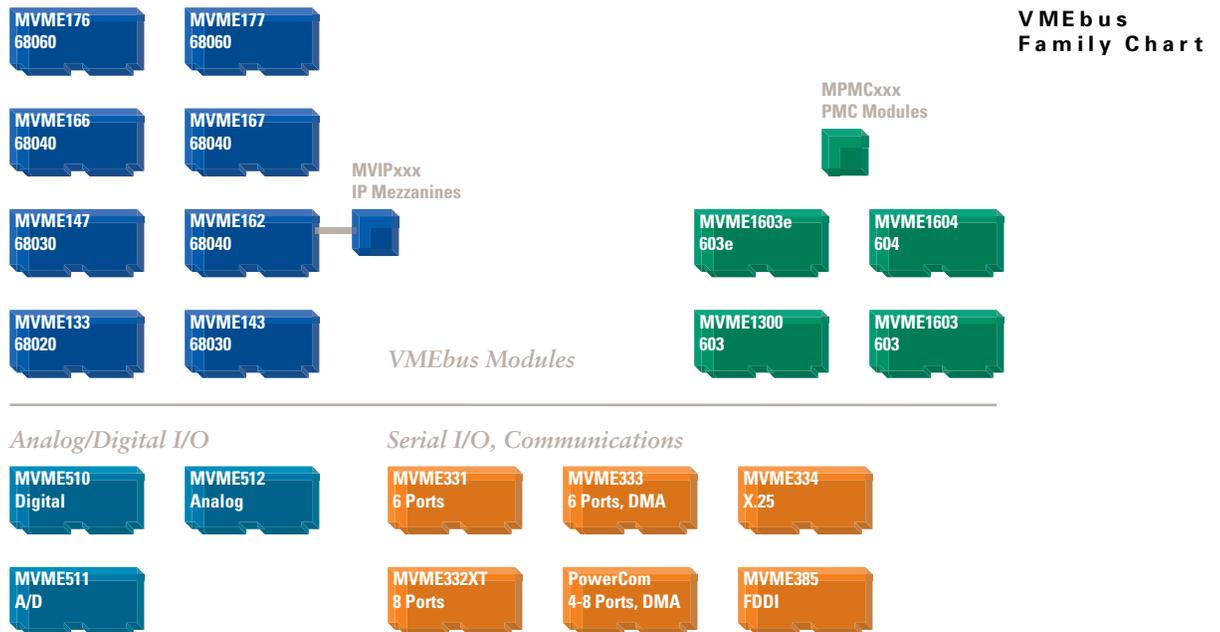
Get the price/performance you need. With the features your design demands.

Our VME product family based on the 68K microprocessor covers the range of 68K performance, cost and on-chip integration—from the 68020 to the latest 68060. This line gives you a choice of various memory and I/O peripherals, including SCSI, Ethernet, SRAM, DRAM, serial ports, IndustryPack™ modules and many more. Our broad line of PowerPC microprocessor-based VMEbus boards expands functionality and performance in the high-end VME market. This product family also includes options for DRAM and Flash memory, serial ports, SCSI, Ethernet, graphics and PCI mezzanine cards (PMC). Used as a high-performance local bus, PCI performs independently or in concert with VMEbus for optimum general system performance.

In addition, Motorola Computer Group offers an extensive selection of PMC and IndustryPack modules. These provide add-on capabilities to our single-board computers, including a choice of serial, Ethernet and FDDI controllers, among others. This line features a wide range of IndustryPack modules that address I/O needs for digital/analog, digital I/O and motion control, extending industrial control functionality up to communications and graphics.

Motorola Computer Group offers one of the most comprehensive VMEbus product families. Having more off-the-shelf products to select from helps you get the right solution at the right price. And that can make Motorola Computer Group your one right answer.

