

[Home](#) - [CD Index](#) - [Feedback](#)

## Tech Info Library

[Apple Spec DB](#) - [Hard Drives Matrix](#) - [Memory Guide](#) -  
[Parts DB](#) - [Service Manuals](#) - [Software Troubleshooting](#)

[Service Programs Manual Index - U.S.](#) - [Canada](#)

[CompTIA Codes](#) - [Ordering Parts FAQ](#) - [Product Service Matrix](#) - [REAs](#) - [Service Excellence](#)

---

### TITLE

Power Mac G4: Description of Velocity Engine

Article ID: 58427  
Created: 8/31/99  
Modified: 1/5/00

---

### TOPIC

This article describes the Velocity Engine, also known as AltiVec, which is incorporated into the new PowerPC G4 processors in the Power Mac G4 computer.

---

### DISCUSSION

The Velocity Engine can process data in 128-bit chunks, instead of the smaller 32-bit or 64-bit chunks used in traditional processors (it's the 128-bit vector processing technology used in scientific supercomputers--except that we've added 162 new instructions to speed up computations). In addition, it can perform four (in some cases eight) 32-bit floating-point calculations in a single cycle--2-4 times faster than traditional processors.

The PowerPC G4 with Velocity Engine works with the PowerPC architecture to accelerate the data-intensive processing required by next-generation video, voice, and graphics applications. Among the G4 key features is a vector permute function capable of rearranging data in the registers--a priceless benefit when converting data from one format to another (often necessary with voice, video and graphics apps, which typically need to save data in a number of different formats). These vector processing acceleration advantages give the G4 microprocessor a significant edge when it comes to fast visualization of large data sets, and intensive math for real-time simulations. Making the G4 perfect for everything from graphics and 3D games to astronomy, the biosciences, and predictive modeling.

For an in-depth discussion of the technology, refer to the Motorola Web page on AltiVec at <http://www.mot.com/SPS/PowerPC/AltiVec/index.html>.

---

**EXTENDED Information** - [Apple Internal Use](#) - [Service Providers and Support Professional](#)

---

#### Document Information

Product Area: Power Mac G4  
Category: Power Mac G4 Hardware  
Sub Category: Specifications

---

APPLE NEED-TO-KNOW CONFIDENTIAL: Do NOT forward, copy, or otherwise replicate or disseminate verbally, electronically, or in hardcopy (except to those individuals within your organization who have a legitimate business need to know the information, and who have agreed in writing, to keep it confidential), unless Apple has given prior written authorization.  
Copyright © 1999-2000, Apple Computer, Inc.