VMEbus Family Chart

MVME176 68060	MVME177 68060			

MPMCxxx PMC Modules

MVME166 68040	MVME167 68040

MVIPxxx IP Mezzanines

MVME147 68030	MVME162 68040		MVME1603e 603e	MVME1604 604

MVME133 68020	MVME143 68030		MVME1300 603	MVME1603 603

VMEbus Modules

Analog/Digital I/O   *Serial I/O, Communications*

MVME510 Digital	MVME512 Analog	MVME331 6 Ports	MVME333 6 Ports, DMA	MVME334 X.25
MVME511 A/D		MVME332XT 8 Ports	PowerCom 4-8 Ports, DMA	MVME385 FDDI

Our embedded motherboard solutions have plenty of choices built in.

Motherboards

You need the optimum solution. You don't need big expense.

Motorola Computer Group is your best source for PCI-based embedded motherboards, built upon PowerPC microprocessors. We give you a choice of standard boards to provide design flexibility while maintaining time and cost efficiencies. With our powerful product family, you can create targeted system products that meet your customers' needs for function, price, performance and availability.

Our embedded motherboards are especially appropriate for electronic imaging, industrial automation and communications—providing attractive solutions for many cost-sensitive applications. Choose an off-the-shelf solution, or co-develop a semi-standard product through our OEM service program. We feature the awesome PowerPC microprocessors, along with PCI bus architecture for improved through-put and compatibility with a variety of standard PCI cards.

Key alliances with industry leaders enable us to provide off-the-shelf hardware, firmware, software, adapter and peripheral options. And we even offer higher levels of chipset integration to give you a more compact system, with more of the features you need. Motorola Computer Group works to supply the specific solution you need, without the high cost of custom manufacturing.

PowerPC technology is especially well-suited to high-end applications that depend upon performance and soft-ware support, such as computer-aided design and manufacturing.

**We give you a choice of standard form factors.
So you get a lot of flexible solutions.**

All of our motherboard products are available with PowerPC microprocessors, and can be bought off-the-shelf or may be modified to fit your specifications. We build on various form factors: the Baby AT®, expandable through onboard PCI and ISA slots; the LPX all-in-one form factor, which expands through riser-card PCI and ISA slots; and the Low-Profile form factor, expandable through PCI mezzanine cards (PMC) that can be plugged in horizontally. All are available with various mixes of SCSI, Ethernet, serial and parallel I/O, audio, SVGA graphics and other feature options.

These product lines come together on an emerging form factor, the ATX. This form factor is an evolution of the popular Baby AT, to provide compatibility with the widest array of system designs. ATX provides greater ease of use, a reduction in total system cost, and better support for the I/O and processor technology of today and tomorrow. This advancement mirrors the open-standards revolution driven by the VMEbus, enabling you to build upon a standard mechanical form factor. ATX will open the door to radically different solutions. And Motorola Computer Group will be leading the way.

Our OEM services program and software support put it all together for you.

OEM Program
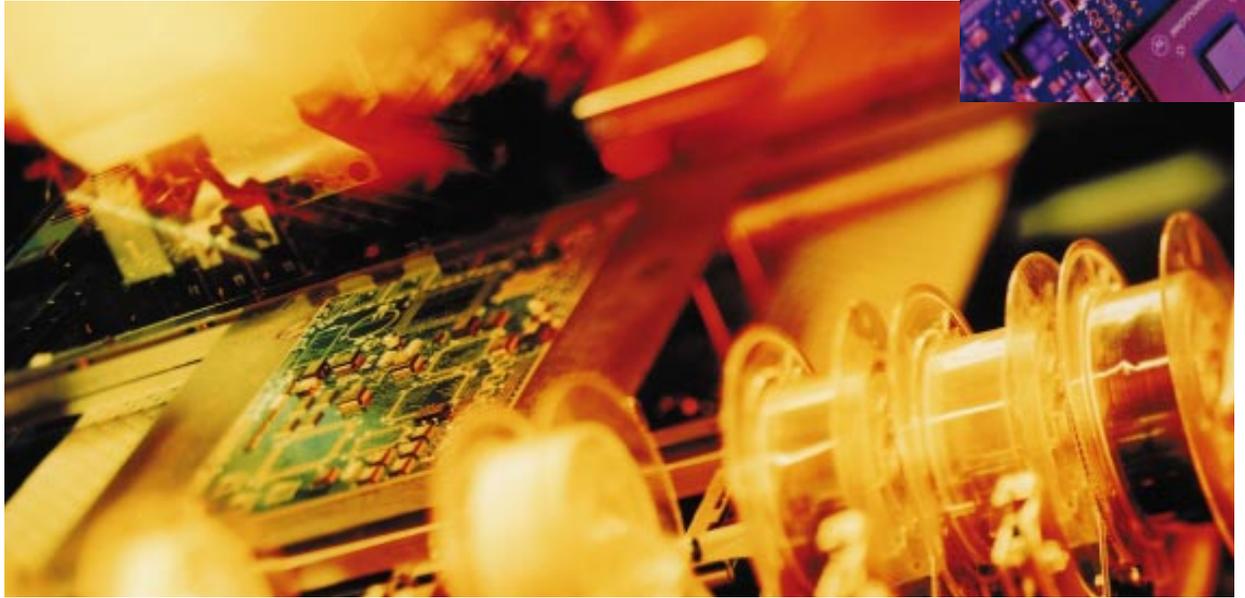
The modularity of our products and our streamlined production capabilities help speed your time-to-market.

Our OEM services program gives you the power of flexibility.

Through our OEM program, you get world-class design expertise, rapid development and volume production—all at a competitive price. We can make minor modifications to standard products, such as front-panel, connector, or marking and labeling changes. Or together we can co-develop a semi-standard product based on elements from our existing portfolio. We'll draw from the same chipsets and form factors that are used in our off-the-shelf solutions, leveraging volume production to give you competitive pricing and the fastest time-to-market.

Manufacturing value is integral to the program. Revision management is designed to keep you on top of changes, because the last thing you need is a surprise. Our electronic data interchange capabilities allow us to trade production information electronically, every step of the way. Plus you get just-in-time delivery coordination, drop shipping, and the option to private-label. As always, we capitalize on our strategic alliances for open firmware, operating environments and middleware. And because of our Six Sigma and ISO 9000 quality standards, we can offer a limited five-year product warranty. Motorola Computer Group applies our extensive experience to your unique requirements. And together, we bring it all to life.

Our software alliances give you the power of choice.

At Motorola Computer Group, we realize that the greatest hardware in the world does you no good without the proper software support. So we've developed key relationships with independent software vendors to give you the solutions you need to develop your product. We offer you standard monitor/debugging firmware and board support packages. Plus open firmware that enables you to replicate plug-and-play functionality, perform basic diagnostics and customize your system environment. And our software developers kits empower you to start using our board products faster and more effectively.

Our alliances with key real-time operating system vendors allow you to choose from VMEexec®, pSOS+™, OS/9™ and OS-9000™, VxWorks™, LynxOS™, and many more. We can also facilitate your embedded requirements for AIX®, Solaris® and Windows NT™. Our flexible embedded software support is just one more way we meet your needs. So you can better meet the demands of your customers.

Conclusion

Motorola Computer Group's unmatched breadth of products makes us the right choice to turn to in the embedded market. Our unbeatable selection of VMEbus and motherboard products are available off-the-shelf or semi-standard to match your requirements. Our design leadership, manufacturing expertise and key software alliances are here to support your efforts to meet customers' needs. And it's all backed by Motorola's legacy of quality and innovation. Motorola Computer Group. Your one right source.

For more information, visit our World Wide Web site at http://www.mot.com/computer/ or call any of the numbers below. For fax-back service, you can also dial Motorola PowerFax at 1-602-GET-INFO (1-602-438-4636) from a touch-tone telephone.

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